3R-100

Annual Groundwater Remediation Reports

Volume 1

January 2007

XTO ENERGY

RECEIVED

MAR 05 2007

Oil Conservation Division
Environmental Bureau

March 2, 2007

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:

- Baca Gas Com A #1A 3R0104
- Bruington Gas Com #1 3R0106
- Carson Gas Com #1E 3R415
- EJ Johnson C #1E 3R0385
- Federal Gas Com #H1 3R0110
- Frost, Jack B #2 3R416
- Garcia Gas Com B #1 3R0111
- Haney Gas Com B #1E 3R0113
- Hare Gas Com B #1 3R413
- Hare Gas Com B #1E 3R0384
- Hare Gas Com I #1 3R412
- Masden Gas Com #1E 3R0120
- McDaniel Gas Com B #1E 3R0121
- OH Randel #7 3R0386
- PO Pipken #3E 3R409
- Romero Gas Com A #1 3R0123
- Rowland Gas Com #1 3R124
- Snyder Gas Com #1A 3R0126
- Stedje Gas Com #1 3R0128
- Sullivan Frame A #1A
- Sullivan Gas Com D #1 3R0131
- Valdez A #1E 3R0134

We have also enclosed an Annual Report for one site that meets the closure requirements outlined in the GMP. XTO respectfully requests closure of:

- Abrams J #1 3R0100

In previously submitted reports three sites met the closure requirements outlined in the GMP and XTO requested closure on those sites in January 2006. Per your request reports for the below listed sites are being submitted again.

- Armenta Gas Com #1E 3R0394
- Bergin Gas Com #1E 3R0105
- State Gas Com BS #1 3R0127

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) 566-7942.

Respectfully,

Lisa Winn
Environmental Coordinator
San Juan Division

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

ABRAMS J #1

XTO ENERGY INC.

ANNUAL GROUNDWATER REMEDIATION REPORT

2006

ABRAMS J #1
(I) SECTION 29, T29N, R10W, NMPM
SAN JUAN COUNTY, NEW MEXICO

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

JANUARY 2007

TABLE OF CONTENTS

Site Details 3

Previous Activities 3

Site Map 3

Summary Tables 3

Potentiometric Surface Diagrams 3

2006 Activities 3

Geologic Logs and Well Completion Diagrams 3

Disposition of Generated Wastes 3

Conclusions 4

Recommendations 4

Appendices

Table 1: Summary Groundwater Lab Results

Figure 1: Site Map

Figures 2-3: Potentiometric Surface Diagrams

Figures 4-11: Geologic Logs and Well Completion Diagrams

Attachment 1: 2006 Laboratory Reports

2006 XTO GROUNDWATER REPORT

ABRAMS J #1

SITE DETAILS

Legals - Twn: 29N **Rng:** 10W **Sec:** 29 **Unit:** A
NMOCD Hazard Ranking: 20 **Land Type:** FEE

PREVIOUS ACTIVITIES

Excavation: Aug-93 (1460 CY) and Sep-93 (1730 CY)
Additional Monitor Wells: Jun-Aug-96
Quarterly Sampling Initiated: Apr-97
Air Sparge Re-initiated: Jan-00
Quarterly Sampling Re-initiated: Feb-06
Monitor Wells: Sep-93
Air Sparge Initiated: Apr-97
Air Sparge Terminated: Jan-98
Air Sparge Terminated: Jun-02

SITE MAP

A site map is presented as Figure 1.

SUMMARY TABLES

Historical and current groundwater laboratory results are summarized in Table 1. Copies of the laboratory data sheets and associated quality assurance/quality control data for 2006 are presented as Attachment 1.

POTENTIOMETRIC SURFACE DIAGRAMS

Field data collected for site monitoring activities indicates a groundwater gradient that is consistently north with a minor west component. Figures 2 – 3 illustrate the estimated groundwater gradients for August 2006 and November 2006, respectively.

2006 ACTIVITIES

Annual Groundwater Remediation Report- The 2005 annual report was submitted to New Mexico Oil Conservation Division (NMOCD) in January 2006, proposing quarterly sampling of the groundwater monitoring wells, in accordance with the NMOCD approved Groundwater Management Plan.

Groundwater Monitoring – Following a review of field conditions at this site, monitor wells MW-4 and MW-9 were repaired and other monitor wells were restored. A new survey of the groundwater monitor wells was conducted. Quarterly groundwater samples were collected from MW-1R, MW-3, MW-4, MW-9, MW-10 and MW-11 in 2006. Analytical results demonstrate benzene, toluene, ethyl benzene, and total xylene (BTEX) constituents in groundwater is not detectable or below standards for four consecutive quarters at this site.

GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS

Bore/Test Hole Reports are presented as Figures 4–11 representing drilling that occurred on site from 1997 through 2006.

DISPOSITION OF GENERATED WASTES

Waste generated (groundwater) during monitor well sampling and development was placed in the produced water separator tank located on the well site.

2006 XTO GROUNDWATER REPORT

CONCLUSIONS

January 1998 XTO Energy Inc. (XTO) acquired the Abrams J #1 from Amoco Production Company. XTO elected to discontinue operation of the air sparge system pending analysis of its effectiveness. Laboratory analysis of BTEX constituents exceed closure standards in wells MW-1 (redrilled as MW-1R) MW-3, MW-4, MW-5, MW-6, MW-9 and MW-10. XTO re-initiated the air sparge system in January 2000 to enhance site groundwater remediation. By February 2002 laboratory analysis shows groundwater from monitor wells MW-1R, MW-3, MW-6, MW-7, MW-8 and MW-10 meets New Mexico Water Quality Control Commission (NMWQCC) closure standards (Table 1) and operation of the air sparge system was terminated in June 2002.

Analytical data from groundwater samples collected from MW-1R, MW-3, MW-4, MW-9, MW-10 and MW-11 for four (4) consecutive quarters in 2006 have demonstrated no detectable levels of BTEX constituents. The quarterly sampling has confirmed no rebound of BTEX constituents has occurred since termination of air sparging activities and NMWQCC standards have been met. Therefore, XTO requests closure of this site.

RECOMMENDATIONS

- XTO requests closure of this site.
- Following OCD approval for closure, all monitor well locations will be abandoned in accordance with the monitoring well abandonment plan.

TABLE 1
XTO ENERGY INC. GROUNDWATER LAB RESULTS

ABRAMS J #1
UNIT I, SEC. 29, T29N, R10W

Revised Date: January 26, 2007

Sample Date	Monitor Well No.	DTW (ft)	TD (ft)	Product (ft)	Benzene ug/L	Toluene ug/L	Ethyl Benzene ug/L	Total Xylene ug/L
11-Jun-96	MW #1	45.17	45.73	0.58	-	-	-	-
07-Apr-97		-		1.80	-	-	-	-
27-Jun-97		-		0.70	-	-	-	-
15-Sep-97		-		0.01	-	-	-	-
30-Dec-97		44.59			748	3,280	1,050	5,490
25-Jan-99		44.35			214	3,130	707	7,090
02-Jun-00		DRY			-	-	-	-
20-Mar-01		DRY			-	-	-	-
30-Aug-01	MW #1R	44.97	52.00		ND	14	16	309
19-Dec-01		44.18			0.8	ND	31	153.4
20-Feb-02		44.80			1.4	1.2	57	452
26-Jun-02		46.42			ND	ND	ND	ND
24-Feb-06		46.72	52.00		ND	ND	ND	ND
31-May-06		47.45			ND	ND	ND	103
28-Aug-06		47.17	53.83		ND	ND	ND	ND
28-Nov-06		46.24	53.83		ND	ND	ND	ND
11-Jun-96	MW #2	42.30	50.00		ND	ND	ND	ND
07-Apr-97		42.86			ND	ND	ND	ND
19-May-97		43.13			ND	ND	ND	0.7
15-Sep-97		42.45			ND	ND	0.0	0.6
25-Jan-99	MONITOR WELL NOT FOUND- PRESUMED DESTROYED							
11-Jun-96	MW #3	44.58	50.00	0.33	-	-	-	-
07-Apr-97		-		1.55	-	-	-	-
27-Jun-97		-		1.10	-	-	-	-
15-Sep-97		-		0.01	-	-	-	-
30-Dec-97		44.11			78.1	891	138	3,731
25-Jan-99		43.93			18.9	123	71	3,809
11-May-99		45.00			18.3	52	76.4	3,482
01-Feb-00		-		0.05	-	-	-	-
22-Feb-00		-		1.78	-	-	-	-
02-Jun-00		-		0.01	-	-	-	-
30-Nov-00		44.83			ND	ND	5.7	3,300
20-Mar-01		45.89			ND	ND	6.6	1,200
16-May-01		46.15			ND	ND	ND	283
30-Aug-01		44.43			ND	ND	6.2	195
19-Dec-01		43.70			ND	ND	1.2	134
20-Feb-02		44.33			0.5	ND	3.8	90
24-Feb-06		46.35	50.00		ND	ND	ND	ND
31-May-06		46.41			ND	ND	ND	ND
28-Aug-06		50.25	46.83		ND	ND	ND	ND
28-Nov-06		45.93	46.83		ND	ND	ND	ND
16-Aug-96	MW #4	43.75	50.00		ND	0.6	ND	ND
07-Apr-97		44.93			ND	ND	ND	ND

TABLE 1
XTO ENERGY INC. GROUNDWATER LAB RESULTS

ABRAMS J #1
UNIT I, SEC. 29, T29N, R10W

Revised Date: January 26, 2007

Sample Date	Monitor Well No.	DTW (ft)	TD (ft)	Product (ft)	Benzene ug/L	Toluene ug/L	Ethyl Benzene ug/L	Total Xylene ug/L
27-Jun-97	MW #4	45.90			139	1.6	1.6	9.4
15-Sep-97		44.38			ND	8.3	ND	11.1
30-Dec-97		44.35			0.6	1.5	0.4	2.6
25-Jan-99		44.11			324	ND	13.0	ND
11-May-99		45.18			0.9	4.4	4.0	37.3
25-Aug-99		44.80			1.5	2.1	0.2	3.5
30-Nov-99		44.97			8.7	7.6	ND	8.9
22-Feb-00		45.78			ND	ND	ND	ND
24-Feb-06		46.58	50.00		ND	ND	ND	ND
31-May-06	MONITORING WELL DESTROYED							
28-Aug-06		45.00	45.85		ND	ND	ND	ND
28-Nov-06		44.12	45.85		ND	ND	ND	ND
16-Aug-96	MW #5	45.28	50.00		553	1,300	74.3	1,077
07-Apr-97		46.44			161	394	25.6	313.6
27-Jun-97		46.18			286	474	238	492
15-Sep-97		45.95			5.9	5.8	1.1	42.5
30-Dec-97		45.86			1.3	1.7	0.2	4.3
25-Jan-99		45.63			10.9	3.5	96.6	39.7
11-May-99		46.71			10.1	3.3	54	84.3
25-Aug-99		46.41			11.9	3.9	0.2	40.5
01-Feb-00		47.02			10	2.8	65	128.1
02-Jun-00		47.86			ND	ND	ND	ND
30-Aug-00		46.95			ND	ND	ND	ND
30-Nov-00		46.52			ND	ND	ND	ND
28-Aug-06		3.01	9.30	Well broken and silted in				
30-Jun-96	MW #6	-	50.00	0.70	-	-	-	-
07-Apr-97		-		1.15	-	-	-	-
27-Jun-97		-		1.25	-	-	-	-
15-Sep-97		-		0.05	-	-	-	-
30-Dec-97		45.08			782	2,560	465	5,240
25-Jan-99		44.86			327	1,940	508	4,810
11-May-99		45.94			420	1,940	500	3,822
01-Feb-00		-		0.06	-	-	-	-
22-Feb-00		-		1.25	-	-	-	-
02-Jun-00		46.90			51	1,300	410	10,700
30-Aug-00		45.86			ND	12	130	4,800
30-Nov-00		45.67			6.7	ND	39	1,076
20-Mar-01		47.38			130	ND	180	1,680
16-May-01		46.96			1	ND	4.7	13.2
30-Aug-01		45.26			0.5	ND	1.6	3.1
19-Dec-01		44.65			1.2	ND	5.6	6.1
20-Feb-02		45.28			1.1	ND	15	7.1
28-Aug-06	MONITORING WELL MISSING							

TABLE 1
XTO ENERGY INC. GROUNDWATER LAB RESULTS

ABRAMS J #1
UNIT I, SEC. 29, T29N, R10W

Revised Date: January 26, 2007

Sample Date	Monitor Well No.	DTW (ft)	TD (ft)	Product (ft)	Benzene ug/L	Toluene ug/L	Ethyl Benzene ug/L	Total Xylene ug/L
16-Aug-96	MW #7	43.32	50.00		ND	ND	ND	ND
07-Apr-97		44.55			ND	0.73	ND	0.5
15-Sep-97		43.88			ND	ND	ND	0.5
30-Dec-97		43.91			1.1	3.7	0.2	18.3
25-Jan-99		43.69			1.6	ND	ND	ND
25-Aug-99		44.33			2.6	0.5	1.0	16.0
30-Nov-99		44.51			32.6	3.6	5.9	6.2
06-Dec-99		44.53			6.9	2.9	6.1	13.2
06-Dec-99	dup	"			7.3	3.9	12.3	13.1
22-Feb-00		45.32			ND	ND	ND	ND
02-Jun-00		45.77			ND	ND	ND	ND
20-Mar-01		45.64			ND	ND	ND	23.7
20-Feb-02		44.09			ND	ND	ND	ND
28-Aug-06	MONITORING WELL MISSING							
07-Apr-97	MW #8R	45.10	53.10		ND	1.06	ND	0.5
19-May-97		45.10			ND	0.3	0.3	1.6
27-Jun-97		45.09			ND	ND	0.2	0.7
15-Sep-97		44.32			ND	ND	ND	ND
30-Dec-97		44.49			ND	0.3	ND	0.1
25-Jan-99		44.25			2.2	ND	ND	ND
25-Aug-99		44.78			0.9	0.3	0.9	2.4
30-Nov-99		45.02			8.5	2.9	0.5	2.7
22-Feb-00		45.89			ND	ND	ND	ND
02-Jun-00		46.12			ND	ND	ND	ND
20-Feb-02		44.64			ND	ND	ND	ND
28-Aug-06	MONITORING WELL MISSING							
16-Aug-96	MW #9	44.59	50.00		74.8	ND	ND	ND
07-Apr-97		45.84			341	0.9	0.6	ND
27-Jun-97		45.86			48.6	0.2	0.2	1.0
15-Sep-97		45.09			113	0.8	1.4	20.3
30-Dec-97		45.24			0.9	0.4	0.3	2.4
25-Jan-99		44.98			13.9	ND	ND	2.6
11-May-99		46.01			0.9	1.0	1.6	5.2
25-Aug-99		45.54			5.3	2.3	ND	1.8
30-Nov-99		45.75			3.6	2.0	2.3	3.7
22-Feb-00		46.62			ND	ND	ND	ND
30-Aug-06		46.49	49.00		ND	ND	ND	ND
28-Nov-06		47.53	49.00		ND	ND	ND	ND
16-Aug-96	MW #10	44.71	50.00		1,600	6,280	511	6,190
07-Apr-97		45.88			1,010	1,940	66.8	514
19-May-97		46.20			0.5	23.8	152	752
27-Jun-97		46.65			5	0.5	7.1	56.6
15-Sep-97		45.39			492	329	426	1,038

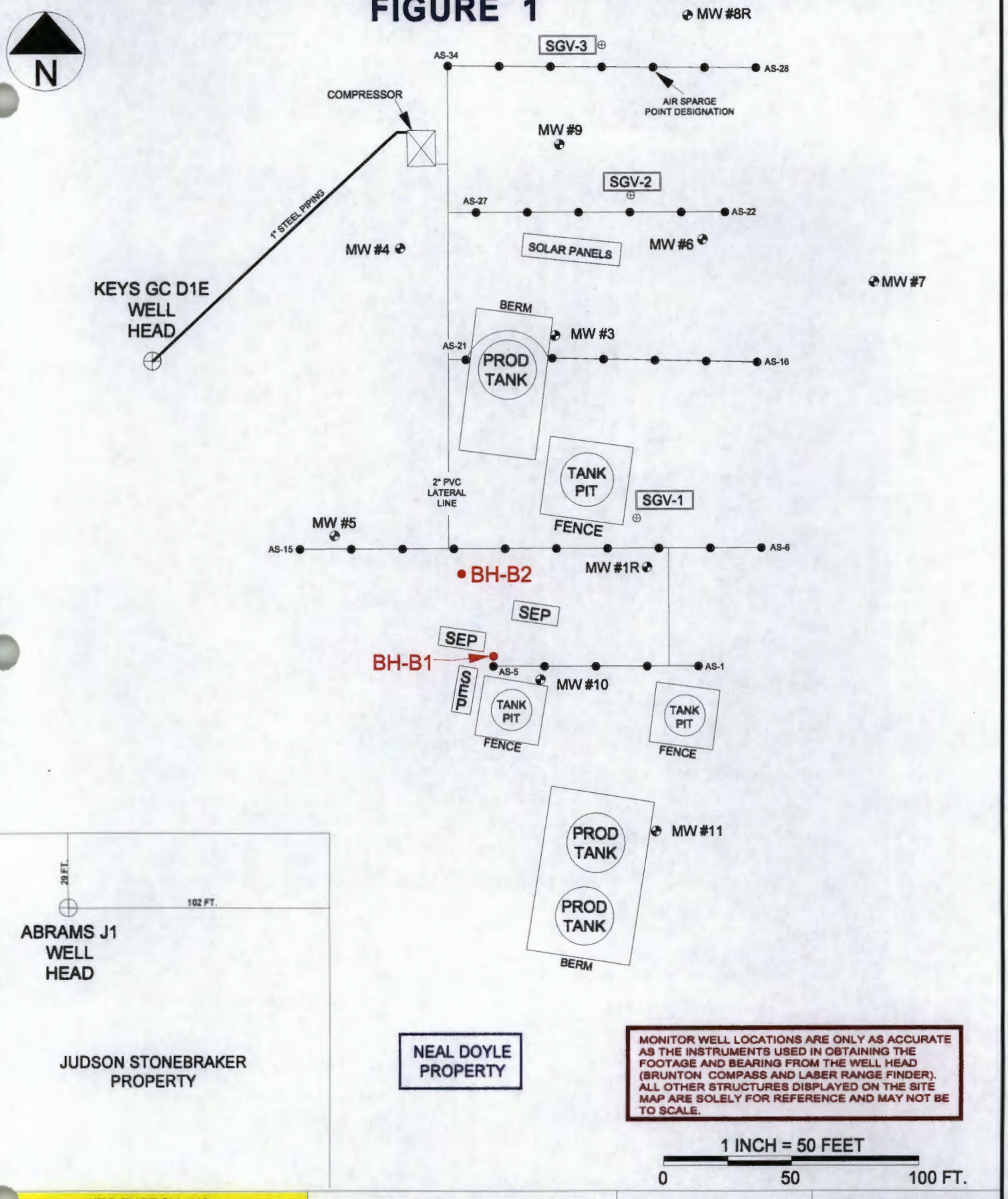
TABLE 1
XTO ENERGY INC. GROUNDWATER LAB RESULTS

ABRAMS J #1
UNIT I, SEC. 29, T29N, R10W

Revised Date: January 26, 2007

Sample Date	Monitor Well No.	DTW (ft)	TD (ft)	Product (ft)	Benzene ug/L	Toluene ug/L	Ethyl Benzene ug/L	Total Xylene ug/L
30-Dec-97	MW #10	45.30			96.8	6.6	60.9	660
25-Jan-99		45.06			43.6	53	253	1,397
11-May-99		46.16			27	65.1	162	723
01-Feb-00		46.46			31	120	300	3,500
02-Jun-00		47.29			13	8	10	415
16-May-01		47.26			ND	ND	0.7	ND
30-Aug-01		45.73			ND	ND	ND	ND
19-Dec-01		44.86			ND	ND	20	4.5
20-Feb-02		45.47			ND	ND	18	18.6
24-Feb-06		47.31	50.00		ND	ND	ND	ND
31-May-06		48.00			ND	ND	ND	ND
28-Aug-06		47.86	50.20		ND	ND	ND	ND
28-Nov-06		46.92	50.20		ND	ND	ND	ND
16-Aug-96	MW #11	45.76	50.00		ND	ND	ND	ND
07-Apr-97		47.02			ND	ND	ND	ND
25-Jan-99		46.16			ND	ND	ND	0.7
24-Feb-06		48.55	50.00		ND	ND	ND	ND
31-May-06		49.33			ND	ND	ND	ND
28-Aug-06		49.01	50.16		ND	ND	ND	ND
28-Nov-06		48.22	50.16		ND	ND	ND	ND
NMWQCC GROUNDWATER STANDARDS					10	750	750	620

FIGURE 1



MONITOR 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.

1 INCH = 50 FEET

0 50 100 FT.

XTO ENERGY, INC.

ABRAMS J #1

NE/4 SE/4 SEC. 29, T29N, R10W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: SOIL VERIFICATION

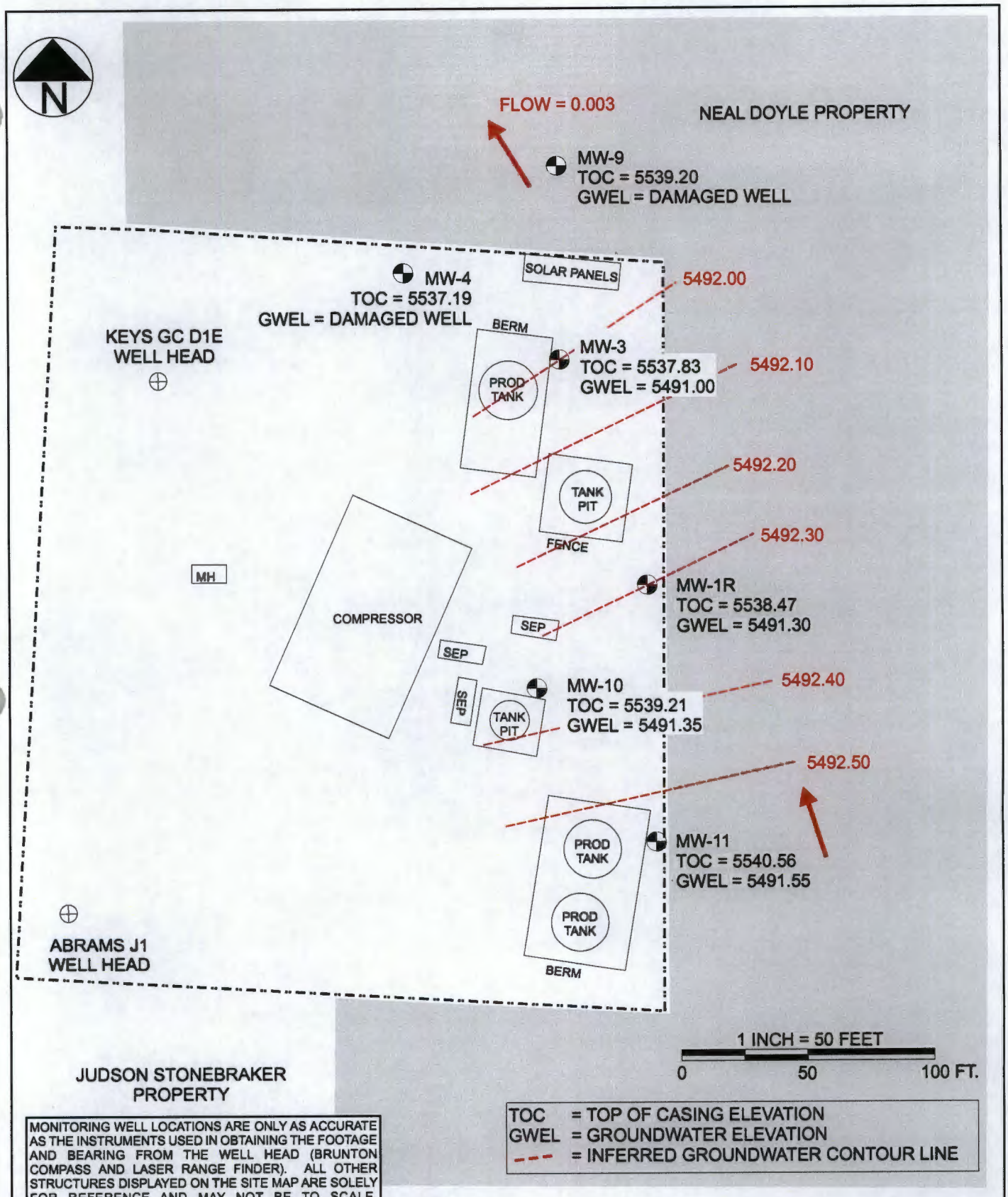
DRAWN BY: NJV

FILENAME: 08-02-99-SM

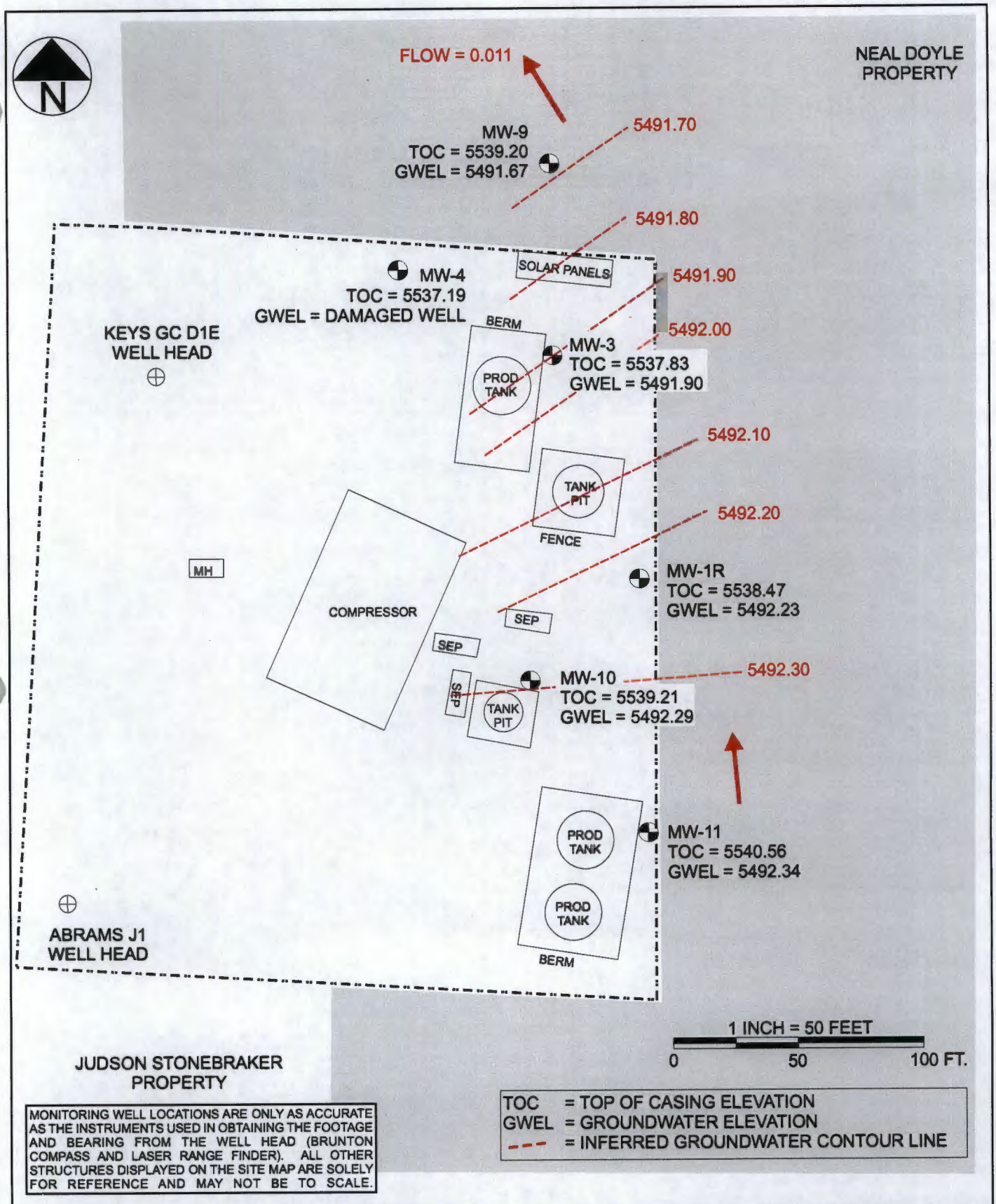
REVISED: 11/14/05 NJV

SITE MAP

08/02



Lodestar Services, Inc PO Box 3861 Farmington, NM 87499	ABRAMS J #1 NE/4 SE/4 SEC. 29, T29N, R10W SAN JUAN COUNTY, NEW MEXICO	PROJECT: XTO GROUND WATER DRAWN BY: ALA REVISED: 01/04/2007	FIGURE 2 GROUNDWATER GRADIENT MAP 08/28/2006



Lodestar Services, Inc PO Box 3861 Farmington, NM 87499	ABRAMS J #1 NE/4 SE/4 SEC. 29, T29N, R10W SAN JUAN COUNTY, NEW MEXICO	PROJECT: XTO GROUND WATER DRAWN BY: ALA REVISED: 01/04/2007	FIGURE 3 GROUNDWATER GRADIENT MAP 11/28/2006

FIGURE 4

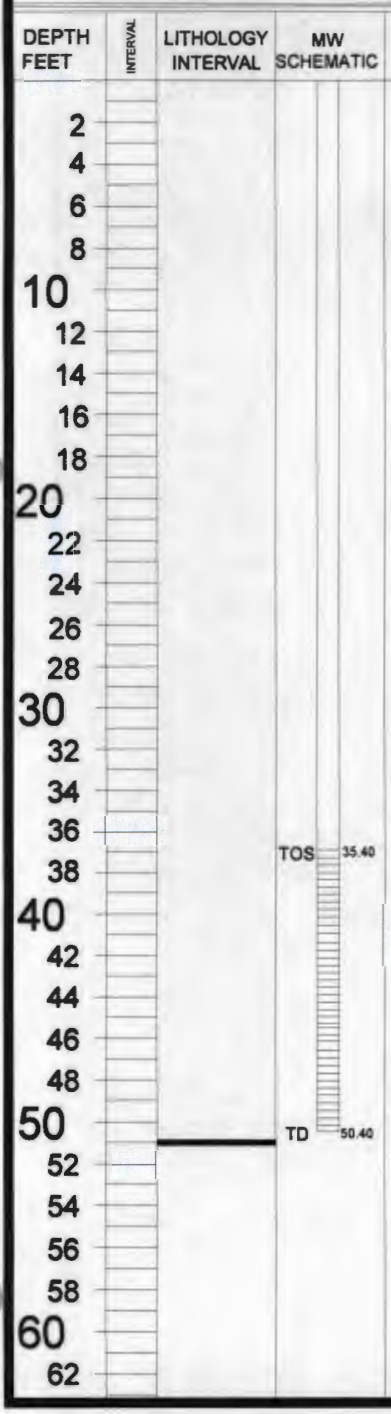
BLAGG ENGINEERING, INC.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME:	ABRAMS J # 1
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC. / ENVIROTECH, INC.
EQUIPMENT USED:	MOBILE DRILL RIG - CME 75
BORING LOCATION:	N35E, 420 FEET FROM WELL HEAD.

BORING #.....	BH-35
MW #.....	8R
PAGE #.....	1
DATE STARTED	3/31/97
DATE FINISHED	3/31/97
OPERATOR.....	BB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.70 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND CONTINUOUS THROUGHOUT ENTIRE BORING, NON COHESIVE, SLIGHTLY MOIST TO SATURATED (AT GROUNDWATER), FIRM TO LOOSE, NO APPARENT HC ODOR DETECTED PYHSICALLY WITHIN AUGER CUTTINGS (0.0 - 51.0 FT. INTERVAL).

▼ GW DEPTH ON 4/1/97 = 42.40 FT. (APPROX.) FROM GROUND SURFACE.

NOTES: ☐ - SAND TO SILTY SAND.

TOS - TOP OF SCREEN FROM GROUND SURFACE.
TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
GW - GROUND WATER.

Monitor well consist of 2 inch PVC piping - casing from 2.70 ft. above grade to 35.40 ft. below grade, 0.010 slotted screen between 35.40 to 50.40 feet below grade, sand packed annular to 32.00 ft. below grade, bentonite plug between 30.00 - 32.00 ft. below grade, then with clean native fill material to grade.

DRAWING: AB-J1-8R.SKF | DATE: 4/06/97 | DWN BY: NJV

FIGURE 5

BLAGG ENGINEERING, INC.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME:	ABRAMS J # 1
CLIENT:	CROSS TIMBERS OIL COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC. / ENVIROTECH, INC.
EQUIPMENT USED:	MOBILE DRILL RIG - CME 75
BORING LOCATION:	N59.5E, 261 FEET FROM WELL HEAD.

BORING #.....	BH-36
MW #.....	1R
PAGE #.....	2
DATE STARTED	8/23/01
DATE FINISHED	8/23/01
OPERATOR.....	KP
PREPARED BY	NJV

DEPTH FEET | INTERVAL | LITHOLOGY INTERVAL | MW SCHEMATIC

FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.00 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH ORANGE TO MODERATE BROWN SAND TO SILTY SAND CONTINUOUS THROUGHOUT ENTIRE BORING, NON COHESIVE, SLIGHTLY MOIST TO SATURATED, LOOSE TO FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (0.0 - 40.0 FT. & 45.0 - 54.0 FT. INTERVAL).

MW #1R @ 35 FT. - TIME COLLECTED 1000, OVM = **3.7** ppm.

MW #1R @ 40 FT. - TIME COLLECTED 1015, OVM = **291** ppm,
TPH = **ND** ppm; benzene = **ND** ppb; Total BTEX = **23.1** ppb.

TOS 42.00

GW DEPTH ON 8/30/01 = 42.97 FT. (APPROX.) FROM GROUND SURFACE.

SOIL SAME AS ABOVE EXCEPT SLIGHT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (40.0 - 45.0 FT. INTERVAL).

TD 52.00

OVM CALIBRATION:
53.6 ppm; RF = 0.52
(RF = response factor).
100 ppm calibration gas - isobutylene.
Date - 8/23/01.
Time - 1017.

NOTES:
- SAND TO SILTY SAND.
- TOS - TOP OF SCREEN FROM GROUND SURFACE.
- TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
- GW - GROUND WATER.

Monitor well consist of 2 inch PVC piping - casing from 2.00 ft. above grade to 42.00 ft. below grade, 0.010 slotted screen between 42.00 to 52.00 feet below grade, sand packed annular to 40.00 ft. below grade, bentonite plug between 37.00 - 40.00 ft. below grade, then with clean native fill material to grade.

DRAWING: AB-J1-1R.SKF	DATE: 4/06/97	DWN BY: NJV

FIGURE 6

BLAGG ENGINEERING, INC.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

CLIENT:	XTO ENERGY, INC.
LOCATION NAME:	ABRAMS J #1 UNIT I, SEC. 29, T29N, R10W
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	EARTHPROBE 200
BORING LOCATION:	4 FEET, NORTH FROM AS-5 (SEE SITE MAP).

BORING #.....	BH - B1
MW #.....	-
PAGE #.....	3
DATE STARTED	8/22/02
DATE FINISHED	8/22/02
OPERATOR.....	JCB
PREPARED BY	NJV

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	OVM READINGS (ppm)	FIELD CLASSIFICATION AND REMARKS
				GROUND SURFACE
2–62				DARK YELLOWISH ORANGE TO BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, SLIGHT HC ODOR DETECTED APPROX. 27 FT. BELOW GRADE (0.0 - 27 FT. BELOW GRADE).
26–28			118.1	BH-B1 @ 27 FT. - TIME COLLECTED 0850, TIME OF OVM READING 0905; TPH = **69.6** ppm.
30–38			170.3	BH-B1 @ 30 FT. - TIME COLLECTED 0926, Time of OVM reading 0942 TPH = **40.9** ppm; Benzene = **10.5** ppb; Total BTEX = **352** ppb. LIGHT TO DARK GRAY SILTY SAND, SLIGHTLY COHESIVE, SLIGHTLY MOIST, FIRM, SLIGHT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS & AT SAMPLE POINTS (27 - 39 FT. BELOW GRADE).
38			35.4	BH-B1 @ 38-39 FT. - TIME COLLECTED 0924, Time of OVM reading 0942; TPH = **25.9** ppm.

NOTES:

- SAND TO SILTY SAND.
- **OVM** - organic vapor meter or PID (photoionization detector).
- **ppm** - parts per million.
- **ppb** - parts per billion.
- **TPH** - total petroleum hydrocarbons (US Epa modified method 8015B).
- **BTEX** - benzene, toluene, ethylbenzene, & total xylenes (US Epa method 8021B).

OVM CALIBRATION:

53.5 ppm; RF = 0.52
(RF = response factor).
100 ppm calibration gas - isobutylene.
Date - 8/22/02.
Time - 0719.

DRAWING: ABRAMS-BH1. SKF | DATE: 10/29/02 | DWN BY: NJV

FIGURE 7

BLAGG ENGINEERING, INC.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

BORING #.....	BH - B2
MW #.....	-
PAGE #.....	4
DATE STARTED	8/22/02
DATE FINISHED	8/22/02
OPERATOR.....	JCB
PREPARED BY	NJV

CLIENT: **XTO ENERGY, INC.**
LOCATION NAME: ABRAMS J #1 UNIT I, SEC. 29, T29N, R10W
CONTRACTOR: **BLAGG ENGINEERING, INC.**
EQUIPMENT USED: **EARTHPROBE 200**
BORING LOCATION: **10** FEET, **SSE** FROM AS-12 (SEE SITE MAP).

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	OVM READINGS (ppm)	FIELD CLASSIFICATION AND REMARKS
				GROUND SURFACE
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62				DARK YELLOWISH ORANGE SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY THROUGHOUT ENTIRE BORING (0.0 - 39 FT. BELOW GRADE).
			8.5	BH-B2 @ 35 FT. - TIME COLLECTED 1030, Time of OVM reading 1038; TPH = **42.2** ppm.

NOTES:
- ☐ - SAND TO SILTY SAND.
- OVM - organic vapor meter or PID (photoionization detector).
- ppm - parts per million.
- TPH - total petroleum hydrocarbons (US Epa modified method 8015B).

OVM CALIBRATION:
53.5 ppm; RF = 0.62
(RF = response factor).
100 ppm calibration gas - isobutylene.
Date - 8/22/02.
Time - 0719.

DRAWING: ABRAMS-BH2. SKF | DATE: 10/29/02 | DWN BY: NJV

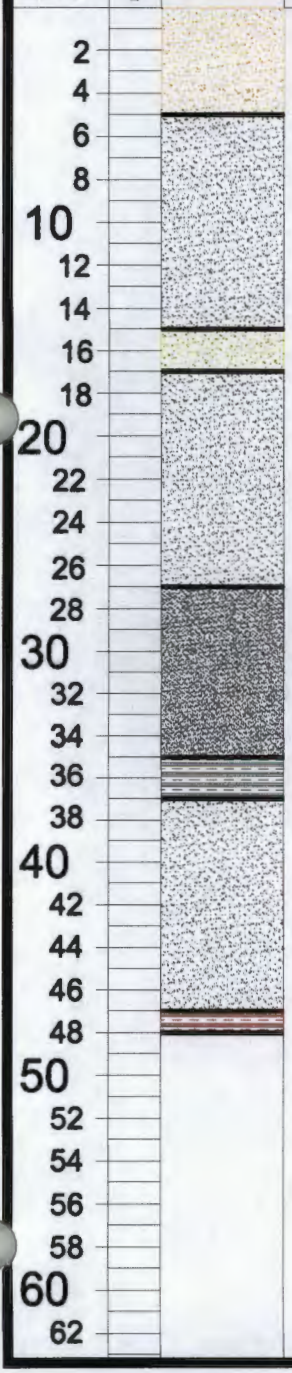
FIGURE 8

BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

CLIENT:	XTO ENERGY, INC.
LOCATION NAME:	ABRAMS J #1 UNIT I, SEC. 29, T29N, R10W
CONTRACTOR:	ENVIROTECH, INC.
EQUIPMENT USED:	MOBILE DRILL RIG - CME 75
BORING LOCATION:	10.33 FEET, S81W FROM MW #10.

BORING #.....	BH - B3
MW #.....	-
PAGE #.....	3
DATE STARTED	12/21/05
DATE FINISHED	12/21/05
OPERATOR.....	KP
PREPARED BY	NJV



OVM READINGS (ppm)	FIELD CLASSIFICATION AND REMARKS
	GROUND SURFACE
	DARK YELLOWISH ORANGE SAND, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HC ODOR DETECTED (0.0 - 5.0 FT. BELOW GRADE).
	DARK GRAY SAND, NON COHESIVE, SLIGHTLY MOIST TO MOIST, FIRM, STRONG HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (5.0-15.0 FT. BELOW GRADE).
	DARK YELLOWISH BROWN PHASING INTO OLIVE GRAY SAND, NON COHESIVE, SLIGHTLY MOIST TO MOIST, FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN SPLIT SPOON SAMPLE (15.0-17.0 FT. BELOW GRADE).
9.2	BH-B3 @ 16 FT. - TIME COLLECTED 0933, TIME OF OVM READING 1004.
253	BH-B3 @ 21 FT. - TIME COLLECTED 0943, TIME OF OVM READING 1004.
	DARK GRAY TO BLACK SAND, NON COHESIVE, MOIST TO WET, FIRM, STRONG HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS & FROM SPLIT SPOON SAMPLE POINT (17.0 - 27.0 FT. BELOW GRADE).
585	BH-B3 @ 26 FT. - TIME COLLECTED 0950, TIME OF OVM READING 1004.
	LIGHT TO DARK GRAY SAND TO SILTY SAND, NON TO SLIGHTLY COHESIVE, MOIST, FIRM TO STIFF, STRONG HC OD OR DETECTED PHYSICALLY WITHIN CUTTINGS & FROM SPLIT SPOON SAMPLE POINT (27.0 - 35.0 FT. BELOW GRADE).
981	BH-B3 @ 31 FT. - TIME COLLECTED 0959, TIME OF OVM READING 1004.
	DARK GRAY SILTY CLAY TO CLAY, COHESIVE TO MEDIUM PLASTIC, MOIST, STIFF, STRONG HC OD OR DETECTED PHYSICALLY WITHIN CUTTINGS & FROM SPLIT SPOON SAMPLE POINT (35.0 - 37.0 FT. BELOW GRADE).
1,114	BH-B3 @ 36 FT. - TIME COLLECTED 1024, Time of OVM reading 1044 TPH = ppm; Benzene = ppb; Total BTEX = ppb.
75.4	BH-B3 @ 41 FT. - TIME COLLECTED 1032, Time of OVM reading 1044; TPH = ppm. LIGHT TO DARK GRAY SAND PHASING INTO OLIVE GRAY, NON COHESIVE, MOIST, FIRM, STRONG HC ODOR PHASING TO SLIGHT DETECTED PHYSICALLY WITHIN CUTTINGS & FROM SPLIT SPOON SAMPLE POINT (37.0 - 46.0 FT. BELOW GRADE).
1.4	BH-B3 @ 46 FT. - TIME COLLECTED 1042, Time of OVM reading 1053; TPH = ppm. DARK YELLOWISH BROWN SILTY CLAY, SLIGHTLY PLASTIC, WET, NO APPARENT HC ODOR DETECTED PHYSICALLY FROM SPLIT SPOON SAMPLE POINT (46.0 - 47.0 FT. BELOW GRADE).

NOTES:

- SAND.
- SILTY SAND.
- SILTY CLAY TO CLAY.

OVM - organic vapor meter or PID (photoionization detector).
ppm - parts per million.
ppb - parts per billion.
TPH - total petroleum hydrocarbons (US Epa modified method 8015B).
BTEX - benzene, toluene, ethylbenzene, & total xylenes (US Epa method 8021B).

Blow count for all split spoon samples ranged between 14-16.

OVM CALIBRATION:
54.5 ppm; RF = 0.52
(RF = response factor).
100 ppm calibration gas - isobutylene.
Date - 12/21/05.
Time - 1003.

DRAWING: ABRAMS-BH3. SKF | DATE: 12/21/05 | DWN BY: NJV

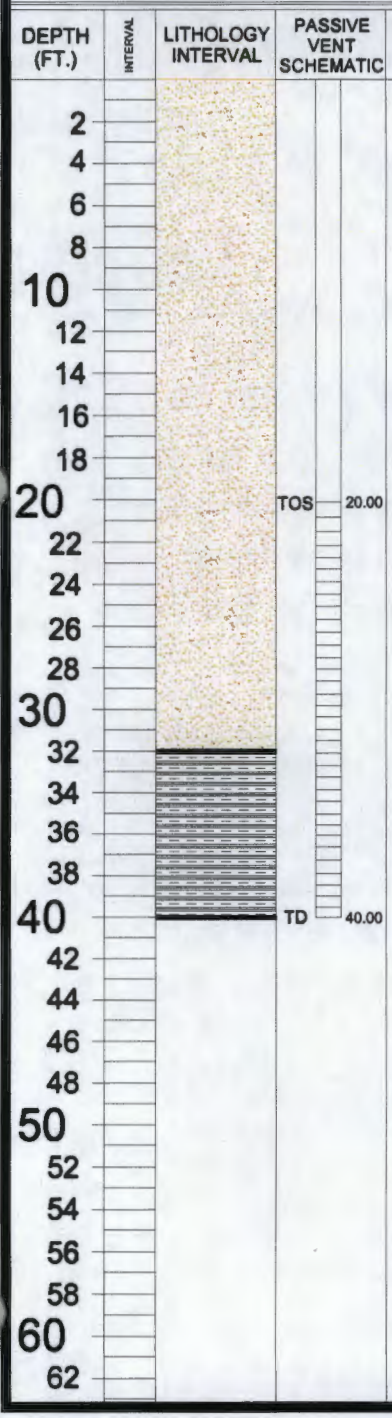
FIGURE 9

BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

CLIENT:	XTO ENERGY, INC.
LOCATION NAME:	ABRAMS J #1 UNIT I, SEC. 29, T29N, R10W
CONTRACTOR:	ENVIROTECH, INC.
EQUIPMENT USED:	MOBILE DRILL RIG - CME 75
BORING LOCATION:	5.5 FEET, N73W FROM MW #10.

BORING #.....	BH - B4
MW #.....	-
PAGE #.....	4
DATE STARTED	01/30/06
DATE FINISHED	01/30/06
OPERATOR.....	KP
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

MODERATE BROWN SAND, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (0.0 - 32.0 FT. BELOW GRADE).

DARK GRAY SILTY SAND TO SILTY CLAY, COHESIVE TO MEDIUM PLASTIC, MOIST, STIFF, HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (32.0 - 40.0 FT. BELOW GRADE).

NOTES:

- SAND.
- SILTY SAND TO SILTY CLAY.

TOS - TOP OF SCREEN FROM GROUND SURFACE.
TD - TOTAL DEPTH OF VENT PIPE FROM GROUND SURFACE.

Vent piping consist of 2 inch PVC - casing from 4.00 ft. above grade to 20.00 ft. below grade, 0.010 slotted screen between 20.00 to 40.00 feet below grade, sand packed annular to 18.00 ft. below grade, bentonite plug between 16.00 - 18.00 ft. below grade, completed with auger cuttings to grade. Wind turbine installed at top of casing.

DRAWING: ABRAMS-BH4. SKF | DATE: 01/31/06 | DWN BY: NJV

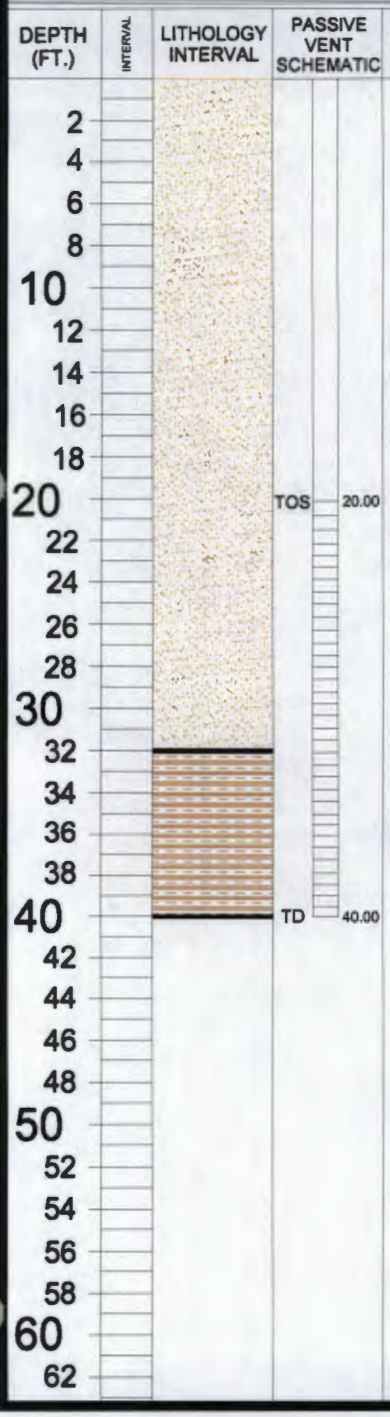
FIGURE 10

BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

CLIENT:	XTO ENERGY, INC.
LOCATION NAME:	ABRAMS J #1 UNIT I, SEC. 29, T29N, R10W
CONTRACTOR:	ENVIROTECH, INC.
EQUIPMENT USED:	MOBILE DRILL RIG - CME 75
BORING LOCATION:	20.0 FEET, S25E FROM MW #10.

BORING #.....	BH - B5
MW #.....	-
PAGE #.....	5
DATE STARTED	01/30/06
DATE FINISHED	01/30/06
OPERATOR.....	KP
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

MODERATE BROWN SAND, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HC ODOR DETECTED PYHSICALLY WITHIN CUTTINGS (0.0 - 32.0 FT. BELOW GRADE).

DARK YELLOWISH BROWN SILTY SAND TO SILTY CLAY, COHESIVE TO MEDIUM PLASTIC, MOIST, STIFF, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (32.0 - 40.0 FT. BELOW GRADE).

NOTES:
- SAND.
- SILTY SAND TO SILTY CLAY.

TOS - TOP OF SCREEN FROM GROUND SURFACE.
TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.

Vent piping consist of 2 inch PVC - casing from 4.00 ft. above grade to 20.00 ft. below grade, 0.010 slotted screen between 20.00 to 40.00 feet below grade, sand packed annular to 30.00 ft. below grade, then with clean native sand to 10.00 ft. below grade, bentonite plug between 8.00 - 10.00 ft. below grade, completed with auger cuttings to grade. Wind turbine installed at top of casing.

DRAWING: ABRAMS-BH5. SKF | DATE: 01/31/06 | DWN BY: NJV

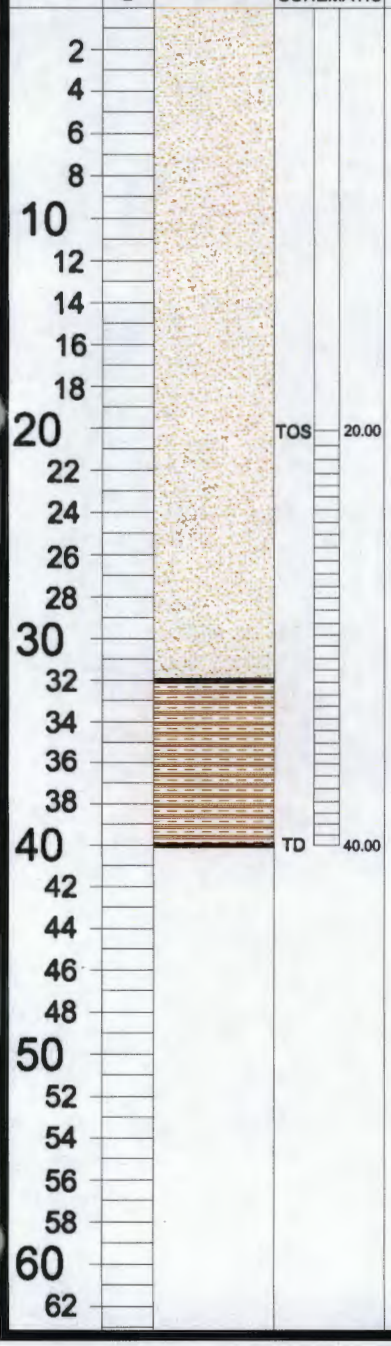
FIGURE 11

BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

CLIENT:	XTO ENERGY, INC.
LOCATION NAME:	ABRAMS J #1 UNIT I, SEC. 29, T29N, R10W
CONTRACTOR:	ENVIROTECH, INC.
EQUIPMENT USED:	MOBILE DRILL RIG - CME 75
BORING LOCATION:	32.0 FEET, S26.5W FROM MW #10.

BORING #.....	BH - B6
MW #.....	-
PAGE #.....	6
DATE STARTED	01/30/06
DATE FINISHED	01/30/06
OPERATOR.....	KP
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

MODERATE BROWN SAND, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HC ODOR DETECTED PYHSICALLY WITHIN CUTTINGS (0.0 - 32.0 FT. BELOW GRADE).

DARK YELLOWISH BROWN SILTY SAND TO SILTY CLAY, COHESIVE TO MEDIUM PLASTIC, MOIST, STIFF, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (32.0 - 40.0 FT. BELOW GRADE).

NOTES:

- SAND.
- SILTY SAND TO SILTY CLAY.

TOS - TOP OF SCREEN FROM GROUND SURFACE.
TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.

Vent piping consist of 2 inch PVC - casing from 4.00 ft. above grade to 20.00 ft. below grade, 0.010 slotted screen between 20.00 to 40.00 feet below grade, sand packed annular to 30.00 ft. below grade, then with clean native sand to 8.00 ft. below grade, bentonite plug between 6.00 - 8.00 ft. below grade, completed with auger cuttings to grade. Wind turbine installed at top of casing.

DRAWING: ABRAMS-BH6. SKF | DATE: 01/31/06 | DWN BY: NJV

Hall Environmental Analysis Laboratory

Date: *07-Mar-06*

CLIENT: Blagg Engineering
Project: Abrams J # 1
Lab Order: 0602253

Lab ID: 0602253-01 **Collection Date:** 2/24/2006 3:50:00 PM
Client Sample ID: MW #1R **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	3/4/2006 4:26:46 AM
Toluene	ND	1.0		µg/L	1	3/4/2006 4:26:46 AM
Ethylbenzene	ND	1.0		µg/L	1	3/4/2006 4:26:46 AM
Xylenes, Total	ND	3.0		µg/L	1	3/4/2006 4:26:46 AM
Surr: 4-Bromofluorobenzene	101	82.2-119		%REC	1	3/4/2006 4:26:46 AM

Lab ID: 0602253-02 **Collection Date:** 2/24/2006 3:30:00 PM
Client Sample ID: MW #3 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	3/4/2006 4:54:41 AM
Toluene	ND	1.0		µg/L	1	3/4/2006 4:54:41 AM
Ethylbenzene	ND	1.0		µg/L	1	3/4/2006 4:54:41 AM
Xylenes, Total	ND	3.0		µg/L	1	3/4/2006 4:54:41 AM
Surr: 4-Bromofluorobenzene	109	82.2-119		%REC	1	3/4/2006 4:54:41 AM

Lab ID: 0602253-03 **Collection Date:** 2/24/2006 3:40:00 PM
Client Sample ID: MW #4 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	3/4/2006 5:22:34 AM
Toluene	ND	1.0		µg/L	1	3/4/2006 5:22:34 AM
Ethylbenzene	ND	1.0		µg/L	1	3/4/2006 5:22:34 AM
Xylenes, Total	ND	3.0		µg/L	1	3/4/2006 5:22:34 AM
Surr: 4-Bromofluorobenzene	102	82.2-119		%REC	1	3/4/2006 5:22:34 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory

Date: *07-Mar-06*

CLIENT: Blagg Engineering
Project: Abrams J # 1
Lab Order: 0602253

Lab ID: 0602253-04
Client Sample ID: MW #10
Collection Date: 2/24/2006 4:50:00 PM
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	3/4/2006 5:50:22 AM
Toluene	ND	1.0		µg/L	1	3/4/2006 5:50:22 AM
Ethylbenzene	ND	1.0		µg/L	1	3/4/2006 5:50:22 AM
Xylenes, Total	ND	3.0		µg/L	1	3/4/2006 5:50:22 AM
Surr: 4-Bromofluorobenzene	102	82.2-119		%REC	1	3/4/2006 5:50:22 AM

Lab ID: 0602253-05
Client Sample ID: MW #11
Collection Date: 2/24/2006 4:55:00 PM
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	3/4/2006 6:18:19 AM
Toluene	ND	1.0		µg/L	1	3/4/2006 6:18:19 AM
Ethylbenzene	ND	1.0		µg/L	1	3/4/2006 6:18:19 AM
Xylenes, Total	ND	3.0		µg/L	1	3/4/2006 6:18:19 AM
Surr: 4-Bromofluorobenzene	101	82.2-119		%REC	1	3/4/2006 6:18:19 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory

Date: *07-Mar-06*

CLIENT: Blagg Engineering
Work Order: 0602253
Project: Abrams J # 1

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEX_W

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18480
Client ID: ZZZZZ	Batch ID: R18480	TestNo: SW8021		Analysis Date: 3/3/2006	SeqNo: 456368

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.0									
Toluene	ND	1.0									
Ethylbenzene	ND	1.0									
Xylenes, Total	ND	3.0									

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18480
Client ID: ZZZZZ	Batch ID: R18480	TestNo: SW8021		Analysis Date: 3/4/2006	SeqNo: 456369

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.14	1.0	20	0	101	88.5	114				
Toluene	20.49	1.0	20	0	102	87.2	114				
Ethylbenzene	20.28	1.0	20	0	101	88.6	113				
Xylenes, Total	41.45	3.0	40	0	104	83.3	114				

3 / 4

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name BLAGG | Date and Time Received: 2/27/2006

Work Order Number 0602253 | Received by LMM

Checklist completed by Lisa Hedrick 2/27/06
Signature Date

Matrix | Carrier name Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☑	N/A ☐	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	4°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA/QC Package: Std ☐ Level 4 ☐
Other: _____

Client: BLAGG ENER. / XTO ENERGY
Project Name: ABRAMS J #1
Address: P.O. BOX 87 BLFD., NM 87413
Project #: 2R
Project Manager: NV
Phone #: 632-1199
Sampler: NV
Fax #:
Sample Temperature: 4°

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No. 0602053	(BTEX) + MTBE + TMB's (8021B)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
2/24/06	1550	WATER	MW #1R	2-40 ml	✓		-1	✓																
2/24/06	1530	WATER	MW # 3	2-40 ml	✓		-2	✓																
2/24/06	1540	WATER	MW # 4	2-40 ml	✓		-3	✓																
2/24/06	1650	WATER	MW #10	2-40 ml	✓		-4	✓																
2/24/06	1655	WATER	MW #11	2-40 ml	✓		-5	✓																

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	Remarks:
2/27/06	0700	Nelson Velez	Lisa Hawley 1555 2/27/06	
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Hall Environmental Analysis Laboratory

Date: *06-Jun-06*

CLIENT: Blagg Engineering
Project: Abrams J # 1
Lab Order: 0605331

Lab ID: 0605331-01
Client Sample ID: MW #1R
Collection Date: 5/31/2006 6:20:00 AM
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	6/6/2006 1:18:15 AM
Toluene	ND	1.0		µg/L	1	6/6/2006 1:18:15 AM
Ethylbenzene	ND	1.0		µg/L	1	6/6/2006 1:18:15 AM
Xylenes, Total	ND	3.0		µg/L	1	6/6/2006 1:18:15 AM
Surr: 4-Bromofluorobenzene	103	85-115		%REC	1	6/6/2006 1:18:15 AM

Lab ID: 0605331-02
Client Sample ID: MW #3
Collection Date: 5/30/2006 3:08:00 PM
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	6/6/2006 1:47:24 AM
Toluene	ND	1.0		µg/L	1	6/6/2006 1:47:24 AM
Ethylbenzene	ND	1.0		µg/L	1	6/6/2006 1:47:24 AM
Xylenes, Total	ND	3.0		µg/L	1	6/6/2006 1:47:24 AM
Surr: 4-Bromofluorobenzene	97.0	85-115		%REC	1	6/6/2006 1:47:24 AM

Lab ID: 0605331-03
Client Sample ID: MW #10
Collection Date: 5/31/2006 6:30:00 AM
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	6/6/2006 2:16:33 AM
Toluene	ND	1.0		µg/L	1	6/6/2006 2:16:33 AM
Ethylbenzene	ND	1.0		µg/L	1	6/6/2006 2:16:33 AM
Xylenes, Total	ND	3.0		µg/L	1	6/6/2006 2:16:33 AM
Surr: 4-Bromofluorobenzene	94.3	85-115		%REC	1	6/6/2006 2:16:33 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory

Date: *06-Jun-06*

CLIENT: Blagg Engineering
Project: Abrams J # 1

Lab Order: 0605331

Lab ID: 0605331-04
Client Sample ID: MW #11

Collection Date: 5/31/2006 6:50:00 AM
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						**Analyst: NSB**
Benzene	ND	1.0		µg/L	1	6/6/2006 2:45:42 AM
Toluene	ND	1.0		µg/L	1	6/6/2006 2:45:42 AM
Ethylbenzene	ND	1.0		µg/L	1	6/6/2006 2:45:42 AM
Xylenes, Total	ND	3.0		µg/L	1	6/6/2006 2:45:42 AM
Surr: 4-Bromofluorobenzene	91.7	85-115		%REC	1	6/6/2006 2:45:42 AM

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Blagg Engineering
Project: Abrams J # 1 **Work Order:** 0605331

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8021									Batch ID: R19502
Sample ID: 5ML RB		*MBLK*							Analysis Date: 6/5/2006
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS		*LCS*							Analysis Date: 6/5/2006
Benzene	21.77	µg/L	1.0	109	85	115			
Toluene	20.17	µg/L	1.0	101	85	118			
Ethylbenzene	21.08	µg/L	1.0	105	85	116			
Xylenes, Total	64.31	µg/L	3.0	107	85	119			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name BLAGG | Date and Time Received: 5/31/2006

Work Order Number 0605331 | Received by LMM

Checklist completed by Lisa Hedekad 5/31/06
Signature | Date

Matrix | Carrier name Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	

Container/Temp Blank temperature? 3° 4° C ± 2 *Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

_____

_____

_____

_____

Corrective Action _____

_____

_____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: BLAGG ENGR. / XTO ENERGY
Address: P.O. BOX 87, BLFD., NM 87413
Phone #: 632-1199
Fax #:

Project Name: ABRAMS J #1
Project #:
Project Manager: NV
Sampler: NV
Sample Temperature: 3°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No. 060533	(BTEX) + MTBE + TMB's (8021B)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles or Headspace (Y or N)
5/31/06	0620	WATER	MW #1R	2-40ml	✓		-1	✓												
5/30/06	1508	WATER	MW #3	2-40ml	✓		-2	✓												
5/31/06	0630	WATER	MW #10	2-40ml	✓		-3	✓												
5/31/06	0650	WATER	MW #11	2-40ml	✓		-4	✓												

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
5/31/06	0715	Tahon VM	Lisa Hedlock 5/31/06 1600
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:

Hall Environmental Analysis Laboratory, Inc.

Date: *08-Sep-06*

CLIENT: XTO Energy
Project: Groundwater
Lab Order: 0609027

Lab ID: 0609027-01 **Collection Date:** 8/28/2006 11:50:00 AM
Client Sample ID: Abrams J#1 MW-11 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	9/7/2006 7:34:09 PM
Toluene	ND	1.0		µg/L	1	9/7/2006 7:34:09 PM
Ethylbenzene	ND	1.0		µg/L	1	9/7/2006 7:34:09 PM
Xylenes, Total	ND	3.0		µg/L	1	9/7/2006 7:34:09 PM
Surr: 4-Bromofluorobenzene	99.0	72.2-125		%REC	1	9/7/2006 7:34:09 PM

Lab ID: 0609027-02 **Collection Date:** 8/28/2006 11:55:00 AM
Client Sample ID: Abrams J#1 MW-10 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	9/7/2006 8:03:08 PM
Toluene	ND	1.0		µg/L	1	9/7/2006 8:03:08 PM
Ethylbenzene	ND	1.0		µg/L	1	9/7/2006 8:03:08 PM
Xylenes, Total	ND	3.0		µg/L	1	9/7/2006 8:03:08 PM
Surr: 4-Bromofluorobenzene	96.8	72.2-125		%REC	1	9/7/2006 8:03:08 PM

Lab ID: 0609027-03 **Collection Date:** 8/28/2006 9:46:00 AM
Client Sample ID: Abrams J#1 MW-1R **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	9/7/2006 8:32:10 PM
Toluene	ND	1.0		µg/L	1	9/7/2006 8:32:10 PM
Ethylbenzene	ND	1.0		µg/L	1	9/7/2006 8:32:10 PM
Xylenes, Total	ND	3.0		µg/L	1	9/7/2006 8:32:10 PM
Surr: 4-Bromofluorobenzene	98.6	72.2-125		%REC	1	9/7/2006 8:32:10 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *08-Sep-06*

CLIENT: XTO Energy
Project: Groundwater

Lab Order: 0609027

Lab ID: 0609027-04 **Collection Date:** 8/28/2006 10:30:00 AM
Client Sample ID: Abrams J#1 MW-3 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	9/7/2006 9:01:00 PM
Toluene	ND	1.0		µg/L	1	9/7/2006 9:01:00 PM
Ethylbenzene	ND	1.0		µg/L	1	9/7/2006 9:01:00 PM
Xylenes, Total	ND	3.0		µg/L	1	9/7/2006 9:01:00 PM
Surr: 4-Bromofluorobenzene	100	72.2-125		%REC	1	9/7/2006 9:01:00 PM

Lab ID: 0609027-05 **Collection Date:** 8/28/2006 11:20:00 AM
Client Sample ID: Abrams J#1 MW-4 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	10		µg/L	10	9/7/2006 11:28:29 PM
Toluene	ND	10		µg/L	10	9/7/2006 11:28:29 PM
Ethylbenzene	ND	10		µg/L	10	9/7/2006 11:28:29 PM
Xylenes, Total	ND	30		µg/L	10	9/7/2006 11:28:29 PM
Surr: 4-Bromofluorobenzene	91.0	72.2-125		%REC	10	9/7/2006 11:28:29 PM

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: XTO Energy
Project: Groundwater
Work Order: 0609027

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8021									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: R20595		Analysis Date:		9/7/2006 8:27:12 AM
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: R20595		Analysis Date:		9/7/2006 9:30:01 PM
Benzene	20.90	µg/L	1.0	105	85	115			
Toluene	21.21	µg/L	1.0	106	85	118			
Ethylbenzene	22.41	µg/L	1.0	112	85	116			
Xylenes, Total	66.15	µg/L	3.0	110	85	119			
Sample ID: 100NG BTEX LCSD		*LCSD*			Batch ID: R20595		Analysis Date:		9/7/2006 9:58:56 PM
Benzene	20.99	µg/L	1.0	105	85	115	0.430	27	
Toluene	21.54	µg/L	1.0	108	85	118	1.54	19	
Ethylbenzene	22.89	µg/L	1.0	114	85	116	2.11	10	
Xylenes, Total	67.08	µg/L	3.0	112	85	119	1.39	13	

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name XTO ENERGY | Date and Time Received: 9/1/2006

Work Order Number 0609027 | Received by AMF

Checklist completed by _____ 9/1/06
Signature | Date

Matrix | Carrier name Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☑	No ☐	N/A ☐	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐	

Container/Temp Blank temperature? 3° *4° C ± 2 Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA/QC Package: Std ☑ Level 4 ☐
Other:

Client: XTO Energy
Kim Champlin

Address: 2700 Farmington Ave
Bldg K, Ste 1
Farmington, NM

Phone #: 505-566-7954

Fax #:

Project Name: Ground Water

Project #:

Project Manager: Lisa Winn

Sampler: MJN

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: HNO_3	Preservative: HCl	HEAL No.
08-28-06	11:50	GW	Abrams J #1 MW-1	1			✓	0609027-1
08-28-06	11:55	GW	Abrams J #1 MW-1	0			✓	-2
08-28-06	09:46	GW	Abrams J #1 MW-1	R			✓	-3
08-28-06	10:30	GW	Abrams J #1 MW-3				✓	-4
08-28-06	11:20	GW	Abrams J #1 MW-4				✓	-5

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

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
08-28-06	14:00		Ashley L Ager
09-01-06	0900	Ashley L Ager	Andy 9/1/06 14:35

Remarks:

Hall Environmental Analysis Laboratory, Inc.

Date: *12-Sep-06*

CLIENT:	XTO Energy	**Client Sample ID:**	Abrams J1 MW-9
Lab Order:	0609026	**Collection Date:**	8/31/2006 9:05:00 AM
Project:	Groundwater	**Date Received:**	9/1/2006
Lab ID:	0609026-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	9/12/2006 4:28:38 AM
Toluene	ND	1.0		µg/L	1	9/12/2006 4:28:38 AM
Ethylbenzene	ND	1.0		µg/L	1	9/12/2006 4:28:38 AM
Xylenes, Total	ND	3.0		µg/L	1	9/12/2006 4:28:38 AM
Surr: 4-Bromofluorobenzene	103	72.2-125		%REC	1	9/12/2006 4:28:38 AM

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: XTO Energy
Project: Groundwater
Work Order: 0609026

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8021									
Sample ID: 5ML RB-II		*MBLK*			Batch ID: R20623		Analysis Date: 9/9/2006 11:16:28 AM		
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: B		*MBLK*			Batch ID: R20635		Analysis Date: 9/11/2006 9:42:11 AM		
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS-II		*LCS*			Batch ID: R20623		Analysis Date: 9/9/2006 11:45:28 AM		
Benzene	21.27	µg/L	1.0	106	85	115			
Toluene	19.28	µg/L	1.0	96.4	85	118			
Ethylbenzene	20.93	µg/L	1.0	105	85	116			
Xylenes, Total	56.71	µg/L	3.0	94.5	85	119			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: R20635		Analysis Date: 9/12/2006 2:32:50 AM		
Benzene	20.75	µg/L	1.0	104	85	115			
Toluene	21.08	µg/L	1.0	105	85	118			
Ethylbenzene	23.36	µg/L	1.0	117	85	116			S
Xylenes, Total	67.72	µg/L	3.0	110	85	119			
Sample ID: 100NG BTEX LCSD-I		*LCSD*			Batch ID: R20623		Analysis Date: 9/9/2006 12:14:18 PM		
Benzene	21.25	µg/L	1.0	106	85	115	0.0847	27	
Toluene	19.44	µg/L	1.0	97.2	85	118	0.827	19	
Ethylbenzene	19.92	µg/L	1.0	99.6	85	116	4.95	10	
Xylenes, Total	58.07	µg/L	3.0	96.8	85	119	2.38	13	

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name XTO ENERGY | Date and Time Received: 9/1/2006

Work Order Number 0609026 | Received by AMF

Checklist completed by _____ Signature _____ Date

Matrix | Carrier name Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☑	No ☐	N/A ☐	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐	

Container/Temp Blank temperature? 3° *4° C ± 2 Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☒ Level 4 ☐
Other:

Client: XTO Energy
Kim Champlin

Address: 2700 Farmington Ave
Bldg K, Ste 1
Farmington, NM

Phone #: 505-566-7954

Fax #:

Project Name: Ground Water

Project #:

Project Manager: Lisa Winn

Sampler: ALA

Sample Temperature: 3°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: HNO_3	Preservative: HCl	HEAL No.
08-31-06	9:05	GW	Abrams J1 MW9				✓	0609026-1

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

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
09-01-06	0900	Ashley L Ager		9/1/06 14:30
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

Hall Environmental Analysis Laboratory, Inc.

Date: *11-Dec-06*

CLIENT: XTO Energy
Project: Ground Water
Lab Order: 0611366

Lab ID: 0611366-01 **Collection Date:** 11/28/2006 1:38:00 PM
Client Sample ID: Abrams J1 MW-11 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	12/4/2006 3:10:32 PM
Toluene	ND	1.0		µg/L	1	12/4/2006 3:10:32 PM
Ethylbenzene	ND	1.0		µg/L	1	12/4/2006 3:10:32 PM
Xylenes, Total	ND	3.0		µg/L	1	12/4/2006 3:10:32 PM
Surr: 4-Bromofluorobenzene	82.3	70.2-105		%REC	1	12/4/2006 3:10:32 PM

Lab ID: 0611366-02 **Collection Date:** 11/28/2006 1:42:00 PM
Client Sample ID: Abrams J1 MW-10 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	12/1/2006 8:28:25 PM
Toluene	ND	1.0		µg/L	1	12/1/2006 8:28:25 PM
Ethylbenzene	ND	1.0		µg/L	1	12/1/2006 8:28:25 PM
Xylenes, Total	ND	3.0		µg/L	1	12/1/2006 8:28:25 PM
Surr: 4-Bromofluorobenzene	81.8	70.2-105		%REC	1	12/1/2006 8:28:25 PM

Lab ID: 0611366-03 **Collection Date:** 11/28/2006 1:45:00 PM
Client Sample ID: Abrams J1 MW-1R **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	12/1/2006 8:58:27 PM
Toluene	ND	1.0		µg/L	1	12/1/2006 8:58:27 PM
Ethylbenzene	ND	1.0		µg/L	1	12/1/2006 8:58:27 PM
Xylenes, Total	ND	3.0		µg/L	1	12/1/2006 8:58:27 PM
Surr: 4-Bromofluorobenzene	84.5	70.2-105		%REC	1	12/1/2006 8:58:27 PM

Qualifiers:

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

CLIENT: XTO Energy **Lab Order:** 0611366
Project: Ground Water

Lab ID: 0611366-04 **Collection Date:** 11/28/2006 1:50:00 PM
Client Sample ID: Abrams J1 MW-3 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	12/1/2006 9:28:25 PM
Toluene	ND	1.0		µg/L	1	12/1/2006 9:28:25 PM
Ethylbenzene	ND	1.0		µg/L	1	12/1/2006 9:28:25 PM
Xylenes, Total	ND	3.0		µg/L	1	12/1/2006 9:28:25 PM
Surr: 4-Bromofluorobenzene	83.2	70.2-105		%REC	1	12/1/2006 9:28:25 PM

Lab ID: 0611366-05 **Collection Date:** 11/28/2006 1:56:00 PM
Client Sample ID: Abrams J1 MW-4 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	12/1/2006 9:58:25 PM
Toluene	ND	1.0		µg/L	1	12/1/2006 9:58:25 PM
Ethylbenzene	ND	1.0		µg/L	1	12/1/2006 9:58:25 PM
Xylenes, Total	ND	3.0		µg/L	1	12/1/2006 9:58:25 PM
Surr: 4-Bromofluorobenzene	82.8	70.2-105		%REC	1	12/1/2006 9:58:25 PM

Lab ID: 0611366-06 **Collection Date:** 11/28/2006 2:02:00 PM
Client Sample ID: Abrams J1 MW-9 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	12/1/2006 10:28:23 PM
Toluene	ND	1.0		µg/L	1	12/1/2006 10:28:23 PM
Ethylbenzene	ND	1.0		µg/L	1	12/1/2006 10:28:23 PM
Xylenes, Total	ND	3.0		µg/L	1	12/1/2006 10:28:23 PM
Surr: 4-Bromofluorobenzene	82.2	70.2-105		%REC	1	12/1/2006 10:28:23 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *11-Dec-06*

CLIENT: XTO Energy
Project: Ground Water

Lab Order: 0611366

Lab ID: 0611366-07
Client Sample ID: Trip Blank

Collection Date:
Matrix: TRIP BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	12/1/2006 10:58:27 PM
Toluene	ND	1.0		µg/L	1	12/1/2006 10:58:27 PM
Ethylbenzene	ND	1.0		µg/L	1	12/1/2006 10:58:27 PM
Xylenes, Total	ND	3.0		µg/L	1	12/1/2006 10:58:27 PM
Surr: 4-Bromofluorobenzene	82.9	70.2-105		%REC	1	12/1/2006 10:58:27 PM

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: XTO Energy
Project: Ground Water
Work Order: 0611366

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8021									
Sample ID: 0611366-06A MSD		*MSD*			Batch ID: R21634		Analysis Date: 12/1/2006 11:58:37 PM		
Benzene	18.82	µg/L	1.0	93.1	85.9	113	2.41	27	
Toluene	18.36	µg/L	1.0	91.8	86.4	113	2.60	19	
Ethylbenzene	17.62	µg/L	1.0	88.1	83.5	118	2.16	10	
Xylenes, Total	53.39	µg/L	3.0	89.0	83.4	122	2.42	13	
Sample ID: 5ML RB-II		*MBLK*			Batch ID: R21634		Analysis Date: 12/1/2006 6:28:13 PM		
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: B		*MBLK*			Batch ID: R21651		Analysis Date: 12/4/2006 10:18:30 AM		
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS-II		*LCS*			Batch ID: R21634		Analysis Date: 12/1/2006 6:58:17 PM		
Benzene	20.09	µg/L	1.0	100	85.9	113			
Toluene	20.06	µg/L	1.0	100	86.4	113			
Ethylbenzene	18.80	µg/L	1.0	94.0	83.5	118			
Xylenes, Total	57.06	µg/L	3.0	95.1	83.4	122			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: R21651		Analysis Date: 12/4/2006 10:24:45 PM		
Benzene	18.14	µg/L	1.0	90.7	85.9	113			
Toluene	17.86	µg/L	1.0	89.3	86.4	113			
Ethylbenzene	17.30	µg/L	1.0	86.5	83.5	118			
Xylenes, Total	52.11	µg/L	3.0	86.8	83.4	122			
Sample ID: 100NG BTEX LCSD		*LCSD*			Batch ID: R21651		Analysis Date: 12/4/2006 10:54:40 PM		
Benzene	18.02	µg/L	1.0	90.1	85.9	113	0.686	27	
Toluene	17.73	µg/L	1.0	88.7	86.4	113	0.719	19	
Ethylbenzene	17.17	µg/L	1.0	85.9	83.5	118	0.766	10	
Xylenes, Total	51.71	µg/L	3.0	86.2	83.4	122	0.774	13	
Sample ID: 0611366-06A MS		*MS*			Batch ID: R21634		Analysis Date: 12/1/2006 11:28:33 PM		
Benzene	19.07	µg/L	1.0	95.4	85.9	113			
Toluene	18.85	µg/L	1.0	94.2	86.4	113			
Ethylbenzene	18.00	µg/L	1.0	90.0	83.5	118			
Xylenes, Total	54.69	µg/L	3.0	91.2	83.4	122			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name XTO ENERGY | Date and Time Received: 11/30/2006

Work Order Number 0611366 | Received by GLS

Checklist completed by D Schleppe 11/30/06
Signature | Date

Matrix | Carrier name Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	2°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package: Std ☒ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: XTO Energy
Kim Champlin

Address: 2700 Farmington Ave
Bldg 1, Ste K
Farmington, NM

Phone #: 505-566-7954

Fax #:

Project Name: Ground Water

Project #:

Project Manager: Lisa Winn

Sampler: Ashley Ager

Sample Temperature: 2°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No. 0611366	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	8021B BTEX				Air Bubbles or Headspace (Y or N)
11-28-06	1338	GW	Abrams J 1 MW-11		✓			1													✓				
11-28-06	1342	GW	Abrams J 1 MW-10		✓			2													✓				
11-28-06	1345	GW	Abrams J 1 MW-1R		✓			3													✓				
11-28-06	1350	GW	Abrams J 1 MW-3		✓			4													✓				
11-28-06	1356	GW	Abrams J 1 MW-4		✓			5													✓				
11-28-06	1402	GW	Abrams J 1 MW-9		✓			6													✓				
~~11-28-06~~ AT	~~0700~~ AT	GW	TB		✓			7													✓				

Date: 11-29-06 Time: 1300 Relinquished By: (Signature) Ashley Ager
Received By: (Signature) 11/30/06 @ 1030
Date: Time: Relinquished By: (Signature)
Received By: (Signature)

Remarks:
Please copy results to
ala@lodestarservices.com