3R - 134

GENERAL CORRESPONDENCE

YEAR(S):

2001 - 1987

BLAGG ENGINEERING, INC.
P.O. Box 87, Bloomfield, New Mexico 87413
Phone: (505)632-1199 Fax: (505)632-3903

OIL CONSERVATION DIV.
01 JUL 27 PM 1:29

July 26, 2001

Mr. William Olson
New Mexico Oil Conservation Div.
1220 St. Francis Drive
Santa Fe, New Mexico 87504

Re: XTO Energy Inc.
Request for Abandonment of Groundwater Monitor Wells
Valdez A 1E, (G) Sec. 24 - T29N - R11W, San Juan County, NM

Dear Mr. Olson:

On behalf of XTO Energy Inc., Blagg Engineering, Inc. (BEI) is requesting NMOCD approval to abandon three (3) groundwater monitor wells at the captioned Valdez A 1E well site. There are presently nine (9) groundwater monitor wells installed at the site (see Figure 1). The surface landowner is planning on expanding his alfalfa crop and removal of certain wells will facilitate this expansion. Abandonment will follow standard NMOCD approved procedures.

The wells included in this request for abandonment are as follows:

Monitor Well MW#2 - Dry since BEI site monitoring beginning May, 1994
Monitor Well MW#4 - Five (5) consecutive sample events with BTEX within standards between February 23, 1993 and June 24, 1994.
Monitor Well MW#5 - Five (5) consecutive sample events with BTEX within standards between June 7, 1993 and June 24, 1994.

A summary of monitoring test results for site wells is attached for your review. BEI does not foresee a need to sample the three wells included in this request for abandonment. Other wells in the monitoring system should be adequate to determine groundwater quality and gradient.

Respectfully submitted,
Blagg Engineering, Inc.

Jeffrey C. Blagg, President
NMPE 11607

Attachments: Site Map, lab data summary

cc: Mr. Denny Foust, NMOCD - Aztec
Mr. Terry Matthews, Cross Timbers - Farmington
Mr. Jeff Greider, Landowner - Bloomfield

File: crosstimbers.closure2.xmt

XTO ENERGY , INC. (CTOC)

BLAGG ENGINEERING, INC.

REVISED DATE: JULY 23, 20011 *(LAB-SUM1.WK4)*

PIT NO.	WELL NAME	U-S-T-R	SAMPLE DATE	MONITOR WELL No:	D.T.W. (ft)	T.D. (ft)	TDS (mg/L)	COND. (umhos)	pH	PRODUCT (in)	BTEX US EPA METHOD 8020 or 8021 (ppb) Benzene	Toluene	Ethyl Benzene	Total Xylene
C4193	VALDEZ A # 1E	G242911	23-Feb-93	MW #1	13.59	20.30		3900	6.7		ND	ND	ND	ND
			07-Jun-93		12.92	20.88		2900	6.7		ND	0.5	ND	1.0
			08-Sep-93		12.06	20.36		1750	7.2		ND	ND	ND	ND
			09-Mar-94		14.20			3700	6.8		ND	ND	ND	ND
			24-Jun-94		12.39			4000	7.1		ND	ND	ND	ND
			23-Feb-93	MW #3	14.02	22.80		2600	6.8		ND	ND	ND	ND
			07-Jun-93		13.66	23.00		1800	7.2		ND	ND	ND	0.6
			08-Sep-93		13.16	22.36		1350	7.1		ND	0.6	ND	11.7
			09-Mar-94		14.54			2800	6.9		ND	ND	ND	ND
			24-Jun-94		12.95			2500	7.1		ND	ND	ND	ND
			23-Feb-93	MW #4	15.18	20.30		3200	6.7		ND	6.0	7.0	2.0
			07-Jun-93		14.80	20.83		2100	7.2		ND	3.2	3.2	4.3
			08-Sep-93		14.27	19.98		1310			1.1	5.9	22.4	7.7
			09-Mar-94		15.67			3300	6.9		ND	1.6	ND	1.6
			24-Jun-94		14.10			3400	7.1		ND	3.7	2.3	ND
			23-Feb-93	MW #5	14.83	17.30		2300	7.2		1320.0	482.0	175.0	731.0
			07-Jun-93		13.02	23.71		1900	7.0		ND	ND	ND	0.4
			08-Sep-93		12.68	22.78		1140	6.6		ND	1.0	ND	1.8
			02-Dec-93		13.06			2500	7.3		ND	ND	ND	ND
			09-Mar-94		13.81			2700	7.2		ND	0.4	ND	ND
			24-Jun-94		12.30			2200	7.1		ND	ND	ND	ND

CROSS TIMBERS GROUNDWATER MONITOR WELL LAB. RESULTS

SUBMITTED BY BLAGG ENGINEERING, INC.

VALDEZ A # 1E
UNIT G, SEC. 24, T29N, R11W

REVISED DATE: JUNE 4, 2001

FILENAME: (VA-2Q-01.WK4) NJV

								BTEX EPA METHOD 8021 (PPB)			
SAMPLE DATE	MONITOR WELL #	D.T.W. (ft)	T.D. (ft)	TDS (mg/L)	COND. (umhos/cm)	pH	PRODUCT (ft)	Benzene	Toluene	Ethyl Benzene	Total Xylene
23-Feb-93	MW #6	15.06	19.40		2,700	6.9		2090	7800	578	4080
07-Jun-93		14.72	19.50		1,600	7.1		1300	444	293	840
08-Sep-93		14.27	18.35		1,120	7.3		770	980	174	783
02-Dec-93		14.69			2,900	7.3		540	1140	144	867
09-Mar-94		15.49			3,100	7.2		580	1520	130	888
24-Jun-94		14.05			2,800	7.1		542	1923	164	1172
23-Sep-94		13.40			2,600	7.2		484	1696	170	1300
09-Dec-94		14.02			2,300	7.4		593	2242	183	1707
10-Jan-95		14.28			3,200	7.4		450	1380	153	1248
09-Feb-95		14.58			3,400	7.4		710	2160	271	2297
13-Mar-95		14.85			2,500	7.4		19.8	2471	289	2460
10-Apr-95		15.00			2,700	7.3		525	1840	222	1502
19-Jun-95		14.48			2,400	7.2		299.3	998.8	114.5	1045.4
07-Aug-95		14.08			2,400	7.5		593	1650	247	2111
12-Sep-95		13.89			2,200	7.4		412	1390	259	1549
10-Oct-95		13.74			2,200	7.4		176	970	191	1552
15-Nov-95		13.98			2,300	6.9		598	1370	339	2819
07-Dec-95		14.12			2,700	7.1		599	1310	304	2322
07-Mar-96		15.07			1,900	7.1		426	467	234	1876
18-Jun-96		14.40			2,000	7.1		462	773	305	2540
17-Jun-97		14.97			2,400	7.6		110	19.6	37.6	288.9
12-Jun-98		14.92			2,000	7.8		55.6	25.2	45.9	296.1
25-Sep-98		14.36			2,700	7.3		42.7	17.7	68.3	469
26-May-99		15.12			2,000	7.3		78.9	22	51.6	273.9
26-Jun-00		14.53			1,800	7.7		26	2.5	100	670
15-May-01		14.91			2,400	7.3		13	0.5	74	490
23-Feb-93	MW #7	13.37	23.32		2,400	6.9		ND	1	ND	2
07-Jun-93		14.54	19.33		1,700	7.1		640	2270	330	2430
08-Sep-93		14.15	18.85		1,120	7.4		820	1660	306	1780
02-Dec-93		14.56			2,500	7.3		319	366	35.1	242
09-Mar-94		15.30			2,900	6.9		103	88	10.3	74
24-Jun-94		14.04			2,500	7.1		569	2090	288	3094
23-Sep-94		13.51			2,500	7.1		627	1805	189	1755
09-Dec-94		13.94	18.83		2,000	7.2		707	1220	161	1342
10-Jan-95		14.23			3,300	7.2		298	394	54.8	365.4
09-Feb-95		14.50			3,000	7.2		465	624	92	582
13-Mar-95		14.73			2,700	7.2		997.8	813.2	168.4	1015.9
10-Apr-95		14.87			2,700	7.3		648	456	104	623
19-Jun-95		14.39			2,400	7.1		366.7	414.7	66.1	602.2
07-Aug-95		14.04			2,400	7.4		869	1000	171	1431
12-Sep-95		13.85			2,500	7.4		1725	846	141	1035
10-Oct-95		13.73			2,600	7.2		143	689	93.6	925
15-Nov-95		13.94			2,400	6.9		710	1000	178	1642
07-Dec-95		14.05			2,800	7.2		1050	606	167	996
07-Mar-96		14.94			2,000	6.9		101	10.3	8.69	42.27
18-Jun-96		14.34			2,200	6.9		128	65.5	11.5	175.3
17-Jun-97		14.83			2,700	7.6		360	16.3	16.5	127.5
12-Jun-98	MW #7		18.83				0.88				
25-Sep-98							0.88				
26-May-99							0.05				
25-Aug-99							0.62				
30-Nov-99							0.70				
26-Jun-00		14.46			2,200	7.2		220	63	94	4080
15-May-01		14.87			2,700	7.1		190	ND	76	880

CROSS TIMBERS GROUNDWATER MONITOR WELL LAB. RESULTS

SUBMITTED BY BLAGG ENGINEERING, INC.

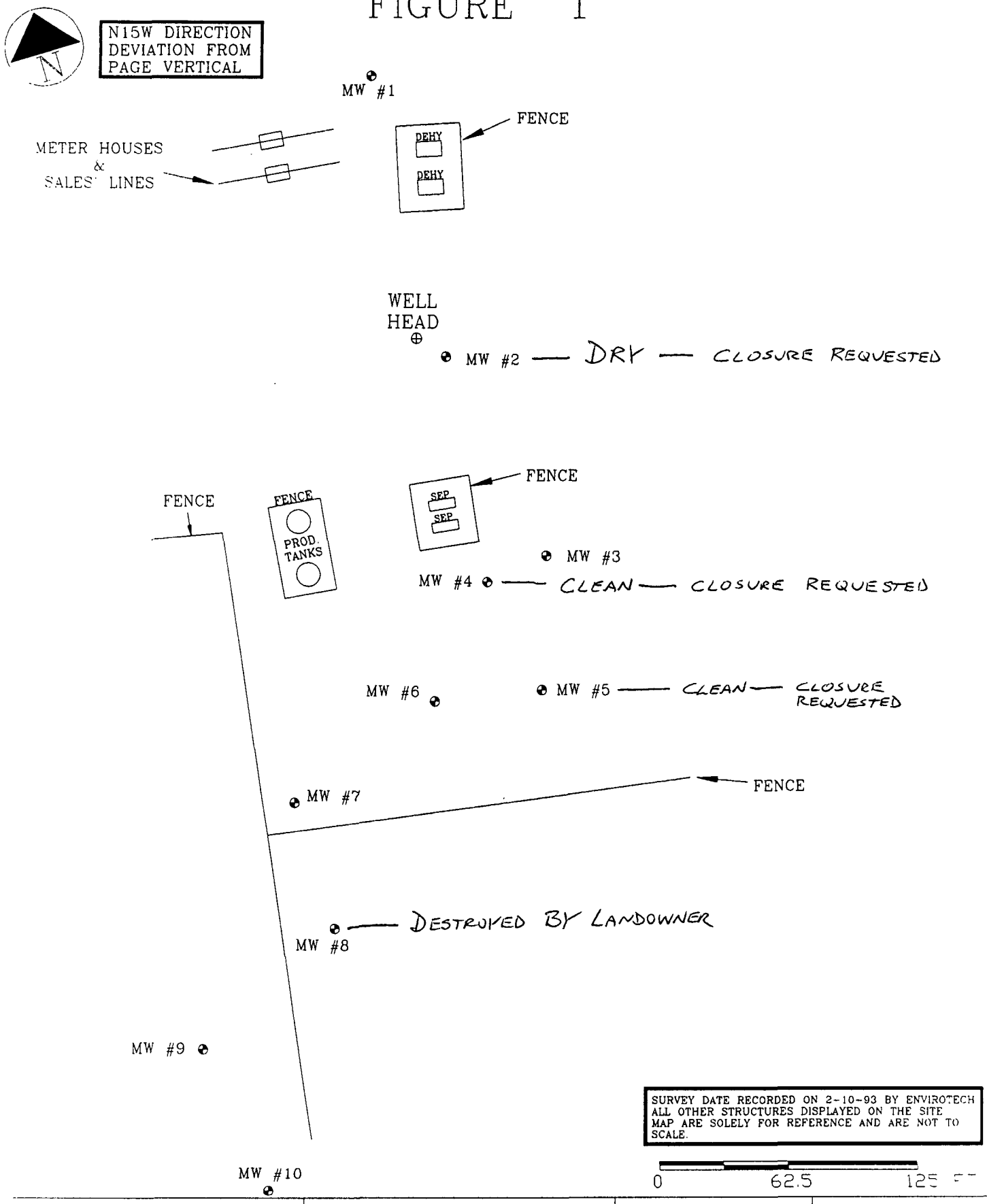
VALDEZ A # 1E
UNIT G, SEC. 24, T29N, R11W

REVISED DATE: JUNE 4, 2001

FILENAME: (VA-2Q-01.WK4) NJV

								BTEX EPA METHOD 8021 (PPB)			
SAMPLE DATE	MONITOR WELL #	D.T.W. (ft)	T.D. (ft)	TDS (mg/L)	COND. (umhos/cm)	pH	PRODUCT (ft)	Benzene	Toluene	Ethyl Benzene	Total Xylene
23-Feb-93	MW #8	15.68	17.00		3,200	7.1		2830	25500	1680	5430
08-Jun-93		15.36	17.01		1,300	6.9		3220	1940	1110	4960
09-Sep-93		15.16	17.73		1,070	7.6		245	2040	135	1499
02-Dec-93		15.44			2,200	7.5		307	2520	119	1388
09-Mar-94		15.98			2,700	7.1		223	340	61	232.9
24-Jun-94		14.86			2,300	7.1		375	1750	108	1001
23-Sep-94		14.31			2,400	7.1		236	1827	90	864
09-Dec-94		14.78	18.60		1,900	7.3		307	1608	105	734
10-Jan-95		15.02			2,800	7.3		320	2410	119	1016
09-Feb-95		15.24						183	760	90.9	452
13-Mar-95		15.42			2,400	7.2		415	3943	202	2037
10-Apr-95		15.54			2,600	7.3		239	2780	128	1245
19-Jun-95					2,300	7.1		148.9	1448.2	72.8	681.2
07-Aug-95		14.86			2,400	7.4		168	1590	92.7	893
12-Sep-95		14.71			2,100	7.3		499	1420	74.1	788
10-Oct-95		14.60			2,300	7.3		88.1	817	52.1	614
15-Nov-95		14.78			2,400	6.9		158	2110	150	1488
07-Dec-95		14.87			2,700	7.0		156	1920	135	1277
07-Mar-96		15.60			1,900	6.9		98.1	1320	82.5	778
18-Jun-96		15.15			2,100	7.1		5.45	2.25	ND	3.5
27-Dec-96		15.12	18.28		2,500	7.3		105.0	569	51.0	421
17-Jun-97		14.01			2,600	7.6		45.4	83.0	29.8	88.9
12-Jun-98		15.54			2,000	7.9		5.4	5.1	1.1	9.1
25-Sep-98		15.03			2,700	7.1		0.3	0.3	0.2	2.4
25-Sep-93	MW #9	8.56	11.00		1,500	7.5		ND	1.0	ND	2.0
08-Jun-93		8.19			1,900	6.5		ND	2.1	0.3	2.3
09-Sep-93		8.00	10.92		1,200	7.3		0.9	0.6	ND	0.4
09-Mar-94		8.83			3,000	6.9		ND	2.1	0.7	7.0
24-Jun-94		7.80			2,500	7.1		1.6	5.5	4.1	3.1
25-Sep-98		7.93	11.08		2,900	6.9		0.6	0.2	ND	1.1
26-May-99		8.49			2,100	7.1		25.1	13.7	4.3	47.0
25-Aug-99		8.12			2,300	7.1		0.7	2.0	ND	2.7
30-Nov-99		7.99			2,500	7.1		4.2	2.9	0.3	4.6
26-Jun-00		8.07			2,500	7.5		ND	ND	ND	ND
20-Mar-01		8.57			1,800	7.3		ND	ND	ND	ND
23-Feb-93	MW #10	8.65	9.80		3,600	7.4		ND	ND	ND	1.0
08-Jun-93		8.43	9.80		1,800	7.0		ND	0.7	ND	0.9
09-Sep-93		7.76			1,180	7.3		ND	0.3	ND	1.1
09-Mar-94		8.98			2,900	7.0		ND	2.3	ND	0.4
24-Jun-94		8.00	12.15		2,700	7.0		2.2	ND	ND	ND
23-Sep-94		7.56			2,400	7.1		0.7	0.7	ND	ND
09-Dec-94		7.88	12.44		2,000	7.5		ND	0.2	ND	ND
13-Mar-95		8.46			2,800	7.1		ND	ND	ND	ND
19-Jun-95		8.22			2,200	7.1		ND	ND	ND	ND
12-Sep-95		7.84			2,200	7.3		ND	ND	ND	ND
07-Dec-95		7.93			2,600	6.9		ND	ND	ND	ND
07-Mar-96		8.62			1,900	6.9		ND	ND	ND	ND
18-Jun-96		8.22			2,200	6.9		ND	ND	ND	ND
25-Aug-99		8.30			2,200	7.3		1.7	0.9	ND	1.2

FIGURE 1



VALDEZ A1E

SW/4 NE/4 SEC. 24, T29N, R11W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: 1/4ly Monitor.

DRAWN BY: NJV

FILENAME: VALD-SM

REVISED: 1/28/99 NJV

SITE MAP

12/96

BLAGG ENGINEERING, INC.
P.O. Box 87, Bloomfield, New Mexico 87413
Phone: (505)632-1199 Fax: (505)632-3903

April 19, 2000

Mr. William C. Olson - Hydrologist
State of New Mexico Oil Conservation Division
2040 South Pacheco
State Land Office Building
Santa Fe, NM 87505

RE: 1999 ANNUAL GROUNDWATER REPORTS
SAN JUAN COUNTY, NEW MEXICO

Dear Mr. Olson:

Blagg Engineering, Inc., on behalf of Cross Timbers Oil Company, respectfully submits the attached 1999 annual groundwater reports in which quarterly and/or annual sampling is currently being undertaken. This reporting adheres to the NMOCD's previously approved groundwater management plan.

A total of seven (7) well sites, listed on the following page, are associated with this correspondence. All work performed on the these well sites have been incorporated into individual packets. Pit and/or landfarm closure documentation was included in the previous submitted reports.

The summary, conclusions, and/or recommendations made within these reports are based on information made available from the enclosed material. Any site specific inquiries should be examined within the individual packets.

If you have questions, please call and contact either myself or Jeffrey C. Blagg. Thank you for your cooperation and assistance.

Sincerely,
BLAGG ENGINEERING, INC.

Nelson Velez
Staff Geologist

Reviewed by:

Jeffrey C. Blagg, P.E
President

Attachments: Individual Well site packets

cc: Denny Foust, Environmental Geologist, NMOCD District III Office, Aztec, NM
Nina Hutton, Environmental & Safety Manager, Cross Timbers Oil Company, Ft. Worth, TX

NV/nv

PREV-99.CVL

Cross Timbers Oil Co. 1999 Annual Groundwater Reports

1.	Abrams J # 1	Unit I, Sec. 29, T29N, R10W
2.	Bergin GC # 1E	Unit F, Sec. 21, T29N, R11W
3.	Bruington GC # 1	Unit E, Sec. 14, T29N, R11W
4.	Rowland GC # 1	Unit P, Sec. 25, T30N, R12W
5.	State GC BS # 1	Unit F, Sec. 21, T29N, R11W
6.	Sullivan GC D # 1	Unit B, Sec. 26, T29N, R11W
7.	Valdez A # 1E	Unit G, Sec. 24, T29N, R11W

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

April 21, 1999

CERTIFIED MAIL
RETURN RECEIPT NO: Z-274-520-641

Ms. Nina Hutton
Cross Timbers Oil Company
810 Houston St., Suite 2000
Fort Worth, Texas 76102-6298

RE: SAN JUAN BASIN GROUND WATER MONITORING REPORTS

Dear Ms. Hutton:

The New Mexico Oil Conservation Division (OCD) has reviewed Cross Timbers Oil Company's (CTOC) February 11, 1999 "CROSS TIMBERS OIL CO. GROUNDWATER MONITORING (AMOCO) 1996-1998 REPORTS, SAN JUAN COUNTY, NEW MEXICO" which was submitted on behalf of CTOC by their consultant Blagg Engineering, Inc. This document contains the results of CTOC's investigation, remediation and monitoring of ground water contamination related to the disposal of oilfield wastes in unlined pits at 7 sites in the San Juan Basin.

Based upon a review of the above referenced documents, the OCD has the following comments and requirements:

1. The downgradient and/or lateral extent of chloride and/or total dissolved solids contamination at the sites listed below has not been completely defined. The OCD requires that CTOC completely define the extent of these contaminants at each site pursuant to the previously approved ground water management plan for these sites.

   - Bergin GC #1E — Unit F, Sec. 21, T29N, R11W
   - Rowland GC #1 — Unit P, Sec. 25, T30N, R12W
   - State GC BS #1 — Unit F, Sec. 21, T29N, R11W
   - Sullivan GC D#1 — Unit B, Sec. 26, T29N, R11W

2. The downgradient and/or lateral extent of benzene, toluene, ethylbenzene, xylene (BTEX), chloride and/or total dissolved solids contamination at the sites listed below has not been completely defined. The OCD requires that CTOC completely define the extent of these contaminants at each site pursuant to the previously approved ground water management plan for these sites.

   - Bruington GC #1 — Unit E, Sec. 14, T29N, R11W
   - Valdez A #1E — Unit G, Sec. 24, T29N, R11W

3. A review of the sampling data shows that during some samplings only ground water from the monitor wells at the source is sampled and there is no downgradient monitoring to show that contaminated ground water is contained. In order to effectively monitor contaminant migration, the OCD requires that the ground water monitoring plan be modified to include additional ground water sampling of all monitor wells at each site on an annual basis. During the annual sampling event ground water from all monitor wells will be sampled and analyzed for BTEX, TDS, polynuclear aromatic hydrocarbons (PAH) and New Mexico Water Quality Control Commission (WQCC) cations and anions and metals using EPA approved methods and quality assurance/quality control procedures. Specific analytes may be dropped from the annual sampling event for certain sites if that analyte has not been found to be above WQCC standard in the sites source areas and the reasons for dropping those analytes are included in the annual reports. This sampling requirement will also be added to the ground water monitoring plan for all future ground water sampling at all CTOC sites with contaminated ground water.

4. CTOC recently purchased a number of well sites in the San Juan Basin from Amoco. Some of these sites were found to have ground water contamination which was discovered by Amoco during pit closure activities. The OCD does not have a listing of status of these sites. Please provide the OCD with a listing of all CTOC well sites in the San Juan Basin at which the presence of ground water was discovered during pit assessment or closure activities and the status of each site.

If you have any questions, please contact me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

xc: Denny Foust, OCD Aztec District Office
Nelson Velez, Blagg Engineering, Inc.

BLAGG ENGINEERING, INC.
P.O. Box 87, Bloomfield, New Mexico 87413
Phone: (505) 632-1199 Fax: (505) 632-3903

February 11, 1999

Mr. William C. Olson -Hydrogeologist
Environmental Bureau
New Mexico Oil Conservation Division
2040 Pacheco
State Land Building
Santa Fe, New Mexico 87505

RE: Cross Timbers Oil Co. Groundwater Monitoring (Amoco) 1996-1998 Reports
San Juan County, New Mexico

Dear Mr. Olson:

The attached reports on groundwater monitoring at eight (8) previously owned Amoco well locations is being submitted for your review. These well sites have been acquired by Cross Timbers Co. as of December, 1997. The well names are listed on the following page of this correspondence. The reports for each individual well site are laid out in the following order;

1) Brief description of all activities which occurred during the investigation, sampling procedures, and/or interpretations, conclusions, and possible recommendations.
2) A summary spreadsheet contains laboratory BTEX, general chemistry (if applicable), and any other pertinent information.. The latest quarter/annual sampling results are shown along with all previous sampling conducted at the specified locations for comparison purposes.
3) Site and groundwater gradient maps, boring logs, and monitor well detail schematics.
4) Laboratory reports for each quarter/annual sampling event and a field summary spreadsheet revealing well elevations, water elevations, depth to water information, etc.
5) Quality Assurance/Quality Control data.

A copy of this report is also being submitted to Mr. Denny Foust at the Aztec NMOCD office. If you have any questions or comments concerning this report, please contact Blagg Engineering at 632-1199.

Respectfully submitted,
Blagg Engineering, Inc.

Nelson Velez.
Staff Geologist

Attachments: Quarter/Annual Monitor Well Sampling Reports

xc: Denny Foust, NMOCD Aztec Office; Nina Hutton, Cross Timbers Oil Co.

NJV/njv FEB99-WO.COV

Cross Timbers Oil Company
Groundwater Monitoring Reports 1996-1998
Well Sites being submitted, February 1999

1)	Abrams J # 1	Unit I, Sec. 29, T29N, R10W
2)	Bergin GC # 1E	Unit F, Sec. 21, T29N, R11W
3)	Bruington GC # 1	Unit E, Sec. 14, T29N, R11W
4)	Rowland GC # 1	Unit P, Sec. 25, T30N, R12W
5)	State GC BS # 1	Unit K, Sec. 23, T29N, R11W
6)	Sullivan GC D # 1	Unit B, Sec. 26, T29N, R11W
7)	Valdez A # 1E	Unit G, Sec. 24, T29N, R11W

NJV/njv *FEB99-WO.COV*

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

March 12, 1996

CERTIFIED MAIL
RETURN RECEIPT NO. Z-765-962-549

Mr. B.D. Shaw
Amoco Production Company
200 Amoco Court
Farmington, New Mexico 87401

RE: GROUND WATER CONTAMINATION
VALDEZ A#1E

Dear Mr. Shaw:

The New Mexico Oil Conservation Division (OCD) has completed a review of Amoco Production Company's (Amoco) JANUARY 8, 1996 "REDUCTION OF GROUNDWATER MONITORING REQUIREMENTS FOR AMOCO WELL SITE VALDEZ A-1-E". This document contains Amoco's request to cease ground water monitoring related to contamination from a former unlined production pit at the Valdez A#1E well site.

According to New Mexico Water Quality Control Commission (WQCC) regulations, a responsible party is required to remediate and monitor contaminated ground water until WQCC standards have been achieved. While the data shows that the contaminated ground water plume has decreased in size, ground water within the plume is still approximately 65 times WQCC ground water standards. Since WQCC standards have not been met, the OCD cannot approve a proposal to cease remedial actions and ground water monitoring. Therefore, the above referenced request is denied.

The OCD would like to point out to Amoco that according to WQCC regulation 4103.F. and 4106 Amoco can voluntarily submit an "Abatement Plan" which could petition for approval of alternate abatement standards. The WQCC regulations are enclosed for your reference.

If you have any questions, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

cc: OCD Aztec District Office

Z 765 962 549

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Southern
Rockies
Business
Unit

January 8, 1996

San Juan Operations Center

Mr. William Olsen
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504

RE: REDUCTION OF GROUNDWATER MONITORING REQUIREMENTS FOR AMOCO WELL SITE VALDEZ A-1-E

Dear Bill:

I have asked Geoscience Consultants, Ltd. (GCL) to evaluate the groundwater chemistry of the above-referenced site. The data, which have been collected from 1988 to 1996, are presented in the attached table, figure, and graphs. Amoco believes the data support our request to cease routine groundwater monitoring at this site. The justification and contingency plan presented below demonstrate that the plume is stable, natural biodegradation is occurring at this site, threats to human health and the environment do not exist, and installation of a remedy at this site would best be accomplished after plugging and abandonment of the on-site natural gas production well.

Trends in BTEX Concentrations

The attached concentration/time plots demonstrate the benzene, toluene, ethylbenzene, and xylenes (BTEX) concentrations outside the center of mass of the plume have remained low and below Water Quality Control Commission (WQCC) standards since 1992. Concentrations in wells inside the center of mass of the plume (MW-6, MW-7, MW-8, and MW-10) are remaining fairly constant or, in the case of well MW-10, have decreased (if the initial 1988 analysis is valid). Some "spikes" in BTEX concentrations may be due to sampling or analytical error.

No Plume Migration

The attached plume map clearly shows the plume has not migrated over time and, in fact, the plume has actually retracted slightly towards the center of mass. It is our understanding that no new water supply wells have been installed near the site and therefore the plume should not migrate from its present position. It appears to be essentially in a steady state, if not slowly retracting.

A solute transport model simulation conducted by RESPEC in 1992 is superimposed on the plume map. This model predicted the extent of contamination if retardation factors, such as bioremediation, did not occur. Clearly, plume conditions predicted by the model were never borne out by groundwater quality analyses conducted since 1992. Natural bioremediation of BTEX constituents is a well-documented process in the literature and is probably responsible for the static

plume observed at this site. Irrigation return water provides nutrients and oxygen to the system, and the petroleum hydrocarbons sorbed to the subsurface soils and dissolved in groundwater provide a carbon source. The rate of petroleum hydrocarbon transport from the source soils is completely offset by the metabolism of these hydrocarbons by indigenous microbes. Amoco strongly believes this process is operating effectively at this site, based upon the eight years of groundwater data.

Human Health and Environment Adequately Protected

The land use in the area is agricultural/pastureland, and we believe it will likely remain so for the lifetime of the gas production well. Provided current conditions do not change, the plume will remain stable or slowly degrade, and not impact a human or ecological receptor. If conditions change, Amoco will implement the contingency plan outlined below.

- If a domestic water well is installed within 200 feet (the length of the plume) of the edge of the plume, or if an irrigation well is installed within 400 feet of the edge of the plume, Amoco will commence semi-annual monitoring of MW-10 and any other monitoring well that lies between the plume's center of mass and the production well.

- If a spill of natural gas liquids occurs, Amoco will commence quarterly monitoring of MW-10 and the monitoring well nearest the spill location.

- If groundwater pumping or spillage causes plume migration, as demonstrated by monitoring, Amoco will commence active remediation of groundwater through a soil venting program and, if required, an air sparging program to arrest the plume and prevent more extensive degradation of groundwater quality.

- One year prior to plugging and abandonment of the natural gas production well, Amoco will collect one year of quarterly monitoring data from all monitoring wells. If contamination remains to the extent that WQCC standards would be exceeded at a place of reasonably foreseeable future use, as determined by the NMOCD, Amoco will install an appropriate groundwater remedy or institutional controls to ensure that all regulatory requirements are met.

Based upon the stability of the plume and the lack of risk it poses to human health and the environment, Amoco believes that continuation of groundwater monitoring is unnecessary. Amoco will commit to remediation of the plume or institutional controls to fully protect usable groundwater (1) if and when site conditions change, (2) the well is plugged, or (3) Amoco or any subsequent operator loses control of the site. Based on the above information, we urge you to approve this request to cease groundwater monitoring at this site.

If you have any questions on the information I have provided you, please feel free to give me a call.

Sincerely,
Amoco

Buddy Shaw

J:\AMOCO.LTR

cc: Roger Anderson, NMOCD
Randall Hicks, GCL

Amoco Groundwater Monitor Well Laboratory Results

	D.T.W.	T.D.	Conductivity	pH	BTEX Concentration (ppb)				
	(feet)	(feet)	(umhos)		Benzene	Toluene	Ethyl Benzene	Total Xylene	Total BTEX
MW-1									
01-Jul-88					ND	ND	ND	ND	ND
31-Aug-88					ND	ND	ND	ND	ND
5-Mar-92					ND	ND	ND	ND	0.5
23-Feb-93	13.59	20.30	3900	6.7	ND	ND	ND	ND	ND
07-Jun-93	12.92	20.88	2900	6.7	ND	0.5	ND	1.0	1.5
08-Sep-93	12.06	20.36	1750	7.2	ND	ND	ND	ND	ND
09-Mar-94	14.20		3700	6.8	ND	ND	ND	ND	ND
24-Jun-94	12.39		4000	7.1	ND	ND	ND	ND	ND
23-Sep-94	11.35		3600	7.3	0.9	0.2	ND	3.8	4.9
09-Dec-94	12.34	20.64	2600	7.4	0.8	ND	ND	ND	0.8
13-Mar-95	13.71		4800	7.3	ND	ND	ND	ND	ND
MW#2									
02-Jul-88					ND	ND	ND	ND	ND
31-Aug-88					ND	ND	ND	ND	ND
5-Mar-92					ND	ND	ND	ND	ND
MW-3									
03-Jul-88					ND	ND	ND	ND	ND
31-Aug-88					ND	ND	ND	ND	ND
5-Mar-92					3.0	6.9	0.3	7.8	18.0
23-Feb-93	14.02	22.80	2600	6.8	ND	ND	ND	ND	ND
07-Jun-93	13.66	23.00	1800	7.2	ND	ND	ND	0.6	0.6
08-Sep-93	13.16	22.36	1350	7.1	ND	0.6	ND	11.7	12.3
09-Mar-94	14.54		2800	6.9	ND	ND	ND	ND	ND
24-Jun-94	12.95		2500	7.1	ND	ND	ND	ND	ND
23-Sep-94	12.24		2500	7.2	ND	ND	ND	ND	ND
09-Dec-94	12.94	23.24	2100	7.5	ND	ND	ND	ND	ND
13-Mar-95	13.88		2500	7.4	ND	ND	ND	ND	ND
MW-4									
04-Jul-88					NA	NA	NA	NA	NA
31-Aug-88					110.00	730.00	230		1560.00
5-Mar-92					0.4	5.3	0.6	3.1	9.4
23-Feb-93	15.18	20.30	3200	6.7	ND	6.0	7.0	2.0	15.0
07-Jun-93	14.80	20.83	2100	7.2	ND	3.2	3.2	4.3	10.7
08-Sep-93	14.27	19.98	1310		1.1	5.9	22.4	7.7	37.1
09-Mar-94	15.67		3300	6.9	ND	1.6	ND	1.6	3.2
24-Jun-94	14.10		3400	7.1	ND	3.7	2.3	ND	6.0
23-Sep-94	13.38		3300	7.1	0.7	ND	0.5	ND	1.2
09-Dec-94	14.10		2600	7.5	0.7	2.7	ND	ND	3.4
13-Mar-95	15.04		3500	7.1	ND	ND	ND	ND	ND
MW-5									
05-Jul-88					ND	0.50	ND		0.30
31-Aug-88					ND	0.40	ND		ND
5-Mar-92					ND	0.5	ND	1.0	1.5

Amoco Groundwater Monitor Well Laboratory Results

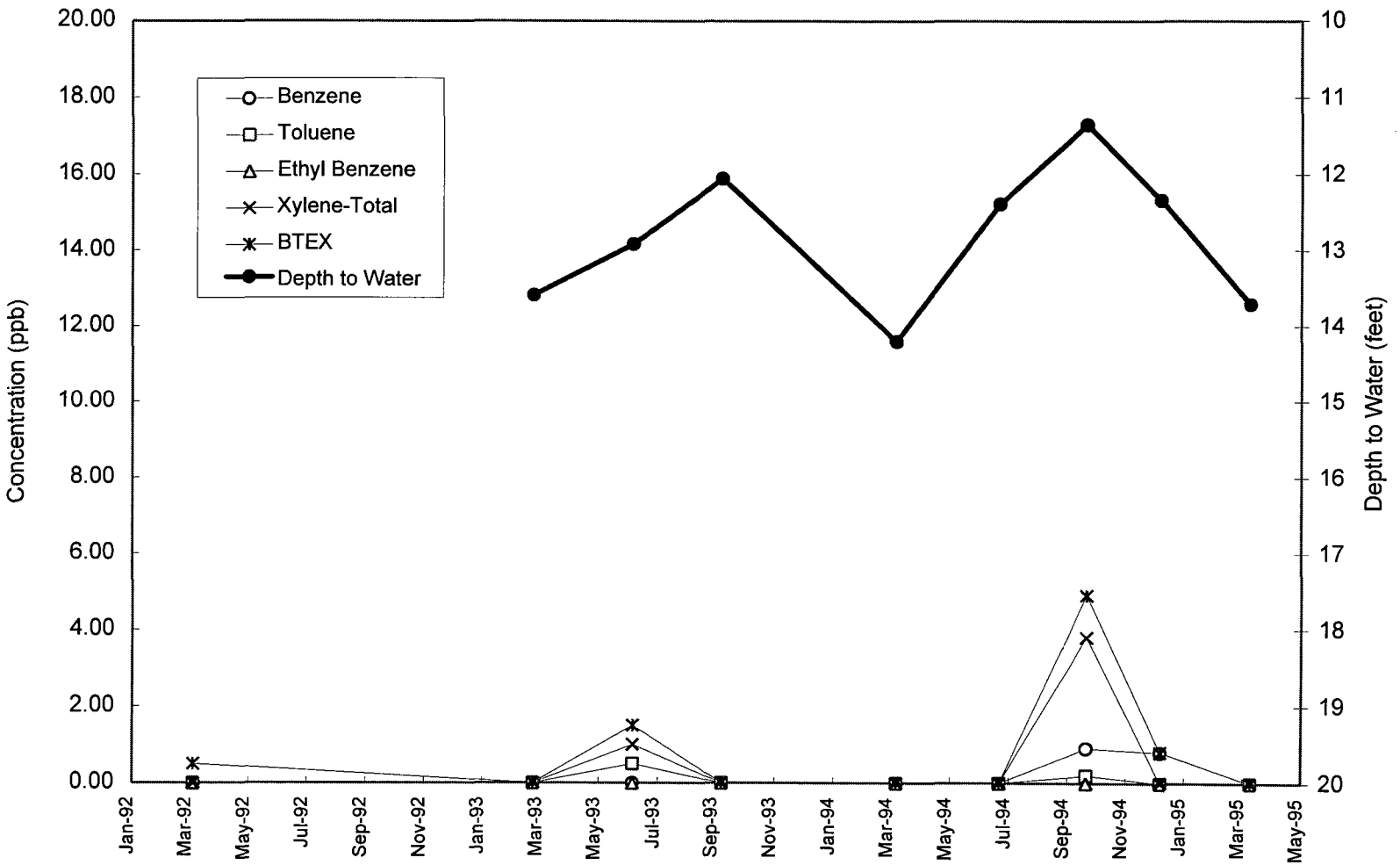
	D.T.W.	T.D.	Conductivity	pH	BTEX Concentration (ppb)				
	(feet)	(feet)	(umhos)		Benzene	Toluene	Ethyl Benzene	Total Xylene	Total BTEX
23-Feb-93	14.83	17.30	2300	7.2	1320.0	482.0	175.0	731.0	2708.0
07-Jun-93	13.02	23.71	1900	7.0	ND	ND	ND	0.4	0.4
08-Sep-93	12.68	22.78	1140	6.6	ND	1.0	ND	1.8	2.8
02-Dec-93	13.06		2500	7.3	ND	ND	ND	ND	ND
09-Mar-94	13.81		2700	7.2	ND	0.4	ND	ND	0.4
24-Jun-94	12.30		2200	7.1	ND	ND	ND	ND	ND
23-Sep-94	11.66		2200	7.2	ND	ND	ND	ND	ND
09-Dec-94	12.28		2000	7.5	ND	ND	ND	ND	ND
13-Mar-95	13.10		2000	7.3	ND	ND	ND	ND	ND
MW-6									
06-Jul-88					1,500	3,300	550		4,560
31-Aug-88					1,700	1,600	340		1,300
5-Mar-92					65.0	44.1	20.3	82.7	212.1
23-Feb-93	15.06	19.40	2700	6.9	2090.0	7800.0	578.0	4080.0	14548.0
07-Jun-93	14.72	19.50	1600	7.1	1300.0	444.0	293.0	840.0	2877.0
08-Sep-93	14.27	18.35	1120	7.3	770.0	980.0	174.0	783.0	2707.0
02-Dec-93	14.69		2900	7.3	540.0	1140.0	144.0	867.0	2691.0
09-Mar-94	15.49		3100	7.2	580.0	1520.0	130.0	888.0	3118.0
24-Jun-94	14.05		2800	7.1	542.0	1923.0	164.0	1172.0	3801.0
23-Sep-94	13.40		2600	7.2	484.0	1696.0	170.0	1300.0	3650.0
09-Dec-94	14.02		2300	7.4	593.0	2242.0	183.0	1707.0	4725.0
10-Jan-95	14.28		3200	7.4	450.0	1380.0	153.0	1248.0	3231.0
09-Feb-95	14.58		3400	7.4	710.0	2160.0	271.0	2297.0	5438.0
13-Mar-95	14.85		2500	7.4	19.8	2471.0	289.0	2460.0	5239.8
10-Apr-95	15.00		2700	7.3	525.0	1840.0	222.0	1502.0	4089.0
MW-7									
5-Mar-92					1160.0	1110.0	302.0	1972.0	4544.0
23-Feb-93	13.37	23.32	2400	6.9	ND	1.0	ND	2.0	3.0
07-Jun-93	14.54	19.33	1700	7.1	640.0	2270.0	330.0	2430.0	5670.0
08-Sep-93	14.15	18.85	1120	7.4	820.0	1660.0	306.0	1780.0	4566.0
02-Dec-93	14.56		2500	7.3	319.0	366.0	35.1	242.0	962.1
09-Mar-94	15.30		2900	6.9	103.0	88.0	10.3	74.0	275.3
24-Jun-94	14.04		2500	7.1	569.0	2090.0	288.0	3094.0	6041.0
23-Sep-94	13.51		2500	7.1	627.0	1805.0	189.0	1755.0	4376.0
09-Dec-94	13.94	18.83	2000	7.2	707.0	1220.0	161.0	1342.0	3430.0
10-Jan-95	14.23		3300	7.2	298.0	394.0	54.8	365.4	1112.2
09-Feb-95	14.50		3000	7.2	465.0	624.0	92.0	582.0	1763.0
13-Mar-95	14.73		2700	7.2	997.8	813.2	168.4	1015.9	2995.3
10-Apr-95	14.87		2700	7.3	648.0	456.0	104.0	623.0	1831.0
MW-8									
5-Mar-92					2160.0	1770.0	830.0	2920.0	7680.0
23-Feb-93	15.68	17.00	3200	7.1	2830.0	25500.0	1680.0	5430.0	35440.0
08-Jun-93	15.36	17.01	1300	6.9	3220.0	1940.0	1110.0	4960.0	11230.0
09-Sep-93	15.16	17.73	1070	7.6	245.0	2040.0	135.0	1499.0	3919.0

Amoco Groundwater Monitor Well Laboratory Results

	D.T.W.	T.D.	Conductivity	pH	BTEX Concentration (ppb)				
	(feet)	(feet)	(umhos)		Benzene	Toluene	Ethyl Benzene	Total Xylene	Total BTEX
02-Dec-93	15.44		2200	7.5	307.0	2520.0	119.0	1388.0	4334.0
09-Mar-94	15.98		2700	7.1	223.0	340.0	61.0	232.9	856.9
24-Jun-94	14.86		2300	7.1	375.0	1750.0	108.0	1001.0	3234.0
23-Sep-94	14.31		2400	7.1	236.0	1827.0	90.0	864.0	3017.0
09-Dec-94	14.78	18.60	1900	7.3	307.0	1608.0	105.0	734.0	2754.0
10-Jan-95	15.02		2800	7.3	320.0	2410.0	119.0	1016.0	3865.0
09-Feb-95	15.24				183.0	760.0	90.9	452.0	1485.9
13-Mar-95	15.42		2400	7.2	415.0	3943.0	202.0	2037.0	6597.0
10-Apr-95	15.54		2600	7.3	239.0	2780.0	128.0	1245.0	4392.0
MW-9									
24-Mar-92					1.3	ND	0.3	0.9	2.5
23-Feb-93	8.56	11.00	1500	7.5	ND	1.0	ND	2.0	3.0
08-Jun-93	8.19	11.00	1900	6.5	ND	2.1	0.3	2.3	4.7
09-Sep-93	8.00	10.92	1200	7.3	0.9	0.6	ND	0.4	1.9
09-Mar-94	8.83		3000	6.9	ND	2.1	0.7	7.0	9.8
24-Jun-94	7.80		2500	7.1	1.6	5.5	4.1	3.1	14.3
23-Sep-94	7.30		2600	7.1	0.8	2.5	3.1	1.2	7.6
09-Dec-94	7.70	11.08	2100	7.4	0.8	1.6	ND	ND	2.4
13-Mar-95	8.31		2600	7.2	ND	ND	ND	ND	ND
MW-10									
24-Mar-92					1380.0	1490.0	690.0	2550.0	6110.0
23-Feb-93	8.65	9.80	3600	7.4	ND	ND	ND	1.0	1.0
08-Jun-93	8.43	9.80	1800	7.0	ND	0.7	ND	0.9	1.6
09-Sep-93	7.76		1180	7.3	ND	0.3	ND	1.1	1.4
09-Mar-94	8.98		2900	7.0	ND	2.3	ND	0.4	2.7
24-Jun-94	8.00	12.15	2700	7.0	2.2	ND	ND	ND	2.2
23-Sep-94	7.56		2400	7.1	0.7	0.7	ND	ND	1.4
09-Dec-94	7.88	12.44	2000	7.5	ND	0.2	ND	ND	0.2
13-Mar-95	8.46		2800	7.1	ND	ND	ND	ND	ND
MW#11									
24-Mar-92									0.30

Notes:
D.T.W. = depth to water.
T.D. = total depth.
umhos = micromhos.
ppb = part per billion.
ND = not detected.

Amoco Groundwater Monitoring Well Laboratory Results - MW#1



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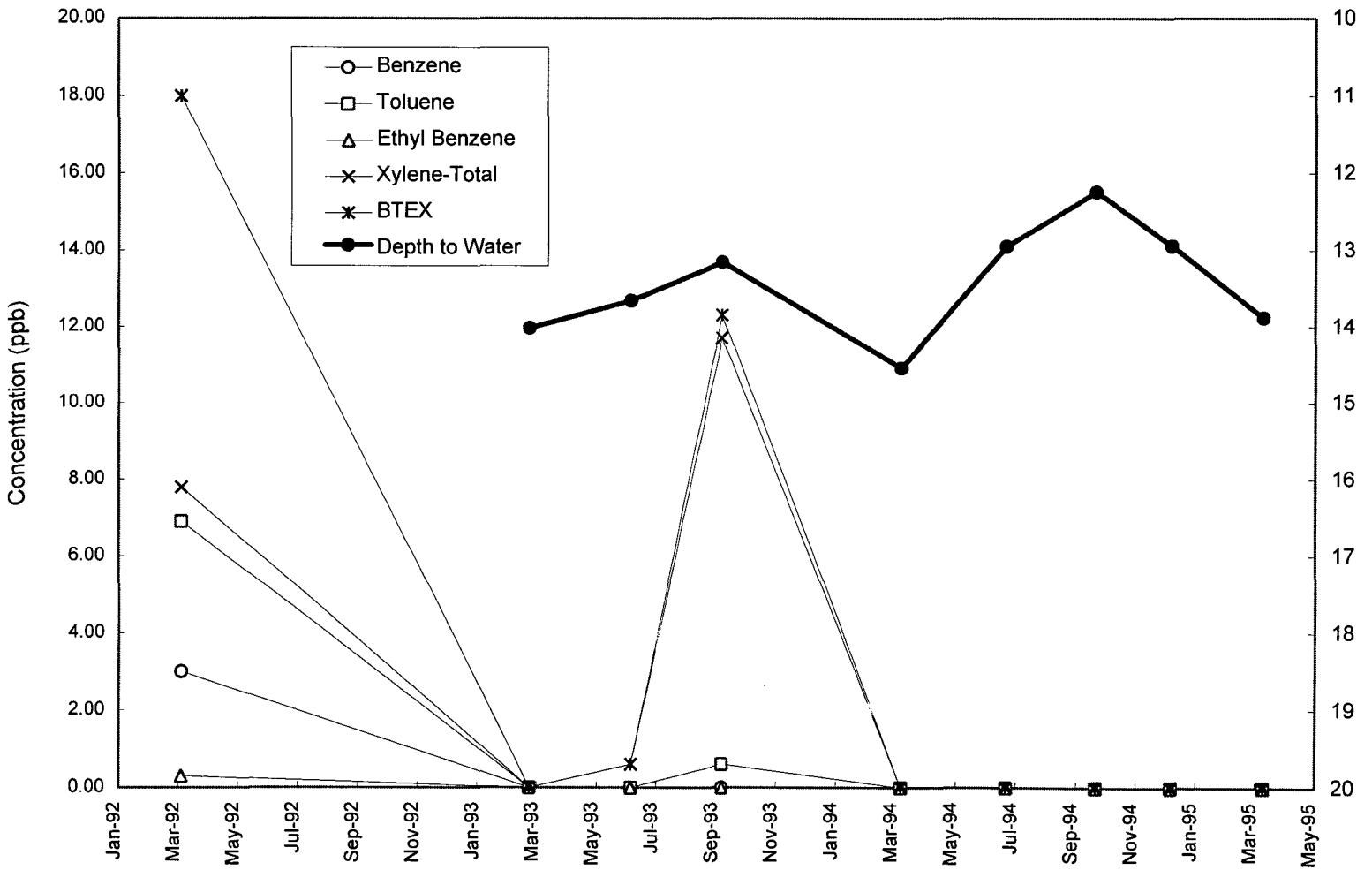

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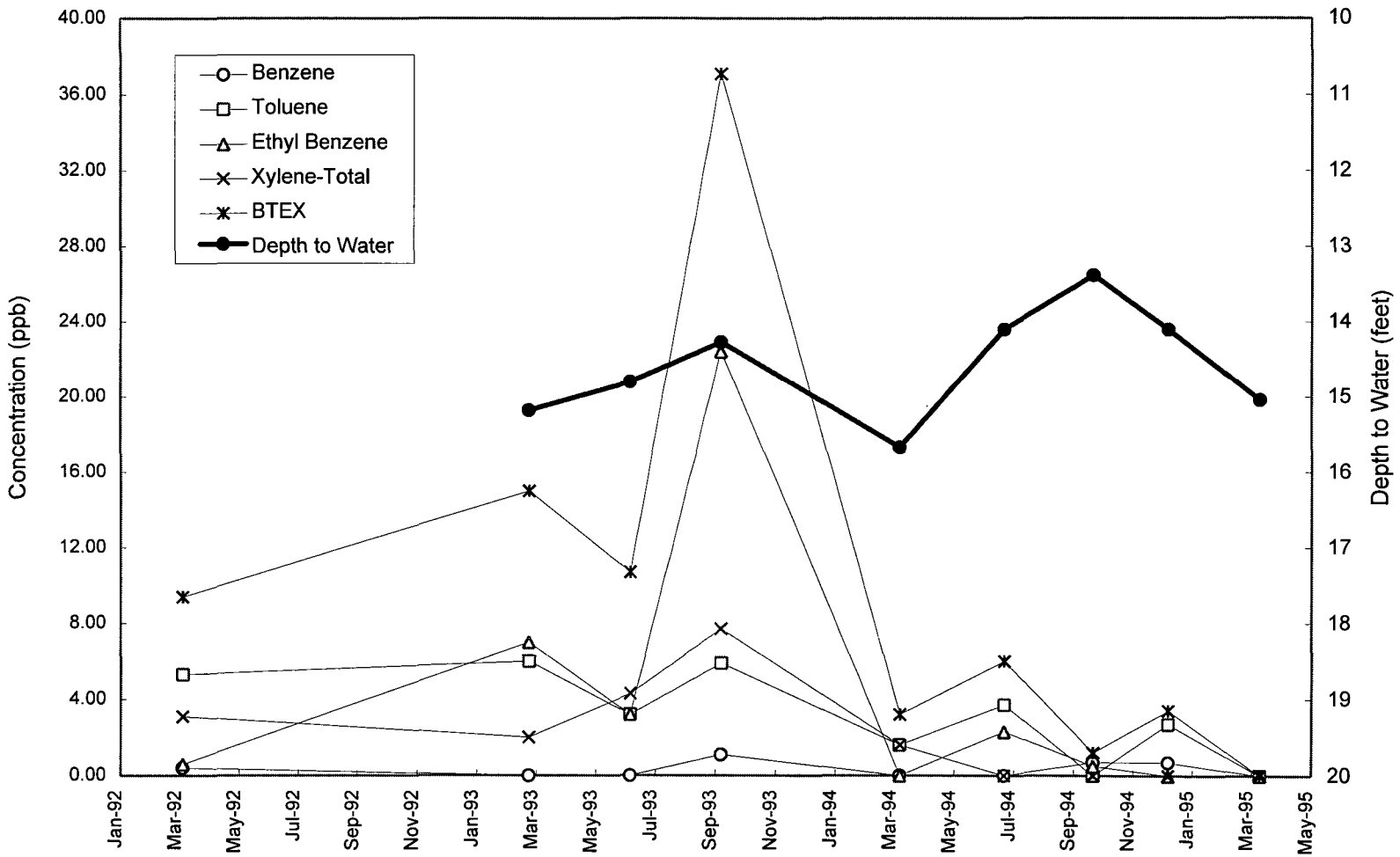

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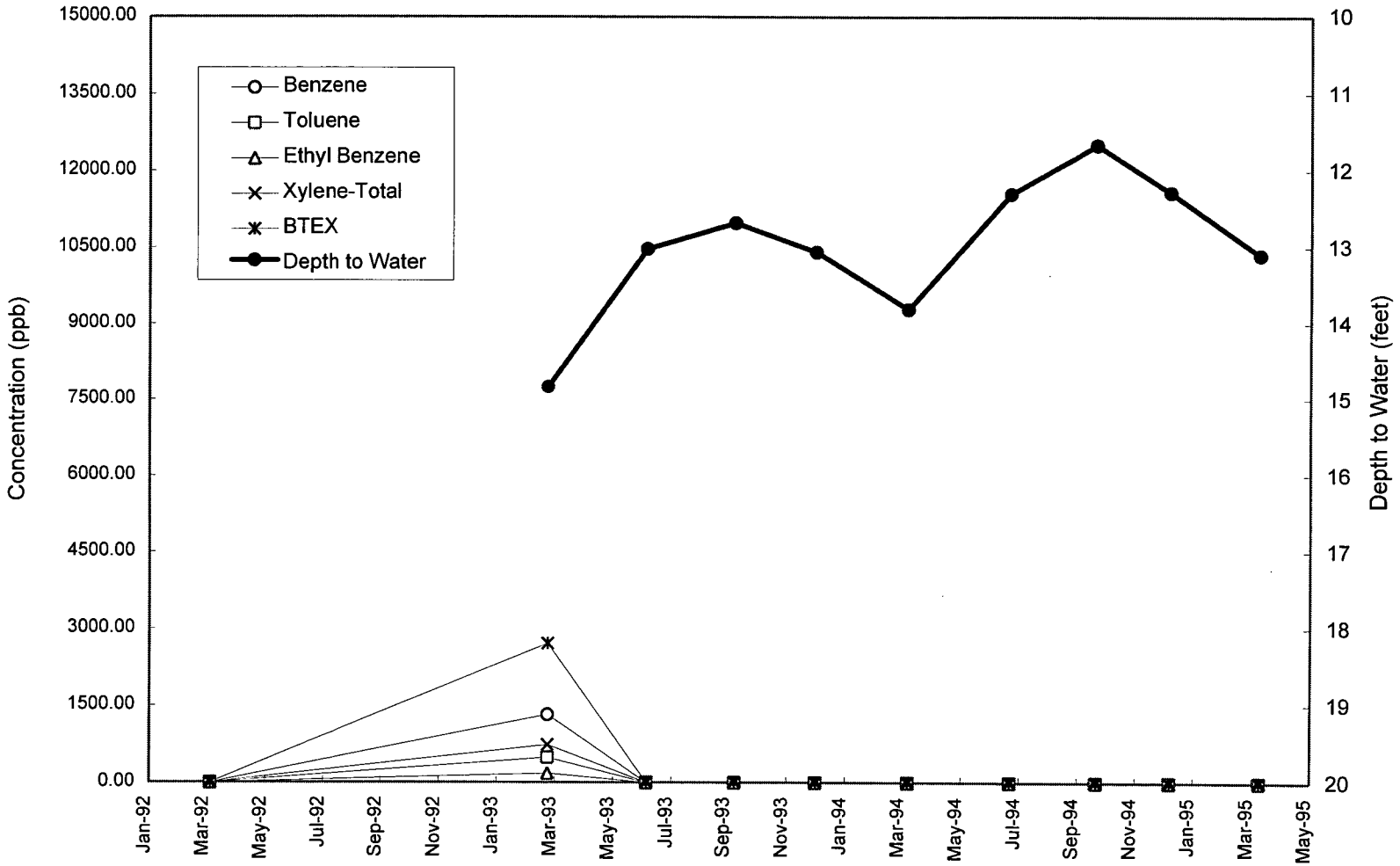

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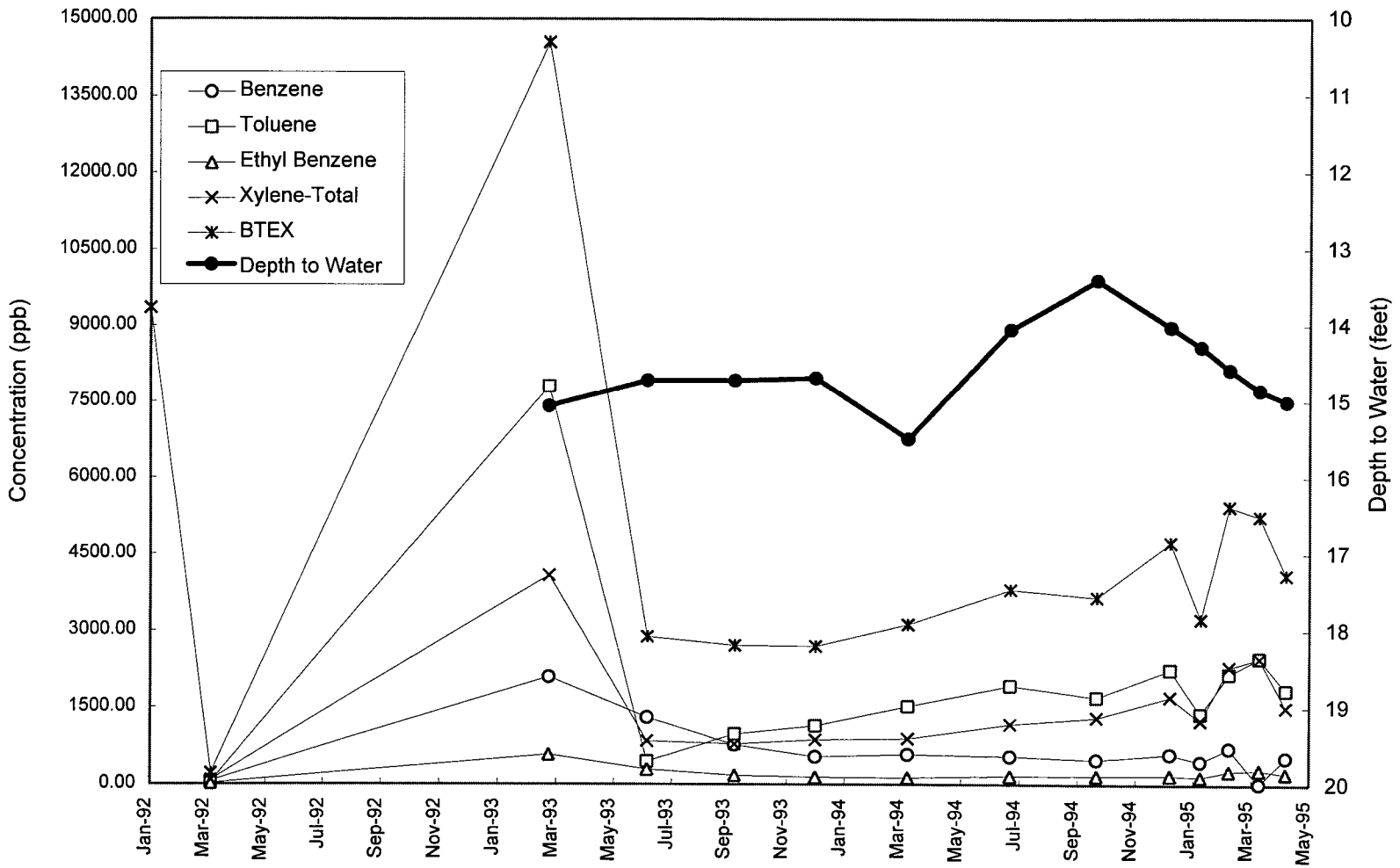

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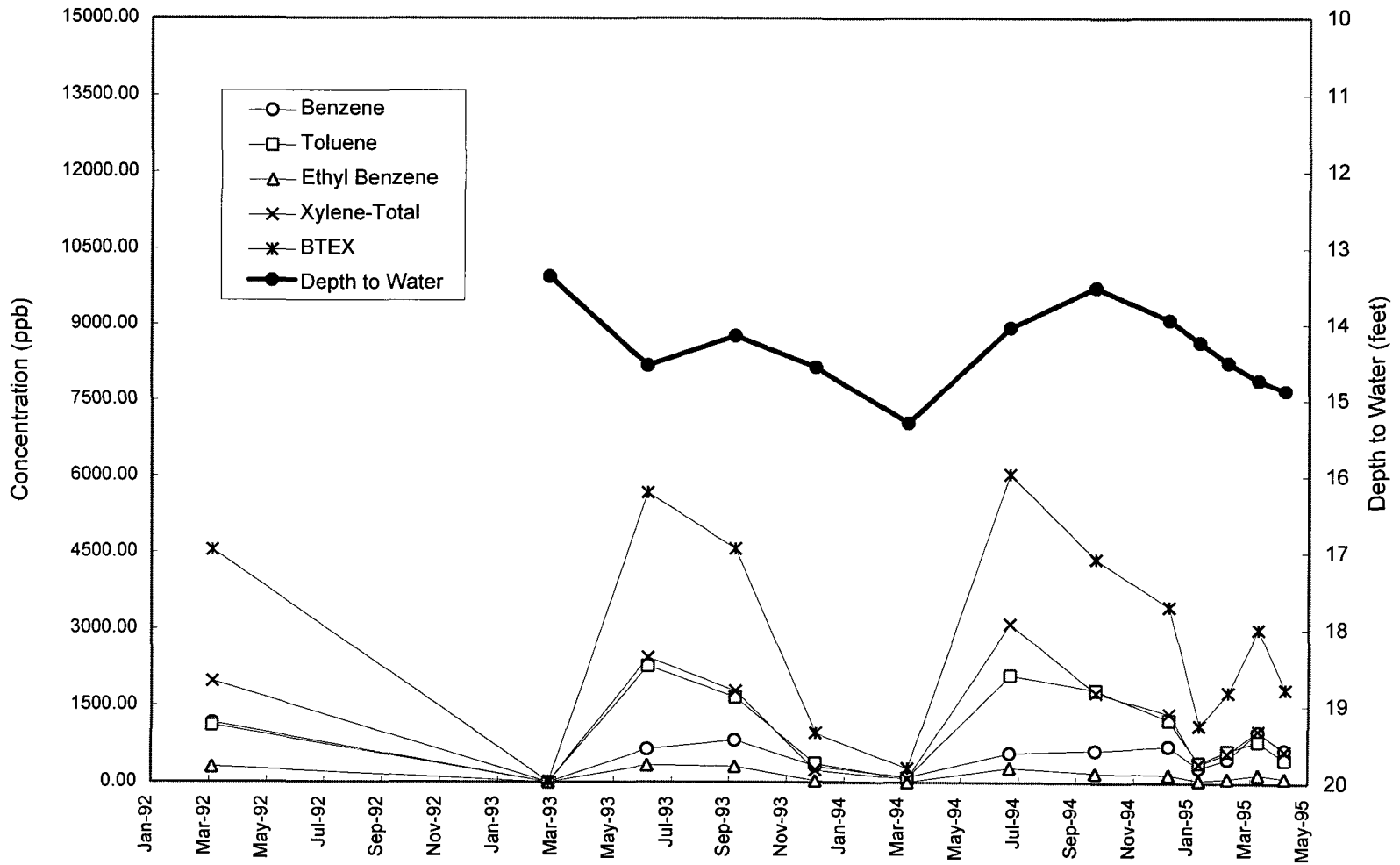

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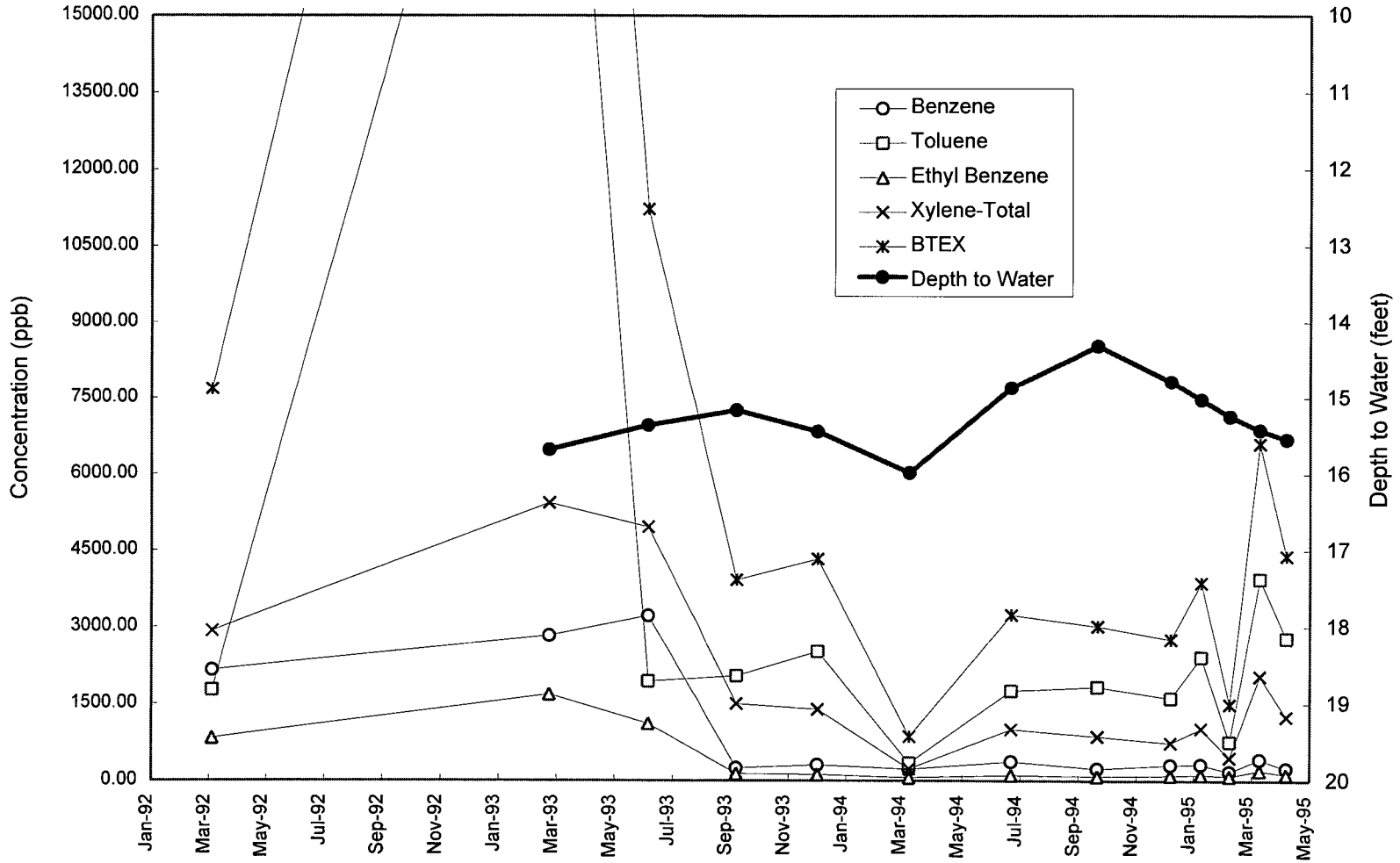
Amoco Groundwater Monitoring Well Laboratory Results - MW#8



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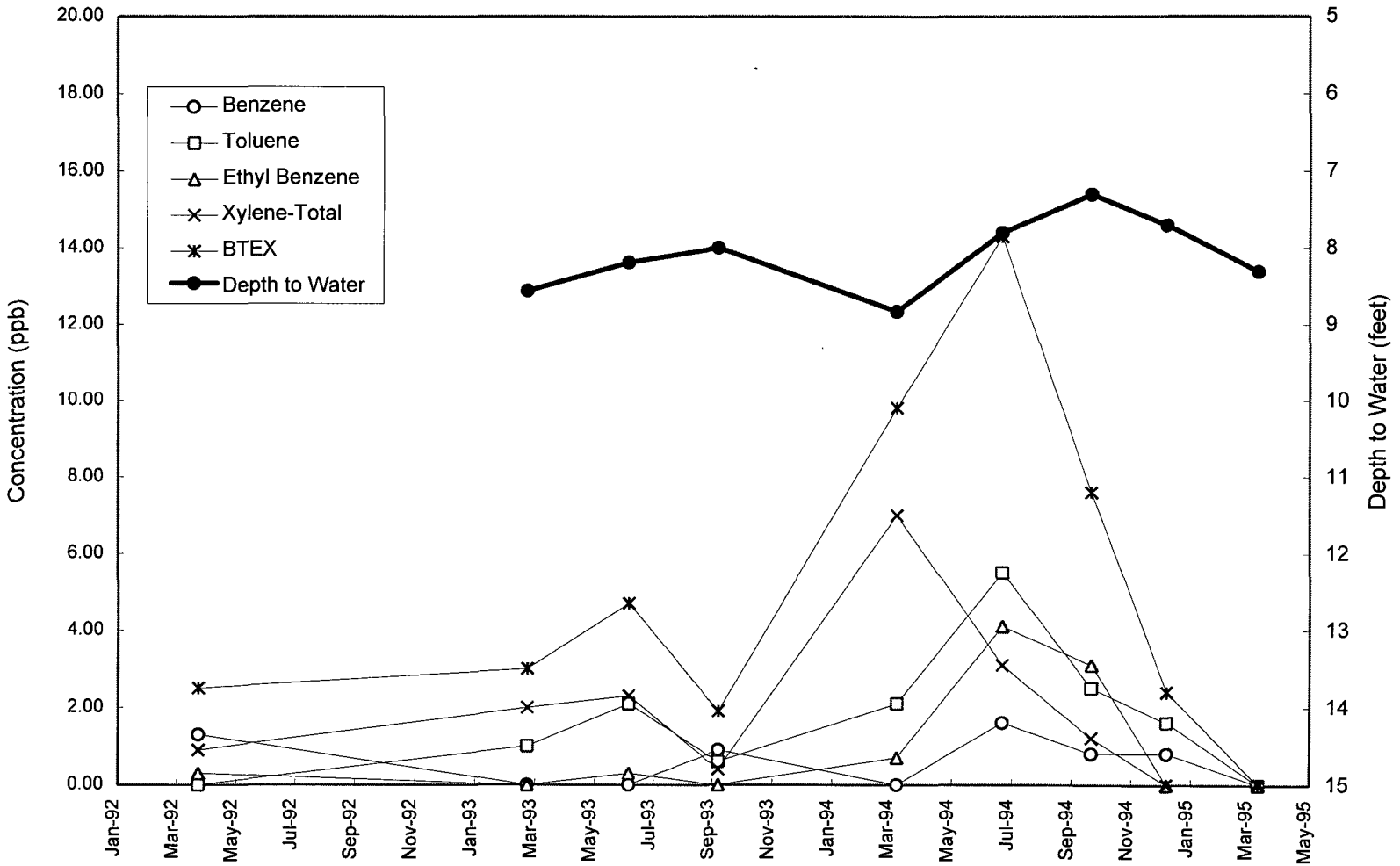
Amoco Groundwater Monitoring Well Laboratory Results - MW#9



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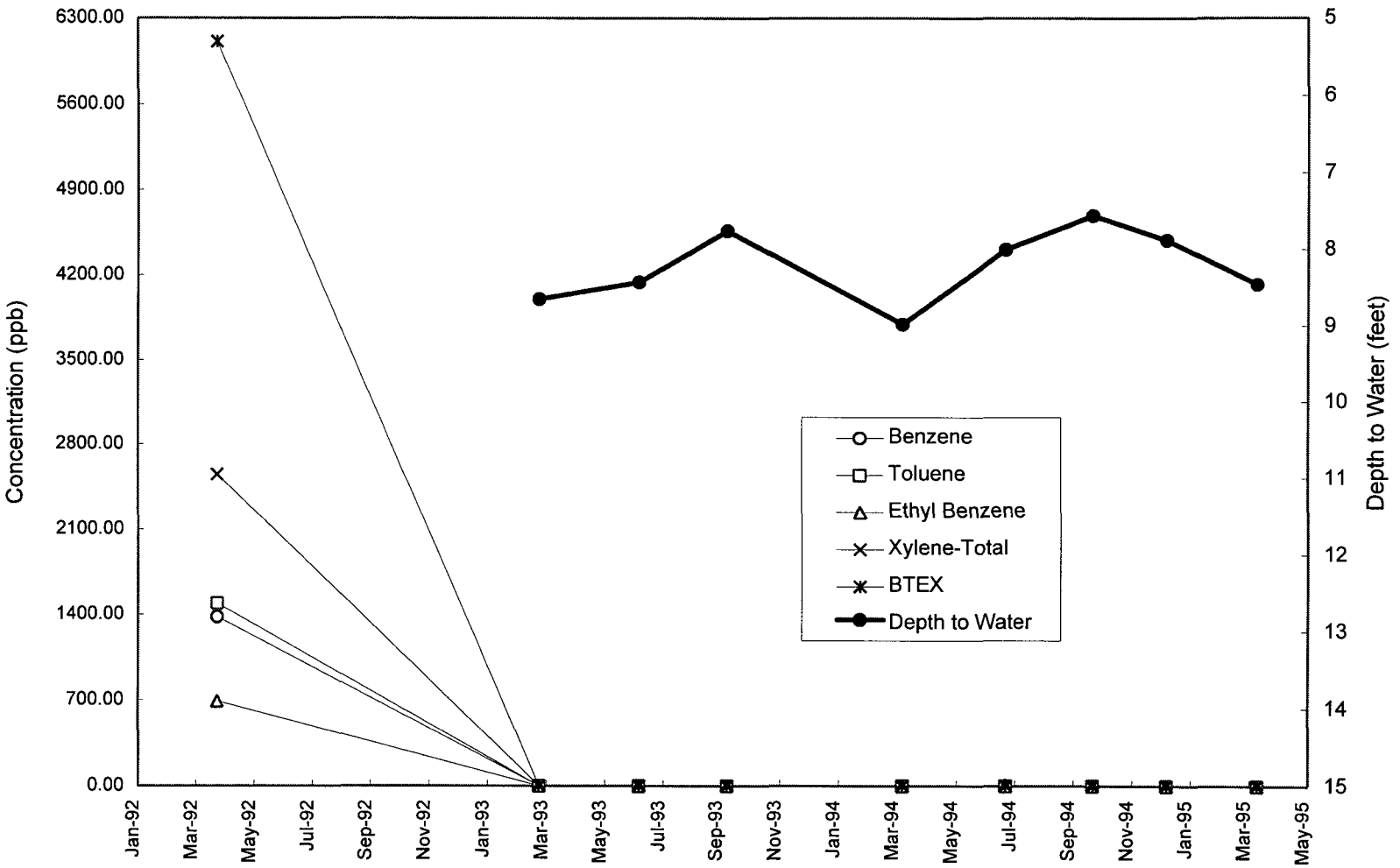
Amoco Groundwater Monitoring Well Laboratory Results - MW#10



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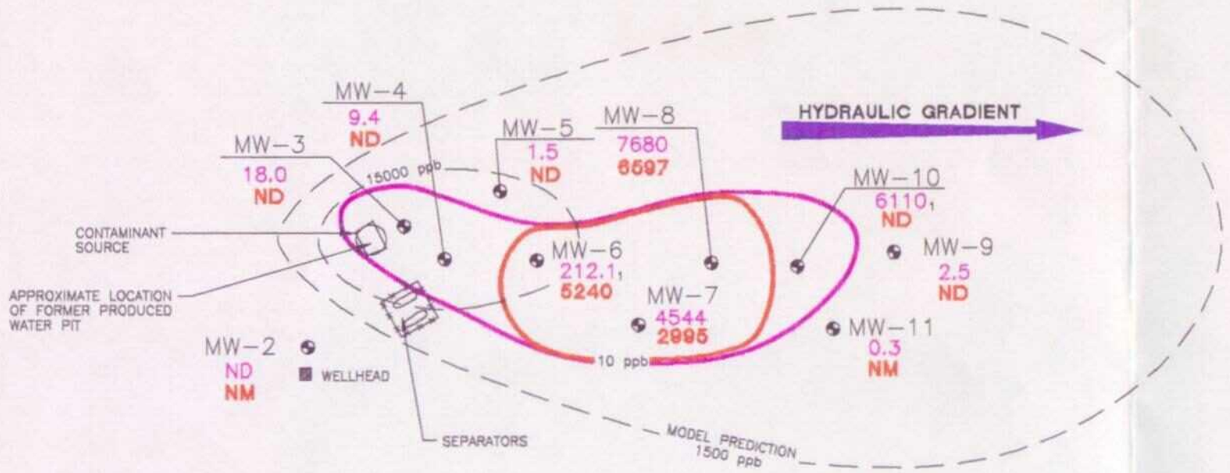


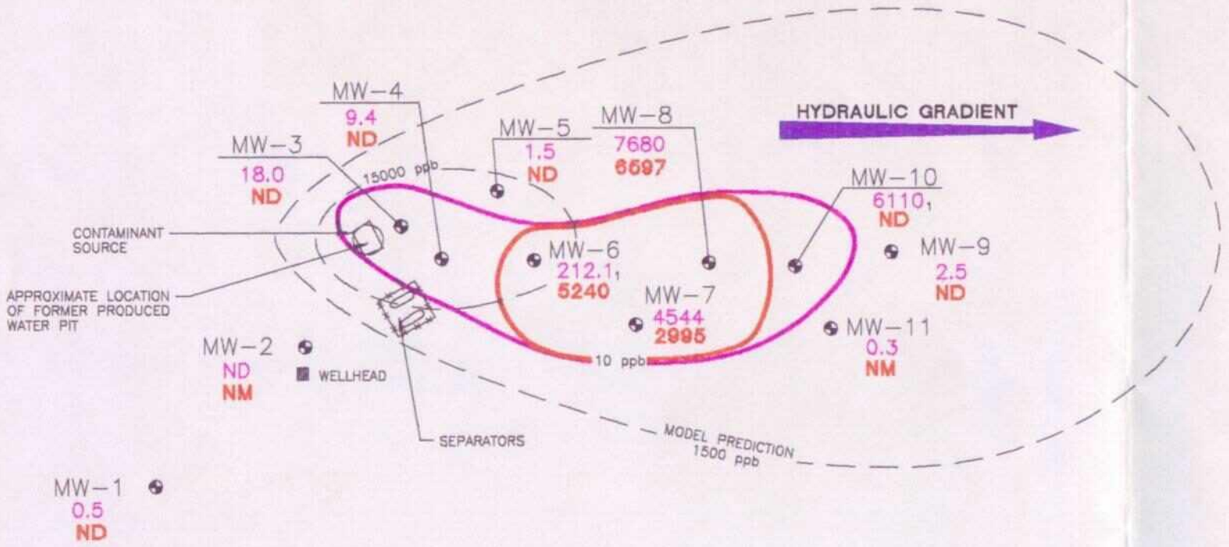
LEGEND

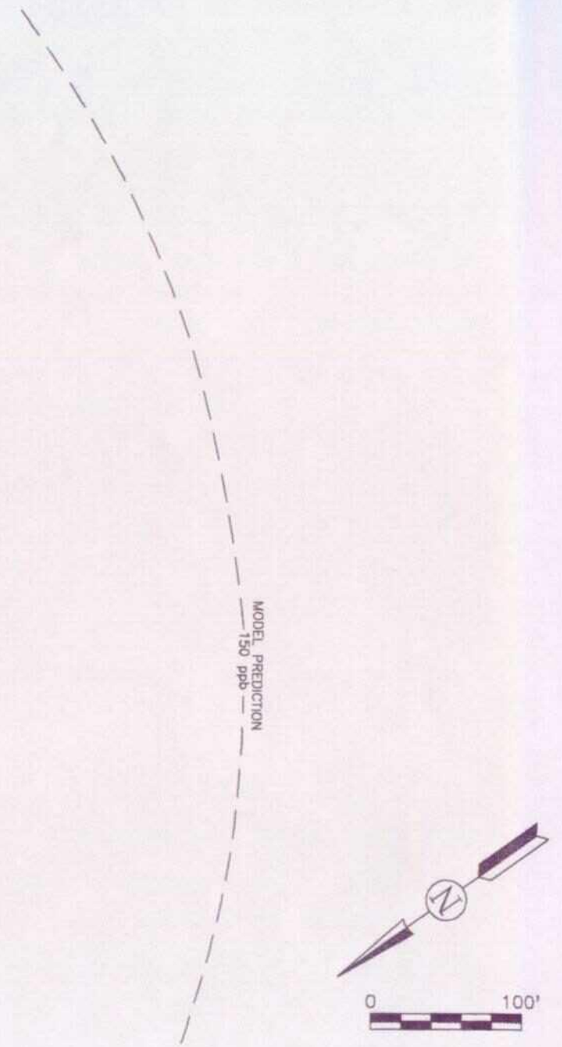
MW-9	MONITOR WELL SHOWING TOTAL BTEX CONCENTRATION IN PARTS PER BILLION (ppb)
0.5	MARCH 1992 CONCENTRATION
ND	MARCH 1995 CONCENTRATION
ND	NOT DETECTED
NM	NOT MEASURED
	BTEX CONCENTRATION CONTOURS PREDICTED IN 1992 BY SOUTHWEST RESEARCH AND INFORMATION CENTER (SRIC EXHIBIT 11)
	MARCH 1992 10 ppb BTEX CONTOUR
	MARCH 1995 10 ppb BTEX CONTOUR
0.5,	3/92 DATA MAY NOT BE FULLY REPRESENTATIVE

GCL

FIGURE 1
BTEX CONCENTRATIONS BETWEEN MARCH 1992 AND MARCH 1995

CLIENT: AMOCO	
AUTHOR: TS/JN	DATE: 6/16/95
DRAWN BY: MP(010596)	REV. NO.: 1
CHECKED BY: JN	FILE: MCOVLDZ2





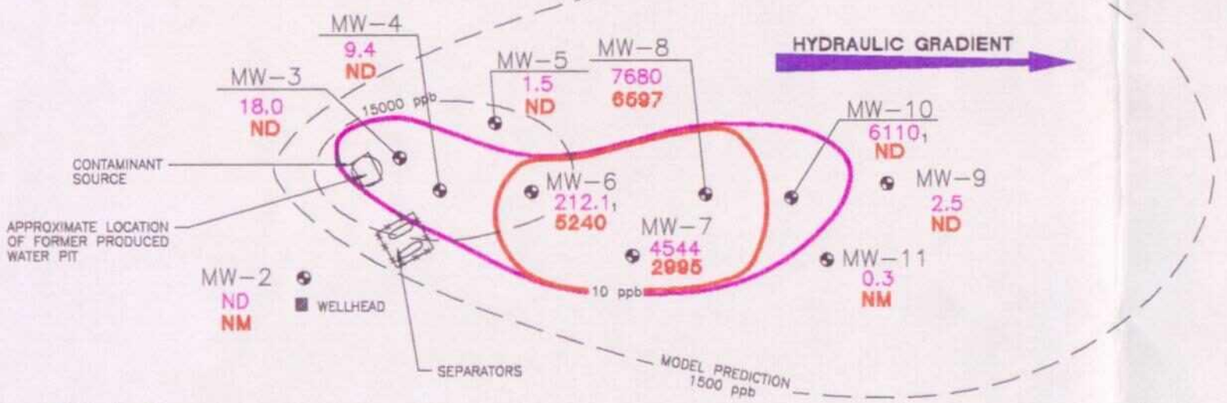
LEGEND

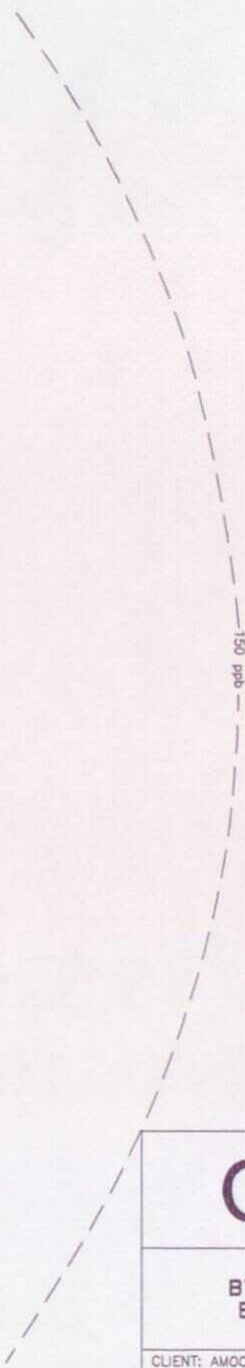
MW-9	MONITOR WELL SHOWING TOTAL BTEX CONCENTRATION IN PARTS PER BILLION (ppb)
0.5	MARCH 1992 CONCENTRATION
ND	MARCH 1995 CONCENTRATION
ND	NOT DETECTED
NM	NOT MEASURED
	BTEX CONCENTRATION CONTOURS PREDICTED IN 1992 BY SOUTHWEST RESEARCH AND INFORMATION CENTER (SRIC EXHIBIT 11)
	MARCH 1992 10 ppb BTEX CONTOUR
	MARCH 1995 10 ppb BTEX CONTOUR
0.5,	3/92 DATA MAY NOT BE FULLY REPRESENTATIVE

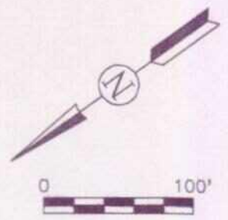
GCL

FIGURE 1
BTEX CONCENTRATIONS BETWEEN MARCH 1992 AND MARCH 1995

CLIENT: AMOCO	
AUTHOR: TS/JN	DATE: 6/16/95
DRAWN BY: MP(010596)	REV. NO.: 1
CHECKED BY: JN	FILE: MCOVLDZ2







LEGEND

MW-9	MONITOR WELL SHOWING TOTAL BTEX CONCENTRATION IN PARTS PER BILLION (ppb)
0.5	MARCH 1992 CONCENTRATION
ND	MARCH 1995 CONCENTRATION
ND	NOT DETECTED
NM	NOT MEASURED
	BTEX CONCENTRATION CONTOURS PREDICTED IN 1992 BY SOUTHWEST RESEARCH AND INFORMATION CENTER (SRIC EXHIBIT 11)
	MARCH 1992 10 ppb BTEX CONTOUR
	MARCH 1995 10 ppb BTEX CONTOUR
0.5,	3/92 DATA MAY NOT BE FULLY REPRESENTATIVE

GCL

FIGURE 1
BTEX CONCENTRATIONS BETWEEN MARCH 1992 AND MARCH 1995

CLIENT: AMOCO	
AUTHOR: TS/JN	DATE: 6/16/95
DRAWN BY: MP(010596)	REV. NO.: 1
CHECKED BY: JN	FILE: MCOVLDZ2

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

June 16, 1992

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

The Honorable Bill Richardson
United States Representative
411 Paseo De Peralta
Santa Fe, New Mexico 87501

Re: Antonio Valdez

Dear Representative Richardson:

Your letter of May 26, 1992 to Secretary Lockwood, concerning Mr. Antonio Valdez, has been forwarded to me for reply. The Oil Conservation Division (OCD) of the Energy, Minerals and Natural Resources Department is the state agency that has jurisdiction over the site discussed in Mr. Valdez's letter.

The OCD required Tenneco to install the monitor wells in question after discovering a small amount of hydrocarbons had entered the ground water. These monitor wells are sampled on an OCD required schedule with the results submitted to this office. The monitor wells will not be removed by Amoco without the express written consent of the OCD. As long as there is any detectable contamination in the ground water the sampling schedule for the wells will remain in effect. To date, there has been no request from Amoco to this office requesting removal of the monitor wells.

The remainder of the complaints concern housekeeping and spill prevention at the location. It is OCD policy to prevent spills and leaks, however, in the event one should occur, it is OCD policy to contain and remediate immediately. A copy of your letter and my response will be forwarded to the Aztec District Office for site investigation and action if necessary.

Amoco has been fully cooperative in the past in the OCD effort to protect the environment and I do not believe this attitude will change in the future.

If I can be of any further assistance, please do not hesitate to contact me at the above address or telephone number.

Sincerely,

William J. LeMay
Director

xc: Anita Lockwood, Secretary, EMNRD
OCD Aztec Office

BILL RICHARDSON
3D DISTRICT, NEW MEXICO

COMMITTEES:
ENERGY AND COMMERCE
INTERIOR AND INSULAR AFFAIRS
SELECT COMMITTEE ON INTELLIGENCE
SELECT COMMITTEE ON AGING
HELSINKI COMMISSION ON HUMAN RIGHTS
WHIP AT-LARGE

Congress of the United States
House of Representatives
Washington, DC 20515-3103

WASHINGTON:
204 CANNON HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-3103
(202) 225-6190

SANTA FE:
411 PASEO DE PERALTA
SANTA FE, NM 87501
(505) 988-7230

GALLUP:
GALLUP CITY HALL
GALLUP, NM 87301
(505) 722-6522

LAS VEGAS:
SAN MIGUEL COUNTY COURTHOUSE
P.O. BOX 1805
LAS VEGAS, NM 87701
(505) 425-7270

May 26, 1992

Ms. Anita Lockwood
Secretary
NM Energy & Minerals Department
240 South Pacheco
Santa Fe, NM 87505

Re: Antonio Valdez,

Dear Ms. Lockwood:

One of my constituents, Antonio Valdez, has contacted me for assistance on a problem with which the NM Energy & Minerals Department might be able to help. I have enclosed all the information which we have been given on this particular case for your perusal and review.

Antonio, and I are anxious to resolve this problem as soon as possible. Because of this, your prompt consideration would be most appreciated. If you have any questions, please contact Joseph L. Sandoval in my Santa Fe office.

Sincerely yours,

Bill

BILL RICHARDSON
Member of Congress

BR/j

BILL RICHARDSON
3D DISTRICT, NEW MEXICO

COMMITTEES:
ENERGY AND COMMERCE
INTERIOR AND INSULAR AFFAIRS
SELECT COMMITTEE ON INTELLIGENCE
SELECT COMMITTEE ON AGING
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ON HUMAN RIGHTS

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(505) 722-6522

LAS VEGAS
SAN MIGUEL COUNTY COURTHOUSE
P.O. BOX 1805
LAS VEGAS NM 87701
(505) 425-7270

WE MOVED

Listed below are the current addresses and telephone numbers of all offices:

204 Cannon House Office Building
Washington, DC 20515
(202) 225-6190

411 Paseo De Peralta
Santa Fe, NM 87501
(505) 988-7230

Gallup City Hall
Gallup, NM 87301
(505) 722-6522

San Miguel County Courthouse
P.O. Box 1805
Las Vegas, NM 87701
(505) 425-7270

AMOCO PROD CO. APRIL 29-1992

J. D. HAMRICK
VICE PRES.

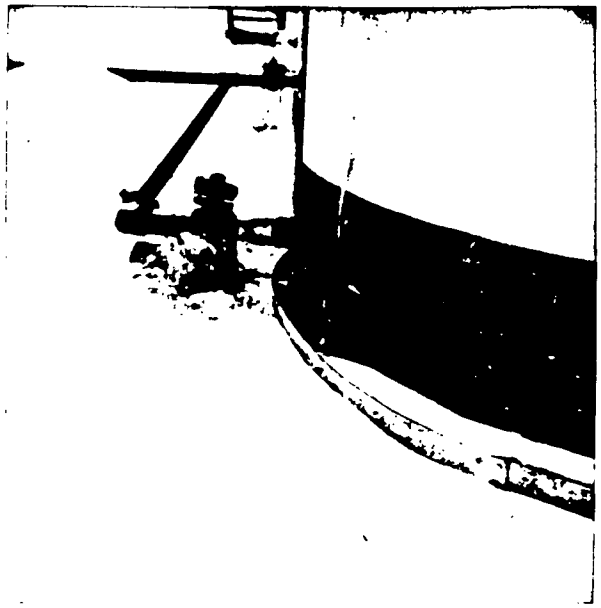
IN RESPONSE TO A WETTER RECIEVED FROM YOUR OFFICE DATED Dec 9. 19
CONCERNING ABOUT ~~FOUR~~ SMALL MONITORING WELLS OF WHICH PAYS ME ANNUALLY $1/000^{00} AS PER CONTRACT STARTED BY TENECO ——
TO BEGIN WITH THIS IS AN AREA CLOSE TO THE SAN JUAN RIVER VERY VULNERABLE FOR CONTAMINATION AS YOU WELL KNOW ——
THERES UNDER GROUND PIPES, TWO DRIP TANKS THAT HAVE BEEN THERE 34 YEARS THEY WERE OLD WHEN TENECO BROUGHT THEM THERE, I HAVE PICTURES OF THE WINTER OF 1990-1991 TANK #65006 FROSEN VALVE BROKEN GASOLINE LEAKING HEAVY ON THE GROUND, THOSE SO CALLED "REBUILT DIKES DONT KEEP RAW DRIP FROM SOAKING RIGHT INTO THE GROUND, JUST A FEW FEET AWAY WHERE MY LIVESTOCK ~~EATS~~ COULD DRINK CONTAMINATED WATER
I WANT THEM MONITORING WELLS TO STAY THERE
ENCLOSED YOU WILL FIND NOTES I MADE AFTER I RECIEVED YOUR A LETTER ——
I WILL SEND A COPY OF THIS LETTER TO GOVERMENT PEOPLE IN SANTA FE, N.M.

HOPING TO HEAR FROM YOU SOON

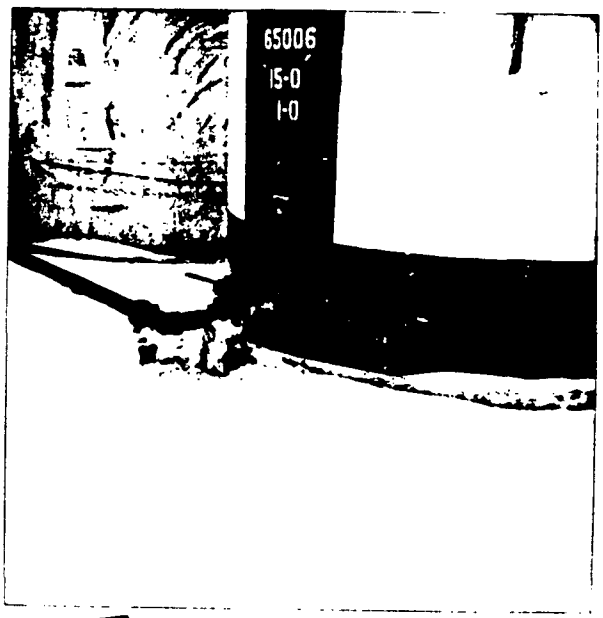
A. E. Valdez

AMOCO ABUSES (Dec. 1991)

1) I've caught Drip Haulers draining water & gas mixed on to the ground Hundred of gallons
2) Winter of 1990 one of two 4" valve froze & busted, gas leaking on ground for days. I called Buddy Shaw about it - They corrected it afterwards alright -
3) There's buried pipe on the ground that could leak also large tank setting on top ground those tank could very likely leak especially with some water shots in with the drip gas - They are over 30 yrs. old 3 tanks
4) The dike around the tanks are supposedly to contain the liquid if they do run over, right on to the ground - The [redacted] line
5) You Amoco used about 350ft of my land to place Elec. wiring from Meter pole to your well Electrified System that among other too —



WINTER 1990-1991
AMOCO A.E.V FARM



WINTER 1990-1991
AMOCO | A.E.V FARM |

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

June 6, 1988

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Martin W. Buys
Tenneco Oil Company
P. O. Box 3249
Englewood, Colorado 80155

RE: Ground Water Contamination Sites: Tenneco Valdez A1E
Tenneco Riddle F LS 3A

Dear Mr. Buys:

On September 17, 1987, the Oil Conservation Division (OCD) personnel augered four 10½'-18' holes at the Valdez A1E well site and discovered ground water contamination in the vicinity of the produced water tank and the separator. You have been sent laboratory analyses and a field map of the well site.

On October 27, 1987, the OCD augered five 13'-16' holes at the Riddle F LS #3A well site and discovered ground water contamination in the vicinity of the dehydrator and tank drain pit. Copies of the laboratory analysis of fluids found in Auger Hole #2 and a field map locating the auger holes in relation to the well site are enclosed.

Because ground water contamination has been found at these well sites, Tenneco is required to install a series of monitor wells at the sites to define the contamination plume and to monitor contaminant concentration levels. At this time remedial action is not being required. The need for such action will be reevaluated after review of information and data collected at these sites.

OCD staff will be available the week of June 27 to supervise installation of the monitor wells and to split samples of fluids found in the wells. Monitor well installation requirements have been discussed with you by phone.

If you have any questions, please contact me at (505) 827-5812 or Jami Bailey at (505) 827-5884.

Sincerely,

David G. Boyer
Environmental Bureau Chief

DGB:JB:sl

Enclosure

cc: OCD - Aztec

754 wpn

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

STATE OF NEW MEXICO
ENVIRONMENT

87-1707-C

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 1707
DATE REC. 10-30-87
PRIORITY 3

PHONE(S): 327-5812
USER CODE: 3 2 2 3 5

SUBMITTER: David Boyer
CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 1 0 2 9 0 9 5 0 1 <18

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER:_____ CODE: ___

COUNTY: SAN JUAN ; CITY: BLOOMFIELD CODE: ____

LOCATION CODE: (Township-Range-Section-Tracts) 2 9 N + 1 1 W + 2 4 + 2 3 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- [ ] (753) Aliphatic Purgeables (1-3 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (760) Organochlorine Pesticides
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triasines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks: TENNECO VALDEZ A 2E
SEPARATOR PIPE

FIELD DATA:

pH=_____; Conductivity=_____umho/cm at _____°C; Chlorine Residual=_____mg/l

Dissolved Oxygen=_____mg/l; Alkalinity=_____mg/l; Flow Rate_____ ____/____

Depth to water _____ft.; Depth of well_____ft.; Perforation Interval _____-_____ft.; Casing:_____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Drip from pipe after discharge to tank

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): _____ Method of Shipment to the Lab: Hand Carried

This form accompanies 2 Septum Vials, ____ Glass Jugs, and/or ____ _____

Samples were preserved as follows:

- [X] NP: No Preservation; Sample stored at room temperature.
- [ ] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

RECEIVED DEC 18 1987 CONSERVATION DIVISION SANTA FE

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on ____/____/____ - said that the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]

Signatures _____ _____

For OCD Use: Date Owner Notified _____ Phone or Letter?_____ Initials ____

29-11-24.23

ANALYSES PERFORMED

LAB. No.: OR- 1707

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables	see remarks		
benzene	26300		
toluene	62900		
ethylbenzene	2400		
p-xylene	4900		
m-xylene	17200		
o-xylene	4700		
halogenated purgeables	N.D.		
* DETECTION LIMIT *	100 49/4	+ DETECTION LIMIT +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT
T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)
[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: Four early eluting unsaturated compounds at 100-300 ppb; 9 nine compounds in the aromatic screen region at 100-300 ppb and twelve late eluting compounds in the C3 substituted benzene region detected by the photo-ionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 11/2/87 Analyst's signature: Stacy C. Eden

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: R Meyenberg

754 WPH

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

STATE OF NEW MEXICO ENVIRONMENT

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088
PHONE(S): 327-5812

S.L.D. No. OR- 1706
DATE REC. 10-30-87
PRIORITY 3
USER CODE: 32235
SUBMITTER: David Boyer
CODE: 260

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 871029094 5

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: _____ CODE: _____

COUNTY: SAN JUAN ; CITY: BLOOMFIELD CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) _____ + _____ + _____ + _____ (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triasines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

Remarks: TENNECO VALDEZ A1E (Basin Dakota Well) WB
SEPARATOR TANK

FIELD DATA:

pH=_____; Conductivity=13000 umho/cm at 11 °C; Chlorine Residual=_____ mg/l

Dissolved Oxygen=_____ mg/l; Alkalinity=_____ mg/l; Flow Rate _____ _____/_____

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval _____-_____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

FLUID STANDING IN TANK

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): J Bowden Method of Shipment to the Lab: Hand carried

This form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____ _____

Samples were preserved as follows:

- ☒ NP: No Preservation; Sample stored at room temperature.
- ☐ P-Ice Sample stored in an ice bath (Not Frozen).
- ☐ P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on ____/____/____ - _____ am/pm

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____ _____

RECEIVED DEC 18 1987 OIL CONSERVATION DIVISION SANTA FE

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 1706

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables	see remarks		
benzene	6350		
toluene	21800		
ethylbenzene	425		
p-xylene	1050		
m-xylene	3950		
o-xylene	850		
halogenated purgeables	N.D.		
* DETECTION LIMIT *	50 ppb	+ DETECTION LIMIT +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT
T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)
[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: Two early unsaturated compounds at 50-100 ppb and three late eluting compounds at 50-100 ppb in the C3 substituted benzene region detected by the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 11/2/87 Analyst's signature: Gary C. Eden

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: K. Meyerhoff

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

859
WNN

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 10/30/87 LAB NO. WC4438 USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE: 10/29/87
Collection TIME: 0945
Collected by — Person/Agency: OLSON/BAILEY/OCD

SITE INFORMATION ►

Sample location: TENNECO VALDEZ A I E
Collection site description: SEPARATOR TANK

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/well code:
Owner:

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type
pH (00400)	Conductivity (Uncorrected) 13000 µmho	Water Temp. (00010) 11 °C	Conductivity at 25°C (00094) µmho

Field comments: FLUID STANDING IN TANK

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☒ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-specify: ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	17,304	µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N + Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From NF, NA Sample:

			Date Analyzed
☒ Calcium	120	mg/l	12/15
☒ Potassium	37.4	mg/l	12/18
☒ Magnesium	19.5	mg/l	12/15
☒ Sodium	4388	mg/l	12/18
☒ Bicarbonate	340	mg/l	12/14
☒ Chloride	5950	mg/l	12/4
☒ Sulfate	42	mg/l	"
☒ Total Solids	10,918	mg/l	12/15
☐			
☐			
☒ Cation/Anion Balance			

Analyst | Date Reported: 12/22/87 | Reviewed by: CO

Laboratory remarks:

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	5.99	120.00	<3.0	HC03	5.57	340.00	<1.0
Mg	1.60	19.50	<0.3	SO4	0.88	42.00	<10.0
Na	190.87	4388.00	<10.0	CL	167.84	5950.0	<5.0
K	0.96	37.40	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	199.41	4564.90			174.29	6332.00	

Total Dissolved Solids= 10918

Ion Balance = 114.41%

WC No. = 8704938

Date out/By 12/12

REPORT TO:

[redacted]ON

DAVID G. BOYER
Hydrogeologist
P.O. BOX 2088
LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
505-827-5812

LABORATORY 9/11/84

LAB NUMBER OR ~~398~~ A,B
879

SLD Users Code No. 59680

ALL CONTAINERS WHICH THIS FORM ACCOMPANIES ARE COLLECTIVELY REFERRED TO AS "SAMPLE".

CERTIFICATE OF FIELD PERSONNEL

Sample Type: Water ☒ Soil ☐ Other ______

Water Supply and/or Code No. Valdez A-1-E (Dakota) Tenneco

City & County San Juan Cty Sec 24 29N R11W

Collected (date & time) 840906 1605 By (name) Boyer (OCD)

pH= ______; Conductivity= ______ umho/cm at ______ °C; Chlorine Residual= ______

Dissolved Oxygen= ______ mg/l; Alkalinity= ______; Flow Rate= ______

Sampling Location, Methods & Remarks (i.e. odors etc.)

Produced water from Dakota collected from separator prior to pit.

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed David G Boyer

I certify that I witnessed these field analyses, observations and activities and concur with the statements in this block. Signed ______

Method of Shipment to Laboratory Hand Carry.

THIS FORM ACCOMPANIES 2 septum vials with teflon-lined discs identified as:
specimen 1; duplicate 1; triplicate ______; blank(s) ______,
and ______ amber glass jug(s) with teflon-lined cap(s) identified as ______,
and ______ other container(s) (describe) ______ identified as ______.

Containers are marked as follows to indicate preservation (circle):

NP: No preservation; sample stored at room temperature (~20°C).
(P-ICE) Sample stored in an ice bath.
P-$Na_2O_3S_2$: Sample preserved with 3 mg $Na_2O_3S_2$/40 ml and stored at room temperature.

No $Na_2O_3S_2$

CERTIFICATE(S) OF SAMPLE RECEIPT

I (we) certify that this sample was transferred from ______ to ______ at (location) ______ on (date & time) ______ and that the statements in this block are correct.

Disposition of Sample ______. Seal(s) Intact: Yes ☐ No ☐.

Signature(s) ______ ______

I (we) certify that this sample was transferred from ______ to ______ at (location) ______ on (date & time) ______ and that the statements in this block are correct.

Disposition of Sample ______. Seal(s) Intact: Yes ☐ No ☐.

Signature(s) ______ ______

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NOV - 8 1984
OIL CONSERVATION DIVISION
SANTA FE

ANALYSES REQUESTED LAB. NO.

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

04-879

QUALITATIVE	QUANTATIVE	PURGEABLE SCREEN
		ALIPHATIC HYDROCARBON SCREEN
		AROMATIC HYDROCARBON SCREEN
		HALOGENATED HYDROCARBON SCREEN
X	X	GAS CHROMATOGRAPH/MASS SPECTROMETER
		+ See below EPA Produced Water Specifics
		SPECIFIC COMPOUNDS
X	X	Benzene, Toluene, Et

QUALITATIVE	QUANTATIVE	EXTRACTABLES SCREEN
		ALIPHATIC HYDROCARBONS
		CHLORINATED HYDROCARBON PESTICIDES
		CHLOROPHENOXY ACID HERBICIDES
		HYDROCARBON FUEL SCREEN
		ORGANOPHOSPHATE PESTICIDES
		POLYCHLORINATED BIPHENYLS (PCB's)
		POLYNUCLEAR AROMATIC HYDROCARBONS
		SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	CONC-ENTRATION	COMPOUND	CONC-ENTRATION
Benzene	21900 µg/l		
Toluene	42600 µg/l		
Ethylbenzene	960 µg/l		
p-xylene	2400 µg/l		
m-xylene	9700 µg/l		
o-xylene	2000 µg/l		
		* DETECTION LIMIT	200 µg/l

REMARKS: Some 3C-substituted benzenes detected.

CETRIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes No . Seal(s) Broken by _____ date _____.

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis 10/23/84. Analysts signature J. Hobbs

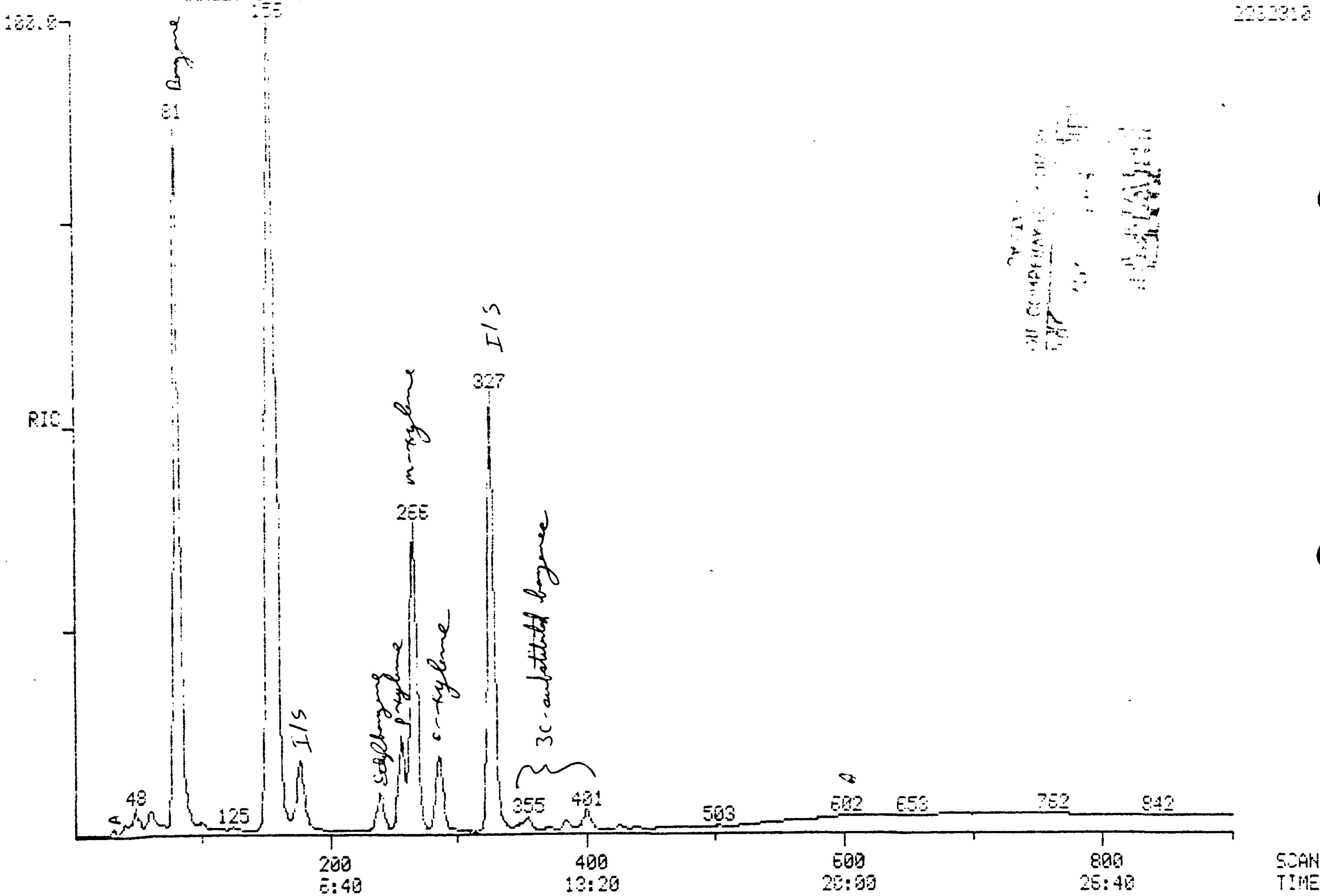
Icertify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers Signature: L Megenhen

RIC
10/20/84 15:29:00
SAMPLE: ORG-875B. 25UL/5ML. IS @ 25.46 PPB.
RANGE: C 1, 900 LABEL: N 0, 4.0 QUAN: A 0, 1.0 BASE: U 20, 3

DATA: ORG873 #1
CALI: C101984 #4

SCANS 1 TO 900

2032310



RECEIVED

REPORT TO:
Ground Water & Hazardous Waste Bureau
Environmental Improvement Division
Health & Environment Department
P.O. Box 968 - Crown Building
Santa Fe, NM 87504-0968

LAB NUMBER WC - 4086
DATE RECEIVED 9/11/84
DATE REPORTED CD 10/5/84
Initials
SLD USER CODE NUMBER 59600

DAVID BOYER NM OCD, P.O. BOX 2088 S.F.

Well Location Address VALDEZ A-1-E (DAKOTA) Sec 24 T25N, R11W

Point of Collection Separator

OCT 12 1984

Well Owner/User TENNECO

GROUND WATER/HAZARDOUS WASTE BUREAU

Number of People Drinking Water from Well

Collected 8409061605 (Date / Time) By BOYER (Name) OCD (Agency)

Well Depth

pH

Water Level

Conductivity (Uncorrected) umho/cm

Taste? Odor? Color? Collectors Remarks

Produced water from Dakota

Temperature °C

Conductivity at 25°C umho/cm

PROJECT:

From ____, A-H_2SO_4 Sample:

- ☐ Nitrate-N+ Nitrite-N ____ mg/l ____
- ☐ Ammonia-N ____ mg/l ____
- ☐ Chemical oxygen demand ____ mg/l ____
- ☐ ____ ____ ____

From ____, A-HNO_3 Sample:

- ☐ ICAP Scan
- ☐ Metals by AA (Specify)

From NF, NA Sample:

			Date Analyzed
☒	pH = 7.70		
☒	Calcium	24.0 mg/l	9/27
☒	Potassium	5.07 mg/l	9/25
☒	Magnesium	7.3 mg/l	9/27
☒	Sodium	426 mg/l	9/25
☒	Bicarbonate	59.1 mg/l	10/4
☒	Chloride	641.4 mg/l	9/24
☒	Sulfate	160.5 mg/l	9/18
☒	Total Solids	1238 mg/l	9/28
☒	F	0.06	9/13
☒	CO_3	0.0	10/4

This form accompanies 1 sample(s) marked as follows to indicate field treatment:

- (NF): Whole sample (no filtration)
- F: Filtered in field with 0.45u membrane filter
- A-H_2SO_4: Acidified with 2 ml conc H_2SO_4/l
- A-HNO_3: Acidified with 5ml conc HNO_3/l
- (NA): No acid added

From OCD files: Valdez A-1E
Basin Dakota 25N 11W 24 G
1983 WTR: 0 66/5
in rule area.

RB 3/14/85

REPORT TO:

Ground Water & Hazardous Waste Bureau
Environmental Improvement Division
Health & Environment Department
P.O. Box 968 - Crown Building
Santa Fe, NM 87504-0968

LAB NUMBER 84M-1079
DATE RECEIVED 9/11/84
DATE REPORTED 11/5/84 mp (Initials)
SLD USER CODE NUMBER 59600

DAVID Boyer NM OCD, PO Box 2088 S.F.

Well Location Address VALDEZ A-1-E (Dakota) Sec 19, 29N, R11W

Point of Collection Separator

Well Owner/User TENNECO

Number of People Drinking Water from Well _____

Collected 84 09 06 1605 (Date / Time)

By Boyer OCD (Name / Agency)

Well Depth _____

Water Level _____

pH _____

Conductivity (Uncorrected) _____ umho/cm

Taste? Odor? Color? Collectors Remarks

Produced water from Dakota

Temperature _____ °C

Conductivity at 25°C _____ umho/cm

PROJECT:

From ____, A-H_2SO_4 Sample:

- ☐ Nitrate-N^+ Nitrite-N _____ mg/l _____
- ☐ Ammonia-N _____ mg/l _____
- ☐ Chemical oxygen demand _____ mg/l _____
- ☐ _____ _____ _____

From NF, A-HNO_3 Sample:

- ☒ ICAP Scan
- ☒ Metals by AA (Specify)

As Se

From ____, NA Sample:

		Date Analyzed
☐ Calcium	_____ mg/l	_____
☐ Potassium	_____ mg/l	_____
☐ Magnesium	_____ mg/l	_____
☐ Sodium	_____ mg/l	_____
☐ Bicarbonate	_____ mg/l	_____
☐ Chloride	_____ mg/l	_____
☐ Sulfate	_____ mg/l	_____
☐ Total Solids	_____ mg/l	_____
☐ _____		_____

This form accompanies 1 sample(s) marked as follows to indicate field treatment:

- (NF) Whole sample (no filtration)
- F: Filtered in field with 0.45u membrane filter
- A-H_2SO_4: Acidified with 2 ml conc H_2SO_4/l
- (A-HNO_3): Acidified with 5ml conc HNO_3/l
- NA: No acid added

RECEIVED
NOV - 8 1984
OIL CONSERVATION DIVISION
SANTA FE

ICAP -SCREEN

Lab Number: HM 1079 Sample Code: TENNECO

Date Submitted: 9/11/84 Date Reported: 11/5/84

By: BOYER By: mj

Determination	Concentration (µg/ml)
Aluminum	<0.1
Barium	<0.1
Beryllium	<0.1
Boron	0.20
Cadmium	<0.1
Calcium	25.
Chromium	<0.1
Cobalt	<0.1
Copper	<0.1
Iron	70.
Lead	<0.1
Magnesium	3.7
Manganese	0.55
Molybdenum	<0.1
Nickel	<0.1
Silicon	3.1
Silver	<0.1
Strontium	1.2
Tin	<0.1
Vanadium	<0.1
Yttrium	<0.1
Zinc	<0.1

ATOMIC ABSORPTION ANALYSES

Arsenic <0.005 µg/ml

Selenium 0.006 µg/ml

Mercury _____ µg/ml

ATOMIC ABSORPTION ANALYSES

Arsenic <0.005 µg/ml

Selenium 0.006 µg/ml

Mercury _____ µg/ml

REPORT TO [redacted]
OIL CONSERVATION DIVISION

DAVID G. BOYER
Hydrogeologist
P.O. BOX 2088
LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
505-827-5812

LABORATORY 9/11/84
LAB NUMBER OR 878 A, B..

SLD Users Code No. 5960

ALL CONTAINERS WHICH THIS FORM ACCOMPANIES ARE COLLECTIVELY REFERRED TO AS "SAMPLE".

CERTIFICATE OF FIELD PERSONNEL

Sample Type: Water ☒ Soil ☐ Other _____

Water Supply and/or Code No. Valdez A-1-E [redacted] Tenneco

City & County San Juan Cty Sec 29 T29N, R11W

Collected (date & time) 840905 1615 By (name) Boyer OCD

pH=_____; Conductivity=_____umho/cm at_____°C; Chlorine Residual=_____

Dissolved Oxygen=_____mg/l; Alkalinity=_____; Flow Rate=_____

Sampling Location, Methods & Remarks (i.e. odors etc.)

Produced water from Chacra Taken from Separator prior to dehy. (Dual completion well)

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed David G Boyer

I certify that I witnessed these field analyses, observations and activities and concur with the statements in this block. Signed _____

Method of Shipment to Laboratory Hand Carry.

THIS FORM ACCOMPANIES 2 septum vials with teflon-lined discs identified as:
specimen 1; duplicate 1; triplicate _____; blank(s) _____,
and _____ amber glass jug(s) with teflon-lined cap(s) identified as _____,
and _____ other container(s) (describe) _____ identified as _____.
Containers are marked as follows to indicate preservation (circle):

NP: No preservation; sample stored at room temperature (~20°C).
P-ICE: Sample stored in an ice bath.
P-$Na_2O_3S_2$: Sample preserved with 3 mg $Na_2O_3S_2$/40 ml and stored at room temperature.

No $Na_2O_3S_2$

CERTIFICATE(S) OF SAMPLE RECEIPT

I (we) certify that this sample was transferred from _____ to _____ at (location) _____ on (date & time) _____ and that the statements in this block are correct.

Disposition of Sample _____. Seal(s) Intact: Yes ☐ No ☐ .

Signature(s) _____ _____

I (we) certify that this sample was transferred from _____ to _____ at (location) _____ on (date & time) _____ and that the statements in this block are correct.

Disposition of Sample _____. Seal(s) Intact: Yes ☐ No ☐ .

Signature(s) _____ _____

RECEIVED
NOV - 8 1984
OIL CONSERVATION DIVISION
SANTA FE

ANALYSES REQUESTED LAB. NO.

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

og-878

QUALITATIVE	QUANTATIVE	PURGEABLE SCREEN	QUALITATIVE	QUANTATIVE	EXTRACTABLES SCREEN
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
		AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
		HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
X	X	GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
		↓ See below for Product Water Specifics			ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS
X	X	Benzene, Toluene, etc			

REMARKS:

ANALYTICAL RESULTS

COMPOUND	CONC-ENTRATION	COMPOUND	CONC-ENTRATION
Benzene	5400 µg/l		
Toluene	7400 µg/l		
Ethylbenzene	490 µg/l		
p-xylene	650 µg/l		
m-xylene	2400 µg/l		
o-xylene	990 µg/l		
		* DETECTION LIMIT	250 µg/l

REMARKS: Some 3C-substituted benzenes detected.

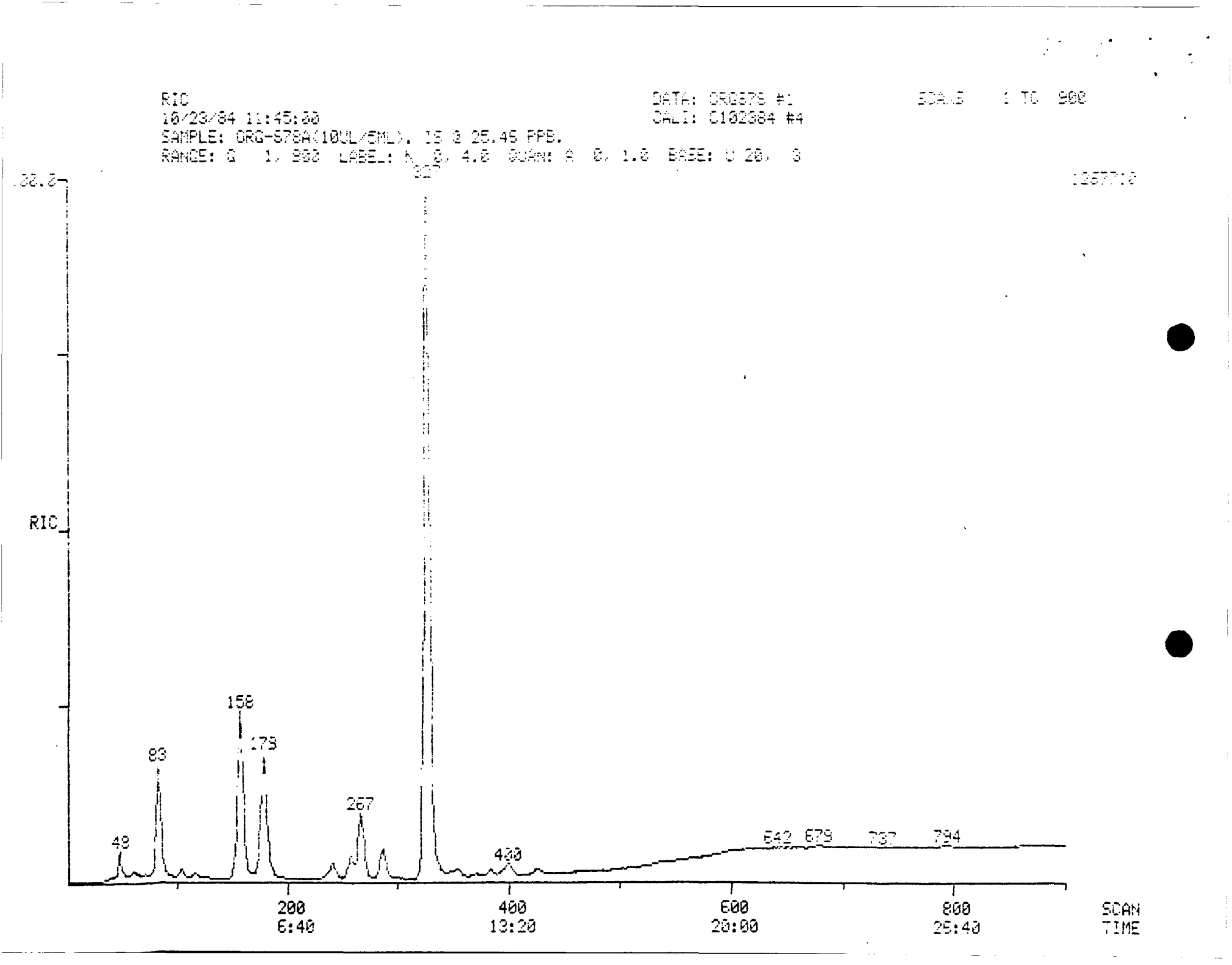
CETIRIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes No . Seal(s) Broken by _____ date _____.

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis 10/23/84. Analysts signature J. Ashby

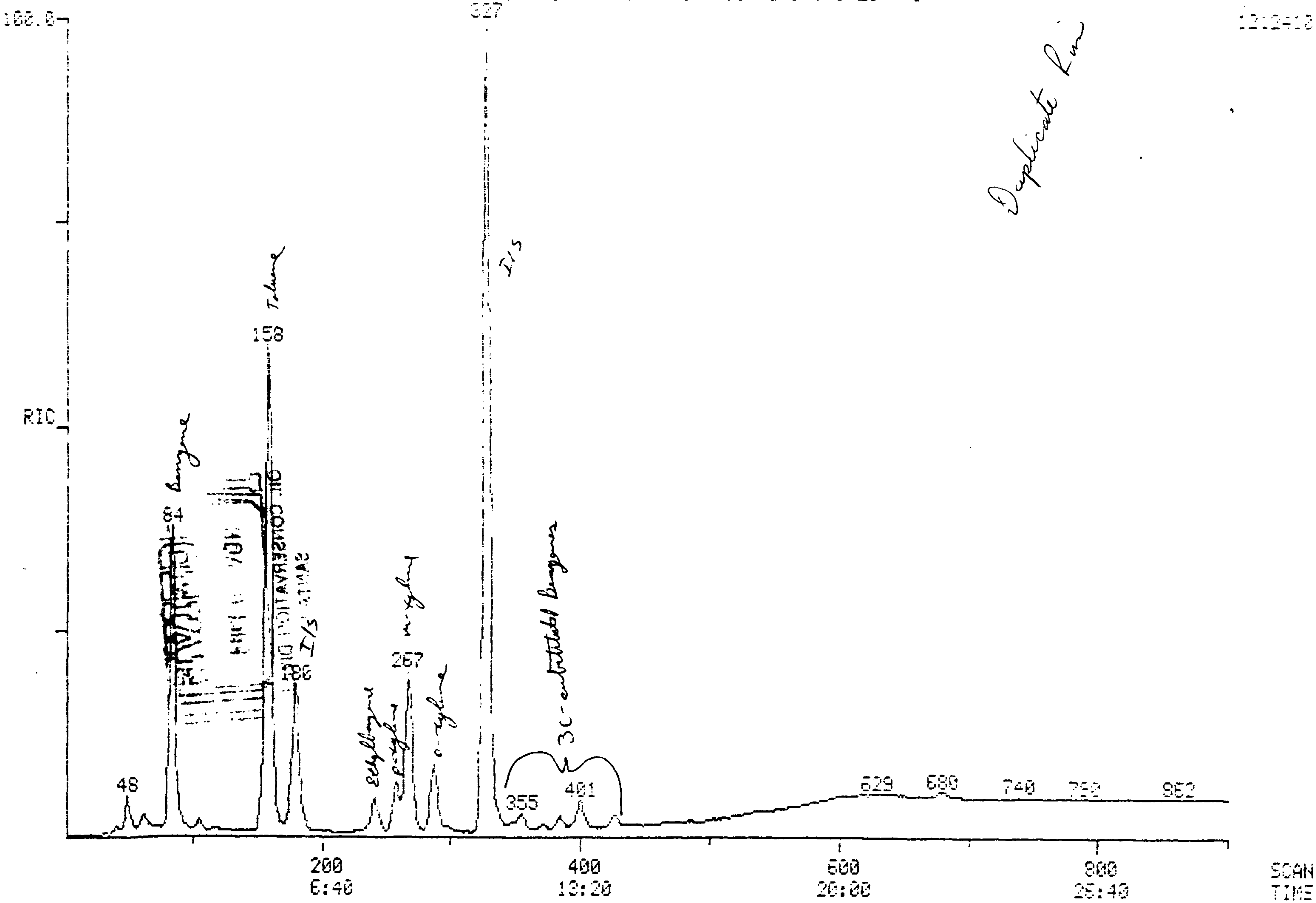
Icertify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers Signature: R Meyerhen


RIC
10/23/84 11:45:00
SAMPLE: ORG-678A(10UL/5ML), IS @ 25.45 PPB.
RANGE: Q 1, 998 LABEL: A 0, 4.0 QUAN: A 0, 1.0 BASE: U 20, 0
DATA: ORG678 #1
CALI: C102384 #4
SCALE 1 TO 900
1267710
RIC
49
83
158
178
267
400
642
679
737
794
200
6:40
400
13:20
600
20:00
800
26:40
SCAN
TIME

RIC
10/23/84 12:55:00
SAMPLE: ORG-878A(20UL/5ML). IS @ 25.46 PPB.
RANGE: G 1, 900 LABEL: N 0, 4.0 QUAN: A 0, 1.0 BASE: U 20 3

DATA: ORG878B #1
CALI: C102384 #4

SCANS 1 TO 900



REPORT TO:

OIL CONSERVATION DIVISION

RECEIVED

DAVID G. BOYER
Hydrogeologist
P.O. BOX 2088
LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
505-827-5812

OCT 12 1984

GROUND WATER/HAZARDOUS WASTE BUREAU

LAB NUMBER WC-4087

DATE RECEIVED 9/11/84

DATE REPORTED 10/5/84 Initials

SLD USER CODE NUMBER 59600

Well Location Address VALDEZ A-1-E (CHACRA) Sec 24 29N, R11W

Point of Collection Separator

Well Owner/User Tenneco

Number of People Drinking Water from Well ______

Collected 840906 1615 (Date / Time) By Boyer (Name) OCD (Agency)

Well Depth ______ pH ______

Water Level ______ Conductivity (Uncorrected) ______ umho/cm

Taste? Odor? Color? Collectors Remarks: Produced water from Chacra

Temperature ______ ^{o}C

Conductivity at $25^{o}C$ ______ umho/cm

PROJECT:

From ____, A-H_2SO_4 Sample:

☐ Nitrate-N+ Nitrite-N	mg/l	
☐ Ammonia-N	mg/l	
☐ Chemical oxygen demand	mg/l	
☐		

From ____, A-HNO_3 Sample:

☐ ICAP Scan

☐ Metals by AA (Specify)

From NF, NA Sample:

pH = 7.76

Analyte	Result	Units	Date Analyzed
☒ Calcium	196.0	mg/l	9/27
☒ Potassium	83.9	mg/l	9/25
☒ Magnesium	50.3	mg/l	9/27
☒ Sodium	8901	mg/l	9/25
☒ Bicarbonate	766.4	mg/l	10/4
☒ Chloride	16,632	mg/l	9/24
☒ Sulfate	NONE DETECTED	mg/l	9/18
☒ Total Solids	24615	mg/l	9/28
☒ F	0.72		9/13
☒ CO_3	0.0		10/4

This form accompanies 1 sample(s) marked as follows to indicate field treatment:

NF: Whole sample (no filtration)
F: Filtered in field with 0.45u membrane filter
A-H_2SO_4: Acidified with 2 ml conc H_2SO_4/l
A-HNO_3: Acidified with 5ml conc HNO_3/l
NA: No acid added

from OCD files: Valdez A-1E Otero Chacra (gas), 29N11W 24G in Val. area, 1583 WTD 06615 DGB 3/14/85

REPORT TO:

OIL CONSERVATION DIVISION

DAVID G. BOYER
Hydrogeologist
P.O. BOX 2088
LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
505-827-5812

LAB NUMBER 9-M-107
DATE RECEIVED 9/11/84
DATE REPORTED 11/5/84 mj
Initials
SLD USER CODE NUMBER 59600

Well Location Address VALDEZ A-1-E (CHacRA) sec 28, 29N, 11W

Point of Collection Separator

Well Owner/User Tenneco

Number of People Drinking Water from Well

Collected 8409061615 By Boyer OCD
Date Time Name Agency

Well Depth

Water Level

pH

Conductivity (Uncorrected) umho/cm

Taste? Odor? Color? Collectors Remarks

Temperature °C

Produced water from Chacra

Conductivity at 25°C umho/cm

PROJECT:

From ____, A-H_2SO_4 Sample:

From ____, NA Sample:

			Date Analyzed
☐ Nitrate-N+ Nitrite-N		mg/l	
☐ Ammonia-N		mg/l	
☐ Chemical oxygen demand		mg/l	
☐			

			Date Analyzed
☐ Calcium		mg/l	
☐ Potassium		mg/l	
☐ Magnesium		mg/l	
☐ Sodium		mg/l	
☐ Bicarbonate		mg/l	
☐ Chloride		mg/l	
☐ Sulfate		mg/l	
☐ Total Solids		mg/l	
☐			

From NF, A-HNO_3 Sample:

☒ ICAP Scan

☒ Metals by AA (Specify)

As — Se —

This form accompanies 1 sample(s) marked as follows to indicate field treatment:

(NF): Whole sample (no filtration)
F: Filtered in field with 0.45u membrane filter
A-H_2SO_4: Acidified with 2 ml conc H_2SO_4/l
(A-HNO_3): Acidified with 5ml conc HNO_3/l
NA: No acid added

RECEIVED
NOV - 9 1984
OIL CONSERVATION DIVISION
SANTA FE

ICAP SCREEN

Lab Number: HM 1078

Sample Code: TENN ECO

Date Submitted: 9/11/84

Date Reported: 11/5/84

By: BOYER

By: MJS

Determination	Concentration (µg/ml)
Aluminum	<0.1
Barium	18.
Beryllium	<0.1
Boron	1.1
Cadmium	<0.1
Calcium	180.
Chromium	<0.1
Cobalt	<0.1
Copper	0.14
Iron	16.
Lead	<0.1
Magnesium	48
Manganese	0.14
Molybdenum	<0.1
Nickel	<0.1
Silicon	7.5
Silver	<0.1
Strontium	22.
Tin	<0.1
Vanadium	<0.1
Yttrium	<0.1
Zinc	0.23

ATOMIC ABSORPTION ANALYSES

Arsenic 0.13 µg/ml

Selenium 0.038 µg/ml

Mercury _____ µg/ml

ATOMIC ABSORPTION ANALYSES

Arsenic 0.13 µg/ml

Selenium 0.038 µg/ml

Mercury _____ µg/ml

Albuquerque, NM 87106 841-2570 87-1557-C TONMENT 754 upw

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088
PHONE(S): 327-5812

S.L.D. No. OR- 1557 A&B
DATE REC. 9-18-87
PRIORITY must be purged by 10/1/87
USER CODE: 3 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0
SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 0 9 1 7 1 3 4 5
SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: _____ CODE: _____
COUNTY: San Juan ; CITY: Bloomfield CODE: _____
LOCATION CODE: (Township-Range-Section-Tracts) 2 9 N + 1 1 W + 2 4 + (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triasines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

Remarks: _____

FIELD DATA:

pH= 7 ; Conductivity= 3650 umho/cm at 17.5 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ _____/_____

Depth to water 12.8 ft.; Depth of well _____ ft.; Perforation Interval _____-_____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

TENNECO VALDEZ A/E - AUGER HOLE #1

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): R.C. Anderson Method of Shipment to the Lab: HAND

This form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
- ☒ P-Ice Sample stored in an ice bath (Not Frozen).
- ☐ P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from R.C Anderson to Mary C. Eden

at (location) State Lab-ALB on 9/18/87 ____:____ and that the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☒ No ☐

Signatures R.C. Anderson Mary C. Eden

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

LAB. NO.: OR- 1357

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triasines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatics purgeables	N.D.		
halogenated purgeables	N.D.		
	-		
* DETECTION LIMIT * ✱	1 ppb	+ DETECTION LIMIT + +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☑ No ☐. Seal(s) broken by: Nancy C. Glen date: 9/23/87

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 9/23/87. Analyst's signature: Nancy C. Glen

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: K Meyerhoff

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

WPN 459

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 9 18 87	LAB NO. W 64969
USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	87 09 17
Collection TIME	1345
Collected by — Person/Agency	OLSON/ANDERSON /OCD
SITE INFORMATION ► Sample location	TENNECO VALDEZ A1E
Collection site description	AUGER HOLE #1
Station/ well code	
Owner	

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

SAMPLING CONDITIONS

☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level 12.8	Discharge	Sample type GRAB
pH (00400) 7	Conductivity (Uncorrected) 3650 µmho	Water Temp. (00010) 17.5 °C	Conductivity at 25°C (00094) µmho

Field comments

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 µmembrane filter	☐ A: 2 ml H_2SO_4/L added
☒ NA: No acid added	☐ Other-*specify*:	☐ A: 5ml conc. HNO_3 added	☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

A-H_2SO_4		Units	Date analyzed
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From F, NA Sample:

	Result	Units	Date Analyzed
☒ Calcium	440	mg/l	10/30
☒ Potassium	5.07	mg/l	10/8
☒ Magnesium	61	mg/l	10/30
☒ Sodium	787	mg/l	10/8
☒ Bicarbonate	472	mg/l	10/23
☒ Chloride	75.6	mg/l	10/22
☒ Sulfate	2525	mg/l	11/3
☒ Total Solids	4098	mg/l	10/27
☐			
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	11 / 11 / 87	[illegible]

Laboratory remarks
Transferred from R. Anderson To Chris Dean on 9/18/87
Seals intact

FOR OCD USE -- Date Owner Notified________ Phone or Letter?________ Initals________

CATIONS			DET.	ANIONS			DET.
ANALYTE	MEQ.	PPM	LIMIT	ANALYTE	MEQ.	PPM	LIMIT
Ca	21.96	440.00	<3.0	HC03	7.74	472.00	<1.0
Mg	5.01	61.00	<0.3	SO4	52.60	2525.00	<10.0
Na	34.23	787.00	<10.0	CL	2.13	75.60	<5.0
K	0.13	5.07	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	61.33	1293.07			62.47	3072.60	

Total Dissolved Solids= 4098
Ion Balance = 98.17%

WC No. = 8704269
Date out/By 11/5/87

Mon Nov 2 11:06:49 1987

```
 XXXX      XX XX
X    X    X  X  X
     X    X  X  X
     X    X  X  X
X    X    X  X  X
 XXXX     X  X  X
```

Albuquerque, NM 87106 841-25 87-1555-C VIRONMENT 754 w/pu

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088
PHONE(S): 327-5812
SUBMITTER: David Boyer

S.L.D. No. OR- 1555 A+B
DATE REC. 9-18-87
PRIORITY must be purged by 10/1/87
USER CODE: 3 2 2 3 5
CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 0 9 1 7 1 4 4 0
SAMPLE TYPE: WATER ☐, SOIL ☐, FOOD ☐, OTHER: _____ CODE: _____
COUNTY: SAN JUAN ; CITY: BLOOMFIELD CODE: _____
LOCATION CODE: (Township-Range-Section-Tracts) 2 9 N + 1 1 W + 2 4 + (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triasines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

Remarks: _____

FIELD DATA:

pH= 7 ; Conductivity= 3200 umho/cm at 18.5 °C; Chlorine Residual= _____ mg/l
Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ ____/____
Depth to water 10.18 ft.; Depth of well _____ ft.; Perforation Interval ____-____ ft.; Casing: _____
Sampling Location, Methods and Remarks (i.e. odors, etc.)
TANNECO "ALDEZ A1E" - AUGER HOLE #2

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): R C Anderson Method of Shipment to the Lab: HAND
This form accompanies 2 Septum Vials, ____ Glass Jugs. and/or ____ _____
Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
- ☒ P-Ice Sample stored in an ice bath (Not Frozen).
- ☐ P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from R C ANDERSON to Mary C. Eden
at (location) STATE LAB on 9/18/87 - 3:30PM and that the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☒ No ☐
Signatures R. C. Anderson Mary C. Eden

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials ____

ANALYSES PERFORMED LAB. No.: OR- 6555

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables *			
[acetone] +	T.R.		
halogenated purgeables *	N.D.		
	-		
* DETECTION LIMIT *	1 µg/L	+ DETECTION LIMIT +	100 µg/L

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☑ No ☐. Seal(s) broken by: Mary C. Eden date: 9/23/87

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 9/23/87. Analyst's signature: Mary C. Eden

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: K Meyerhen

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

WPN 8/59

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 9 18 87 LAB NO. WC 4272

USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 87 09 17

Collection TIME 1440

SITE INFORMATION ►

Sample location: TENNECO VALDEZ AIE

Collection site description: AUGER HOLE #2

Collected by — Person/Agency: OLSON/ANDERSON /OCD

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/ well code

Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level: 10.18	Discharge	Sample type: GRAB
pH (00400): 7	Conductivity (Uncorrected): 2200 µmho	Water Temp. (00010): 18.5 °C	Conductivity at 25°C (00094): µmho

Field comments

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-specify: ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From F, NA Sample:

			Date Analyzed
☒ Calcium	360	mg/l	10/30
☒ Potassium	1.56	mg/l	10/8
☒ Magnesium	32	mg/l	10/30
☒ Sodium	380	mg/l	10/8
☒ Bicarbonate	346	mg/l	10/23
☒ Chloride	6.15	mg/l	10/22
☒ Sulfate	1445	mg/l	10/3
☒ Total Solids	2556	mg/l	10/27
☐			
☐			
☒ Cation/Anion Balance			

Analyst | Date Reported: 11/4/87 | Reviewed by

Laboratory remarks: Transfered from R. Anderson To Chris Dean on 9/18/87
Seals intact

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	17.96	360.00	<3.0	HC03	5.67	346.00	<1.0
Mg	2.63	32.00	<0.3	SO4	30.10	1445.00	<10.0
Na	16.53	380.00	<10.0	CL	0.17	6.15	<5.0
K	1.48	57.80	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	38.60	829.80			35.95	1797.15	

Total Dissolved Solids= 2556

Ion Balance = 107.38%

WC No. = 8704272

Date out/By CO 11/4/87

Albuquerque, NM 87106 841-2 87-1553-C ENVIRONMENT 754 wpu

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088
PHONE(S): 327-5812

S.L.D. No. OR- 1553 A+B
DATE REC. 9-18-87
must be purged by 10/1/87
PRIORITY
USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer
CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 0 9 1 7 1 5 1 0

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: _____ CODE: _____

COUNTY: SAN JUAN ; CITY: BLOOMFIELD CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 2 9 N + 1 1 W + 3 4 + _____ (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triasines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

Remarks: _____

FIELD DATA:

pH= 7 ; Conductivity= 2200 umho/cm at 17 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ ____/____

Depth to water 10.68 ft.; Depth of well _____ ft.; Perforation Interval ____-____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

TENNECO VALDEZ AIF - AUGER HOLE #3

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): R. Anderson Method of Shipment to the Lab: HAND

This form accompanies 2 Septum Vials, ____ Glass Jugs, and/or ____ _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
- ☒ P-Ice Sample stored in an ice bath (Not Frozen).
- ☐ P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from R. C. Anderson to Gary C. Eden at (location) STATE LAB - ALB on 9/18/87 - 3:30PM and that the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☒ No ☐

Signatures R. C. Anderson Gary C. Eden

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials ____

LAB. No.: OR- 1553

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triasines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables	N.D.		
halogenated purgeables	N.D.		
	-		
* DETECTION LIMIT *	*	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☑ No ☐. Seal(s) broken by: Mary C. Allen date: 9/23/87

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 9/23/87. Analyst's signature: Mary C. Allen

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: K Meyerhein

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

859 WPN

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 9/18/87 LAB NO. WX 427-11

USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE: 8/09/17

Collection TIME: 1510

Collected by — Person/Agency: OLSON/ANDERSON /OCD

SITE INFORMATION ►

Sample location: TENNECO VALDEZ AIE

Collection site description: AUGER HOLE #3

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/well code:

Owner:

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level: 10.68	Discharge:	Sample type: GRAB
pH (00400): 7	Conductivity (Uncorrected): 2200 µmho	Water Temp. (00010): 17 °C	Conductivity at 25°C (00094): µmho

Field comments:

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-specify: ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From F, NA Sample:

			Date Analyzed
☒ Calcium	392	mg/l	10/30
☒ Potassium	3.51	mg/l	10/8
☒ Magnesium	24	mg/l	10/30
☒ Sodium	384	mg/l	10/8
☒ Bicarbonate	351	mg/l	10/23
☒ Chloride	21.5	mg/l	10/22
☒ Sulfate	1463	mg/l	"
☒ Total Solids	2634	mg/l	10/27
☐			
☐			
☒ Cation/Anion Balance			

Analyst | Date Reported: 11/20/87 | Reviewed by: CJ

Laboratory remarks: Transferred from R. Anderson To Chris Dean on 9/18/87
Sidewinder

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	19.56	392.00	<3.0	HC03	5.75	351.00	<1.0
Mg	1.97	24.00	<0.3	SO4	30.48	1463.00	<10.0
Na	16.70	384.00	<10.0	CL	0.61	21.50	<5.0
K	8.98	351.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	47.21	1151.00			36.84	1835.50	

Total Dissolved Solids= 2634

Ion Balance = 128.16%

WC No. = 8704271

Date out/By 11/20

Albuquerque, NM 87106 841-2570 87-1552-C ONMENT - 1 754 WPW

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088
PHONE(S): 327-5812

S.L.D. No. OR- 1552 A+B
DATE REC. 9-18-87
PRIORITY must be purged by 10/1/87
USER CODE: 3 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0
SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 0 9 1 7 1 4 1 5
SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER: _____ CODE: _____
COUNTY: SAN JUAN ; CITY: BLOOMFIELD CODE: _____
LOCATION CODE: (Township-Range-Section-Tracts) 2 9 N + 1 1 W + 2 4 + _____ (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- [ ] (753) Aliphatic Purgeables (1-3 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (760) Organochlorine Pesticides
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triasines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks: ORGANIC ODOR -

FIELD DATA:

pH= 7 ; Conductivity= 3150 umho/cm at 18.5 °C; Chlorine Residual= _____ mg/l
Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ ____/____
Depth to water 10.97 ft.; Depth of well _____ ft.; Perforation Interval ____-____ ft.; Casing: _____
Sampling Location, Methods and Remarks (i.e. odors, etc.)
TENNECO VALDEZ AIF - AUGER HOLE #4.

I certify that the results in ~~this~~ block accurately reflect the results of my field analyses, observations and activities.(signature collector): R. C Anderson Method of Shipment to the Lab: HAND
This form accompanies 2 Septum Vials, ____ Glass Jugs, and/or ____ _____
Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from R.C ANDERSON to Gary C Eden
at (location) STATE LAB - ALB on 9 / 18 / 87 - 03:30PM and that
the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [X] No [ ]
Signatures R. C Anderson Gary C. Eden

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials ____

LAB. No.: OR- 1552

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triasines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables *	see remarks		
benzene	2400		
toluene	1200		
ethylbenzene	920		
p-xylene	2400		
m-xylene	4300		
o-xylene	1050		
halogenated purgeables *	N.D.		
* DETECTION LIMIT *	1 ppb	+ DETECTION LIMIT +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: Ten late eluting compounds in the C3 substituted benzenes

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☑ No ☐. Seal(s) broken by: Gary C. Allen date: 9/23/87

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 9/23/87. Analyst's signature: Gary C. Allen

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: R Meyerhen

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

WPN 859

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 9/24/87	LAB NO. WC 4215
USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE: 87/09/17	SITE INFORMATION ► Sample location: Tenneco Valdez A1E
Collection TIME: 1415	Collection site description: Auger Hole 4
Collected by — Person/Agency: Olson/Anderson /OCD	

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/well code:
Owner:

SAMPLING CONDITIONS

☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level: 10.97	Discharge	Sample type: GRAB
pH (00400): 7	Conductivity (Uncorrected): 3150 µmho	Water Temp. (00010): 18.5 °C	Conductivity at 25°C (00094): µmho

Field comments:

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 µmembrane filter	☐ A: 2 ml H_2SO_4/L added
☒ NA: No acid added	☐ Other-*specify*:	☐ A: 5ml conc. HNO_3 added	☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			
A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From F, NA Sample:

	Result	Units	Date Analyzed
☒ Calcium	280	mg/l	10/30
☒ Potassium	1.56	mg/l	10/8
☒ Magnesium	49	mg/l	10/30
☒ Sodium	541	mg/l	10/8
☒ Bicarbonate	571	mg/l	10/23
☒ Chloride	695	mg/l	11/3
☒ Sulfate	605	mg/l	11/3
☒ Total Solids	2572	mg/l	10/27
☐			
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	11/4/87	[illegible]

Laboratory remarks: Transferred from R. Anderson To Chris Dean on 9/18/87
Seals intact

FOR OCD USE -- Date Owner Notified ________ Phone or Letter? ________ Initals ________

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	13.97	280.00	<3.0	HC03	9.36	571.00	<1.0
Mg	4.02	49.00	<0.3	SO4	12.60	605.00	<10.0
Na	23.53	541.00	<10.0	CL	19.61	695.00	<5.0
K	0.04	1.56	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	41.57	871.56			41.57	1871.00	

Total Dissolved Solids= 2572

Ion Balance = 100.00%

WC No. = 8704273

Date out/By 11/4/87