3R – 386

2014 AGWMR

03 / 02 / 2015

March 02, 2014

Glenn Von Gonten
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: Online Submission of 2014 Annual Groundwater Reports

Dear Mr. Von Gonten

LT Environmental (LTE), Inc., on behalf of XTO Energy Inc. (XTO), is electronically submitting the attached 2014 annual groundwater monitoring reports covering the period from January 1, 2014 to December 31, 2014 for the following sites:

- Bruington Gas Com #1 (3RP-106);
- Federal Gas Com H #1 (3RP-110);
- McCoy Gas Com D #1E (3RP-414);
- OH Randel #007 (3RP-386); and
- Valdez A #1E (3RP-134).

If you have any questions regarding these reports please contact Ashley Ager with LTE at 970-385-1096 or aager@ltenv.com or James McDaniel with XTO at 505-333-3701 or James_McDaniel@xtoenergy.com.

Sincerely,

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

James McDaniel, CHMM #15676
XTO Energy Inc, a subsidiary of ExxonMobil
EH&S Supervisor

cc: Attachments (5)

2014 ANNUAL GROUNDWATER REPORT

OH Randel #007

3RP-386

Unit D, Section 15, Township 26N, Range 11W
San Juan County, New Mexico

PREPARED FOR:

Mr. Steve Austin
Navajo Nation Environmental Protection Agency
Post Office Box 1999
Shiprock, New Mexico 87420

January 2015

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2014 XTO GROUNDWATER REPORT

OH RANDEL #007
3RP-386

SITE DETAILS

LEGALS – **TWN**: 26N	**RNG**: 11W	**SEC**: 15	**UNIT**: D
OCD HAZARD RANKING: 20		**LAND TYPE**: NAVAJO	
LATITUDE: 36.49194		**LONGITUDE**: -107.99572	

INTRODUCTION

XTO Energy, Inc. (XTO) acquired the OH Randel #007 natural gas production well (Site) from Amoco Production Company (Amoco) in January of 1998. The Site produced natural gas from the Dakota Sandstone and was plugged and abandoned in 2014. An irrigated field owned and operated by Navajo Agricultural Products, Inc. is located immediately north of the Site. A topographic map is depicted in ***Figure 1***.

HISTORY

While upgrading production equipment in March of 2002, XTO encountered petroleum hydrocarbon impacted soil assumed to be the result of an abandoned earthen separator pit. A *Pit Closure Report* is included as ***Attachment 1*** documenting subsequent soil sampling and installation of groundwater monitoring well MW-1 to investigate potential impact to groundwater. The Completion Diagram and Borehole Log are included as ***Attachment 2***. Groundwater was encountered at approximately 16 feet below ground surface (bgs) and phase-separated hydrocarbons (PSH) were detected. Additional monitoring wells MW-2, MW-3, MW-4, MW-5, and MW-6 were installed upgradient, downgradient, and cross-gradient of the source area in April of 2002. Completion Diagrams and Borehole Logs are included in ***Attachment 2***.

From 2002 through 2004, PSH was regularly detected in monitoring wells MW-1 and MW-2, and PSH was detected in monitoring well MW-6 from 2002 through 2006. XTO recovered approximately 22 gallons of PSH by hand bailing monitoring wells MW-1, MW-2, and MW-6 from 2004 through January of 2006.

XTO submitted the 2005 annual groundwater report to the New Mexico Oil Conservation Division (NMOCD) in January of 2006 and proposed excavation of soil impacted by the former separator pit and installation of additional groundwater monitoring wells to further delineate petroleum hydrocarbon impact to groundwater. Additionally, XTO submitted a remediation work plan to Mr. Steve Austin of the Navajo Nation Environmental Protection Agency (NNEPA) and the United States Environmental Protection Agency Region 9 (Region 9) in August of 2006. A copy of the work plan, written by Lodestar Services, Inc. (Lodestar), is included as ***Attachment 3***. The work plan was approved by the NNEPA in October of 2006. The first phase of the work plan, which was completed in November of

2006, included excavation of the earthen separator pit to a depth beneath the water table and backfilling with clean soil. Approximately 9,000 cubic yards of petroleum hydrocarbon impacted soil were removed and transported offsite to an NMOCD-permitted landfarm. No PSH was observed on the water table during the excavation. Monitoring wells MW-1, MW-2, and MW-6 were removed during the excavation. The NNEPA and Region 9 approved the closure of the excavation as described in the *Report of Excavation and Sampling* by Lodestar dated January 29, 2007 and attached as ***Attachment 4***. Following excavation, groundwater sampled from monitoring wells MW-3, MW-4, and MW-5 contained no detectable concentrations or only trace concentrations of benzene, toluene, ethylbenzene, and total xylenes (BTEX).

XTO submitted the 2006 annual groundwater report to the NMOCD in February of 2007 proposing installation of additional groundwater monitoring wells (MW-7 and MW-8) to the north and east of the former source area and quarterly sampling of monitoring wells MW-7 and MW-8 to monitor BTEX concentrations. Monitoring wells MW-7 and MW-8 were installed in May of 2007. Completion Diagrams and Borehole Logs are presented in ***Attachment 2***. Groundwater analytical results indicated MW-7 contained BTEX concentrations exceeding New Mexico Water Quality Control Commission (NMWQCC) standards. Downgradient monitoring well MW-8 did not contain detectable concentrations of BTEX. XTO proposed to evaluate additional potential sources of groundwater impact in the area of MW-7 and evaluate appropriate remediation methods.

XTO submitted the 2007 annual groundwater report to the NMOCD in February of 2008 proposing to discontinue sampling of monitoring wells MW-3, MW-4, and MW-5 and semi-annual sampling of monitoring wells MW-7 and MW-8.

XTO submitted the 2008 annual groundwater report to the NMOCD in April of 2009 proposing installation of two additional monitoring wells (MW-9 and MW-10) to delineate impacted groundwater near existing monitoring well MW-7. Additionally, XTO proposed addition of chemical oxygenate to monitoring well MW-7 to enhance bioremediation and quarterly sampling of monitoring wells. Monitoring wells MW-9 and MW-10 were installed in July of 2009. The water bearing unit supplying the existing groundwater monitoring wells was observed to be a low hydraulically conducting clay that was mostly dry. . Monitoring wells MW-9 and MW-10 were completed in the same clay bed at similar depths to existing monitoring wells even though no saturated sediment was identified in soil samples. XTO did not attempt to penetrate the clay in an effort to avoid creating an open conduit to deeper aquifers. After allowing 24 hours for the new wells to fill in with groundwater, monitoring well MW-9 contained only 1.5 feet of groundwater and did not recharge after being purged dry. Monitoring well MW-10 never filled with groundwater and was ultimately plugged. The Completion Diagrams and Borehole Logs for monitoring wells MW-9 and MW-10 are included in ***Attachment 2***. Monitoring well MW-9 was sampled after well development and contained benzene concentrations exceeding NMWQCC standards.

XTO submitted the 2009 annual groundwater report to the NMOCD in March of 2010

recommending continued use of chemical oxygenate in monitoring well MW-7 and quarterly sampling of monitoring wells MW-7 and MW-9. XTO proposed to discontinue sampling of monitoring well MW-8 since four consecutive sampling events indicated BTEX concentrations were below NMWQCC standards.

XTO submitted the 2010 annual groundwater report to the NMOCD and NNEPA in March of 2011 recommending continued quarterly sampling of groundwater for BTEX constituents in monitoring well MW-7. Laboratory analytical results from four consecutive quarters of groundwater sampling from MW-9 indicated BTEX concentrations were below NMWQCC standards; therefore, XTO recommended discontinued sampling of monitoring well MW-9. Additionally, XTO proposed application of hydrogen peroxide to the groundwater at the Site using monitoring well MW-7 as an as an injection point to oxygenate the aquifer and enhance bioremediation at the Site. XTO met with Mr. Glenn Von Gonten at the NMOCD offices in October 2011 to present a brief history of the Site and the hydrogen peroxide work plan in person. NMOCD did not provide comments for the hydrogen peroxide work plan and XTO did not proceed with the action.

XTO submitted the 2011 annual report to the NMOCD and NNEPA in January of 2012. The report included an analysis by LT Environmental, Inc. (LTE) of the beneficial use of groundwater at the Site. The analysis concluded the groundwater is not a current source of beneficial use and based on the poor background water quality of the aquifer, low productivity, and legal restrictions on its source for uses other than irrigation, the aquifer is not viable for any beneficial use in the future. Attenuation of residual BTEX in groundwater at the Site will continue through natural processes and migration of any BTEX will be restricted by the subsurface lithology and hydrologic properties of the aquifer. As such, XTO requested Site closure from the NNEPA and NMOCD based on the lack of present and reasonably foreseeable beneficial use of the impacted groundwater. Following NNEPA and NMOCD approval for closure, XTO planned to abandon all monitoring well locations in accordance with the monitoring well abandonment plan. XTO was awaiting approval or comments from the NNEPA or NMOCD regarding the closure request and did not conduct monitoring at the Site during 2012.

After the NMOCD and NNEPA verbally communicated to XTO that additional remediation be pursued before requesting site closure, XTO resumed application of chemical oxygenate by installing ten Oxygen Release Compound® (ORC) socks in groundwater monitoring well MW-7 in March 2013. The ORC socks were removed from monitoring well MW-7 in December 2013 to assess equilibrium conditions.

A summary of groundwater elevation data and laboratory analytical results from historical and current groundwater monitoring is presented in ***Table 1*** and ***Table 2*** respectively.

METHODOLOGY

In 2014, semi-annual depth to groundwater data was collected at MW-3, MW-4, MW-5,

MW-7, MW-8, and MW-9. Semi-annual groundwater samples were collected from groundwater monitoring well MW-7 and submitted for laboratory analysis of BTEX using United States Environmental Protection Agency Method 8021B.

Water Level Measurements

Static groundwater level monitoring included recording depth to groundwater measurements with a Keck oil/water interface probe. The interface probe was decontaminated with Alconox™ soap and rinsed with de-ionized water prior to each measurement. These data are presented in ***Table 1***.

Groundwater Sampling

Prior to sampling groundwater at MW-7, depth to groundwater and total depth of the well was measured with a Keck oil/water interface probe. Presence of any free-phase petroleum hydrocarbon was also investigated using the interface probe. The interface probe was decontaminated with Alconox™ soap and rinsed with de-ionized water prior to each measurement. The volume of water in the well was calculated, and a minimum of three (3) casing volumes of water was purged using a new disposable polyvinyl chloride (PVC) bailer or a dedicated PVC bailer or the well was purged dry. All purge water was disposed of into tanks on site.

Once the monitoring well was purged, groundwater samples were collected by filling at least two (2) 40-milliliter (ml) glass vials. The laboratory supplied vials were filled and capped with no air inside to prevent degradation of the sample. Samples were labeled with the date and time of collection, well designation, project name, collector's name and parameters to be analyzed. They were immediately sealed, packed on ice, and shipped to Environmental Science Corporation (ESC) in Mt. Juliet, Tennessee via Fed-Ex overnight delivery. Proper chain-of-custody (COC) procedures were followed with logs documenting the date and time sampled, sample number, type of sample, sampler's name, preservative used (if any), analyses required and sampler's signature. Laboratory reports for 2014 are included in ***Attachment* 5** and field notes from the 2014 semi-annual monitoring are included in ***Attachment 6***.

Groundwater Contour Maps

Groundwater elevations obtained from monitoring wells during site visits were used to draft groundwater contour maps. Contours were inferred based on groundwater elevations measured and observation of physical characteristics at the Site (topography, proximity to irrigation ditches, etc.).

RESULTS

During 2014, benzene, toluene, and total xylene concentrations in MW-7 exceeded the NMWQCC standard during the semi-annual sampling events. Benzene concentrations ranged from a minimum of 7,600 micrograms per liter (µg/L) in June 2014 to a maximum of 9,400 µg/L in December 2014. All laboratory analytical results are included in ***Table 2***.

Groundwater elevations measured during site monitoring activities indicate the groundwater continues to flows to the north similar to historical observations. ***Figure 2*** and ***Figure 3*** depict the inferred groundwater potentiometric surface and groundwater analytical results for June and December 2014. Groundwater elevation data are summarized on ***Table 1.***

CONCLUSIONS

Laboratory results from groundwater monitoring in 2014 indicate benzene, toluene, and total xylene concentrations in groundwater monitoring well MW-7 exceeded NMWQCC standards during June and December 2014. Based on historical sampling results and the groundwater flow direction, elevated benzene concentrations appear confined to a small area surrounding monitoring well MW-7 and are not likely to migrate off site.

RECOMMENDATIONS

XTO will continue to conduct semi-annual groundwater sampling from monitoring well MW-7 to monitor BTEX concentrations. XTO will investigate application of a chemical amendment at the site to enhance natural attenuation. Should XTO proceed with active remediation, details will be provided to NMOCD under a separate letter. Following NNEPA and NMOCD approval for closure, all monitoring well locations will be abandoned in accordance with the monitoring well abandonment plan.

TABLE 1
GROUNDWATER ELEVATION SUMMARY

TABLE 1

GROUNDWATER ELEVATION SUMMARY
OH RANDEL #007
XTO ENERGY, INC.

Well ID	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-1	4/22/2002	16.30	16.63	No Survey Data
MW-1	4/24/2002	NM	NM	No Survey Data
MW-1	8/27/2002	16.19	16.49	No Survey Data
MW-1	10/08/2002	15.79	16.16	No Survey Data
MW-1	5/23/2003	15.73	16.04	No Survey Data
MW-1	5/28/2003	15.81	15.99	No Survey Data
MW-1	6/6/2003	15.93	16.04	No Survey Data
MW-1	6/18/2003	15.97	16.04	No Survey Data
MW-1	6/26/2003	17.85	17.93	No Survey Data
MW-1	7/31/2003	16.18	16.19	No Survey Data
MW-1	8/29/2003	NM	16.29	No Survey Data
MW-1	6/21/2004	16.28	17.09	No Survey Data
MW-1	9/20/2006	0.00	22.28	No Survey Data
MW-1	12/5/2006 *	NM	NM	No Survey Data
MW-2	4/22/2002	NM	18.32	No Survey Data
MW-2	4/24/2002	18.35	18.38	No Survey Data
MW-2	8/27/2002	18.92	19.86	No Survey Data
MW-2	10/08/2002	17.50	18.02	No Survey Data
MW-2	5/23/2003	17.30	17.83	No Survey Data
MW-2	5/28/2003	17.62	17.78	No Survey Data
MW-2	6/6/2003	17.71	17.83	No Survey Data
MW-2	6/18/2003	17.79	17.88	No Survey Data
MW-2	6/26/2003	16.05	16.09	No Survey Data
MW-2	7/31/2003	NM	15.86	No Survey Data
MW-2	8/29/2003	NM	15.99	No Survey Data
MW-2	6/21/2004	16.10	16.83	No Survey Data
MW-2	9/20/2006	0.00	17.15	No Survey Data
MW-2	12/5/2006 *	NM	NM	No Survey Data
MW-3	4/22/2002	0.00	16.26	6312.95
MW-3	4/24/2002	0.00	16.25	6312.96
MW-3	8/27/2002	0.00	15.28	6313.93

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OH RANDEL #007
XTO ENERGY, INC.

Well ID	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-3	10/8/2002	0.00	14.74	6314.47
MW-3	3/3/2003	0.00	15.17	6314.04
MW-3	6/18/2003	0.00	15.16	6314.05
MW-3	8/29/2003	0.00	15.39	6313.82
MW-3	9/20/2006	NM	NM	NM
MW-3	12/5/2006	0.00	13.85	6315.36
MW-3	3/8/2007	0.00	13.40	6315.81
MW-3	5/17/2007	0.00	12.87	6316.34
MW-3	8/9/2007	0.00	12.37	6316.84
MW-3	5/12/2008	0.00	14.83	6314.38
MW-3	11/7/2008	0.00	13.92	6315.29
MW-3	7/8/2009	0.00	14.14	6315.07
MW-3	11/5/2009	0.00	14.53	6314.68
MW-3	5/25/2010	0.00	14.21	6315.00
MW-3	8/12/2010	0.00	NM	NM
MW-3	11/17/2010	0.00	15.30	6313.91
MW-3	2/14/2011	NM	NM	NM
MW-3	5/17/2011	0.00	15.74	6313.47
MW-3	8/9/2011	0.00	15.87	6313.34
MW-3	11/9/2011	0.00	16.21	6313.00
MW-3	6/17/2013	0.00	17.32	6311.89
MW-3	12/16/2013	0.00	16.88	6312.33
MW-3	6/11/2014	0.00	18.60	6310.61
MW-3	12/9/2014	0.00	17.37	6311.84
MW-4	4/22/2002	0.00	16.63	6311.45
MW-4	4/24/2002	0.00	16.66	6311.42
MW-4	8/27/2002	0.00	16.47	6311.61
MW-4	10/8/2002	0.00	16.03	6312.05
MW-4	3/3/2003	0.00	15.94	6312.14
MW-4	6/18/2003	0.00	16.03	6312.05
MW-4	8/29/2003	0.00	16.29	6311.79
MW-4	9/20/2006	NM	NM	NM

TABLE 1

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OH RANDEL #007
XTO ENERGY, INC.

Well ID	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-4	12/5/2006	0.00	13.75	6314.33
MW-4	3/8/2007	0.00	12.55	6315.53
MW-4	5/17/2007	0.00	13.03	6315.05
MW-4	8/9/2007	0.00	12.59	6315.49
MW-4	5/12/2008	0.00	12.57	6315.51
MW-4	11/7/2008	0.00	13.68	6314.40
MW-4	7/8/2009	0.00	13.72	6314.36
MW-4	11/5/2009	0.00	14.12	6313.96
MW-4	5/25/2010	0.00	13.86	6314.22
MW-4	8/12/2010	0.00	14.39	6313.69
MW-4	11/17/2010	0.00	14.60	6313.48
MW-4	2/14/2011	0.00	15.55	6312.53
MW-4	5/17/2011	0.00	14.95	6313.13
MW-4	8/9/2011	0.00	15.11	6312.97
MW-4	11/9/2011	0.00	15.38	6312.70
MW-4	6/17/2013	0.00	16.33	6311.75
MW-4	12/16/2013	0.00	15.99	6312.09
MW-4	6/11/2014	0.00	16.30	6311.78
MW-4	12/9/2014	0.00	16.48	6311.60
MW-5	4/22/2002	0.00	19.11	6314.12
MW-5	4/24/2002	0.00	19.14	6314.09
MW-5	8/10/2002	0.00	19.10	6314.13
MW-5	6/18/2003	0.00	18.86	6314.37
MW-5	6/21/2004	0.00	19.64	6313.59
MW-5	6/28/2005	0.00	17.30	6315.93
MW-5	9/20/2006	NM	NM	NM
MW-5	12/5/2006	0.00	18.65	6314.58
MW-5	3/8/2007	0.00	18.15	6315.08
MW-5	5/17/2007	0.00	17.78	6315.45
MW-5	8/9/2007	0.00	NM	NM
MW-5	5/12/2008	0.00	18.82	6314.41
MW-5	11/7/2008	0.00	18.90	6314.33

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OH RANDEL #007
XTO ENERGY, INC.

Well ID	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-5	7/8/2009	0.00	20.08	6313.15
MW-5	11/5/2009	0.00	20.44	6312.79
MW-5	5/25/2010	0.00	20.33	6312.90
MW-5	8/12/2010	0.00	20.51	6312.72
MW-5	11/17/2010	0.00	20.93	6312.30
MW-5	2/14/2011	0.00	20.97	6312.26
MW-5	5/17/2011	0.00	21.20	6312.03
MW-5	8/9/2011	0.00	21.47	6311.76
MW-5	11/9/2011	0.00	21.69	6311.54
MW-5	6/17/2013	0.00	22.74	6310.49
MW-5	12/16/2013	0.00	22.36	6310.87
MW-5	6/11/2014	0.00	22.77	6310.46
MW-5	12/9/2014	0.00	22.21	6311.02
MW-6	4/22/2002	0.00	18.31	No Survey Data
MW-6	4/24/2002	0.00	18.32	No Survey Data
MW-6	8/27/2002	NM	NM	No Survey Data
MW-6	10/8/2002	16.84	18.13	No Survey Data
MW-6	5/23/2003	16.62	17.95	No Survey Data
MW-6	5/28/2003	16.68	17.90	No Survey Data
MW-6	6/6/2003	16.80	18.00	No Survey Data
MW-6	6/18/2003	16.78	18.02	No Survey Data
MW-6	6/26/2003	16.88	18.10	No Survey Data
MW-6	7/31/2003	17.77	19.13	No Survey Data
MW-6	8/29/2003	16.88	18.34	No Survey Data
MW-6	6/21/2004	17.78	18.95	No Survey Data
MW-6	9/20/2006	15.79	16.87	No Survey Data
MW-6	12/5/2006 *	NM	NM	No Survey Data
MW-7	5/17/2007	0.00	15.46	6315.90
MW-7	8/9/2007	0.00	14.72	6316.64
MW-7	11/27/2007	0.00	14.91	6316.45
MW-7	5/12/2008	0.00	15.12	6316.24

TABLE 1

GROUNDWATER ELEVATION SUMMARY
OH RANDEL #007
XTO ENERGY, INC.

Well ID	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-7	11/7/2008	0.00	15.82	6315.54
MW-7	7/8/2009	0.00	16.44	6314.92
MW-7	11/5/2009	0.00	16.76	6314.60
MW-7	5/25/2010	0.00	16.63	6314.73
MW-7	8/12/2010	0.00	16.82	6314.54
MW-7	11/17/2010	0.00	17.65	6313.71
MW-7	2/14/2011	0.00	17.74	6313.62
MW-7	5/17/2011	0.00	17.92	6313.44
MW-7	8/9/2011	0.00	18.11	6313.25
MW-7	11/9/2011	0.00	18.46	6312.90
MW-7	6/17/2013	0.00	19.45	6311.91
MW-7	12/16/2013	0.00	19.39	6311.97
MW-7	6/11/2014	0.00	19.56	6311.80
MW-7	12/9/2014	0.00	19.67	6311.69
MW-8	5/17/2007	0.00	19.64	6314.86
MW-8	8/9/2007	0.00	18.94	6315.56
MW-8	11/27/2007	0.00	19.20	6315.30
MW-8	5/12/2008	0.00	19.97	6314.53
MW-8	11/7/2008	0.00	19.55	6314.95
MW-8	7/8/2009	0.00	20.01	6314.49
MW-8	11/5/2009	0.00	20.41	6314.09
MW-8	5/25/2010	0.00	20.31	6314.19
MW-8	8/12/2010	0.00	20.41	6314.09
MW-8	11/17/2010	0.00	20.63	6313.87
MW-8	2/14/2011	0.00	20.35	6314.15
MW-8	5/17/2011	0.00	20.30	6314.20
MW-8	8/9/2011	0.00	20.83	6313.67
MW-8	11/9/2011	0.00	21.00	6313.50
MW-8	6/17/2013	0.00	22.17	6312.33
MW-8	12/16/2013	0.00	21.40	6313.10
MW-8	6/11/2014	0.00	22.09	6312.41
MW-8	12/9/2014	0.00	22.80	6311.70

TABLE 1

GROUNDWATER ELEVATION SUMMARY
OH RANDEL #007
XTO ENERGY, INC.

Well ID	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-9	7/8/2009	0.00	35.26	6295.10
MW-9	11/5/2009	0.00	33.08	6297.28
MW-9	5/25/2010	0.00	29.28	6301.08
MW-9	8/12/2010	0.00	31.12	6299.24
MW-9	5/25/2010	0.00	20.31	6310.05
MW-9	8/12/2010	0.00	20.41	6309.95
MW-9	11/17/2010	0.00	30.49	6299.87
MW-9	2/14/2011	0.00	31.60	6298.76
MW-9	5/17/2011	0.00	30.39	6299.97
MW-9	8/9/2011	0.00	29.84	6300.52
MW-9	11/9/2011	0.00	28.76	6301.60
MW-9	6/17/2013	0.00	28.36	6302.00
MW-9	12/16/2013	0.00	27.97	6302.39
MW-9	6/11/2014	0.00	28.68	6301.68
MW-9	12/9/2014	0.00	28.45	6301.91

Notes:

AMSL - Above Mean Sea Level
BTOC - Below Top of Casing
NM - Not Measured
* - Well was destroyed

TABLE 2
GROUNDWATER ANAYTICAL RESULTS SUMMARY

TABLE 2

GROUNDWATER ANALYTICAL RESULTS SUMMARY
OH RANDEL #007
XTO ENERGY, INC.

Well ID	Date	Benzene (ug/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Groundwater Standard		**10**	**750**	**750**	**620**
MW-3	4/24/2002	24	2.4	0.58	200
MW-3	8/27/2002	9.4	ND	ND	150
MW-3	3/3/2003	5.5	ND	ND	43
MW-3	6/18/2003	6.1	0.97	ND	43
MW-3	8/29/2003	3.2	0.53	ND	24
MW-3	12/5/2006	<1	<1	<1	<3
MW-3	5/17/2007	<1	<1	<1	<2
MW-3	8/9/2007	<1	<1	<1	<2
MW-4	4/24/2002	ND	0.59	ND	2.1
MW-4	8/27/2002	1.3	ND	ND	3.5
MW-4	3/3/2003	4.2	ND	ND	5
MW-4	6/18/2003	6.2	ND	ND	4.5
MW-4	8/29/2003	8.3	ND	ND	4.3
MW-4	12/5/2006	<1	<1	<1	<3
MW-4	5/17/2007	<1	<1	<1	<2
MW-4	8/9/2007	<1	<1	<1	<2
MW-5	4/24/2002	**510**	0.64	8.9	240
MW-5	6/18/2003	**1,100**	20	ND	**660.0**
MW-5	6/21/2004	**2,000**	ND	ND	260.0
MW-5	6/28/2005	**1,100**	15	ND	160.0
MW-5	12/5/2006	**37**	<1	<1	4.1
MW-5	5/17/2007	<1	<1	<1	<2
MW-6	4/24/2002	**6,100**	**4,800**	**920**	**6,600**
MW-7	5/17/2007	**8,500**	**17,000**	**980**	**16,000**
MW-7	8/9/2007	**9,800**	**11,000**	**770**	**12,000**
MW-7	11/27/2007	**12,000**	**9,000**	**940**	**13,000**
MW-7	5/12/2008	**7,900**	**11,000**	**830**	**12,000**
MW-7	11/7/2008	**12,000**	**16,000**	**1,100**	**17,000**
MW-7	7/8/2009	**9,800**	**8,200**	<100	**12,000**
MW-7	11/5/2009	**9,800**	**7,900**	570	**13,000**
MW-7	5/25/2010	**7,200**	**3,800**	440	**11,000**
MW-7	8/12/2010	**82**	58	9.2	200
MW-7	11/17/2010	**5,200**	**5,500**	76.0	**3,400**
MW-7	2/14/2011	**2,200**	**1,000**	<120	**1,800**
MW-7	5/17/2011	**500**	190	16	180
MW-7	8/9/2011	**81.3**	36.9	5.3	39.4

TABLE 2

GROUNDWATER ANALYTICAL RESULTS SUMMARY
OH RANDEL #007
XTO ENERGY, INC.

Well ID	Date	Benzene (ug/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Groundwater Standard		**10**	**750**	**750**	**620**
MW-7	11/9/2011	**26**	16	2.3	20
MW-7	6/17/2013	0.72	<5.0	<0.50	<1.5
MW-7	12/16/2013	**130**	<50	7.6	62
MW-7	6/11/2014	**7,600**	**6,400**	100	**5,900**
MW-7	12/9/2014	**9,400**	**2,600**	250	**6,100**
MW-8	5/17/2007	<1.0	1.9	<1.0	3.7
MW-8	8/9/2007	<1.0	<1.0	<1.0	<2.0
MW-8	11/27/2007	**21.0**	<1.0	<1.0	<2.0
MW-8	5/12/2008	1.4	<1.0	<1.0	<2.0
MW-8	11/7/2008	1.2	<1.0	<1.0	<2.0
MW-8	7/8/2009	<1.0	<1.0	<1.0	<2.0
MW-8	11/5/2009	1.1	<1.0	<1.0	<2.0
MW-9	7/8/2009	**91**	160	6.9	100
MW-9	11/30/2009	<1	<1	<1	<2
MW-9	5/25/2010	<1.0	<1.0	<1.0	<2.0
MW-9	8/12/2010	<0.5	<5.0	<0.5	<1.5
MW-9	11/17/2010	2.4	<5.0	<0.5	<1.5

Notes:

Benzene, toluene, ethylbenzene, and total xylenes analyzed by EPA Method 8021B

BOLD indicates the result exceeds the NMWQCC Standard

NMWQCC - New Mexico Water Quality Control Commission

ND - not detected

µg/l - micrograms per liter

< indicates result is less than the stated laboratory method detection limit

* - Well was Destroyed

FIGURE 1
SITE LOCATION MAP

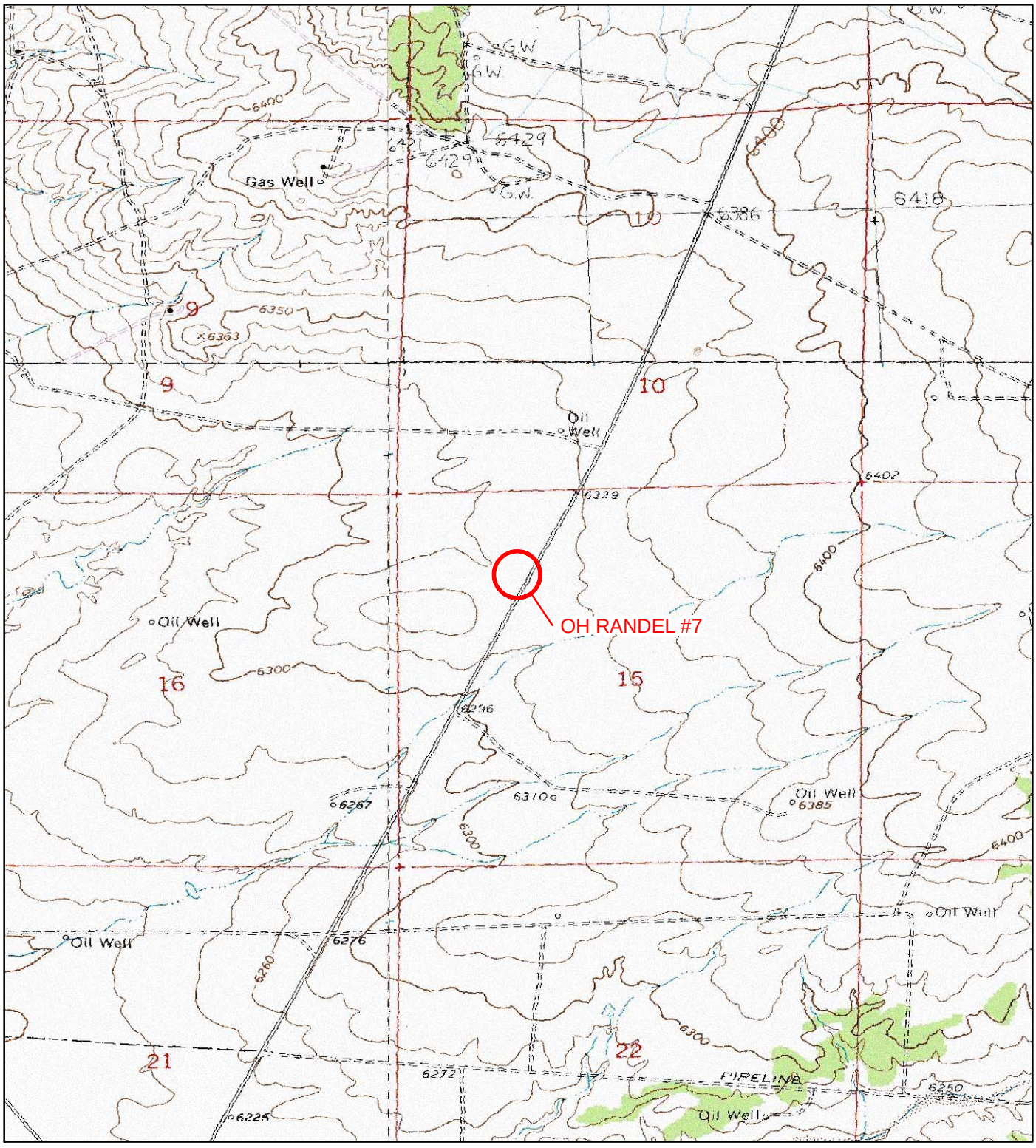


IMAGE COURTESY OF USDA/NRCS, VARIOUS DATES

LEGEND

SITE LOCATION

0 2,000 4,000

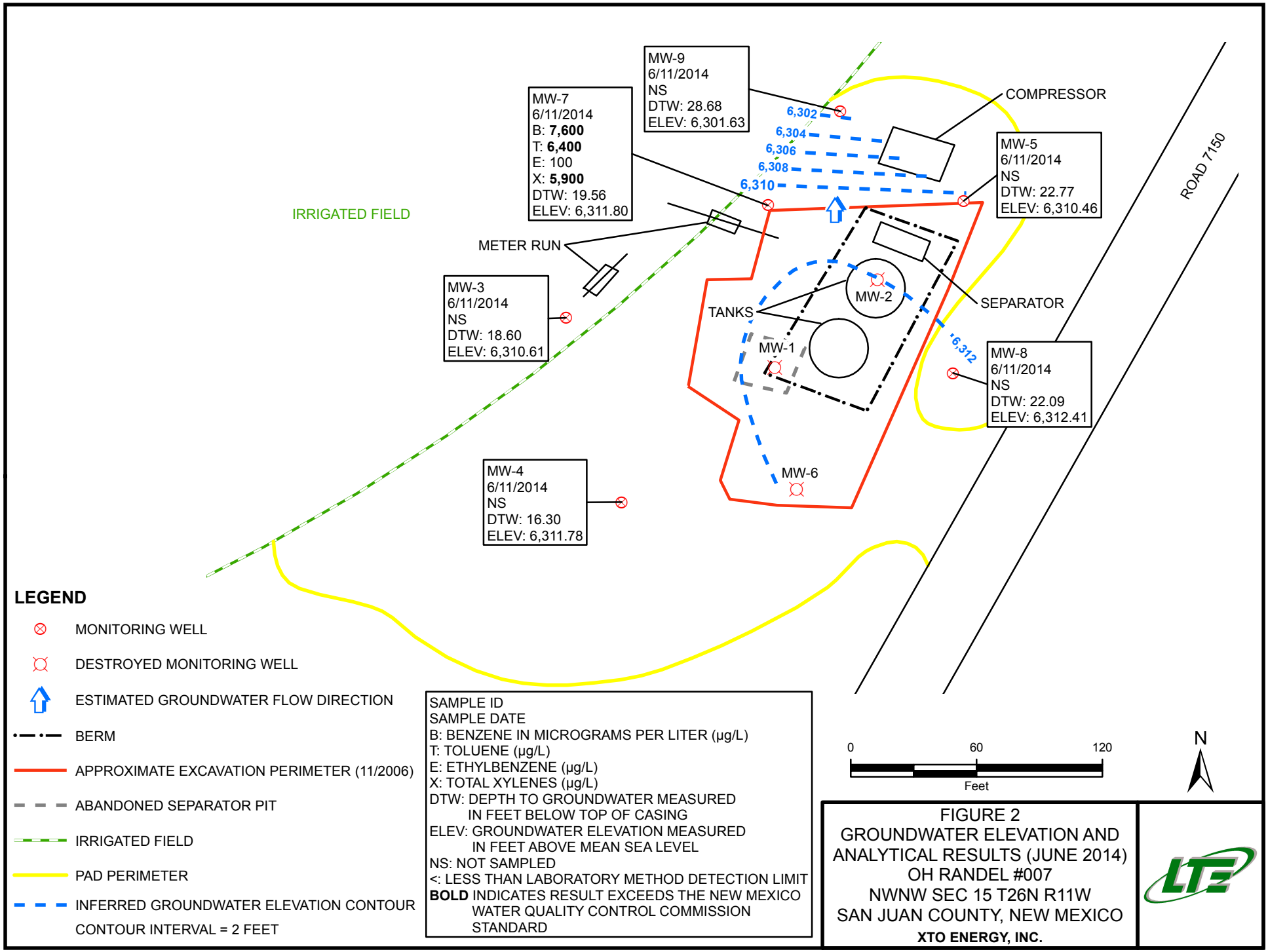
Feet

N

FIGURE 1
SITE LOCATION MAP
OH RANDEL #7
NWNW SEC 15 T26N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\XTO1002\XTO1002_OH_RANDEL_FIG01_SL.mxd

FIGURE 2
GROUNDWATER ELEVATION AND ANALYTICAL RESULTS (JUNE 2014)



LEGEND

- MONITORING WELL
- DESTROYED MONITORING WELL
- ESTIMATED GROUNDWATER FLOW DIRECTION
- BERM
- APPROXIMATE EXCAVATION PERIMETER (11/2006)
- ABANDONED SEPARATOR PIT
- IRRIGATED FIELD
- PAD PERIMETER
- INFERRED GROUNDWATER ELEVATION CONTOUR
  CONTOUR INTERVAL = 2 FEET

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

FIGURE 2
GROUNDWATER ELEVATION AND ANALYTICAL RESULTS (JUNE 2014)
OH RANDEL #007
NWNW SEC 15 T26N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012911009\2014\012911009_004_OH_RANDEL_FIG02_GWE_GWA_2014_Q2.mxd

FIGURE 3
GROUND ELEVATIONS AND ANALYTUCAL RESULTS (DECEMBER 2014)

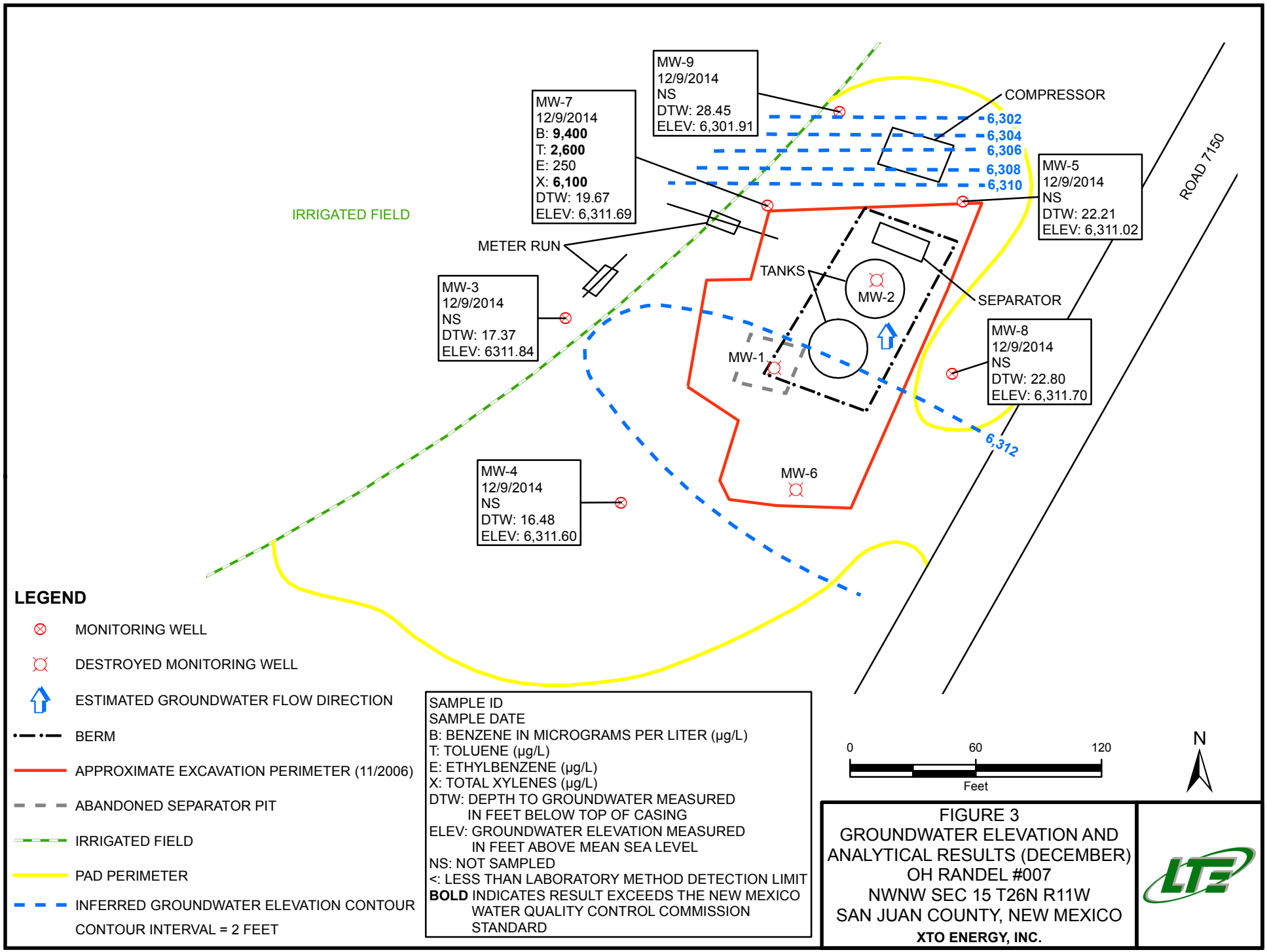


FIGURE 3
GROUNDWATER ELEVATION AND ANALYTICAL RESULTS (DECEMBER)
OH RANDEL #007
NWNW SEC 15 T26N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012911009\2014\012911009_004_OH_RANDEL_FIG03_GWE_GWA_2014_Q4.mxd

ATTACHMENT 1
BLAGG ENGINEERING, INC. PIT CLOSURE REPORT (2002)

3004524749 36.49193/107.99632

CLIENT: XTO

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

LOCATION NO: _____
C.O.C. NO: 9796

FIELD REPORT: PIT CLOSURE VERIFICATION

PAGE No: 1 of 1

LOCATION: NAME: O.H. RANDEL WELL #: 7 TYPE: ABAN. SEP.
QUAD/UNIT: D SEC: 15 TWP: 26N RNG: 11W PM: NM CNTY: SJ ST: NM
QTR/FOOTAGE: 1150'N/1150'W NW/NW CONTRACTOR:

DATE STARTED: 3/12/02
DATE FINISHED: _____
ENVIRONMENTAL SPECIALIST: NV

EXCAVATION APPROX. NA FT. x NA FT. x NA FT. DEEP. CUBIC YARDAGE: NA
DISPOSAL FACILITY: ON-SITE REMEDIATION METHOD: _____
LAND USE: RANGE - BLM LEASE: _____ FORMATION: DK

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 239 FT. S75E FROM WELLHEAD.
DEPTH TO GROUNDWATER: >100' NEAREST WATER SOURCE: >1000' NEAREST SURFACE WATER: >1000'
NMOCD RANKING SCORE: 0 NMOCD TPH CLOSURE STD: 5000 PPM

OVM CALIB. READ. 52.7 ppm
OVM CALIB. GAS = 100 ppm RF = 0.52
TIME: 11:48 (am)/pm DATE: 3/12/02

SOIL AND EXCAVATION DESCRIPTION:

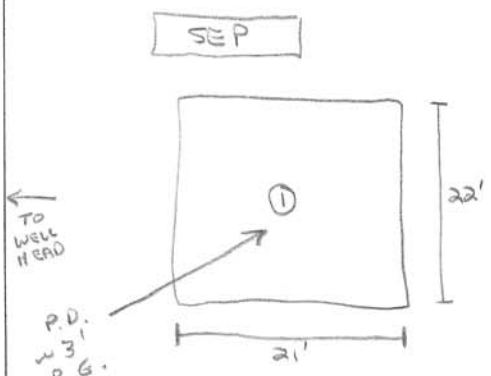
SOIL TYPE: (SAND) / SILTY SAND / SILT / SILTY CLAY / CLAY / GRAVEL / OTHER _____
SOIL COLOR: MED. GRAY
COHESION (ALL OTHERS): (NON COHESIVE) / SLIGHTLY COHESIVE / COHESIVE / HIGHLY COHESIVE
CONSISTENCY (NON COHESIVE SOILS): (LOOSE) / (FIRM) / DENSE / VERY DENSE
~~PLASTICITY (CLAYS)~~: NON PLASTIC / SLIGHTLY PLASTIC / COHESIVE / MEDIUM PLASTIC / HIGHLY PLASTIC
~~DENSITY (COHESIVE CLAYS & SILTS)~~: SOFT / FIRM / STIFF / VERY STIFF / HARD
MOISTURE: DRY / SLIGHTLY MOIST / (MOIST) / WET / SATURATED / SUPER SATURATED
DISCOLORATION/STAINING OBSERVED: (YES) / NO EXPLANATION - BET. 4-6' BELOW GRADE
HC ODOR DETECTED: (YES) / NO EXPLANATION - MED. GRAY SAND (STRONG)
SAMPLE TYPE: (GRAB) / COMPOSITE - # OF PTS. -
ADDITIONAL COMMENTS: CONDUCTED SAMPLING WITH HAND SHOVEL.

FIELD 418.1 CALCULATIONS

SAMP. TIME	SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm

SCALE
0 FT

PIT PERIMETER



OVM RESULTS

SAMPLE ID	FIELD HEADSPACE PID (ppm)
1 @ 6'	1,015
2 @	
3 @	
4 @	
5 @	

LAB SAMPLES

SAMPLE ID	ANALYSIS	TIME
(1) @ 6'	TPH (8015B)	1130
"	BTEX (8021B)	"

PIT PROFILE

P.D. = PIT DEPRESSION; B.G. = BELOW GRADE
T.H. = TEST HOLE; ~ = APPROX.; B = BELOW

TRAVEL NOTES: CALLOUT: 3/12/02 - MORN. ONSITE: 3/12/02 - MORN.

revised: 02/27/02 bei1005C.skd

ATTACHMENT 2
COMPLETION DIAGRAMS AND BOREHOLE LOGS

FIGURE 8

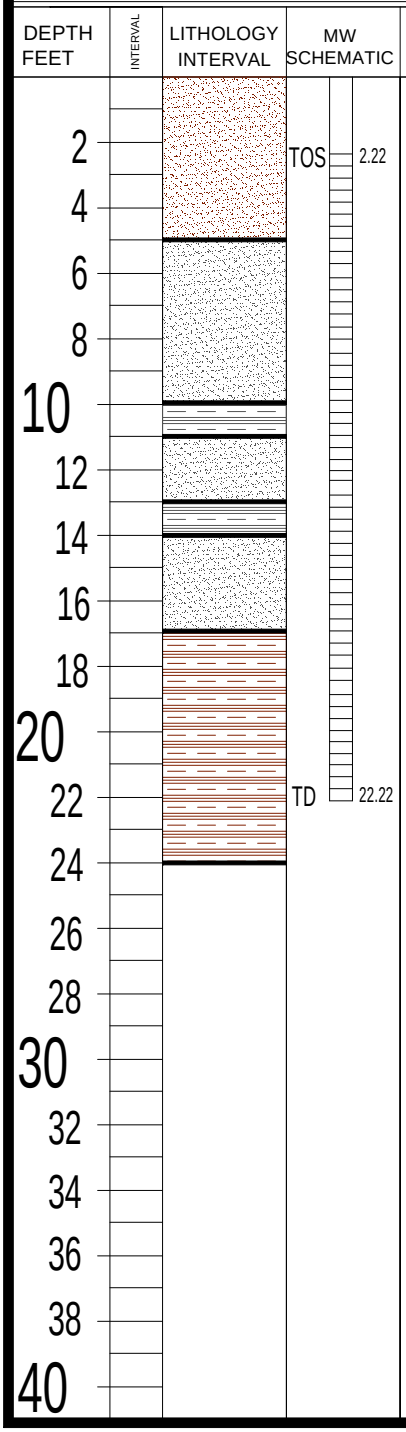
BLAGG ENGINEERING, INC.

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

BORE / TEST HOLE REPORT

BORING #.....	BH - 1
MW #.....	1
PAGE #.....	1
DATE STARTED	3/22/02
DATE FINISHED	3/22/02
OPERATOR.....	JCB
PREPARED BY	NJV

CLIENT: XTO ENERGY INC.
LOCATION NAME: RANDEL, O.H. #7 - SEP. PIT, UNIT D, SEC. 15, T26N, R11W
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: 240 FT., S76.5E FEET FROM WELL HEAD.



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 0.15 FT. ABOVE GROUND SURFACE.

MODERATE TO DARK YELLOWISH BROWN SAND & ROCK AGGREGATE, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTINGS (0.0 - 5.0 FT. BELOW GRADE).

LIGHT TO MEDIUM GRAY SAND, NON COHESIVE, SLIGHTLY MOIST TO MOIST, FIRM, STRONG HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTING (5.0 - 10.0 FT. BELOW GRADE).

LIGHT MEDIUM GRAY SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, SLIGHTLY MOIST, APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (10.0 - 11.0 FT. BELOW GRADE).

SAME AS 5.0 - 10.0 FT. INTERVAL (11.0 - 13.0 FT. BELOW GRADE).

SAME AS 10.0 - 11.0 FT. INTERVAL (13.0 - 14.0 FT. BELOW GRADE).

SAME AS 5.0 - 10.0 FT. INTERVAL EXCEPT MOIST TO WET (14.0 - 17.0 FT. BELOW GRADE).

GW DEPTH ON 3/25/02 = 16.68 FT. (APPROX.) FROM GROUND SURFACE.

LIGHT DUSKY BROWN SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, WET TO SATURATED, APPARENT STRONG HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (17.0 - 24.0 FT. BELOW GRADE).

NOTE:
- SAND.
- SILTY CLAY TO CLAY.

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 0.15 ft. above grade to 2.22 ft. below grade, 0.010 slotted screen between 2.22 to 22.22 feet below grade, sand packed annular to grade.

DRAWING: RANDEL-7-MW1.SKF | DATE: 10/19/05 | DWN BY: NJV

FIGURE 9

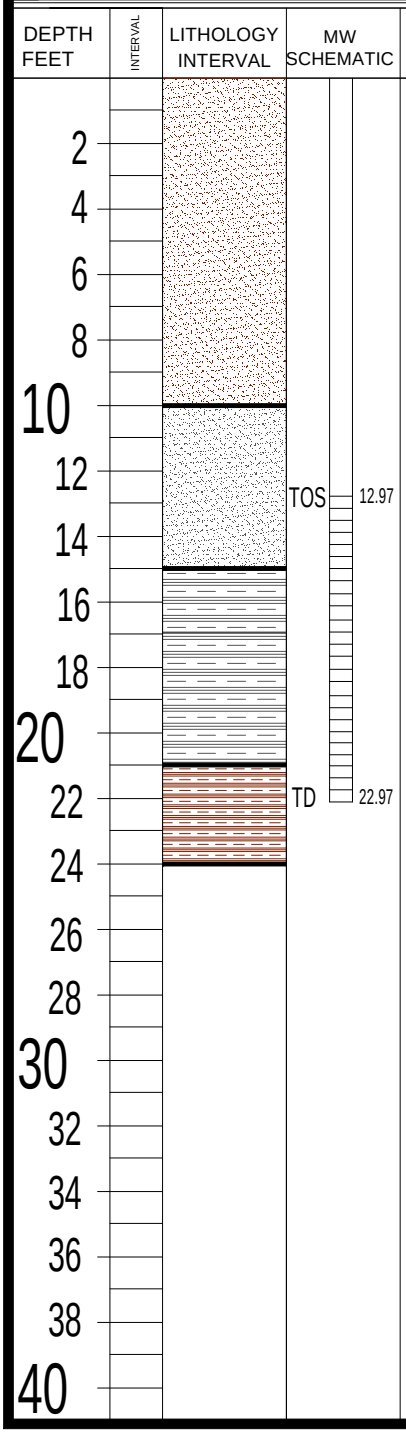
BLAGG ENGINEERING, INC.

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

BORE / TEST HOLE REPORT

BORING #.....	BH - 2
MW #.....	2
PAGE #.....	2
DATE STARTED	4/09/02
DATE FINISHED	4/09/02
OPERATOR.....	JCB
PREPARED BY	NJV

CLIENT:	XTO ENERGY INC.
LOCATION NAME:	RANDEL, O.H. #7 - SEP. PIT, UNIT D, SEC. 15, T26N, R11W
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	274 FT., S87.5E FEET FROM WELL HEAD.



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.63 FT. ABOVE GROUND SURFACE.

MODERATE TO DARK YELLOWISH BROWN SAND, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTINGS (0.0 - 10.0 FT. BELOW GRADE).

LIGHT TO MEDIUM GRAY SILTY SAND, NON COHESIVE, DRY TO SLIGHTLY MOIST, DENSE, STRONG HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTING (10.0 - 15.0 FT. BELOW GRADE).

▼ GW DEPTH ON 4/22/02 = 16.69 FT. (APPROX.) FROM GROUND SURFACE.

LIGHT MEDIUM GRAY SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, SLIGHTLY MOIST, APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (15.0 - 21.0 FT. BELOW GRADE).

LIGHT DUSKY BROWN SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, DRY, SLIGHT APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (21.0 - 24.0 FT. BELOW GRADE).

NOTE:

- SAND.
- SILTY SAND (HC IMPACTED).
- SILTY CLAY TO CLAY.

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 1.63 ft. above grade to 12.97 ft. below grade, 0.010 slotted screen between 12.97 to 22.97 feet below grade, sand packed annular to 10 ft. below grade, then filled with clean native soil to surface.

DRAWING: RANDEL-7-MW2.SKF | DATE: 10/19/05 | DWN BY: NJV

FIGURE 10

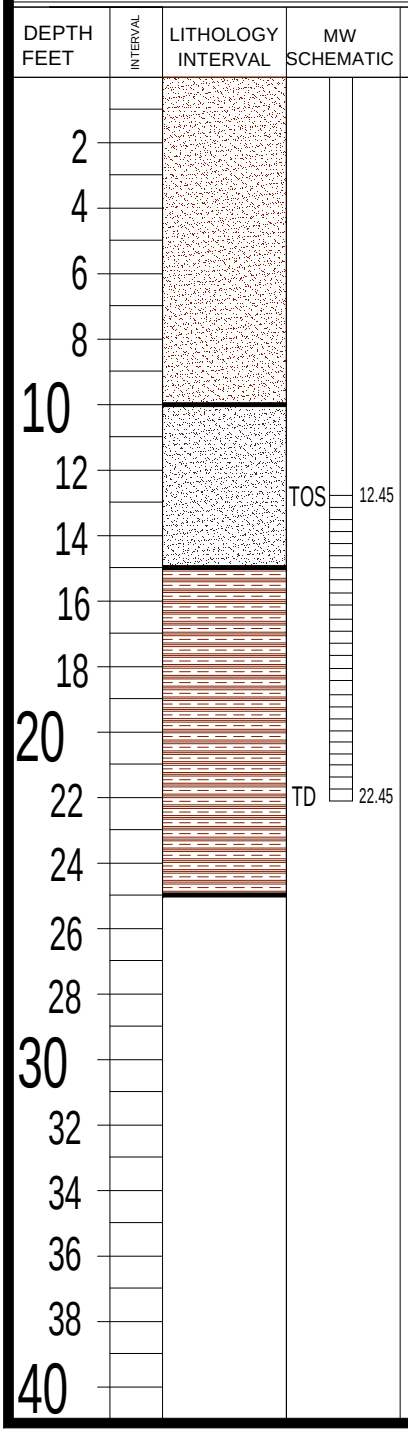
BLAGG ENGINEERING, INC.

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

BORE / TEST HOLE REPORT

BORING #.....	BH - 3
MW #.....	3
PAGE #.....	3
DATE STARTED	4/09/02
DATE FINISHED	4/09/02
OPERATOR.....	JCB
PREPARED BY	NJV

CLIENT: XTO ENERGY INC.
LOCATION NAME: RANDEL, O.H. #7 - SEP. PIT, UNIT D, SEC. 15, T26N, R11W
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: 158 FT., S80.5E FEET FROM WELL HEAD.



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.15 FT. ABOVE GROUND SURFACE.

MODERATE TO DARK YELLOWISH BROWN SAND, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTINGS (0.0 - 10.0 FT. BELOW GRADE).

MODERATE TO DARK YELLOWISH BROWN SILTY SAND, COHESIVE, SLIGHTLY MOIST TO WET, FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTING (10.0 - 15.0 FT. BELOW GRADE).

GW DEPTH ON 4/22/02 = 14.11 FT. (APPROX.) FROM GROUND SURFACE.

LIGHT DUSKY BROWN SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, WET TO SATURATED, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (15.0 - 25.0 FT. BELOW GRADE).

NOTE:
- SAND.
- SILTY SAND.
- SILTY CLAY TO CLAY.

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 2.15 ft. above grade to 12.45 ft. below grade, 0.010 slotted screen between 12.45 to 22.45 feet below grade, sand packed annular to 10 ft. below grade, then filled with clean native soil to surface.

DRAWING: RANDEL-7-MW3.SKF | DATE: 10/19/05 | DWN BY: NJV

FIGURE 11

BLAGG ENGINEERING, INC.

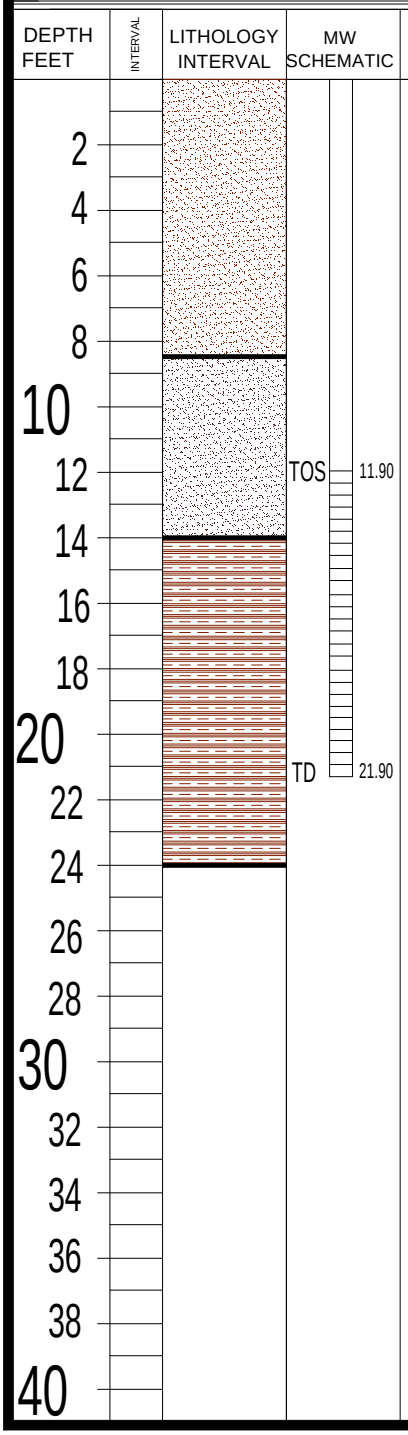
P.O. BOX 87
BLOOMFIELD, NM 87413

(505) 632-1199

BORE / TEST HOLE REPORT

CLIENT:	XTO ENERGY INC.
LOCATION NAME:	RANDEL, O.H. #7 - SEP. PIT, UNIT D, SEC. 15, T26N, R11W
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	210 FT., S56E FEET FROM WELL HEAD.

BORING #.....	BH - 4
MW #.....	4
PAGE #.....	4
DATE STARTED	4/09/02
DATE FINISHED	4/09/02
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.60 FT. ABOVE GROUND SURFACE.

MODERATE TO DARK YELLOWISH BROWN SAND, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTINGS (0.0 - 8.5 FT. BELOW GRADE).

MODERATE TO DARK YELLOWISH BROWN SILTY SAND, COHESIVE, SLIGHTLY MOIST TO WET, FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTING (8.5 - 14.0 FT. BELOW GRADE).

GW DEPTH ON 4/22/02 = 15.03 FT. (APPROX.) FROM GROUND SURFACE.

LIGHT DUSKY BROWN SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, WET TO SATURATED, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (14.0 - 24.0 FT. BELOW GRADE).

NOTE:

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

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 1.60 ft. above grade to 11.90 ft. below grade, 0.010 slotted screen between 11.90 to 21.90 feet below grade, sand packed annular to 8 ft. below grade, then filled with clean native soil to surface.

DRAWING: RANDEL-7-MW4.SKF	DATE: 10/19/05	DWN BY: NJV

FIGURE 12

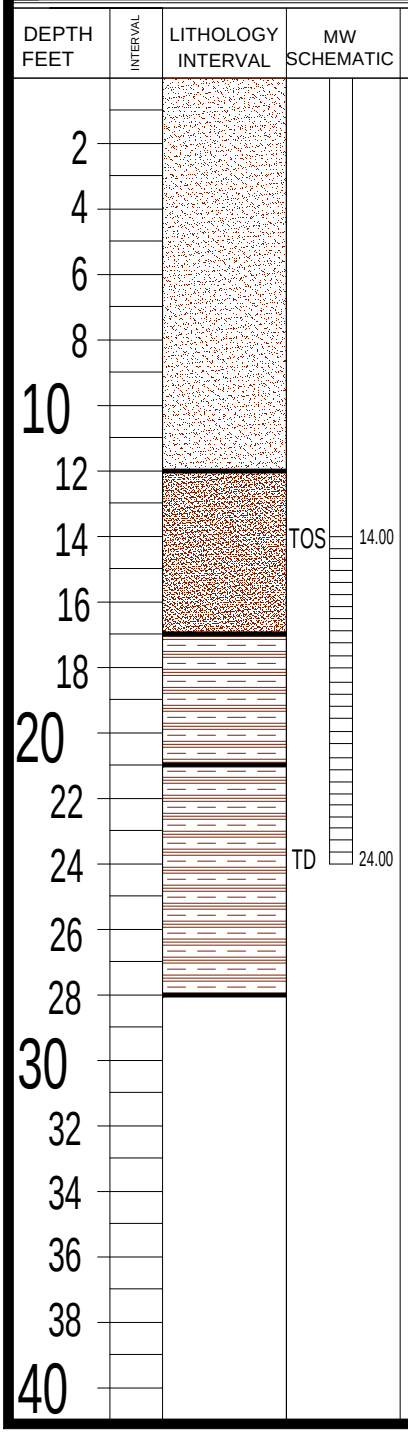
BLAGG ENGINEERING, INC.

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

BORE / TEST HOLE REPORT

BORING #.....	BH - 5
MW #.....	5
PAGE #.....	5
DATE STARTED	4/19/02
DATE FINISHED	4/19/02
OPERATOR.....	JCB
PREPARED BY	NJV

CLIENT:	XTO ENERGY INC.
LOCATION NAME:	RANDEL, O.H. #7 - SEP. PIT, UNIT D, SEC. 15, T26N, R11W
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	312 FT., N86E FEET FROM WELL HEAD.



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.00 FT. ABOVE GROUND SURFACE.

MODERATE TO DARK YELLOWISH BROWN SAND, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTINGS (0.0 - 12.0 FT. BELOW GRADE).

MODERATE BROWN SILTY SAND, NON COHESIVE, DRY TO SLIGHTLY MOIST, DENSE, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTING (12.0 - 17.0 FT. BELOW GRADE).

GW DEPTH ON 4/22/02 = 18.11 FT. (APPROX.) FROM GROUND SURFACE.

MEDIUM BROWN TO LIGHT OLIVE GRAY SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, SLIGHTLY MOIST, APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (17.0 - 21.0 FT. BELOW GRADE).

LIGHT DUSKY BROWN SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, DRY, SLIGHT APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (21.0 - 28.0 FT. BELOW GRADE).

NOTE:

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

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 1.0 ft. above grade to 14.00 ft. below grade, 0.010 slotted screen between 14.00 to 24.00 feet below grade, sand packed annular to 12 ft. below grade, then filled with clean native soil to surface.

DRAWING: RANDEL-7-MW5.SKF | DATE: 10/19/05 | DWN BY: NJV

FIGURE 13

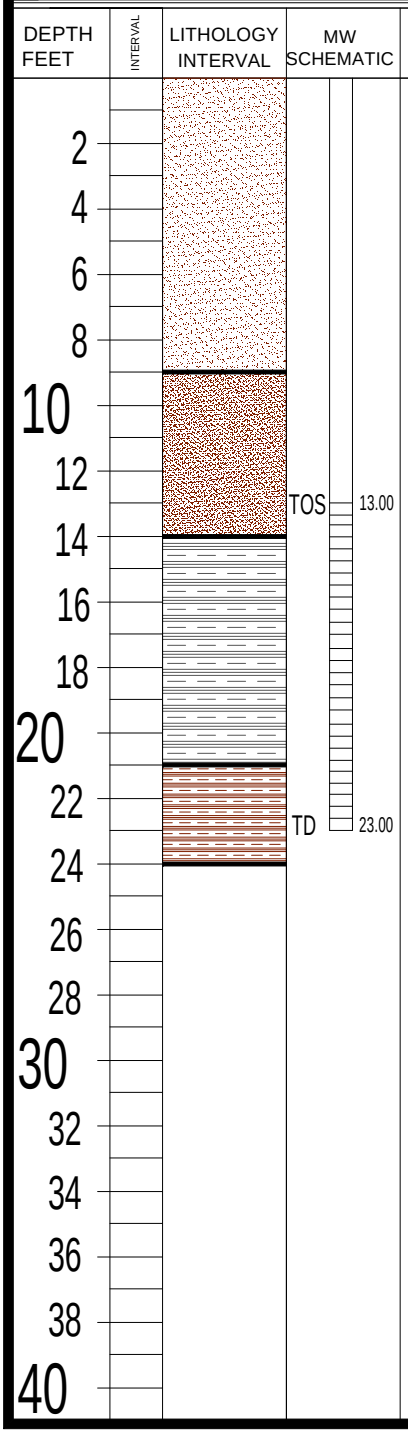
BLAGG ENGINEERING, INC.

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

BORE / TEST HOLE REPORT

CLIENT:	XTO ENERGY INC.
LOCATION NAME:	RANDEL, O.H. #7 - SEP. PIT, UNIT D, SEC. 15, T26N, R11W
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	266 FT., S65.5E FEET FROM WELL HEAD.

BORING #.....	BH - 6
MW #.....	6
PAGE #.....	6
DATE STARTED	4/19/02
DATE FINISHED	4/19/02
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

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

MODERATE TO DARK YELLOWISH BROWN SAND, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTINGS (0.0 - 9.0 FT. BELOW GRADE).

MODERATE BROWN TO LIGHT OLIVE GRAY SILTY SAND, NON COHESIVE, DRY TO SLIGHTLY MOIST, DENSE, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTING (9.0 - 14.0 FT. BELOW GRADE).

GW DEPTH ON 4/22/02 = 16.51 FT. (APPROX.) FROM GROUND SURFACE.

LIGHT OLIVE TO MEDIUM GRAY SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, SLIGHTLY MOIST, APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (14.0 - 21.0 FT. BELOW GRADE).

LIGHT DUSKY BROWN SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, DRY, SLIGHT APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (21.0 - 24.0 FT. BELOW GRADE).

NOTE:

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

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 13.00 ft. below grade, 0.010 slotted screen between 13.00 to 23.00 feet below grade, sand packed annular to 10 ft. below grade, then filled with clean native soil to surface.

DRAWING: RANDEL-7-MW6.SKF	DATE: 10/19/05	DWN BY: NJV

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: XTO Ground Water
Project Location: OH Randel #7

Borehole Location: 36º 29.508' N, 107º 59.720' 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 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	2	5-7'	split spoon	brown, unconsolidated, poorly sorted sand and gravel, damp	0	Easy
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
20						

Comments:

Geologist Signature *Ashley L. Ager*

RECORD OF SUBSURFACE EXPLORATION

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

Borehole #: 1
Well #: MW-7
Page: 2 of 2
Project Number:
Project Name: XTO Ground Water
Project Location: OH Randel #7

Borehole Location: 36º 29.522' N, 107º 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	1.3	Easy
				20.4-20.8: gray coarse sand, moist, poorly sorted	1.0	
				20.8-21: saturated gray coarse sand, poorly sorted	0.5	
25				21-22: reddish gray clay	0	
	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
35						
40						

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*

RECORD OF SUBSURFACE EXPLORATION

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

Borehole #: 1
Well #: MW-8
Page: 1 of 2
Project Number:
Project Name: XTO Ground Water
Project Location: OH Randel #7

Borehole Location: 36º 29.522' N, 107º 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	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 gravel 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
20						

Comments:

Geologist Signature *Ashley L. Ager*

RECORD OF SUBSURFACE EXPLORATION

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

Borehole #: 1
Well #: MW-8
Page: 2 of 2
Project Number:
Project Name: XTO Ground Water
Project Location: OH Randel #7

Borehole Location: 36º 29.522' N, 107º 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	20-21.8	split spoon	20-20.4: reddish brown sand, coarse, poorly sorted, some gravel content, moist	78.9	Easy
				20.4-21.8: variegated reddish gray stiff clay, moist	0.2	Easy
25	6	25-27	split spoon	Variegated reddish brown clay wet at top, dry at bottom	0	Easy
30	7	30-32	split spoon	30-30.7: variegated reddish brown clay	0	Steady
				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*

RECORD OF SUBSURFACE EXPLORATION

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

Borehole #: B-1
Well #: MW-9

Project Number:
Project Name: XTO Ground Water
Project Location: OH Randel #7

Borehole Location: 36º 29.531' N, 107º 59.731' W
GWL Depth: 16'
Drilled By: Kelly Padilla
Well Logged By: Ashley Ager
Date Started: 07/07/09
Date Completed: 07/07/09

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		0-5	cuttings	brown, poorly sorted coarse sand and gravel, road base		easy
5	1	5-7'	split spoon, 17"	0-13.5": 7.5 YR 5/6 strong brown sp, poorly sorted coarse sand, sub angular, dry, unconsolidated 13.5 - 17": 10YR 6/1 gray, sandy shale, crumbly	0	34 Blows
10	2	10-12	split spoon, 22"	10 YR 5/3 brown sp, poorly sorted, coarse sand, sub angular, dry	0	30 Blows
15	3	15-17	split spoon, 18"	0-2": same as above 2 - 16": 10 YR 5/3 brown sm, poorly sorted, medium sand w/ higher silt content, damp	0	25 Blows
20						

Comments:

Geologist Signature: *Ashley L. Ager*

RECORD OF SUBSURFACE EXPLORATION

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

Borehole #: B-1
Well #: MW-9
Page: 2 of 2
Project Number:
Project Name: XTO Ground Water
Project Location: OH Randel #7

Borehole Location: 36º 29.531' N, 107º 59.731' W
GWL Depth: 16'
Drilled By: Kelly Padilla
Well Logged By: Ashley Ager
Date Started: 07/07/09
Date Completed: 07/07/09

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	4	20-22	split spoon, 20"	10 YR 3/2 v. dark grayish brown CL, clay some coarse sand at top, damp	0.1	68 Blows Wet rod
25	5	25-27	split spoon, 18"	10 YR 7/2 light gray CL, clay interbedded with 10 yr 4/2 dark grayish brown clays, iron discoloration, dry	0	58 Blows
30	6	30-32	split spoon, 18"	same as above, dry	0	76 Blows
35	7	35-37'	split spoon, 15"	same as above, dry	0	41 Blows
40						

Comments: Drilling stopped at 35' based on previous knowledge of depth in existing monitoring wells. Identified damp sandy layer at 16', and hole is dry after drilling to 37'. Will let sit and see if water fills in. 3" of water in hole after 30 mins. Set well.

Geologist Signature: *Ashley L. Ager*

RECORD OF SUBSURFACE EXPLORATION

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

Borehole #: B-2
Well #:
Page: 1 of 2
Project Number:
Project Name: XTO Ground Water
Project Location: OH Randel #7

Borehole Location: 36º 29' 30.46" N, 107º 59' 44.2" W
GWL Depth: Dry Hole
Drilled By: Kelly Padilla
Well Logged By: Ashley Ager
Date Started: 07/07/09
Date Completed: 07/08/09

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		0-5'	cuttings	brown poorly sorted coarse sand and gravel - road base		easy
5	1	5-7'	split spoon, 11"	2.5 Y 6/1 Gray coarse sand sp, subrounded, backfill	0	Easy, 26 Blows
10	2	10-12	split spoon, 16"	2.5 Y 4/2 dark grayish brown, fine sand, poorly sorted, lots of fines	0	25 Blows
15	3	15-17	split spoon, 10"	2.5 Y 4/1 Dark Gray, fine silty sand, about 5% c. content, damp, backfill	0	12 Blows Wet rod
20						

Comments:

Geologist Signature: *Ashley L. Ager*

RECORD OF SUBSURFACE EXPLORATION

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

Borehole #: B-2
Well #:
Page: 2 of 2
Project Number:
Project Name: XTO Ground Water
Project Location: OH Randel #7

Borehole Location: 36º 29' 30.46" N, 107º 59' 44.2" W
GWL Depth: dry hole
Drilled By: Kelly Padilla
Well Logged By: Ashley Ager
Date Started: 07/07/09
Date Completed: 07/08/09

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	4	20-22	split spoon, 19"	5 YR 3/2 Dark reddish brown CL, Clay, damp	0.1	59 Blows
25	5	25-27	split spoon, 16.5"	0 - 2": same as above 2-16.5": 10YR 6/2 light brownish gray, silty clay, dry	0	66 Blows
30	6	30-32	split spoon, 14"	same as above, damp	0	48 Blows
35	7	35-37'	split spoon, 9"	same as above, dry Stop to see if it fills	11.2	45 Blows
40						

Comments: Drilling stopped at 35' based on previous knowledge of depth in existing monitoring wells. Identified damp sandy layer at ~16' and hole is dry after drilling to 37'. Let sit for 2 hours and did not fill in. Let sit overnight. At 11:15 am on 07/08/09, hole is still dry. Plug.

Geologist Signature: *Ashley L. Ager*

ATTACHMENT 3
LODESTAR SERVICES, INC. REMEDIATION WORK PLAN (2006)

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 contour maps provided by Blagg Engineering that indicate varying 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.

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 groundwater-monitoring 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.

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
Attachments: Annual Report

cc Mr Jim Walker USEPA

ATTACHMENT 4
LODESTAR SERVICES, INC. REPORT OF EXCAVATION AND SAMPLING (2007)

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 oil-water-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

	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.

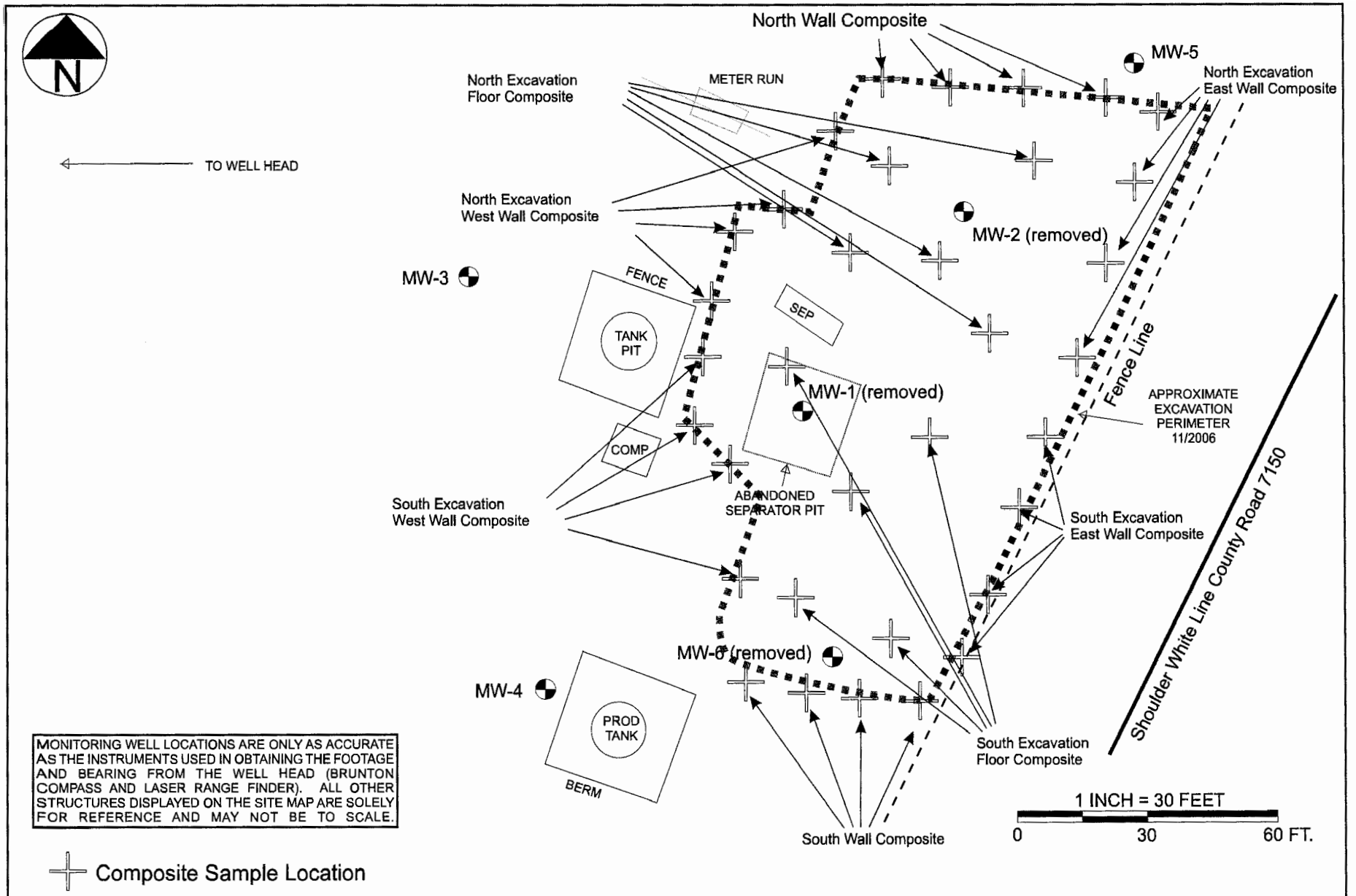
Six groundwater monitoring wells were previously installed on the site to investigate groundwater quality. Three of the wells, MW-1, MW-2, and MW-6 were removed during excavation activities.

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, Inc PO Box 3861 Farmington, NM 87499	OH RANDEL #7 NW/4 NW/4 SEC. 15, T26N, R11W SAN JUAN COUNTY, NEW MEXICO	PROJECT: XTO Excavation DRAWN BY: MJN REVISED: 01/29/07	Composite Sample Location Map 1/29/2007

ATTACHMENT 5
2014 LABORATORY RESULTS

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

Tax I.D. 62-0814289

Est. 1970

Logan Hixon
XTO Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

Report Summary

Wednesday June 18, 2014

Report Number: L704591
Samples Received: 06/13/14
Client Project: 30-045-24749

Description: OH Randel 007

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

Entire Report Reviewed By: Daphne R Richards

Daphne Richards , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

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

ESC LAB SCIENCES
YOUR LAB OF CHOICE

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

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Logan Hixon
XTO Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

June 18, 2014

ESC Sample # : L704591-01

Date Received : June 13, 2014
Description : OH Randel 007

Site ID :

Sample ID : FARBH-061114-1340

Project # : 30-045-24749

Collected By : BHS
Collection Date : 06/11/14 13:40

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	7.6	0.025	mg/l	8021B	06/17/14	50
Toluene	6.4	0.25	mg/l	8021B	06/17/14	50
Ethylbenzene	0.10	0.025	mg/l	8021B	06/17/14	50
Total Xylene	5.9	0.075	mg/l	8021B	06/17/14	50
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	96.0		% Rec.	8021B	06/17/14	50

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

.
Reported: 06/18/14 09:26 Printed: 06/18/14 09:26

Summary of Remarks For Samples Printed
06/18/14 at 09:26:52

TSR Signing Reports: 288
R5 - Desired TAT

Domestic Water Well Sampling-see L609759 Lobato for tests EDD's on ALL projects email James, Kurt and Logan all reports

Sample: L704591-01 Account: XTORNM Received: 06/13/14 09:00 Due Date: 06/20/14 00:00 RPT Date: 06/18/14 09:26

ESC LAB SCIENCES
YOUR LAB OF CHOICE

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

Tax I.D. 62-0814289

Est. 1970

XTO Energy - San Juan Division
Logan Hixon
382 County Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L704591

June 18, 2014

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Benzene	< .0005	mg/l			WG726835	06/17/14 14:17
Ethylbenzene	< .0005	mg/l			WG726835	06/17/14 14:17
Toluene	< .005	mg/l			WG726835	06/17/14 14:17
Total Xylene	< .0015	mg/l			WG726835	06/17/14 14:17
a,a,a-Trifluorotoluene(PID)		% Rec.	96.80	55-122	WG726835	06/17/14 14:17

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Benzene	mg/l	.05	0.0458	91.7	70-130	WG726835
Ethylbenzene	mg/l	.05	0.0454	90.7	70-130	WG726835
Toluene	mg/l	.05	0.0461	92.3	70-130	WG726835
Total Xylene	mg/l	.15	0.139	92.9	70-130	WG726835
a,a,a-Trifluorotoluene(PID)				96.20	55-122	WG726835

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Benzene	mg/l	0.0450	0.0458	90.0	70-130	1.90	20	WG726835
Ethylbenzene	mg/l	0.0447	0.0454	89.0	70-130	1.38	20	WG726835
Toluene	mg/l	0.0453	0.0461	90.0	70-130	1.86	20	WG726835
Total Xylene	mg/l	0.138	0.139	92.0	70-130	1.11	20	WG726835
a,a,a-Trifluorotoluene(PID)				96.20	55-122			WG726835

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Benzene	mg/l	0.0446	0.0000697	.05	89.0	57.2-131	L704907-07	WG726835
Ethylbenzene	mg/l	0.0445	0.0000454	.05	89.0	67.5-135	L704907-07	WG726835
Toluene	mg/l	0.0450	0.0000510	.05	90.0	63.7-134	L704907-07	WG726835
Total Xylene	mg/l	0.137	0.000178	.15	91.0	65.9-138	L704907-07	WG726835
a,a,a-Trifluorotoluene(PID)					96.40	55-122		WG726835

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Benzene	mg/l	0.0458	0.0446	91.5	57.2-131	2.81	20	L704907-07	WG726835
Ethylbenzene	mg/l	0.0460	0.0445	91.9	67.5-135	3.23	20	L704907-07	WG726835
Toluene	mg/l	0.0464	0.0450	92.6	63.7-134	3.03	20	L704907-07	WG726835
Total Xylene	mg/l	0.142	0.137	94.2	65.9-138	3.52	20	L704907-07	WG726835
a,a,a-Trifluorotoluene(PID)				96.30	55-122				WG726835

Batch number /Run number / Sample number cross reference

WG726835: R2943384: L704591-01

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

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Est. 1970

XTO Energy - San Juan Division
Logan Hixon
382 County Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L704591

June 18, 2014

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

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

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

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

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

Report Summary

Wednesday December 17, 2014

Report Number: L738077
Samples Received: 12/10/14
Client Project: 30-045-24749

Description: OH Randel #007

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

Entire Report Reviewed By: Daphne R Richards

Daphne Richards , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

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

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REPORT OF ANALYSIS

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

December 17, 2014

ESC Sample # : L738077-01

Site ID :

Project # : 30-045-24749

Date Received : December 10, 2014
Description : OH Randel #007

Sample ID : FARDN-120914-1200 MW-7

Collected By : Daniel Newman
Collection Date : 12/09/14 12:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	9.4	0.050	mg/l	8021B	12/17/14	100
Toluene	2.6	0.50	mg/l	8021B	12/17/14	100
Ethylbenzene	0.25	0.050	mg/l	8021B	12/17/14	100
Total Xylene	6.1	0.15	mg/l	8021B	12/17/14	100
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	98.7		% Rec.	8021B	12/17/14	100

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

.
Reported: 12/17/14 13:34 Printed: 12/17/14 13:34

Summary of Remarks For Samples Printed
12/17/14 at 13:34:24

TSR Signing Reports: 288
R5 - Desired TAT

Domestic Water Well Sampling-see L609759 Lobato for tests EDD's on ALL projects email James, Kurt and Logan all reports

Sample: L738077-01 Account: XTORNM Received: 12/10/14 09:00 Due Date: 12/17/14 00:00 RPT Date: 12/17/14 13:34

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

Aztec, NM 87410

Quality Assurance Report
Level II

L738077

December 17, 2014

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Benzene	< .0005	mg/l			WG759561	12/17/14 10:57
Ethylbenzene	< .0005	mg/l			WG759561	12/17/14 10:57
Toluene	< .005	mg/l			WG759561	12/17/14 10:57
Total Xylene	< .0015	mg/l			WG759561	12/17/14 10:57
a,a,a-Trifluorotoluene(PID)		% Rec.	100.0	55-122	WG759561	12/17/14 10:57

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Benzene	mg/l	.05	0.0424	84.8	70-130	WG759561
Ethylbenzene	mg/l	.05	0.0422	84.5	70-130	WG759561
Toluene	mg/l	.05	0.0404	80.8	70-130	WG759561
Total Xylene	mg/l	.15	0.128	85.6	70-130	WG759561
a,a,a-Trifluorotoluene(PID)				100.0	55-122	WG759561

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Benzene	mg/l	0.0418	0.0424	84.0	70-130	1.42	20	WG759561
Ethylbenzene	mg/l	0.0403	0.0422	80.0	70-130	4.75	20	WG759561
Toluene	mg/l	0.0385	0.0404	77.0	70-130	4.98	20	WG759561
Total Xylene	mg/l	0.122	0.128	81.0	70-130	5.23	20	WG759561
a,a,a-Trifluorotoluene(PID)				98.70	55-122			WG759561

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Benzene	mg/l	0.0383	0.0	.05	77.0	57.2-131	L738383-02	WG759561
Ethylbenzene	mg/l	0.0377	0.0	.05	75.0	67.5-135	L738383-02	WG759561
Toluene	mg/l	0.0360	0.0	.05	72.0	63.7-134	L738383-02	WG759561
Total Xylene	mg/l	0.113	0.000107	.15	76.0	65.9-138	L738383-02	WG759561
a,a,a-Trifluorotoluene(PID)					98.40	55-122		WG759561

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Benzene	mg/l	0.0439	0.0383	87.7	57.2-131	13.6	20	L738383-02	WG759561
Ethylbenzene	mg/l	0.0424	0.0377	84.8	67.5-135	11.7	20	L738383-02	WG759561
Toluene	mg/l	0.0405	0.0360	81.0	63.7-134	11.7	20	L738383-02	WG759561
Total Xylene	mg/l	0.127	0.113	84.8	65.9-138	11.6	20	L738383-02	WG759561
a,a,a-Trifluorotoluene(PID)				99.20	55-122				WG759561

Batch number /Run number / Sample number cross reference

WG759561: R3010441: L738077-01

* * Calculations are performed prior to rounding of reported values.
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Quality Assurance Report
Level II

L738077

December 17, 2014

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

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

ATTACHMENT 6
2014 FIELD NOTES

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental, Inc.
2243 Main Avenue, Suite [illegible]
Durango, Colorado 81301
T 970.385.1096 F

Water Level Data Collection Form

Project Name: XTO Groundwater Sampling
Site Name: OH Randel #7
Project Number: 12911009
Date: 6/11/14
Employee Name: ~~Alex Crooks~~ BH Brooke Herb

Well ID	Depth to Product (ft)	Depth to Water (ft)	Dissolved Oxygen (mg/L)	Comments
MW-3	NA	18.60	NA	—
MW-4	↓	16.30	↓	—
MW-5	↓	22.77	↓	—
MW-7	↓	19.56	↓	Clear no odor
MW-8	↓	22.09	↓	—
MW-9	↓	28.68	↓	—

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental, Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096 F

Water Sample Collection Form

Project Name XTO Groundwater Monitoring
Project Number 12911009

Site Name OH Randel
Sampler Brooke Hlo
Sample Date 6/11/14
Matrix Groundwater
Analyses 8021 BTEX
Laboratory ESC
Turn Around Time Standard
Shipping FedEx
Trip Blank No
Method of Purging Dedicated bailer
Method of Sampling Purge 3 volumes or bail dry 12.65 x .10 ≈ 2.02 ≈ 6.06

Sample ID	Depth to Water (ft)	Total Depth (ft)	Vol to Purge (gal)*	Actual Vol Purged (gal)	Sample Time	Comments
MW-7	19.52	32.21	6.06	6.10	1340	Clear no odor
						Started bailing
						dawn @ ~5 gal

*(height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols

Comments
No socks in well

Signature: BHS Date: 6/11/14

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental, Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096 / F

Water Sample Collection Form

Project Name XTO Groundwater Monitoring
Project Number 12911007

Site Name CH RANDEL #007 (30-045-~~0~~ DAN 24749)
Sampler Daniel Newman
Sample Date 12/9/14
Matrix Groundwater
Laboratory ESC
Shipping FedEx
Method of Purging Dedicated bailer
Method of Sampling Purge 3 volumes or bail dry

Analyses 8021 BTEX
Turn Around Time Standard
Trip Blank No

Sample ID	Depth to Water (ft)	Total Depth (ft)	Vol to Purge (gal)*	Actual Vol Purged (gal)	Dissolved Oxygen (mg/L)	Sample Time	Comments
MW-3	17.37	-	-	-	-	-	-
MW-4	16.48	-	-	-	-	-	-
MW-5	22.21	-	-	-	-	-	-
MW-7	19.67	32.21	6.13	4.75	-	-	Bail Down
MW-8	22.80	-	-	-	-	-	-
MW-9	28.45	-	-	-	-	-	-

*(height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols

Comments
- = N/A
32.21-19.67 = 12.54 X 0.1631 = 2.045 = 6.135
7.11 3 HCL VOA's
Bail Down Sample @ 4.75 gallons
Decon equipment Between wells

Signature:

Date: 12/9/14