386 3R -

# ANNUAL MONITORING REPORT

# 03/07/2008



March 7, 2008

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 submitting the Annual Groundwater Remediation Reports in accordance with the NMOCD approved Groundwater Management Plan (GMP). Enclosed are summary reports with analytical data, summary tables, site maps, potentiometric surface diagrams and recommendations/proposed actions for:

- Bruington Gas Com #1- 3RP106
- Carson Gas Com #1E
- EJ Johnson C #1E- 3RP385
- Federal Gas Com #H1 3R (10
- Frost, Jack B #2
- McCoy GC D #1E

- OH Randel #7- 3RP386
- PO Pipken #3E 3 เงิ 409
- Rowland Gas Com #1- 3RP124
- Snyder Gas Com #1A- 3RP126
- Sullivan Gas Com D #1- 3RP131
- Valdez A #1E- 3RP134

We have also enclosed an Annual Report for ten sites that meet the closure requirements outlined in the GMP. XTO respectfully requests closure of:

- Baca Gas Com A #1A- 3RP104
- Garcia Gas Com B #1- 3RP111
- Haney Gas Com B #1E- 3RP113
- Hare Gas Com B #1
- Hare Gas Com B #1E- 3RP384
- Hare Gas Com I #1
- Masden Gas Com #1E- 3RP120
- McDaniel Gas Com B #1E- 3RP121
- Stedje Gas Com #1- 3RP128
- Sullivan Frame A #1E- 3RP130

In previously submitted reports five sites met the closure requirements outlined in the GMP and XTO requested closure on those sites in 2006 and 2007. The reports for the below listed sites are being submitted again for your review.

• Abrams J #1- 3RP100

- Romero Gas Com A #1- 3RP123
- Armenta Gas Com C #1E- 3RP394
- Bergin Gas Com #1E- 3RP105
- State Gas Com BS #1- 3RP127

Thank you for your review of the reports. XTO looks forward to hearing from you regarding closure requests and proposed remediation actions. If you have any questions please do not hesitate to contact me at (505) 333-3100.

Respectfully,

sa

Lisa Winn EH & S Manager San Juan Division

CC:

Mr. Brandon Powell, Environmental, NMOCD District III Office, Aztec, NM Mr. Martin Nee, Lodestar Services Inc. File- San Juan Groundwater

# 3R336

# **XTO ENERGY INC.**

# ANNUAL GROUNDWATER REPORT

# 2007

# O.H. RANDEL #7 (D) SECTION 15 – T26N – R11W, NMPM SAN JUAN COUNTY, NEW MEXICO

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

January 2008

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# 2007 XTO GROUNDWATER REPORT

# **OH RANDEL #7**

### SITE DETAILS

LEGALS - TWN: 26N **RNG:** 11W NMOCD HAZARD RANKING: 20

**SEC:** 15 LAND TYPE: NAVAJO UNIT: D

# **PREVIOUS ACTIVITIES**

Soil Boring: Mar/Apr-02 Quarterly Sampling Initiated: Apr-02 Additional Monitoring Wells: May-07 Quarterly Sampling Re-initiated: May-07 Monitoring Wells: Mar/Apr-02 Excavation: Dec-06 (9,000cv)

#### SITE MAP

A site map is presented as Figure 1.

#### SUMMARY TABLES

A summary of laboratory results from historical and current groundwater monitoring is presented as Table 1. Copies of the laboratory data sheets and associated quality assurance/quality control data for 2007 are presented as Attachment 1.

# POTENTIOMETRIC SURFACE DIAGRAMS

Field data collected during site monitoring activities indicate the groundwater surface is relatively flat trending primarily toward the southwest. Groundwater at this site may be influenced by irrigation of a field adjacent to the location. Additionally, it is possible the groundwater at this site is a shallow water table created by irrigation water from this field. In March 2007 the groundwater flow rate increased slightly exhibiting a more easterly flow which was attributed to the seasonal irrigation of the adjacent field. Figures 2 - 5illustrate the estimated groundwater gradients for 2007.

# ANNUAL GROUNDWATER REMEDIATION REPORTS

The 2005 annual groundwater report was submitted to New Mexico Oil Conservation Division (NMOCD) in January 2006, proposing excavation of soil impacted by the former separator pit upon approval by Navajo Nation EPA (NNEPA).

The 2006 annual groundwater report was submitted to NMOCD in February 2007. proposing installation of additional groundwater monitoring wells to the north and east of the former source area and continued guarterly sampling.

## 2007 ACTIVITIES

Groundwater samples collected from monitoring wells MW-3, MW-4, and MW-5, showed no detectable levels or trace levels of benzene, toluene, ethyl benzene or total xylenes (BTEX) constituents. Monitoring wells MW-7 and MW-8 were installed north and east of the former source area in May 2007. Laboratory results from MW-7 reveal elevated levels of BTEX and MW-8 shows slightly elevated levels of benzene.

#### **GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS**

Bore/Test Hole Reports are presented as Figures 6 - 15 representing drilling that occurred on site in March and April 2002 and again in May 2007.

S:XTO ENVIRONMENTAL\San Juan Groundwater\Annual Reports\Jan 08 Submittals\Reports\OH Randel #7\OH RANDEL 7 GW Report.doc







# 2007 XTO GROUNDWATER REPORT

### **DISPOSITION OF GENERATED WASTES**

Waste generated (groundwater) during monitoring well sampling and development was placed in the produced water tank located on the well site. Hydrocarbon impacted soils excavated in November 2006 were transported to the Envirotech Landfarm outside Bloomfield, NM for treatment.

#### **CONCLUSIONS**

January 1998 XTO Energy Inc. (XTO) acquired the OH Randel #7 from Amoco Production Company. In March 2002 hydrocarbon impact to soil and groundwater was discovered from a historical earthen separator pit (Attachment 2). Groundwater monitoring wells were installed near the abandoned pit, upgradient of the pit and crossand downgradient of the former pit.

Phase separated hydrocarbons (PSH) were observed in monitoring wells MW-1, MW-2 and MW-6. A total of approximately 22 gallons of product had been recovered from bailing the PSH as of January 2006. XTO submitted a remediation work plan to the Navajo Nation EPA in August 2006 (Attachment 3) and received approval in October 2006. The first phase of the work plan was excavation and backfilling with clean soil, which was completed in November 2006 (Attachment 4). Approximately 9,000 cubic yards of hydrocarbon impacted soil was removed and transported to a NMOCD approved landfarm. No product was observed prior to the November 2006 excavation work. The US EPA Region 9 and NNEPA approved the closure of the excavation as described in the report.

Following the excavation work, groundwater from monitoring wells MW-3, MW-4, and MW-5 showed no detectable levels or trace concentrations of dissolved hydrocarbons. Monitoring wells numbered MW-7 and MW-8 were installed to the north and the east of the former pit in May 2007. It appears that groundwater impact throughout the excavated area has been adequately delineated with the exception of the far northwest edge (MW-7). XTO proposes to evaluate other potential sources of groundwater impacts in this area and screen appropriate remediation methods for MW-7. Groundwater samples will be collected semi-annually until samples indicate BTEX constituents are below the New Mexico Water Quality Control Commission (NMWQCC) standards. XTO requests closure of monitoring wells MW-3, MW-4 and MW-5 in accordance with NMOCD approved Groundwater Management Plan.

#### **RECOMMENDATIONS**

- Continue evaluation of site and semi annual sampling of MW-7 & MW-8.
- Closure of MW-3, MW-4, & MW-5.
- Following OCD, NNEPA and USEPA approval for closure, all monitoring well locations will be abandoned in accordance with the monitoring well abandonment plan.

# TABLE 1

# **XTO ENERGY INC. GROUNDWATER LAB RESULTS**

O.H. RANDEL #7- SEP. PIT UNIT D, SEC. 15, T26N, R11W

Sample	Monitor	DTW	TD	Product	Benzene	Toluene	Ethyl Benzene	Total Xylene
Date	Well No.	(ft)	(ft)	(ft)	ug/L	ug/L	ua/L	ug/L
00 0 00	NA) A/ #0	40.00	22.50		NIA	NIA	<u>-</u> ,	NIA
22-Apr-02		16.20	22.50		NA			200
24-Apr-02		16.25			24	2.4 ND	0.00	200
27-Aug-02		15.28			9.4			150
08-Oct-02		14./4			NA	NA	NA	NA
03-Mar-03		15.17			5.5	ND	ND	43
18-Jun-03		15.16			6.1	0.97	ND	43
29-Aug-03		15.39			3.2	0.53	ND	24
05-Dec-06		13.85	23.85		ND	ND	ND	ND
08-Mar-07		13.40	23.40		ND	ND	ND	3.8
17-May-07					ND	ND	ND	ND
09-Aug-07		12.37	23.40		ND	ND	ND	ND
27-Nov-07		12.70	23.40		ND	ND	ND	ND
22-Apr-02	MW #4	16.63	23.50		NA	NA	NA	NA
24-Apr-02		16.66			ND	0.59	ND	2.1
27-Aug-02		16.47			1.3	ND	ND	3.5
08-Oct-02		16.03			NA	NA	NA	NA
03-Mar-03		15.94			4.2	ND	ND	5
18-Jun-03		16.03			62	ND	ND	4.5
29-Aug-03		16 29			8.3	ND	ND	4.3
05-Dec-06		13 75	22 44		ND	ND	ND	ND
08-Mar-07		12 55	22 44		ND	ND		ND
17_May_07		12.00	66.77		ND	ND	ND	ND
09-Aug-07		12 59	22 44		ND	ND	ND	ND
27-Nov-07		12.65	22.44		ND	ND	ND	ND
27 1101 07		12.00						
22-Apr-02	MW/#5	19 11	25.00		NA	NA	NA	NA
24-Apr-02		19 14	20.00		510	0.64	8.9	240
08-Oct-02		19 10			NA	NA	NA	NA
18-Jun-03		18.86			1 100	20		000
21-Jun-04		19.64			2 000	ND		260
28- Jun-05		17 30			1 100	15		160
05-Dec-06		18.65	26.14		37	ND		4 1
08-Mar-07		18 15	26.14					
17_May_07		10.15	20.14		ND			
27-Nov-07		18.63	26.14		3.0	1.0		
27-1100-07		10.00	20.14		0.0	1.0		
	NANA / //-	╞──			0.500	47000		
17-May-07	MVV #7				8500	1/000	980	16000
09-Aug-07		14.72	32.07	ļ	9800	11000	//0	12000
27-Nov-07		1 <u>14.91</u>	32.07		12000	9000	940	13000
		<u> </u>						
17-May-07	MW #8				ND	1.9	ND	3.7
09-Aug-07		18.94	32.45		ND	ND	ND	ND
27-Nov-07		19.20	32.45		21	ND	ND	ND
		·						
NMWQCC	GROUNDW	ATER	STAND	ARDS	10	750	750	620













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							DLA	G	9 0	PO	) BO	X	87	1140	Ο,	11	VV	•						
								В	LOC	DMF	IELD,	N	M 81	7413	5									
										(505	) 632-	-11	99											
	B	C	RE	/ -	TE	3	ST	ŀ		C	E		R	E	P	2	DF	21	Γ	BOI MW PAG	RING # / # GE #		BH - 2 2 2	2
	( L		NT: ATION NA	ME:		XTC RAN	DENER	<u>RGY I</u> О.Н.	<u>INC.</u> #7 -	SEP	PIT, U	JNI	IT D,	SEC	. 15	5, T2	26N,	R11	W	DA	TE START	ED	4/09/02	2
	C	CON	TRACTO	R:	<b>.</b>	BLA			IEER	ING,	INC.	PO								DA	TE FINISH	IED	4/09/02	2
A STATE	E	BOR	ING LOCA	ATIO	). N:	274	FT., S	87.5	E FE	ETF	ROM	NE	ELL H	, IEAD.						PRI	EPARED I	ЗY	NJV	
and the second second	DEPTH FEET	INTERVAL	LITHOLOGY INTERVAL	r i schi	MW EMATIC	F			LAS	SSI RFACE	FICA		ION		١D	R	EN	IAR	RKS	5				
							TOP	OF CA	SING A	APPRO	X. 1.63 F	T. Al	BOVE	GROU	ND S	SURF	ACE.							
	2																							
	4 -						MODERATE	TO DAR	RK YELL	OWISH E	ROWN SAN	ND, NC	ON COH	IESIVE, SI	LIGHTI	LY MO	DIST, LO	OSE TO	FIRM, N	NO APPA	RENT HC			
	6 -						ODOR DETE	ECTED P	PHYSICA	ALLY WIT	HIN AUGER	CUTI	TINGS (I	0.0 - 10.0	FT. BE	ELOW (	grade)	).						
	8																							
	10 -																							
	12 -						LIGHT TO M		GRAY SI	II TY SAN		HESI		TO SUG	SHTI YI	MOIST	T DENS	e stro	NG HC	ODOR F	FTECTED			
	12			TOS	12.97		PHYSICALL	Y WITHI	N AUGEI	R CUTTI	IG (10.0 - 15	5.0 FT	T. BELOV	N GRADE	Ξ).	WOOT	1, DENO	L, UINO		ODOILE				
	14																							
	16					T	GW DE	PTH O	N 4/22	/02 = 1	6.69 FT. (	(APP	PROX.	) FROM	I GRO	OUNE	D SUR	FACE.						
	18-						LIGHT MEDIUI WITHIN CUTTI	M GRAY S INGS (15.	SILTY CLA' .0 - 21.0 F	Y TO CLA T. BELOW	, MEDIUM PL Grade).	ASTIC	C, STIFF, S	SLIGHTLY	MOIST,	, appar	RENT HC	ODOR DE	ETECTE	D PHYSIC	ALLY			
	20			TD																				
	22 -			ID	22.97		LIGHT DUSKY (21.0 - 24.0 FT	BROWN S	SILTY CLA GRADE).	AY TO CLA	Y, MEDIUM PI	LASTIC	IC, STIFF,	DRY, SLIG	GHT APP	PARENT	T HC OD	OR DETEC	CTED PH	IYSICALL	Y WITHIN CUTTING	GS		
	24 -					-																		
	26						NOTE:	[est	জ্ঞা	- SAM	ID.													
	28									- SIL	TY SANE	D (H	IC IMP		D).									
	30 -									- SIL	TY CLAY	то	CLA	Y.										
	32 -							т	TOS	- TOF	OF SCR	REEN	N FRO	M GRO		SUR	FACE							
	31							T	TD GW	- TOT - GRO	AL DEPT	TH O	of Moi R.	NITOR	WELL	LFRO	om gf	ROUNE	O SUR	RFACE.				
	26							Mon	nitor we	ell con	sist of 2 i	inch	PVC	pipina -	- casi	ing fr	rom 1.	.63 ft. a	above	e grade	e to 12.97 ft	belov	v grade.	
	00					1		0.01 grad	0 slott de, the	ted scr n filled	een betw with clea	veen an n	n 12.9 native s	7 to 22. soil to s	.97 fe	eet be	elow g	grade,	sand	packe	d annular to	10 ft.	below	
	38 -																							
	40													DRAV	WING:	RA	NDEL-	7-MW2	.SKF	DATE	E: 10/19/05	DV	WN BY: N.	JV









Figure 12

# **RECORD OF SUBSURFACE EXPLORATION**

LodeStar Services
P.O. Box 4465
Durango, CO 81302
303-917-6288

	Borehole #:	1	
	Well #:	MW-7	
	Page:	1 of 2	
Project Number:			
Project Name:	<b>XTO Ground Water</b>	•	
Drainat Lagation	OH Dandal #7		

Project Location: OH Randel #7

Borehole Location:	<u>36° 29.508' N, 107° 5</u> 9.720' W
GWL Depth:	19'
Drilled By:	Enviro-Drill
Well Logged By:	Ashley Ager
Date Started:	05/01/07
Date Completed:	05/01/07

## Drilling Method: Hollow Stem Auger Air Monitoring Method: PID

Depth (feet)	Sample	Sample	Sample Type & Recovery (inches)	Sample Description	Air	Drilling Conditions
(.001)			(		g	
	1	0-5'	cuttings	brown, unconsolidated, poorly sorted sand and gravel, damp	0	Easy
5 	2	5-7'	split spoon	brown, unconsolidated, poorly sorted sand and gravel, damp	0	Easy
10 10	3	10-12	split spoon	10-10.5: brown, unconsolidated, poorly sorted sand and gravel, damp 10.5-12: whitish-brown medium sand, well sorted, unconsolidated, dry	0 0	Easy
15  	4	15-17	split spoon	15-15.5: reddish brown coarse sand, poorly sorted, damp 15.5-16.5: brown clay with white chalkish material on top 16.5-17: reddish brown silty sand, coarse, poorly sorted, damp	7.2 0 0	Easy

Comments:

Geologist Signature: Ashley L. Ager





# **RECORD OF SUBSURFACE EXPLORATION**

		Borehole #:	1
LodeStar Services		Well #:	MW-7
P.O. Box 4465		Page:	2 of 2
Durango, CO 81302	Project Number:		
303-917-6288	Project Name:	XTO Ground Wa	iter
	Project Location:	OH Randel #7	
Developed a location (200 00 500) NL 1079 50 7261 M			

 Borehole Location:
 36° 29.522' N, 107° 59.736' W

 GWL Depth:
 16.5

 Drilled By:
 Enviro-Drill

 Well Logged By:
 Ashley Ager

 Date Started:
 05/01/07

 Date Completed:
 05/01/07

Drilling Method:	Hollow Stem Auger
Air Monitoring Method:	PID

Depth (feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description	Air Monitoring	Drilling Conditions
20	5	20-22	split spoon	20-20.4: reddish brown, coarse sand, poorly sorted, damp 20.4-20.8: gray coarse sand, moist, poorly sorted 20.8-21: saturated gray coarse sand, poorly sorted 21-22: reddish gray clay	1.3 1.0 0.5	Easy
	6	25-16	split spoon	Variegated reddish brown clay, dry	0	Easy
30 	7	30-32	split spoon	Variegated reddish brown clay, dry	0	Easy

Comments:

Very thin saturated layer at approximately 20'. Stiff clay is present below that. Wet layer probably represents a small perched aquifer atop the clay.

Geologist Signature: Ashley L. Ager



## Figure 13 MONITORING WELL INSTALLATION RECORD Lodestar Services, Inc

PO Box 3861 Farmington, New Mexico 87499 (505) 334-2791

Borehole #	1	
Well #	MW-	7
Page 1	of	1

Project Name	XTO Ground Water	
Project Number	Cost Code	
Project Location	OH Randel #7	
On-Site Geologist	Ashley Ager	
On-Site Geologist Personnel On-Site	Ashley Ager	
On-Site Geologist Personnel On-Site Contractors On-Site	Ashley Ager Jeff Cathron and assistant	

Elevation	6320
Well Location	36° 29.508' N, 107° 59.720' W
GWL Depth	20'
Installed By	Enviro-Drill
-	

 Date/Time Started
 05/01/07, 1133

 Date/Time Completed
 05/01/07, 1230

Depths in Reference	to Ground Surface					
Item	Material	Depth (feet)	F		Top of Protective Casing	<u>3.0</u>
Top of Protective Casing	Steel	3			Top of Riser	2.8
Bottom of Protective Casing		-2		a de	Ground Surface	<u>0</u>
Top of Permanent Borehole Casing		NA	1	terreterik Leventerik Latat		
Bottom of Permanent Borehole Casing		NA	5			
Top of Concrete	Concrete	0.3				
Bottom of Concrete		-0.5				
Top of Grout	Quickcrete	-0.5				
Bottom of Grout		-10.5				
Top of Well Riser	Sch. 40 PVC	2.8				
Bottom of Well Riser		-30				
Top of Well Screen	Sch. 40 PVC	-14.5	$\infty$	$\infty$	Top of Seal	<u>-10.5</u>
Bottom of Well Screen		-29.5		$\infty$		
Top of Peltonite Seal	3/8" Bentonite hole plug	-10.5				
Bottom of Peltonite Seal		-12.5		m	Top of Gravel Pack	<u>-12.5</u>
Top of Gravel Pack	10-20 grade silica sand	-12.5			Top of Screen	-14.5
Bottom of Gravel Pack		-30				
Top of Natural Cave-In	Silty sand	NA				
Bottom of Natural Cave-In		NA				
Top of Groundwater		-20			Bottom of Screen	<u>-29.5</u>
Total Depth of Borehole		-30			Bottom of Borehole	<u>-30</u>

Comments: <u>50 lb bags of sand used: 5.5 ea.</u>, 50 lb bags of bentontie used: 1 ea., Grout: 1 bag bentonite, 1 bag quikcrete; 1 bag of quikcrete used

Geologist Signature Ashley L. Ager



Figure 14

# RECORD OF SUBSURFACE EXPLORATION

LodeStar Services
P.O. Box 4465
Durango, CO 81302
303-917-6288

Boreho	ole #:	1	
W	/ell #:	MW-8	
F	Page:	1 of 2	
her.	-		

.

Project Number: Project Name: XTO Ground Water

Project Location: OH Randel #7

Borehole Location:	36° 29.522' N, 107° 59.736' W
GWL Depth:	16.5
Drilled By:	Enviro-Drill
Well Logged By:	Ashley Ager
Date Started:	05/01/07
Date Completed:	05/01/07

#### Drilling Method: Hollow Stem Auger Air Monitoring Method: PID

Depth (feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description	Air Monitoring	Drilling Conditions
0						
	1	0-5'	cuttings	brown, unconsolidated, poorly sorted sand and gravel, damp	0	Easy
5 5	2	5-7'	split spoon	brown, unconsolidated, poorly sorted sand and gravel, damp	0	Easy
10	3	10-11.8	split spoon	brown, unconsolidated, poorly sorted sand and gravel, damp	0	Easy
15	4	15-16.9	split spoon	15-15.8: brown, unconsolidated, poorly sorted sand and grave! 15.8-16.4: moist, grayish brown sandy silt 16.4-16.9: coarse, poorly sorted, grayish brown sand, wet, some HC odor	0 52.8 319	Easy Easy Easy

Comments:

Geologist Signature: Achley L. Ager



# **RECORD OF SUBSURFACE EXPLORATION**

	Borehole #:	1
LodeStar Services	Well #:	MW-8
P.O. Box 4465	Page:	2 of 2
Durango, CO 81302	Project Number:	
303-917-6288	Project Name: XTO Ground W	ater
	Project Location: OH Randel #7	
Perchala Leastion: 269 20 522' N 1079 50 726' M	•	

 Borehole Location:
 36° 29.522' N, 107° 59.736' W

 GWL Depth:
 16.5

 Drilled By:
 Enviro-Drill

 Well Logged By:
 Ashley Ager

 Date Started:
 05/01/07

 Date Completed:
 05/01/07

Drilling Method:	Hollow Stem Auger
Air Monitoring Method:	PID

Depth (feet)	Sample	Sample	Sample Type & Recovery (inches)	Sample Description	Air Monitoring	Drilling Conditions
20	E	20.21.9	(inclus)	20.20 4: reddieb brown sand, coarse, poorly	78.0	Fasy
	5	20-21.0	spoon	sorted, some gravel content, moist	70.9	Easy
				moist	0.2	Easy
25	6	25-27	split	Variegated reddish brown clay wet at top, dry at bottom	0	Easy
			spoon			
30	7	30-32	split	30-30.7: variegated reddish brown clay	0	Steady
			spoon	30.7-31.8: greenish gray silty sand, coarse, poorly sorted, consolidated, dry	0	
35						
40						

Comments:

Very thin saturated layer at approximately 16.5'. Stiff clay is present below that. Wet layer probably represents a small perched aquifer atop the clay.

Geologist Signature: Ashley L. Ager



Borehole # 1 Figure 15 MONITORING WELL INSTALLATION RECORD Well # MW-8 Lodestar Services, Inc Page <u>1</u> of <u>1</u> PO Box 3861 Farmington, New Mexico 87499 Project Name XTO Ground Water Project Number (505) 334-2791 Cost Code Project Location OH Randel #7 On-Site Geologist Ashley Ager Elevation 6325 <u>36° 29.522' N, 107° 59.736' W</u> Personnel On-Site Well Location Contractors On-Site Jeff Cathron and assistant GWL Depth 16.5' Client Personnel On-Site Installed By Enviro-Drill Date/Time Started 05/01/07,0950 Date/Time Completed 05/01/07, 1043 Depths in Reference to Ground Surface Material Top of Protective Casing 3.0 Item Depth (feet) Top of Riser 2.8 Top of Protective Casing 3 Steel Ground Surface 0 -2 1.55% Bottom of Protective Casing NA Top of Permanent Borehole Casing Bottom of Permanent Borehole NA Casing 0.2 Top of Concrete Concrete -0.6 Bottom of Concrete -0.6 Top of Grout Quickcrete -9.5 Bottom of Grout Top of Well Riser Sch. 40 PVC 2.8 -31.5 Bottom of Well Riser Sch. 40 PVC -13.3 Top of Well Screen Top of Seal <u>-9.5</u>  $\infty$ -31.3 Bottom of Well Screen Top of Peltonite Seal 3/8" Bentonite hole -9.5 plug Bottom of Peltonite Seal -11.3 Top of Gravel Pack -11.3 -11.3 Top of Gravel Pack 10-20 grade silica Top of Screen -13.3 sand -31.5 Bottom of Gravel Pack -31.5 Silty sand Top of Natural Cave-In Bottom of Natural Cave-In -31.8 Bottom of Screen <u>-31.3</u> Top of Groundwater -16.5 Bottom of Borehole -31.8 -31.8 Total Depth of Borehole

Comments: \_\_50 lb bags of sand used: 5 ea., 50 lb bags of bentontie used: 1 ea., Grout: 1 bag bentonite, 1 bag quikcrete; 1.5 bag of quikcrete used

Geologist Signature Ashley L. Ager



Hall Environ	Date: 15-Mai-07						
CLIENT: X Project: G	TO Energy Ground Water				L	ab Order	: 0703123
Lab ID:	0703123-07			(	Collection Date	: 3/8/200	7 11:52:00 AM
Client Sample ID:	-McDaniel GC B1E M	₩-2-			Matrix	AQUEC	DUS
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021	B: VOLATILES						Analyst: NSB
Benzene		ND	1.0		µg/L	1	3/12/2007 7:59:55 PM
Toluene		ND	1.0		μg/L	1	3/12/2007 7:59:55 PM
Ethylbenzene		ND	1.0		µg/L	1	3/12/2007 7:59:55 PM
Xylenes, Total		ND	2.0		µg/L	1	3/12/2007 7:59:55 PM
Surr: 4-Bromofluo	robenzene	85.8	70.2-105		%REC	1	3/12/2007 7:59:55 PM
Lab ID:	0703123-08			(	Collection Date	: 3/8/200	7 12:54:00 PM
Client Sample ID:	McDaniel GC B1E M	<del>IW-3</del>			Matrix	: AQUEC	OUS
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021	IB: VOLATILES						Analyst: NSB
Benzene		ND	1.0		μg/L	1	3/12/2007 8:29:59 PM
Toluene		ND	1.0		µg/L	1	3/12/2007 8:29:59 PM
Ethylbenzene		ND	1.0		µg/L	1	3/12/2007 8:29:59 PM
Xylenes, Total		ND	2.0		µg/L	1	3/12/2007 8:29:59 PM
Surr: 4-Bromofiua	robenzene	85.5 <sup>-</sup>	70.2-105		%REC	1	3/12/2007 8:29:59 PM
Lab ID:	0703123-09			(	Collection Date	: 3/8/200	7 1:34:00 PM
Client Sample ID:	OH Randel 7 MW-3				Matrix	: AQUEC	DUS
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 802	IB: VOLATILES						Analyst: NSB
Benzene		ND	1.0		µg/L	1	3/12/2007 9:00:02 PM
Toluene		ND	1.0		μg/L	1	3/12/2007 9:00:02 PM
Ethylbenzene		ND	1.0		µg/L	1	3/12/2007 9:00:02 PM
Xylenes, Total		3.8	2.0		µg/L	1	3/12/2007 9:00:02 PM



- Qualifiers: \* Value exceeds Maximum Contaminant Level
  - E Value above quantitation range
  - J Analyte detected below quantitation limits
  - ND Not Detected at the Reporting Limit
  - Spike recovery outside accepted recovery limits 3/8S
- в Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

07 12 11

	Tall Environmental Analysis Laboratory, inc.									
CLIENT: Project:	XTO Energy Ground Water				La	ıb Order:	0703123			
Lab ID:	0703123-10	·····		Colle	ection Date:	3/8/2007	2:11:00 PM			
Client Sample ID:	OH Randel 7 MW-4				Matrix:	AQUEO	US			
Analyses		Result	PQL	Qual Un	its	DF	Date Analyzed			
EPA METHOD 802	B: VOLATILES		····				Analyst: NSB			
Benzene		ND	1.0	µg/l	-	1	3/12/2007 9:30:05 PM			
Toluene		ND	1.0	µg/l	_	1	3/12/2007 9:30:05 PM			
Ethylbenzene		ND	1.0	µg/i	L	1	3/12/2007 9:30:05 PM			
Xylenes, Total		ND	2.0	µg/l	_	1	3/12/2007 9:30:05 PM			
Surt: 4-Bromatiu	orobenzene	85.5	70.2-105	%R	EC	1	3/12/2007 9:30:05 PM			
Lab ID:	0703123-11			Coll	ection Date:	3/8/2007	2:42:00 PM			
Client Sample ID:	OH Randel 7 MW-5				Matrix:	AQUEO	US			
Analyses		Result	PQL	Qual Un	its	DF	Date Analyzed			
EPA METHOD 802	1B: VOLATILES	<u> </u>					Analyst: NSB			
Benzene		ND	1.0	µg/i	L	1	3/12/2007 9:59:58 PM			
Toluene		ND	1.0	µg/l	L	1	3/12/2007 9:59:58 PM			
Ethylbenzene		ND	1.0	µg/l	L	1	3/12/2007 9:59:58 PM			
Xylenes, Total		ND	2.0	µg/l	L	1	3/12/2007 9:59:58 PM			
Surr: 4-Bromofiu	orobenzene	86.1	<b>70.2-</b> 105	%R	EC	1	3/12/2007 9:59:58 PM			
Lab ID:	0703123-12			Colle	ection Date:		<u></u>			
Client Sample ID:	: Trip Blank				Matrix:	TRIP BL	ANK			
Analyses		Result	PQL	Qual Un	its	DF	Date Analyzed			
EPA METHOD 802	21B: VOLATILES	<u></u>	<u></u>				Analyst: NSB			
Benzene		ND	1.0	hgd	L	1	3/12/2007 10:30:00 PM			
Toluene		ND	1.0	hgh	L	1	3/12/2007 10:30:00 PM			
Ethylbenzene		ND	1.0	µg/	L	1	3/12/2007 10:30:00 PM			
Xylenes, Total		ND	2.0	μg/	L	1	3/12/2007 10:30:00 PM			
Surr: 4-Bromoflu	orobenzene	85.6	70.2-105	%R	EC	1	3/12/2007 10:30:00 PM			

# Hall Environmental Analysis Laboratory, Inc.

Date: 13-Mar-07



Qualifiers:

- Value exceeds Maximum Contaminant Level
  - E Value above quantitation range
  - J Analyte detected below quantitation limits
  - ND Not Detected at the Reporting Limit
  - S Spike recovery outside accepted recovery limits 4/8
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit



# QA/QC SUMMARY REPORT

Client:

XTO Energy

Project: Ground Wate	er						١	Work (	Order:	0703123
Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPD	Limit	Quai
Method: SW8021		4- <b></b>								
Sample ID: 0703123-10A MSD		MSD			Batch	ID: <b>R22791</b>	Analysis C	)ate:	3/12/2	007 5:59:11 PM
Benzene	20.46	µg/L	1.0	102	85.9	113	0.726	27		
Toluene	20.45	μg/L	1.0	102	86.4	113	0.156	19		
Ethylbenzene	20.55	µg/L	1.0	103	83.5	118	0.553	10		
Xylenes, Total	62.34	µg/L	2.0	104	83.4	122	0.115	13		
Sample ID: 5ML REAGENT BLA		MBLK			Batch	ID: <b>R22791</b>	Analysis D	)ate:	3/12/2	007 7:48:15 AM
Benzene	ND	µg/L	1.0							
Toluene	ŃD	µg/L	1.0							
Ethylbenzene	ND	μg/L	1.0							
Xylenes, Tolal	ND	µg/L	2.0							
Sample ID: 100NG BTEX LCS		LCS			Batch	ID: R22791	Analysis D	Date:	3/12/2	007 6:29:11 PM
Benzene	20.59	ug/L	1.0	103	85.9	113				
Toluene	20.69	μg/L	1.0	103	86.4	113				
Ethylbenzene	20.53	µg/L	1.0	103	83.5	118				
Xylenes, Total	62.49	µg/L	2.0	104	83.4	122				
Sample ID: 0703123-10A MS		MS			Batch	ID: R22791	Analysis E	)ate:	3/12/2	007 5:29:09 PM
Benzene	20.31	μg/L	1.0	102	85.9	113				
Toluene	20.49	μg/L	1.0	102	86.4	113				
Ethylbenzene	20.67		1.0	103	83.5	118				
Xylenes, Tolal	62.41	µg/L	2.0	104	83.4	122				

Qualifiers:

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S

Spike recovery outside accepted recovery limits 7/8

Page 1

CLIENT: 2 Project: 0	(TO Energy Ground Water				La	b Order:	0705289
Lab ID:	0705289-01			(	Collection Date:	5/17/200	)7 9:11:00 AM
Client Sample ID:	OH Randel #7 MW-3				Matrix:	AQUEO	US
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 802	1B: VOLATILES				· · ·		Analyst: NSB
Benzene		ND	1.0		ua/L	1	5/23/2007 8:04:23 PM
Toluene		ND	1.0		ug/L	1	5/23/2007 8:04:23 PM
Ethylbenzene		ND	1.0		μg/L	1	5/23/2007 8:04:23 PM
Xylenes, Total		ND	2.0		µg/L	1.	5/23/2007 8:04:23 PM
Surr: 4-Bromofluc	orobenzene	86.4	70.2-105		%REC	1	5/23/2007 8:04:23 PM
Lab ID:	0705289-02				Collection Date:	5/17/200	)7 9:45:00 AM
Client Sample ID:	OH Randel #7 MW-4				Matrix:	AQUEC	US
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 802	1B: VOLATILES						Analyst: NSB
Benzene		ND	1.0		µg/L	1	5/23/2007 8:34:28 PM
Toluene		ND	1.0		µg/L	1	5/23/2007 8:34:28 PM
Ethylbenzene		ND	1.0		µg/L	1	5/23/2007 8:34:28 PM
Xylenes, Total		ND	2.0		µg/L	1	5/23/2007 8:34:28 PM
Surr: 4-Bromolluc	probenzene	85.8	70.2-105		%REC	1	5/23/2007 8:34:28 PM
Lab ID:	0705289-03				Collection Date:	5/17/200	07 11:15:00 AM
Client Sample ID:	OH Randel #7 MW-7				Matrix:	AQUEC	OUS
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 802	1B: VOLATILES						Analyst: NSE
Benzene		8500	500		µg/L	500	5/25/2007 11:33:11 AM
Toluene		17000	500		µg/L	500	5/25/2007 11:33:11 AM
Ethylbenzene		980	100		µg/t,	100	5/24/2007 3:29:30 PM
Xylenes, Total		16000	200		µg/L	100	5/24/2007 3:29:30 PM
Surr: 4-Bromollue	probenzene	87.3	70.2-105		%REC	100	5/24/2007 3:29:30 PM



Analyses	Result	PQL Qı	al Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	8500	500	μg/L	500	5/25/2007 11:33:11 AM
Toluene	17000	500	μg/L	500	5/25/2007 11:33:11 AM
Ethylbenzene	980	100	μg/L	100	5/24/2007 3:29:30 PM
Xylenes, Total	16000	200	μg/L	100	5/24/2007 3:29:30 PM
Surr: 4-Bromolluorobenzene	87.3	70.2-105	%REC	100	5/24/2007 3:29:30 PM

Qualifiers:

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٠ Value exceeds Maximum Contaminant Level

Е Value above quantitation range J

Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

5 Spike recovery outside accepted recovery limits 1/9

. . . . . . .

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded

MCL Maximum Contaminant Level

RL Reporting Limit

**.** . . . . . . .

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Hall Environ	mental Analysis	IC.	Date: 29-May-07				
CLIENT: X Project: C	TO Energy Ground Water				Lab Order:	0705289	
Lab ID:	0705289-04			Collecti	on Date: 5/17/200'	7 10:46:00 AM	
Client Sample ID:	OH Randel #7 MW-5				Matrix: AQUEON	JS	
Analyses		Result	PQL	Qual Units	DF	Date Analyzed	
EPA METHOD 8021	B: VOLATILES					Analyst: NSB	
Benzene		ND	1.0	µg/L	1	5/24/2007 4:29:40 PM	
Toluene		ND	1.0	µg/L	1	5/24/2007 4:29:40 PM	
Ethylbenzene		ND	1.0	µg/L	1	5/24/2007 4:29:40 PM	
Xylenes, Total		ND	2.0	µg/L	1	5/24/2007 4:29:40 PM	
Surr: 4-Bromofiuo	robenzene	87.1	70.2-105	%REC	1	5/24/2007 4:29:40 PM	
Lab ID:	0705289-05			Collecti	on Date: 5/17/200	7 11:35:00 AM	
Client Sample ID:	OH Randel #7 MW-8				Matrix: AQUEO	JS	
Analyses		Result	PQL	Qual Units	DF	Date Analyzed	
EPA METHOD 802	B: VOLATILES					Analyst: NSB	
Benzene		ND	1.0	µg/L	1	5/24/2007 4:59:40 PM	
Toluene		1.9	1.0	µg/L	1	5/24/2007 4:59:40 PM	
Ethylbenzene		ND	1.0	µg/L	1	5/24/2007 4:59:40 PM	
Xylenes, Total		3.7	2.0	µg/L	1	5/24/2007 4:59:40 PM	
Surr: 4-Bromofluo	robenzene	86.6	70.2-105	%REC	1	5/24/2007 4:59:40 PM	
Lab ID:	0705289-06			Collecti	on Date: 5/17/200	7 12:33:00 PM	
Client Sample ID:	-Garcia GCB #1 MW-2	2-			Matrix: AQUEO	US	
Analyses		Result	PQL	Qual Units	DF	Date Analyzed	
EPA METHOD 802	B: VOLATILES					Analyst: NSB	
Benzene		ND	1.0	μg/L	1	5/24/2007 12:07:24 AM	
Toluene		1.5	1.0	µg/L	1	5/24/2007 12:07:24 AM	
Ethylbenzene		1.4	1.0	µg/L	1	5/24/2007 12:07:24 AM	
Xylenes, Total		74	2.0	µg/L	1	5/24/2007 12:07:24 AM	
Surr: 4-Bromofluo	robenzene	91.4	70.2-105	%REC	1	5/24/2007 12:07:24 AM	



Qualifiers:

\*

Value exceeds Maximum Contaminant Level

E Value above quantitation range

- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits 2/9
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded

MCL Maximum Contaminant Level

RL Reporting Limit

# QA/QC SUMMARY REPORT

	- Di	ient	t:
-	_		

XTO Energy Ground Water

Project:	Ground Wates	ſ						۱ ۱	Work Order	.: 0705289
Analyte		Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW802	1							· · · · ·		
Sample ID: 07052	89-02A MSD		MSD			Balch	ID: R23705	Analysis D	ate: 5/23/	2007 9:34:21 PM
Benzene		19.06	µg/L	1.0	95.3	85.9	113	0.794	27	
Toluene		19.13	µg/L	1.0	95.7	86.4	113	0.812	19	
Ethylbenzene		19.00	µg/L	1.0	95.0	83.5	118	0.462	10	
Xylenes, Total		56.16	µg/L	2.0	93.6	83.4	122	0.901	13	
Sample ID: 07052	89-16A MSD		MSD			Batch	ID: R23752	Analysis D	ate: 5/25/2	007 10:32:54 AM
Benzene		20.43	µg/L	1.0	102	85.9	113	1.85	27	
Toluene		20.97	µg/L	1.0	105	86.4	113	1.52	19	
Ethylbenzene		20.81	μ <b>g/L</b>	1.0	104	83. <b>5</b>	118	2.27	10	
Xylenes, Total		61.35	µg/L	2.0	102	83.4	122	1.79	13	
Sample ID: 5ML F	RB-II		MBLK			Batch	ID: R23705	Analysis D	ate: 5/23/2	007 10:03:56 AM
Benzene		ND	ua/L	1.0						
Toluene		ND	uo/L	10						
Ethylbenzene		ND	ua/L	1.0						
Xvienes, Total		ND	rs- uo/i	2.0						
Sample ID: 5ML	REAGENT BLA		MBLK	210		Balch	ID: R23736	Analysis D	late: 5/24/	/2007 8:33:09 AM
Benzene		ND	µg/L	1.0						
Toluene		ND	µg/L	1.0						
Ethylbenzene		ND	uq/L	1.0						
Kylenes, Tolal		ND	μg/L	2.0						
Sample ID: 5ML I	REAGENT BLA		MBLK			Balch	ID: R23752	Analysis C	)ate: 5/25/	2007 8:32:19 AM
Benzene		ND	10/1	10						
Toluene		ND	µg/L	1.0						
Ethylbenzene		ND	ug/i	10						
Xylenes Total		ND	µg/L	20						
Sample ID: 100N	GBTEXICS	ND	LCS	2.0		Batch	ID: R23705	Analysis F	)ate: 5/23/2	007 11:04:02 AM
Dannar	5 5127 200	10.07	200	4.0	04.0	05.0	447	1 41019010 E		.001 11.0
Telvere		18.93	µg/L	1.0	94.0	80.9	. 113			
Folgene	•	19.74	µg/L	0.1	98.7	00.4	113			
		19.07	µg/L	1.0	99.3	03.0 97.4	100			
Somple ID: 100N		QU. 10	μg/L	2.0	100	00.4 Rateb	122	Analucia (		(2007 0-29-17 DM
Sample ID. TOWN	G DIEX LUS		105			Dalui	ID. R23730	Analysis L	Jate: 0/24	12007 9.36.17 PN
Benzene		19.56	µg/L	1.0	97.8	85.9	113			
Toluene		19.93	µg/L	1.0	99.7	86.4	113			
Ethylbenzene		19.97	µg/L	1.0	99.9	83.5	118			
Xylenes, Tolal		59.82	µg/L	2.0	99.7	83.4	122			
Sample ID: 100N	G BTEX LCS		LCS			Batch	ID: R23752	Analysis E	Dale: 5/25	/2007 2:03:57 PN
Benzene		19.64	µg/L	1.0	98.2	85.9	113			
Toluene		20.09	µg/L	1.0	100	86.4	113			
Ethylbenzene		19.98	µg/L	1.0	99.9	83.5	118			
Xylenes, Total		59.73	µg/L	2.0	99,5	83.4	122			
Sample ID: 0705	289-02A MS		MS			Batch	ID: R23705	Analysis D	)ale: 5/23/	2007 9:04:25 PN
Benzene		19.21	µg/L	1.0	96.0	85.9	113			
<b>-</b>		40.00		10	00.4	00.4	140			

Qualifiers: E

Value above quantitation range J Analyte detected below quantitation limits

R

RPD outside accepted recovery limits

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike recovery outside accepted recovery limits Page 1

# Client:

# XTO Energy

# QA/QC SUMMARY REPORT

Project: Gro	ound Water						Work	Order: 0705289
Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD RP	DLimit Qual
Method: SW8021	··········							
Sample ID: 0705289-02	A MS	MS			Batch ID	): <b>R23705</b>	Analysis Date:	5/23/2007 9:04:25 PM
Ethylbenzene	19.09	μg/L	1.0	95.4	83.5	118		
Xylenes, Total	56.66	μg/L	2.0	94.4	83.4	122		
Sample ID: 0705289-18	ia ms	MS			Batch ID	D: <b>R23752</b>	Analysis Date:	5/25/2007 10:02:41 AM
Benzene	20.05	µg/L	1.0	100	85.9	113		
Toluene	20.66	µg/L	1.0	103	86.4	113		
Ethylbenzene	20.34	μg/L	1.0	102	83.5	118		
Xylenes, Total	60.26	µg/1.	2.0	99.8	83.4	122		

Qualifiers:

Е Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- Spike recovery outside accepted recovery limits 5

8/9

Hall Environ	IC. Date	Date: 20-Aug-07				
CLIENT: Project:	XTO Energy Groundwater			L	ab Orde	r: 0708171
Lab ID:	0708171-01	4. <b>7.</b>		Collection Date:	8/9/20	07 2:35:00 PM
Client Sample ID:	OH Randel #7 MW-4			Matrix:	AQUE	OUS
Analyses		Result	PQL	Qual Units	DF	Date Analyzed
EPA METHOD 802	1B: VOLATILES					Analyst: SMP
Benzene		ND	1.0	µg/L	1	8/17/2007 2:15:31 PM
Toluene		ND	1.0	µg/L	1	8/17/2007 2:15:31 PM
Ethylbenzene		ND	1.0	µg/L	1	8/17/2007 2:15:31 PM
Xylenes, Total		ND	2.0	µg/L	1	8/17/2007 2:15:31 PM
Surr: 4-Bromoflue	brobenzene	80.7	70.2-105	%REC	1	8/17/2007 2:15:31 PM
Lab ID:	0708171-02			Collection Date:	8/9/20	07 3:11:00 PM
Client Sample ID:	OH Randel #7 MW-3			Matrix:	AQUE	OUS
Analyses		Result	PQL	Qual Units	DF	Date Analyzed
EPA METHOD 802	B: VOLATILES					Analyst: SMP
Benzene		ND	1.0	μg/L	1	8/17/2007 3:45:35 PM
Toluene		ND	1.0	µg/L	1	8/17/2007 3:45:35 PM
Elhylbenzene		ND	1.0	µg/L	1	8/17/2007 3:45:35 PM
Xylenes, Total		ND	2.0	µg/L	1	8/17/2007 3:45:35 PM
Surr: 4-Bromoflue	probenzene	82.0	70.2-105	%REC	1	8/17/2007 3:45:35 PM
Lab ID:	0708171-03			Collection Date:	8/9/20	07 3:39:00 PM
Client Sample ID:	OH Randel #7 MW-7			Matrix:	AQUE	OUS
Analyses		Result	PQL	Qual Units	DF	Date Analyzed
EPA METHOD 802	1B: VOLATILES				=== ==	Analyst: SMP
Benzene		9800	500	µg/L	500	8/17/2007 4:15:37 PM
Toluene		11000	500	μg/L	500	8/17/2007 4:15:37 PM
Ethylbenzene		770	100	µg/L	100	8/17/2007 4:45:35 PM
Xylenes, Total		12000	200	µg/L	100	8/17/2007 4:45:35 PM
Surr: 4-Bromoflue	orobenzene	92.6	70.2-105	%REC	100	8/17/2007 4:45:35 PM





Qualifiers:

- .... .... . .... \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- Spike recovery outside accepted recovery limits -1/4S

. ... . . . . . B Analyte detected in the associated Method Blank 1

- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Page 1 of 2

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Hall Environ	ic.	Date: 20-Aug-07					
CLIENT: > Project: C	KTO Energy Groundwater				La	b Orde	r: 0708171
Lab ID:	0708171-04	<u></u>			Collection Date:	8/9/200	07 4:11:00 PM
Client Sample ID:	OH Randel #7 MW-8				Matrix:	AQUE	OUS
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 802	1B: VOLATILES						Analyst: SMP
Benzene		ND	1.0		µg/L	1	8/17/2007 5:45:31 PM
Toluene		ND	1.0		µg/L	1	8/17/2007 5:45:31 PM
Elhylbenzene		ND	1.0		µg/L	1	8/17/2007 5:45:31 PM
Xylenes, Total		ND	2.0		µg/L	1	8/17/2007 5:45:31 PM
Surr: 4-Bromolluo	robenzene	83.1	70.2-105		%REC	1	8/17/2007 5:45:31 PM
Lab ID:	0708171-05				Collection Date:	8/9/200	07 4:4 <b>0</b> :00 PM
Client Sample ID:	-Garcia GC B#1-MW-2	£			Matrix:	AQUE	ous
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 802	1B: VOLATILES				an a tha a sha an		Analyst: SMP
Benzene		5.7	1.0		µg/L	1	8/17/2007 6:15:25 PM
Toluene		6.2	1.0		µg/L	1	8/17/2007 6:15:25 PM
Elhylbenzene		ND	1.0		µg/L	1	8/17/2007 6:15:25 PM
Xylenes, Total		6.5	2.0		µg/L	1	8/17/2007 6:15:25 PM
Surr: 4-Bromofluc	probenzene	83.4	70.2-105		%REC	1	8/17/2007 6:15:25 PM
Lab ID:	0708171-06				Collection Date:		
Client Sample ID:	Trip Blank				Matrix:	TRIP E	BLANK
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 802	1B: VOLATILES						Analyst: SMP
Benzene		ND	1.0		µg/L	1	8/17/2007 6:45:18 PM
Toluene		ND	1.0		µg/L	1	8/17/2007 6:45:18 PM
Elhyibenzene		ND	1.0		μg/L	1	8/17/2007 6:45:18 PM
Xylenes, Total		ND	2.0		µg/L	1	8/17/2007 6:45:18 PM
Surr: 4-Bramolluc	probenzene	79.2	70.2-105		%REC	1	8/17/2007 6:45:18 PM

- Qualifiers: \* Value ex
  - Value exceeds Maximum Contaminant Level
  - E Value above quantitation mage

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- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits -2/4

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# QA/QC SUMMARY REPORT

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XTO Energy

Project: Groundwate	er						١	Nork Ord	er: 0708171
Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLim	it Qual
Method: SW8021						· · · •. •. •. •. • • • • • • • • • • •			
Sample ID: 0708171-01A MSD		MSD			Balch	ID: R24814	Analysis D	)ate: 8/1	17/2007 3:15:30 PM
Benzene	19.21	µg/L	1.0	95.6	85.9	113	0.943	27	
Toluene	18.74	μg/L	1.0	92.8	86.4	113	1.65	19	
Ethylbenzene	19.19	µg/L	1.0	95.4	83.5	118	0.125	10	
Xylenes, Total	56.88	µg/L	2.0	94.1	83.4	122	0.962	13	
Sample ID: 5ML RB		MBLK			Balch	ID: R24814	Analysis D	Date: 8/1	7/2007 10:13:04 AM
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		LCS			Batch	ID: R24814	Analysis C	Date: 8/11	7/2007 10:15:30 PM
Benzene	19.61	µg/L	1.0	98.1	85.9	113			
Toluene	19.49	µg/L	1.0	97.5	86.4	113			
Ethylbenzene	19.55	µg/L	1.0	97.8	83.5	118			
Xylenes, Total	57.96	µg/L	2.0	96.6	83.4	122			
Sample ID: 0708171-01A MS		MS			Batch	ID: R24814	Analysis D	Date: 8/	17/2007 2:45:30 PM
Benzene	19.39	µg/L	1.0	96.5	85.9	113			
Toluene	19.05	µg/L	1.0	94.3	86.4	113			
Ethylbenzene	19.16	µg/L	1.0	95.2	83.5	118			
Xylenes, Total	57.43	µg/L	2.0	95.0	83.4	122			

Qualifiers:

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike recovery outside accepted recovery limits 3 / 4

Lab ID: (Client Sample ID:	0711456-01 Garcia GC BIMW-2 B: VOLATILES benzene 0711456-02 OH Randel #7 MW-3	<b>Result</b> ND 3.5 33 100	PQL 1.0 1.0 2.0 70.2-105	Qual	Collecti Units µg/L	on Date: Matrix:	11/27/20 AQUEO DF	07 11:54:00 AM US Date Analyzed
Client Sample ID:	Garcia GC BIMW-2 B: VOLATILES benzene 0711456-02 OH Randel #7 MW-3	Result ND 3.5 33 100	PQL 1.0 1.0 2.0 70.2-105	Qual	Units µg/L	Matrix:	AQUEO	US Date Analyzed
Analyses EPA METHOD 8021B Benzene Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromofluorot Lab ID: (Client Sample ID))) EPA METHOD 8021B Benzene Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromofluorot	9: VOLATILES benzene 0711456-02 OH Randel #7 MW-3	Result ND ND 3.5 33 100	PQL 1.0 1.0 2.0 70.2-105	Qual	Units µg/L		DF	Date Analyzed
EPA METHOD 8021B Benzene Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromofluorot Lab ID: (Client Sample ID)) EPA METHOD 8021B Benzene Toluene Ethylbenzene Xyleňes, Total Surr: 4-Bromofluorot	3: VOLATILES benzene 0711456-02 OH Randel #7 MW-3	ND ND 3.5 33 100	1.0 1.0 1.0 2.0 70.2-105		µg/L			v
Benzene Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromofluorot Lab ID: (Client Sample ID: (Chient Sample ID: Chient Sample ID: Chientene Ethylbenzene Toluene Ethylbenzene Xylehes, Total Surr: 4-Bromofluorot	benzene 0711456-02 OH Randel #7 MW-3	ND ND 3.5 33 100	1.0 1.0 1.0 2.0 70.2-105		µg/L			Analyst: NSI
Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromofluorot Lab ID: (C Client Sample ID: (C Analyses EPA METHOD 8021B Benzene Toluene Ethylbenzene Xylehes, Total Surr: 4-Bromofluorot	benzene 0711456-02 OH Randel #7 MW-3	ND 3.5 33 100	1.0 1.0 2.0 70.2-105				1	12/4/2007 12:05:21 PM
Ethylbenzene Xylenes, Total Surr: 4-Bromofluorot Lab ID: (Client Sample ID: (Client Sample ID: Client Surr: 4-Bromofluorot	benzene 0711456-02 OH Randel #7 MW-3	3.5 33 100	1.0 2.0 70.2-105		µg/L		1	12/4/2007 12:05:21 PN
Xylenes, Total Surr: 4-Bromofluorot Lab ID: (Client Sample ID: (Client Sample ID: Client Sample ID: Cl	benzene 0711456-02 OH Randel #7 MW-3	33 100	2.0 70.2-105		µg/L		1	12/4/2007 12:05:21 PM
Surr: 4-Bromofluorot Lab ID: (Client Sample ID: (Cl	benzene 0711456-02 OH Randel #7 MW-3	100	70.2-105		µg/L		1	12/4/2007 12:05:21 PM
Lab ID: (Client Sample ID: (Clie	0711456-02 OH Randel #7 MW-3			·	%REC		1	12/4/2007 12:05:21 PM
Client Sample ID: ( Analyses EPA METHOD 8021B Benzene Toluene Ethylbenzene Xylehes, Total Surr: 4-Bromofluorok	OH Randel #7 MW-3	•			Collecti	on Date:	11/27/20	07 12:25:00 PM
Analyses EPA METHOD 8021B Benzene Toluene Ethylbenzene Xylehes, Total Surr: 4-Bromofluorok						Matrix:	AQUEO	US
EPA METHOD 8021B Benzene Toluene Ethylbenzene Xylehes, Total Surr: 4-Bromofluorok		Result	PQL	Qual	Units		DF	Date Analyzed
Benzene Toluene Ethylbenzene Xylehes, Total Surr: 4-Bromofluorok	: VOLATILES							Analyst: NSE
Toluene Ethylbenzene Xylehes, Total Surr: 4-Bromofluorob		ND	1.0		µg/L		1	12/4/2007 12:35:27 PN
Ethylbenzene Xylehes, Total Surr: 4-Bromofluorob		ND	1.0		µg/L		1	12/4/2007 12:35:27 PN
Xylehes, Total Surr: 4-Bromofluorob		ND .	1.0		µg/L		1	12/4/2007 12:35:27 PN
Surr: 4-Bromofluorob		ND	2.0		µg/L		1	12/4/2007 12:35:27 PN
	penzene	85.1	70.2-105		%REC		1	12/4/2007 12:35:27 PM
Lab ID: C	)711456-03				Collecti	on Date:	11/27/20(	07 12:53:00 PM
Client Sample ID: (	OH Randel #7 MW-4					Matrix:	AQUEOU	JS
Analyses		Result	PQL	Qual	Units		DF	Date Analyzed
EPA METHOD 8021B	: VOLATILES							Analyst: NSE
Benzene		ND	1.0		µg/L		1	12/4/2007 1:05:29 PM
Toluene		ND	1.0		µg/L		1	12/4/2007 1:05:29 PM
Ethylbenzene		ND	1.0		µg/L		1	12/4/2007 1:05:29 PM
Xylenes, Total		ND	2.0		µg/L		1	12/4/2007 1:05:29 PM
Surr: 4-Bromofluorob	penzene	83.6	70.2-105		%REC		1	12/4/2007 1:05:29 PM
Lab ID: 0	0711456-04			(	Collectio	on Date:	11/27/200	)7 1:28:00 PM
Client Sample ID: C	OH Randel #7 MW-7					Matrix:	AQUEOL	JS
Analyses		Result	PQL	Qual	Units		DF	Date Analyzed
EPA METHOD 8021B:	: VOLATILES							Analyst: NSB
Benzene		12000	500		µg/L		500	12/4/2007 1:35:44 PM
Toluene		9000	100		µg/L		100	12/4/2007 2:05:54 PM
Ethylbenzene		940	100		µg/L		100	12/4/2007 2:05:54 PM
Xylenes, Total		13000	200		µg/L		100	12/4/2007 2:05:54 PM
Surr: 4-Bromofluorob	enzene	97.7	70.2-105		%REC	i	100	12/4/2007 2:05:54 PM

ND Not Detected at the Reporting Limit

C Snike recovery outside accented recovery limite

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RL Reporting Limit

1

Project: (	(TO Energy Ground Water			<u></u>		La	b Order:	0711456
Lab ID:	0711456-05				Collectio	on Date:	11/27/20	07 1:49:00 PM
Client Sample ID:	OH Randel #7 MW-5					Matrix:	AQUEO	JS
Analyses		Result	PQL	Qual	Units		DF	Date Analyzed
EPA METHOD 802	B: VOLATILES				<b></b>			Analyst: NSE
Benzene		3.0	1.0		µg/L		1	12/4/2007 3:27:55 PM
Toluene		1.0	1.0		µg/L		1	12/4/2007 3:27:55 PM
Ethylbenzene		ND	1.0		µg/L		1	12/4/2007 3:27:55 PM
Xylenes, Total		ND	2.0		µg/L		1	12/4/2007 3:27:55 PM
Sutr: 4-Bromofluo	robenzena	85.2	70.2-105		%REC		1	12/4/2007 3:27:55 PM
Lab ID:	0711456-06	• • • • • • • • • • • • • • • • • • • •			Collectio	n Date:	11/27/20	07 2:03:00 PM
Client Sample ID:	OH Randel #7 MW-8					Matrix:	AQUEO	JS
Analyses		Result	PQL	Qual	Units		DF	Date Analyzed
EPA METHOD 8021	B: VOLATILES							Analyst: NSE
Benzene		21	1.0		µg/L		1	12/4/2007 3:58:08 PM
Toluene		ND	1.0		µg/L		1	12/4/2007 3:58:08 PM
Ethylbenzene	1	ND	1.0		µg/L		1	12/4/2007 3:58:08 PM
Xylenes, Total		ND	2.0		µg/L		1	12/4/2007 3:58:08 PM
Surr: 4-Bromofluor	robenzene	87.4	70.2-105		%REC		1	12/4/2007 3:58:08 PM
Lab ID:	0711456-07			· <b>····</b> ····	Collectio	n Date:	11/27/200	)7 3:42:00 PM
Client Sample ID:	- <del>RPC 17-3 MW-1</del>				1	Matrix:	AQUEOU	JS
Analyses		Result	PQL	Qual	Units		DF	Date Analyzed
EPA METHOD 8021	B: VOLATILES							Analyst: NSB
Benzene		2.8	1.0		µg/L		1	12/5/2007 11:02:52 AM
Toluene		ND	1.0		µg/L		1	12/5/2007 11:02:52 AM
Ethylbenzene		6.4	1.0		µg/L		1	12/5/2007 11:02:52 AM
Xylenes, Total		9.6	2.0		µg/L		1	12/5/2007 11:02:52 AM
Surr: 4-Bromofluor	obenzene	108	70.2-105	S	%REC		1	12/5/2007 11:02:52 AM
Lab ID:	0711456-08	<u></u>			Collectio	n Date:		
Client Sample ID:	TRIP BLANK				1	Matrix: '	TRIP BL.	ANK
Analyses		Result	PQL	Qual	Units		DF	Date Analyzed
PA METHOD 8021	B: VOLATILES							Analyst: NSB
Benzene		ND	1.0		µg/L		1	12/4/2007 7:31:14 PM
Toluene		ND	1.0	,	hâ\r		1	12/4/2007 7:31:14 PM
Ethylbenzene		ND	1.0		µg/L		1	12/4/2007 7:31:14 PM
		ND	2.0		µg/L		1	12/4/2007 7:31:14 PM
Xylenes, Total	•				C C C C C C C C C C C C C C C C C C C			

Date: 06-Dec-07



- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit Cuiles reserver suiteids assessed reserver limits c
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level

RL Reporting Limit

2

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# Client:

XTO Energy

QA/QC	<b>SUMMARY</b>	REPORT
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Project: Gro	ound Water					Work	Order: 0711456
Analyte	Result	Units	PQL	%Rec	LowLimit HighLimit	%RPD RP	DLimit Qual
Method: EPA Method	i 8021B: Volatiles						
Sample ID: 0711456-05	5A MSD	MSD			Batch ID: R26348	Analysis Date:	12/4/2007 6:00:52 PM
Benzene	23.48	µg/L	1.0	102	85.9 113	0.358 2	7 .
Toluene	21.37	µg/∟	1.0	102	86.4 113	0.610 1	9
Ethylbenzene	20.56	µg/L	1.0	103	83.5 118	0.273 1	0
Xylenes, Total	63.13	µg/L	2.0	102	83.4 122	0.505 1	3
Sample ID: 5ML RB		MBLK			Batch ID: R26348	Analysis Date:	12/4/2007 8:34:08 AM
Benzene	ND	µg/L	1.0				
Toluene	ND	µg/L	1.0				
Ethylbenzene	ND	µg/L	1.0				
Xylenes, Total	ND	µg/L	2.0				
Sample ID: 6ML RB		MBLK			Batch ID: R26381	Analysis Date:	12/5/2007 8:29:31 AN
Benzene	ND	µg/L	1.0				
Toluene	ND	µg/L	1.0				
Ethylbenzene	ND	µg/L	1.0				
Xylenes, Total	ND	·µg/L	2.0				
Sample ID: 100UL BTE	XLCS	LCS			Batch ID: R26348	Analysis Date:	12/4/2007 6:31:06 PM
Benzene	18.58	µg/L	1.0	92.9	85.9 113		
Joluene	18.15	µg/L	1.0	90.2	86.4 113		
thylbenzene	18.46	µg/L	1.0	92.3	83.5 118		
Xylenes, Total	54.76	µg/L	2.0	91.3	83.4 122	•	
Sample ID: 100NG BTE	X LCS	LCS			Batch ID: R26381	Analysis Date:	12/5/2007 11:44:35 PN
Benzene	19.64	µg/L	1.0	98.2	85.9 113		
Toluene	19.43	µg/L	1.0	9 <b>6</b> .6	86.4 113		
Ethylbenzene	19.64	µg/L	1.0	98.2	83.5 118		
Xylenes, Total	59.27	µg/L	2.0	98.8	83.4 122		
Sample ID: 100NG BTE	X LCSD	LCSD			Batch ID: R26381	Analysis Date:	12/6/2007 12:14:45 AM
Benzene	20.41	µg/L	1.0	102	85.9 113	3.85 2	7
Toluene	20.15	µg/L	1.0	100	86.4 113	3.66 1	9
Ethylbenzene	20.53	µg/L	1.0	103	83.5 118	4.42 1	ט
Xylenes, Total	61.86	µg/L	2.0	103	83.4 122	4.28 1	3
Sample ID: 0711456-05/	AMS	MS			Batch ID: R26348	Analysis Date:	12/4/2007 5:30:50 PM
Benzene	23.40	µg/L	1.0	102	85.9 113		
Toluene	21.24	µg/L	1.0	101	86.4 113		
Ethylbenzene	20.51	µg/L	1.0	103	83.5 118		
Xylenes, Total	62.81	µg/L	2.0	101	83.4 122		

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits

- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

1301 W Grand Avenue Artesia NM 88210	Energy Mine	rals and Natural Resources		Form C-144 June 1, 2004
District III 1000 Rio Brazos Road, Aztec, NM 87410 District IV 1220 S. St. Francis Dr. Santa Fe. NM 87505	Oil Co 1220 S San	nservation Division outh St. Francis Dr. a Fe, NM 87505	For drilling and production fa appropriate NMOCD District C For downstream facilities, sub office	acilities, submit to office. omit to Santa Fe
Is Type of a	Pit or Below-Grade	e Tank Registration or ( overed by a "general plan"? Yes	<u>Closure</u> i ⊠ No □ below-grade tank ⊠	
Operator: <u>XTO ENERGY INC.</u> Address: <u>2700 FARMINGTON</u> Facility or well name: <u>O. H. RANDEL</u> County: <u>SAN JUAN</u> Latitude <u>36.49</u>	Tel AVE., BLDG. K. SU #7A1 193Longitude_107.9	ephone: (505)-324-1090 TE 1. FARMINGTON. NM 11#: 30-045- 24749 U/ 9632 NAD: 1927 [] 1983 [2] S	e-mail address: 	26N <u>R 11W</u> rivate 🗌 Indian 🗌
Pit         Type:       Drilling       Production ⊠ Disposal         Workover       □ Emergency         Lined       Unlined ⊠         Liner type:       Synthetic       □ Thickness         Pit Volume      bbl	SEPARATOR C	elow-grade tank olume:bbl_:[ype-of-fluid: onstruction material: ouble-walled, with <u>leak a tection?</u> Yes	If If the explain why not.	
Depth to ground water (vertical distance from high water elevation of ground water.)	bottom of pit to scasonal	ess than 50 feet 0 feet or more, but less than 100 feet 00 feet or more	(20 points) (10 points) ( 0 points)	20
Wellhead protection area: (Less than 200 feet water source, or less than 1000 feet from all of	from a private domestic N her water sources.)	ies io	(20 points) ( 0 points)	0
Distance to surface water: (horizontal distance in the surface water) (horizontal distance) irrigation canals, ditches, and perennial and ep	to all wetlands, playas, hemeral watercourses.)	ess than 200 feet 00 feet or more, but less than 1000 feet 000 feet or more	(20 points) (10 points) ( 0 points)	0
	R	anking Score (Total Points)		20
this is a pit closure: (1) attach a diagram of t	the factury showing the press ten			
C this is a pit closure:       (1) attach a diagram of 1         our are burying in place) onsite ⊠ offsite □         emediation start date and end date.       (4) Ground         attach soil sample results and a diagram of sample dational Comments:       PIT LOCATED         PIT EXCAVATION:       WIDTH         PIT REMEDIATION:       CLOSE AS IS         Cubic yards:       N/A	If offsite, name of facility water encountered: No 🛛 Yes ple locations and excavations. D APPROXIMATELY /Aft., LENGTH N :: 🖾, LANDFARM: 🗖, COM	(3) Attach a If yes, show depth below ground surf 239 FT. S75E FRO I/Aft., DEPTH N/Aft. POST:	general description of remedial action faceft. and attach san MWELL HEAD. R [] (explain)	n taken including pple results. (5)
f this is a pit closure:       (1) attach a diagram of 1         rour are burying in place) onsite ⊠ offsite □         emediation start date and end date.       (4) Ground         uttach soil sample results and a diagram of sample results and a diagram of sample date.       (4) Ground         Additional Comments:       PIT LOCATEE         PIT EXCAVATION:       WIDTH       N.         PIT REMEDIATION:       CLOSE AS IS         Cubic yards:       N/A         I       hereby certify that the information above is tr         has been/will be constructed or closed accor         Date:       11/18/05         PrintedName/Title       Jeff Blagg —         Your certification and NMOCD approval of th         otherwise endanger public health or the enviror         regulations.	If offsite, name of facility	(3) Attach a (3) Attach a (4) Attach a (5) Attach a (5	general description of remedial action face	te ground water or cal laws and/or

		3004524	1749	3	6.49	193/107	.99632
CLIENT: XTO	BLA P.O. BOX	GG ENG. 87, BLO (505)	INEERING OMFIELD, 532-1199	, INC. NM 87 9	7413	LOCATION N C.O.C. N	40:
FIELD REPOR	T: PIT CI	LOSURE	VERIF	ICATIC	)N	PAGE No: _	/ of _/
LOCATION: <u>NAME: O.H.</u>	RANDEL 5 TWP 26N	WELL #:	) TYPE:	ABAN. SE	P.	DATE STARTED: DATE FINISHED:	3/12/02
OTR/FOOTAGE: 150 /	150 W NW/NW		R:		<u> </u>	ENVIRONMENTAL SPECIALIST:	NV
ENCAVATION APPROX.	<u>UA</u> FT. xA	JA FT. x	NA FT.	DEEP. (	CUBIC	YARDAGE:	NA
DISPOSAL FACILITY:	ON-SITE		REMEDI	ATION M	(ETHOI	D:	
LAND USE: LANGE -	sin	LEASE:			FOR	MATION:	DK
FIELD NOTES & REMA	RKS: PIT LO	CATED APP	ROXIMATELY	239	FT. <u>S</u>	15E FRO	M WELLHEAD
DEPTH TO GROUNDWATER: >1	NEAREST W	ATER SOURCE	>1000'	NEAREST	SURF 4CE	VATER:	1000'
MMOCD RANKING SCORE:	NMDCD TPH	CLOSURE STD	500 D pp	м			
SOIL AND EXCAVATI	NC			DVM CAL	IB. REA	10. <u>52.7</u> pp	m - 95 - 050
DESCRIPTION:				TIME: //:	48 01	ŷppi ĵ∕pm_DATE	3/12/02
SOIL TYPE SAND / SILTY	SAND / SILT /	SILTY CLAY	/ CLAY / GR	RAVEL / D	THER		
COHESION (ALL OTHERS): N	IN COHESIVE	SLIGHTLY C	DHESIVE / CO	HESIVE /	HIGHLY	COHESIVE	
CONSISTENCY (NON COHESIV	E SUILS COUS	5 / FIRM /	DENSE / VER	RY DENSE	D		
DENSITY COHESTVE CLAYS	SULTST SUFT	Z FIRM Z S	TIFF / VERY	STIFF / A	HARD	IC / HIGHLY	PLASHE
MOISTURE: DRY / SLIGHTL	MOIST MOIST	)/ WET / S	ATURATED /	SUPER SATU	URATED		
HC ODOR DETECTED: (YES)	ND EXPLANAT	IDN - MED	. CRAY SAN	D (577220	<u>85006</u> GN	RODE	
SAMPLE TYPE: GRAD / CO	MPOSITE - 4 OF	PTS		In			
	an a	FT 11			NC		
SCALE SAMP T	INE SAMPLE LD	LAB No:	WEIGHT $(a)$	ml. FRFO		ION READING	CALC DOM
PIT PERIM	ETER AN	0	17 X C	ſ	PIT	PROFIL	E
		RES	v™ ULTS				
SEP		SAMPLE	FIELD HEADSPACE PID (ppm)	1			
Law and the second		106	1, 215				
		3 @					
		4 <u>0</u> 5 <u>0</u>					
To D	22'			-			
Well HenD							
P.V		LAB S	AMPLES	-			
B.G.		SAMPLE AN	ROUSE INE	4			
		1/CG IPH	(8021B) "				
P.D. = PIT DEPRESSION; B.G. T.H. = TEST HOLE; $\sim$ = APPI	= BELOW GRADE ROX.; B = BELOW			-	<u> </u>		
TRAVEL NOTES: CALLOUT	3/12/02-1	NIDRN .		3/12/0.	2-m	old.	
raviand: 02/27/02							hail0050
1041304, 06/61/06							- DECENDOL, SK

revised: 02/27/02

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# ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR ABETTER TOMORROW

# EPA METHOD 8015 Modified Nonhalogenated Volatile Organics Total Petroleum Hydrocarbons

Client:	Blagg / XTO Energy	Project #:	94034-010
Sample ID:	1 @ 6'	Date Reported:	03-14-02
Laboratory Number:	ż2253	Date Sampled:	03-12-02
Chain of Custody No:	9796	Date Received:	03-12-02
Sample Matrix:	Soil	Date Extracted:	03-14-02
Preservative:	Cool	Date Analyzed:	03-14-02
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	1,750	0.2
Diesel Range (C10 - C28)	15.5	0.1
Total Petroleum Hydrocarbons	1,770	0.2

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: O.H. Randel #7 Abandoned Separator Pit Grab Sample.

L. aferrend Analyst

Aristing Dae ters

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# ENVIROTECH LABS

# PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

# EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Blaco / XTO Energy	Project #:	94034-010
Sample ID:	1 @ 6'	Date Reported:	03-14-02
Laboratory Number:	22253	Date Sampled:	03-12-02
Chain of Custody:	9796	Date Received:	03-12-02
Sample Matrix:	Soil	Date Analyzed:	03-14-02
Preservative:	Cool	Date Extracted:	03-14-02
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)	
Benzene	3.000	1.8	
Toluene	1,180	1.7	
Ethylbenzene	835	1.5	
p,m-Xylene	1,550	2.2	
o-Xylene	1,220	1.0	
Total BTEX	7,790		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	95 %
	1,4-difluorobenzene	95 %
	Bromochlorobenzene	95 %

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

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: O.H. Randel #7 Abandoned Separator Pit Grab Sample.

C. aferre Analyst

mista Malter Review

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	CHAIN OF CUSTODY REC	<b>CORD</b> 09796	
Slient / Project Name Brack XTO ENERgy	Project Location ABALD ONED SEPARATOR	ANALYSIS / PARAMETERS	
	Client No. 9403-1-010 to find TPH B#X	Remar	
Sample No./ Sample Sample Identification Date Time	Lab Number Sample 2 80158) (8028)	MESERVEL	and t
0 c 6' 3/2/62 1130	22253 501 1 1 1		
Relinquished by: (Signature)	Date Time Received by: (Signature)	Date	Time 1230
Relinquished by: (Signature)	Received by: (Signature)		
Relinquished by: (Signature)	Received by: (Signature)		
	EDVIROTECH INC.	Sample Recei	ā
			N N/A
	5796 U.S. Highway 64 Farmination Maximo 97401	Received Intact	\
	(505) 632-0615	Cool - Ice/Blue Ice	\

1 Star

# ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

# **EPA Method 8015 Modified**

Nonhalogenated Volatile Organics Total Petroleum Hydrocarbons

# **Quality Assurance Report**

Client:	QA/QC		Project #:		N/A
Sample ID:	03-14-TPH QA	VQC	Date Reported:		03-14-02
Laboratory Number:	22234		Date Sampled:		N/A
Sample Matrix:	Methylene Chlor	ide	Date Received:		N/A
Preservative:	N/A		Date Analyzed:		03-14-02
Condition:	N/A		Analysis Reques	ted:	ТРН
: }					
	EGal/Date	ા ને જિલ્લા રાખ્ય ન	CACENTRE	Mainine Concession	AccepterRanger
Gasoline Range C5 - C10	01-07-02	2.5028E-002	2.5003E-002	0.10%	0 - 15%
Diesel Range C10 - C28	01-07-02	1.2696E-002	1.2671E-002	0.20%	0 - 15%
					_
Elenkierine: (mg/jedme//Ko)		Concentration		inil dolpaied	
Gasoline Range C5 - C10		ND		0.2	
Diesel Range C10 - C28		ND		0.1	
Total Petroleum Hydrocarbons		ND		0.2	
					_
Duplicate Conc (mg/Kg)	Sample :	<b>Duplicate</b>	Difference	Accept Range	
Gasoline Range C5 - C10	ND	ND	0.0%	0 - 30%	
Diesel Range C10 - C28	ND	ND	0.0%	0 - 30%	
Spike Conc. (mg/kg)	Ser Sample	Spike Added.	SpixerResult	<b>WiRecover</b>	Accept Range
Gasoline Range C5 - C10	ND	250	250	100.0%	75 - 125%
Diesel Range C10 - C28	ND	250	250	100.0%	75 - 125%

ND - Parameter not detected at the stated detection limit.

References:

Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments:

QA/QC for samples 22234 -22239, 22253 and 22272.

- C. africa

Christen Malters

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# ENVIROTEC

# EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

N/A

# PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

Client:

N/A

Soll N/A		Date Received: Date Analyzed:	N O	/A /A 3-14-02 TEX
N/A	-CICANRE 4-1	Analysis.	Blank S. A.	Delect
		09910570584	COLON CASE	
6.9839E-002	7.0049E-002	0.3%	ND	0.2
5.0724E-002	5.0825E-002	0.2%	ND	0.2
8.2086E-002	8.2333E-002	0.3%	ND	0.2
7.1064E-002	7.1278E-002	0.3%	ND	0.2
6.2661E-002	6.2787E-002	0.2%	ND	0.1
Samples at	Duplicate			S (Detective) military
ND	ND	0.0%	0 - 30%	1.8
ND	ND	0.0%	0 - 30%	1.7
ND	ND	0.0%	0 - 30%	1.5
ND	ND	0.0%	0 - 30%	2.2
	N/A N/A 6.9839E-002 5.0724E-002 8.2086E-002 7.1064E-002 6.2661E-002 Samples ND ND	N/A N/A 1-CallRE 6.9839E-002 5.0724E-002 8.2086E-002 8.2086E-002 8.2333E-002 7.1064E-002 6.2661E-002 6.2787E-002 1278E-002	N/A         Date Analyzed.           N/A         Analysis:           I-Cal/RE         C.Cal/RE         %Diff.           Accept Range 0         15%           6.9839E-002         7.0049E-002         0.3%           5.0724E-002         5.0825E-002         0.2%           8.2086E-002         8.233E-002         0.3%           7.1064E-002         7.1278E-002         0.3%           6.2661E-002         6.2787E-002         0.2%           Samplex FF         OUplicater         %Oiff.           ND         ND         0.0%           ND         ND         0.0%           ND         ND         0.0%	N/A         Date Analyzeo.         o           N/A         Analysis:         B           I_CallRE         -CiCal RE         %Diff         Blank           Accept Range 0: 15%         Conclusion           6.9839E-002         7.0049E-002         0.3%         ND           5.0724E-002         5.0825E-002         0.2%         ND           8.2086E-002         8.2333E-002         0.3%         ND           7.1064E-002         7.1278E-002         0.3%         ND           6.2661E-002         6.2787E-002         0.2%         ND           Samplex 1:         ADUplicately         %Diff         Accept Range           ND         ND         0.0%         0 - 30%           ND         ND         0.0%         0 - 30%

Project #:

Spike Conct (ug/Kg)	Sample: Amo	ount Spiked Spil	ed Sample 😒	% Recovery	AcceptRange
Benzene	ND	50.0	49.8	99.6%	39 - 150
Toluene	ND	50.0	49.8	99.6%	<b>46 -</b> 148
Ethylbenzene	ND	50.0	49.8	99.6%	32 - 160
p,m-Xylene	ND	100	99.5	99.5%	46 - 148
o-Xylene	ND	50.0	49.8	99.6%	46 - 148

ND - Parameter not detected at the stated detection limit.

References:

Analyst

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: QA/QC for sample 22234 - 22239, 22253 and 22272.

<u>Mistin</u> Review of libeter

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

April 17, 2002

Mr. Roger Anderson Chief of Environmental Bureau State of New Mexico Oil Conservation Division (NMOCD) 1220 St. Francis Drive Santa Fe, New Mexico 87505

# RE: Groundwater Impact XTO Energy, Inc.

O.H. Randel # 7 Well site Legal Description: Unit D, Sec. 15, T26N, R11W San Juan County, New Mexico

Dear Mr. Anderson:

Physical observation of groundwater after monitor well construction was completed on March 22, 2002 at the above referenced well site indicates approximately 0.32 ft. or 3.84 inches of free phase product. The monitor well is located within an abandoned separator pit area. XTO Energy will adhere to its NMOCD approved groundwater management plan during further assessment of the apparent hydrocarbon contamination encountered. Depth to free phase product in the monitor well was approximately 16.36 ft. below the ground surface.

If you have any questions concerning this information, please do not hesitate to contact Nelson Velez or myself at (505) 632-1199. Thank you for your cooperation.

Respectfully submitted, Blagg Engineering, Inc.

7 C. Hogg Jeffrey C. Blagg, P.E.

President

cc: Denny Foust, Environmental Geologist, NMOCD, Aztec, NM Terry Matthews, Production Superintendent, XTO Energy, Inc., Farmington, NM Nina Hutton, Environmental & Safety Manager, XTO Energy, Inc., Ft. Worth, TX

**RANDEL-7.LTR** 

NJV/njv

Lodestar Services, Inc. P.O. Box 3861, Farmington, NM 87499-3861, 505-334-2791

August 15, 2006

Mr. Steve Austin Navajo Nation EPA PO Box 1999 Shiprock, NM 87420

#### CERTIFIED MAIL: 7004 1160 0007 4952 1517

#### RE: OH Randel #7

#### Dear Mr. Austin,

XTO Energy Inc. (XTO) has contracted Lodestar Services, Incorporated (Lodestar) to oversee groundwater monitoring and remedial activities at the OH Randel #7 natural gas production well. It has come to our attention that the well is located on land regulated by the Navajo Nation Environmental Protection Agency (NNEPA). Previous regulatory correspondence has been with the New Mexico Oil Conservation Division (NMOCD). An annual comprehensive report was submitted to the NMOCD in January 2006 and is included for your review.

The OH Randel #7 is located in Unit D of Section 16 of Township 26N, Range 11W, and includes a former oil-water-separator pit that may have affected shallow groundwater. Six groundwater monitoring wells were previously installed on the site to investigate groundwater quality. One of the wells, MW-6, contains free-phase hydrocarbons. Previously MW-1 and MW-2 contained free-phase hydrocarbons. MW-1 is located in the center of the former pit. MW-2 is directly adjacent to the pit, and MW-6 is located down gradient of the pit. The annual report included herein has several groundwater flow directions. Navajo Agricultural Products Incorporated (NAPI) conducts irrigation adjacent to the site and may influence groundwater flow direction.

The following steps are proposed remove impacted soil and free-phase hydrocarbons:

- 1. Excavate affected soil associated with historical operations from the former pit. Impacted soil will be disposed at a local land farm permitted by the NMOCD. Soil headspace gas will be monitored with a photo-ionization detector (PID) to determine extent of impacted soil during excavation according to the NMOCD Guidelines for headspace analysis. Soil above 10 milligrams per kilogram (mg/kg) benzene, 50 mg/kg total benzene, toluene, ethylbenzene, and xylenes (BTEX), and 100 mg/kg total petroleum hydrocarbons will be removed. Laboratory analyses of composite samples collected from the sidewalls of the excavation will be used to document that impacted soil has been removed.
- 2. Erect temporary fencing around the excavated site and remove impacted water and free-phase hydrocarbons from the pit.



Mr. Steve Austin August 15, 2006 Page 2 of 2

- 3. Once the free-phase hydrocarbons have been removed, backfill the excavation site with clean soil.
- 4. Replace groundwater-monitoring wells as necessary.
- 5. Install additional down gradient monitoring wells as necessary to characterize impacted groundwater.
- 6. Remove free phase hydrocarbons from groundwater, then sample groundwatermonitoring wells for benzene, toluene, ethylbenzene and total xylenes (BTEX) on a quarterly basis to monitor progress at the site.

Following completion of the above tasks, XTO will provide a letter report describing onsite activities and analytical results. XTO wishes to complete this work as soon as practical and will contact you to schedule activities. Should you have any questions or require additional information, please do not hesitate to contact Lisa Winn of XTO at (505) 324-1090 or you can call me at (505) 334 2791.

USEPA

# Sincerely, LODESTAR SERVICES, INC

Martin Nee

Cc: Lisa Winn, XTO, w/o enclosures Kim Champlin, XTO, w/o enclosures Ashley Ager, LSI, w/o enclosures Glenn Von Gonten, NMOCD File

Jim Wehro

Attachments: Annual Report

20

Lodestar Services, Inc. P.O. Box 3861, Farmington, NM 87499-3861, 505-334-2791



Lodestar Services, Incorporated

PO Box 3861 Farmington, NM 87499-3861 Office (505) 334-2791

January 29, 2007

Mr. William Freeman Navajo Nation Environmental Protection Agency PO Box 1999 Shiprock, NM 87420

# **RE: Report of Excavation and Sampling at OH Randel #7**

Dear Mr. Freeman:

XTO Energy Inc. (XTO) operates the OH Randel #7 natural gas production well located in Unit D of Section 16 of Township 26N, Range 11W, San Juan County, New Mexico. A former oilwater-separator pit may have impacted soil and shallow groundwater at the site. On August 15, 2006, XTO submitted a work plan to the Navajo Nation Environmental Protection Agency (NNEPA) describing planned remedial activities to investigate and remove impacted soil. XTO contracted Lodestar Services, Incorporated (Lodestar) to direct excavation activities according to the August 15 work plan. Core Oilfield Services completed the excavation, backfilling, and transportation of impacted soil to Envirotech Inc.'s land farm. Clean backfill was purchased from Moss Excavation's gravel pit located on highway 550 in Bloomfield, NM.

On November 13-27, 2006, a geologist from Lodestar was present during excavation of impacted soil at the OH Randel #7. During excavation, field screening according to the New Mexico Oil Conservation Division's (NMOCD) guidelines for headspace analysis was conducted to determine extent of impacted soil by collecting samples from the sidewalls and floor of the excavated pit. Following headspace screening and excavation, composite samples from the sidewalls and floor of the excavation were collected for laboratory analysis. Samples were collected where field screening indicated the highest concentrations of hydrocarbons. Compositing included placing four aliquots of soil from a given wall or floor into a one-gallon plastic bag. The soil within the bag was thoroughly mixed before filling a four-ounce glass jar. The sample was immediately placed on ice, and maintained under strict chain-of-custody until delivered to Envirotech Laboratories in Farmington, NM. Envirotech Laboratories analyzed the samples for benzene, toluene, ethylbenzene, and xylenes (BTEX) and total petroleum hydrocarbons (TPH) by United States Environmental Protection Agency (USEPA) methods 8021 and 8015, respectively. The results of sample analyses are as follows:

	GRO (ppm)	DRO (ppm)	TPH (ppm)	Benzene (ppb)	Toluene (ppb)	Ethyl benzene (ppb)	P&M Xylenes (ppb)	O Xylenes (ppb)	Total BTEX (ppb)
NMOCD Standard			100	10,000					50,000
North Excavation North Wall	2.6	3.6	6.2	2.2	20.3	39.1	374	64.8	500
North Excavation East Wall	1080	266	1350	518	3230	3290	9590	3610	20240





Mr. William Freeman January 29, 2007 Page 2 of 2

	GRO (ppm)	DRO (ppm)	TPH (ppm)	Benzene (ppb)	Toluene (ppb)	Ethyl benzene (ppb)	P&M Xylenes (ppb)	O Xylenes (ppb)	Total BTEX (ppb)
NMOCD Standard			100	10,000					50,000
North Excavation West Wall	8.0	ND	8.0	2.0	746	889	2170	979	4790
North Excavation Floor	3.6	ND	3.6	10.5	65.9	119	619	202	1020
South Excavation East Wall	5.2	15.0	20.2	7.4	50.7	16.7	78.6	37.0	190
South Excavation West Wall	0.5	0.4	0.9	3.3	9.1	19.6	84.7	28.4	145
South Excavation Floor	ND	ND	ND	ND	4.4	7.7	24.5	5.3	41.9
South Excavation South Wall	ND	ND	ND	ND	1.9	7.9	24.8	8.7	43.3

GRO: Gasoline Range Organics; DRO: Diesel Range Organics;

ND: Not Detected in sample; ppm: parts per million; ppb: parts per billion

Approximately six thousand eight hundred and eighty two cubic yards of soil were removed for treatment to the land farm. Lodestar and XTO met with the USEPA and the NNEPA on November 27, 2006 at the job site and received permission to backfill the excavation based on the above results.

Six groundwater monitoring wells were previously installed on the site to investigate groundwater quality. Three of the wells, MW-1, MW-2, and MW-6 were removed during excavation activities.

Laboratory reports and Bill-of-Lading copies are attached. Please contact Lisa Winn of XTO at (505) 324-1090 with any questions that may arise.

Sincerely, Lodestar Services, Inc.

Martin Nee

Cc: Jim Walker, USEPA Lisa Winn, XTO Energy Kim Champlin, XTO Energy Ashley Ager, Lodestar Services

Lodestar Services, Incorporated PO Box 3861 Farmington, NM 87499 (505) 334-2791

