GW - 1

MONITORING REPORTS

DATE:

2003

GROUNDWATER REMEDIATION MONITORING REPORT
Annual Report 2002

APRIL 2003

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ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

Submitted To:

New Mexico Oil Conservation Division
Environmental Bureau
1220 South Francis Drive
Santa Fe, New Mexico 87505

Prepared by:

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EXECUTIVE SUMMARY

San Juan Refining Company (SJRC), a wholly owned subsidiary of Giant Industries, Inc., is submitting this Groundwater Remediation Monitoring Report as per the request from NMOCD as stated in their Conditions of Approval letters dated December 30, 2002. This report will provide a summary of soil and groundwater remediation and monitoring activities that occurred in 2002.

Due to the late date of arrival of the NMOCD conditions of approval, the information provided in this initial report will need to be updated in subsequent reports.

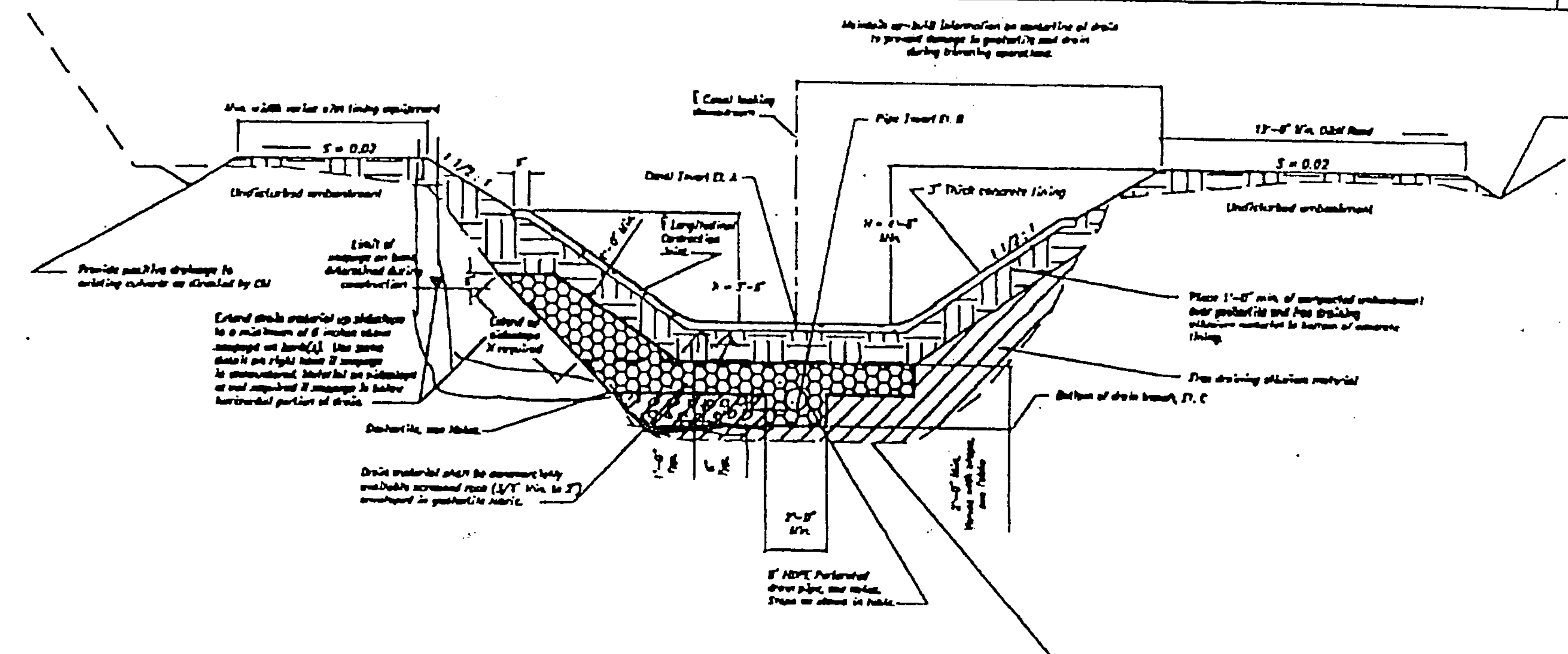
The Hammond Ditch French Drain Recovery System (HDFDRS) was constructed and implemented by the end of February 2002. This system allows for a large volume of contaminants to be captured in the French drain and to then be pumped back to the refinery's wastewater treatment system. Attachment A shows the as-built drawings of the collection system from the Hammond Ditch French Drain to the API Separator. Attachment B shows the monitored flow rates from the French Drain Collection Tank (Tank #37) to the API Separator. Some soil and water analysis associated with HDFDRS are located in Attachments C and F.

SJRC conducted annual groundwater monitoring and sampling in August 2002. Attachments C through F show the pertinent data requested. Throughout 2002 refinery personnel took water level and SPH thickness measurements using the traditional 12" method. That data is referenced in Attachment E. NMOCD in a December 2002 meeting and in the above mentioned letter requested a more specific 1/100 of an inch measurement, which has been implemented as SJRC standard.

The objective of SJRC's abatement plan is to prevent migration and ultimately eliminate the hydrocarbon plume under the refinery. Samples taken from the piezometers located north of the sheet piling and slurry wall, installed between the refinery and the San Juan River show no migration of SPH past this barrier. The pump and treat system that was already in place has been enhanced with the addition of the HDFDRS. Review of sample results indicate that many monitoring and recovery wells are trending toward lower contaminant levels.

Future remedial action will include converting several monitoring wells into recovery wells. Monitoring activities will be improved with the addition of (two) new wells located north of Hammond Ditch, and the re-work of Seep #5. These improvements will take the place of the questionable seep sample points on the bluff.

06-938



TYPICAL UNDERDRAIN SECTION
WITH GROUNDWATER SEEPING FROM EXISTING CANAL BANK

TABLE OF LOCATIONS AND ELEVATIONS

BEGIN STATION	END STATION	DRAIN SLOPE	LINING ELEV. A	PIPE ELEV. B	DRAIN ELEV. C	DRAIN LENGTH	NOTES ON DRAIN OUTLET
715+85		- 0.00085	5498.70	5493.85	5493.19	1287	
	728+32	- 0.00085	5498.50	5493.07	5492.77		TO EXISTING CULVERT AND FUTURE GIANT PUMP SUMP
728+32		+ 0.0009	5498.80	5493.03	5492.37	869	TO EXISTING CULVERT AND FUTURE GIANT PUMP SUMP
	737+01	+ 0.0009	5498.14	5493.30	5492.80		
737+37		- 0.0005	5498.08	5493.51	5493.01	153	TO FUTURE GIANT PUMP SUMP
	738+90	- 0.0006	5498.36	5493.13	5492.03		
738+90		+ 0.0005	5498.85	5493.63	5492.83	246	TO FUTURE GIANT PUMP SUMP
	741+36	+ 0.0006	5498.31	5493.58	5493.06		

NOTES

For Plan and Profile of new concrete lining, see Drawings 343-106-811 through 817.

For Typical Concrete Lining Sections and Details, see Drawings 343-106-882.

Perforated pipe shall be ADS N-12 with smooth interior or equal.

Geotextile is used to prevent migration of fines from existing bank into drain system. Geotextile shall be Mirafi 600X or equal.

Extend drains to corrugated metal culvert pipes that were installed by NCD in [illegible] reaches of canal. Use nonperforated HDPE or PVC pipe from drain pipe through CMPs to drain outlet locations established by NCD and Giant Refinery. Drain outlets shall be monitored for water quality and any contaminated water shall be treated by Giant Refinery in accordance with the agreement.

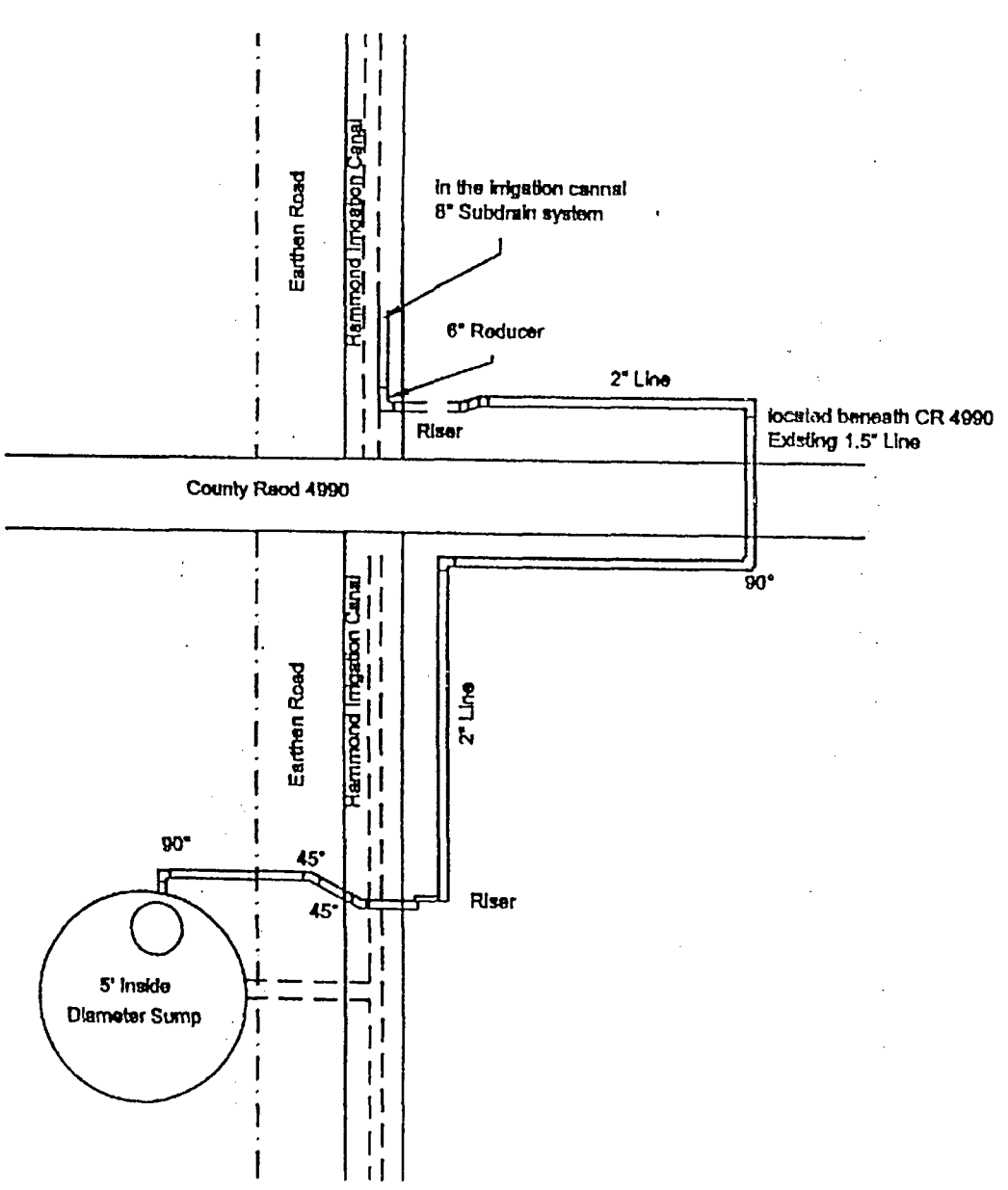
Fill annulus of CMPs with flowable grout to reduce flow between drain pipe and CMP.

Where concrete paved transitions are to be constructed, extend drain material beyond stations shown in table to existing structures to provide drainage under hard-placed transitions.

SAFETY

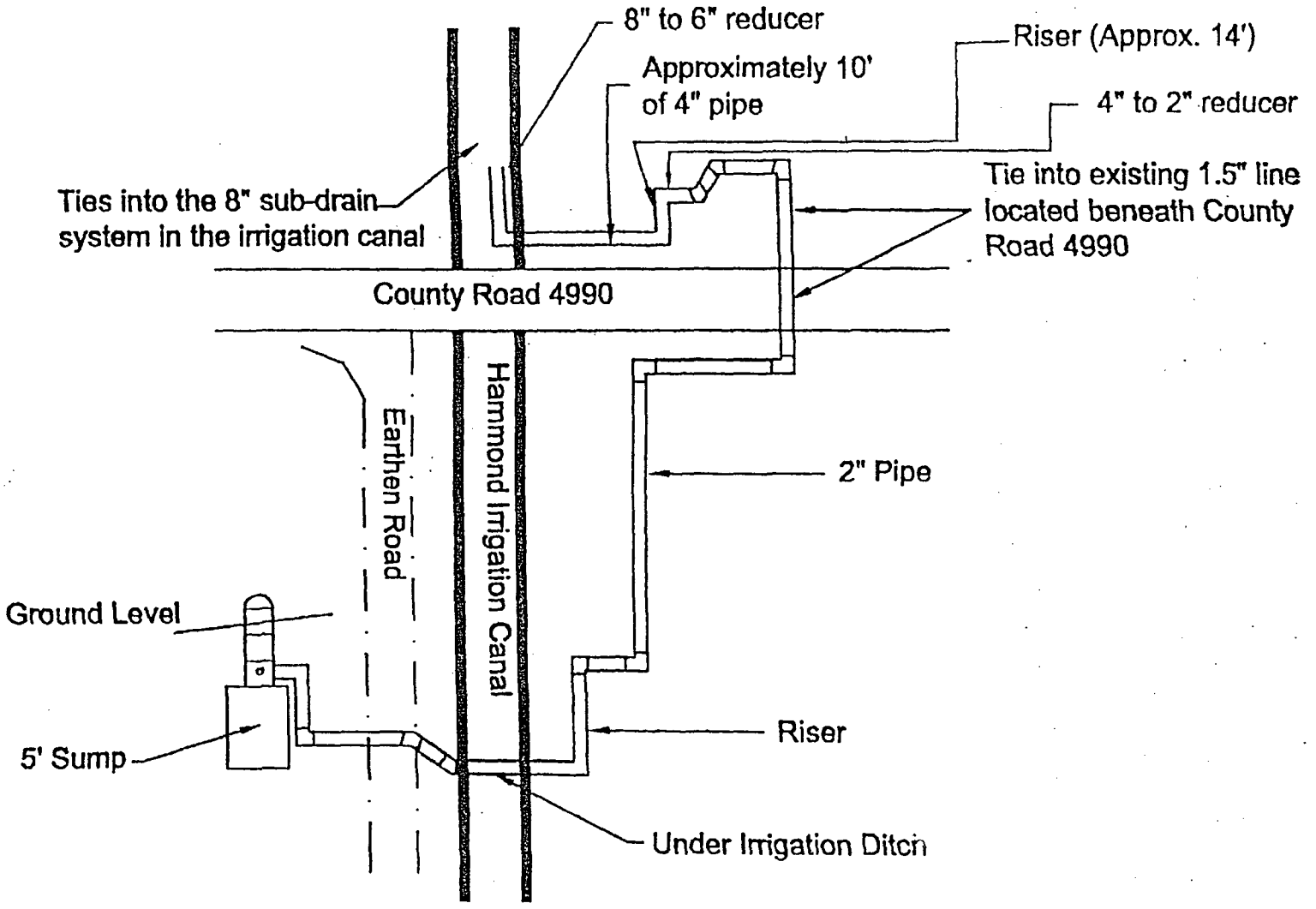
MAIN CANAL (REACH NS5/45)
Sta. 687+44 to Sta. 737+01
TYPICAL UNDERDRAIN SECTIONS
AND DETAILS

The 5' I.D. sump collects water from a perforated 6" sub-drain beneath the irrigation canal. The water is pumped from the sump into the 2" line located approximately 2' beneath the irrigation canal and approximately 4' beneath ground surface of the ditch bank on each side of the canal.



The 8" sub-drain north of CR 4990 receives the groundwater from the south collection system. From the sub-drain an 8" to 6" reducer is used. At the next 90° (detailed on the side view) a 6" to 4" reducer followed by a 4" line approximately 10' in length is used. A 4" riser approximately 14' in height brings the line to the elevation needed to connect to the existing 1.5" line. A 4" to 2" reducer followed by a 2" line connects the 4" riser to the 1.5" line beneath the road.

Giant Groundwater Collection System Bloomfield, New Mexico	amec	South Collection System - Top View	Figure No. 1

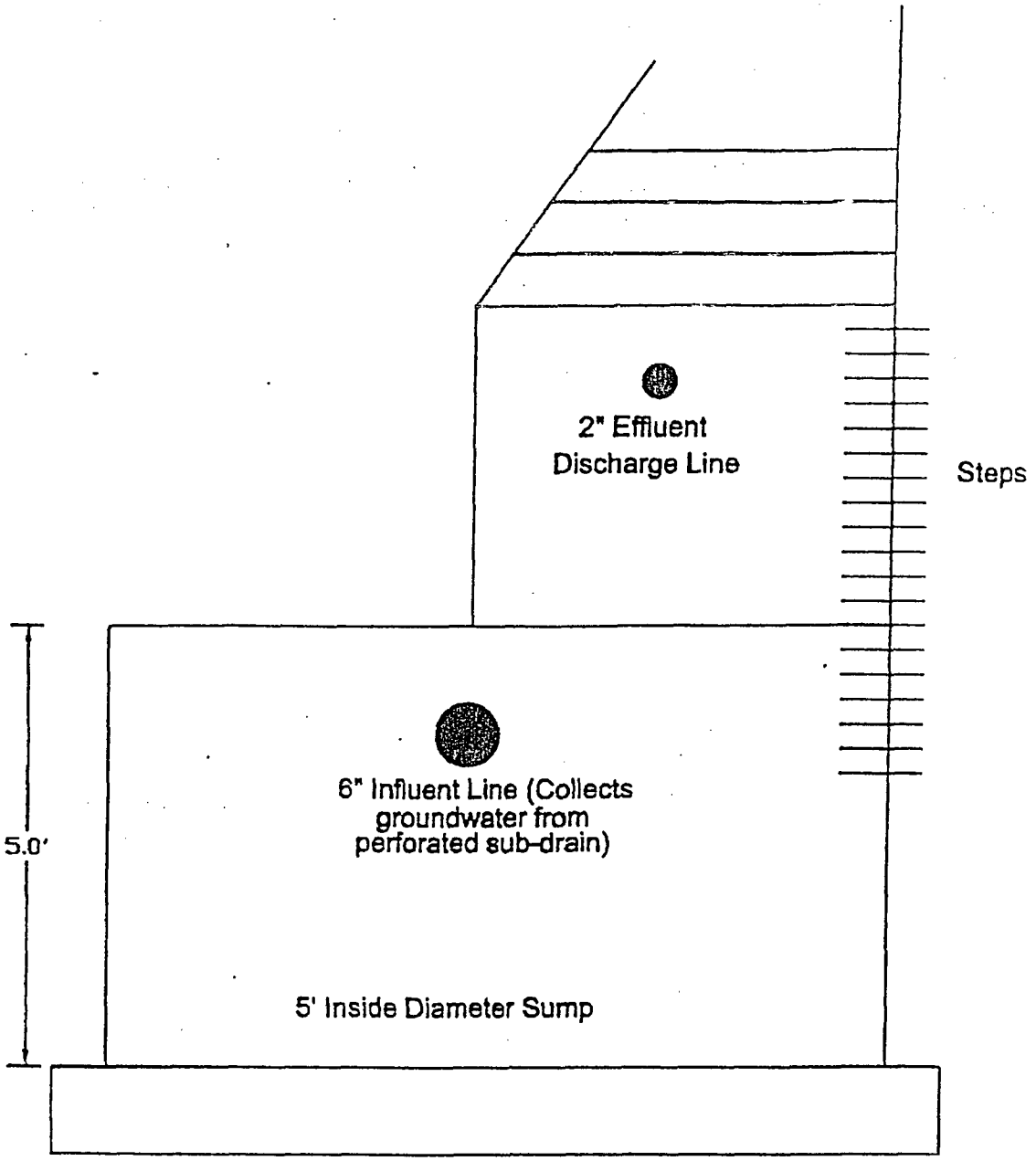


Giant Groundwater Collection System
Bloomfield, New Mexico

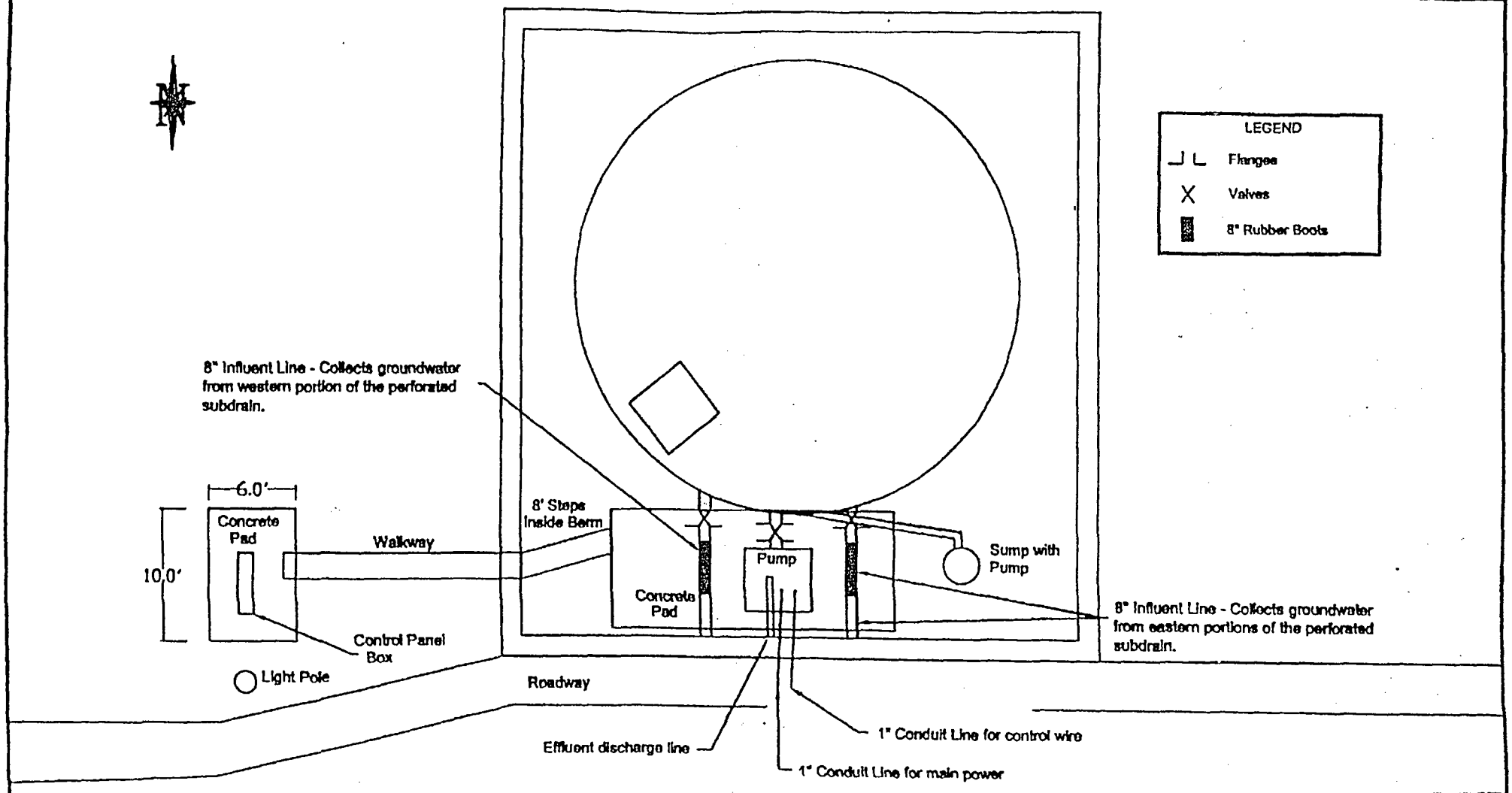
amec

South Collection System

Figure No. 2

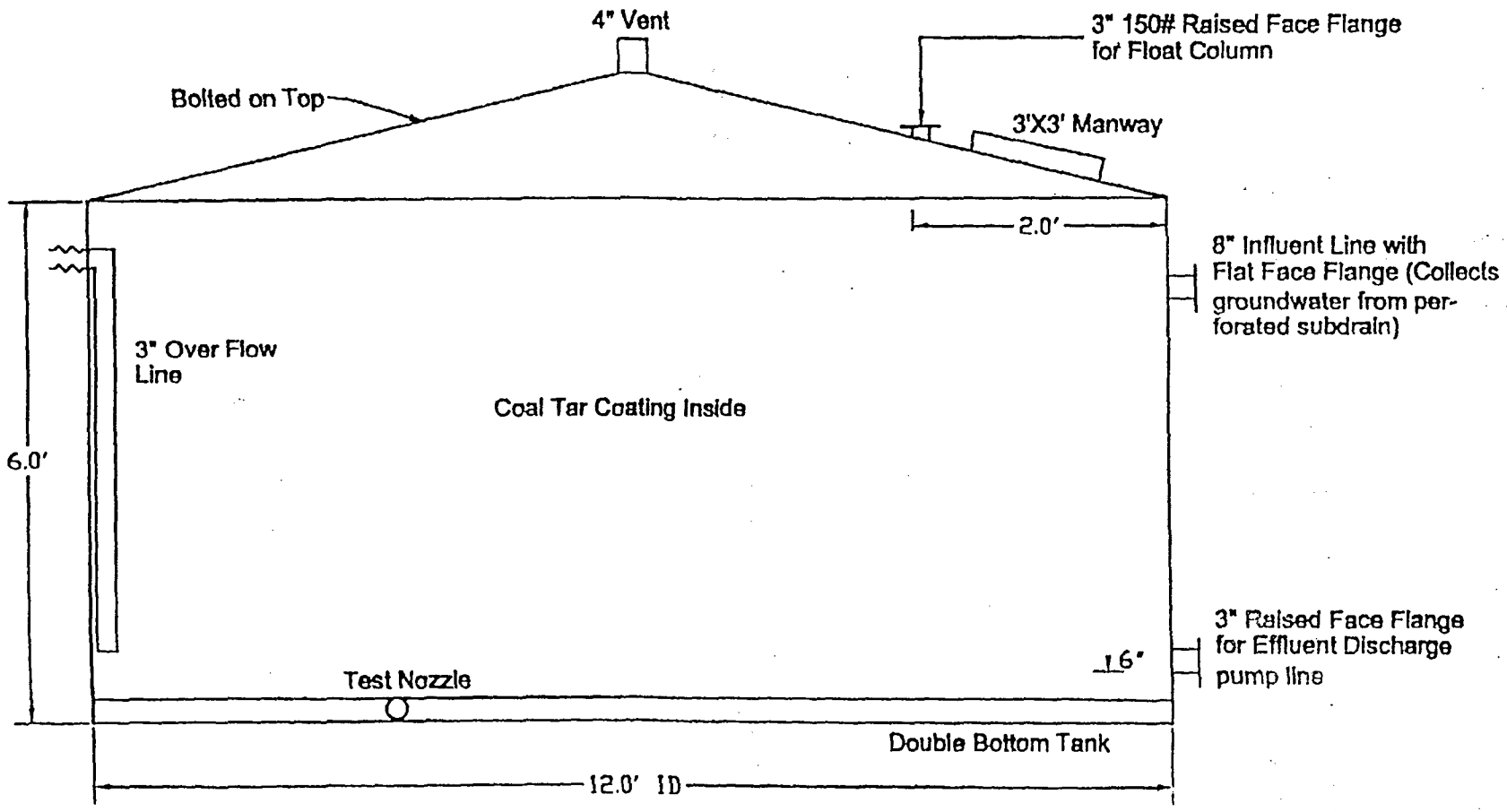


Giant Groundwater Collection System Bloomfield, New Mexico AMEC Project No. 2-517-000001	amec 8519 Jefferson NE Albuquerque, New Mexico 87113	**South Collection System Tank** Date Drawn: 8 July 2002 Drawn By: RJT Checked By: LW	Figure No. 3

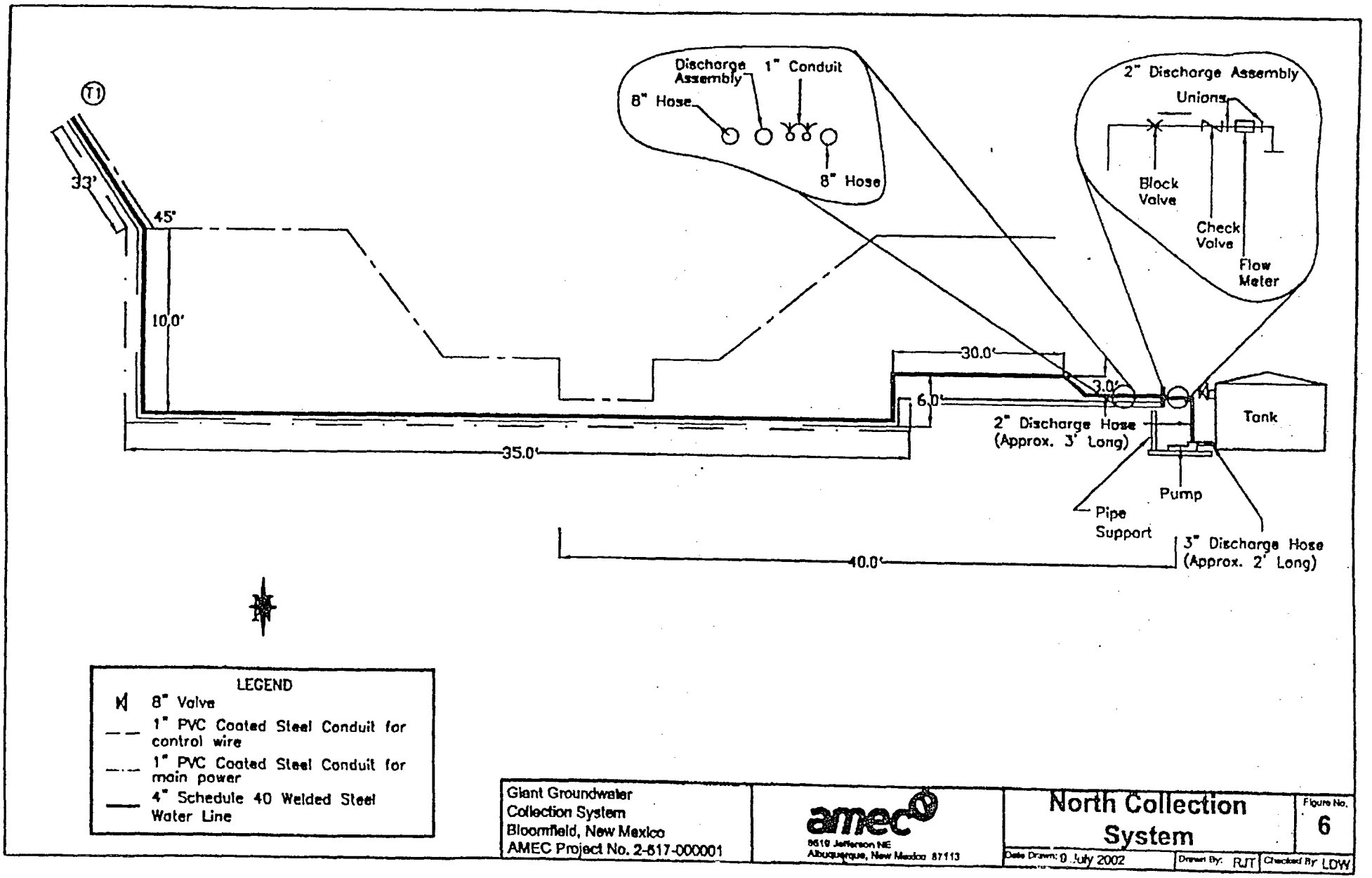


The tank collects groundwater from the two 8" influent lines connected to the perforated sub-drain beneath the irrigation canal. The water is pumped to a 4" welded steel line beneath the road canal, and up the embankment south of the tank.

Giant Groundwater Collection System Bloomfield, New Mexico AMEC Project No. 2-517-000001	amec 8519 Jefferson NE Albuquerque, New Mexico 87113	North Collection System	Figure No. 4



Giant Groundwater Collection System Bloomfield, New Mexico AMEC Project No. 2-517-000001	amec 8519 Jefferson NE Albuquerque, New Mexico 87113	North Collection System Tank Date Drawn: 8 July 2002 Drawn By: RJT Checked By: LW	Figure No 5



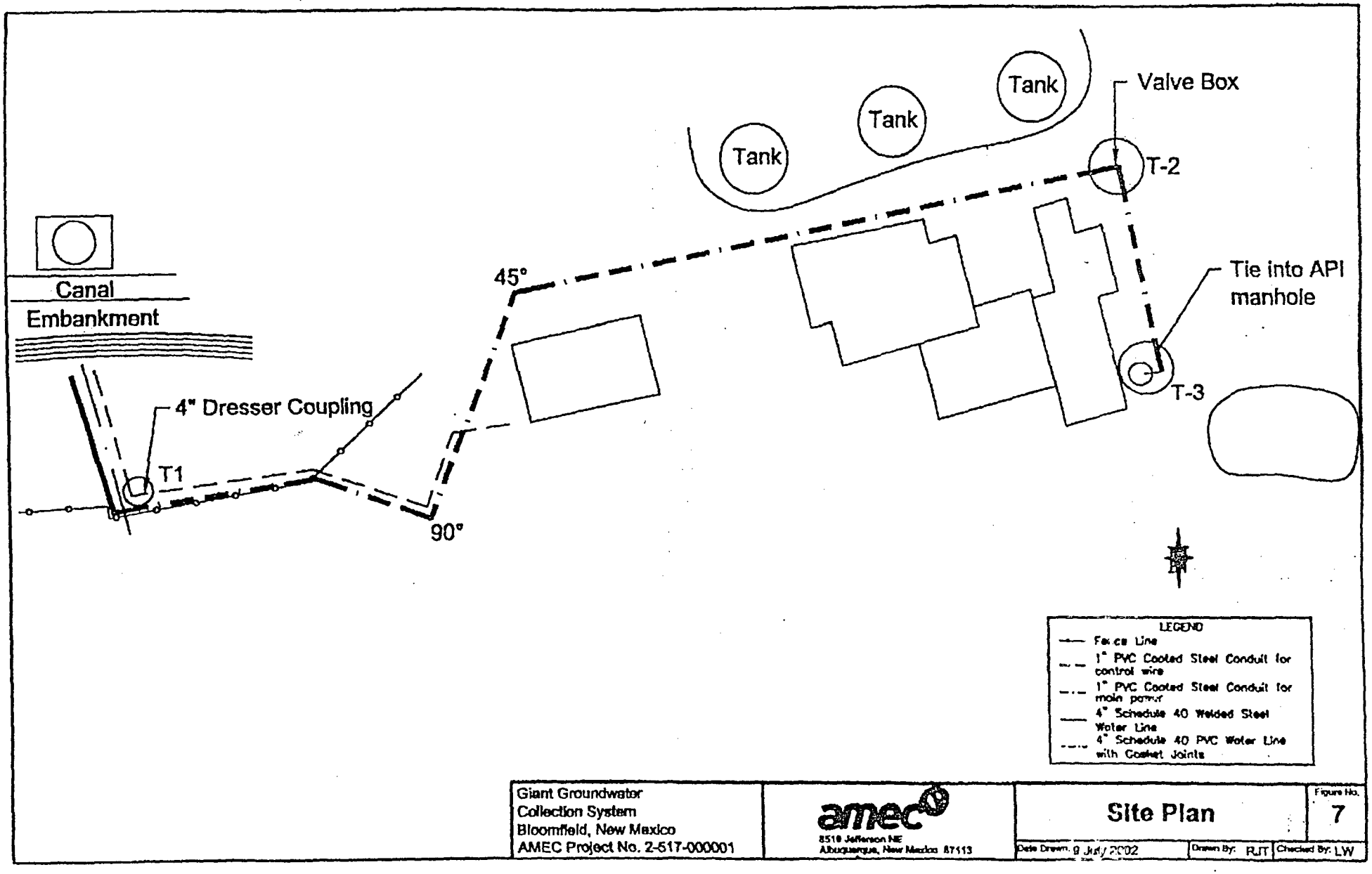
Giant Groundwater Collection System
Bloomfield, New Mexico
AMEC Project No. 2-517-000001

amec
5619 Jefferson NE
Albuquerque, New Mexico 87113

North Collection System

Figure No. 6

Date Drawn: 0 July 2002 | Drawn By: RJT | Checked By: LDW



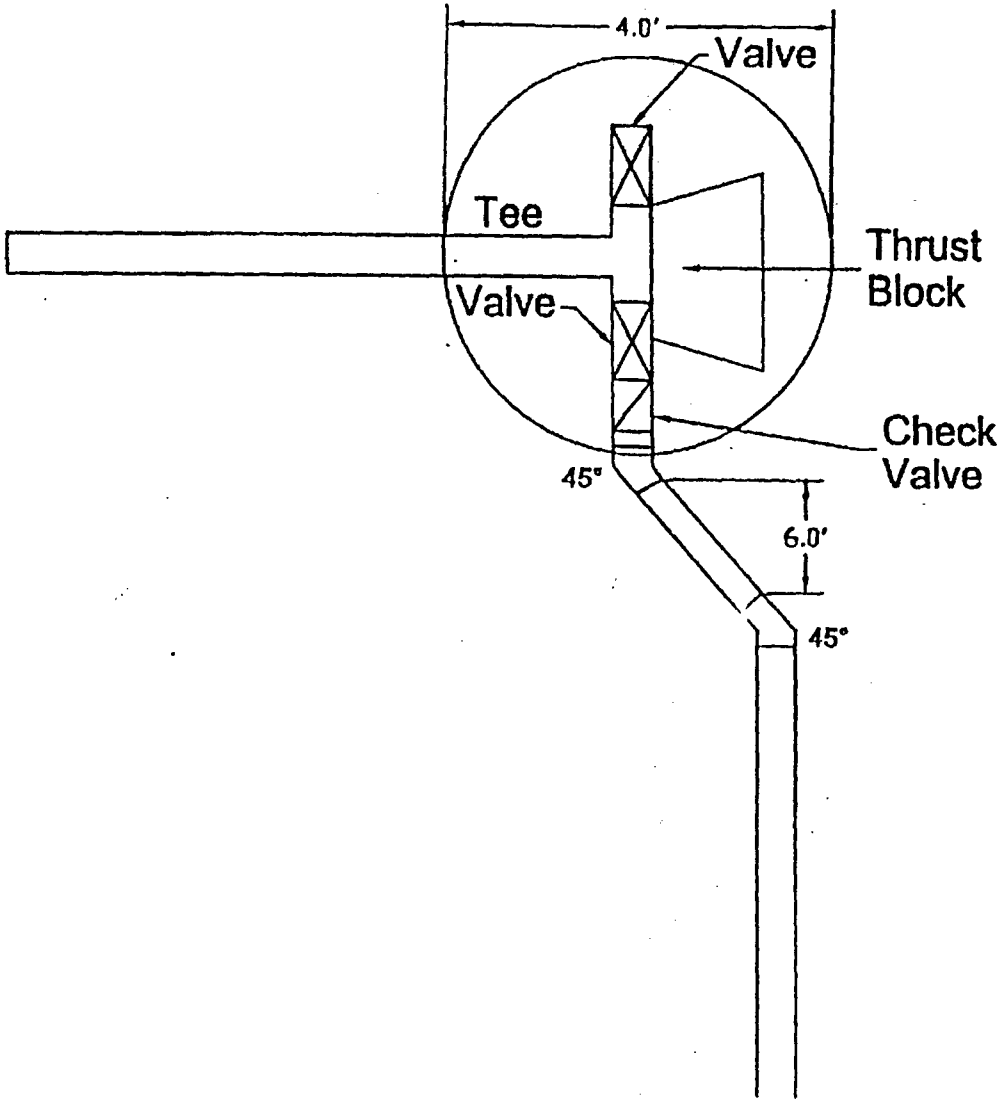
Giant Groundwater Collection System
Bloomfield, New Mexico
AMEC Project No. 2-517-000001

amec
8519 Jefferson NE
Albuquerque, New Mexico 87113

Site Plan

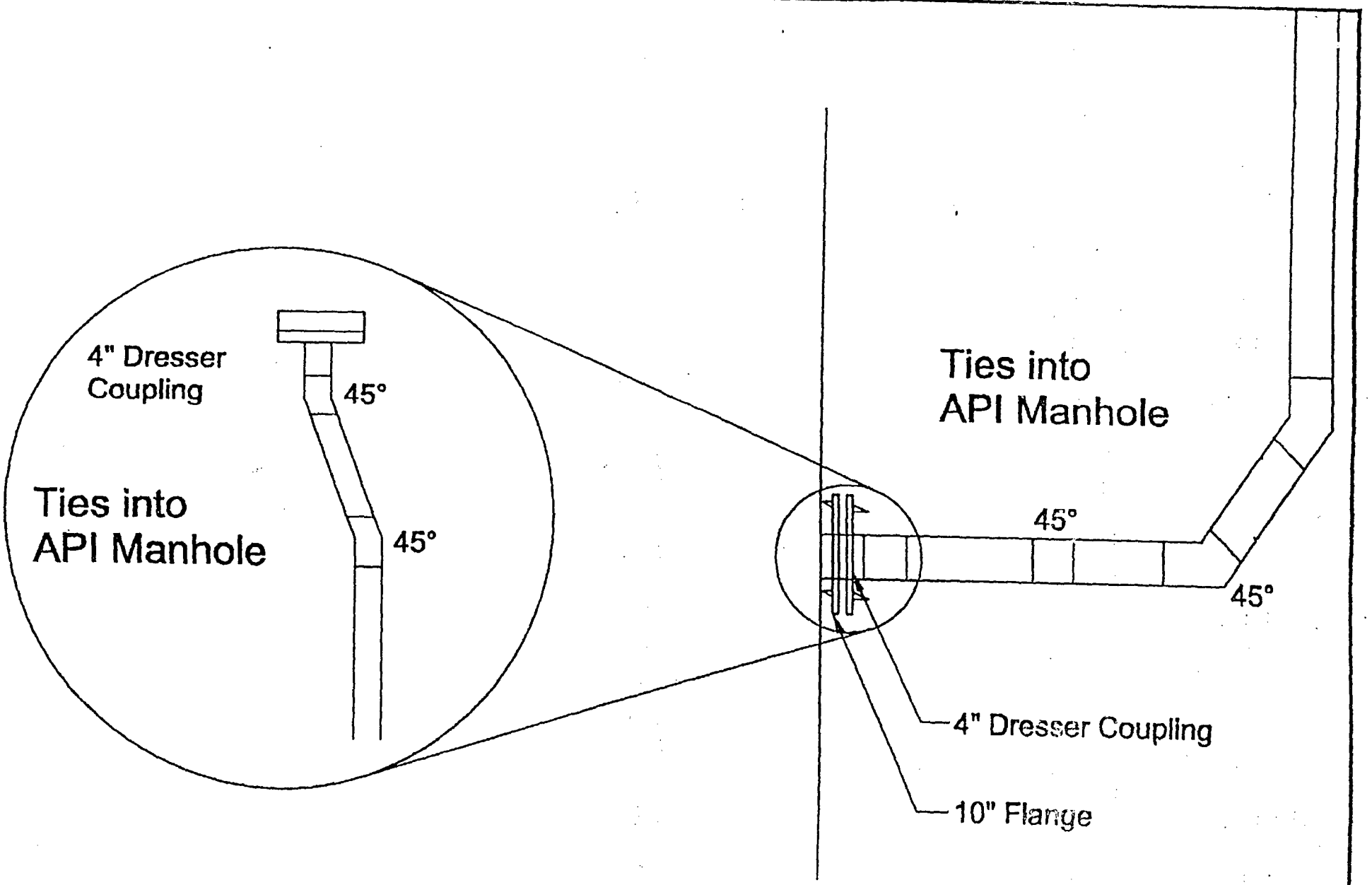
Figure No. 7

Date Drawn: 9 July 2002 | Drawn By: RJT | Checked By: LW



Inside Diameter of valve can is 4.0'. Height of valve can is 5.0' with 4.0' beneath ground surface and 1' above.

Giant Groundwater Collection System Bloomfield, New Mexico AMEC Project No. 2-517-000001	amec 8519 Jefferson NE Albuquerque, New Mexico 87113	Site Plan - T2 Date Drawn: 8 July 2002	Figure No. 8

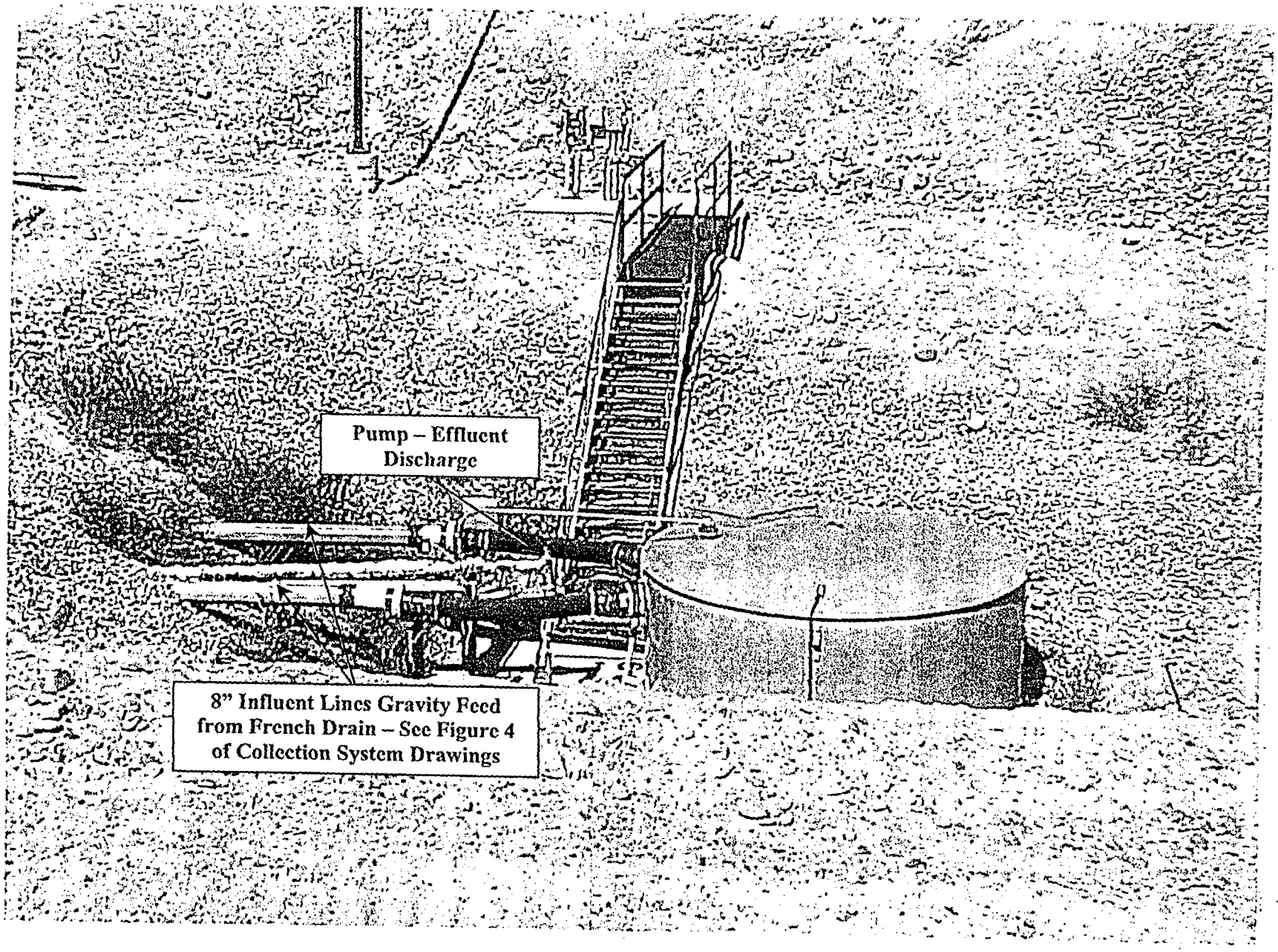


Giant Groundwater
Collection System
Bloomfield, New Mexico
AMEC Project No. 2-517-000001

amec
8519 Jefferson NE
Albuquerque, New Mexico 87111

Site Plan - T3

Figure No
9



Recovery Tank 37

TANK #37 METER READINGS 2002						
Date	Time	Hours	Reading	Gallons	Flow Rate(gal/min)	
2/26/02	2:40 PM		12600			
2/27/02	7:14 AM	16.50	20900	8300	8.4	
2/28/02	7:52 AM	24.50	30500	9600	6.5	
3/1/02	6:42 AM	23.00	40200	9700	7.0	
3/4/02	7:00 AM	72.00	69100	28900	6.7	
3/12/02	1:20 PM	198.50	150700	81600	6.9	
3/25/02	9:13 AM	308.00	245800	95100	5.1	
4/4/02	9:15 AM	240.00	303900	58100	4.0	
4/9/02	7:00 AM	120.00	333200	29300	4.1	
4/15/02	11:00 AM	148.00	367400	34200	3.9	
4/17/02	11:25 AM	48.50	378100	10700	3.7	
4/22/02	9:49 AM	118.00	403900	25800	3.6	
4/25/02	9:00 AM	72.00	418500	14600	3.4	
4/29/02	7:15 AM	94.00	436300	17800	3.2	
5/2/02	8:30 AM	74.00	451000	14700	3.3	
5/10/02	8:00 AM	192.00	484400	33400	2.9	
5/13/02	12 NOON	76.00	494700	10300	2.3	
5/14/02	9:20 AM	21.50	499400	4700	3.6	
5/20/02	10:00 AM	143.50	521100	21700	2.5	
5/23/02	1:21 PM	75.50	531600	10500	2.3	
5/28/02	9:20 AM	116.00	547300	15700	2.3	
5/31/02	7:40 AM	70.50	555400	8100	1.9	
6/3/02	7:15 AM	71.50	565600	10200	2.4	
6/4/02	7:00 AM	24.00	568500	2900	2.0	
6/6/02	7:00 AM	24.00	573900	5400	3.8	
6/7/02	7:00 AM	24.00	575800	1900	1.3	
6/10/02	7:35 AM	72.50	583600	7800	1.8	
6/11/02	7:35 AM	24.00	587300	3700	2.6	
6/13/02	7:40 AM	48.00	593000	5700	2.0	
7/9/02	7:20 AM	624.00	653300	60300	1.6	
7/10/02	11:30 AM	28.00	655000	1700	1.0	***CLOSED
7/12/02	7:45 AM	44.00	659000	4000	1.5	
7/15/02	7:40 AM	72.00	665700	6700	1.6	
7/16/02	10:00 AM	26.50	668100	2400	1.5	
7/18/02	7:30 AM	45.50	671900	3800	1.4	
7/22/02	8:00 AM	96.50	678100	6200	1.1	
7/29/02	7:20 AM	167.50	690900	12800	1.3	
7/31/02	7:00 AM	47.50	694800	3900	1.4	
8/6/02	7:50	144.00	705300	10500	1.2	
8/12/02	7:20 AM	144.00	714500	9200	1.1	
8/13/02	9:30 AM	26.00	716000	1500	1.0	***OPEN
8/15/02	7:30 AM	46.00	718700	2700	1.0	
8/21/02	7:15 AM	144.00	721700	3000	0.3	**METER BROKEN

***FLOW METER DETERIORATED THROUGH CONTACT WITH HYDROCARBONS
REPLACED OCTOBER 10,2002

TANK #37 METER READINGS 2002						
Date	Time	Hours	Reading	Gallons	Flow Rate(gal/min)	
10/11/02	8:00AM		34.9			
10/16/02	7:30AM	119.50	124.4	3759	0.5	
10/22/02	12:30PM	149.00	301.5	7438.2	0.8	
10/25/02	9:30AM	69.00	386.9	3586.8	0.9	
10/28/02	10:00AM	72.50	478.6	3851.4	0.9	
10/31/02	2:30PM	76.50	581.8	4334.4	0.9	
11/4/02	10:30AM	92.00	757.4	7375.2	1.3	
11/19/02	10:30AM	360.00	1742.7	41382.6	1.9	
11/25/02	10:30AM	144.00	2185.1	18580.8	2.2	
12/2/02	11:OOAM	168.50	2597.6	17325	1.7	
12/6/02	9:00AM	94.00	2800.7	8530.2	1.5	
12/11/02	9:00AM	125.00	3010.2	8799	1.2	
12/16/02	1:00PM	124.00	3190.3	7564.2	1.0	
12/23/02	11:00AM	166.00	3500.5	13028.4	1.3	
12/30/02	9:45AM	167.00	3661.3	6753.6	0.7	*****

***NEW METER READING IS IN BARRELS - EXCEL CONVERTS TO GALLONS

*****PUMP BROKE DOWN - BACK IN SERVICE ON 1-10-03

SUMMARY TABLES ANNUAL REPORT 2002

MONITORING WELL #1

DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm naphthalene	ppm total xylene	mg/L sulfate	mg/L Iron	mg/L NO3	mg/L D.O.	umhos E.C.
Apr-99	0.003	ND	0.003		0.03					
Oct-99	ND	ND	ND	ND	ND			ND		
Sep-00	ND	ND	ND	ND	ND	130		1.4		
Sep-01	ND	ND	ND	ND	ND					
Aug-02	0.001	ND	0.001	0.002	0.012			2.1	2.8	795

MONITORING WELL #3

DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm naphthalene	ppm total xylene	mg/L sulfate	mg/L Iron	mg/L NO3	mg/L D.O.	umhos E.C.
Apr-99	0.005	ND	0.005		0.029					
Oct-99	ND	0.001	ND	ND	ND			15.5		
Sep-00	ND	ND	ND	ND	ND	980		41		
Sep-01	ND	ND	ND	ND	ND					
Aug-02	ND	ND	ND	ND	0.003			14.5	4.8	7358

MONITORING WELL # 4

DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm naphthalene	ppm total xylene	mg/L sulfate	mg/L Iron	mg/L NO3	mg/L D.O.	umhos E.C.
Apr-99	8.9	ND	0.6		0.33					
Oct-99	8.7	ND	0.76	0.18	0.93			ND		
Sep-00	9.1	ND	0.85	ND	ND	ND		ND		
Sep-01	6.5	ND	0.51	0.16	0.52					
Aug-02	6.5	0.088	1.6	0.41	12			ND	2.8	3222

MONITORING WELL #8

DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm naphthalene	ppm total xylene	mg/L sulfate	mg/L Iron	mg/L NO3	mg/L D.O.	umhos E.C.
Apr-99	0.002	ND	0.002		0.023					
Oct-99	ND	0.001	ND	ND	ND	286	ND	3.1		
Sep-00	ND	ND	ND	ND	ND	830	0.07	12		
Sep-01	ND	ND	ND	ND	ND	760	0.31	7.5	13.1	1910
Aug-02	ND	ND	ND	ND	0.002	970	1.5	8.2	3.8	3263

MONITORING WELL #9

DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm naphthalene	ppm total xylene	mg/L sulfate	mg/L Iron	mg/L NO3	mg/L D.O.	umhos E.C.
Apr-99	18	0.69	1		6.3					
Oct-99	16	0.11	0.87	ND	5.45			0.7		
Sep-00	15	0.26	0.94	0.51	4.74	13.6		ND		
Sep-01	8.3	1.5	0.82	0.15	5					
Aug-02	10	5.2	1.9	0.48	7.5			ND	ND	2716

MONITORING WELL #11

DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm naphthalene	ppm total xylene	mg/L sulfate	mg/L Iron	mg/L NO3	mg/L D.O.	umhos E.C.
Apr-99	2.7	ND	0.33		8.9					
Oct-99	0.91	0.002	0.087	0.022	1.3		14	ND		
Sep-00	0.25	ND	0.015	ND	0.16	46	15.3	ND		
Sep-01	4.2	ND	0.22	0.093	2.7	ND	16	14	13.9	2130
Aug-02	9.1	ND	0.23	ND	1.7	ND	10	5.9	1.1	2140

MONITORING WELL #12

DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm naphthalene	ppm total xylene	mg/L sulfate	mg/L Iron	mg/L NO3	mg/L D.O.	umhos E.C.
Apr-99	0.023	ND	0.005		0.13					
Oct-99	0.023	0.002	0.004	ND	0.069			ND		
Sep-00	0.01	ND	0.002	0.002	0.031	2100		ND		
Sep-01	ND	ND	ND	ND	ND					
Aug-02	ND	ND	0.001	ND	0.01			0.7	3.4	3010

MONITORING WELL #27

DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm naphthalene	ppm total xylene	mg/L sulfate	mg/L Iron	mg/L NO3	mg/L D.O.	umhos E.C.
Apr-99	ND	ND	ND		0.028					
Oct-99	0.056	ND	0.048	ND	0.44			ND		
Sep-00	0.018	ND	0.01	0.05	0.064	49		ND		
Sep-01	0.009	0.002	0.001	0.003	0.005					
Aug-02	ND	ND	ND	ND	0.017			2.8	1.5	2825

MONITORING WELL #34

DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm naphthalene	ppm total xylene	mg/L sulfate	mg/L Iron	mg/L NO3	mg/L D.O.	umhos E.C.
Apr-99	0.11	ND	0.006		0.08					
Oct-99	0.071	ND	0.007	0.067	0.12	80.2	0.73	ND		
Sep-00	0.14	ND	0.017	0.047	0.085	55	5.72	ND		
Sep-01	0.077	ND	0.011	0.056	0.076	ND	7.1	6.9	4.2	2020
Aug-02	0.044	ND	ND	0.034	ND	9.1	9.6	8.2	3.8	3263

MONITORING WELL #35

DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm naphthalene	ppm total xylene	mg/L sulfate	mg/L Iron	mg/L NO3	mg/L D.O.	umhos E.C.
Apr-99	0.006	ND	ND		0.059					
Oct-99	0.002	ND	ND	ND	0.014	18	0.12	0.8		
Sep-00	0.021	ND	0.005	0.01	0.1	120	2.77	ND		
Sep-01	0.002	ND	ND	0.004	0.015	27	12	10	6.9	2170
Aug-02	0.01	ND	0.002	0.032	0.052	28	9.3	1.1	2.1	1923

MONITORING WELL #36

DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm naphthalene	ppm total xylene	mg/L sulfate	mg/L Iron	mg/L NO3	mg/L D.O.	umhos E.C.
Apr-99	ND	ND	ND		0.054					
Oct-99	ND	ND	0.005	0.009	0.075			ND		
Sep-00	0.008	ND	0.015	0.015	0.15	90		ND		
Sep-01	0.002	ND	0.001	0.01	0.052					
Aug-02	ND	ND	ND	0.024	0.08			ND	2.4	1386

RECOVERY WELL #15

Date SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm naphthalene	ppm total xylene	mg/L sulfate	mg/L Iron	mg/L NO3	mg/L D.O.	umhos E.C.
Apr-99	14	25	6.9		35.4					
Oct-99	7.4	9.2	2.7	0.59	17.1		23.8	ND		
Sep-00	7.6	14	3.3	0.89	14	2.26	3.42	ND		
Sep-01	9	17	4.4	0.82	25	ND	5.7	4.2	6.3	2900
Aug-02	12	19	3.8	0.58	22	50	5.2	4.9	2	3940

RECOVERY WELL #17

Date SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm naphthalene	ppm total xylene	mg/L sulfate	mg/L Iron	mg/L NO3	mg/L D.O.	umhos E.C.
Aug-02	1.9	ND	1.3	1.4	11					

SEEP #2

DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm naphthalene	ppm total xylene	mg/L sulfate	mg/L Iron	mg/L NO3	mg/L D.O.	umhos E.C.
Sep-01	0.028	ND	0.003	0.009	0.016					
Aug-02	UNABLE TO SAMPLE - NO WATER (DRY) IN SEEP									

SEEP #3

DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm naphthalene	ppm total xylene	mg/L sulfate	mg/L Iron	mg/L NO3	mg/L D.O.	umhos E.C.
8/29/02	0.57	0.33	0.17	0.097	0.87			ND	6.8	2348

SEEP #5

DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm naphthalene	ppm total xylene	mg/L sulfate	mg/L Iron	mg/L NO3	mg/L D.O.	umhos E.C.
Apr-99	0.056	ND	0.01		0.33					
Oct-99	0.008	ND	0.002	0.012	0.23					
Sep-00	ND	ND	ND	0.011	0.024					
Sep-01	0.015	ND	0.001	0.029	0.21					
Aug-02	UNABLE TO SAMPLE - NO WATER (DRY) IN SEEP									

PIEZOMETER #4

DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm naphthalene	ppm total xylene	mg/L sulfate	mg/L Iron	mg/L NO3	mg/L D.O.	umhos E.C.
Dec-02	5.9	ND	4.3	0.42	13					

PIEZOMETER #5

DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm naphthalene	ppm total xylene	mg/L sulfate	mg/L Iron	mg/L NO3	mg/L D.O.	umhos E.C.
Dec-02	1.4	ND	4	0.57	20					

***** FOOTNOTES *****

ND : No Determination of Compounds (No Detection)

HAMMOND DITCH ANALYSIS

HAMMOND - WEST OF CR 4990 - SOIL

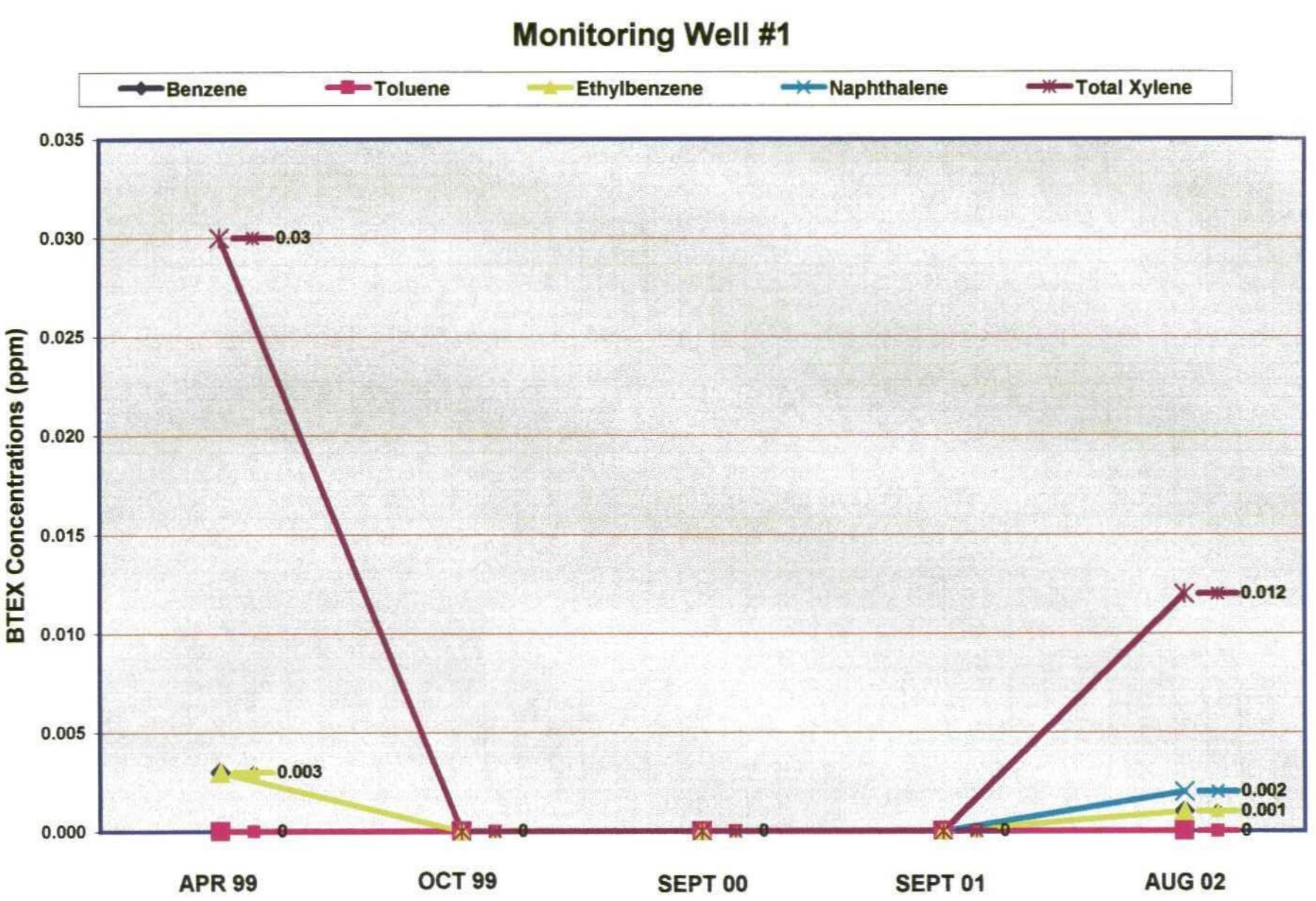
LOCATION	DATE SAMPLED	MG/KG benzene	MG/KG toluene	MG/KG ethylbenzene	MG/KG naphthalene	MG/KG total xylene	MG/KG TPH
#1 Hammond Bank	Jan-02	2.6	3.3	11		130	3400
#2 Hammond Bank	Jan-02	ND	0.065	0.22		2.2	250
#1 Ditch	Jan-02	ND	ND	ND		0.056	<20
#2 Ditch	Jan-02	0.038	ND	0.065		1.5	21

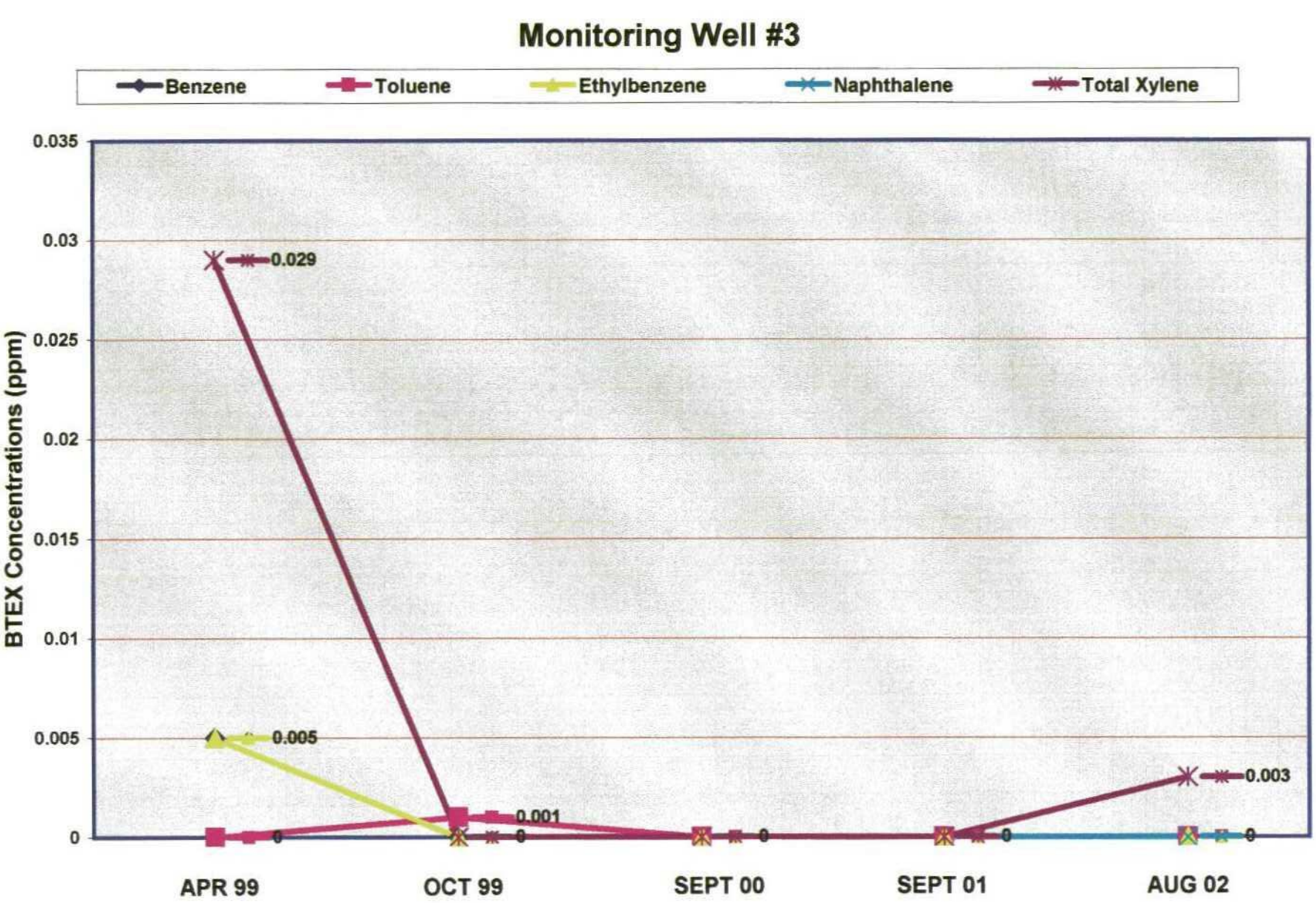
HAMMOND - WEST OF CR 4990 - WATER

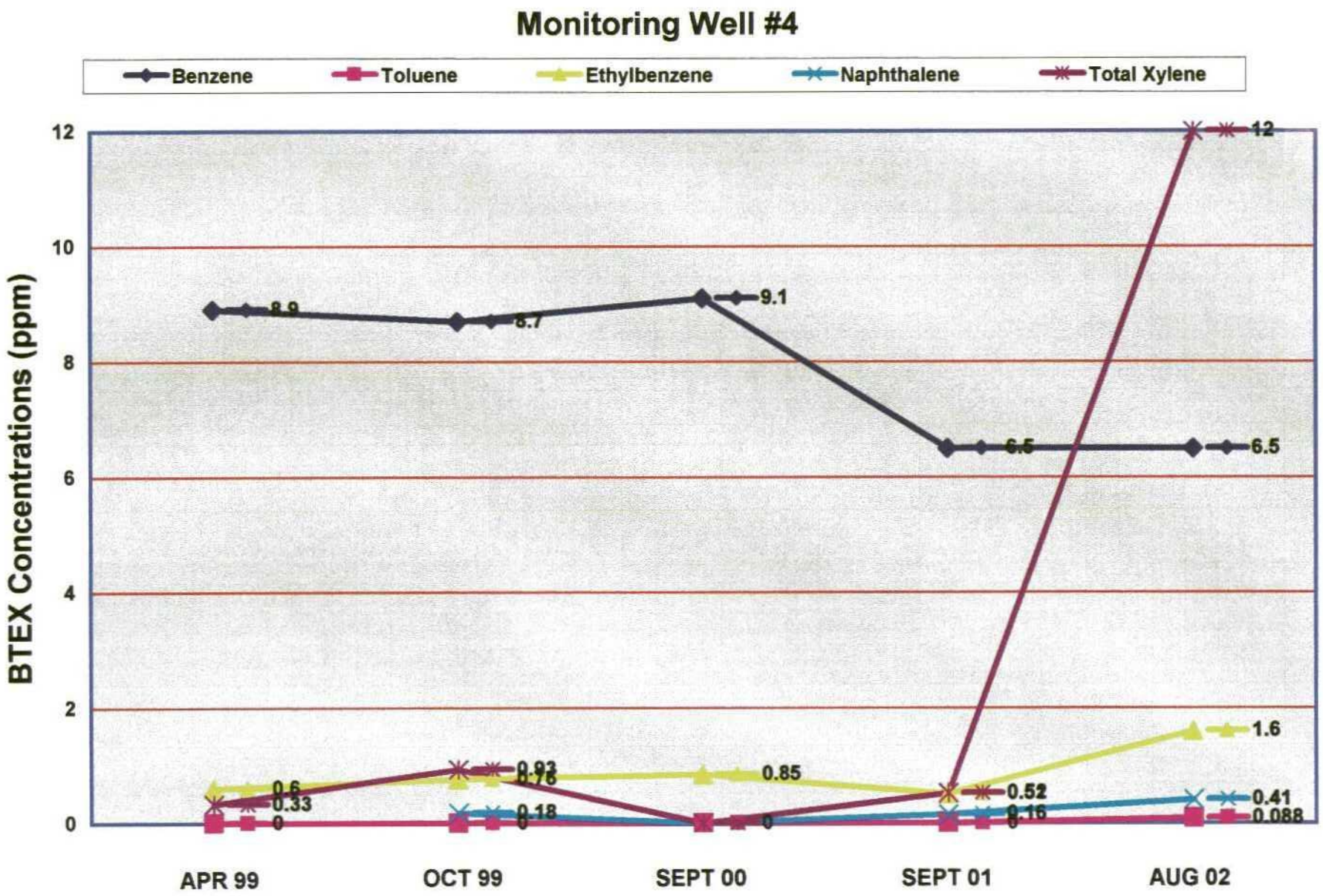
LOCATION	DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm naphthalene	ppm total xylene	ppm TPH
#1 WATER	Jan-02	0.054	ND	0.022		0.42	
#2 WATER	Jan-02	0.11	ND	0.036		0.7	
#3 WATER (IP#22)	Jan-02	0.44	ND	0.12		2.42	

HAMMOND - EAST OUTFALLS - WATER

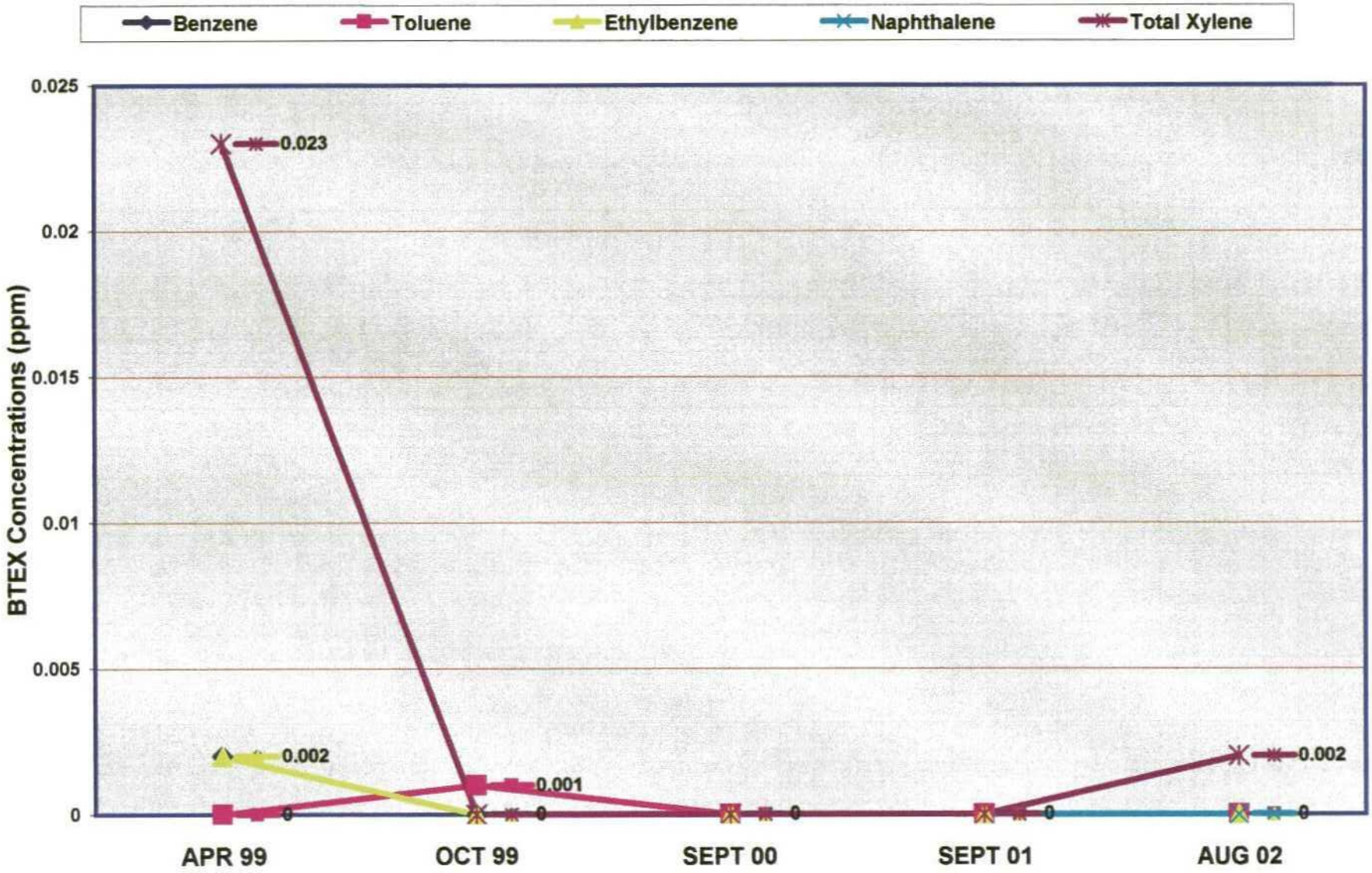
LOCATION	DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm naphthalene	ppm total xylene	ppm TPH
OUTFALL #1	Mar-02	ND	ND	ND		ND	
OUTFALL #2	Mar-02	ND	ND	ND		ND	

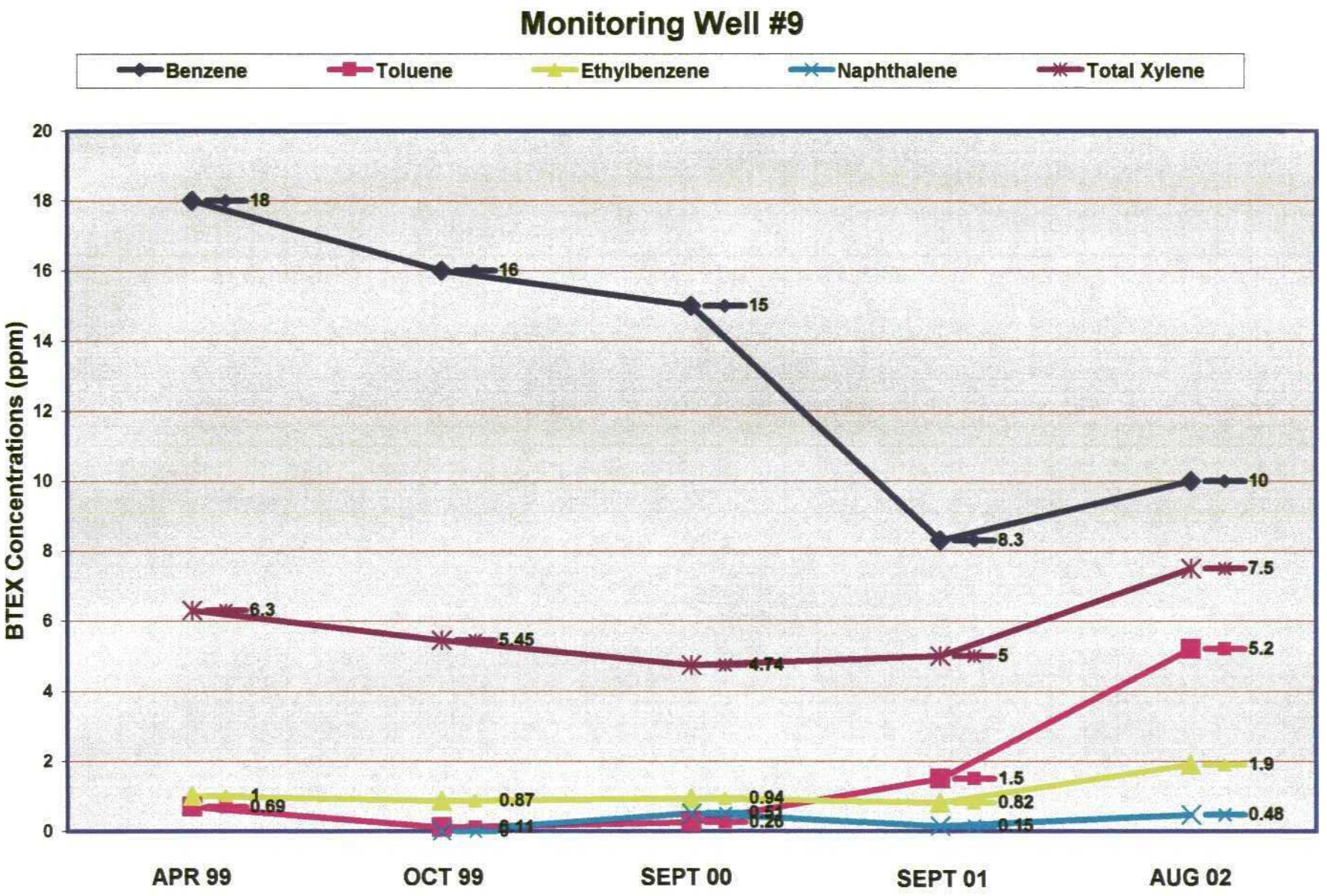

Monitoring Well #1
Benzene
Toluene
Ethylbenzene
Naphthalene
Total Xylene
BTEX Concentrations (ppm)
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
0.03
0.003
0
0
0
0
0
0.012
0.002
0.001
0
APR 99
OCT 99
SEPT 00
SEPT 01
AUG 02

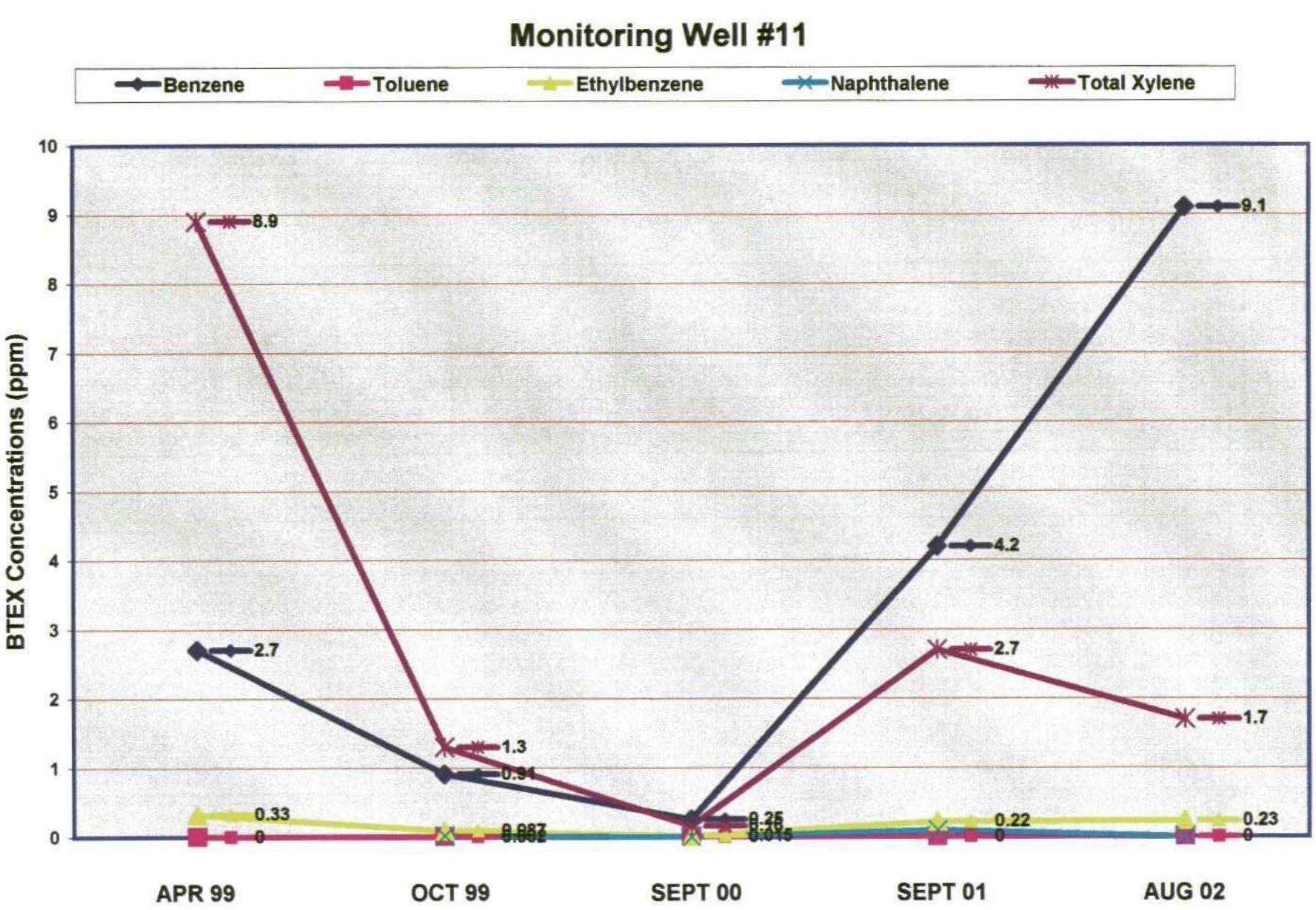

Monitoring Well #3
Benzene
Toluene
Ethylbenzene
Naphthalene
Total Xylene
BTEX Concentrations (ppm)
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0.029
0.005
0.001
0
0
0
0
0
0.003
0
APR 99
OCT 99
SEPT 00
SEPT 01
AUG 02


Monitoring Well #4
Benzene
Toluene
Ethylbenzene
Naphthalene
Total Xylene
BTEX Concentrations (ppm)
12
10
8
6
4
2
0
APR 99
OCT 99
SEPT 00
SEPT 01
AUG 02
8.9
8.7
9.1
6.5
6.5
12
0.6
0.33
0
0.93
0.76
0
0.18
0
0.85
0
0.52
0.16
0
1.6
0.41
0.088

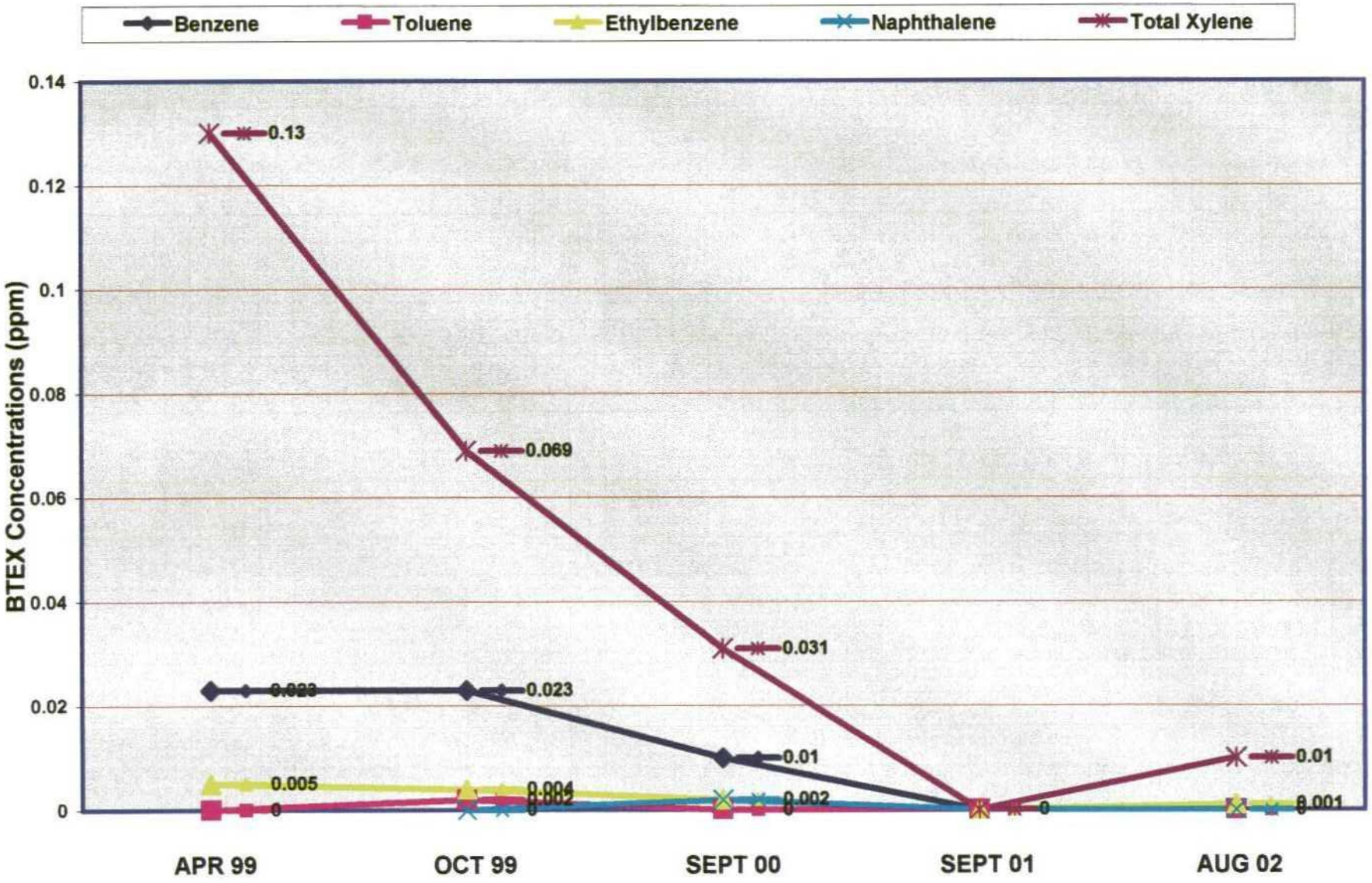
Monitoring Well #8

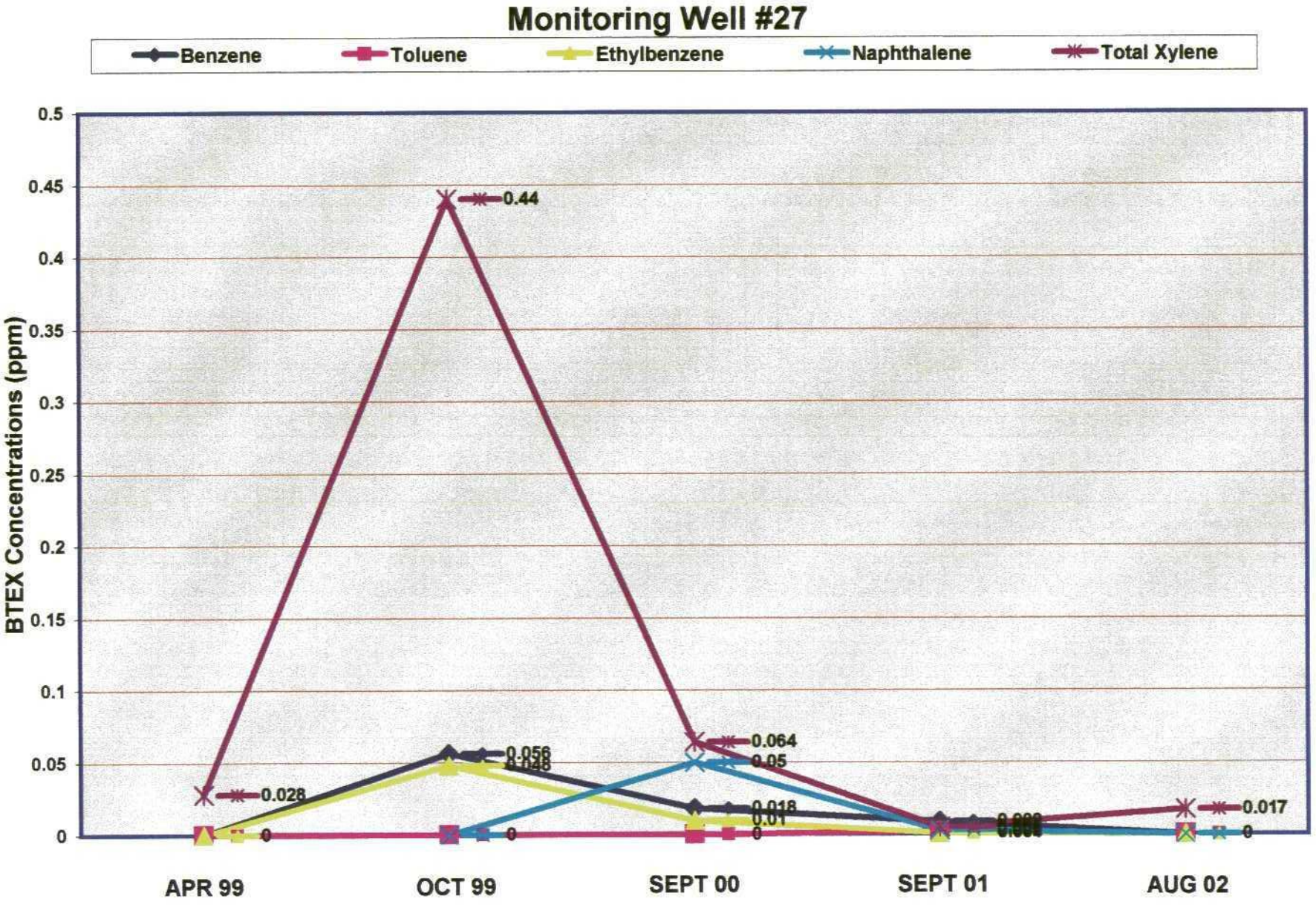


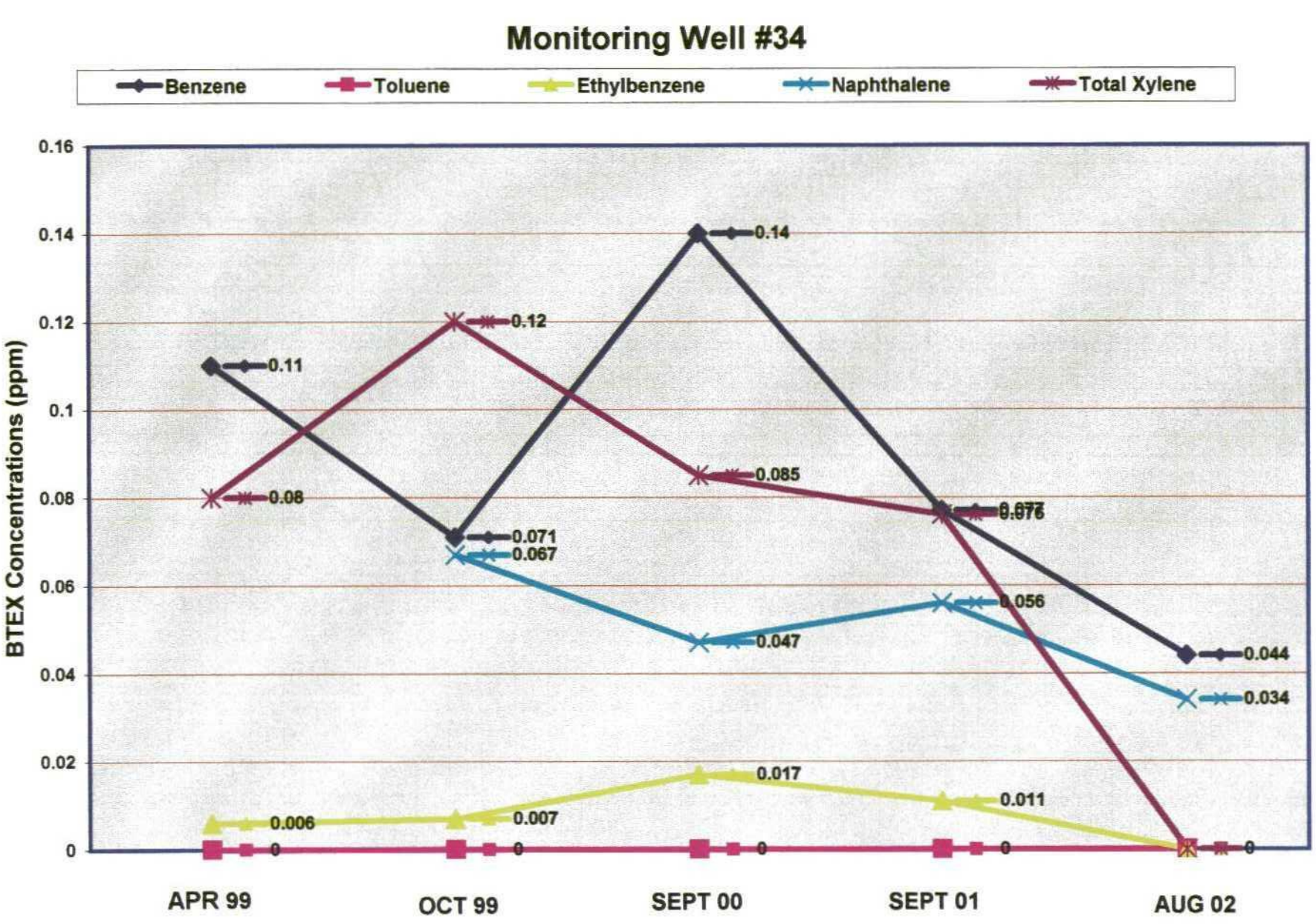

Monitoring Well #9
Benzene
Toluene
Ethylbenzene
Naphthalene
Total Xylene
BTEX Concentrations (ppm)
20
18
16
14
12
10
8
6
4
2
0
APR 99
OCT 99
SEPT 00
SEPT 01
AUG 02
18
16
15
8.3
10
6.3
5.45
4.74
5
7.5
1
0.69
0.87
0.11
0.94
0.51
0.26
1.5
0.82
0.15
1.9
0.48
5.2

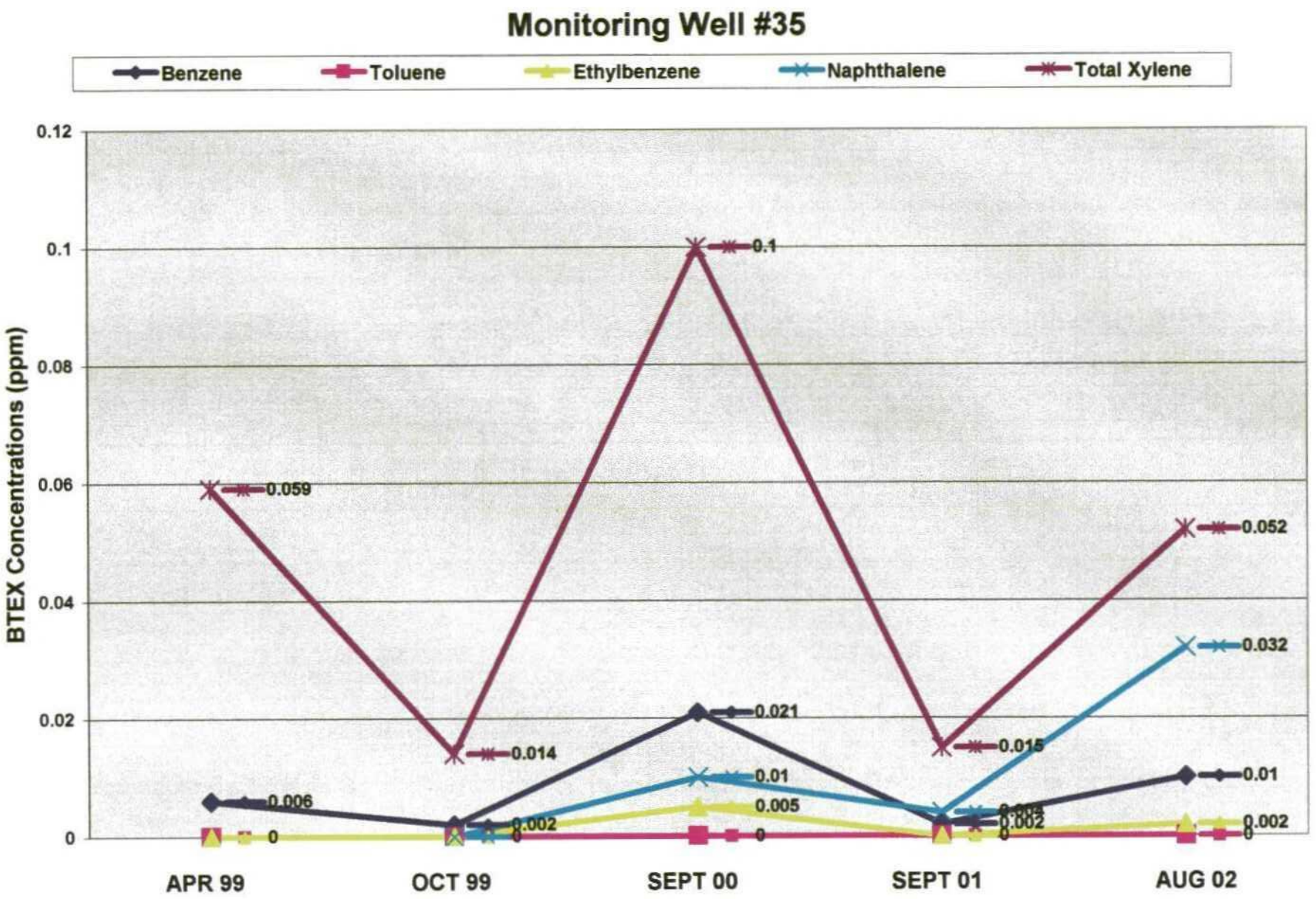

Monitoring Well #11
Benzene
Toluene
Ethylbenzene
Naphthalene
Total Xylene
BTEX Concentrations (ppm)
10
9
8
7
6
5
4
3
2
1
0
8.9
2.7
1.3
0.91
0.33
0
9.1
4.2
2.7
1.7
0.22
0
0.23
0
APR 99
OCT 99
SEPT 00
SEPT 01
AUG 02

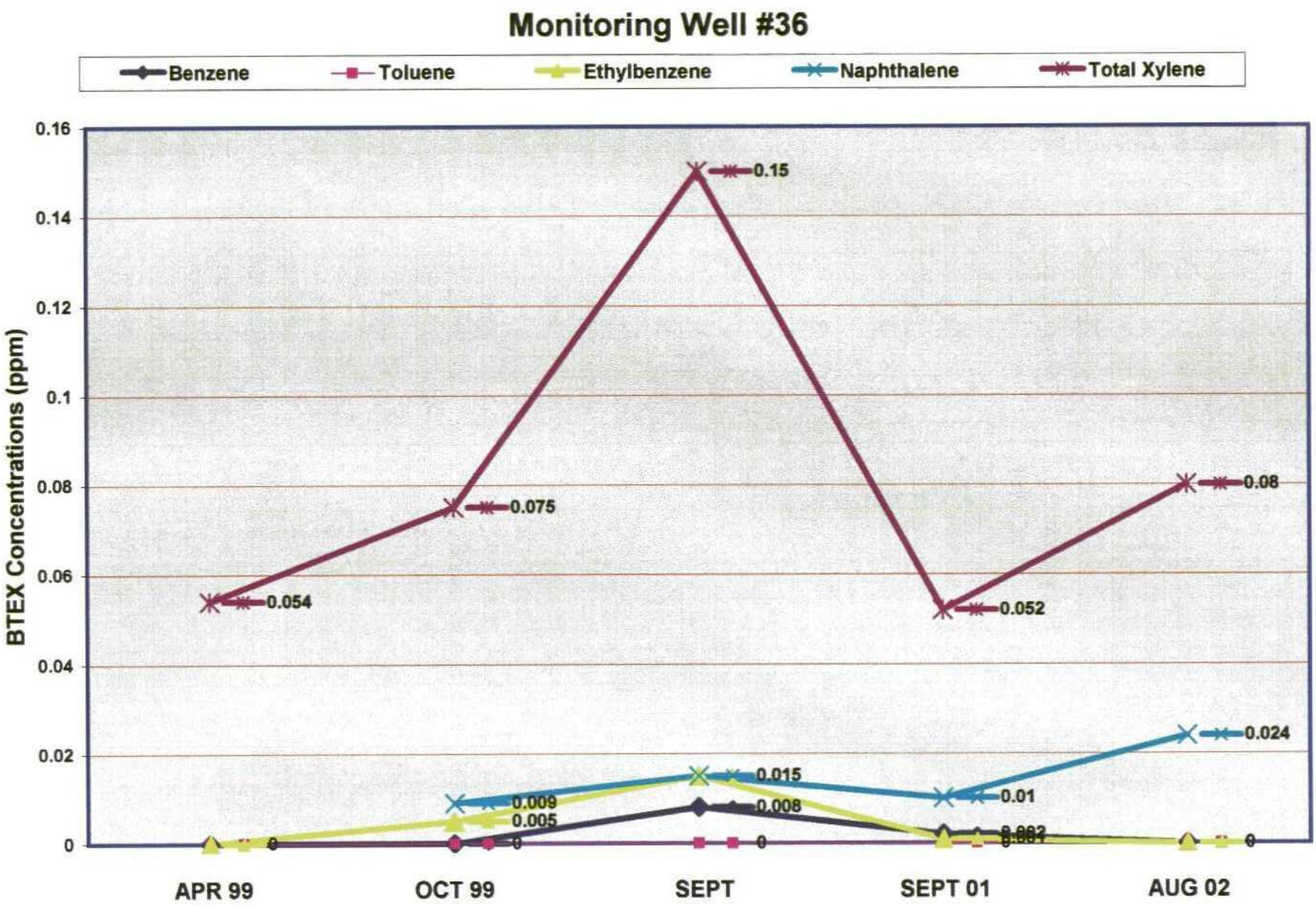
Monitoring Well #12

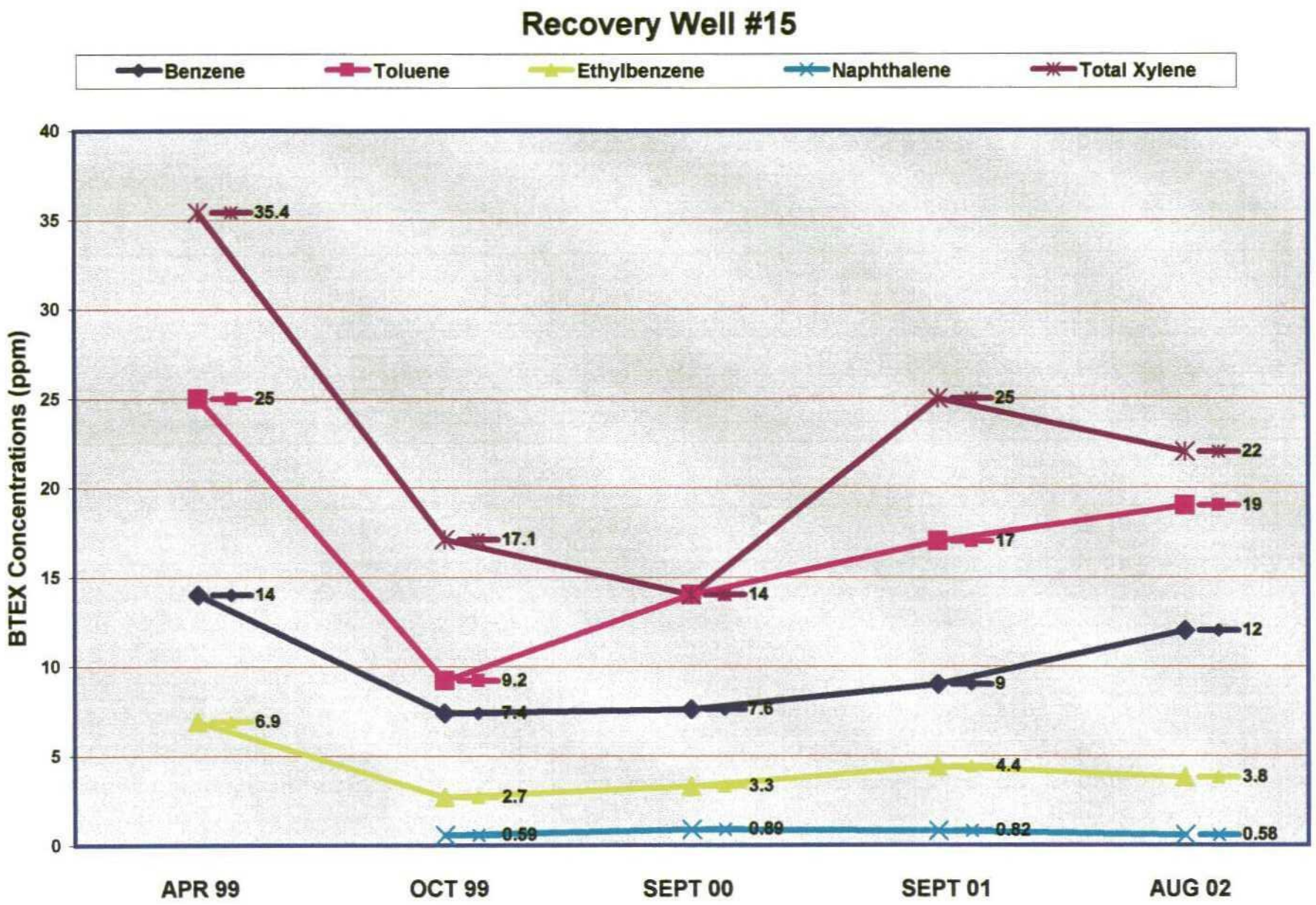



Monitoring Well #27
Benzene
Toluene
Ethylbenzene
Naphthalene
Total Xylene
BTEX Concentrations (ppm)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0.44
0.028
0.056
0.048
0.064
0.05
0.018
0.01
0.017
APR 99
OCT 99
SEPT 00
SEPT 01
AUG 02

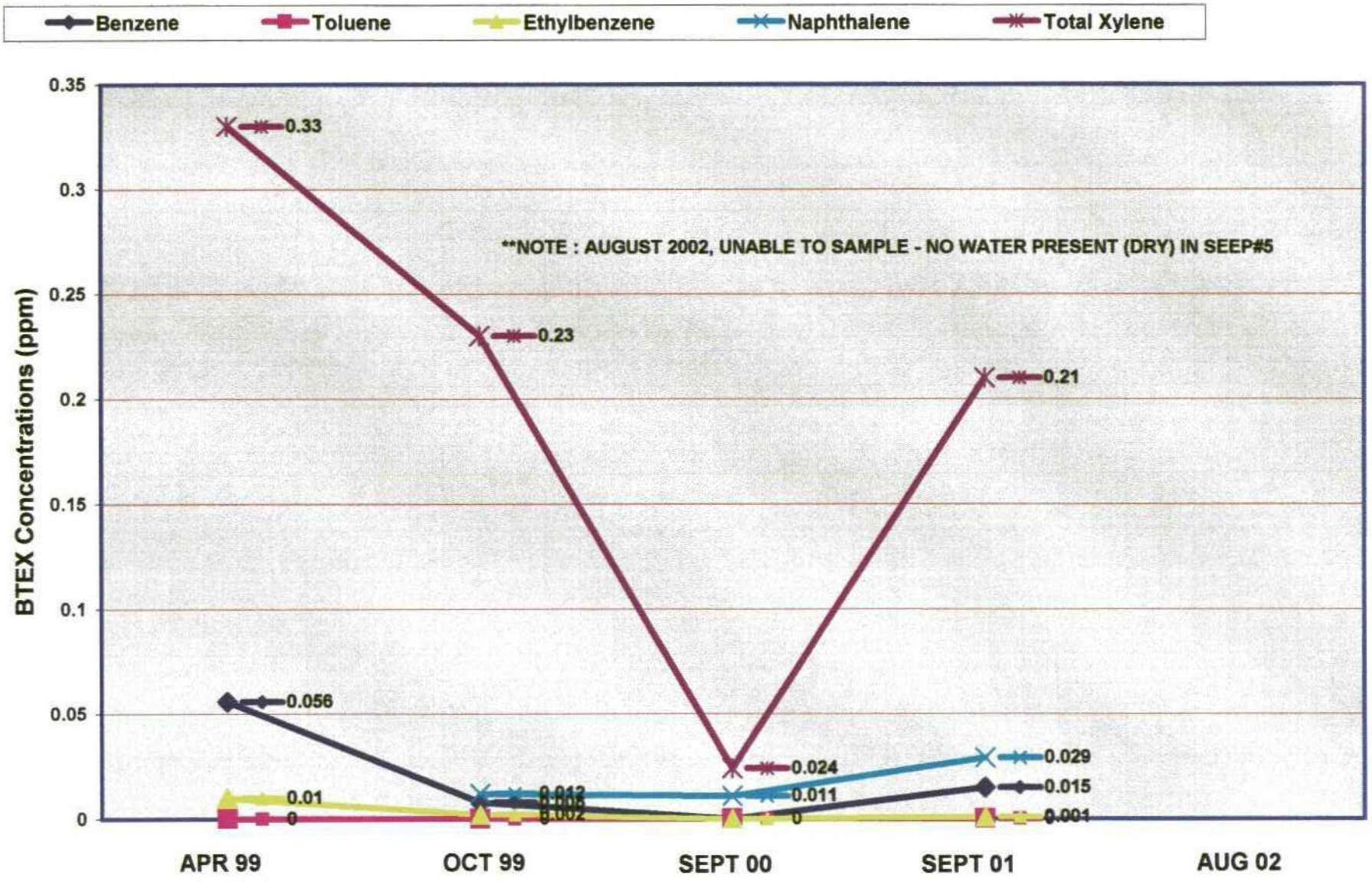

Monitoring Well #34
Benzene
Toluene
Ethylbenzene
Naphthalene
Total Xylene
BTEX Concentrations (ppm)
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0.11
0.08
0.12
0.071
0.067
0.14
0.085
0.076
0.056
0.047
0.044
0.034
0.006
0.007
0.017
0.011
0
0
0
0
0
APR 99
OCT 99
SEPT 00
SEPT 01
AUG 02


Monitoring Well #35
Benzene
Toluene
Ethylbenzene
Naphthalene
Total Xylene
BTEX Concentrations (ppm)
0.12
0.1
0.08
0.06
0.04
0.02
0
APR 99
OCT 99
SEPT 00
SEPT 01
AUG 02
0.059
0.014
0.1
0.015
0.052
0.032
0.021
0.01
0.006
0.002
0.005
0.002
0.01
0.002
0


Monitoring Well #36
Benzene
Toluene
Ethylbenzene
Naphthalene
Total Xylene
BTEX Concentrations (ppm)
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0.15
0.075
0.054
0.052
0.08
0.024
0.015
0.01
0.009
0.005
0.008
0
APR 99
OCT 99
SEPT
SEPT 01
AUG 02


Recovery Well #15
Benzene
Toluene
Ethylbenzene
Naphthalene
Total Xylene
BTEX Concentrations (ppm)
40
35
30
25
20
15
10
5
0
APR 99
OCT 99
SEPT 00
SEPT 01
AUG 02
35.4
17.1
14
25
9.2
7.4
14
25
17
9
7.6
12
22
19
6.9
2.7
3.3
4.4
3.8
0.59
0.89
0.82
0.58

Seep #5


Benzene
Toluene
Ethylbenzene
Naphthalene
Total Xylene
BTEX Concentrations (ppm)
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
**NOTE : AUGUST 2002, UNABLE TO SAMPLE - NO WATER PRESENT (DRY) IN SEEP#5
0.33
0.23
0.21
0.056
0.01
0
0.024
0.029
0.015
0.011
0
0.001
APR 99
OCT 99
SEPT 00
SEPT 01
AUG 02

ANNUAL MW/RW FIELD DATA

DATE	RW/MW	DEPTH TO LIQUID (ft)	SPH	WELL DEPTH	TIME	E.C.	NO3	D.O.	DESCRIPTION	ADDITIONAL TESTING
8/28/02	MW 8	32-9	0	36-0	235PM	3263	8.2	3.8		SO4,FE,BTEX, NAP
8/26/02	MW 11	11'-5"	0	23-0	330PM	2140	5.9	1.1		SO4,FE,BTEX, NAP
8/26/02	MW 34	14-3 1/2	0	21-0	130PM	2130	3.8	2		SO4,FE,BTEX, NAP
8/26/02	MW 35	23-0	0	26-5	4PM	1923	1.1	2.1		SO4,FE,BTEX, NAP
8/29/02	RW 15	35-1	0	43-4	945AM	3940	4.9	2		SO4,FE,BTEX, NAP
8/27/02	MW 1	17-4	0	21-6	430PM	795	2.1	2.8	FILTERED	BTEX, NAP
8/29/02	MW 3	36-2 1/2	0	36-8	10AM	7358	14.5	4.8	FILTERED	BTEX, NAP
8/29/02	MW 4	26-5	12"	30-6	930AM	3222	0	2.8		BTEX, NAP
8/28/02	MW 9	24-8	4"	34-1	4PM	2716	0	0	FILTERED	BTEX, NAP
8/28/02	MW 12	12'-6"	0	15-1	2PM	3010	0.7	3.4		BTEX, NAP
8/28/02	MW 27	22-7	0	24-4	215PM	2825	2.8	1.5	FILTERED	BTEX, NAP
8/27/02	MW 36	21-4	0	23-1	130PM	1386	0	2.4	FILTERED	BTEX, NAP
	RW 1		**NOT AVAILABLE FOR TESTING**							BTEX, NAP
8/27/02	RW 17	33-4	15"	41-8	245PM	3284	0.9	2.4	KERO,NASTY ICKY	BTEX, NAP

ANNUAL MW/RW FIELD DATA

DATE	RW/MW	DEPTH TO LIQUID (ft)	SPH	WELL DEPTH	TIME	E.C.	NO3	D.O.	DESCRIPTION	ADDITIONAL TESTING
8/29/02	SEEP 2	**DRY**	**DRY**	**DRY**	145PM					BTEX, NAP
8/29/02	SEEP 3	**DRIP**	**DRIP**	**DRIP**	130PM	2348	0	6.8		BTEX, NAP
8/29/02	SEEP 5	5'-0"	0	5'-1"	1PM	**NOT ENOUGH TO SAMPLE**				BTEX, NAP

MONITOR WELL #4

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
4	2/22/02	N/A	N/A	N/A	N/A
4	2/27/02	26-0	2"	30-5	SMELLS LIGHT
4	3/4/02	25-9	5"	30-5	SMELLS LIKE GASOLINE
4	3/12/02	25-9	6"	30-7	REFORMATE ODOR
4	3/18/02	26-2	6"	30-9	OILY REFORMATE ODOR
4	3/28/02	26-5	6"	30-9	OILY REFORMATE ODOR
4	4/2/02	26-0	7"	30-6	OILY REFORMATE ODOR
4	4/11/02	26-0	12"	30-8	OILY GASOLINE ODOR
4	4/17/02	26-0	12"	30-8	OILY GASOLINE ODOR
4	4/24/02	26-0	12"	30-8	OILY GASOLINE ODOR
4	4/30/02	26-1	12"	30-8	OILY GASOLINE ODOR
4	5/10/02	26-2	10"	30-8	OILY GASOLINE ODOR
4	5/15/02	26-1	12"	30-8	OILY GASOLINE ODOR
4	5/21/02	26-1	14"	30-7	OILY GASOLINE ODOR
4	5/28/02	N/A	N/A	N/A	N/A
4	6/11/02	26-3	12"	30-7	GASOLINE ODOR
4	6/24/02	26-4	13"	30-7	GASOLINE ODOR
4	7/9/02	26-7	12"	30-7	GASOLINE ODOR
4	7/17/02	26-4	12"	30-6	GASOLINE ODOR
4	7/23/02	26-4	12"	30-6	GASOLINE ODOR
4	7/29/02	26-5	11"	30-6	GASOLINE ODOR
4	8/13/02	26-6	11"	30-6	GASOLINE ODOR

MONITOR WELL #4

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
4	8/29/02	26-5	12"	30-6	GASOLINE ODOR
4	9/30/02	26-6	10"	30-6	GASOLINE ODOR
4	11/20/02	25-5	6"	30-6	GASOLINE ODOR
4					
4					
4					
4					
4					
4					
4					
4					
4					
4					
4					
4					
4					
4					
4					
4					
4					
4					
4					
4					
4					

MONITOR WELL #11

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
11	2/22/02	N/A	N/A	N/A	N/A
11	2/27/02	11-0'	0	23-0	GOOD
11	3/4/02	10'-8"	0	22-6	GOOD
11	3/12/02	11-0'	0	22-9	GOOD
11	3/18/02	10'-8"	0	22-7	GOOD
11	3/28/02	10'-8"	0	22-7	GOOD
11	4/2/02	11'-1"	0	23-0	GOOD
11	4/11/02	11'-2"	0	22-9	GOOD
11	4/17/02	10'-9"	0	22-9	GOOD
11	4/24/02	11'-2"	0	22-9	GOOD
11	4/30/02	11'-2"	0	22-9	GOOD
11	5/10/02	11'-3"	0	23-0	GOOD
11	5/15/02	11'-3"	0	23-0	GOOD
11	5/21/02	11'-3"	0	23-0	GOOD
11	5/28/02	N/A	N/A	N/A	N/A
11	6/11/02	11'-3"	0	23-0	GOOD
11	6/24/02	11'-2"	0	22-8	GOOD
11	7/9/02	11'-4"	0	23-0	GOOD
11	7/17/02	11'-1"	0	23-0	GOOD
11	7/23/02	11'-5"	0	23-0	GOOD
11	7/29/02	11'-5"	0	23-0	GOOD
11	8/13/02	11'-5"	0	23-0	GOOD

MONITOR WELL #11

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
11	8/26/02	11'-5"	0	23-0	GOOD
11	10/1/20	10'-9"	0	23-0	GOOD
11	11/5/02	10'-9"	0	23-0	GOOD
11	11/20/02	10'-6"	0	23-0	GOOD
11	12/16/02	10.55	0	22.67	GOOD
11					
11					
11					
11					
11					
11					
11					
11					
11					
11					
11					
11					
11					
11					
11					
11					
11					

MONITOR WELL #12

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
12	2/22/02	11'-4"	0	15-0	GOOD
12	2/27/02	11'-5"	0	15-0	GOOD
12	3/4/02	11'-5"	0	15-0	GOOD
12	3/12/02	11'-41/2"	0	15-0	GOOD
12	3/18/02	11'-5"	0	15-0	GOOD
12	3/28/02	11'-5"	0	15-0	GOOD
12	4/2/02	11'-6"	0	15-0	GOOD
12	4/11/02	11'-6"	0	15-0	GOOD
12	4/17/02	11'-7"	0	15-0	GOOD
12	4/24/02	11'-6"	0	15-0	GOOD
12	4/30/02	11'-6"	0	15-0	GOOD
12	5/10/02	11'-8"	0	15-0	GOOD
12	5/15/02	11'-8"	0	15-0	GOOD
12	5/21/02	11'-8"	0	15-0	GOOD
12	5/28/02	N/A	N/A	N/A	N/A
12	6/11/02	12'-0	0	15-0	GOOD
12	6/24/02	12'-1"	0	15-0	GOOD
12	7/9/02	12'-2"	0	15-1	GOOD
12	7/17/02	12'-3"	0	15-0	GOOD
12	7/23/02	12'-2"	0	15-0	GOOD
12	7/29/02	12'-3"	0	15-0	GOOD
12	8/13/02	12'-3"	0	15-0	GOOD

MONITOR WELL #12

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
12	8/28/02	12'-6"	0	15-0	GOOD
12	10/1/02	12'-3"	0	15-0	GOOD
12	11/5/02	12'-1 1/2"	0	15-0	GOOD
12	11/20/02	11'-8"	0	15-0	GOOD
12	12/16/02	10.68	0	15	GOOD
12					
12					
12					
12					
12					
12					
12					
12					
12					
12					
12					
12					
12					
12					
12					
12					
12					
12					

MONITOR WELL #21

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
21	2/22/02	N/A	N/A	N/A	N/A
21	2/27/02	21-9	0	32-5	SMELLS LIKE DSL
21	3/4/02	22-0	0	32-5	OK
21	3/12/02	24-0	0	32-5	SLIGHT HYDROCARBON ODOR
21	3/18/02	22-0	0	32-5	SLIGHT HYDROCARBON ODOR
21	3/28/02	22-0	0	32-5	SLIGHT HYDROCARBON ODOR
21	4/2/02	22-1	0	30-5	SLIGHT HYDROCARBON ODOR
21	4/11/02	22-1	0	30-4	SLIGHT HYDROCARBON ODOR
21	4/17/02	22-1	0	30-4	SLIGHT HYDROCARBON ODOR
21	4/24/02	22-2	0	30-4	SLIGHT HYDROCARBON ODOR
21	4/30/02	22-1	0	30-4	SLIGHT HYDROCARBON ODOR
21	5/10/02	22-3	0	30-4	SLIGHT HYDROCARBON ODOR
21	5/15/02	22-2	0	30-4	SLIGHT HYDROCARBON ODOR
21	5/21/02	22-2	0	30-3	SLIGHT HYDROCARBON ODOR
21	5/28/02	N/A	N/A	N/A	N/A
21	6/11/02	22-3	0	30-4	SLIGHT HYDROCARBON ODOR
21	6/24/02	22-3	0	30-4	SLIGHT HYDROCARBON ODOR
21	7/9/02	22-3	0	30-4	SLIGHT HYDROCARBON ODOR
21	7/17/02	22-3	0	30-5	SLIGHT HYDROCARBON ODOR
21	7/23/02	22-4	0	30-5	SLIGHT HYDROCARBON ODOR
21	7/29/02	22-3	0	30-5	SLIGHT HYDROCARBON ODOR
21	8/13/02	22-4	0	30-5	SLIGHT HYDROCARBON ODOR

MONITOR WELL #21

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
21	8/30/02	22-4	0	30-5	SLIGHT HYDROCARBON ODOR
21	9/30/02	22-3	1"	30-5	SLIGHT HYDROCARBON ODOR
21	11/20/02	22-2	1"	30-5	SLIGHT HYDROCARBON ODOR
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MONITOR WELL #24

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
24	2/22/02	14-9	0	15-1	SMELLS LIGHT-- API
24	2/27/02	14-9	0	15-1	SMELLS LIGHT-- API
24	3/4/02	15-0	0	15-1	SMELLS LIGHT-- API
24	3/12/02	15-0	0	15-1	SMELLS LIGHT-- API
24	3/18/02	15-0	0	15-1	SMELLS LIGHT-- API
24	3/28/02	15-0	0	15-1	SMELLS LIGHT-- API
24	4/2/02	15-0	0	15-2	SMELLS LIGHT-- API
24	4/11/02	15-0	0	15-1	SMELLS LIGHT-- API
24	4/17/02	15-0	0	15-1	SMELLS LIGHT-- API
24	4/24/02	15-0	0	15-1	SMELLS LIGHT-- API
24	4/30/02	15-0	0	15-1	SMELLS LIGHT-- API
24	5/10/02	15-0	1/2"	15-1	SMELLS LIGHT-- API
24	5/15/02	15-0	1/2"	15-1	SMELLS LIGHT-- API
24	5/21/02	15-0	1/2"	15-1	SMELLS LIGHT-- API
24	5/28/02	N/A	N/A	N/A	N/A
24	6/11/02	15'-1 1/2"	1/2"	15-2	SMELLS LIGHT-- API
24	6/24/02	15'-1 1/2"	1/2"	15-2	SMELLS LIGHT-- API
24	7/9/02	15-1 1/2"	1/2"	15-2	SMELLS LIGHT-- API
24	7/17/02	15-1 1/2"	1/2"	15-2	SMELLS LIGHT-- API
24	7/24/02	15-1 1/2"	1/2"	15-2	SMELLS LIGHT-- API
24	7/29/02	15-0	0	15-1	SMELLS LIGHT-- API
24	8/13/02	15'-0"	1/2"	15-1	SMELLS LIGHT-- API

MONITOR WELL #24

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
24	8/30/02	15- 1/2	1/2"	15-1	SMELLS LIGHT-- API
24	10/1/02	15-01/2"	1/2"	15-1	SMELLS LIGHT-- API
24	11/20/02	15-0	1"	15-1	SMELLS LIGHT-- API
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MONITOR WELL #28

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
28	2/22/02	27-2	12"	37-0	SMELLS LIKE REFORMATE
28	2/27/02	28-0	9"	37-0	SMELLS LIKE REFORMATE
28	3/4/02	27-9	12"	37-0	SMELLS LIKE REFORMATE
28	3/12/02	28-0	12"	36-9	SMELLS LIKE REFORMATE
28	3/18/02	28- 1/2"	12"	37-0	SMELLS LIKE REFORMATE
28	3/28/02	28-0"	12"	37-0	SMELLS LIKE REFORMATE
28	4/2/02	28-4	11"	37-1	SMELLS LIKE REFORMATE
28	4/11/02	28-3	12"	37-1	SMELLS LIKE REFORMATE
28	4/17/02	28-4	10"	37-1	SMELLS LIKE REFORMATE
28	4/24/02	28-4	10"	37-1	SMELLS LIKE REFORMATE
28	4/30/02	28-5	10"	37-1	SMELLS LIKE REFORMATE
28	5/10/02	28-6	10"	37-0	SMELLS LIKE REFORMATE
28	5/15/02	28-6	10"	37-0	SMELLS LIKE REFORMATE
28	5/21/02	28-6	10"	37-0	SMELLS LIKE REFORMATE
28	5/28/02	N/A	N/A	N/A	N/A
28	6/11/02	28-7	11"	37-0	SMELLS LIKE REFORMATE
28	6/24/02	28-8	10"	37-0	SMELLS LIKE REFORMATE
28	7/9/02	28-9	11"	37-0	SMELLS LIKE REFORMATE
28	7/17/02	28-9	10"	37-0	SMELLS LIKE REFORMATE
28	7/23/02	28-9	10"	37-0	SMELLS LIKE REFORMATE
28	7/29/02	29-0	8"	37-0	SMELLS LIKE REFORMATE
28	8/13/02	29-0	7"	37-0	SMELLS LIKE REFORMATE

MONITOR WELL #28

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
28	8/30/02	29-0	7"	37-0	SMELLS LIKE REFORMATE
28	9/30/02	29-0	7"	37-0	SMELLS LIKE REFORMATE
28	11/20/02	29-1	7"	37-0	SMELLS LIKE REFORMATE
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MONITOR WELL #29

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
29	2/22/02	N/A	N/A	N/A	N/A
29	2/27/02	23-0	0	28-6	SMELLS LIKE GASOLINE
29	3/4/02	23-1	0	28-6	OK
29	3/12/02	23-2	0	28-6	SLIGHT HYDROCARBON ODOR
29	3/18/02	23-2	0	28-6	SLIGHT HYDROCARBON ODOR
29	3/28/02	23-2	0	28-6	SLIGHT HYDROCARBON ODOR
29	4/2/02	23-2	0	28-6	SLIGHT HYDROCARBON ODOR
29	4/11/02	23-2	0	28-6	GOOD
29	4/17/02	23-3	0	28-7	GOOD
29	4/24/02	23-3	0	28-7	SLIGHT HYDROCARBON ODOR
29	4/30/02	23-3	0	28-7	SLIGHT HYDROCARBON ODOR
29	5/10/02	23-3	0	28-7	SLIGHT HYDROCARBON ODOR
29	5/15/02	23-2	0	28-7	SLIGHT HYDROCARBON ODOR
29	5/21/02	23-3	0	28-8	SLIGHT HYDROCARBON ODOR
29	5/28/02	N/A	N/A	N/A	N/A
29	6/11/02	23-3	0	22-8	SLIGHT HYDROCARBON ODOR
29	6/24/02	23-3	0	28-7	SLIGHT HYDROCARBON ODOR
29	7/9/02	23-3	0	28-8	SLIGHT HYDROCARBON
29	7/17/02	23-3	0	28-7	SLIGHT HYDROCARBON
29	7/23/02	23-3	0	28-7	SLIGHT HYDROCARBON
29	7/29/02	23-4	0	28-7	SLIGHT HYDROCARBON
29	8/13/02	23-4	0	28-7	SLIGHT HYDROCARBON

MONITOR WELL #29

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
29	8/30/02	23-4	0	28-7	SLIGHT HYDROCARBON
29	9/30/02	23-5	0	28-7	SLIGHT HYDROCARBON
29	11/20/02	23-5	0	28-7	SLIGHT HYDROCARBON
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MONITOR/RECOVERY WELL DATA

M.W. #	DATE	DEPTH TO LIQUID	WELL DEPTH
34	9/13/01	13'-3"	21-0
34	3/20/02	14-1	21-0
34	4/30/02	14-7	20-9
34	6/13/02	14-3	21-0
34	7/18/02	14-3	21-0
34	8/2/02	14-3 1/2	21-0
34	8/26/02	14.3 1/2	21
34	12/16/02	14.05	20.98

M.W. #	DATE	DEPTH TO LIQUID	WELL DEPTH
35	9/13/01	21-1 1/2	26-0
35	3/20/02	22-6	26-5
35	4/30/02	22-7	26-5
35	6/13/02	22-8	26-5
35	7/18/02	22-8	26-2
35	8/0202	22-9	26-1
35	8/26/02	23	26.5
35	12/16/02	20.29	25.98

MONITOR/RECOVERY WELL DATA

M.W. #	DATE	DEPTH TO LIQUID	WELL DEPTH
36	9/13/01	19-3	22-9
36	3/20/02	21-0	23-2
36	4/30/02	21-0	23-3
36	6/13/02	21-3	23-2
36	7/18/02	21-1	23-4
36	8/2/02	21-2	23-3
36	8/27/02	21.4	23.1
36	12/16/02	20.75	23.05

M.W. #	DATE	DEPTH TO LIQUID	WELL DEPTH
37	12/16/02	23.75	27.33
38	12/16/02	20.75	23.05

SEEP #5

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
S-5	2/22/02	4'-5"	0	5'-2"	GOOD
S-5	2/27/02	4'-5"	0	5'-2"	GOOD
S-5	3/4/02	4'-5"	0	5'-2"	GOOD
S-5	3/12/02	4'-6"	0	5'-2"	GOOD
S-5	3/18/02	4'-6 1/2"	0	5'-2"	GOOD
S-5	3/28/02	4'-6"	0	5'-2"	GOOD
S-5	4/2/02	4'-8"	0	5'-2"	GOOD
S-5	4/11/02	4'-8"	0	5'-2"	GOOD
S-5	4/17/02	4'-8"	0	5'-2"	GOOD
S-5	4/24/02	4'-9"	0	5'-2"	GOOD
S-5	4/30/02	4'-9"	0	5'-2"	GOOD
S-5	5/10/02	4'-9"	0	5'-2"	GOOD
S-5	5/15/02	4'-9"	0	5'-2"	GOOD
S-5	5/21/02	5'-1"	0	5'-2"	GOOD
S-5	5/28/02	N/A	N/A	N/A	N/A
S-5	6/11/02	5'-0	0	5'-2"	GOOD
S-5	6/24/02	5'-1"	0	5'-2"	GOOD
S-5	7/9/02	5'-0"	0	5'-2"	GOOD
S-5	7/17/02	5'-0"	0	5'-2"	GOOD
S-5	7/23/02	5'-0"	0	5'-2"	GOOD
S-5	7/29/02	5'-0"	0	5'-1"	GOOD
S-5	8/13/02	5'-0"	0	5'-1"	GOOD

SEEP #5

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
S-5	8/29/02	5'-0"	0	5'-1"	GOOD
S-5	10/1/02	5'-0"	0	5'-1"	GOOD
S-5	11/5/02	5'-0"	0	5'-1"	GOOD
S-5	11/20/02	4'-9"	0	5'-1"	GOOD
S-5	12/16/02	5.08	0	5.25	GOOD
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RECOVERY WELL #15

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
15	2/22/02	N/A	N/A	N/A	N/A
15	2/27/02	34-7	0	43-5	B/I & U/P NOT TOO BAD
15	3/4/02	34-6	0	43-4	B/I &U/P NOT TOO BAD
15	3/12/02	34-6	0	43-4	B/I & U/P SLIGHT HYDROCARBON ODOR
15	3/18/02	34-7	0	43-5	B/I & U/P SLIGHT ODOR
15	3/28/02	34-7	0	43-5	B/I & U/P SLIGHT ODOR
15	4/2/02	34-3	0	43-4	B/I & U/P SLIGHT ODOR
15	4/11/02	34-7	0	43-6	B/I & U/P GASOLINE ODOR
15	4/17/02	34-8	0	43-6	B/I & U/P GASOLINE ODOR
15	4/24/02	34-8	0	43-6	B/I & U/P GASOLINE ODOR
15	4/30/02	34-9	0	43-6	IN SERVICE LIGHT ODOR
15	5/10/02	35-0	0	43-6	IN SERVICE LIGHT ODOR
15	5/15/02	34-8	0	43-6	IN SERVICE LIGHT ODOR
15	5/21/02	34-9	0	43-6	IN SERVICE LIGHT ODOR
15	5/28/02	N/A	N/A	N/A	N/A
15	6/11/02	35-0	0	43-5	IN SERVICE LIGHT ODOR
15	6/24/02	34-9	0	43-5	IN SERVICE LIGHT ODOR
15	7/9/02	35-0	0	43-5	IN SERVICE LIGHT ODOR
15	7/17/02	34-9	0	43-5	IN SERVICE LIGHT ODOR
15	7/24/02	35-0	0	43-5	IN SERVICE LIGHT ODOR
15	7/31/02	35-1	0	43-5	IN SERVICE LIGHT ODOR
15	8/13/02	35-2	0	43-5	IN SERVICE LIGHT ODOR

RECOVERY WELL #15

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
15	8/29/02	35-1	0	43-4	IN SERVICE LIGHT ODOR
15	9/30/02	35-5	0	43-5	IN SERVICE
15	11/20/02	36-9	0	43-5	IN SERVICE LIGHT ODOR
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RECOVERY WELL #17

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
17	2/22/02	N/A	N/A	N/A	N/A
17	2/27/02	N/A	N/A	N/A	B/I & U/P PUMP IS STUCK IN WELL
17	3/4/02	N/A	N/A	N/A	B/I & U/P PUMP IS STUCK IN WELL
17	3/12/02	N/A	N/A	N/A	B/I & U/P PUMP IS STUCK IN WELL
17	3/18/02	N/A	N/A	N/A	B/I & U/P PUMP IS STUCK IN WELL
17	3/28/02	N/A	N/A	N/A	B/I & U/P PUMP IS STUCK IN WELL
17	4/2/02	N/A	N/A	N/A	B/I & U/P PUMP IS STUCK IN WELL
17	4/11/02	N/A	N/A	N/A	B/I & U/P PUMP IS STUCK IN WELL
17	4/17/02	N/A	N/A	N/A	B/I & U/P PUMP IS STUCK IN WELL
17	4/24/02	N/A	N/A	N/A	B/I & U/P PUMP IS STUCK IN WELL
17	4/30/02	N/A	N/A	N/A	B/I & U/P PUMP IS STUCK IN WELL
17	5/10/02	32-2	16"	41-9	PULLED OUT PUMP W.O. #55164
17	5/15/02	36-5	0	41-9	IN SERVICE SOME ODOR
17	5/21/02	36-3	1/2"	41-9	IN SERVICE SOME ODOR
17	5/28/02	N/A	N/A	N/A	N/A
17	6/11/02	36-8	0	41-8	IN SERVICE SOME ODOR
17	6/24/02	37-1	0	41-8	IN SERVICE SOME ODOR
17	7/9/02	37-1	0	41-8	IN SERVICE SOME ODOR
17	7/17/02	37-0	0	41-8	IN SERVICE SOME ODOR
17	7/24/02	37-1	0	41-8	IN SERVICE SOME ODOR
17	7/31/02	37-1	0	41-8	IN SERVICE SOME ODOR
17	8/13/02	37-1	0	41-8	IN SERVICE SOME ODOR

RECOVERY WELL #17

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
17	8/27/02	33-4	15"	41-8	PUMP OFF 8/23/02 FOR SAMPLING
17	9/30/02	37-1	0	41-8	IN SERVICE SOME ODOR
17	11/20/02	37-2	0	41-8	IN SERVICE SOME ODOR
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RECOVERY WELL #18

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
18	2/22/02	N/A	N/A	N/A	N/A
18	2/27/02	30-0	6"	37-7	B/I & U/P SMELLY
18	3/4/02	30-0	6"	37-7	B/I & U/P DSL SMELL
18	3/12/02	30-2	6"	37-7	B/I & U/P DSL SMELL
18	3/18/02	30-1	6.5"	38-1	B/I & U/P DSL SMELL
18	3/28/02	30-2	6"	38-1	B/I & U/P DSL SMELL
18	4/2/02	30-3	5.5"	37-8	B/I & U/P DSL SMELL
18	4/11/02	30-1	7"	37-9	B/I & U/P LIGHT ODOR
18	4/17/02	30-2	7"	37-9	B/I & U/P LIGHT ODOR
18	4/24/02	30-4	6"	37-9	B/I & U/P LIGHT ODOR
18	4/30/02	30-3	4"	37-8	IN SERVICE LIGHT ODOR
18	5/10/02	31-4	0	37-8	IN SERVICE LIGHT ODOR
18	5/15/02	32-6	1/2"	37-9	IN SERVICE LIGHT ODOR
18	5/21/02	32-8	0	37-8	IN SERVICE LIGHT ODOR
18	5/28/02	32-0	0	38-0	IN SERVICE LIGHT ODOR
18	6/11/02	33-0	0	37-9	IN SERVICE LIGHT ODOR
18	6/24/02	33-5	0	37-9	IN SERVICE LIGHT ODOR
18	7/9/02	33-6	0	38-0	IN SERVICE LIGHT ODOR
18	7/17/02	33-5	0	37-8	IN SERVICE LIGHT ODOR
18	7/23/02	33-3	0	37-8	IN SERVICE LIGHT ODOR
18	7/29/02	33-3	0	37-8	IN SERVICE LIGHT ODOR
18	8/13/02	34-0	0	37-8	IN SERVICE LIGHT ODOR

RECOVERY WELL #18

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
18	8/30/02	34-0	0	37-8	IN SERVICE LIGHT ODOR
18	9/30/02	34-0	0	37-8	IN SERVICE LIGHT ODOR
18	11/20/02	34-1	0	37-9	IN SERVICE LIGHT ODOR
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RECOVERY WELL #19

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
19	2/22/02	N/A	N/A	N/A	N/A
19	2/27/02	28-7	6"	36-7	B/I & U/P SMELLS LIGHT
19	3/4/02	28-9	18-1/2"	36-7	B/I & U/P SMELLS LIGHT
19	3/12/02	28-8	20"	36-6	B/I & U/P OILY
19	3/18/02	28-7	22"	36-7	B/I & U/P OILY
19	3/28/02	28-8	19"	36-7	B/I & U/P OILY
19	4/2/02	29-0	19"	36-6	B/I & U/P OILY
19	4/11/02	29-1	19"	36-6	B/I & U/P GASOLINE ODOR
19	4/17/02	29-2	20"	36-7	B/I & U/P GASOLINE ODOR
19	4/24/02	29-1	18"	36-7	B/I & U/P HEAVY,OILY ODOR
19	4/30/02	29-1	15"	36-7	IN SERVICE OILY
19	5/10/02	29-3	15"	36-7	IN SERVICE OILY
19	5/15/02	29-3	12"	36-7	IN SERVICE OILY
19	5/21/02	29-3	13"	36-7	IN SERVICE OILY
19	5/28/02	N/A	N/A	N/A	N/A
19	6/11/02	28-5	20"	36-4	OILY B /I &U/P WO#55082
19	6/24/02	29-5	12"	36-7	OILY IN SERVICE
19	7/9/02	29-7	10"	36-7	OILY IN SERVICE
19	7/17/02	29-6	10"	36-6	DSL ODOR IN SERVICE
19	7/23/02	29-6	10"	36-6	DSL ODOR IN SERVICE
19	7/29/02	29-6	10"	36-6	DSL ODOR IN SERVICE
19	8/13/02	29-8	8"	36-6	DSL ODOR IN SERVICE

RECOVERY WELL #19

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
19	8/30/02	29-8	3"	36-6	DSL ODOR IN SERVICE
19	9/30/02	29-9	1"	36-6	DSL ODOR IN SERVICE
19	11/20/02	29-8	8"	36-7	DSL ODOR IN SERVICE
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RECOVERY WELL #42

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
42	2/22/02	N/A	N/A	N/A	N/A
42	2/27/02	26-0	6"	32-0	B/I &U/P, HEAVY ODOR SLIMEY MUD
42	3/4/02	26-1	9-1/2"	32-0	B/I &U/P SMELLS HEAVY
42	3/12/02	26-2	10"	32-0	B/I &U/P OILY
42	3/18/02	26-2	9"	32-0	B/I &U/P OILY
42	3/28/02	26-2	9-1/2"	32-0	B/I &U/P OILY
42	4/2/02	26-2	9"	32-1	B/I &U/P OILY
42	4/11/02	26-4	10"	32-1	B/I &U/P OILY
42	4/17/02	26-5	10"	32-1	B/I &U/P OILY
42	4/24/02	26-5	6"	32-1	B/I &U/P OILY
42	4/30/02	26-4	8"	32-0	IN SERVICE OILY
42	5/10/02	26-6	8"	32-0	IN SERVICE OILY
42	5/15/02	26-6	8"	32-0	IN SERVICE OILY
42	5/21/02	26-6	8"	32-0	IN SERVICE OILY
42	5/28/02	N/A	N/A	N/A	N/A
42	6/11/02	26-6	13"	32-0	IN SERVICE OILY
42	6/24/02	26-6	14"	32-0	IN SERVICE OILY
42	7/9/02	26-9	10"	32-0	IN SERVICE OILY
42	7/17/02	26-6	10"	32-0	IN SERVICE OILY
42	7/23/02	26-6	12"	32-0	IN SERVICE OILY
42	7/29/02	26-5	14"	32-0	IN SERVICE OILY
42	8/13/02	26-9	6"	32-0	IN SERVICE OILY

RECOVERY WELL #42

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
42	8/30/02	26-8	7"	32-0	IN SERVICE OILY
42	9/30/02	26-9	7"	32-0	IN SERVICE OILY
42	11/20/02	27-2	7"	32-0	IN SERVICE OILY
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RECOVERY WELL #43

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
43	2/22/02	N/A	N/A	N/A	N/A
43	2/27/02	21-7	12"	23-9	B/I & U/P SMELLY & BLACK SLIME
43	3/4/02	20-8	8-1/2"	24-0	B/I & U/P SMELLS LIGHT---API
43	3/12/02	20-9	10"	24-0	B/I & U/P SMELLS LIGHT---API
43	3/18/02	20-9	10"	24-0	B/I & U/P SMELLS LIGHT---API
43	3/28/02	20-9	9-1/2"	24-0	B/I & U/P SMELLS LIGHT---API
43	4/2/02	21-0	10"	24-0	B/I & U/P SMELLS LIGHT---API
43	4/11/02	21-1	8"	24-0	B/I & U/P SMELLS LIGHT---API
43	4/17/02	21-1	8"	24-0	B/I & U/P SMELLS LIGHT---API
43	4/24/02	21-1	8"	24-0	B/I & U/P SMELLS LIGHT---API
43	4/30/02	21-1	8"	24-0	IN SERVICE LIGHT ODOR
43	5/10/02	21-1	8"	24-0	IN SERVICE LIGHT ODOR
43	5/15/02	21-1	8"	24-0	IN SERVICE LIGHT ODOR
43	5/21/02	21-2	7"	24-0	IN SERVICE LIGHT ODOR
43	5/28/02	21-2	7"	24-0	IN SERVICE LIGHT ODOR
43	6/11/02	21-2	7"	24-0	IN SERVICE LIGHT ODOR
43	6/24/02	21-3	6"	24-0	IN SERVICE LIGHT ODOR
43	7/9/02	21-6	10"	24-0	IN SERVICE LIGHT ODOR
43	7/17/02	21-3	7"	24-0	IN SERVICE LIGHT ODOR
43	7/23/02	21-4	7"	24-0	IN SERVICE LIGHT ODOR
43	7/29/02	21-3	7"	24-0	IN SERVICE LIGHT ODOR
43	8/13/02	21-4	7"	24-0	IN SERVICE LIGHT ODOR

RECOVERY WELL #43

R.W. #	DATE	DEPTH TO LIQUID (feet)	SPH	WELL DEPTH	LIQUID DESCRIPTION
43	8/30/02	21-3	7"	24-0	IN SERVICE LIGHT ODOR
43	9/30/02	21-7	6"	24-0	IN SERVICE LIGHT ODOR
43	11/20/02	21-6	6"	24-0	IN SERVICE LIGHT ODOR
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Hall Environmental Analysis Laboratory

COVER LETTER

September 09, 2002

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4161
FAX (505) 632-3911

RE: Annual Monitor Wells

Order No.: 0208188

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 14 samples on 8/30/02 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

Hall Environmental Analysis Laboratory

Date: *09-Sep-02*

CLIENT:	San Juan Refining	**Client Sample ID:**	MW#34
Lab Order:	0208188	**Collection Date:**	8/26/02 1:30:00 PM
Project:	Annual Monitor Wells		
Lab ID:	0208188-01	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **HVA**
Sulfate	9.1	5.0		mg/L	10	8/30/02
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BDH**
Benzene	44	10		µg/L	10	9/6/02
Toluene	ND	10		µg/L	10	9/6/02
Ethylbenzene	ND	10		µg/L	10	9/6/02
Naphthalene	34	20		µg/L	10	9/6/02
Xylenes, Total	ND	10		µg/L	10	9/6/02
Surr: 1,2-Dichloroethane-d4	105	74.6-123		%REC	10	9/6/02
Surr: 4-Bromofluorobenzene	114	73.5-126		%REC	10	9/6/02
Surr: Dibromofluoromethane	96.3	78.6-115		%REC	10	9/6/02
Surr: Toluene-d8	107	84.2-115		%REC	10	9/6/02
EPA METHOD 6010C: DISSOLVED METALS						Analyst: **NMO**
Iron	9.6	0.020		mg/L	1	9/9/02 11:27:09 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quanititation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *09-Sep-02*

CLIENT: San Juan Refining
Client Sample ID: MW#11
Lab Order: 0208188
Collection Date: 8/26/02 3:30:00 PM
Project: Annual Monitor Wells
Lab ID: 0208188-02
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **HVA**
Sulfate	ND	5.0		mg/L	10	8/30/02
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BDH**
Benzene	9100	250		µg/L	250	9/9/02
Toluene	ND	50		µg/L	50	9/6/02
Ethylbenzene	230	50		µg/L	50	9/6/02
Naphthalene	ND	100		µg/L	50	9/6/02
Xylenes, Total	1700	50		µg/L	50	9/6/02
Surr: 1,2-Dichloroethane-d4	108	74.6-123		%REC	50	9/6/02
Surr: 4-Bromofluorobenzene	97.5	73.5-126		%REC	50	9/6/02
Surr: Dibromofluoromethane	106	78.6-115		%REC	50	9/6/02
Surr: Toluene-d8	102	84.2-115		%REC	50	9/6/02
EPA METHOD 6010C: DISSOLVED METALS						Analyst: **NMO**
Iron	10	0.020		mg/L	1	9/9/02 11:29:19 AM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *09-Sep-02*

CLIENT: San Juan Refining
Lab Order: 0208188
Project: Annual Monitor Wells
Lab ID: 0208188-03

Client Sample ID: MW#35
Collection Date: 8/26/02 4:00:00 PM
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **HVA**
Sulfate	28	5.0		mg/L	10	8/30/02
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BDH**
Benzene	10	1.0		µg/L	1	9/5/02
Toluene	ND	1.0		µg/L	1	9/5/02
Ethylbenzene	2.4	1.0		µg/L	1	9/5/02
Naphthalene	32	2.0		µg/L	1	9/5/02
Xylenes, Total	52	10		µg/L	10	9/6/02
Surr: 1,2-Dichloroethane-d4	114	74.6-123		%REC	1	9/5/02
Surr: 4-Bromofluorobenzene	113	73.5-126		%REC	10	9/6/02
Surr: Dibromofluoromethane	108	78.6-115		%REC	1	9/5/02
Surr: Toluene-d8	102	84.2-115		%REC	10	9/6/02
EPA METHOD 6010C: DISSOLVED METALS						Analyst: **NMO**
Iron	9.3	0.020		mg/L	1	9/9/02 11:31:28 AM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *09-Sep-02*

CLIENT: San Juan Refining
Client Sample ID: MW#8
Lab Order: 0208188
Collection Date: 8/28/02 2:35:00 PM
Project: Annual Monitor Wells
Lab ID: 0208188-07
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **HVA**
Sulfate	970	25		mg/L	50	9/3/02
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BDH**
Benzene	ND	1.0		µg/L	1	9/5/02
Toluene	ND	1.0		µg/L	1	9/5/02
Ethylbenzene	ND	1.0		µg/L	1	9/5/02
Naphthalene	ND	2.0		µg/L	1	9/5/02
Xylenes, Total	1.9	1.0		µg/L	1	9/5/02
Surr: 1,2-Dichloroethane-d4	100	74.6-123		%REC	1	9/5/02
Surr: 4-Bromofluorobenzene	101	73.5-126		%REC	1	9/5/02
Surr: Dibromofluoromethane	96.5	78.6-115		%REC	1	9/5/02
Surr: Toluene-d8	102	84.2-115		%REC	1	9/5/02
EPA METHOD 6010C: DISSOLVED METALS						Analyst: **NMO**
Iron	1.5	0.020		mg/L	1	9/9/02 11:33:37 AM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *09-Sep-02*

CLIENT: San Juan Refining
Client Sample ID: RW#15
Lab Order: 0208188
Collection Date: 8/29/02 9:45:00 AM
Project: Annual Monitor Wells
Lab ID: 0208188-11
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **HVA**
Sulfate	50	5.0		mg/L	10	8/30/02
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BDH**
Benzene	12000	500		µg/L	500	9/6/02
Toluene	19000	500		µg/L	500	9/6/02
Ethylbenzene	3800	500		µg/L	500	9/6/02
Naphthalene	580	100		µg/L	50	9/6/02
Xylenes, Total	22000	500		µg/L	500	9/6/02
Surr: 1,2-Dichloroethane-d4	116	74.6-123		%REC	50	9/6/02
Surr: 4-Bromofluorobenzene	99.0	73.5-126		%REC	50	9/6/02
Surr: Dibromofluoromethane	107	78.6-115		%REC	50	9/6/02
Surr: Toluene-d8	101	84.2-115		%REC	50	9/6/02
EPA METHOD 6010C: DISSOLVED METALS						Analyst: **NMO**
Iron	5.2	0.020		mg/L	1	9/9/02 11:35:49 AM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *09-Sep-02*

CLIENT: San Juan Refining
Client Sample ID: MW#36
Lab Order: 0208188
Collection Date: 8/27/02 1:30:00 PM
Project: Annual Monitor Wells
Lab ID: 0208188-04
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BDH**
Benzene	ND	5.0		µg/L	5	9/6/02
Toluene	ND	5.0		µg/L	5	9/6/02
Ethylbenzene	ND	5.0		µg/L	5	9/6/02
Naphthalene	24	10		µg/L	5	9/6/02
Xylenes, Total	80	5.0		µg/L	5	9/6/02
Surr: 1,2-Dichloroethane-d4	109	74.6-123		%REC	5	9/6/02
Surr: 4-Bromofluorobenzene	112	73.5-126		%REC	5	9/6/02
Surr: Dibromofluoromethane	108	78.6-115		%REC	5	9/6/02
Surr: Toluene-d8	118	84.2-115	S	%REC	5	9/6/02

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *09-Sep-02*

CLIENT: San Juan Refining
Lab Order: 0208188
Project: Annual Monitor Wells
Lab ID: 0208188-05

Client Sample ID: RW#17
Collection Date: 8/27/02 2:45:00 PM
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: BDH
Benzene	1900	500		µg/L	500	9/5/02
Toluene	ND	500		µg/L	500	9/5/02
Ethylbenzene	1300	500		µg/L	500	9/5/02
Naphthalene	1400	1000		µg/L	500	9/5/02
Xylenes, Total	11000	500		µg/L	500	9/5/02
Surr: 1,2-Dichloroethane-d4	104	74.6-123		%REC	500	9/5/02
Surr: 4-Bromofluorobenzene	113	73.5-126		%REC	500	9/5/02
Surr: Dibromofluoromethane	90.4	78.6-115		%REC	500	9/5/02
Surr: Toluene-d8	100	84.2-115		%REC	500	9/5/02

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *09-Sep-02*

CLIENT: San Juan Refining
Lab Order: 0208188
Project: Annual Monitor Wells
Lab ID: 0208188-06

Client Sample ID: MW#1
Collection Date: 8/27/02 4:30:00 PM
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BDH**
Benzene	1.1	1.0		µg/L	1	9/5/02
Toluene	ND	1.0		µg/L	1	9/5/02
Ethylbenzene	1.2	1.0		µg/L	1	9/5/02
Naphthalene	2.2	2.0		µg/L	1	9/5/02
Xylenes, Total	12	1.0		µg/L	1	9/5/02
Surr: 1,2-Dichloroethane-d4	108	74.6-123		%REC	1	9/5/02
Surr: 4-Bromofluorobenzene	98.0	73.5-126		%REC	1	9/5/02
Surr: Dibromofluoromethane	100	78.6-115		%REC	1	9/5/02
Surr: Toluene-d8	98.1	84.2-115		%REC	1	9/5/02

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *09-Sep-02*

CLIENT:	San Juan Refining	**Client Sample ID:**	MW#12
Lab Order:	0208188	**Collection Date:**	8/28/02 2:00:00 PM
Project:	Annual Monitor Wells		
Lab ID:	0208188-08	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BDH**
Benzene	ND	1.0		µg/L	1	9/6/02
Toluene	ND	1.0		µg/L	1	9/6/02
Ethylbenzene	1.3	1.0		µg/L	1	9/6/02
Naphthalene	ND	2.0		µg/L	1	9/6/02
Xylenes, Total	9.8	1.0		µg/L	1	9/6/02
Surr: 1,2-Dichloroethane-d4	103	74.6-123		%REC	1	9/6/02
Surr: 4-Bromofluorobenzene	96.2	73.5-126		%REC	1	9/6/02
Surr: Dibromofluoromethane	96.4	78.6-115		%REC	1	9/6/02
Surr: Toluene-d8	97.5	84.2-115		%REC	1	9/6/02

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quanititation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *09-Sep-02*

CLIENT:	San Juan Refining	**Client Sample ID:**	MW#27
Lab Order:	0208188	**Collection Date:**	8/28/02 2:15:00 PM
Project:	Annual Monitor Wells		
Lab ID:	0208188-09	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BDH**
Benzene	ND	1.0		µg/L	1	9/6/02
Toluene	ND	1.0		µg/L	1	9/6/02
Ethylbenzene	ND	1.0		µg/L	1	9/6/02
Naphthalene	ND	2.0		µg/L	1	9/6/02
Xylenes, Total	1.7	1.0		µg/L	1	9/6/02
Surr: 1,2-Dichloroethane-d4	103	74.6-123		%REC	1	9/6/02
Surr: 4-Bromofluorobenzene	107	73.5-126		%REC	1	9/6/02
Surr: Dibromofluoromethane	103	78.6-115		%REC	1	9/6/02
Surr: Toluene-d8	101	84.2-115		%REC	1	9/6/02

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quanititation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *09-Sep-02*

CLIENT:	San Juan Refining	**Client Sample ID:**	MW#9
Lab Order:	0208188	**Collection Date:**	8/28/02 4:00:00 PM
Project:	Annual Monitor Wells		
Lab ID:	0208188-10	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BDH**
Benzene	10000	250		µg/L	250	9/6/02
Toluene	5200	250		µg/L	250	9/6/02
Ethylbenzene	1900	50		µg/L	50	9/6/02
Naphthalene	480	100		µg/L	50	9/6/02
Xylenes, Total	7500	250		µg/L	250	9/6/02
Surr: 1,2-Dichloroethane-d4	115	74.6-123		%REC	50	9/6/02
Surr: 4-Bromofluorobenzene	101	73.5-126		%REC	50	9/6/02
Surr: Dibromofluoromethane	115	78.6-115		%REC	50	9/6/02
Surr: Toluene-d8	104	84.2-115		%REC	50	9/6/02

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quanititation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *09-Sep-02*

CLIENT: San Juan Refining
Client Sample ID: MW#4
Lab Order: 0208188
Collection Date: 8/29/02 9:30:00 AM
Project: Annual Monitor Wells
Lab ID: 0208188-12
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BDH**
Benzene	6500	250		µg/L	250	9/6/02
Toluene	88	50		µg/L	50	9/6/02
Ethylbenzene	1600	50		µg/L	50	9/6/02
Naphthalene	410	100		µg/L	50	9/6/02
Xylenes, Total	12000	250		µg/L	250	9/6/02
Surr: 1,2-Dichloroethane-d4	115	74.6-123		%REC	50	9/6/02
Surr: 4-Bromofluorobenzene	99.9	73.5-126		%REC	50	9/6/02
Surr: Dibromofluoromethane	106	78.6-115		%REC	50	9/6/02
Surr: Toluene-d8	107	84.2-115		%REC	50	9/6/02

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *09-Sep-02*

CLIENT: San Juan Refining
Lab Order: 0208188
Project: Annual Monitor Wells
Lab ID: 0208188-13

Client Sample ID: MW#3
Collection Date: 8/29/02 10:00:00 AM
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BDH**
Benzene	ND	1.0		µg/L	1	9/6/02
Toluene	ND	1.0		µg/L	1	9/6/02
Ethylbenzene	ND	1.0		µg/L	1	9/6/02
Naphthalene	ND	2.0		µg/L	1	9/6/02
Xylenes, Total	3.0	1.0		µg/L	1	9/6/02
Surr: 1,2-Dichloroethane-d4	98.1	74.6-123		%REC	1	9/6/02
Surr: 4-Bromofluorobenzene	105	73.5-126		%REC	1	9/6/02
Surr: Dibromofluoromethane	96.8	78.6-115		%REC	1	9/6/02
Surr: Toluene-d8	99.3	84.2-115		%REC	1	9/6/02

Qualifiers:
- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quanititation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *09-Sep-02*

CLIENT:	San Juan Refining	**Client Sample ID:**	Seep#3
Lab Order:	0208188	**Collection Date:**	8/29/02 1:30:00 PM
Project:	Annual Monitor Wells		
Lab ID:	0208188-14	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BDH**
Benzene	570	20		µg/L	20	9/7/02
Toluene	330	10		µg/L	10	9/6/02
Ethylbenzene	170	10		µg/L	10	9/6/02
Naphthalene	97	20		µg/L	10	9/6/02
Xylenes, Total	870	10		µg/L	10	9/6/02
Surr: 1,2-Dichloroethane-d4	104	74.6-123		%REC	10	9/6/02
Surr: 4-Bromofluorobenzene	98.8	73.5-126		%REC	10	9/6/02
Surr: Dibromofluoromethane	99.2	78.6-115		%REC	10	9/6/02
Surr: Toluene-d8	106	84.2-115		%REC	10	9/6/02

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quanititation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *09-Sep-02*

CLIENT: San Juan Refining
Work Order: 0208188
Project: Annual Monitor Wells

QC SUMMARY REPORT
Method Blank

Sample ID: MBLK	Batch ID: R5718	Test Code: E300	Units: mg/L	Analysis Date: 8/30/02	Prep Date:
Client ID:		Run ID: LC_020830A		SeqNo: 128685	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: CCB	Batch ID: R5718	Test Code: E300	Units: mg/L	Analysis Date: 8/30/02	Prep Date:
Client ID:		Run ID: LC_020830A		SeqNo: 128698	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: MBLK	Batch ID: R5737	Test Code: E300	Units: mg/L	Analysis Date: 9/3/02	Prep Date:
Client ID:		Run ID: LC_020904B		SeqNo: 129159	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0208188
Project: Annual Monitor Wells

QC SUMMARY REPORT
Method Blank

Sample ID: **5ml rb** Batch ID: **R5759** Test Code: **SW8260B** Units: **µg/L** Analysis Date: **9/5/02** Prep Date:
Client ID: Run ID: **THOR_020905A** SeqNo: **129719**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.0									
Toluene	ND	1.0									
Ethylbenzene	ND	1.0									
Methyl tert-butyl ether (MTBE)	ND	1.0									
1,2,4-Trimethylbenzene	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									
1,2-Dichloroethane (EDC)	0.474	1.0									J
1,2-Dibromoethane (EDB)	ND	1.0									
Naphthalene	ND	2.0									
1-Methylnaphthalene	1.276	4.0									J
2-Methylnaphthalene	1.122	4.0									J
Bromobenzene	ND	1.0									
Bromochloromethane	ND	1.0									
Bromodichloromethane	ND	1.0									
Bromoform	ND	1.0									
Bromomethane	ND	1.0									
Carbon Tetrachloride	ND	1.0									
Chlorobenzene	ND	1.0									
Chloroethane	ND	2.0									
Chloroform	ND	1.0									
Chloromethane	ND	1.0									
2-Chlorotoluene	ND	1.0									
4-Chlorotoluene	ND	1.0									
cis-1,2-DCE	ND	1.0									
cis-1,3-Dichloropropene	ND	1.0									
1,2-Dibromo-3-chloropropane	ND	2.0									
Dibromochloromethane	ND	1.0									
Dibromomethane	ND	2.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0208188
Project: Annual Monitor Wells

QC SUMMARY REPORT
Method Blank

1,2-Dichlorobenzene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
Dichlorodifluoromethane	ND	1.0
1,1-Dichloroethane	ND	1.0
1,1-Dichloroethene	ND	1.0
1,2-Dichloropropane	ND	1.0
1,3-Dichloropropane	ND	1.0
2,2-Dichloropropane	ND	1.0
1,1-Dichloropropene	ND	1.0
Hexachlorobutadiene	ND	1.0
Isopropylbenzene	ND	1.0
4-Isopropyltoluene	ND	1.0
Methylene Chloride	ND	3.0
n-Butylbenzene	ND	1.0
n-Propylbenzene	ND	1.0
sec-Butylbenzene	ND	1.0
Styrene	ND	1.0
tert-Butylbenzene	ND	1.0
Tetrachloroethene (PCE)	ND	1.0
1,1,1,2-Tetrachloroethane	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0
trans-1,2-DCE	ND	1.0
trans-1,3-Dichloropropene	ND	1.0
Trichloroethene (TCE)	ND	1.0
Trichlorofluoromethane	ND	1.0
1,2,3-Trichlorobenzene	ND	1.0
1,2,4-Trichlorobenzene	ND	1.0
1,1,1-Trichloroethane	ND	1.0
1,1,2-Trichloroethane	ND	1.0
Vinyl chloride	ND	2.0
1,2,3-Trichloropropane	ND	2.0
Xylenes, Total	ND	1.0

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0208188
Project: Annual Monitor Wells

QC SUMMARY REPORT
Method Blank

Surr: 1,2-Dichloroethane-d4	10.25	0	10	0	103	74.6	123	0
Surr: 4-Bromofluorobenzene	10.58	0	10	0	106	85.6	117	0
Surr: Dibromofluoromethane	9.98	0	10	0	99.8	78.6	115	0
Surr: Toluene-d8	10.41	0	10	0	104	84.2	115	0

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0208188
Project: Annual Monitor Wells

QC SUMMARY REPORT
Method Blank

Sample ID: **5ml rb b** Batch ID: **R5773** Test Code: **SW8260B** Units: **µg/L** Analysis Date: **9/6/02** Prep Date:
Client ID: Run ID: **THOR_020905B** SeqNo: **130248**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.0									
Toluene	0.422	1.0									J
Ethylbenzene	ND	1.0									
Methyl tert-butyl ether (MTBE)	ND	1.0									
1,2,4-Trimethylbenzene	0.322	1.0									J
1,3,5-Trimethylbenzene	0.384	1.0									J
1,2-Dichloroethane (EDC)	0.478	1.0									J
1,2-Dibromoethane (EDB)	ND	1.0									
Naphthalene	ND	2.0									
1-Methylnaphthalene	1.298	4.0									J
2-Methylnaphthalene	1.332	4.0									J
Bromobenzene	ND	1.0									
Bromochloromethane	ND	1.0									
Bromodichloromethane	ND	1.0									
Bromoform	ND	1.0									
Bromomethane	ND	1.0									
Carbon Tetrachloride	ND	1.0									
Chlorobenzene	ND	1.0									
Chloroethane	ND	2.0									
Chloroform	ND	1.0									
Chloromethane	ND	1.0									
2-Chlorotoluene	ND	1.0									
4-Chlorotoluene	ND	1.0									
cis-1,2-DCE	ND	1.0									
cis-1,3-Dichloropropene	ND	1.0									
1,2-Dibromo-3-chloropropane	ND	2.0									
Dibromochloromethane	ND	1.0									
Dibromomethane	ND	2.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0208188
Project: Annual Monitor Wells

QC SUMMARY REPORT
Method Blank

1,2-Dichlorobenzene	ND	1.0	
1,3-Dichlorobenzene	ND	1.0	
1,4-Dichlorobenzene	ND	1.0	
Dichlorodifluoromethane	ND	1.0	
1,1-Dichloroethane	ND	1.0	
1,1-Dichloroethene	ND	1.0	
1,2-Dichloropropane	ND	1.0	
1,3-Dichloropropane	ND	1.0	
2,2-Dichloropropane	ND	1.0	
1,1-Dichloropropene	ND	1.0	
Hexachlorobutadiene	ND	1.0	
Isopropylbenzene	ND	1.0	
4-Isopropyltoluene	ND	1.0	
Methylene Chloride	ND	3.0	
n-Butylbenzene	ND	1.0	
n-Propylbenzene	0.258	1.0	J
sec-Butylbenzene	ND	1.0	
Styrene	ND	1.0	
tert-Butylbenzene	ND	1.0	
Tetrachloroethene (PCE)	ND	1.0	
1,1,1,2-Tetrachloroethane	ND	1.0	
1,1,2,2-Tetrachloroethane	ND	1.0	
trans-1,2-DCE	ND	1.0	
trans-1,3-Dichloropropene	ND	1.0	
Trichloroethene (TCE)	ND	1.0	
Trichlorofluoromethane	ND	1.0	
1,2,3-Trichlorobenzene	ND	1.0	
1,2,4-Trichlorobenzene	ND	1.0	
1,1,1-Trichloroethane	ND	1.0	
1,1,2-Trichloroethane	ND	1.0	
Vinyl chloride	ND	2.0	
1,2,3-Trichloropropane	ND	2.0	
Xylenes, Total	0.648	1.0	J

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0208188
Project: Annual Monitor Wells

QC SUMMARY REPORT
Method Blank

Surr: 1,2-Dichloroethane-d4	10.1	0	10	0	101	74.6	123	0
Surr: 4-Bromofluorobenzene	10.08	0	10	0	101	85.6	117	0
Surr: Dibromofluoromethane	9.426	0	10	0	94.3	78.6	115	0
Surr: Toluene-d8	10.47	0	10	0	105	84.2	115	0

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0208188
Project: Annual Monitor Wells

QC SUMMARY REPORT
Method Blank

Sample ID: **5ml rb** Batch ID: **R5781** Test Code: **SW8260B** Units: **µg/L** Analysis Date: **9/9/02** Prep Date:
Client ID: Run ID: **THOR_020909A** SeqNo: **130371**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.0									
Toluene	ND	1.0									
Ethylbenzene	ND	1.0									
Methyl tert-butyl ether (MTBE)	ND	1.0									
1,2,4-Trimethylbenzene	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									
1,2-Dichloroethane (EDC)	0.482	1.0									J
1,2-Dibromoethane (EDB)	ND	1.0									
Naphthalene	ND	2.0									
1-Methylnaphthalene	1.432	4.0									J
2-Methylnaphthalene	1.37	4.0									J
Bromobenzene	ND	1.0									
Bromochloromethane	ND	1.0									
Bromodichloromethane	ND	1.0									
Bromoform	ND	1.0									
Bromomethane	ND	1.0									
Carbon Tetrachloride	ND	1.0									
Chlorobenzene	0.374	1.0									J
Chloroethane	ND	2.0									
Chloroform	ND	1.0									
Chloromethane	ND	1.0									
2-Chlorotoluene	ND	1.0									
4-Chlorotoluene	ND	1.0									
cis-1,2-DCE	ND	1.0									
cis-1,3-Dichloropropene	ND	1.0									
1,2-Dibromo-3-chloropropane	ND	2.0									
Dibromochloromethane	ND	1.0									
Dibromomethane	ND	2.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0208188
Project: Annual Monitor Wells

QC SUMMARY REPORT
Method Blank

1,2-Dichlorobenzene	0.738	1.0	J
1,3-Dichlorobenzene	ND	1.0	
1,4-Dichlorobenzene	ND	1.0	
Dichlorodifluoromethane	ND	1.0	
1,1-Dichloroethane	ND	1.0	
1,1-Dichloroethene	ND	1.0	
1,2-Dichloropropane	ND	1.0	
1,3-Dichloropropane	ND	1.0	
2,2-Dichloropropane	ND	1.0	
1,1-Dichloropropene	ND	1.0	
Hexachlorobutadiene	ND	1.0	
Isopropylbenzene	ND	1.0	
4-Isopropyltoluene	ND	1.0	
Methylene Chloride	ND	3.0	
n-Butylbenzene	ND	1.0	
n-Propylbenzene	ND	1.0	
sec-Butylbenzene	ND	1.0	
Styrene	ND	1.0	
tert-Butylbenzene	ND	1.0	
Tetrachloroethene (PCE)	ND	1.0	
1,1,1,2-Tetrachloroethane	ND	1.0	
1,1,2,2-Tetrachloroethane	ND	1.0	
trans-1,2-DCE	ND	1.0	
trans-1,3-Dichloropropene	ND	1.0	
Trichloroethene (TCE)	ND	1.0	
Trichlorofluoromethane	ND	1.0	
1,2,3-Trichlorobenzene	ND	1.0	
1,2,4-Trichlorobenzene	ND	1.0	
1,1,1-Trichloroethane	ND	1.0	
1,1,2-Trichloroethane	ND	1.0	
Vinyl chloride	ND	2.0	
1,2,3-Trichloropropane	ND	2.0	
Xylenes, Total	0.256	1.0	J

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0208188
Project: Annual Monitor Wells

QC SUMMARY REPORT
Method Blank

Surr: 1,2-Dichloroethane-d4	10.3	0	10	0	103	74.6	123	0
Surr: 4-Bromofluorobenzene	9.904	0	10	0	99.0	85.6	117	0
Surr: Dibromofluoromethane	9.922	0	10	0	99.2	78.6	115	0
Surr: Toluene-d8	10.28	0	10	0	103	84.2	115	0

Sample ID: **BLK** Batch ID: **R5783** Test Code: **SW6010A** Units: **mg/L** Analysis Date: **9/9/02 9:52:54 AM** Prep Date:
Client ID: Run ID: **ICP_020909B** SeqNo: **130394**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	0.020									

Sample ID: **BLK** Batch ID: **R5783** Test Code: **SW6010A** Units: **mg/L** Analysis Date: **9/9/02 11:12:51 AM** Prep Date:
Client ID: Run ID: **ICP_020909B** SeqNo: **130418**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	0.020									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *09-Sep-02*

CLIENT: San Juan Refining
Work Order: 0208188
Project: Annual Monitor Wells

QC SUMMARY REPORT

Sample Duplicate

Sample ID: **0208188-01B** Batch ID: **R5718** Test Code: **E300** Units: **mg/L** Analysis Date: **8/30/02** Prep Date:

Client ID: **MW#34** Run ID: **LC_020830A** SeqNo: **128700**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	9.108	5.0	0	0	0	0	0	9.058	0.550	20	

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *09-Sep-02*

CLIENT: San Juan Refining
Work Order: 0208188
Project: Annual Monitor Wells

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS**	Batch ID: **R5718**	Test Code: **E300**	Units: **mg/L**	Analysis Date: **8/30/02**	Prep Date:
Client ID:		Run ID: **LC_020830A**		SeqNo: **128686**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.974	0.50	4	0	99.4	90	110	0			

Sample ID: **LCS2**	Batch ID: **R5718**	Test Code: **E300**	Units: **mg/L**	Analysis Date: **8/30/02**	Prep Date:
Client ID:		Run ID: **LC_020830A**		SeqNo: **128687**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	30.68	0.50	32	0	95.9	90	110	0			

Sample ID: **LCS**	Batch ID: **R5737**	Test Code: **E300**	Units: **mg/L**	Analysis Date: **9/3/02**	Prep Date:
Client ID:		Run ID: **LC_020904B**		SeqNo: **129160**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.123	0.50	4	0	103	90	110	0			

Sample ID: **LCS2**	Batch ID: **R5737**	Test Code: **E300**	Units: **mg/L**	Analysis Date: **9/3/02**	Prep Date:
Client ID:		Run ID: **LC_020904B**		SeqNo: **129161**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	30.57	0.50	32	0	95.5	90	110	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0208188
Project: Annual Monitor Wells

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID: **lcst** Batch ID: **R5759** Test Code: **SW8260B** Units: **µg/L** Analysis Date: **9/5/02** Prep Date:
Client ID: Run ID: **THOR_020905A** SeqNo: **129720**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.4	1.0	20	0	102	78.7	122	0			
Toluene	20.65	1.0	20	0	103	87.7	122	0			
Chlorobenzene	20.95	1.0	20	0	105	85.6	136	0			
1,1-Dichloroethene	19.72	1.0	20	0	98.6	70.7	117	0			
Trichloroethene (TCE)	21.07	1.0	20	0	105	82.1	125	0			

Sample ID: **100ng lcs b** Batch ID: **R5773** Test Code: **SW8260B** Units: **µg/L** Analysis Date: **9/6/02** Prep Date:
Client ID: Run ID: **THOR_020905B** SeqNo: **130251**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.54	1.0	20	0	103	78.7	122	0			
Toluene	20.28	1.0	20	0.422	99.3	87.7	122	0			
Chlorobenzene	22.84	1.0	20	0	114	85.6	136	0			
1,1-Dichloroethene	18.03	1.0	20	0	90.1	70.7	117	0			
Trichloroethene (TCE)	19.84	1.0	20	0	99.2	76.9	130	0			

Sample ID: **100ng lcs** Batch ID: **R5781** Test Code: **SW8260B** Units: **µg/L** Analysis Date: **9/9/02** Prep Date:
Client ID: Run ID: **THOR_020909A** SeqNo: **130373**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.29	1.0	20	0	106	78.7	122	0			
Toluene	20.15	1.0	20	0	101	87.7	122	0			
Chlorobenzene	22.5	1.0	20	0.374	111	85.6	136	0			
1,1-Dichloroethene	18.93	1.0	20	0	94.6	70.7	117	0			
Trichloroethene (TCE)	21.05	1.0	20	0	105	76.9	130	0			

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits

CLIENT: San Juan Refining
Work Order: 0208188
Project: Annual Monitor Wells

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID: LCS	Batch ID: R5783	Test Code: SW6010A	Units: mg/L	Analysis Date: 9/9/02 9:54:59 AM	Prep Date:
Client ID:		Run ID: ICP_020909B		SeqNo: 130395	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.128	0.020	1	0	113	76.3	122	0			

Sample ID: LCS	Batch ID: R5783	Test Code: SW6010A	Units: mg/L	Analysis Date: 9/9/02 11:14:58 AM	Prep Date:
Client ID:		Run ID: ICP_020909B		SeqNo: 130419	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.072	0.020	1	0	107	76.3	122	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345-3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining

Project Name: Annual Moniter Wells

Address: #50 CR 4990 Bloomfield, NM 87413

Project #:

Project Manager: Cindy Hurtado

Phone #: 505-632-4161

Sampler: Cindy Hurtado, Melvin Lassler

Fax #: 505-632-3911

Samples Cold?: ☒ Yes ☐ No

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: HCl	Preservative: H_2SO_3	HEAL No.
8-26-02	130pm	H_2O	MW #34	3-VOA 2-bttle		X	X	208188-1
8-26-02	330 pm	"	MW #11	3-VOA 2-bttl		X	X	-2
8-26-02	4pm	"	MW #35	3-VOA 2-bttle		X	X	-3
8-27-02	130pm	H_2O	MW #36	3-VOA		X		-4
8-27-02	245pm	"	RW #17	3-VOA		X		-5
8-27-02	430pm	"	MW #1	3-VOA		X		-6

ANALYSIS REQUEST

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	Volatiles Full List (8021)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA) BTEX, NAPthalene	8270 (Semi-VOA)	Dissolved Iron	SO_4	Air Bubbles or Headspace (Y or N)
												X		X	X	
												X		X	X	
												X		X	X	
												X				
												X				
												X				
												X				

Date: 8-29-02 Time: 3pm Relinquished By: (Signature) Cindy Hurtado

Received By: (Signature) 8/30/02 1035

Date: Time: Relinquished By: (Signature)

Received By: (Signature)

Remarks:

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345-3975 Fax 505.345.4107
www.hallenvironmental.com

Client: SAN Juan Refining

Address: 50 CR 4990
Bloomfield, NM
87413

Phone #: 505-632-4161

Fax #: 505-632-3911

Project Name: ANNual Monitor Wells

Project #:

Project Manager: Cindy Hurtado

Sampler: Cindy Hurtado, Melvin Lassker

Samples Cold?: ☒ Yes ☐ No

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative			HEAL No.
					$HgCl_2$	HCl	HNO_3	
8-28-02	235p	H_2O	MW #8	3-VOA 2-bttl		X	X	120188-7
8-28-02	2pm		MW #12	3-VOA		X		-8
8-28-02	25pm		MW #27	3-VOA		X		-9
8-28-02	4pm		MW #9	3-VOA		X		-10
8-29-02	945Am	H_2O	RW #15	3-VOA 2-bttl		X	X	-11
8-29-02	930Am		MW #4	3-VOA		X		-12
8-29-02	10Am		MW #3	3-VOA		X		-13
8-29-02	130pm		Seep #3	3-VOA		X		-14

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
8-29-02	3pm	Cindy Hurtado	8/30/02 1035
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

ANALYSIS REQUEST

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	Volatiles Full List (8021)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA) BTEX, Naphthalene	8270 (Semi-VOA)	SO_4	Dissolved Fe	Air Bubbles or Headspace (Y or N)
												X		X	X	
												X				
												X				
												X				
												X		X	X	
												X				
												X				
												X				
												X				

Remarks:

Hall Environmental Analysis Laboratory

COVER LETTER

December 09, 2002

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4161
FAX (505) 632-3911

RE: Annual Monitor Wells

Order No.: 0212034

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 2 samples on 12/6/2002 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

Hall Environmental Analysis Laboratory

Date: *09-Dec-02*

CLIENT: San Juan Refining
Client Sample ID: P-#4
Lab Order: 0212034
Collection Date: 12/5/2002 12:15:00 PM
Project: Annual Monitor Wells
Lab ID: 0212034-01
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BDH**
Benzene	5900	100		µg/L	100	12/6/2002
Toluene	ND	100		µg/L	100	12/6/2002
Ethylbenzene	4300	100		µg/L	100	12/6/2002
Naphthalene	420	200		µg/L	100	12/6/2002
Xylenes, Total	13000	100		µg/L	100	12/6/2002
Surr: 1,2-Dichloroethane-d4	91.2	74.6-123		%REC	100	12/6/2002
Surr: 4-Bromofluorobenzene	96.4	73.5-126		%REC	100	12/6/2002
Surr: Dibromofluoromethane	93.7	78.6-115		%REC	100	12/6/2002
Surr: Toluene-d8	99.8	84.2-115		%REC	100	12/6/2002

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *09-Dec-02*

CLIENT: San Juan Refining
Client Sample ID: P-#5
Lab Order: 0212034
Collection Date: 12/5/2002 12:30:00 PM
Project: Annual Monitor Wells
Lab ID: 0212034-02
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BDH**
Benzene	1400	100		µg/L	100	12/6/2002
Toluene	ND	100		µg/L	100	12/6/2002
Ethylbenzene	4000	100		µg/L	100	12/6/2002
Naphthalene	570	200		µg/L	100	12/6/2002
Xylenes, Total	20000	250		µg/L	250	12/6/2002
Surr: 1,2-Dichloroethane-d4	89.3	74.6-123		%REC	100	12/6/2002
Surr: 4-Bromofluorobenzene	96.1	73.5-126		%REC	100	12/6/2002
Surr: Dibromofluoromethane	90.7	78.6-115		%REC	100	12/6/2002
Surr: Toluene-d8	99.5	84.2-115		%REC	100	12/6/2002

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *09-Dec-02*

CLIENT: San Juan Refining
Work Order: 0212034
Project: Annual Monitor Wells

QC SUMMARY REPORT

Method Blank

Sample ID **5ml rb** Batch ID: **R6638** Test Code: **SW8260B** Units: **µg/L** Analysis Date **12/6/2002** Prep Date

Client ID: Run ID: **THOR_021206A** SeqNo: **151763**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.0									
Toluene	ND	1.0									
Ethylbenzene	0.738	1.0									J
Methyl tert-butyl ether (MTBE)	ND	1.0									
1,2,4-Trimethylbenzene	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									
1,2-Dichloroethane (EDC)	0.318	1.0									J
1,2-Dibromoethane (EDB)	ND	1.0									
Naphthalene	ND	2.0									
1-Methylnaphthalene	1.06	4.0									J
2-Methylnaphthalene	1.02	4.0									J
Bromobenzene	ND	1.0									
Bromochloromethane	ND	1.0									
Bromodichloromethane	ND	1.0									
Bromoform	ND	1.0									
Bromomethane	ND	1.0									
Carbon Tetrachloride	ND	1.0									
Chlorobenzene	ND	1.0									
Chloroethane	ND	2.0									
Chloroform	0.916	1.0									J
Chloromethane	ND	1.0									
2-Chlorotoluene	ND	1.0									
4-Chlorotoluene	ND	1.0									
cis-1,2-DCE	ND	1.0									
cis-1,3-Dichloropropene	ND	1.0									
1,2-Dibromo-3-chloropropane	ND	2.0									
Dibromochloromethane	ND	1.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

I

CLIENT: San Juan Refining
Work Order: 0212034
Project: Annual Monitor Wells

QC SUMMARY REPORT
Method Blank

Dibromomethane	ND	2.0
1,2-Dichlorobenzene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
Dichlorodifluoromethane	ND	1.0
1,1-Dichloroethane	ND	1.0
1,1-Dichloroethene	ND	1.0
1,2-Dichloropropane	ND	1.0
1,3-Dichloropropane	ND	1.0
2,2-Dichloropropane	ND	1.0
1,1-Dichloropropene	ND	1.0
Hexachlorobutadiene	ND	1.0
Isopropylbenzene	ND	1.0
4-Isopropyltoluene	ND	1.0
Methylene Chloride	ND	3.0
n-Butylbenzene	ND	1.0
n-Propylbenzene	ND	1.0
sec-Butylbenzene	ND	1.0
Styrene	ND	1.0
tert-Butylbenzene	ND	1.0
Tetrachloroethene (PCE)	ND	1.0
1,1,1,2-Tetrachloroethane	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0
trans-1,2-DCE	ND	1.0
trans-1,3-Dichloropropene	ND	1.0
Trichloroethene (TCE)	ND	1.0
Trichlorofluoromethane	ND	1.0
1,2,3-Trichlorobenzene	ND	1.0
1,2,4-Trichlorobenzene	ND	1.0
1,1,1-Trichloroethane	ND	1.0
1,1,2-Trichloroethane	ND	1.0
Vinyl chloride	ND	2.0
1,2,3-Trichloropropane	ND	2.0

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0212034
Project: Annual Monitor Wells

QC SUMMARY REPORT
Method Blank

Xylenes, Total	ND	1.0						
Surr: 1,2-Dichloroethane-d4	8.778	0	10	0	87.8	74.6	123	0
Surr: 4-Bromofluorobenzene	10.06	0	10	0	101	85.6	117	0
Surr: Dibromofluoromethane	9.032	0	10	0	90.3	78.6	115	0
Surr: Toluene-d8	9.922	0	10	0	99.2	84.2	115	0

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *09-Dec-02*

CLIENT: San Juan Refining
Work Order: 0212034
Project: Annual Monitor Wells

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID **100ng lcs** Batch ID: **R6638** Test Code: **SW8260B** Units: **µg/L** Analysis Date **12/6/2002** Prep Date

Client ID: Run ID: **THOR_021206A** SeqNo: **151764**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.01	1.0	20	0	95.1	78.7	122	0			
Toluene	20.94	1.0	20	0	105	87.7	122	0			
Chlorobenzene	22.41	1.0	20	0	112	85.6	136	0			
1,1-Dichloroethene	15.78	1.0	20	0	78.9	70.7	117	0			
Trichloroethene (TCE)	18.63	1.0	20	0	93.1	76.9	130	0			

Sample ID **100ng lcsd** Batch ID: **R6638** Test Code: **SW8260B** Units: **µg/L** Analysis Date **12/6/2002** Prep Date

Client ID: Run ID: **THOR_021206A** SeqNo: **151765**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	18.42	1.0	20	0	92.1	78.7	122	19.01	3.15	11	
Toluene	19.09	1.0	20	0	95.5	87.7	122	20.94	9.24	12.2	
Chlorobenzene	22.47	1.0	20	0	112	85.6	136	22.41	0.285	12	
1,1-Dichloroethene	14.79	1.0	20	0	73.9	70.7	117	15.78	6.47	19.3	
Trichloroethene (TCE)	18.38	1.0	20	0	91.9	76.9	130	18.63	1.35	15.5	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345-3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining

Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

Fax #: 505-632-3911

Project Name: Annual Monitor Wells

Project #: Piezometers

Project Manager: Cindy Hurtado

Sampler: Cindy Hurtado

Samples Cold?: ☒ Yes ☐ No

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative H_2O_2	Preservative HCl		HEAL No.
								AT
12-05-02	1215p	H_2O	P-#4	3-VOA		X		212034-1 ~~212053-1~~
12-05-02	1230p	H_2O	P-#5	3-VOA		X		-2

ANALYSIS REQUEST

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	Volatiles Full List (8021)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA) BTEX Naphthalene	8270 (Semi-VOA)			Air Bubbles or Headspace (Y or N)
												X X				
												X				

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	Date:	Time:
12-05-02	130pm	Cindy Hurtado	12/6/02		
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)		

Remarks:

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

Pinnacle Lab ID number **201076**
January 28, 2002

SAN JUAN REFINING CO.
#50 ROAD 4990
BLOOMFIELD, NM 87413

Project Name HAMMOND DITCH WEST
Project Number 021601

Attention: BARRY HOLMAN

On 01/17/02 Pinnacle Laboratories, Inc., (ADHS License No. AZ0592 pending), received a request to analyze **aqueous and non-aq** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

H. Mitchell Rubenstein, Ph. D.
General Manager

MR: jt

Enclosure

PINNACLE LABORATORIES

2709-D Pan American Freeway N
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

CLIENT	: SAN JUAN REFINING CO.	PINNACLE ID	: 201076
PROJECT #	: 021601	DATE RECEIVED	: 01/17/02
PROJECT NAME	: HAMMOND DITCH WEST	REPORT DATE	: 01/28/02

PINNACLE ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
201076 - 01	#1 HAMMOND	NON-AQ	01/15/02
201076 - 02	#2 HAMMOND	NON-AQ	01/15/02
201076 - 03	#1 DITCH	NON-AQ	01/16/02
201076 - 04	#2 DITCH	NON-AQ	01/16/02
201076 - 05	#1 WATER	AQUEOUS	01/18/02
201076 - 06	#2 WATER	AQUEOUS	01/18/02

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GENERAL CHEMISTRY RESULTS
418.1

CLIENT	: SAN JUAN REFINING CO.	PINNACLE I.D.	: 201076
PROJECT #	: 021601	DATE RECEIVED	: 01/17/02
PROJECT NAME	: HAMMOND DITCH WEST		

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	#1 HAMMOND	NON-AQ	01/15/02	01/18/02	01/18/02	10
02	#2 HAMMOND	NON-AQ	01/15/02	01/18/02	01/18/02	1
03	#1 DITCH	NON-AQ	01/16/02	01/18/02	01/18/02	1

PARAMETER	DET. LIMIT	UNITS	#1 HAMMOND	#2 HAMMOND	#1 DITCH
PETROLEUM HYDROCARBONS	20	**MG/KG**	**3400**	**250**	< 20
DRY WEIGHT (%)			89	91	78

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GENERAL CHEMISTRY RESULTS
418.1

CLIENT	: SAN JUAN REFINING CO.	PINNACLE I.D.	: 201076
PROJECT #	: 021601	DATE RECEIVED	: 01/17/02
PROJECT NAME	: HAMMOND DITCH WEST		

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	#2 DITCH	NON-AQ	01/16/02	01/18/02	01/18/02	1

PARAMETER	DET. LIMIT	UNITS	#2 DITCH
PETROLEUM HYDROCARBONS	20	**MG/KG**	**21**
DRY WEIGHT (%)			83

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GENERAL CHEMISTRY - REAGENT BLANK
418.1

CLIENT	: SAN JUAN REFINING CO.	PINNACLE I.D.	: 201076
PROJECT #	: 021601	SAMPLE MATRIX	: NON-AQ
PROJECT NAME	: HAMMOND DITCH WEST	UNITS	: MG/KG

PARAMETER	REAGENT BLANK I.D.	SAMPLE RESULT
PETROLEUM HYDROCARBONS	011802	<20

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GENERAL CHEMISTRY - QUALITY CONTROL
418.1

CLIENT	: SAN JUAN REFINING CO.	PINNACLE I.D.	: 201076
PROJECT #	: 021601	SAMPLE MATRIX	: NON-AQ
PROJECT NAME	: HAMMOND DITCH WEST	UNITS	: MG/KG

PARAMETER	BLANK I.D.	SAMPLE RESULT	DUP. RESULT	% RPD	SPIKED SAMPLE	SPIKE CONC.	% REC
PETROLEUM HYDROCARBONS	201076-03	<20	<20	N/A	159	154	103%

CHEMIST NOTES:
N/A

$$\text{Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : SAN JUAN REFINING CO. PINNACLE I.D.: 201076
PROJECT # : 021601
PROJECT NAME : HAMMOND DITCH WEST

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	#1 HAMMOND	NON-AQ	01/15/02	01/17/02	01/18/02	25
02	#2 HAMMOND	NON-AQ	01/15/02	01/17/02	01/18/02	1
03	#1 DITCH	NON-AQ	01/16/02	01/17/02	01/18/02	1

PARAMETER	DET. LIMIT	UNITS	#1 HAMMOND	#2 HAMMOND	#1 DITCH
BENZENE	0.025	**MG/KG**	**2.6**	< 0.025	< 0.025
TOLUENE	0.025	**MG/KG**	**3.3**	**0.065**	< 0.025
ETHYLBENZENE	0.025	**MG/KG**	**11**	**0.22**	< 0.025
TOTAL XYLENES	0.050	**MG/KG**	**130**	**2.2**	**0.056**
SURROGATE:					
BROMOFLUOROBENZENE (%)			100	118	86
SURROGATE LIMITS	(65 - 120)				

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : SAN JUAN REFINING CO.
PROJECT # : 021601
PROJECT NAME : HAMMOND DITCH WEST

PINNACLE I.D.: 201076

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	#2 DITCH	NON-AQ	01/16/02	01/17/02	01/18/02	1

PARAMETER	DET. LIMIT	UNITS	#2 DITCH
BENZENE	0.025	**MG/KG**	**0.038**
TOLUENE	0.025	MG/KG	< 0.025
ETHYLBENZENE	0.025	**MG/KG**	**0.065**
TOTAL XYLENES	0.050	**MG/KG**	**1.5**

SURROGATE:
BROMOFLUOROBENZENE (%) 120
SURROGATE LIMITS (65 - 120)

CHEMIST NOTES:
N/A

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GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 201076
BLANK I. D.	: SRB 11702B	DATE EXTRACTED	: 01/17/02
CLIENT	: SAN JUAN REFINING CO.	DATE ANALYZED	: 01/18/02
PROJECT #	: 021601	SAMPLE MATRIX	: NON-AQ
PROJECT NAME	: HAMMOND DITCH WEST		

PARAMETER	UNITS	
BENZENE	MG/KG	<0.025
TOLUENE	MG/KG	<0.025
ETHYLBENZENE	MG/KG	<0.025
TOTAL XYLENES	MG/KG	<0.050
SURROGATE:		
BROMOFLUOROBENZENE (%)		104
SURROGATE LIMITS:	(80 - 120)	

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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GAS CHROMATOGRAPHY QUALITY CONTROL
LCS/LCSD

TEST	: EPA 8021 MODIFIED		
BATCH ID#	: 011802	PINNACLE I.D.	: 201076
CLIENT	: SAN JUAN REFINING CO.	DATE EXRACTED	: 01/17/02
PROJECT #	: 021601	DATE ANALYZED	: 01/18/02
PROJECT NAME	: HAMMOND DITCH WEST	SAMPLE MATRIX	: NON-AQ
		UNITS	: MG/KG

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.025	1.00	1.02	103	0.99	99	3	(68 - 120)	20
TOLUENE	<0.025	1.00	1.02	102	0.99	99	3	(64 - 120)	20
ETHYLBENZENE	<0.025	1.00	1.02	103	0.99	100	3	(49 - 127)	20
TOTAL XYLENES	<0.050	3.00	3.13	105	3.03	101	3	(58 - 120)	20
METHYL-t-BUTYL ETHER	<0.13	1.00	1.08	108	1.00	101	8	(66 - 120)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

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GAS CHROMATOGRAPHY QUALITY CONTROL
MS/MSD

TEST	: EPA 8021 MODIFIED		
MSMSD #	: 201076-03	PINNACLE I.D.	: 201076
CLIENT	: SAN JUAN REFINING CO.	DATE EXTRACTED	: 01/17/02
PROJECT #	: 021601	DATE ANALYZED	: 01/18/02
PROJECT NAME	: HAMMOND DITCH WEST	SAMPLE MATRIX	: NON-AQ
		UNITS	: MG/KG

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.025	1.00	0.94	94	0.94	94	0	(68 - 120)	20
TOLUENE	<0.025	1.00	0.98	98	0.97	97	1	(64 - 120)	20
ETHYLBENZENE	<0.025	1.00	0.92	92	0.92	92	0	(49 - 127)	20
TOTAL XYLENES	0.056	3.00	2.85	93	2.82	92	1	(58 - 120)	20
METHYL-t-BUTYL ETHER	<0.13	1.00	1.01	101	0.94	94	7	(66 - 120)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

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GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : SAN JUAN REFINING CO.
PROJECT # : 021601
PROJECT NAME : HAMMOND DITCH WEST

PINNACLE I.D.: 201076

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
05	#1 WATER	AQUEOUS	01/18/02	NA	01/18/02	10
06	#2 WATER	AQUEOUS	01/18/02	NA	01/18/02	10

PARAMETER	DET. LIMIT	UNITS	#1 WATER	#2 WATER
BENZENE	0.5	**UG/L**	**54**	**110**
TOLUENE	0.5	UG/L	< 5.0	< 5.0
ETHYLBENZENE	0.5	**UG/L**	**22**	**36**
TOTAL XYLENES	1.0	**UG/L**	**420**	**700**
SURROGATE:				
BROMOFLUOROBENZENE (%)			117	108
SURROGATE LIMITS	(80 - 120)			

CHEMIST NOTES:
N/A

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GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 201076
BLANK I. D.	: 011702	DATE EXTRACTED	: N/A
CLIENT	: SAN JUAN REFINING CO.	DATE ANALYZED	: 01/17/02
PROJECT #	: 021601	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: HAMMOND DITCH WEST		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<1.0
SURROGATE:		
BROMOFLUOROBENZENE (%)		103
SURROGATE LIMITS:	(80 - 120)	

CHEMIST NOTES:
NA

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GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 201076
BLANK I. D.	: 011802	DATE EXTRACTED	: N/A
CLIENT	: SAN JUAN REFINING CO.	DATE ANALYZED	: 01/18/02
PROJECT #	: 021601	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: HAMMOND DITCH WEST		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<1.0
SURROGATE:		
BROMOFLUOROBENZENE (%)		105
SURROGATE LIMITS:	(80 - 120)	

CHEMIST NOTES:

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GAS CHROMATOGRAPHY QUALITY CONTROL
LCS/LCSD

TEST	: EPA 8021 MODIFIED		
BATCH ID#	: 011702	PINNACLE I.D.	: 201076
CLIENT	: SAN JUAN REFINING CO.	DATE EXTRACTED	: N/A
PROJECT #	: 021601	DATE ANALYZED	: 01/17/02
PROJECT NAME	: HAMMOND DITCH WEST	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	20.0	20.7	104	20.2	101	2	(80 - 120)	20
TOLUENE	<0.5	20.0	20.7	104	20.1	101	3	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	20.8	104	20.3	102	2	(80 - 120)	20
TOTAL XYLENES	<1.0	60.0	63.2	105	62.4	104	1	(80 - 120)	20
METHYL-t-BUTYL ETHER	<2.5	20.0	20.6	103	20.4	102	1	(70 - 133)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

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GAS CHROMATOGRAPHY QUALITY CONTROL
LCS/LCSD

TEST	: EPA 8021 MODIFIED		
BATCH ID#	: 011802	PINNACLE I.D.	: 201076
CLIENT	: SAN JUAN REFINING CO.	DATE EXRACTED	: N/A
PROJECT #	: 021601	DATE ANALYZED	: 01/18/02
PROJECT NAME	: HAMMOND DITCH WEST	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	20.0	20.5	103	19.8	99	3	(80 - 120)	20
TOLUENE	<0.5	20.0	20.4	102	19.8	99	3	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	20.5	103	19.9	100	3	(80 - 120)	20
TOTAL XYLENES	<1.0	60.0	62.7	105	60.6	101	3	(80 - 120)	20
METHYL-t-BUTYL ETHER	<2.5	20.0	21.6	108	20.1	101	7	(70 - 133)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

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GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED		
MSMSD #	: 201074-01	PINNACLE I.D.	: 201076
CLIENT	: SAN JUAN REFINING CO.	DATE EXRACTED	: N/A
PROJECT #	: 021601	DATE ANALYZED	: 01/17/02
PROJECT NAME	: HAMMOND DITCH WEST	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	20.0	20.8	104	20.4	102	2	(80 - 120)	20
TOLUENE	<0.5	20.0	20.7	104	20.6	103	0	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	20.7	104	20.7	104	0	(80 - 120)	20
TOTAL XYLENES	<1.0	60.0	63.1	105	62.7	105	1	(80 - 120)	20
METHYL-t-BUTYL ETHER	<2.5	20.0	18.2	91	17.6	88	3	(70 - 133)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

PINNACLE LABORATORIES

Pinnacle Laboratories Inc.

CHAIN OF CUSTODY

DATE: 1-17-02 PAGE: 1 OF 1

PLI Accession #: 201076

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: BARRY HOLMAN

COMPANY: SAN JUAN Refining Co.

ADDRESS: #50 CR 4990
Bloomfield NM. 87413

PHONE: 505-632-4168

FAX: 505-632-3911

BILL TO: Same

COMPANY:

ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/~~8015~~ (Gasoline) MTBE	8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐	8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics	8260 (CUST) Volatile Organics	8260 (Landfill) Volatile Organics	Pesticides /PCB (608/8081/8082)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310/8270-SIMS)	General Chemistry:		Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBER OF CONTAINERS
#1 Hammond	1-15-02	315pm	Soil	01	X			X																							1
#2 Hammond	1-15-02	330pm	Soil	02	X			X																							1
#1 Ditch	1-16-02	110pm	Soil	03	X			X																							1
#2 Ditch	1-16-02	110pm	Soil	04	X			X																							1
#1 Water	1-18-02	850 Am	H_2O	05				X																							2
#2 Water	1-18-02	855Am	H_2O	06				X																							2

PROJECT INFORMATION

PROJ. NO.: 02160 1

PROJ. NAME: Hammond D.Tch West

P.O. NO.:

SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	8
CUSTODY SEALS	Y / N (NA)
RECEIVED INTACT	YES
BLUE ICE (CE)	3.5°

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☒ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☐

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY: 1.

Signature: Barry Holman Time: 9:20 Am

Printed Name: BARRY HOLMAN Date: 1/18/02

Company:

See reverse side (Force Majeure)

RECEIVED BY: 1.

Signature: Time:

Printed Name: Date:

Company:

RELINQUISHED BY: 2.

Signature: Time:

Printed Name: Date:

Company:

RECEIVED BY: (LAB) 2.

Signature: Francine Tarvio Time: 1630

Printed Name: Francine Tarvio Date: 1/18/02

Pinnacle Laboratories

PINNACLE LABORATORIES

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Pinnacle Lab ID number 203052
March 27, 2002

SAN JUAN REFINING CO.
#50 ROAD 4990
BLOOMFIELD, NM 87413

Project Name HD-EAST OUTFALL
Project Number 31402

Attention: CINDY HURTADO

On 03/15/02 Pinnacle Laboratories, Inc., (ADHS License No. AZ0592 pending), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

H. Mitchell Rubenstein, Ph. D.
General Manager

MR: jt

Enclosure

PINNACLE LABORATORIES

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Fax (505) 344-4413

CLIENT	: SAN JUAN REFINING CO.	PINNACLE ID	: 203052
PROJECT #	: 31402	DATE RECEIVED	: 03/15/02
PROJECT NAME	: HD-EAST OUTFALL	REPORT DATE	: 03/27/02

PINNACLE ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
203052 - 01	OUTFALL #1-HD	AQUEOUS	03/14/02
203052 - 02	OUTFALL #2-HD	AQUEOUS	03/14/02

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GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: SAN JUAN REFINING CO.	PINNACLE I.D. :	203052
PROJECT #	: 31402	DATE RECEIVED :	03/15/02
PROJECT NAME	: HD-EAST OUTFALL		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
203052-01	OUTFALL #1-HD	AQUEOUS	03/14/02	N/A	03/20/02	1

PARAMETER (CAS#)	DET. LIMIT	RESULT	UNITS
Dichlorodifluoromethane (75-71-8)	1.0	< 1.0	ug/L
Chloromethane (74-87-9)	1.0	< 1.0	ug/L
Vinyl Chloride (75-01-4)	1.0	< 1.0	ug/L
Bromomethane (74-83-9)	2.0	< 2.0	ug/L
Chloroethane (75-00-3)	2.0	< 2.0	ug/L
Trichlorofluoromethane (75-69-4)	1.0	< 1.0	ug/L
Acetone (67-64-1)	10	< 10	ug/L
Acrolein (107-02-8)	5.0	< 5.0	ug/L
1,1-Dichloroethene (75-35-4)	1.0	< 1.0	ug/L
Iodomethane (74-88-4)	5.0	< 5.0	ug/L
Methylene Chloride (75-09-2)	1.0	< 1.0	ug/L
Acrylonitrile (107-13-1)	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene (107-06-2)	1.0	< 1.0	ug/L
[illegible]thyl-t-butyl Ether (628-28-4)	1.0	< 1.0	ug/L
[illegible],2-Trichlorotrifluoroethane (76-13-1)	5.0	< 5.0	ug/L
1,1-Dichloroethane (75-34-3)	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene (156-60-5)	1.0	< 1.0	ug/L
2-Butanone (78-93-3)	10	< 10	ug/L
Carbon Disulfide (75-15-0)	1.0	< 1.0	ug/L
Bromochloromethane (74-97-5)	1.0	< 1.0	ug/L
Chloroform (67-66-3)	1.0	< 1.0	ug/L
2,2-Dichloropropane (594-20-7)	1.0	< 1.0	ug/L
1,2-Dichloroethane (107-06-2)	1.0	< 1.0	ug/L
Vinyl Acetate (108-05-4)	1.0	< 1.0	ug/L
1,1,1-Trichloroethane (71-55-6)	1.0	< 1.0	ug/L
1,1-Dichloropropene (563-58-6)	1.0	< 1.0	ug/L
Carbon Tetrachloride (56-23-5)	1.0	< 1.0	ug/L
Benzene (71-43-2)	1.0	< 1.0	ug/L
1,2-Dichloropropane (78-87-5)	1.0	< 1.0	ug/L
Trichloroethene (79-01-6)	1.0	< 1.0	ug/L
Bromodichloromethane (75-27-4)	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether (110-75-8)	10	< 10	ug/L
cis-1,3-Dichloropropene (10061-01-5)	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene (10061-02-6)	1.0	< 1.0	ug/L
1,1,2-Trichloroethane (79-00-5)	1.0	< 1.0	ug/L
1,3-Dichloropropane (142-28-9)	1.0	< 1.0	ug/L
Dibromomethane (74-95-3)	1.0	< 1.0	ug/L
Toluene (108-88-3)	1.0	< 1.0	ug/L
1,2-Dibromoethane (106-93-4)	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone (108-10-1)	10	< 10	ug/L
2-Hexanone (591-78-6)	10	< 10	ug/L
Dibromochloromethane (124-48-1)	1.0	< 1.0	ug/L
Tetrachloroethene (127-18-4)	1.0	< 1.0	ug/L
[illegible]robenzene (108-90-7)	1.0	< 1.0	ug/L
[illegible]benzene (100-41-4)	1.0	< 1.0	ug/L

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GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : SAN JUAN REFINING CO. PINNACLE I.D. : 203052
PROJECT # : 31402 DATE RECEIVED : 03/15/02
PROJECT NAME : HD-EAST OUTFALL

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
203052-01	OUTFALL #1-HD	AQUEOUS	03/14/02	N/A	03/20/02	1

PARAMETER (CAS#)	DET. LIMIT	RESULT	UNITS
1,1,1,2-Tetrachloroethane (630-20-6)	1.0	< 1.0	ug/L
m&p Xylenes (108-38-3, 106-42-3)	1.0	< 1.0	ug/L
o-Xylene (95-47-6)	1.0	< 1.0	ug/L
Styrene (100-42-5)	1.0	< 1.0	ug/L
Bromoform (75-25-2)	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane (79-34-5)	1.0	< 1.0	ug/L
1,2,3-Trichloropropane (96-18-4)	1.0	< 1.0	ug/L
Isopropyl Benzene (98-82-8)	1.0	< 1.0	ug/L
Bromobenzene (108-86-1)	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene (110-57-6)	1.0	< 1.0	ug/L
n-Propylbenzene (103-65-1)	1.0	< 1.0	ug/L
2-Chlorotoluene (95-49-8)	1.0	< 1.0	ug/L
4-Chlorotoluene (106-43-4)	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene (108-67-8)	1.0	< 1.0	ug/L
tert-Butylbenzene (98-06-6)	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene (95-63-6)	1.0	< 1.0	ug/L
sec-Butylbenzene (135-98-8)	1.0	< 1.0	ug/L
1,3-Dichlorobenzene (541-73-1)	1.0	< 1.0	ug/L
1,4-Dichlorobenzene (106-46-7)	1.0	< 1.0	ug/L
p-Isopropyltoluene (99-87-6)	1.0	< 1.0	ug/L
1,2-Dichlorobenzene (95-50-1)	1.0	< 1.0	ug/L
n-Butylbenzene (104-51-8)	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane (96-12-8)	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene (120-82-1)	1.0	< 1.0	ug/L
Naphthalene (91-20-3)	3.0	< 3.0	ug/L
Hexachlorobutadiene (87-68-3)	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene (87-61-6)	1.0	< 1.0	ug/L

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	101	(80 - 120)
Toluene-d8	101	(88 - 110)
Bromofluorobenzene	101	(86 - 115)

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
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GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: SAN JUAN REFINING CO.	PINNACLE I.D. :	203052
PROJECT #	: 31402	DATE RECEIVED :	03/15/02
PROJECT NAME	: HD-EAST OUTFALL		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
203052-02	OUTFALL #2-HD	AQUEOUS	03/14/02	N/A	03/20/02	1

PARAMETER (CAS#)	DET. LIMIT	RESULT	UNITS
Dichlorodifluoromethane (75-71-8)	1.0	< 1.0	ug/L
Chloromethane (74-87-9)	1.0	< 1.0	ug/L
Vinyl Chloride (75-01-4)	1.0	< 1.0	ug/L
Bromomethane (74-83-9)	2.0	< 2.0	ug/L
Chloroethane (75-00-3)	2.0	< 2.0	ug/L
Trichlorofluoromethane (75-69-4)	1.0	< 1.0	ug/L
Acetone (67-64-1)	10	< 10	ug/L
Acrolein (107-02-8)	5.0	< 5.0	ug/L
1,1-Dichloroethene (75-35-4)	1.0	< 1.0	ug/L
Iodomethane (74-88-4)	5.0	< 5.0	ug/L
Methylene Chloride (75-09-2)	1.0	< 1.0	ug/L
Acrylonitrile (107-13-1)	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene (107-06-2)	1.0	< 1.0	ug/L
[illegible]yl-t-butyl Ether (628-28-4)	1.0	< 1.0	ug/L
[illegible],2-Trichlorotrifluoroethane (76-13-1)	5.0	< 5.0	ug/L
1,1-Dichloroethane (75-34-3)	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene (156-60-5)	1.0	< 1.0	ug/L
2-Butanone (78-93-3)	10	< 10	ug/L
Carbon Disulfide (75-15-0)	1.0	< 1.0	ug/L
Bromochloromethane (74-97-5)	1.0	< 1.0	ug/L
Chloroform (67-66-3)	1.0	< 1.0	ug/L
2,2-Dichloropropane (594-20-7)	1.0	< 1.0	ug/L
1,2-Dichloroethane (107-06-2)	1.0	< 1.0	ug/L
Vinyl Acetate (108-05-4)	1.0	< 1.0	ug/L
1,1,1-Trichloroethane (71-55-6)	1.0	< 1.0	ug/L
1,1-Dichloropropene (563-58-6)	1.0	< 1.0	ug/L
Carbon Tetrachloride (56-23-5)	1.0	< 1.0	ug/L
Benzene (71-43-2)	1.0	< 1.0	ug/L
1,2-Dichloropropane (78-87-5)	1.0	< 1.0	ug/L
Trichloroethene (79-01-6)	1.0	< 1.0	ug/L
Bromodichloromethane (75-27-4)	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether (110-75-8)	10	< 10	ug/L
cis-1,3-Dichloropropene (10061-01-5)	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene (10061-02-6)	1.0	< 1.0	ug/L
1,1,2-Trichloroethane (79-00-5)	1.0	< 1.0	ug/L
1,3-Dichloropropane (142-28-9)	1.0	< 1.0	ug/L
Dibromomethane (74-95-3)	1.0	< 1.0	ug/L
Toluene (108-88-3)	1.0	< 1.0	ug/L
1,2-Dibromoethane (106-93-4)	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone (108-10-1)	10	< 10	ug/L
2-Hexanone (591-78-6)	10	< 10	ug/L
Dibromochloromethane (124-48-1)	1.0	< 1.0	ug/L
Tetrachloroethene (127-18-4)	1.0	< 1.0	ug/L
[illegible]benzene (108-90-7)	1.0	< 1.0	ug/L
[illegible]enzene (100-41-4)	1.0	< 1.0	ug/L

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
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GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : SAN JUAN REFINING CO.
PROJECT # : 31402
PROJECT NAME : HD-EAST OUTFALL

PINNACLE I.D. : 203052
DATE RECEIVED : 03/15/02

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
203052-02	OUTFALL #2-HD	AQUEOUS	03/14/02	N/A	03/20/02	1

PARAMETER (CAS#)	DET. LIMIT	RESULT	UNITS
1,1,1,2-Tetrachloroethane (630-20-6)	1.0	< 1.0	ug/L
m&p Xylenes (108-38-3, 106-42-3)	1.0	< 1.0	ug/L
o-Xylene (95-47-6)	1.0	< 1.0	ug/L
Styrene (100-42-5)	1.0	< 1.0	ug/L
Bromoform (75-25-2)	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane (79-34-5)	1.0	< 1.0	ug/L
1,2,3-Trichloropropane (96-18-4)	1.0	< 1.0	ug/L
Isopropyl Benzene (98-82-8)	1.0	< 1.0	ug/L
Bromobenzene (108-86-1)	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene (110-57-6)	1.0	< 1.0	ug/L
n-Propylbenzene (103-65-1)	1.0	< 1.0	ug/L
2-Chlorotoluene (95-49-8)	1.0	< 1.0	ug/L
4-Chlorotoluene (106-43-4)	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene (108-67-8)	1.0	< 1.0	ug/L
[illegible]Butylbenzene (98-06-6)	1.0	< 1.0	ug/L
[illegible],4-Trimethylbenzene (95-63-6)	1.0	< 1.0	ug/L
sec-Butylbenzene (135-98-8)	1.0	< 1.0	ug/L
1,3-Dichlorobenzene (541-73-1)	1.0	< 1.0	ug/L
1,4-Dichlorobenzene (106-46-7)	1.0	< 1.0	ug/L
p-Isopropyltoluene (99-87-6)	1.0	< 1.0	ug/L
1,2-Dichlorobenzene (95-50-1)	1.0	< 1.0	ug/L
n-Butylbenzene (104-51-8)	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane (96-12-8)	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene (120-82-1)	1.0	< 1.0	ug/L
Naphthalene (91-20-3)	3.0	< 3.0	ug/L
Hexachlorobutadiene (87-68-3)	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene (87-61-6)	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	102 (80 - 120)
Toluene-d8	102 (88 - 110)
Bromofluorobenzene	102 (86 - 115)

PINNACLE LABORATORIES

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GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : SAN JUAN REFINING CO. PINNACLE I.D. : 203052
PROJECT # : 31402
PROJECT NAME : HD-EAST OUTFALL

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	032002A	AQUEOUS	N/A	03/20/02	1

PARAMETER (CAS#)	DET. LIMIT	RESULT	UNITS
Dichlorodifluoromethane (75-71-8)	1.0	< 1.0	ug/L
Chloromethane (74-87-9)	1.0	< 1.0	ug/L
Vinyl Chloride (75-01-4)	1.0	< 1.0	ug/L
Bromomethane (74-83-9)	2.0	< 2.0	ug/L
Chloroethane (75-00-3)	2.0	< 2.0	ug/L
Trichlorofluoromethane (75-69-4)	1.0	< 1.0	ug/L
Acetone (67-64-1)	10	< 10	ug/L
Acrolein (107-02-8)	5.0	< 5.0	ug/L
1,1-Dichloroethene (75-35-4)	1.0	< 1.0	ug/L
Iodomethane (74-88-4)	5.0	< 5.0	ug/L
Methylene Chloride (75-09-2)	1.0	< 1.0	ug/L
Acrylonitrile (107-13-1)	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene (107-06-2)	1.0	< 1.0	ug/L
M[redacted]t-butyl Ether (628-28-4)	1.0	< 1.0	ug/L
[redacted]richlorotrifluoroethane (76-13-1)	5.0	< 5.0	ug/L
1,1-Dichloroethane (75-34-3)	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene (156-60-5)	1.0	< 1.0	ug/L
2-Butanone (78-93-3)	10	< 10	ug/L
Carbon Disulfide (75-15-0)	1.0	< 1.0	ug/L
Bromochloromethane (74-97-5)	1.0	< 1.0	ug/L
Chloroform (67-66-3)	1.0	< 1.0	ug/L
2,2-Dichloropropane (594-20-7)	1.0	< 1.0	ug/L
1,2-Dichloroethane (107-06-2)	1.0	< 1.0	ug/L
Vinyl Acetate (108-05-4)	1.0	< 1.0	ug/L
1,1,1-Trichloroethane (71-55-6)	1.0	< 1.0	ug/L
1,1-Dichloropropene (563-58-6)	1.0	< 1.0	ug/L
Carbon Tetrachloride (56-23-5)	1.0	< 1.0	ug/L
Benzene (71-43-2)	1.0	< 1.0	ug/L
1,2-Dichloropropane (78-87-5)	1.0	< 1.0	ug/L
Trichloroethene (79-01-6)	1.0	< 1.0	ug/L
Bromodichloromethane (75-27-4)	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether (110-75-8)	10	< 10	ug/L
cis-1,3-Dichloropropene (10061-01-5)	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene (10061-02-6)	1.0	< 1.0	ug/L
1,1,2-Trichloroethane (79-00-5)	1.0	< 1.0	ug/L
1,3-Dichloropropane (142-28-9)	1.0	< 1.0	ug/L
Dibromomethane (74-95-3)	1.0	< 1.0	ug/L
Toluene (108-88-3)	1.0	< 1.0	ug/L
1,2-Dibromoethane (106-93-4)	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone (108-10-1)	10	< 10	ug/L
2-Hexanone (591-78-6)	10	< 10	ug/L
Dibromochloromethane (124-48-1)	1.0	< 1.0	ug/L
Tetrachloroethene (127-18-4)	1.0	< 1.0	ug/L
Ch[redacted]nzene (108-90-7)	1.0	< 1.0	ug/L
E[redacted]ene (100-41-4)	1.0	< 1.0	ug/L

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
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GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : SAN JUAN REFINING CO. PINNACLE I.D. : 203052
PROJECT # : 31402
PROJECT NAME : HD-EAST OUTFALL

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	032002A	AQUEOUS	N/A	03/20/02	1

PARAMETER (CAS#)	DET. LIMIT	RESULT	UNITS
1,1,1,2-Tetrachloroethane (630-20-6)	1.0	< 1.0	ug/L
m&p Xylenes (108-38-3, 106-42-3)	1.0	< 1.0	ug/L
o-Xylene (95-47-6)	1.0	< 1.0	ug/L
Styrene (100-42-5)	1.0	< 1.0	ug/L
Bromoform (75-25-2)	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane (79-34-5)	1.0	< 1.0	ug/L
1,2,3-Trichloropropane (96-18-4)	1.0	< 1.0	ug/L
Isopropyl Benzene (98-82-8)	1.0	< 1.0	ug/L
Bromobenzene (108-86-1)	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene (110-57-6)	1.0	< 1.0	ug/L
n-Propylbenzene (103-65-1)	1.0	< 1.0	ug/L
2-Chlorotoluene (95-49-8)	1.0	< 1.0	ug/L
4-Chlorotoluene (106-43-4)	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene (108-67-8)	1.0	< 1.0	ug/L
[illegible]-Butylbenzene (98-06-6)	1.0	< 1.0	ug/L
[illegible]2,4-Trimethylbenzene (95-63-6)	1.0	< 1.0	ug/L
sec-Butylbenzene (135-98-8)	1.0	< 1.0	ug/L
1,3-Dichlorobenzene (541-73-1)	1.0	< 1.0	ug/L
1,4-Dichlorobenzene (106-46-7)	1.0	< 1.0	ug/L
p-Isopropyltoluene (99-87-6)	1.0	< 1.0	ug/L
1,2-Dichlorobenzene (95-50-1)	1.0	< 1.0	ug/L
n-Butylbenzene (104-51-8)	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane (96-12-8	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene (120-82-1)	1.0	< 1.0	ug/L
Naphthalene (91-20-3)	3.0	< 3.0	ug/L
Hexachlorobutadiene (87-68-3)	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene (87-61-6)	1.0	< 1.0	ug/L

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	93	(80 - 120)
Toluene-d8	97	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

PINNACLE LABORATORIES

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LABORATORY CONTROL SPIKE RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260	PINNACLE I.D.	: 203052
BATCH	: 032002A	DATE ANALYZED	: 03/20/02
CLIENT	: SAN JUAN REFINING CO.	UNITS	: ug/L (PPB)
PROJECT #	: 31402		
PROJECT NAME	: HD-EAST OUTFALL		

COMPOUND	SPIKE ADDED	LCS RESULT	LCS % RECOVERY	QC LIMITS %RECOVERY
1,1-DICHLOROETHENE	50.0	42.4	85	61-145
BENZENE	50.0	49.2	98	76-127
TRICHLOROETHENE	50.0	46.9	94	71-120
TOLUENE	50.0	49.6	99	76-125
CHLOROBENZENE	50.0	52.1	104	75-130

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MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260	PINNACLE I.D.	: 203052
SPIKED SAMPLE	: 203045-01	DATE ANALYZED	: 03/20/02
CLIENT	: SAN JUAN REFINING CO.	UNITS	: ug/L (PPB)
PROJECT #	: 31402		
PROJECT NAME	: HD-EAST OUTFALL		

COMPOUND	SAMPLE CONC.	SPIKE ADDED	MS RESULT	MSD RESULT	MS %REC	MSD %REC	RPD	QC LIMITS RPD	QC LIMITS %RECOVERY
1,1-DICHLOROETHENE	<1.0	50.0	43.0	43.5	86	87	1	14	61-145
BENZENE	<1.0	50.0	50.2	50.4	100	101	0	11	76-127
TRICHLOROETHENE	<1.0	50.0	47.9	47.6	96	95	1	14	71-120
TOLUENE	<1.0	50.0	50.1	50.4	100	101	1	13	76-125
CHLOROBENZENE	<1.0	50.0	52.1	52.3	104	105	0	13	75-130

PINNACLE LABORATORIES

Pinnacle Laboratories Inc.

CHAIN OF CUSTODY

DATE: _____ PAGE: ___ OF ___

PLI Accession #: 20305Z

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Cindy Hurtado

COMPANY: San Juan Refining

ADDRESS: #50 CR 4990
Bloomfield, NM 87413

PHONE: 505-632-4161

FAX: 505-632-3911

BILL TO: SAME

COMPANY:

ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	NUMBER OF CONTAINERS
outfall #1 - HD	3-14-02	205p	H_2O	01	2
outfall #2 - HD	3-14-02	150p	H_2O	02	2

Petroleum Hydrocarbons (418.1) TRPH
(MOD.8015) Diesel/Direct Inject
(M8015) Gas/Purge & Trap
8021 (BTEX)/8015 (Gasoline) MTBE
8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE
8021 (TCL)
8021 (EDX)
8021 (HALO)
8021 (CUST)
504.1 EDB ☐ / DBCP ☐
8260 (TCL) Volatile Organics
8260 (Full) Volatile Organics — X X
8260 (CUST) Volatile Organics
8260 (Landfill) Volatile Organics
Pesticides /PCB (608/8081/8082)
Herbicides (615/8151)
Base/Neutral/Acid Compounds GC/MS (625/8270)
Polynuclear Aromatics (610/8310/8270-SIMS)
General Chemistry:
Priority Pollutant Metals (13)
Target Analyte List Metals (23)
RCRA Metals (8)
RCRA Metals by TCLP (Method 1311)
Metals:

PROJECT INFORMATION	
PROJ. NO.:	31402
PROJ. NAME:	HD - East outfall
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO. CONTAINERS	4
CUSTODY SEALS	Y/N (NA)
RECEIVED INTACT	Y/N
BLUE ICE/ICE	4.0°C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY: 1.

Signature: Cindy Hurtado Time: 235P

Printed Name: Cindy Hurtado Date: 3-14-02

Company:

See reverse side (Force Majeure)

RECEIVED BY: 1.

Signature: Time:

Printed Name: Date:

Company:

RELINQUISHED BY: 2

Signature: Time:

Printed Name: Date:

Company:

RECEIVED BY: (LAB) 2

Signature: Time: 0940

Printed Name: Date: 3/15/02

Pinnacle Laboratories Inc.

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

PL I.D. 201071

February 1, 2002

Giant Refining Co.
#50 CR 4990
Bloomfield, NM 87417

Project Name/Number: HAMMOND DITEL 021401

Attention: Barry Holman

On **01/15/02**, Pinnacle Laboratories Inc., (ADHS License No. AZ0592 pending), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

All analyses were performed by EnviroTest Laboratories, LLC. Casper, WY.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

H. Mitchell Rubenstein, Ph.D.
General Manager

MR:jt

Enclosure

PINNACLE LABORATORIES

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Phone (505) 344-3777
Fax (505) 344-4413

CLIENT	: GIANT REFINING CO.	DATE RECEIVED	: 01/15/02
PROJECT #	: 021401		
PROJECT NAME	: HAMMOND DITEL	REPORT DATE	: 02/01/02

PL ID: 201071

	PINNACLE ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	201071-01	IP #22 HAMMOND	AQUEOUS	01/14/02

Hammond Ditch
West of 4990 Bridge

---TOTALS---

MATRIX	#SAMPLES
AQUEOUS	1

Enviro-Test Laboratories LLC.

Chemical Analysis Report

PINNACLE LABORATORIES, INC
Attn: PROJECT MANAGER
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107

Date: 30 JAN 2002

Lab Work Order #: L4438
Project P.O. #:
Project Reference: GIANT REFINERY
Comments:

Date Received: 15 JAN 2002

APPROVED BY: _____
Dave Demorest
Project Manager

ETL Enviro • Test LABORATORIES LLC.
420 West 1st Street Casper, Wyoming 82601
Phone: (307) 235-5741 Fax(307) 266-1676
Toll Free 1(800)566-0301

Date: January 29, 2002
Client: Pinnacle Laboratories, Inc.
Job Number: L4438

SAMPLE DELIVERY GROUP NARRATIVE

The following information is relevant to the interpretation of the data for the above job:

8260 VOLATILES:

1,1-Dichloroethylene in the LCS/LCSD showed very high recovery. This would suggest that any 1,1-Dichloroethylene in the samples might be biased high. As there was no 1,1-DCE in any of the samples, however, any potential high bias is not relevant.

Paul Reeks
Organics Lab Supervisor

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107

ATTN: PROJECT MANAGER

Project: GIANT REFINERY
Purchase Order:

Report Date: 30-JAN-02
Work Order: L4438
Lab Sample ID: L4438-1
Client Sample ID: IP#22
Date Collected: 14-JAN-02
Sampled By: CLIENT
Date Received: 15-JAN-02
Matrix: WATER

Parameter	Result	Qualifier	MDL	PQL	Units	DF	Run ID	Analyzed	By
Misc									
Volatiles By SW-846 8260B									
Dichlorodifluoromethane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
Chloromethane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
Vinyl Chloride	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
Bromomethane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
Chloroethane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
Trichlorofluoromethane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
1,1-Dichloroethylene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
Carbon Disulfide	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
1,1,2-Trichlorotrifluoroethane	<50		50	15	ug/L		R15520	16-JAN-01 21:48	PGR
Iodomethane	<50		50	15	ug/L		R15520	16-JAN-01 21:48	PGR
Acrolein	<50		50	15	ug/L		R15520	16-JAN-01 21:48	PGR
Methylene Chloride	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
Acetone	<100		100	30	ug/L		R15520	16-JAN-01 21:48	PGR
trans-1,2-Dichloroethylene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
Methyl-tert-Butyl Ether	20		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
1,1-Dichloroethane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
Acrylonitrile	<50		50	15	ug/L		R15520	16-JAN-01 21:48	PGR
Vinyl Acetate	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
cis-1,2-Dichloroethylene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
2,2-Dichloropropane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
Bromochloromethane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
Chloroform	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
Carbon Tetrachloride	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
1,1,1-Trichloroethane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
2-Butanone	<100		100	30	ug/L		R15520	16-JAN-01 21:48	PGR
1,1-Dichloropropene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
Benzene	440		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
1,2-Dichloroethane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
Trichloroethylene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
Dibromomethane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
1,2-Dichloropropane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
Bromodichloromethane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
2-Chloroethyl Vinyl Ether	<100		100	30	ug/L		R15520	16-JAN-01 21:48	PGR
cis-1,3-Dichloropropene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
Toluene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
4-Methyl-2-pentanone	<100		100	30	ug/L		R15520	16-JAN-01 21:48	PGR
trans-1,3-Dichloropropene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
Tetrachloroethylene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
1,1,2-Trichloroethane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
Dibromochloromethane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR
1,3-Dichloropropane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PGR

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Project: GIANT REFINERY
Purchase Order:

Report Date: 30-JAN-02
Work Order: L4438
Lab Sample ID: L4438-1
Client Sample ID: IP#22
Date Collected: 14-JAN-02
Sampled By: CLIENT
Date Received: 15-JAN-02
Matrix: WATER

Parameter		Result	Qualifier	MDL	PQL	Units	DF	Run ID	Analyzed	B
Misc										
Volatiles By SW-846 8260B										
	1,2-Dibromoethane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	2-Hexanone	<100		100	30	ug/L		R15520	16-JAN-01 21:48	PG
	Ethyl Benzene	120		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	Chlorobenzene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	1,1,1,2-Tetrachloroethane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	m+p-Xylenes	2300		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	o-Xylene	120		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	Styrene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	Bromoform	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	Isopropylbenzene	30		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	n-Propylbenzene	30		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	1,1,2,2-Tetrachloroethane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	Bromobenzene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	1,3,5-Trimethylbenzene	130		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	trans-1,4-Dichloro-2-Butene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	2-Chlorotoluene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	1,2,3-Trichloropropane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	4-Chlorotoluene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	tert-Butylbenzene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	1,2,4-Trimethylbenzene	430		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	Sec-Butylbenzene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	p-Isopropyltoluene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	1,3-dichlorobenzene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	1,4-Dichlorobenzene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	n-Butylbenzene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	1,2-Dichlorobenzene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	1,2-Dibromo-3-chloropropane	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	Hexachlorobutadiene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	1,2,4-Trichlorobenzene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	Naphthalene	20		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	1,2,3-Trichlorobenzene	<10		10	3	ug/L		R15520	16-JAN-01 21:48	PG
	2-Methylnaphthalene	400		200	60	ug/L		R15520	16-JAN-01 21:48	PG
	1-Methylnaphthalene	400		200	60	ug/L		R15520	16-JAN-01 21:48	PG
Surrogate:	Dibromofluoromethane (surr)	106		N/A		%		R15520	16-JAN-01 21:48	PG
Surrogate:	1,2-Dichloroethane-d4 (Surr)	110		N/A		%		R15520	16-JAN-01 21:48	PG
Surrogate:	Toluene-d8 (surr)	103		N/A		%		R15520	16-JAN-01 21:48	PG
Surrogate:	4-Bromofluorobenzene (surr)	105		N/A		%		R15520	16-JAN-01 21:48	PG

Reference Information

Report Date: 30-JAN-02
Work Order: L4438

The following Is the Description of sample Qualifiers where applicable:

The following Preparation/Extraction Methods were performed:

ETL Test Code and Matrix		Test Description	Methodology Reference (Based On)
8260-PINNACLE-CA	Water	Volatiles By SW-846 8260B	

The following Analytical Methods were performed:

ETL Test Code and Matrix		Test Description	Methodology Reference (Based On)
8260-PINNACLE-CA	Water	Volatiles By SW-846 8260B	SW-846 Method 8260B

ENVIRO-TEST QC REPORT

Client: PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107

Contact: PROJECT MANAGER

Report Date: Jan. 30, 2002
Workorder: L4438

Test	Matrix	Reference	Result	Qualifier	Units	Limit	Analyzed
8260-PINNACLE-CA	Water						
Batch	R15520						
WG12223-1	BLANK						
1,1,1,2-Tetrachloroethane			<1		ug/L		15-JAN-01
1,1,1-Trichloroethane			<1		ug/L		15-JAN-01
1,1,2,2-Tetrachloroethane			<1		ug/L		15-JAN-01
1,1,2-Trichloroethane			<1		ug/L		15-JAN-01
1,1,2-Trichlorotrifluoroethane			<5		ug/L		15-JAN-01
1,1-Dichloroethane			<1		ug/L		15-JAN-01
1,1-Dichloroethylene			<1		ug/L		15-JAN-01
1,1-Dichloropropene			<1		ug/L		15-JAN-01
1,2,3-Trichlorobenzene			<1		ug/L		15-JAN-01
1,2,3-Trichloropropane			<1		ug/L		15-JAN-01
1,2,4-Trichlorobenzene			<1		ug/L		15-JAN-01
1,2,4-Trimethylbenzene			<1		ug/L		15-JAN-01
1,2-Dibromo-3-chloropropane			<1		ug/L		15-JAN-01
1,2-Dichlorobenzene			<1		ug/L		15-JAN-01
1,2-Dichloroethane			<1		ug/L		15-JAN-01
1,2-Dichloropropane			<1		ug/L		15-JAN-01
1,3,5-Trimethylbenzene			<1		ug/L		15-JAN-01
1,3-dichlorobenzene			<1		ug/L		15-JAN-01
1,3-Dichloropropane			<1		ug/L		15-JAN-01
1,4-Dichlorobenzene			<1		ug/L		15-JAN-01
1-Methylnaphthalene			<20		ug/L		15-JAN-01
2,2-Dichloropropane			<1		ug/L		15-JAN-01
2-Chloroethyl Vinyl Ether			<10		ug/L		15-JAN-01
2-Chlorotoluene			<1		ug/L		15-JAN-01
2-Hexanone			<10		ug/L		15-JAN-01
2-Methylnaphthalene			<20		ug/L		15-JAN-01
4-Chlorotoluene			<1		ug/L		15-JAN-01
p-Isopropyltoluene			<1		ug/L		15-JAN-01
Acetone			<10		ug/L		15-JAN-01
Acrolein			<5		ug/L		15-JAN-01
Acrylonitrile			<5		ug/L		15-JAN-01
Benzene			<1		ug/L		15-JAN-01
Bromobenzene			<1		ug/L		15-JAN-01
Bromochloromethane			<1		ug/L		15-JAN-01

ENVIRO-TEST QC REPORT

Client: PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107

Contact: PROJECT MANAGER

Report Date: Jan. 30, 2002
Workorder: L4438

Test	Matrix	Reference	Result	Qualifier	Units	Limit	Analyzed
8260-PINNACLE-CA	Water						
Batch	R15520						
WG12223-1	BLANK						
Bromodichloromethane			<1		ug/L		15-JAN-01
Bromoform			<1		ug/L		15-JAN-01
Bromomethane			<1		ug/L		15-JAN-01
Carbon Disulfide			<1		ug/L		15-JAN-01
Carbon Tetrachloride			<1		ug/L		15-JAN-01
Chlorobenzene			<1		ug/L		15-JAN-01
Dibromochloromethane			<1		ug/L		15-JAN-01
Chloroethane			<1		ug/L		15-JAN-01
Chloroform			<1		ug/L		15-JAN-01
Chloromethane			<1		ug/L		15-JAN-01
cis-1,2-Dichloroethylene			<1		ug/L		15-JAN-01
cis-1,3-Dichloropropene			<1		ug/L		15-JAN-01
Dibromomethane			<1		ug/L		15-JAN-01
Dichlorodifluoromethane			<1		ug/L		15-JAN-01
Ethyl Benzene			<1		ug/L		15-JAN-01
1,2-Dibromoethane			<1		ug/L		15-JAN-01
Hexachlorobutadiene			<1		ug/L		15-JAN-01
Iodomethane			<5		ug/L		15-JAN-01
Isopropylbenzene			<1		ug/L		15-JAN-01
m+p-Xylenes			<1		ug/L		15-JAN-01
2-Butanone			<10		ug/L		15-JAN-01
4-Methyl-2-pentanone			<10		ug/L		15-JAN-01
Methyl-tert-Butyl Ether			<1		ug/L		15-JAN-01
Methylene Chloride			<1		ug/L		15-JAN-01
n-Butylbenzene			<1		ug/L		15-JAN-01
n-Propylbenzene			<1		ug/L		15-JAN-01
Naphthalene			<1		ug/L		15-JAN-01
o-Xylene			<1		ug/L		15-JAN-01
Sec-Butylbenzene			<1		ug/L		15-JAN-01
Styrene			<1		ug/L		15-JAN-01
tert-Butylbenzene			<1		ug/L		15-JAN-01
Tetrachloroethylene			<1		ug/L		15-JAN-01
Toluene			<1		ug/L		15-JAN-01
trans-1,2-Dichloroethylene			<1		ug/L		15-JAN-01

Enviro • Test LABORATORIES LLC.
420 West 1st Street Casper, Wyoming 82601
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-0306

ENVIRO-TEST QC REPORT

Client: PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107

Contact: PROJECT MANAGER

Report Date: Jan. 30, 2002
Workorder: L4438

Test	Matrix	Reference	Result	Qualifier	Units		Limit	Analyzed
8260-PINNACLE-CA	Water							
Batch R15520								
WG12223-1 BLANK								
trans-1,3-Dichloropropene			<1		ug/L			15-JAN-01
trans-1,4-Dichloro-2-Butene			<1		ug/L			15-JAN-01
Trichloroethylene			<1		ug/L			15-JAN-01
Trichlorofluoromethane			<1		ug/L			15-JAN-01
Vinyl Acetate			<1		ug/L			15-JAN-01
Vinyl Chloride			<1		ug/L			15-JAN-01
WG12223-2 LCS						Amount		
1,1-Dichloroethylene			192		%	N/A	70-130	15-JAN-01
Benzene			108		%	N/A	70-130	15-JAN-01
Chlorobenzene			101		%	N/A	70-130	15-JAN-01
Toluene			96		%	N/A	70-130	15-JAN-01
Trichloroethylene			107		%	N/A	70-130	15-JAN-01
WG12223-3 LCSD		WG12223-2						
1,1-Dichloroethylene			210		%	10	20	15-JAN-01
Benzene			110		%	1.8	20	15-JAN-01
Chlorobenzene			110		%	3.9	20	15-JAN-01
Toluene			100		%	5.1	20	15-JAN-01
Trichloroethylene			110		%	1.9	20	15-JAN-01

Product - Batch and Sample Number Relations:

8260-PINNACLE-CA	1	
R15485		L4438-1
8260-PINNACLE-CA	1	
R15520		L4438-1

Reference Information

Report Date: Jan. 30, 2002
Work Order L4438

The following is a description of Sample types that where applicable:

BLANK	Laboratory Blank
LCS	Laboratory Control Spike
LCSD	Lab Control Spike Duplicate

The following is a description of sample Qualifiers that where applicable:

ETL Enviro-Test LABORATORIES **Sample Condition Notification Form**

Client Pinnacle Date 1/15/02 Job Number L4438

Condition Reported		Explanation
Samples received out of holding time		
Samples not preserved correctly	✓	Samples arrived in 2-80j jars poured off into 3) VOA's HCl as per paul TRS 1/15/02
Containers broken/spilled in shipment		
Insufficient sample received		
Incorrect containers used		
Chain of Custody does not match labels		
Samples not chilled to ± 2-4°C		
Volatiles have headspace		
Chain of Custody not received or incomplete		
Other problems as noted		

Comments: _____

Form #SCNF, Revision 0, Effective date 02/26/01

ETL Enviro • Test LABORATORIES LLC.

Sample Receipt ~~Checklist~~

Client	Pinnacle Labs.	Job Number	L4438

Samples Shipped	(UPS)	Federal Express	Airborn:
Samples Hand Delivered	Client	ETL Lab Courier	Other:

*Air Bill #: 128818390110092041	# of Packages Received: 1

	Yes	No	N\A	Comments
1. Chain - of - Custody present?	✓			If no, please fill one out.
2. Are the COC and sample labels legible?	✓			
3. Custody Seal on shipping container?		✓		
If yes, intact on shipping container?				
4. Custody seals on sample containers?		✓		
If yes, intact on sample container?				
5. Samples chilled?	✓			
Is temperature of cooler: 4 ± 2°C ?	✓			*Record temp: 3°C
6. Samples received intact (good condition)?	✓			
If volatiles required, any with headspace?				
7. Adequate sample volume provided?	✓			
8. Samples preserved correctly?		✓		$Na_2S_2O_3$, ZnAc, HNO_3, HCl
Circle preservative types in shipment				H_2SO_4, NaOH, (Plain), Other
9. Correct containers used?		✓		~~poured off into~~ 3 VOA's
10. Samples received within holding time?	✓			
11. Agreement between COC and sample labels?	✓			
12. Gamma Screen µR/Hr @ surface within Bkg?	✓			FOR INTERNAL USE ONLY @ Bkg
13. Samples OK to release to Lab/Screening?	✓			

Additional Comments: _____

Sample Container (size/material): 2) 8oz glass jars

Received and inspected by: TKS Date/Time: 1-15-02 0945

* = for multiple packages, see attached page(s) for shipping numbers and temperatures.

Pinnacle Laboratories Inc.

CHAIN OF CUSTODY

DATE: 1/14/02 PAGE: 1 OF 1

PLI Accession #: 201071

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: B.G. Holman

COMPANY: Giant Refining Co.
ADDRESS: #50 CR 4990
Bloomfield NM. 87413
PHONE: 505-632-4168
FAX: 505 632-3911

BILL TO: Same
COMPANY:
ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	NUMBER OF CONTAINERS
TP#22 Hammond	1/14/02	1pm	H2O		2

Petroleum Hydrocarbons (418.1) TRPH
(MOD.8015) Diesel/Direct Inject
(M8015) Gas/Purge & Trap
8021 (BTEX)/8015 (Gasoline) MTBE
8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE
8021 (TCL)
8021 (EDX)
8021 (HALO)
8021 (CUST)
504.1 EDB ☐ / DBCP ☐
8260 (TCL) Volatile Organics
8260 (Full) Volatile Organics — X
8260 (CUST) Volatile Organics
8260 (Landfill) Volatile Organics
Pesticides /PCB (608/8081/8082)
Herbicides (615/8151)
Base/Neutral/Acid Compounds GC/MS (625/8270)
Polynuclear Aromatics (610/8310/8270-SIMS)
General Chemistry:
Priority Pollutant Metals (13)
Target Analyte List Metals (23)
RCRA Metals (8)
RCRA Metals by TCLP (Method 1311)
Metals:

PROJECT INFORMATION	
PROJ. NO.:	021401
PROJ. NAME:	Hammond Dist
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO. CONTAINERS	
CUSTODY SEALS	Y / N / NA
RECEIVED INTACT	
BLUE ICE/ICE	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☒ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☐

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Barry Holman Time: 1pm	Signature: Time:
Printed Name: BARRY HOLMAN Date: 1/14/02	Printed Name: Date:
Company: See reverse side (Force Magure)	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Tammie Schoetz Time: 0945
Printed Name: Date:	Printed Name: Tammie Schoetz Date: 1-15-02
Company:	Pinnacle Laboratories Inc.

Waste Disposition Summary Tables Year 2002

REGULATED WASTES			
WASTE STREAM	**TREATMENT TYPE**	**TSDF**	**WEIGHT**
K-170, main column bottoms sludge	INCINERATION	PSC Kent, Washington	450 lbs.
K-170, main column bottoms sludge	INCINERATION	Safety Kleen/APTUS Laidlaw Environmental	300 lbs.
D-018, Desalter Sludge	INCINERATION	Safety Kleen/APTUS Laidlaw Environmental	9360 lbs.
K-050, Exchanger Bundle Sludge	INCINERATION	Safety Kleen/APTUS Laidlaw Environmental	4680 lbs.
K-050, Exchanger Bundle Sludge	INCINERATION	Safety Kleen/APTUS Laidlaw Environmental	750 lbs.
K-051, API Seperator Sludge	INCINERATION	Safety Kleen/APTUS Laidlaw Environmental	1500 lbs.
K-169, Tank #42 Bottom Sludge	INCINERATION	Safety Kleen/APTUS Laidlaw Environmental	27020 lbs.
K-171, Spent Hydrotreating Catalyst	REGENERATED	Eurecat U.S., Inc. Pasadena, Texas	7000 lbs.
K-171, Spent Hydrotreating Catalyst	INCINERATION	Waste Technologies Industries	1200 lbs.

NON-REGULATED WASTES			
WASTE STREAM	**TREATMENT TYPE**	**TSDF**	**WEIGHT**
Corrosive Solid	LANDFILL	PSC Kent, Washington	600 lbs.
Spent Poly Catalyst	LANDFILL	Safety Kleen Clive, Utah	106760 lbs.

NOTES:
TSDF = Treatment, Storage, and Disposal Facility

OCD FILES

35MM DRAWINGS

GW - 1

FILE NUMBER

Monitoring Reports 2003

DOCUMENT TYPE

2 L

NO OF DWGS

39

BOX

Giant Refining Company
Bloomfield Refinery

PRECISION ENGINEERING, INC.

1" = 200'

MW-1
5498.08

MW-24
Dry(*5491.03)

RW-23
5494.48

MW-39
5502.10

MW-9
5494.45

RW-22
5494.20

MW-20
5493.81

MW-28
5493.71

RW-18

RW-43(MW-43)

MW-29
5496.60

MW-21
5497.31

MW-8
5499.44

RW-42(MW-42)

MW-41

MW-40
5495.76

RW-19
5496.62

RW-16
5498.10

RW-14
5499.22

RW-15
5497.74

RW-17
5495.77

MW-3
5499.32

MW-30
5499.24

RW-3
5494.98

RW-2
5495.07

Dry(*5508.13)
MW-5

MW-4
5495.09

P-3
5496.1

MW-31
5498.86

MW-12
5488.41

MW-25
5496.60

MW-38
5491.64

MW-36
5492.53

MW-11
5495.71

MW-26
5497.40

MW-13
5498.55

MW-37
5492.11

MW-34
5493.81

MW-35
5492.97

MW-27
5496.74

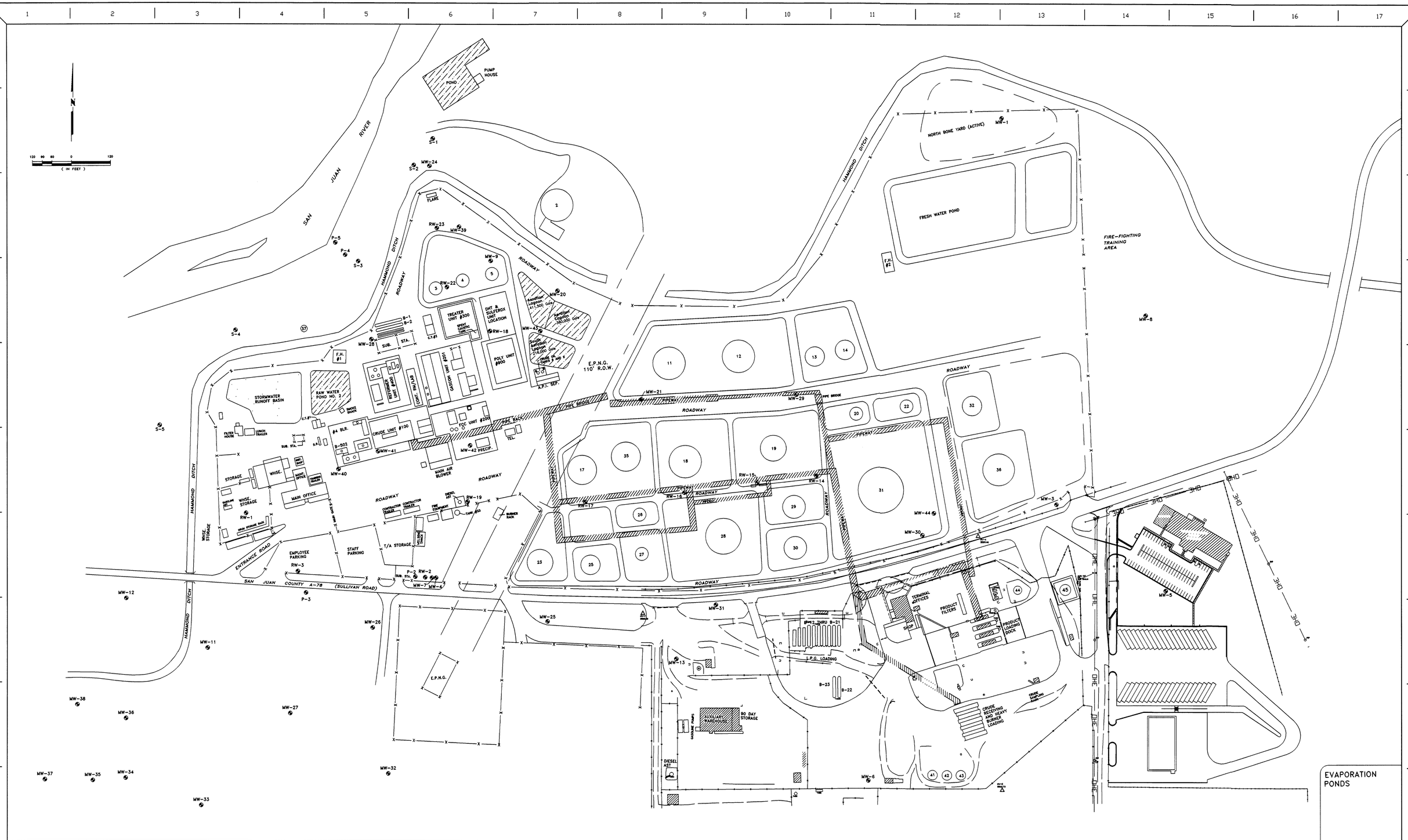
MW-32
5497.41

MW-33
5496.16

MW-6
Dry(*5503.03)

2002 Water Contours

As Of January 20, 2003



NOTES

"MW-XX" – Monitoring Wells Locations
"RW-XX" – Recovery Well Locations
"S-XX" – Seep Locations
"P" – Piezometer

NO.	REVISION	JOB No.	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE
1	Updated As Per Enviromental Dept. Mark Up							

REFERENCE DWGS.

SCALE	As Noted
DRAWN BY	NHB
DATE	8/29/02
INITIAL CHK.	
FINAL CHK.	
ENGR.	
APPR. BY	
AFE/WO No.	

Giant Bloomfield Refinery Area Plot Plan Recovery Well & Monitoring Well Locations

GIANT REFINING CO.
BLOOMFIELD REFINERY — BLOOMFIELD NEW MEXICO

DWG. NO. D-000-900-023 — REV. 1