3R - 134

2011 AGWMR

02 / 01 / 2012

February 3, 2012

Mr. Glenn Von Gonten
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
(505) 476-3488

RE: Valdez A #1E – 2011 Annual Groundwater Report
OCD Case File No. – 3RP-134

Mr. Von Gonten,

Please find attached the ***2011 Annual Groundwater Report*** for the Valdez A #1E well site, located in Unit G, Section 24, Township 29N, Range 11W, San Juan County, New Mexico. If you have any questions or comments, please feel free to contact me at your convenience.

James McDaniel
EH&S Supervisor, CHMM #15676
XTO Energy, Inc.
(505) 333-3701

CERTIFIED HAZARDOUS MATERIALS MANAGER
JAMES P. McDANIEL
15676
CHMM
EXPIRES MAY 16, 2016

CC: Brandon Powell, OCD Aztec Division

2011 ANNUAL GROUNDWATER REPORT

Valdez A #1E

3RP-134

Unit G, Section 24, Township 29N, Range 11W
San Juan County, New Mexico

PREPARED FOR:

Mr. Glenn Von Gonten
New Mexico Oil Conservation Division
1220 South St. Francis Street
Santa Fe, New Mexico 87505
(505) 476-3488

January 2012

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2011 XTO GROUNDWATER REPORT

VALDEZ A #1E
3RP-134

SITE DETAILS

LEGALS - TWN: 29N **RNG:** 11W **SEC:** 24 **UNIT:** G
OCD HAZARD RANKING: 40 **LAND TYPE:** FEE
LATITUDE: 36.71186 **LONGITUDE:** 107.94220

INTRODUCTION

XTO Energy Inc. (XTO) acquired the Valdez A #1E well site from Amoco Production Company (Amoco) in January 1998. This is a gas producing well in the Dakota Sandstone and Otero Chacra formations and is currently active. The San Juan River flows in a west/southwest direction approximately 1000 feet from the location. A topographic map is presented as ***Figure 1***.

HISTORY

Tenneco Oil Company (Tenneco) was the original owner/operator of this well site. In September of 1987, the New Mexico Oil Conservation Division (OCD) augered four (4) 10½'-18' deep exploratory borings at the well site. The borings uncovered groundwater contamination in the vicinity of the produced water tank and the separator. A letter documenting the OCD findings is included as ***Attachment 1***. Tenneco was required by OCD to install a series of monitoring wells in an effort to define the contamination plume and to monitor concentration levels of contaminants. Tenneco installed six (6) monitoring wells (MW-1, MW-2, MW-3, MW-4, MW-5, and MW-6) in June of 1988. Completion Diagrams and Borehole Logs are presented in ***Figure 3-8***. The monitoring wells were sampled in July of 1988 with the exception of monitoring well MW-4 which was discovered damaged. Groundwater from monitoring well MW-6 revealed BTEX concentrations in excess of New Mexico Water Quality Control Commission (WQCC) standards. Monitoring well MW-4 was repaired in August of 1988 and all wells were sampled. Laboratory results revealed elevated BTEX concentrations in groundwater from monitoring wells MW-4 and MW-6. Tenneco submitted a groundwater report to the OCD in September of 1988 documenting activities and laboratory results.

Amoco acquired the location in January of 1989. Based on historical lab data it is assumed that additional monitoring wells, MW-7, MW-8, MW-9 and MW-10 were installed in the first quarter of 1992, and that Amoco re-initiated groundwater monitoring. In January of 1996 Amoco submitted a written request to the OCD to discontinue groundwater monitoring at the site. This request is included as ***Attachment 2***. Based on data collected since 1988, Amoco proposed that the impacted plume was stable, and that there was no risk to human health and the environment, making continued groundwater monitoring unnecessary. Since WQCC standards had not been met within the plume area, the request was denied by the OCD in March of 1996.

XTO submitted a groundwater report to the OCD in February of 1999 to include data and activities for the years 1996 through 1998. Since their initial installation, groundwater results for monitoring wells MW-1, MW-3 and MW-9 had been below WQCC standards for BTEX. Groundwater results from monitoring wells MW-4, MW-5 and MW-10 returned

elevated concentrations of BTEX for one (1) sampling event, but below the WQCC standards for several sampling events thereafter. Groundwater results from monitoring wells MW-6, MW-7 and MW-8 consistently revealed BTEX concentrations exceeding WQCC standards, although there were significant decreases in concentrations during that time period. Monitoring well MW-2 has remained dry since 1993. In June 1998, 0.88 feet of free phase product was documented in monitoring well MW-7. At that time XTO recommended continued sampling of groundwater from monitoring wells MW-6, MW-7, MW-8, MW-9 and MW-10 to track natural degradation and to confirm that free product was not migrating. Monitoring well MW-8 was damaged during the last quarter of 1998. According to the text of a former annual monitoring report, monitoring well MW-9 sampled below WQCC standards and non-detect in 1999 through 2001 and sampling was discontinued. It is not known if laboratory reports exist for this data. According to the text of a former annual monitoring report, monitoring well MW-10 sampled non-detect from 1993 through 1999 and sampling was discontinued in 1999. It is not known if the laboratory reports exist for this data.

In April 2002 monitoring wells MW-2, MW-3 and MW-5 were plugged and abandoned per surface owner's (FEE) request and OCD approval.

In 2005, MW-9 and MW-10 were removed by the property owner.

The 2005 annual groundwater report was submitted to the OCD in January of 2006, proposing annual sampling of groundwater monitoring wells MW-6 and MW-7 until natural degradation reduced hydrocarbon impacts to below closure standards.

The 2006 annual groundwater report was submitted to the OCD in February of 2007, proposing continued annual sampling of groundwater monitoring wells MW-6 and MW-7 until natural degradation reduced hydrocarbon impacts to below the WQCC standards.

The 2007 annual groundwater report was submitted to the OCD in February of 2008 proposing semi-annual sampling at monitoring wells MW-6 and MW-7 for BTEX constituents.

The 2008 annual groundwater report was submitted to the OCD in April of 2009 proposing the addition of chemical oxygenate to monitoring wells MW-6 and MW-7, with a change in frequency from semi-annual sampling to quarterly sampling.

The 2009 annual groundwater report was submitted to Mr. Glenn von Gonten with the OCD in March of 2010 recommending continuing addition of chemical oxygenate to monitoring well MW-7 to enhance bioremediation in the groundwater aquifer. Quarterly sampling of monitoring wells MW-6 and MW-7 were also recommended to monitor the BTEX levels in the aquifer at this location.

The 2010 annual groundwater report was submitted to Mr. Glenn von Gonten with the OCD in March of 2011 recommending the addition of chemical oxygenate in monitoring well MW-7 to enhance biodegradation of the hydrocarbon in groundwater. In addition, XTO proposed quarterly sampling of groundwater for BTEX concentrations in monitoring wells MW-6 and MW-7 until WQCC standards have been met for four (4) consecutive events. Lastly, XTO proposed cessation of sampling from MW-6 provided that the first quarter 2011 sample did not contain BTEX in excess of the WQCC standards. Since the

WQCC standards had been met for four consecutive events in MW-6 in 2010, no further sampling was conducted on MW-6 in 2011.

A summary of water level data and laboratory results from historical and current groundwater monitoring is presented in ***Table 1*** and ***Table 2*** prepared by LT Environmental. Copies of the laboratory data sheets and associated quality assurance/quality control data for 2011 are presented as ***Attachment 3***. Groundwater sampled from monitoring well MW-6 during the fourth quarter of 2010 represented the fourth consecutive event in which BTEX concentrations were below WQCC standards. Sampling of MW-6 was discontinued in 2011.

METHODOLOGY

ORC socks were removed from monitoring well MW-7 at least seven days prior to sampling to allow groundwater to equilibrate. After sampling the ORC socks were replaced. Samples of groundwater were collected quarterly during 2011. Quarterly groundwater samples were collected from monitoring well MW-7 in 2011 and submitted for laboratory analysis of BTEX via USEPA Method 8021B.

Water Level Measurements

Static groundwater level monitoring includes recording depth to groundwater measurements with a Keck oil/water interface probe. The interface probe is decontaminated with Alconox™ soap and rinsed with de-ionized water prior to each measurement. These data are recorded as Depth to Water (DTW) and Total Depth (TD) in feet on ***Table 1***.

Groundwater Sampling

Prior to sampling groundwater, depth to groundwater and total depth of wells is measured with a Keck oil/water interface probe. Presence of any free-phase crude oil is also investigated using the interface probe. The interface probe is decontaminated with Alconox™ soap and rinsed with de-ionized water prior to each measurement. The volume of water in the wells is calculated, and a minimum of three (3) casing volumes of water is purged from each well using a disposable bailer or a permanent decontaminated PVC bailer. As water is extracted, pH, electric conductivity and temperature are monitored. Wells are purged until these properties stabilize, indicating that the purge water is representative of aquifer conditions. Stabilization is defined as three (3) consecutive stable readings for each water property (±0.4 units for pH, ±10 percent for electric conductivity and ±2° C for temperature). All purge water is disposed of into tanks on site.

Once each monitoring well is properly purged, groundwater samples are collected by filling at least two (2) 40-millititer (ml) glass vials. The pre-cleaned and non-preserved vials are filled and capped with no air inside to prevent degradation of the sample. Samples are labeled with the date and time of collection, well designation, project name, collector's name and parameters to be analyzed. They are immediately sealed and packed on ice. The samples are shipped to Environmental Science Corporation (ESC) in a sealed cooler with ice to Mt. Juliet, Tennessee via Fed-Ex overnight for analysis. Proper chain-of-custody (COC) procedures are followed with logs documenting the date and time sampled, sample number, type of sample, sampler's name, preservative used, analyses required and sampler's signature. Field notes from the quarterly monitoring are included for your reference as ***Attachment 4***.

Groundwater Contour Maps

Top of casing well elevations were surveyed using a surveyor's level; and groundwater elevations obtained from monitoring wells during site visits were used to draft groundwater contour maps. Contours were inferred based on groundwater elevations obtained and observation of physical characteristics at the site (topography, proximity to irrigation ditches, etc.).

RESULTS

Results from monitoring well MW-7 show benzene, ethylbenzene, and total xylenes concentrations that decreased between September 2010 and June 2011 then increased during September and December 2011. The cause of this increase is unclear at this time. Toluene concentrations remained less than the method detection limit. Benzene and total xylenes concentrations were in excess of the WQCC standard in September and December 2011. Toluene and ethylbenzene concentrations did not exceed the WQCC standard during any sampling event in 2011. All laboratory analytical results are included in ***Table 4***, and laboratory reports from 2011 are included in ***Attachment 3***.

Field data collected during site monitoring activities indicate a groundwater gradient that trends toward the southwest, in the general direction of the San Juan River. ***Figure 2*** illustrates the estimated groundwater gradient for 2011.

CONCLUSIONS

The laboratory results from 2011 indicate that the BTEX constituents in MW-7 decreased during the first two quarters of 2011, then increased during the last two quarterly sampling events of 2011. The increase in BTEX concentrations coincides with a decrease in water levels. The cause of this increase in BTEX concentrations in MW-7 is unclear at this time.

RECOMMENDATIONS

XTO proposes the continued use of chemical oxygenate in monitoring well MW-7 to enhance biodegradation of the hydrocarbon in groundwater. In addition, XTO will continue quarterly sampling of groundwater for BTEX concentrations in monitoring well MW-7 until WQCC standards have been met for four (4) consecutive quarters. XTO proposes to discontinue sampling MW-6 because the WQCC standards have been met for four (4) consecutive events.

Following OCD approval for closure, all monitoring well locations will be abandoned in accordance with the monitoring well abandonment plan.

Table 1

Water Level Summary Table

TABLE 5

GROUNDWATER LEVELS AND ELEVATIONS
VALDEZ A #1E
XTO ENERGY, INC.

Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet relative to site)
MW-1	7/1/1988	NM	NM
MW-1	8/31/1988	NM	NM
MW-1	3/5/1992	NM	NM
MW-1	2/23/1993	13.59	88.97
MW-1	6/7/1993	12.92	89.64
MW-1	9/8/1993	12.06	90.50
MW-1	3/9/1994	14.20	88.36
MW-1	6/24/1994	12.39	90.17
MW-1	9/23/1994	11.35	91.21
MW-1	12/9/1994	12.35	90.21
MW-1	3/13/1995	13.71	88.85
MW-1	6/3/2008	12.95	89.61
MW-1	12/7/2009	12.37	90.19
MW-1	6/21/2010	13.23	89.33
MW-1	9/15/2010	12.14	90.42
MW-1	12/13/2010	12.89	89.67
MW-1	3/10/2011	14.29	88.27
MW-1	6/16/2011	13.10	89.46
MW-1	9/13/2011	11.66	90.90
MW-1	12/14/2011	12.41	90.15
MW-3	7/1/1988	NM	NM
MW-3	8/31/1988	NM	NM
MW-3	3/5/1992	NM	NM
MW-3	2/23/1993	14.02	87.04
MW-3	6/7/1993	13.66	87.40
MW-3	9/8/1993	13.16	87.90
MW-3	3/9/1994	14.54	86.52
MW-3	6/24/1994	12.95	88.11
MW-3	9/23/1994	12.24	88.82
MW-3	12/9/1994	12.94	88.12
MW-3	3/13/1995	13.88	87.18
MW-3	6/3/2008	13.21	87.85
MW-3	12/7/2009	12.78	88.28
MW-3	6/21/2010	13.47	87.59
MW-3	9/15/2010	12.54	88.52
MW-3	12/13/2010	13.16	87.90
MW-3	3/10/2011	14.23	86.83

TABLE 5

GROUNDWATER LEVELS AND ELEVATIONS
VALDEZ A #1E
XTO ENERGY, INC.

Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet relative to site)
MW-3	6/16/2011	13.32	87.74
MW-3	9/13/2011	12.20	88.86
MW-3	12/14/2011	12.76	88.30
MW-6	7/1/1988	NM	NM
MW-6	8/31/1988	NM	NM
MW-6	3/5/1992	NM	NM
MW-6	2/23/1993	15.06	82.03
MW-6	6/7/1993	14.72	82.37
MW-6	9/8/1993	14.27	82.82
MW-6	12/2/1993	14.69	82.40
MW-6	3/9/1994	15.49	81.60
MW-6	6/24/1994	14.05	83.04
MW-6	9/23/1994	13.40	83.69
MW-6	12/9/1994	14.02	83.07
MW-6	1/10/1995	14.28	82.81
MW-6	2/9/1995	14.58	82.51
MW-6	3/13/1995	14.85	82.24
MW-6	4/10/1995	15.00	82.09
MW-6	6/19/1995	14.48	82.61
MW-6	8/7/1995	14.08	83.01
MW-6	9/12/1995	13.89	83.20
MW-6	10/10/1995	13.74	83.35
MW-6	11/15/1995	13.98	83.11
MW-6	12/7/1995	14.12	82.97
MW-6	3/7/1996	15.07	82.02
MW-6	6/18/1996	14.40	82.69
MW-6	6/17/1997	14.97	82.12
MW-6	6/12/1998	14.92	82.17
MW-6	9/25/1998	14.36	82.73
MW-6	5/26/1999	15.12	81.97
MW-6	6/26/2000	14.53	82.56
MW-6	5/15/2001	14.91	82.18
MW-6	6/25/2002	13.72	83.37
MW-6	5/20/2003	14.47	82.62
MW-6	6/19/2004	14.07	83.02
MW-6	9/27/2004	8.27	88.82
MW-6	6/29/2005	9.13	87.96

TABLE 5

GROUNDWATER LEVELS AND ELEVATIONS
VALDEZ A #1E
XTO ENERGY, INC.

Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet relative to site)
MW-6	6/28/2006	8.78	88.31
MW-6	6/15/2007	9.76	87.33
MW-6	12/20/2007	9.16	87.93
MW-6	6/3/2008	9.58	87.51
MW-6	12/4/2008	9.85	87.24
MW-6	6/10/2009	9.75	87.34
MW-6	12/7/2009	9.15	87.94
MW-6	6/21/2010	9.77	87.32
MW-6	9/15/2010	9.01	88.08
MW-6	12/13/2010	9.50	87.59
MW-6	3/10/2011	10.45	86.64
MW-6	6/16/2011	9.66	87.43
MW-6	9/13/2011	8.79	88.30
MW-6	12/14/2011	9.17	87.92
MW-7	3/5/1992	NM	NM
MW-7	2/23/1993	13.37	86.22
MW-7	6/7/1993	14.54	85.05
MW-7	9/8/1993	14.15	85.44
MW-7	12/2/1993	14.56	85.03
MW-7	3/9/1994	15.30	84.29
MW-7	6/24/1994	14.04	85.55
MW-7	9/23/1994	13.51	86.08
MW-7	12/9/1994	13.94	85.65
MW-7	1/10/1995	14.23	85.36
MW-7	2/9/1995	14.50	85.09
MW-7	3/13/1995	14.73	84.86
MW-7	4/10/1995	14.87	84.72
MW-7	6/19/1995	14.39	85.20
MW-7	8/7/1995	14.04	85.55
MW-7	9/12/1995	13.85	85.74
MW-7	10/10/1995	13.73	85.86
MW-7	11/15/1995	13.94	85.65
MW-7	12/7/1995	14.05	85.54
MW-7	3/7/1996	14.94	84.65
MW-7	6/18/1996	14.34	85.25
MW-7	6/17/1997	14.83	84.76
MW-7	6/12/1998	14.83	84.76

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VALDEZ A #1E
XTO ENERGY, INC.

Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet relative to site)
MW-7	9/25/1998	NM	NM
MW-7	5/26/1999	NM	NM
MW-7	8/25/1999	NM	NM
MW-7	11/30/1999	NM	NM
MW-7	6/26/2000	14.46	85.13
MW-7	5/15/2001	14.87	84.72
MW-7	6/25/2002	13.72	85.87
MW-7	5/20/2003	14.43	85.16
MW-7	6/19/2004	13.97	85.62
MW-7	6/29/2005	13.81	85.78
MW-7	6/28/2006	13.37	86.22
MW-7	6/15/2007	15.00	84.59
MW-7	12/20/2007	13.65	85.94
MW-7	6/3/2008	14.03	85.56
MW-7	12/4/2008	13.46	86.13
MW-7	6/10/2009	14.20	85.39
MW-7	12/7/2009	13.61	85.98
MW-7	6/21/2010	14.19	85.40
MW-7	9/15/2010	13.76	85.83
MW-7	12/13/2010	13.98	85.61
MW-7	3/10/2011	14.81	84.78
MW-7	6/16/2011	14.10	85.49
MW-7	9/13/2011	13.21	86.38
MW-7	12/14/2011	13.68	85.91

Notes:
NM = Not Measured
BTOC = Below Top of Casing

Table 2

Groundwater Results Summary Table

TABLE 6

GROUNDWATER ANALYTICAL RESULTS
VALDEZ A #1E
XTO ENERGY, INC.

Well ID	Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
NMWQCC Groundwater Standard		**10**	**750**	**750**	**620**
MW-1	7/1/1988	ND	ND	ND	ND
MW-1	8/31/1988	ND	ND	ND	ND
MW-1	3/5/1992	ND	ND	ND	ND
MW-1	2/23/1993	ND	ND	ND	ND
MW-1	6/7/1993	ND	0.5	ND	1
MW-1	9/8/1993	ND	ND	ND	ND
MW-1	3/9/1994	ND	ND	ND	ND
MW-1	6/24/1994	ND	ND	ND	ND
MW-1	9/23/1994	0.9	0.2	ND	3.8
MW-1	12/9/1994	0.8	ND	ND	ND
MW-1	3/13/1995	ND	ND	ND	ND
MW-3	7/1/1988	ND	ND	ND	ND
MW-3	8/31/1988	ND	ND	ND	ND
MW-3	3/5/1992	3	6.9	0.3	7.8
MW-3	2/23/1993	ND	ND	ND	ND
MW-3	6/7/1993	ND	ND	ND	0.6
MW-3	9/8/1993	ND	0.6	ND	11.7
MW-3	3/9/1994	ND	ND	ND	ND
MW-3	6/24/1994	ND	ND	ND	ND
MW-3	9/23/1994	ND	ND	ND	ND
MW-3	12/9/1994	ND	ND	ND	ND
MW-3	3/13/1995	ND	ND	ND	ND
MW-6	7/1/1988	**1,500**	**3,300**	550	**4,560**
MW-6	8/31/1988	**1,700**	**1,600**	340	**1,300**
MW-6	3/5/1992	**65**	44.1	20.3	82.7
MW-6	2/23/1993	**2,090**	**7,800**	578	**4,080**
MW-6	6/7/1993	**1,300**	444	293	**840**
MW-6	9/8/1993	**770**	**980**	174	**783**
MW-6	12/2/1993	**540**	**1,140**	144	**867**
MW-6	3/9/1994	**580**	**1,520**	130	**888**
MW-6	6/24/1994	**542**	**1,923**	164	**1,172**
MW-6	9/23/1994	**484**	**1,696**	170	**1,300**
MW-6	12/9/1994	**593**	**2,242**	183	**1,707**
MW-6	1/10/1995	**450**	**1,380**	153	**1,248**
MW-6	2/9/1995	**710**	**2,160**	271	**2,297**
MW-6	3/13/1995	**19.8**	**2,471**	289	**2,460**
MW-6	4/10/1995	**525**	**1,840**	222	**1,502**
MW-6	6/19/1995	**299.3**	**998.8**	114.5	**1,045.4**
MW-6	8/7/1995	**593**	**1,650**	247	**2,111**
MW-6	9/12/1995	**412**	**1,390**	259	**1,549**

TABLE 6

GROUNDWATER ANALYTICAL RESULTS
VALDEZ A #1E
XTO ENERGY, INC.

Well ID	Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
NMWQCC Groundwater Standard		**10**	**750**	**750**	**620**
MW-6	10/10/1995	**176**	**970**	191	**1,552**
MW-6	11/15/1995	**598**	**1,370**	339	**2,819**
MW-6	12/7/1995	**599**	**1,310**	304	**2,322**
MW-6	3/7/1996	**426**	467	234	**1,876**
MW-6	6/18/1996	**462**	773	305	**2,540**
MW-6	6/17/1997	**110**	19.6	37.6	288.9
MW-6	6/12/1998	**55.6**	25.2	45.9	296.1
MW-6	9/25/1998	**42.7**	17.7	68.3	**469**
MW-6	5/26/1999	**78.9**	22	51.6	273.9
MW-6	6/26/2000	**26**	2.5	100	**670**
MW-6	5/15/2001	**13**	0.5	74	490
MW-6	6/25/2002	**20**	ND	200	**1,740**
MW-6	5/20/2003	**14**	1.1	190	**1,400**
MW-6	6/19/2004	7.5	ND	79	530
MW-6	9/27/2004	8.4	ND	140	**1,100**
MW-6	6/29/2005	6.9	ND	150	**1,100**
MW-6	6/28/2006	6.7	ND	190	**790**
MW-6	6/15/2007	2.1	ND	76	470
MW-6	12/20/2007	2.9	ND	130	**750**
MW-6	6/3/2008	1.5	ND	88	**680**
MW-6	12/4/2008	1.6	3.6	98	**640**
MW-6	6/10/2009	1.6	1.4	140	**810**
MW-6	12/7/2009	< 1.0	< 1.0	7.2	29
MW-6	6/21/2010	< 1.0	< 1.0	1.5	3.7
MW-6	9/15/2010	< 0.5	< 5.0	< 0.5	1.6
MW-6	12/13/2010	0.6	<5.0	1.1	3.1
MW-7	3/5/1992	**1,160**	**1,110**	302	**1,972**
MW-7	2/23/1993	ND	1	ND	2
MW-7	6/7/1993	**640**	**2,270**	330	**2,430**
MW-7	9/8/1993	**820**	**1,660**	306	**1,780**
MW-7	12/2/1993	**319**	366	35.1	**242**
MW-7	3/9/1994	**103**	88	10.3	74
MW-7	6/24/1994	**569**	**2,090**	288	**3,094**
MW-7	9/23/1994	**627**	**1,805**	189	**1,755**
MW-7	12/9/1994	**707**	**1,220**	161	**1,342**
MW-7	1/10/1995	**298**	394	54.8	365.4
MW-7	2/9/1995	**465**	624	92	582
MW-7	3/13/1995	**997.8**	**813.2**	168.4	**1,015.9**
MW-7	4/10/1995	**648**	456	104	**623**
MW-7	6/19/1995	**366.7**	414.7	66.1	602.2
MW-7	8/7/1995	**869**	**1,000**	171	**1,431**
MW-7	9/12/1995	**1725**	**846**	141	**1,035**

TABLE 6

GROUNDWATER ANALYTICAL RESULTS
VALDEZ A #1E
XTO ENERGY, INC.

Well ID	Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
NMWQCC Groundwater Standard		**10**	**750**	**750**	**620**
MW-7	10/10/1995	**143**	**689**	93.6	**925**
MW-7	11/15/1995	**710**	**1,000**	178	**1,642**
MW-7	12/7/1995	**1,050**	**606**	167	**996**
MW-7	3/7/1996	**101**	10.3	8.69	42.27
MW-7	6/18/1996	**128**	65.5	11.5	175.3
MW-7	6/17/1997	**360**	16.3	16.5	127.5
MW-7	6/26/2000	**220**	63	94	**4,080**
MW-7	5/15/2001	**190**	ND	76	**880**
MW-7	6/25/2002	**92**	14	32	264
MW-7	5/20/2003	**99**	ND	40	230
MW-7	6/19/2004	**170**	4.1	120	**780**
MW-7	6/29/2005	**100**	14	68	470
MW-7	6/28/2006	**48**	14	69	580
MW-7	6/15/2007	**86**	ND	67	97
MW-7	12/20/2007	**310**	ND	220	**1,300**
MW-7	6/3/2008	**34**	ND	63	490
MW-7	12/4/2008	**100**	31	430	**3,600**
MW-7	6/10/2009	**43**	25	160	**1,100**
MW-7	12/7/2009	**62**	33	320	**2,400**
MW-7	6/21/2010	8.2	5.6	30	180
MW-7	9/15/2010	**36**	< 100	78	**660**
MW-7	12/13/2010	**22**	<5.0	60	420
MW-7	3/10/2011	7	<50	72	260
MW-7	6/16/2011	4.7	<5.0	11	78
MW-7	9/13/2011	**13**	<25	67	**890**
MW-7	12/14/2011	**39**	<50	350	**1,900**

Notes:
ug/l - micrograms per liter
NMWQCC - New Mexico Water Quality Control Commission
ND - not detected
BOLD values exceed the NMWQCC Standard
< - indicates the result was less than the laboratory detection limit

Figure 1

Topographic Map

IMAGE COURTESY OF USDA/NRCS, VARIOUS DATES

LEGEND

SITE LOCATION

0 2,000 4,000

Feet

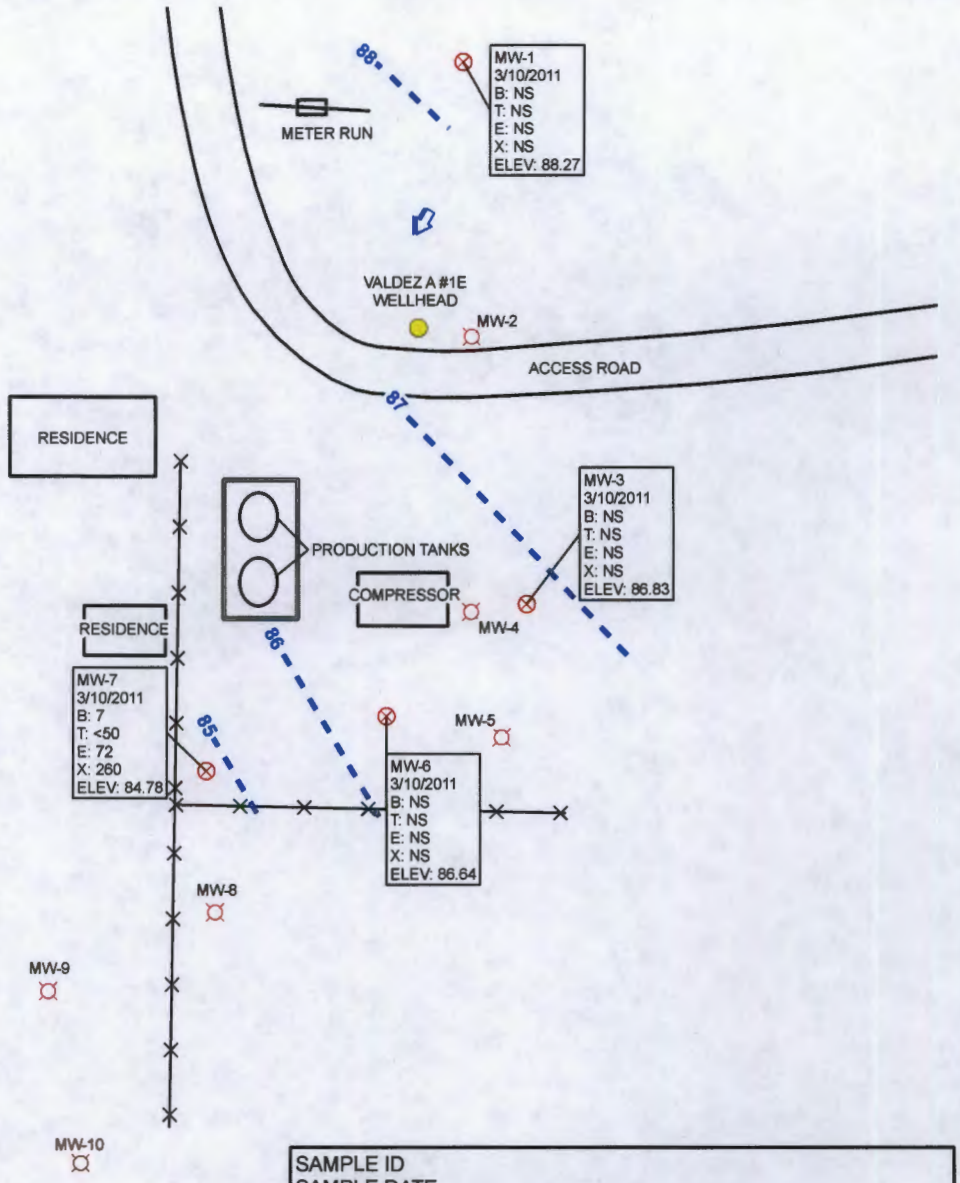
N

FIGURE 1
SITE LOCATION MAP
VALDEZ A #1E
SWNE SEC 24 T29N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012911009\012911009_006_VALDEZ_FIG01_SL_MAP.mxd

Figure 2

Potentiometric Surface Diagrams



LEGEND

- MONITORING WELL
- REMOVED MONITORING WELL
- WELLHEAD
- ESTIMATED GROUNDWATER FLOW DIRECTION
- INFERRED RELATIVE GROUNDWATER ELEVATION CONTOUR
  CONTOUR INTERVAL = 1 FOOT
- BERM
- FENCE

SAMPLE ID
SAMPLE DATE
B: BENZENE IN MICROGRAMS PER LITER (µg/L)
T: TOLUENE (µg/L)
E: ETHYLBENZENE (µg/L)
X: TOTAL XYLENES (µg/L)
ELEV: RELATIVE GROUNDWATER ELEVATION MEASURED IN FEET
<: LESS THAN LABORATORY METHOD DETECTION LIMIT
NS: NOT SAMPLED

0 80 160
Feet

N

NOTE: MONITORING WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND MAY NOT BE TO SCALE.

FIGURE 2
GROUNDWATER ELEVATION AND GROUNDWATER ANALYTICAL RESULTS MAP
VALDEZ A #1E
SWNE SEC 24 T229N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\XTO1002\XTO1002_VALDEZ_FIG02_GWELEV_GWANALY_2011_Q1.mxd

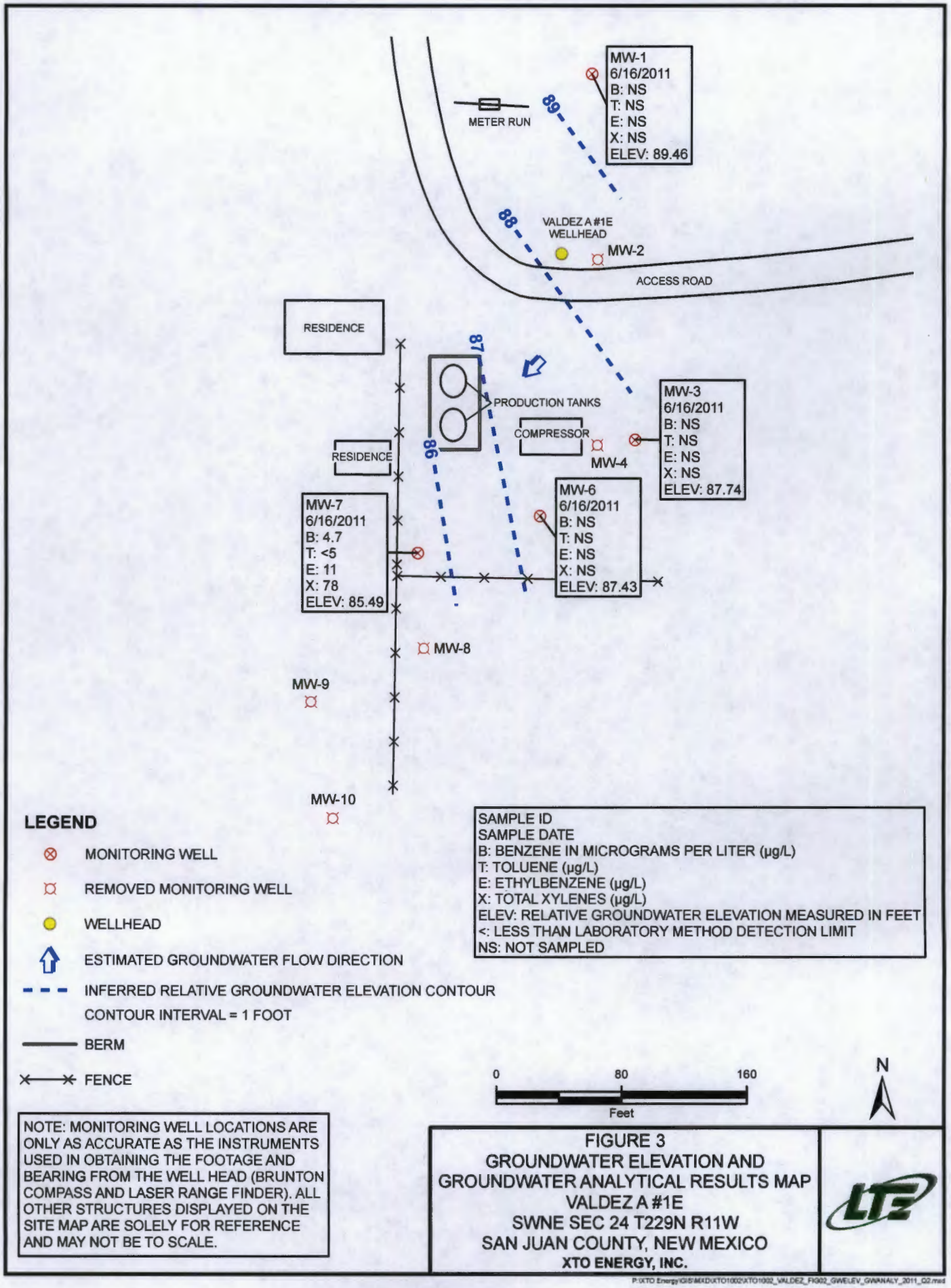
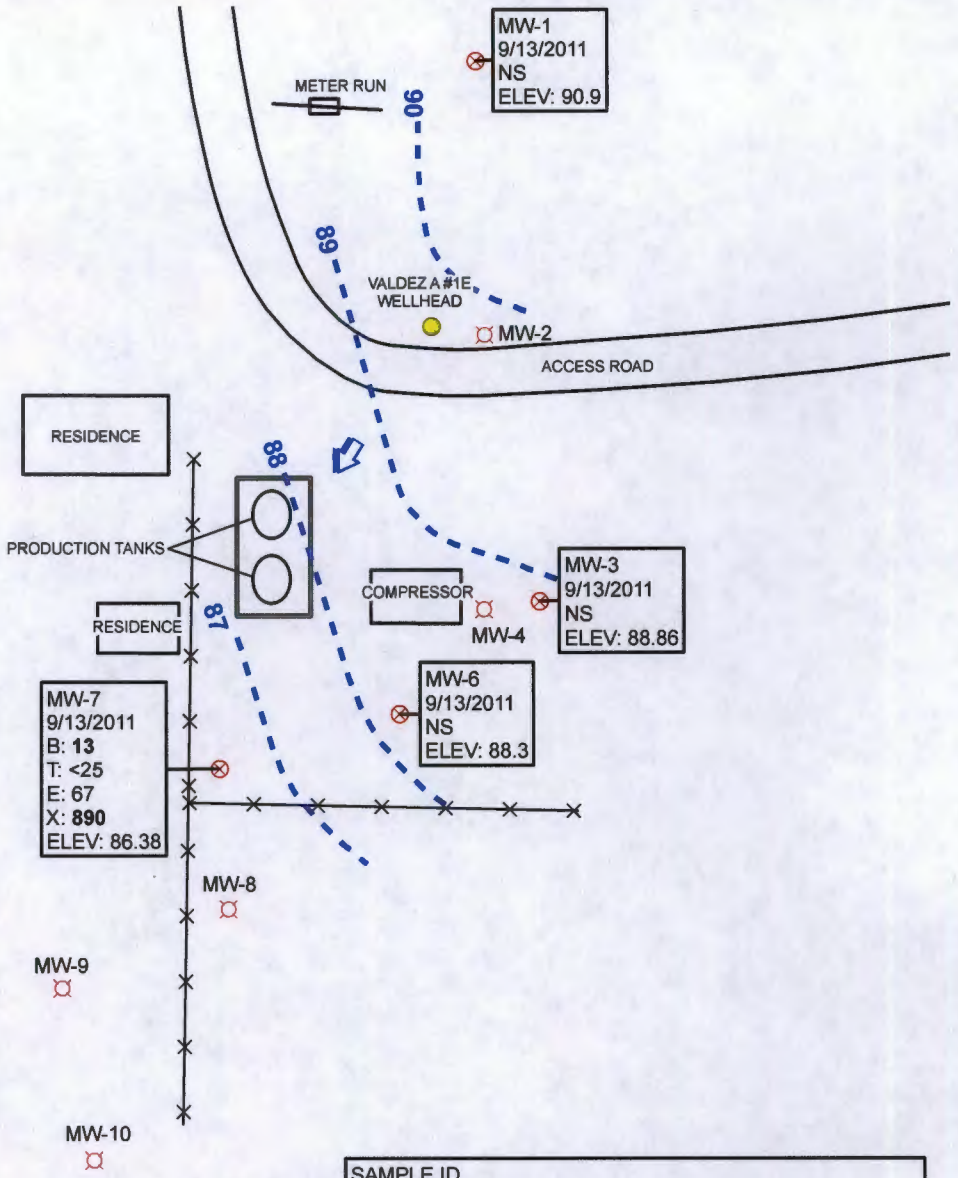


FIGURE 3
GROUNDWATER ELEVATION AND GROUNDWATER ANALYTICAL RESULTS MAP
VALDEZ A #1E
SWNE SEC 24 T229N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\XTO1002\XTO1002_VALDEZ_FIG02_GWELEV_GWANALY_2011_Q2.mxd



LEGEND

- MONITORING WELL
- REMOVED MONITORING WELL
- WELLHEAD
- ESTIMATED GROUNDWATER FLOW DIRECTION
- INFERRED RELATIVE GROUNDWATER ELEVATION CONTOUR
  CONTOUR INTERVAL = 1 FOOT
- BERM
- FENCE

SAMPLE ID
SAMPLE DATE
B: BENZENE IN MICROGRAMS PER LITER (µg/L)
T: TOLUENE (µg/L)
E: ETHYLBENZENE (µg/L)
X: TOTAL XYLENES (µg/L)
ELEV: RELATIVE GROUNDWATER ELEVATION MEASURED IN FEET
<: LESS THAN LABORATORY METHOD DETECTION LIMIT
NS: NOT SAMPLED
BOLD INDICATES RESULT EXCEEDS THE NEW MEXICO WATER QUALITY CONTROL COMMISSION STANDARD

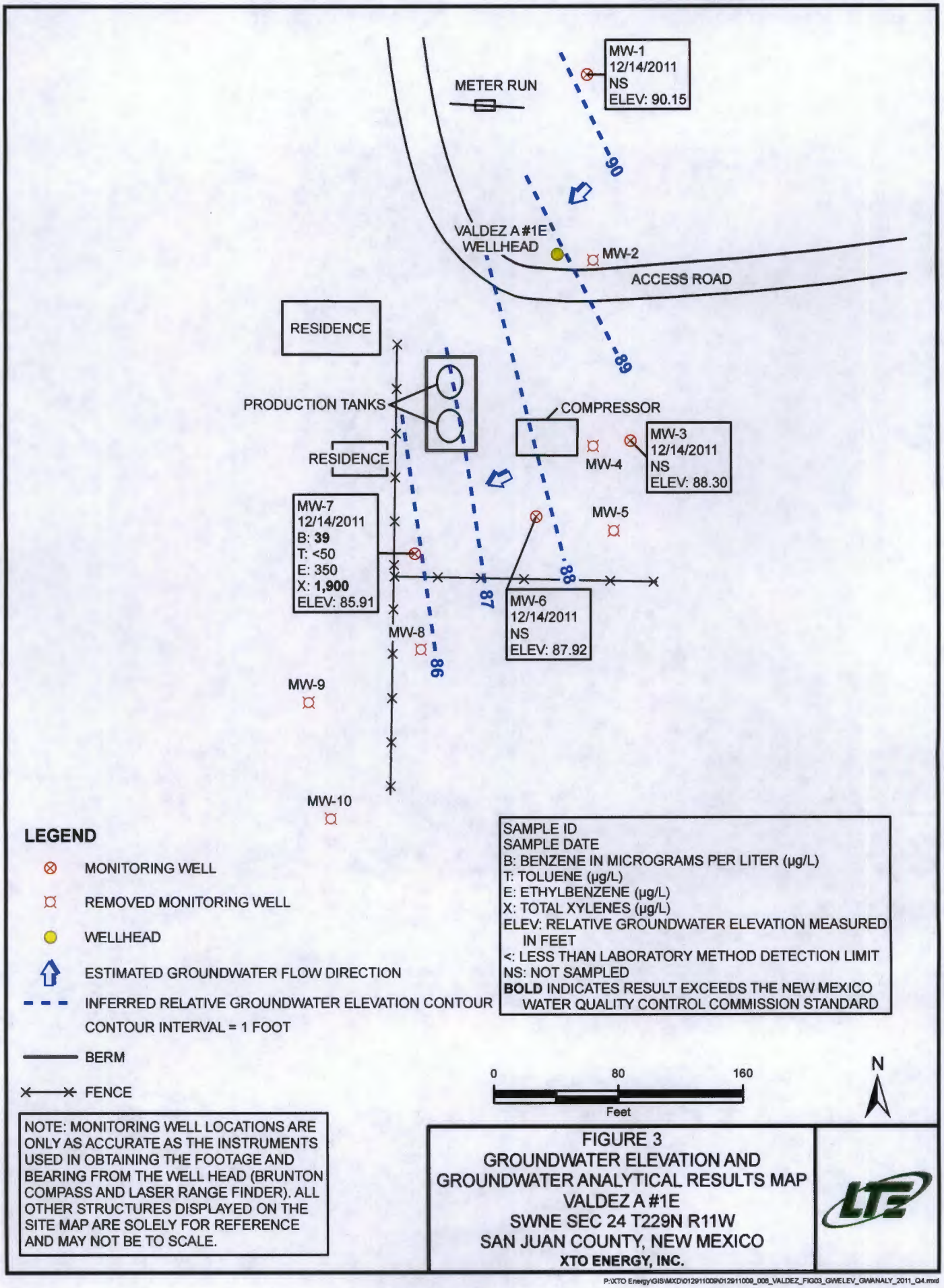
0 80 160
Feet

N

NOTE: MONITORING WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND MAY NOT BE TO SCALE.

FIGURE 2
GROUNDWATER ELEVATION AND GROUNDWATER ANALYTICAL RESULTS MAP
VALDEZ A #1E
SWNE SEC 24 T229N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012911009\012911009_006_VALDEZ_FIG02_GWELEV_GWANALY_2011_Q3.mxd



NOTE: MONITORING WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND MAY NOT BE TO SCALE.

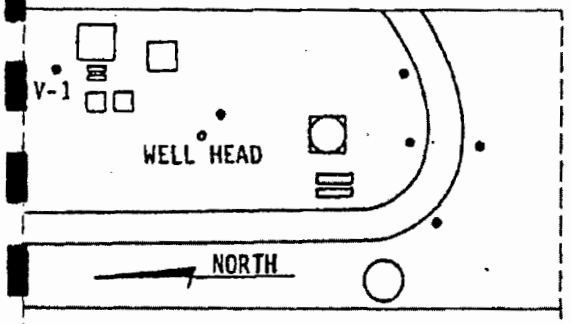
FIGURE 3
GROUNDWATER ELEVATION AND GROUNDWATER ANALYTICAL RESULTS MAP
VALDEZ A #1E
SWNE SEC 24 T229N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012911009\012911009_008_VALDEZ_FIG03_GWELEV_GWANALY_2011_Q4.mxd

Figure 3-8

Completion Diagrams
And
Borehole Logs

BOREHOLE LOG (SOIL)



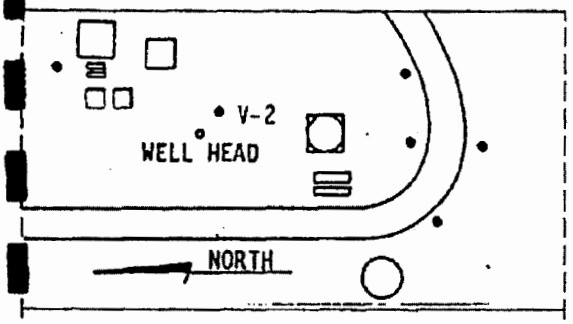
___1/4 ___1/4 ___1/4 ___1/4 S 24 T 29N R 11W

SITE ID: Valdez LOCATION ID: V-1
SITE COORDINATES (ft.): 2390 FNL, 2500 FEL
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
STATE: New Mexico COUNTY: San Juan
DRILLING METHOD: HSA
DRILLING CONTR.: Western Technologies
DATE STARTED: 7/01/88 DATE COMPLETED: 7/01/88
FIELD REP.: W.S. Dubyk, P. Linley
COMMENTS: _____

LOCATION DESCRIPTION: _____

DEPTH	LITH.	REC	SAM	RUN #	RUN FROM	RUN TO	SAMPLE REC.	SAMPLE TYPE	USCS	VISUAL CLASSIFICATION
0									CH	0'-13' Clay - moderate brown 5 YR 3/4, plastic, damp, no odor.
5									MH	13'-17' Silt - dark yellowish brown, 10 YR 4/2, with clay and minor sand grains.
10									GC	17'-20.5' Gravel - with clay and sand, poor cutting return. Water noted at 17'.
15										
20	T.D. 20.17'									
25										
30										

BOREHOLE LOG (SOIL)



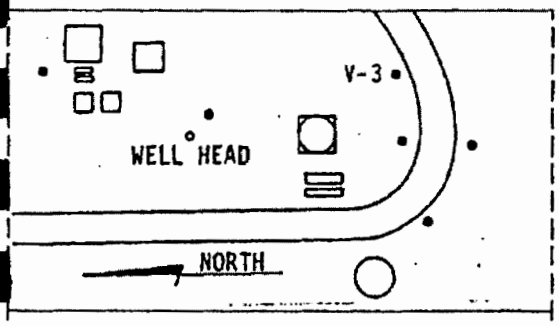
___1/4 ___1/4 ___1/4 ___1/4 S 24 T 29N R 11W

SITE ID: Valdez LOCATION ID: V-2
SITE COORDINATES (ft.): 2390 FNL, 2500 FEL
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
STATE: New Mexico COUNTY: San Juan
DRILLING METHOD: HSA
DRILLING CONTR.: Western Technologies
DATE STARTED: 7/01/88 DATE COMPLETED: 7/01/88
FIELD REP.: W.S. Dubyk, P. Linley
COMMENTS: Cored.

LOCATION DESCRIPTION: _____

DEPTH	LITH.	REC	SAM	RUN #	FROM	TO	SAMPLE REC.	SAMPLE TYPE	USCS	VISUAL CLASSIFICATION
0				1	0'	3'	100%		CH	0'-3' Clay - silty, damp, pale brown 5 YR 5/2 plastic, no odor, fill material.
5				2	3'	8'	60%		SC	3'-8' Sand and Silt - clayey, poorly sorted, moderately rounded, very fine to coarse, yellowish gray damp, probably fill. Grayish Orange Pink 5 Y 7/2.
10				3	8'	13.5'	100%		CH	8'-13.5' Clay - slightly silty, plastic damp, no odor, caliche streaks in fracs. Dark yellowish brown 10 YR 4/2.
15				4	13.5'	18.5'	75%		CH	13.5'-18.5' Clay - as above. Gravel at 18.4', to 2" diameter, slightly rounded, in clay and sand matrix. No coring after 18.5'.
20	T.D. 21.5'			5	18.5'	21.5'	0%		GC	18.5'-21.5' Gravel - no recovery, very slow drilling.
25										
30										

BOREHOLE LOG (SOIL)



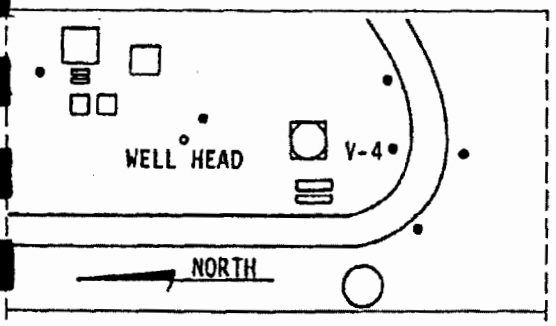
___1/4 ___1/4 ___1/4 ___1/4 S 24 T 29N R 11W

SITE ID: Valdez LOCATION ID: V-3
SITE COORDINATES (ft.): 2390 FNL, 2500 FEL
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
STATE: New Mexico COUNTY: San Juan
DRILLING METHOD: HSA
DRILLING CONTR.: Western Technologies
DATE STARTED: 6/30/88 DATE COMPLETED: 6/30/88
FIELD REP.: W.S. Dubyk, P. Linley
COMMENTS: _____

LOCATION DESCRIPTION: _____

DEPTH	LITH.	REC	SAM	RUN #	RUN FROM	RUN TO	SAMPLE REC.	SAMPLE TYPE	USCS	VISUAL CLASSIFICATION
0									ML	0'-8' Fill - very fine grained silty clay, no odor, light brown 5 YR 6/4.
5									CH	8'-18' Clay - silty, minor rounded quartz grains; plastic, cohesive, carbonate, damp, no odor caliche in fracs. Water at 18' medium brown, 5 YR 4/4.
10										
15									GC	18'-23' Gravel - no sample return difficult drilling.
20	TD 22.94'									
25										
30										

BOREHOLE LOG (SOIL)



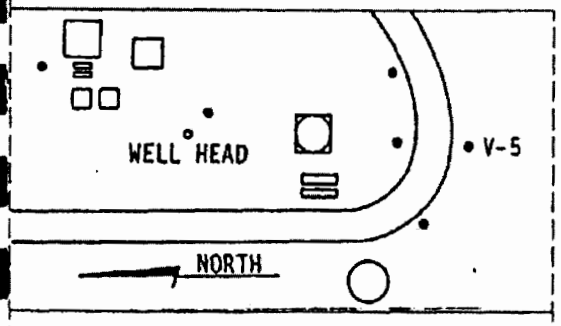
___1/4 ___1/4 ___1/4 ___1/4 S 24 T 29N R 11W

SITE ID: Valdez LOCATION ID: V-4
SITE COORDINATES (ft.): 2390 FNL, 2500 FEL
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
STATE: New Mexico COUNTY: San Juan
DRILLING METHOD: HSA
DRILLING CONTR.: Western Technologies
DATE STARTED: 7/1/88 DATE COMPLETED: 7/1/88
FIELD REP.: W.S. Dubyk, P. Linley
COMMENTS: Cored with continuous sampler

LOCATION DESCRIPTION: _____

DEPTH	LITH.	REC	SAH	RUN #	RUN FROM	RUN TO	SAMPLE REC.	SAMPLE TYPE	USCS	VISUAL CLASSIFICATION
0				1	2'	7'	100%			0'-7' Fill - Clayey sand, no odor.
									CH	7'-13' Clay - Dusky, yellowish brown 10 YR 2/2, laminated, damp, plastic. Hydrocarbon string at 11', odor noted.
5				2	7'	12'	100%			
									CH	13'-17.5' Clay - as above, grades downward into sandy clay, medium yellowish brown, 10 YR 5/4.
10				3	12'	14'	50%			17.5'-18' Sand - with minor gravel moderately yellowish
									GC	brown 10 YR 5/4 moderately sorted, fine to coarse grained. Core to 18'.
15				4	14'	18'	100%		GC	18' Gravel - no sample, difficult drilling.
20										
	T.D. 23'									
25										
30										

BOREHOLE LOG (SOIL)



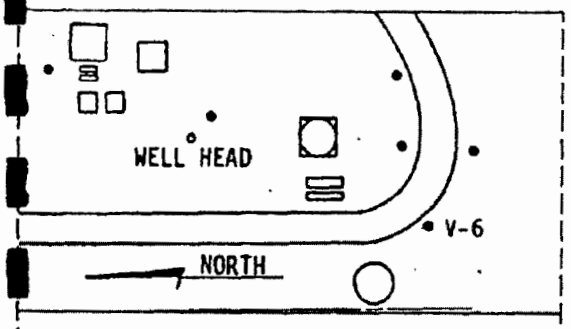
___1/4 ___1/4 ___1/4 ___1/4 S 24 T 29N R 11W

SITE ID: Valdez LOCATION ID: V-5
SITE COORDINATES (ft.): 2390 FNL, 2500 FEL
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
STATE: New Mexico COUNTY: San Juan
DRILLING METHOD: HSA
DRILLING CONTR.: Western Technologies
DATE STARTED: 6/30/88 DATE COMPLETED: 6/30/88
FIELD REP.: W.S. Dubyk, P. Linley
COMMENTS: _____

LOCATION DESCRIPTION: _____

DEPTH	LITH.	REC	SAM	RUN #	RUN FROM	RUN TO	SAMPLE REC.	SAMPLE TYPE	USCS	VISUAL CLASSIFICATION
0										0'-8' Fill - Silty clay, light brown 5 YR 5/6, no odor.
									CH	9'-13' Clay - Silty, laminated, dusky brown 5 YR 2/2 plastic, damp, no odor.
5										
									MH	13'-17.5' Silt - with clay and ~20% medium to coarse sand grains. Laminated, dusky brown 5 YR 2/2 damp, no odor, plastic.
10										
									GC	17'-23' Gravel - no sample return. H_2O at 17' noted at top of hole. Difficult drilling at 18'.
15										
20										
	T.D. 23'									
25										
30										

BOREHOLE LOG (SOIL)



___1/4 ___1/4 ___1/4 ___1/4 S 24 T 29N R 11W

SITE ID: Valdez LOCATION ID: V-6
SITE COORDINATES (ft.): 2390 FNL, 2500 FEL
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
STATE: New Mexico COUNTY: San Juan
DRILLING METHOD: HSA
DRILLING CONTR.: Western Technologies
DATE STARTED: 6/29/88 DATE COMPLETED: 6/30/88
FIELD REP.: W.S. Dubyk, P. Linley
COMMENTS: _____

LOCATION DESCRIPTION: _____

DEPTH	LITH.	REC	SAH	RUN #	RUN FROM	RUN TO	SAMPLE REC.	SAMPLE TYPE	USCS	VISUAL CLASSIFICATION
0										0'-9' FILL - Silty clay, pale brown 5 YR 5/2, very fine grained.
									CH	9'-17' Clay - Silty, carbonate, lined fracs. medium brown 5 YR 4/4, odor at 12'.
5										
									GC	17'-18' Gravel - cobbles, difficult drilling.
10										
									CH	18'-20' Clay - grayish brown 5 YR 3/2; odor noted; plastic, wet.
15										
									GC	20'-20.5' Cobbles - gravel, no sample return. Very difficult drilling (refusal).
20										
	TD 20.81'									
25										
30										

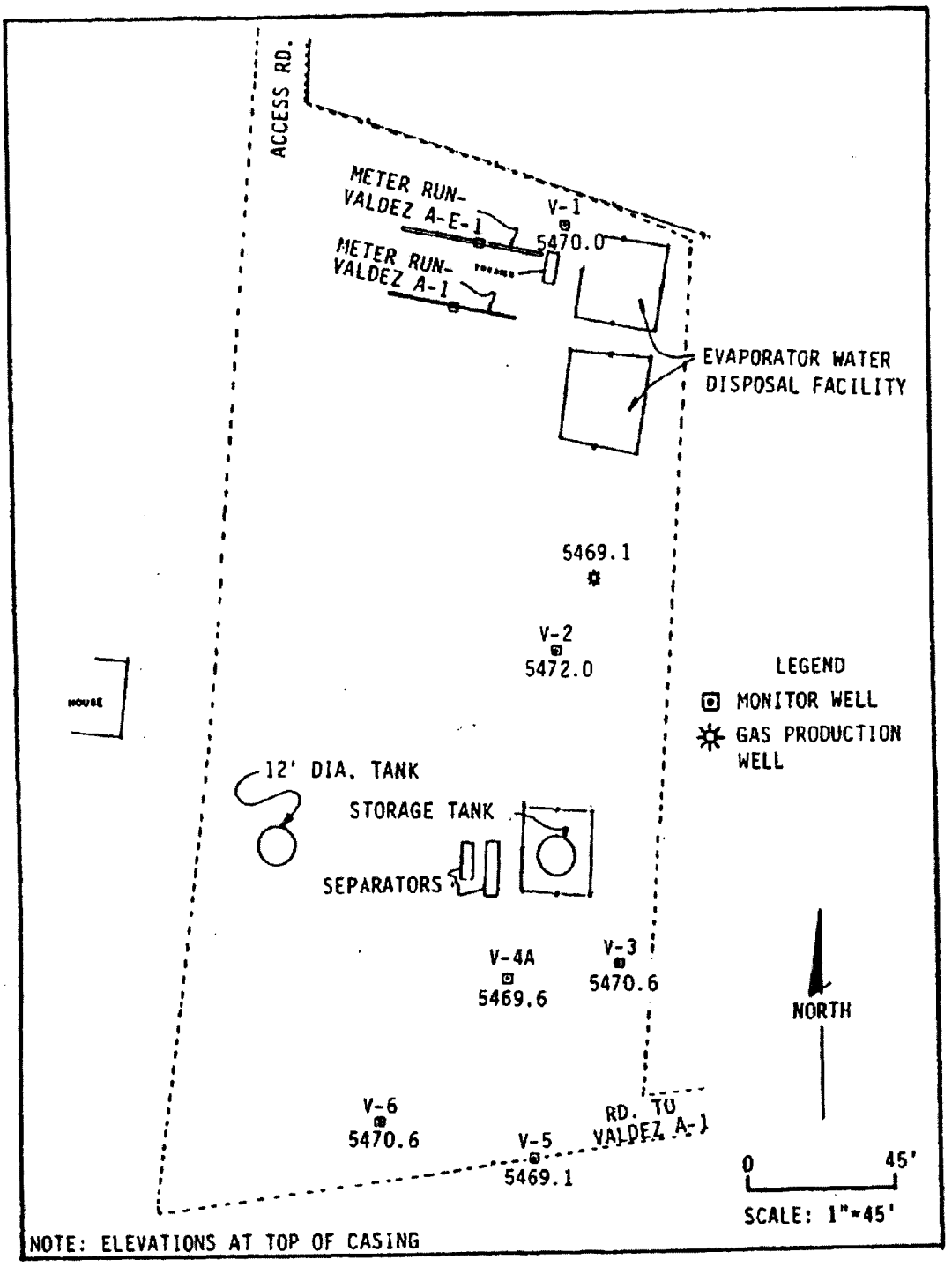


FIGURE 4-1

SITE MAP OF MONITOR WELL LOCATIONS AT VALDEZ A-1-E WELL SITE

Attachment 1

Tenneco Groundwater Contamination Letter from NMOCD June 6, 1988

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

Attachment 2

Amoco Request to Discontinue Groundwater Monitoring March 12, 1996

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

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

Attachment 3

2011 Analytical Laboratory Reports

ESC LAB SCIENCES
YOUR LAB OF CHOICE

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
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Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

James McDaniel
XTO Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

Report Summary

Tuesday March 15, 2011

Report Number: L505865
Samples Received: 03/11/11
Client Project:

Description: Valdeza 1E

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: Daphne R Richards
Daphne Richards , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002,NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,
TX - T104704245, OK-9915

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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REPORT OF ANALYSIS

James McDaniel
XTO Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

March 15, 2011

ESC Sample # : L505865-01

Date Received : March 11, 2011
Description : Valdeza 1E

Site ID : VALDEZA 1E

Sample ID : VALDEZ MW-7

Project # :

Collected By : Brooke Herb
Collection Date : 03/10/11 11:22

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.0070	0.0050	mg/l	8021B	03/12/11	10
Toluene	BDL	0.050	mg/l	8021B	03/12/11	10
Ethylbenzene	0.072	0.0050	mg/l	8021B	03/12/11	10
Total Xylene	0.26	0.015	mg/l	8021B	03/12/11	10
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021B	03/12/11	10

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 03/15/11 16:16 Printed: 03/15/11 16:16

Summary of Remarks For Samples Printed
03/15/11 at 16:16:20

TSR Signing Reports: 288
R5 - Desired TAT

drywt

Sample: L505865-01 Account: XTORNM Received: 03/11/11 08:30 Due Date: 03/18/11 00:00 RPT Date: 03/15/11 16:16

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XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L505865

March 15, 2011

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Benzene	< .0005	mg/l			WG525601	03/11/11 17:31
Ethylbenzene	< .0005	mg/l			WG525601	03/11/11 17:31
Toluene	< .005	mg/l			WG525601	03/11/11 17:31
Total Xylene	< .0015	mg/l			WG525601	03/11/11 17:31
a,a,a-Trifluorotoluene(PID)		% Rec.	96.83	55-122	WG525601	03/11/11 17:31

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Benzene	mg/l	.05	0.0497	99.4	79-114	WG525601
Ethylbenzene	mg/l	.05	0.0479	95.9	80-116	WG525601
Toluene	mg/l	.05	0.0477	95.3	79-112	WG525601
Total Xylene	mg/l	.15	0.143	95.2	84-118	WG525601
a,a,a-Trifluorotoluene(PID)				98.55	55-122	WG525601

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Benzene	mg/l	0.0489	0.0497	98.0	79-114	1.57	20	WG525601
Ethylbenzene	mg/l	0.0470	0.0479	94.0	80-116	2.05	20	WG525601
Toluene	mg/l	0.0471	0.0477	94.0	79-112	1.10	20	WG525601
Total Xylene	mg/l	0.140	0.143	94.0	84-118	1.80	20	WG525601
a,a,a-Trifluorotoluene(PID)				98.67	55-122			WG525601

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Benzene	mg/l	0.0533	0	.05	107.	35-147	L505845-06	WG525601
Ethylbenzene	mg/l	0.0518	0	.05	104.	39-141	L505845-06	WG525601
Toluene	mg/l	0.0501	0	.05	100.	35-148	L505845-06	WG525601
Total Xylene	mg/l	0.157	0	.15	105.	33-151	L505845-06	WG525601
a,a,a-Trifluorotoluene(PID)					98.83	55-122		WG525601

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Benzene	mg/l	0.0520	0.0533	104.	35-147	2.49	20	L505845-06	WG525601
Ethylbenzene	mg/l	0.0501	0.0518	100.	39-141	3.48	20	L505845-06	WG525601
Toluene	mg/l	0.0500	0.0501	100.	35-148	0.300	20	L505845-06	WG525601
Total Xylene	mg/l	0.151	0.157	101.	33-151	3.90	20	L505845-06	WG525601
a,a,a-Trifluorotoluene(PID)				99.71	55-122				WG525601

Batch number /Run number / Sample number cross reference

WG525601: R1611749: L505865-01

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L505865

March 15, 2011

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

* ONLY 1 COC PER : TEX *

C127

Chain of Custody
Page___of___

Company Name/Address **XTO Energy, Inc.** **382 County Road 3100** **Aztec, NM 87410**	Alternate Billing ~~XTORNM031810S~~ XTORNM081910S Report to: James McDaniel E-mail to: james_mcdaniel@xtoenergy.com
Project Description: (well Name) VALDEZ A #1E	City/State Collected: Bloomfield, NM
PHONE: 505-333-3701 FAX:	Client Project No. / Lab Project #
Collected by: Brooke Herb Collected by(signature): Packed on Ice N___ Y X	Site/Facility ID# (well Name) VALDEZA #1E P.O.#
Rush? (Lab MUST be Notified) _____Next Day.....100% _____Two Day.....50% _____Three Day.....25%	Date Results Needed Email?___No_X__Yes FAX?___No__Yes

Analysis/Container/Preservative: BTEX (8021)

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No Cntrs	Remarks/contaminant	Sample # (lab only)
VALDEZ MW-7	Grab	GW	N/A	3/10/11	11:22	3 X	Non Preserved	L 50586 5-01

CoCode (lab use only)
XTORNM
Template/Prelogin
Shipped Via: Fed Ex

Prepared by:
ENVIRONMENTAL Science corp
12065 Lebanon Road
Mt. Juliet TN 37122
Phone (615)758-5858
Phone (800) 767-5859
FAX (615)758-5859

*Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other_____

pH_____ Temp_____

Remarks:

Flow_____ Other_____

Relinquisher by:(Signature)	Date: 3/10/11	Time: 15:00	Received by:(Signature)	Samples returned via: FedEx_X_ UPS__Other__ 934198156095	Condition (lab use only)	COC SI 01C
Relinquisher by:(Signature	Date:	Time:	Received by: (Signature)	Temp: 2.7°	Bottles Received: 3V	
Relinquisher by:(Signature	Date:	Time:	Received for lab by: (Signature)	Date: 3/10/11	Time: 08:30	pH Checked: NCF:

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James McDaniel
XTO Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

Report Summary

Sunday June 19, 2011

Report Number: L521666
Samples Received: 06/17/11
Client Project:

Description: Valdez

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: Daphne R Richards
Daphne Richards , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002,NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,
TX - T104704245, OK-9915

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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REPORT OF ANALYSIS

James McDaniel
XTO Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

June 19, 2011

ESC Sample # : L521666-01

Site ID : VALDEZ

Project # :

Date Received : June 17, 2011
Description : Valdez

Sample ID : MW-7

Collected By : Julie Linn
Collection Date : 06/16/11 11:50

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.0047	0.00050	mg/l	8021B	06/19/11	1
Toluene	BDL	0.0050	mg/l	8021B	06/19/11	1
Ethylbenzene	0.011	0.00050	mg/l	8021B	06/19/11	1
Total Xylene	0.078	0.0015	mg/l	8021B	06/19/11	1
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021B	06/19/11	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 06/19/11 14:42 Printed: 06/19/11 14:42

Summary of Remarks For Samples Printed
06/19/11 at 14:42:23

TSR Signing Reports: 288
R5 - Desired TAT

Sample: L521666-01 Account: XTORNM Received: 06/17/11 09:00 Due Date: 06/24/11 00:00 RPT Date: 06/19/11 14:42
No Pres.

ESC
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Tax I.D. 62-0814289

Est. 1970

XTO Energy - San Juan Division
James McDaniel
382 County Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L521666

June 19, 2011

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Benzene	< .0005	mg/l			WG541255	06/18/11 20:29
Ethylbenzene	< .0005	mg/l			WG541255	06/18/11 20:29
Toluene	< .005	mg/l			WG541255	06/18/11 20:29
Total Xylene	< .0015	mg/l			WG541255	06/18/11 20:29
a,a,a-Trifluorotoluene(PID)		% Rec.	103.2	55-122	WG541255	06/18/11 20:29

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Benzene	mg/l	.05	0.0491	98.2	79-114	WG541255
Ethylbenzene	mg/l	.05	0.0479	95.8	80-116	WG541255
Toluene	mg/l	.05	0.0478	95.6	79-112	WG541255
Total Xylene	mg/l	.15	0.146	97.4	84-118	WG541255
a,a,a-Trifluorotoluene(PID)				102.6	55-122	WG541255

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Benzene	mg/l	0.0468	0.0491	94.0	79-114	4.79	20	WG541255
Ethylbenzene	mg/l	0.0456	0.0479	91.0	80-116	4.99	20	WG541255
Toluene	mg/l	0.0455	0.0478	91.0	79-112	5.02	20	WG541255
Total Xylene	mg/l	0.139	0.146	93.0	84-118	4.94	20	WG541255
a,a,a-Trifluorotoluene(PID)				102.8	55-122			WG541255

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Benzene	mg/l	0.0457	0	.05	91.5	35-147	L521510-01	WG541255
Ethylbenzene	mg/l	0.0436	0	.05	87.2	39-141	L521510-01	WG541255
Toluene	mg/l	0.0441	0	.05	88.1	35-148	L521510-01	WG541255
Total Xylene	mg/l	0.133	0	.15	88.8	33-151	L521510-01	WG541255
a,a,a-Trifluorotoluene(PID)					102.8	55-122		WG541255

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Benzene	mg/l	0.0444	0.0457	88.8	35-147	3.00	20	L521510-01	WG541255
Ethylbenzene	mg/l	0.0424	0.0436	84.7	39-141	2.86	20	L521510-01	WG541255
Toluene	mg/l	0.0431	0.0441	86.1	35-148	2.30	20	L521510-01	WG541255
Total Xylene	mg/l	0.130	0.133	86.6	33-151	2.45	20	L521510-01	WG541255
a,a,a-Trifluorotoluene(PID)				102.3	55-122				WG541255

Batch number /Run number / Sample number cross reference

WG541255: R1728870: L521666-01

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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XTO Energy - San Juan Division
James McDaniel
382 County Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L521666

June 19, 2011

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

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Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

Company Name/Address

XTO Energy, Inc.

382 County Road 3100
Aztec, NM 87410

Alternate Billing

XTORNM031810S

Report to: James McDaniel

E-mail to: james_mcdaniel@xtoenergy.com

Analysis/Container/Preservative

BTEX, 8021 (Not Preserved)

Chain of Custody
Page 1 of 1

Prepared by: A166

ENVIRONMENTAL Science corp
12065 Lebanon Road
Mt. Juliet TN 37122
Phone (615)758-5858
Phone (800) 767-5859
FAX (615)758-5859

Project Description: Valdez

City/State Collected: Bloomfield, NM

PHONE: 505-333-3701

FAX:

Client Project No.: ~~Valdez~~ 1

Lab Project #

Collected by: Julie Linn

Site/Facility ID#: Valdez

P.O.#

Collected by(signature):

Packed on Ice N__ Y X

Rush? (Lab MUST be Notified)
_____Next Day.....100%
_____Two Day.....50%
_____Three Day.....25%

Date Results Needed

Email?__No_X__Yes
FAX?___No___Yes

CoCode (lab use only)

XTORNM

Template/Prelogin

Shipped Via: Fed Ex

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No of Cntrs	Remarks/contaminant	Sample # (lab only)
MW-7	Grab	GW	N/A	6-16-11	1150	3		L 521666-01

*Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other_____

pH_____ Temp_____

Remarks: "ONLY 1 COC Per Site!!"

Flow_____ Other_____

Relinquisher by:(Signature)	Date:	Time:	Received by:(Signature)	Samples returned via: FedEx_X_ UPS__Other__		Condition (lab use only)
Julie Linn	6-16-11	1445				OK
Relinquisher by:(Signature	Date:	Time:	Received by: (Signature)	Temp: 3.1	Bottles Received: 3	
Relinquisher by:(Signature	Date:	Time:	Received for lab by: (Signature)	Date: 6/17/11	Time: 0900	pH Checked: NCF:

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Tax I.D. 62-0814289

Est. 1970

James McDaniel
XTO Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

Report Summary

Wednesday September 21, 2011

Report Number: L535944
Samples Received: 09/14/11
Client Project:

Description: Valdez A # 1 E

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: Daphne R Richards
Daphne Richards , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002,NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,
TX - T104704245, OK-9915

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Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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Est. 1970

REPORT OF ANALYSIS

James McDaniel
XTO Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

September 21, 2011

ESC Sample # : L535944-01

Site ID : VALDEZ A #1E

Project # :

Date Received : September 14, 2011
Description : Valdez A # 1 E

Sample ID : MW-7

Collected By : Sam LaRue
Collection Date : 09/13/11 14:03

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.013	0.0025	mg/l	8021B	09/20/11	5
Toluene	BDL	0.025	mg/l	8021B	09/20/11	5
Ethylbenzene	0.067	0.0025	mg/l	8021B	09/20/11	5
Total Xylene	0.89	0.0075	mg/l	8021B	09/20/11	5
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	99.9		% Rec.	8021B	09/20/11	5

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 09/21/11 10:33 Printed: 09/21/11 10:33

Summary of Remarks For Samples Printed
09/21/11 at 10:33:58

TSR Signing Reports: 288
R5 - Desired TAT

drywt

Sample: L535944-01 Account: XTORNM Received: 09/14/11 09:00 Due Date: 09/21/11 00:00 RPT Date: 09/21/11 10:33
Non Preserved

ESC LAB SCIENCES
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Mt. Juliet, TN 37122
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Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L535944

September 21, 2011

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Benzene	< .0005	mg/l			WG556159	09/20/11 13:51
Ethylbenzene	< .0005	mg/l			WG556159	09/20/11 13:51
Toluene	< .005	mg/l			WG556159	09/20/11 13:51
Total Xylene	< .0015	mg/l			WG556159	09/20/11 13:51
a,a,a-Trifluorotoluene(PID)		% Rec.	101.2	55-122	WG556159	09/20/11 13:51

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Benzene	mg/l	.05	0.0451	90.3	79-114	WG556159
Ethylbenzene	mg/l	.05	0.0508	102.	80-116	WG556159
Toluene	mg/l	.05	0.0503	101.	79-112	WG556159
Total Xylene	mg/l	.15	0.148	98.3	84-118	WG556159
a,a,a-Trifluorotoluene(PID)				100.6	55-122	WG556159

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Benzene	mg/l	0.0453	0.0451	91.0	79-114	0.500	20	WG556159
Ethylbenzene	mg/l	0.0505	0.0508	101.	80-116	0.740	20	WG556159
Toluene	mg/l	0.0506	0.0503	101.	79-112	0.560	20	WG556159
Total Xylene	mg/l	0.149	0.148	99.0	84-118	0.900	20	WG556159
a,a,a-Trifluorotoluene(PID)				101.3	55-122			WG556159

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Benzene	mg/l	0.0465	0	.05	92.9	35-147	L536219-04	WG556159
Ethylbenzene	mg/l	0.0527	0	.05	105.	39-141	L536219-04	WG556159
Toluene	mg/l	0.0521	0	.05	104.	35-148	L536219-04	WG556159
Total Xylene	mg/l	0.154	0	.15	102.	33-151	L536219-04	WG556159
a,a,a-Trifluorotoluene(PID)					99.97	55-122		WG556159

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Benzene	mg/l	0.0466	0.0465	93.2	35-147	0.270	20	L536219-04	WG556159
Ethylbenzene	mg/l	0.0518	0.0527	104.	39-141	1.71	20	L536219-04	WG556159
Toluene	mg/l	0.0521	0.0521	104.	35-148	0.0400	20	L536219-04	WG556159
Total Xylene	mg/l	0.152	0.154	101.	33-151	1.27	20	L536219-04	WG556159
a,a,a-Trifluorotoluene(PID)				99.86	55-122				WG556159

Batch number /Run number / Sample number cross reference

WG556159: R1866153: L535944-01

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L535944

September 21, 2011

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

Company Name/Address

XTO Energy, Inc.

382 County Road 3100
Aztec, NM 87410

Alternate Billing

XTORNM031810S

Report to: James McDaniel

E-mail to: james_mcdaniel@xtoenergy.com

Analysis/Container/Preservative

Chain of Custody
Page 1 of 1

Prepared by:

ENVIRONMENTAL
Science corp

12065 Lebanon Road

Mt. Juliet TN 37122

Phone (615)758-5858
Phone (800) 767-5859
FAX (615)758-5859

Project Description: Valdez A#1E

City/State Collected: Bloomfield, NM

PHONE: 505-333-3701

FAX:

Client Project No.

Lab Project #

Collected by: Sam LaRue

Site/Facility ID# VALDEZ A#1E

P.O.#

Collected by(signature):

Packed on Ice N___ Y X

Rush? (Lab MUST be Notified)
_____Next Day.....100%
_____Two Day.....50%
_____Three Day.....25%

Date Results Needed

Email?___No_X__Yes
FAX?___No___Yes

CoCode (lab use only)

XTORNM

Template/Prelogin **B070**

Shipped Via: Fed Ex

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No of Cntrs	BTEX (8021 B) NON-preserved	Remarks/contaminant	Sample # (lab only)
MW-1	Grab	GW	N/A	9/13/11	14:03	3	X	Non-preserved	L535944-01

*Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other_____

4341 981922 pH_____ Temp_____

Remarks: "ONLY 1 COC Per Site!!"

Flow_____ Other_____

Relinquisher by:(Signature)	Date:	Time:	Received by:(Signature)	Samples returned via: FedEx_X_ UPS__Other__	Condition (lab use only)
Relinquisher by:(Signature	Date:	Time:	Received by: (Signature)	Temp: 3.4°	Bottles Received: 3-V
Relinquisher by:(Signature	Date:	Time:	Received for lab by: (Signature)	Date: 9-14-11	Time: 09:00
	9/13/11	14:57			pH Checked: NCF:

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Est. 1970

James McDaniel
XTO Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

Report Summary

Wednesday December 21, 2011

Report Number: L551721
Samples Received: 12/15/11
Client Project:

Description: Valdez A 1E

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: Daphne R Richards

Daphne Richards , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002,NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,
TX - T104704245, OK-9915, PA - 68-02979

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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REPORT OF ANALYSIS

James McDaniel
XTO Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

December 21, 2011

ESC Sample # : L551721-01

Site ID : VALDEZ A1E

Project # :

Date Received : December 15, 2011
Description : Valdez A 1E

Sample ID : MW-7

Collected By : Devin Hencemann
Collection Date : 12/14/11 12:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.039	0.0050	mg/l	8021B	12/20/11	10
Toluene	BDL	0.050	mg/l	8021B	12/20/11	10
Ethylbenzene	0.35	0.0050	mg/l	8021B	12/20/11	10
Total Xylene	1.9	0.015	mg/l	8021B	12/20/11	10
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	100.		% Rec.	8021B	12/20/11	10

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 12/21/11 09:25 Printed: 12/21/11 09:25

Summary of Remarks For Samples Printed
12/21/11 at 09:25:30

TSR Signing Reports: 288
R5 - Desired TAT

Sample: L551721-01 Account: XTORNM Received: 12/15/11 09:00 Due Date: 12/22/11 00:00 RPT Date: 12/21/11 09:25

ESC LAB SCIENCES
YOUR LAB OF CHOICE

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1-800-767-5859
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Est. 1970

XTO Energy - San Juan Division
James McDaniel
382 County Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L551721

December 21, 2011

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Benzene	< .0005	mg/l			WG570890	12/20/11 16:29
Ethylbenzene	< .0005	mg/l			WG570890	12/20/11 16:29
Toluene	< .005	mg/l			WG570890	12/20/11 16:29
Total Xylene	< .0015	mg/l			WG570890	12/20/11 16:29
a,a,a-Trifluorotoluene(PID)		% Rec.	101.5	55-122	WG570890	12/20/11 16:29

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Benzene	mg/l	.05	0.0460	92.0	79-114	WG570890
Ethylbenzene	mg/l	.05	0.0500	100.	80-116	WG570890
Toluene	mg/l	.05	0.0482	96.4	79-112	WG570890
Total Xylene	mg/l	.15	0.147	98.0	84-118	WG570890
a,a,a-Trifluorotoluene(PID)				97.61	55-122	WG570890

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Benzene	mg/l	0.0473	0.0460	94.0	79-114	2.82	20	WG570890
Ethylbenzene	mg/l	0.0504	0.0500	101.	80-116	0.630	20	WG570890
Toluene	mg/l	0.0486	0.0482	97.0	79-112	0.790	20	WG570890
Total Xylene	mg/l	0.148	0.147	98.0	84-118	0.570	20	WG570890
a,a,a-Trifluorotoluene(PID)				98.33	55-122			WG570890

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Benzene	mg/l	0.0468	0	.05	93.7	35-147	L551808-13	WG570890
Ethylbenzene	mg/l	0.0526	0	.05	105.	39-141	L551808-13	WG570890
Toluene	mg/l	0.0509	0.000310	.05	101.	35-148	L551808-13	WG570890
Total Xylene	mg/l	0.156	0	.15	104.	33-151	L551808-13	WG570890
a,a,a-Trifluorotoluene(PID)					99.34	55-122		WG570890

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Benzene	mg/l	0.0482	0.0468	96.4	35-147	2.86	20	L551808-13	WG570890
Ethylbenzene	mg/l	0.0523	0.0526	104.	39-141	0.560	20	L551808-13	WG570890
Toluene	mg/l	0.0504	0.0509	100.	35-148	0.980	20	L551808-13	WG570890
Total Xylene	mg/l	0.154	0.156	102.	33-151	1.67	20	L551808-13	WG570890
a,a,a-Trifluorotoluene(PID)				99.43	55-122				WG570890

Batch number /Run number / Sample number cross reference

WG570890: R1974232: L551721-01

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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XTO Energy - San Juan Division
James McDaniel
382 County Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L551721

December 21, 2011

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

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Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

Company Name/Address

XTO Energy, Inc.

382 County Road 3100
Aztec, NM 87410

Alternate Billing

XTORNM031810S

Report to: James McDaniel

E-mail to: james_mcdaniel@xtoenergy.com

Analysis/Container/Preservative

BTEX 8021

Chain of Custody
Page 1 of 1

Prepared by:

ENVIRONMENTAL
Science corp

12065 Lebanon Road

Mt. Juliet TN 37122

Phone (615)758-5858
Phone (800) 767-5859
FAX (615)758-5859

Project Description: Valdez A # 1E

City/State Collected: Bloomfield, NM

PHONE: 505-333-3701

FAX:

Client Project No.

Lab Project #

Collected by: Devin Hermann

Site/Facility ID# Valdez A # 1E

P.O.#

Collected by(signature):

Packed on Ice N__ Y X

Rush? (Lab MUST be Notified)
_____Next Day.....100%
_____Two Day.....50%
_____Three Day.....25%

Date Results Needed

Email?__No_X__Yes
FAX?___No___Yes

CoCode (lab use only)

XTORNM

Template/Prelogin

Shipped Via: Fed Ex

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No of Cntrs	Remarks/contaminant	Sample # (lab only)
MW-7	Grab	GW	N4	12/14/11	1200	3		L551721-01

*Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other_____

pH_____ Temp_____

Remarks: "ONLY 1 COC Per Site!!"

4341 4819 2120

Flow_____ Other_____

Relinquisher by:(Signature	Date:	Time:	Received by:(Signature)	Samples returned via: FedEx_X_ UPS__Other__	Condition (lab use only)
	12/14/11	1500			OK
Relinquisher by:(Signature	Date:	Time:	Received by: (Signature)	Temp: 2.8c / Bottles Received: 3v	
Relinquisher by:(Signature	Date:	Time:	Received for lab by: (Signature)	Date: 12/15/11 / Time: 0900	pH Checked: NCF:

Attachment 4

2011 Field Notes

SAMPLING PURGE LOG

Project Name: XTO GW Monitoring
Client: XTO Energy
Project Manager: Julie Linn
Location: Valdez
Date: 3/10/2011
Sampler's Name: Brooke Herb
Well No: MW-7
Time: 10:45

Measuring Point: TOC
Well Diameter: 2"
Depth to Water: 14.81 ft
Total Depth: 19.15 ft
Water Column Height: 4.34 ft
Depth to Product: NA ft
Product Thickness: NA ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☐ Other

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	4.34	0.707854	2.12

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
10:50	6.96	2.63	13.6				0.25	Gray, HC odor, minor sheen
10:54	7.26	2.50	13.2				0.35	darker gray, stronger odor, slight sheen
10:56	7.21	2.57	13.3				0.5	bailing down
10:57	7.18	2.61	13.0				0.6	dark gray, HC Odor, sheen
10:58	7.23	2.69	13.1				0.75	no change
11:00	7.25	2.65	13.1				0.9	no change
11:01	7.25	2.75	13.0				1.00	no change
11:03	7.17	2.76	13.1				1.25	no change
11:04	7.22	2.84	12.9				1.4	no change
11:05	6.97	2.79	12.9				1.5	no change
11:07	7.05	2.94	13.1				1.75	no change
11:08	7.06	2.90	13.0				2.00	no change
11:09	7.08	2.96	13.1				2.25	no change
11:11	7.06	2.94	13.1				2.4	no change
Final:	7.06	2.94	13.1				2.4	

COMMENTS: 3/4/11: ORC socks removed; Dissolved Oxygen 0.26 mg/l
3/10/11: ORC socks replaced after sampling

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: On site sump

Sample ID: Valdez MW-7 Sample Time: 11:22

Analysis Requested: ☑ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other

Trip Blank: No Duplicate Sample: No

SAMPLING PURGE LOG

Project Name: XTO Groundwater | Location: Valdez A#1E | Well No: MW-7
Client: XTO Energy, Inc. | Date: 6/16/2011 | Time: 11:32
Project Manager: Julie Linn | Sampler's Name: J. Linn

Measuring Point: TOC | Depth to Water: 14.1 ft | Depth to Product: NA ft
Well Diameter: 2" | Total Depth: 19.21 ft | Product Thickness: NA ft
Water Column Height: 5.11 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☐ Other

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	5.11	0.833441	2.50

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
11:37	7.53	2.95	14.0				0.25	Clear, no odor, no sheen
11:38	7.55	2.96	12.8				0.5	Minor grey turbidity
11:39	7.58	2.98	12.6				0.75	Dark grey, HC odor, incr. turbid.
11:40	7.48	3.05	12.6				1	No change
11:44	7.44	3.13	12.7				2	No change
11:45	7.47	3.10	12.7				2.25	No change
11:46	7.38	3.17	12.5				2.5	No change
11:47	7.42	3.14	12.5				2.75	No change
Final:	7.42	3.14	12.5				2.75	

COMMENTS: 9 ORC socks removed on 6/9/11 and discarded. Dissolved oxygen 2.21 mg/l at 13:59 on 6/9/11.
9 new ORC socks replaced in well on 6/16/11 at 12:10.

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: on site sump

Sample ID: MW-7 | Sample Time: 11:50

Analysis Requested: ☑ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other

Trip Blank: No | Duplicate Sample: No

SAMPLING PURGE LOG

Project Name:	XTO Groundwater Monitoring	Location:	Valdez	Well No:	MW-7
Client:	XTO	Date:	9/13/2011	Time:	13:20
Project Manager:	Julie Linn	Sampler's Name:	Sam LaRue		

Measuring Point:	TOC	Depth to Water:	13.21	ft	Depth to Product:	NA	ft
Well Diameter:	2"	Total Depth:	19.14	ft	Product Thickness:	NA	ft
		Water Column Height:	5.93	ft			

Sampling Method: [ ] Submersible Pump [ ] Centrifugal Pump [ ] Peristaltic Pump
[X] Bottom Valve Bailer [ ] Double Check Valve Bailer [ ] Other _____

Criteria: [X] 3 to 5 Casing Volumes of Water Removed [ ] Other _____
[X] Stabilization of Indicator Parameters

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	5.93	0.967183	2.90

Time (Military)	Vol. Evac. (gallons)	pH (standard units)	Conductivity (millisiemens)	Temperature (°C)	Comments/Flow Rate
13:31	0.25	9.54	2.01	16.7	Clear, no odor
13:33	0.5	9.08	2.16	15.8	clear, slightly silty
13:36	0.75	7.59	2.57	15.2	yellow/clear with sheen, HC odor
13:38	1	7.24	2.70	15.2	No Change
13:40	1.25	7.54	2.61	15.2	No Change
13:42	1.5	7.28	2.72	15.3	clear to slight yellow w/ sheen, strong HC Odor
13:45	1.75	7.08	2.77	15.2	No Change
13:46	2	7.23	2.72	15.2	No Change
13:48	2.25	7.12	2.82	15.1	No Change
13:51	2.5	7.09	2.84	15.1	clear w/ sheen, strong HC odor
13:52	2.75	7.09	2.81	15.3	No Change
13:56	3	7.06	2.85	15.2	No Change
13:58	3.25	7.09	2.85	15.2	No Change
Final:	**3.25**	**7.09**	**2.85**	**15.2**	

COMMENTS: Depth to Water in feet below top of casing in other MWs on site:
MW-1: 11.66 MW-3: 12.20 MW-6: 8.79

Instrumentation: [X] pH Meter [X] Conductivity Meter [ ] DO Meter [X] Temperature Meter
[ ] Other _____

Water Disposal: On site sump

Sample ID: MW-7 Sample Time: 14:03

Analysis Requested: [X] BTEX [ ] VOCs [ ] TDS [ ] Chloride [ ] Cations [ ] Anions [ ] Alkalinity
[ ] Metals [ ] Nitrate [ ] Nitrite [ ] Sulfate [ ] Other _____

Trip Blank: No Duplicate Sample: No Duplicate Sample ID: _____

SAMPLING PURGE LOG

Project Name: XTO Groundwater
Client: XTO Energy, Inc.
Project Manager: Julie Linn

Location: Valdez
Date: 12/14/2011
Sampler's Name: Devin Hencmann

Well No: MW-7
Time: 11:00

Measuring Point: TOC
Well Diameter: 2"

Depth to Water: 13.68 ft
Total Depth: 19.23 ft
Water Column Height: 5.55 ft

Depth to Product: NA ft
Product Thickness: NA ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☐ Other

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	5.55	0.905205	2.72

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
11:15	9.68	2.42	13.7				0.25	clear, very slight odor
	8.01	2.85	14.0				0.50	darker in color, slight odor
	8.50	2.74	14.1				0.75	dark cloudy, slight odor, sheen
	7.74	2.90	14.0				1.00	no change
	7.73	2.91	13.9				1.25	black cloudy, strong odor, sheen
	7.83	2.88	13.8				1.5	no change
	7.63	2.92	13.8				1.75	no change
	7.71	2.88	13.8				2.00	no change
	7.79	2.90	13.7				2.25	no change
	7.74	2.88	13.8				2.50	dark cloudy, strong odor, sheen
	7.71	2.92	13.8				2.75	no change
	7.70	2.92	13.8				3.00	no change
Final: 11:55	7.70	2.92	13.9				3.25	dark cloudy, strong odor, sheen

COMMENTS:

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: on site sump

Sample ID: MW-7 Sample Time: 12:00

Analysis Requested: ☑ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other

Trip Blank: No Duplicate Sample: No