3R - 121

REPORTS

DATE:





May 15, 2006

Mr. Glenn von Gonten Hydrologist – Groundwater Remediation New Mexico Oil Conservation Division 1220 South St. Francis Drive Santa Fe, New Mexico 87505

RE: Annual Groundwater Remediation Reports

Dear Mr. von Gonten:

XTO Energy Inc. (XTO) is presenting a second submission of the Annual Groundwater Remediation Report in accordance with the NMOCD approved Groundwater Management Plan (GMP), which will complete this years reporting. Enclosed are summary reports with analytical data, summary tables, site maps, potentiometric surface diagrams and recommendations/proposed actions for:

- Baca Gas Com A #1A
- Frost, Jack B #2
- Haney Gas Com B #1E
- Hare Gas Com B #1E
- Masden Gas Com #1E

- McDaniel Gas Com B #1E
- Snyder Gas Com #1A
- Stedje Gas Com #1
- Sullivan Frame A #1E

Thank you for your review of the reports and allowing some flexibility with this years reporting schedule. If you have any questions please do not hesitate to contact me at (505) 566-7942.

Sincerely,

Lisă Winn Environmental Specialist San Juan Division

cc: Mr. Denny Foust, Environmental, NMOCD District III Office, Aztec, NM File – San Juan Groundwater



XTO ENERGY INC.

ANNUAL GROUNDWATER REPORT

2005

MCDANIEL GC B #1E (F) SECTION 26 – T29N – R10W, NMPM SAN JUAN COUNTY, NEW MEXICO

PREPARED FOR: MR. GLENN VON GONTEN NEW MEXICO OIL CONSERVATION DIVISION

APRIL 2006

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Pit Closure Report (12/94)

XTO Energy Inc. McDaniel GC B #1E SW/4 NW/4 S26, T29N, R10W

Pit Closure Date:	12/15/94 (Documentation Included)
Monitor Well Installations:	10/12/99
Monitor Well Sampling:	10/28/99

Historical Information:

- December 1994- Groundwater impacts were found during closure of an earthen dehydrator pit at a site operated by Amoco Production Company (Amoco). Approximately 50 cubic yards of impacted soil was excavated.
- January 1998- XTO Energy Inc. (XTO) acquired the McDaniel GC B #1E from Amoco.
- October 1999- Monitor wells MW1, MW2 and MW3 were installed to evaluate groundwater quality.
- February 2000- Original request submitted for site closure.
- December 2000- Correspondence was received from New Mexico Oil Conservation Division (NMOCD) denying the request for closure pending submittal of four consecutive quarters of sample analyses.
- April 2006- XTO submits annual groundwater report recommending continued monitoring.

Groundwater Monitor Well Sampling Procedures:

Groundwater samples were collected from site monitor wells (Figure 1) following US EPA: SW-846 protocol. Samples were collected using new disposable bailers and placed in laboratory supplied containers and stored in a cooler on ice. The samples were delivered to an accredited environmental laboratory according to chain-of-custody procedures. The samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) per US EPA Method 8021B and general water chemistry per US EPA Method 600/4-79-020. Analytical results are summarized on Tables 1 & 2. Waste generated (groundwater) during monitor well sampling and development was placed in the produced water separator tank located on the well site.

Water Quality and Gradient Information:

Groundwater elevation data (Figure 2) indicates that groundwater trends towards the northwest.

XTC understands the initial groundwater assessment came from samples collected from the bottom of the earthen pit following excavation of impacted soils for closure. Laboratory analysis of the initial sample indicated the presence of elevated dissolved phase BTEX constituents. In 1999 three groundwater monitoring wells were installed to delineate the extent of hydrocarbon impacts to groundwater. Monitoring well numbered

MW#2 was installed near the center of the source area (closed and backfilled earthen dehydrator pit). Monitoring wells numbered MW#1 and MW#3 were placed down gradient of the source area. Groundwater samples collected from the three groundwater monitoring wells indicated BTEX constituents were not present above the detection limits of the laboratory equipment (0.2 ug/L). Sampling was terminated and the site was submitted for closure.

Summary:

Analytical data from the October 1999 groundwater monitoring well sampling event indicated that groundwater quality standards were observed. Correspondence from NMOCD in 2000 requested four consecutive quarters of testing in compliance with XTO's Groundwater Management Plan. XTO proposes to place this site on a quarterly sampling schedule.

TABLE 1

XTO ENERGY INC. GROUNDWATER MONITOR WELL LAB RESULTS SUBMITTED BY BLAGG ENGINEERING, INC.

McDANIEL GC B #1E - DEHY. PIT UNIT F, SEC. 26, T29N, R10W

DRAFTED: DECEMBER 4, 1999 FILENAME: (MD-4Q-99.WK4) NJV

								BTEX EPA METHOD 8020 (PPB)			PB)
SAMPLE	MONITOR	D.T.W.	T.D.	TDS	COND.	pН	PRODUCT			Ethyl	Total
DATE	WELL No:	(ft)	(ft)	mg/L	umhos		(in)	Benzene	Toluene	Benzene	Xylene
28-Oct-99	MW #1	4.04	14.00	2,060	4,180	7.2		ND	ND	ND	ND
28-Oct-99	MW #2	3.49	13.00	2,100	4,390	7.2		ND	ND	ND	ND
28-Oct-99	MW #3	1.82	12.12	1,620	3,270	7.3		ND	ND	ND	ND

TABLE 2

GENERAL WATER QUALITY

XTO ENERGY INC.

McDANIEL GC B #1E

SAMPLE DATE : October 28, 1999

PARAMETERS	MW # 1	MW # 2	MW # 3	Units
LAB pH	7.21	7.20	7.26	S. U.
LAB CONDUCTIVITY @ 25 C	4,180	4,390	3,270	umhos / cm
TOTAL DISSOLVED SOLIDS @ 180 C	2,060	2,100	1,620	mg / L
TOTAL DISSOLVED SOLIDS (Calc)	1,920	1,923	1,574	mg / L
SODIUM ABSORPTION RATIO	0.3	0.1	4.4	ratio
TOTAL ALKALINITY AS CaCO3	300	290	454	mg/L
TOTAL HARDNESS AS CaCO3	1,408	1,450	641	mg / L
BICARBONATE as HCO3	300	290	454	mg / L
CARBONATE AS CO3	< 1	< 1	< 1	mg / L
HYDROXIDE AS OH	< 1	< 1	< 1	mg / L
NITRATE NITROGEN	< 0.1	0.1	< 0.1	mg / L
NITRITE NITROGEN	< 0.001	0.015	< 0.001	mg / L
CHLORIDE	0.6	2.8	1.0	mg / L
FLUORIDE	1.82	1.95	1.96	mg / L
PHOSPHATE	0.4	0.4	0.9	mg / L
SULFATE	1,170	1,180	790	mg / L
IRON	0.001	< 0.001	< 0.001	mg/L
CALCIUM	486	493	213	mg/L
MAGNESIUM	46.9	52.7	26.4	mg/L
POTASSIUM	7.0	5.5	9.5	mg/L
SODIUM	25.0	10.3	255.0	mg / L
CATION / ANION DIFFERENCE	0.02	0.00	0.41	%















BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : CROSS TIMBERS OIL CO.

CHAIN-OF-CUSTODY #: 7306

LOCATION : MCDANIEL GC B # 1E

LABORATORY (S) USED : ENVIROTECH, INC.

SAMPLER: REP

Date : October 28, 1999

Filename : 10-28-99.WK4

PROJECT MANAGER :

NJV

WELL	WELL	WATER	DEPTH TO	TOTAL	SAMPLING	pН	CONDUCT	VOLUME	FREE
#	ELEV.	ELEV.	WATER	DEPTH	TIME		(umhos)	PURGED	PRODUCT
	(ft)	(ft)	(ft)	(ft)				(gal.)	(ft)
1	101.56	97.52	4.04	14.00	1220	7.4	3700	5.00	-
2	101.50	98.01	3.49	13.00	1245	7.4	3400	4.75	-
3	98.92	97.10	1.82	12.12	1300	7.3	3700	5.00	

NOTES: Volume of water purged from well prior to sampling; V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).

(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)

Ideally a minimum of three (3) wellbore volumes:

1.25 " well diameter = 0.19 gallons per foot of water (or 24 oz.).
2 bails per foot - small teflon bailer.
3 bails per foot - 3/4 " teflon bailer.
2.00 " well diameter = 0.49 gallons per foot of water.
4.00 " well diameter = 1.95 gallons per foot of water.

Comments or note well diameter if not standard 2".

Fair to poor recovery in all MW's. Collected BTEX and anion / cation samples for all MW's listed above.

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW.

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Blagg / Cross Timbers	Project #	403410
Sample ID:	MW #1	Date Reported:	10-29-99
Chain of Custody:	7306	Date Sampled:	10-28-99
Laboratory Number:	G270	Date Received:	10-28-99
Sample Matrix:	Water	Date Analyzed:	10-29-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	ND	1	0.2
∛oluene	ND	1	0.2
Ethylbenzene	ND	1	0.2
p,m-Xylene	ND	1	0.2
o-Xylene	ND	1	0.1
Total Xylene	ND		
Total BTEX	ND		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery		
	Trifluorotoluene	96 %		
	Bromofluorobenzene	96 %		

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments:

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PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Blagg / Cross Timbers	Project #:	403410
Sample ID:	MW #2	Date Reported:	10-29-99
Chain of Custody:	7306	Date Sampled:	10-28-99
Laboratory Number:	G271	Date Received:	10-28-99
Sample Matrix:	Water	Date Analyzed:	10-29-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	ND	1	0.2
Toluene	ND	1	0.2
Ethylbenzene	ND	1	0.2
p,m-Xylene	ND	1	0.2
o-Xylene	ND	1	0.1
Total Xylene	ND		
Total BTEX	ND		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	98 %
	Bromofluorobenzene	98 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments:

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<u>Mistani M Dalles</u> Review

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Blagg / Cross Timbers	Project #:	403410
Sample ID:	MW #3	Date Reported:	10-29-99
Chain of Custody:	7306	Date Sampled:	10-28-99
Laboratory Number:	G272	Date Received:	10-28-99
Sample Matrix:	Water	Date Analyzed:	10-29-99
Freservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	ND	1	0.2
Toluene	ND	1	0.2
Ethylbenzene	ND	1	0.2
p,m-Xylene	ND	1	0.2
o-Xylene	ND	1	0.1
Total Xylene	ND		
Total BTEX	ND		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	101 %
	Bromofluorobenzene	101 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments:

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PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

DISTILLED WATER SUBMITTED FOR LAB GA/QC (LAB PERSONNEL NOT PREVIOUSLY INFORMED). 75 2/15/00

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

403410

10-29-99

10-28-99

10-28-99

10-29-99

BTEX

Client: Blagg / Cross Timbers Project #: Sample ID: MW #4 Date Reported: Chain of Custody: 7306 Date Sampled: Laboratory Number: G273 Date Received: Sample Matrix: Water Date Analyzed: Preservative: HgCl2 & Cool Analysis Requested: Condition: Cool & Intact

			Det.
	Concentration	Dilution	Limit
Parameter	(ug/L)	Factor	(ug/L)
Benzene	ND	1	0.2
Toluene	ND	1	0.2
Ethylbenzene	ND	1	0.2
p,m-Xylene	ND	1	0.2
o-Xylene	ND	1	0.1
Total Xylene	ND		
Total BTEX	ND		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	97 %
	Bromofluorobenzene	97 %

Fleferences: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments:

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PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client:	Blagg / Cross Timbers	Project #:	403410
Sample ID:	MW #1	Date Reported:	10-30-99
Laboratory Number:	G270	Date Sampled:	10-28-99
Chain of Custody:	7306	Date Received:	10-28-99
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	10-29-99
Condition:	Cool & Intact		

	Analytical			
Parameter	Result	Units		Units
pН	7.21	s.u.		
Conductivity @ 25° C	4,180	umhos/cm		
Total Dissolved Solids @ 180C	2,060	mg/L		
Total Dissolved Solids (Calc)	1,920	mg/L		
SAR	0.3	ratio		
Total Alkalinity as CaCO3	300	mg/L		
Total Hardness as CaCO3	1,408	mg/L		
Bicarbonate as HCO3	300	mg/L	4.92	meq/L
Carbonate as CO3	<1	mg/L	0.00	meq/L
Hydroxide as OH	<1	mg/L	0.00	meq/L
Nitrate Nitrogen	<0.1	mg/L	0.00	meq/L
Nitrite Nitrogen	<0.001	mg/L	0.00	meq/L
Chloride	0.6	mg/L	0.02	meq/L
Fluoride	1.82	mg/L	0.10	meq/L
Phosphate	0.4	mg/L	0.01	meq/L
Sulfate	1,170	mg/L	24.36	meq/L
Iron	0.001	mg/L		
Calcium	486	mg/L	24.27	meq/L
Magnesium	46.9	mg/L	3.86	meq/L
Potassium	7.0	mg/L	0.18	meq/L
Sodium	25.0	mg/L	1.09	meq/L
Cations			29.40	meg/L
Anions			29.40	meq/L
Cation/Anion Difference			0.02%	

Cation/Anion Difference

U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983. Reference: Water And Waste Water", 18th ed., 1992.

Comments: McDaniel GC B # 1E. Analyst

Mistini M Waltes Review

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client:	Blagg / Cross Timbers	Project #:	403410
Sample ID:	MW #2	Date Reported:	10-30-99
Laboratory Number:	G271	Date Sampled:	10-28-99
Chain of Custody:	7306	Date Received:	10-28-99
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	10-29-99
Condition:	Cool & Intact		

	Analytical			
Parameter	Result	Units		Units
рН	7.20	s.u.		
Conductivity @ 25° C	4,390	umhos/cm		
Total Dissolved Solids @ 180C	2,100	mg/L		
Total Dissolved Solids (Calc)	1,923	mg/L		
SAR	0.1	ratio		
Total Alkalinity as CaCO3	290	mg/L		
Total Hardness as CaCO3	1,450	mg/L		
Bicarbonate as HCO3	290	mg/L	4.75	meq/L
Carbonate as CO3	<1	mg/L	0.00	meq/L
Hydroxide as OH	<1	mg/L	0.00	meq/L
Nitrate Nitrogen	0.1	mg/L	0.00	meq/L
Nitrite Nitrogen	0.015	mg/L	0.00	meq/L
Chloride	2.8	mg/L	0.08	meq/L
Fluoride	1.95	mg/L	0.10	meq/L
Phosphate	0.4	mg/L	0.01	meq/L
Sulfate	1,180	mg/L	24.57	meq/L
Iron	<0.001	mg/L		
Calcium	493	mg/L	24.59	meq/L
Magnesium	52.7	mg/L	4.34	meq/L
Potassium	5.5	mg/L	0.14	meq/L
Sodium	10.3	mg/L	0.45	meq/L
Cations			29.52	meg/L
Anions			29.52	meq/L
Cation/Anion Difference			0.00%	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983. Water And Waste Water", 18th ed., 1992.

Comments: McDaniel GC B # 1E. Leve **Inalyst**

Misteri M Daltes Review

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client:	Blagg / Cross Timbers	Project #:	403410
Sample ID:	MW #3	Date Reported:	10-30-99
Laboratory Number:	Ģ272	Date Sampled:	10-28-99
Chain of Custody:	; 7306	Date Received:	10-28-99
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	10 - 29-99
Condition:	Cool & Intact		

·	Analytical			
Parameter	Result	Units		Units
pH	7.26	s.u.		
Conductivity @ 25° C	3,270	umhos/cm		
Total Dissolved Solids @ 180C	1,620	mg/L		
Total Dissolved Solids (Calc)	1,574	mg/L		
SAR	4.4	ratio		
Total Alkalinity as CaCO3	454	mg/L		
Total Hardness as CaCO3	641	mg/L		
Bicarbonate as HCO3	454	mg/L	7.44	meq/L
Carbonate as CO3	<1	mg/L	0.00	meq/L
Hydroxide as OH	<1	mg/L	0.00	meq/L
Nitrate Nitrogen	<0.1	mg/L	0.00	meq/L
Nitrite Nitrogen	<0.001	mg/L	0.00	meq/L
Chloride	1.0	mg/L	0.03	meq/L
Fluoride	1.96	mg/L	0.10	meq/L
Phosphate	0.9	mg/L	0.03	meq/L
Sulfate	790	mg/L	16.45	meq/L
Iron	<0.001	mg/L		
Calcium	213	mg/L	10.64	meq/L
Magnesium	26.4	mg/L	2.17	meq/L
Potassium	9.5	mg/L	0.24	meq/L
Sodium	255.0	mg/L	11.09	meq/L
Cations			24,15	mea/L
Anions			24.05	meq/L
Cation/Anion Difference			0.41%	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983. Water And Waste Water", 18th ed., 1992.

McDaniel GC B # 1E. Comments: un Analyst

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CATION / ANION ANALYSIS

Client:	Blagg / Cross Timbers	Project #:	403410
Sample ID:	MW #4	Date Reported:	10-30-99
Laboratory Number:	G273	Date Sampled:	10-28-99
Chain of Custody:	7306	Date Received:	10-28-99
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	10-29-99
Condition:	Cool & Intact		

	Analytical			
Parameter	Result	Units		Units
pH	6.78	s.u.		
Conductivity @ 25º C	9.8	umhos/cm		
Total Dissolved Solids @ 180C	5.0	mg/L		
Total Dissolved Solids (Calc)	2.8	mg/L		
SAR	0.0	ratio		
Total Alkalinity as CaCO3	0.1	mg/L		
Total Hardness as CaCO3	<0.1	mg/L		
Bicarbonate as HCO3	0.1	mg/L	0.00	meq/L
Carbonate as CO3	· <1	mg/L	0.00	meq/L
Hydroxide as OH	<1	mg/L	0.00	meq/L
Nitrate Nitrogen	<0.1	mg/L	0.00	meq/L
Nitrite Nitrogen	<0.001	mg/L	0.00	meq/L
Chloride	1.2	mg/L	0.03	meq/L
Fluoride	0.14	mg/L	0.01	meq/L
Phosphate	0.2	mg/L	0.01	meq/L
Sulfate	<0.1	mg/L	0.00	meq/L
Iron	0.001	mg/L		
Calcium	<0.1	mg/L	0.00	meq/L
Magnesium	<0.01	mg/L	0.00	meq/L
Potassium	0.2	mg/L	0.01	meq/L
Sodium	1.0	mg/L	0.04	meq/L
Cations			0.05	mea/L
Anions			0.05	meq/L

Cation/Anion Difference

1.14%

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983. Water And Waste Water", 18th ed., 1992.

Comments: McDaniel GC B # 1E.

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PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

DISTULED	WATER	SAMP	ĿE	70	•
VERIFY MU	#4 (0151	ILLED	آحرن	ER	RU50)
ANALY ST ,	LESULTS				
CATIO	N / ANION /	ANALYS	SIS		

Client:	Blagg	Project #:	403410
Sample D:	Water Check Sample	Date Reported:	10-28-99
Laboratory Number:	N/A	Date Sampled:	10-27-99
Chain of Custody:	N/A	Date Received:	10-27-99
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	10-28-99
Condition:	Cool & Intact		

	Analytical			
Parameter	Result	Units		Units
рН	6.80	s.u.		
Conductivity @ 25° C	9.7	umhos/cm		
Total Dissolved Solids @ 180C	4.9	mg/L		
Total Dissolved Solids (Calc)	2.4	mg/L		
SAR	0.0	ratio		
Total Alkalinity as CaCO3	0.1	mg/L		
Total Hardness as CaCO3	<0.1	mg/L		
Bicarbonate as HCO3	0.1	mg/L	0.00	meq/L
Carbonate as CO3	<1	mg/L	0.00	meq/L
Hydroxide as OH	<1	mg/L	0.00	meq/L
Nitrate Nitrogen	<0.1	mg/L	0.00	meq/L
Nitrite Nitrogen	<0.001	mg/L	0.00	meq/L
Chloride	1.1	mg/L	0.03	meq/L
Fluoride	0.12	mg/L	0.01	meq/L
Phosphate	0.1	mg/L	0.00	meq/L
Sulfate	<0.1	mg/L	0.00	meq/L
Iron	<0.001	mg/L		
Calcium	<0.1	mg/L	0.00	meq/L
Magnesium	<0.01	mg/L	0.00	meg/L
Potassium	0.1	mg/L	0.00	meq/L
Sodium	0.9	mg/L	0.04	meq/L
Cations			0.04	mea/L
Anions			0.04	meq/L

Cation/Anion Difference

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983. Water And Waste Water", 18th ed., 1992.

McDaniel GC B # 1E. Comments: in Analyst

Review

1.04%

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Client / Project Name		Project Location				ANALYSIS / FAI	AMETERS			
BUPER/ADISSTIMBER	ନ୍ତ	MCDANIE	, oc Bull							Τ
Sampler:		Client No. そる 子 / /		, of Liners	1987		œ	lemarks		
Sample No./ Sample S Identification Date	sample Time	Lab Number	Sample Matrix	.oN StroO	(600) CAR					
HW#1 10-2841 12	2200	6270	MATER	M	7					
HIV# 2 1028.99 12	245	6271	WARR	Ø	7			-		
1 5082.01 E#MM	300	6272	WATER	Ø	7 7		3 - 24	15/00	7512	
MWH4 10-28:55 11	210	6273	INATER	M	7 7		Gall ugns	For (20/0c	
							Breve	SAL R	J.C.	
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				H	2		Sample	Receipt		
		J 1						Υ	z	۲×
<u>.</u>			5796 U.S. High	hway 6 Aevico 3	4 87401		Received Intact	7		
, (·	(505) 622-(0615			Cool - Ice/Blue Ice	$\overline{\ }$		
								1		

CHAIN OF CUSTODY RECORD

7306

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS QUALITY ASSURANCE REPORT

Conc

1º imit

Client:	N/A	Project #:	N/A
Sample ID:	10-29-BTEX QA/QC	Date Reported:	10-29-99
Laboratory Number:	G267	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	10-29-99
Condition:	N/A	Analysis:	BTEX

Accept Range 0 - 159

Calibration and Detection Limits (ug/L)

Benzene Toluene	2.5709E-001 3.6552E-001	2.5792E-001 3.6559E-001	0.32% 0.02%	ND ND	0.2 0.2
Eihylbenzene	6.5884E-002	6.5963E-002	0.12%	ND	0.2
p,m-Xylene	5.8222E-002	5.8233E-002	0.02%	ND	0.2
o-Xylene	5.4741E-002	5.4906E-002	0.30%	ND	0.1

Euplicate Conc. (ug/L):	Sample	Duplicate	%Diff.	Accept Limit	
Benzene	ND	ND	0.0%	0 - 30%	
Toluene	ND	ND	0.0%	0 - 30%	
Ethylbenzene	ND	ND	0.0%	0 - 30%	
p,m-Xylene	ND	ND	0.0%	0 - 30%	
o-Xylene	ND	ND	0.0%	0 - 30%	

Sipike Conc. (ug/L)	Sample Min A	mount Spiked Spik	ed Sample	% Recovery	Acceptizimits
Elenzene	ND	50.0	50.0	100%	39 - 150
Toluene	ND	50.0	50.0	100%	46 - 148
Eithylbenzene	ND	50.0	50.0	100%	32 - 160
p,m-Xylene	ND	100.0	100	100%	46 - 148
c-Xylene	ND	50.0	50.0	100%	46 - 148

ND - Parameter not detected at the stated detection limit.

* - Administrative level set at 80 - 120.

References:

Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

QA/QC for samples G267 - G273. Comments: men Analyst

pristini M Walter Review

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Form 3160-5 (June 1990)	UNI DEPARTMEN BUREAU OF I	TED STATES T OF THE INTERIOR AND MANAGEMENT	FORM APPROVED Budget Bureau No. 1004-0135 Expires: March 31, 1993 5. Lease Designation and Serial No.
Do not use this fo	SUNDRY NOTICES form for proposals to dri Jse "APPLICATION FOR	AND REPORTS ON WELLS Il or to deepen or reentry to a different reservoir. R PERMIT—" for such proposals	6. If Indian, Allottee or Tribe Name
	SUBMIT	IN TRIPLICATE	7. If Unit or CA Agreement Designation
I. Type of Well Oil Gas Well X Well	Other		8. Well Name and No. Man Dawyer (TC B IF
3. Address and Telephone N	Amoco Production	Company	9. API Well No. 3004523855
200 Amoco Co 4. Location of Well (Footag	ourt, Farmington, ge, Sec., T., R., M., or Survey De	N.M. 87401 Te1: (505) 326-9200	10. Field and Pool, or Exploratory Area DAKOTA
5E 4 N	W/4, SEC.26	, T 210, K 100, M 1111	11. County or Parish, State SAN JUAN, NM
12. CHECK	APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPO	RT, OR OTHER DATA
TYPE OF	SUBMISSION	TYPE OF ACTION	
Notice o	of Intent	Abandonment Recompletion	Change of Plans
Final Ab	pandonment Notice	Casing Repair Altering Casing Altering Casing Other <u>FIT</u> CLOQUER	Water Shut-Off Conversion to Injection Dispose Water (Note: Report results of multiple completion on Well
13. Describe Proposed or Con give subsurface loca Pit	mpleted Operations (Clearly state all ations and measured and true vertice closure verifica	pertinent details, and give pertinent dates, including estimated date of starting al depths for all markers and zones pertinent to this work.)*	g any proposed work. If well is directionally drilled
υσητυκλία		BUT Z/H/00	
			·
Signed	State offer weight	THE ENVIRO. COORDINATER	Date 12(30/94
Approved by Conditions of approval,	if any:	Tide	Date
Title 18 U.S.C. Section 1001 or representations as to any r	, makes it a crime for any person I matter within its jurisdiction.	knowingly and willfully to make to any department or agency of the United	States any false, fictitious or fraudulent statemen
		*See Instruction on Reverse Side	

BO 191

District I P.O. Box 1980, Hobble, NM District II P.O. Drawer DD, Artesis, NM 88211 Strict III 1000 Rio Brazos Rd, Aztec, NM 87410

G

State of New Mexico Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION P.O. Box 2088 Santa Fe, New Mexico 87504-2088 SUBMIT 1 COPY TO APPROPRIATE DISTRICT OFFICE AND 1 COPY TO SANTA FE OFFICE

- - - --

PIT REMEDIATION AND CLOSURE REPORT

Operator:	Amoco Production Company	Telephone: (505) - 326-920	00
Address:	200 Amoco Court, Farmington	, New Mexico 87401	
Facility Or: Well Name	MEDANIEL GC E	3 IE	
Location: Unit	or Qtr/Qtr Sec_FSe	CZG T29NR ION County SAN JUAN	
Pit Type: Sepa	rator Dehydrator \times 0	ther	
Land Type: BL	M, State, Fee	, Other COM. AGMT.	
Pit Location: (Attach diagram)	Pit dimensions: length Reference: wellhead Footage from reference: Direction from reference	$\frac{20}{, \text{ width } 23}, \text{ depth } 4$, other $\frac{110}{, \text{ other } 23}$	
Depth To Groum (Vertical distant contaminants to a high water elevat ground water) Wellhead Prote	d Water: Se from Seasonal tion of	Less than 50 feet (20 points) 50 feet to 99 feet (10 points) Greater than 100 feet (0 Points) Yes (20 points)	20
(Less than 200 fe domestic water so 1000 feet from a	eet from a private Durce, or; less than Ll other water sources)	No (0 points)	0
Distance To Su (Horizontal dista lakes, ponds, riv irrigation canals	Arface Water: ance to perennial vers, streams, creeks, a and ditches)	Less than 200 feet (20 points) 200 feet to 1000 feet (10 points) Greater than 1000 feet (0 points)	20
		RANKING SCORE (TOTAL POINTS):	40

			BO 191
Date Remediation St	arted:	Date Completed:	12/30/94
Remediation Method:	Excavation $\underline{\times}$	Approx. cubic yards	50
(Check all appropriate sections)	Landfarmed $\underline{\times}$	Insitu Bioremediation	
	Other		
Remediation Locatio (ie. landfarmed onsite, name and location of offsite facility)	n: Onsite 🔀	Offsite <u>X</u> BAGA GC A #,	H. (F-26-29-10)
General Description	Of Remedial Act	ion:	
Excavatio	on GROWNDUR	ITER PUMPED & HAILEY),
LANDFR(2	m soir mixed	WITH BREA GC A THIA - RE	Fts? 70
BASA	Ge A #HA FOR	LANDFARM CLOSURE INFORMATION	2 -
			<u> </u>
		Vog X/ Dorth 31	
	Comple legation	see Attached Documents	
Closure Sampling:	Sample location		
(if multiple samples, attach sample results	Sample depth	active shimples	
locations and depths)	Sample date	Sample time	<u></u>
	Sample Results		
	Bongono (pr		
	Denzene(pp	(m)	
	TOCAL BIEN	(ppm)	
	Fleid head		
	трн	· · · · ·	
Ground Water Sample	9: Yes <u>×</u> No	(If yes, attach sample	results)
I HEREBY CERTIFY TH OF MY KNOWLEDGE AND	AT THE INFORMATI BELIEF	ON ABOVE IS TRUE AND COMPLE	TE TO THE BEST
DATE 12 30 94	٨	RINC	
SIGNATURE BAS	Taw PRINT	ED NAME LOUddy P. S ITLE ENVIRONMENTAL	Coordinator





OFF: (505) 325-8786

LAB: (505) 325-5667

AROMATIC VOLATILE ORGANICS

Attn:	Nelson \	/elez			Date:	12/16/94
Company:	Blagg Er	ngineering			Lab ID:	2329
Address:	P.O. Box 87			Sample ID:	4403	
City, State:	Bloomfie	eld, NM 8741	13		Job No.	2-1000
Project Nar	ne:	McDanie	GCB1E			
Project Loc	ation:	PW 1 @	GW (3') - De	hy Pit		
Sampled by	/ :	NV	Date:	12/15/94	Time:	14:20
Analyzed b	y:	DLA	Date:	12/16/94		
Sample Ma	trix:	Water				

Aromatic Volatile Organics

Component	Measured Concentration ug/L	Detection Limit Concentration ug/L
Benzene	130.9	0.2
Toluene	84.4	0.2
Ethylbenzene	30.7	0.2
m,p-Xylene	284.6	0.2
o-Xylene	53.7	0.2
	TOTAL 584.4 Ug/L	

ND - Not Detectable

Method - SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography

Approved by: $\int -4 dx$ Date: 12/19/94

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -



OFF: (505) 325-8786

LAB: (505) 325-5667

AROMATIC VOLATILE ORGANICS

Attn:	Nelson \	/elez		Date: 12/22/9						
Company:	Blagg Er	gineering			Lab ID:	2563				
Address:	P.O. Box	87		Sample ID:	4480					
City, State:	Bloomfie	eld, NM 8741	3		Job No.	2-1000				
Project Nan	ne:	McDanie	IGCB1E							
Project Loc	ation:	PW 2 @	GW (3') - D	ehy Pit						
Sampled by	<i>'</i> :	NV	Date:	12/21/94	Time:	9:25				
Analyzed by	y:	DLA	Date:	12/22/94						
Sample Ma	trix:	Water								

Aromatic Volatile Organics

Component	Measured Concentration ug/L	Detection Limit Concentration ug/L
Panzana	112.6	0.2
Taluana	112.0	0.2
Toluene	30.1	0.2
	24.0	0.2
m,p-x.yiene	308.8	0.2
o-Xylene	57.4	0.2
	TOTAL 539.0 ug/L	

ND - Not Detectable

Method - SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography

Approved by: Date: 12/12/14

P. O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -



OFF: (505) 325-8786

LAB: (505) 325-5667

AROMATIC VOLATILE ORGANICS

Attn:	Nelson N	/elez		Date:	12/30/94	
Company:	Blagg Er	ngineering			Lab ID:	2515
Address:	P.O. Box				Sample ID:	4550
City, State:	Bloomfie	eld, NM 8741	13		Job No.	2-1000
Project: Nan	ne:	McDanie	GCB1E			
Project: Loc	ation:	PW 3 @	GW (3') - D	ehy Pit	,	
Sampled by	<i>r</i> :	NV	Date:	12/28/94	Time:	14:00
Analyzed b	y:	DLA	Date:	12/30/94		
Sample Ma	trix:	Water				

Aromatic Volatile Organics

Component	Mea Concent	asured tration ug/L	De Cone	tection Limit centration ug/L
Benzene		0.8		0.2
Toluene		0.5	+	0.2
Ethylbenzene		0.3	· · · · · · · · · · · · · · · · · · ·	0.2
m,p-Xylene		4.2		0.2
o-Xylene		0.8		0.2
	TOTAL	6.7 ug/L		

ND - Not Detectable

Method - SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography

Approved by: Date:

P. O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

2329	Pageof	たしたし Title PG	1	76 11	- 1/99 Telefax No.	ANALYSIS REQUESTED		Permarks (matrix)	3-2327 NIGTER						. (him - Date/Time 12/1 6/01/0243	Date/Time	Date/Time	s 10 Working Days Sampling Location:		•	
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CHAIN OF CUS	Date O. Box 2606 • Farmington NM 87499 25-5667 • FAX: (503) 325-6256	Vo.:		C- Dept.	87413	E L C		TE/TIME COMPOSITE/ PRESERVATIVE MPLED GRAB	1420 GERB HOCI	2					Date/Timér/6/94 074	Date/Time	Date/Time		Date	st)	history White _ On Site _ Vellow _ I 4R
	TECHNOLOGIES, LTD. (57 W. Maple • P. (LAE: (505) 32	Purchase Order No.: Reference N	Name	EDGO Company RUNGC ENGINICETAIN	City, State, Zip Breach FIELD AM	Special Instructions:	Sampler: Thelen UL	SAMPLE IDENTIFICATION	Put & Chander) - DEHU PIT IZITAN						Relinquished by: 77 (1997) U.2.04	Relinquished by:	Relinquished by:	Method of Shipment:	Authorized by:	Client Signature Must Accompany Reques	

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ON SITE	Date: _	12/21/0	4		Page /	· / · ·
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CHAIN OF CUS DDY F	Date: /2/28 • O. Box 2606 • Farmington NM 87499	9520-026 (COC) YAY • 1000-026	O	<u>Ра</u> 18 7 С		BES City	<i>m </i>	IE I	er o	Numbi	SAMPLE MATRIX PRES	12/2 4 1400 WISTER					u		Date/Tim <i>#2/29/94 14/38</i> Received t	Date Unite Received b	Date/Time Received b	Rush	Date	est)	Distribution: White - On Site Yellow - LAB Pink - Sample
	TECHNOLOGIES, LTD.	(COC) : GAT A	Purchase Order No.: Job No.	Name	20 Company 81466 ENGINERIA	BY Address P. O. BOX 8)	City, State, Zip SLOOM/T/ TLD AU	Sampling Location: 11/CLMN1EL GC 8		Sampler: JAller NIG	SAMPLE IDENTIFICATION	PWS CGUTZ' - DENY PIT							Feilinguished by:	Relinquished by:	Relinquished by:	Method of Shipment:	Authorized by:	(Client Signature <u>Must</u> Accompany Reque	