

3R - 106

2011 AGWMR

JAN 2012



2011 ANNUAL GROUNDWATER REPORT

Bruington Gas COM #1

3RP-106

***Unit E, Section 14, Township 29N, Range 11W
San Juan County, New Mexico***

PREPARED FOR:

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BRUINGTON GAS COM #1 3RP-106

SITE DETAILS

LEGALS - TWN: 29N
OCD HAZARD RANKING: 40
LATITUDE: 36.72879

RNG: 11W

SEC: 14
LAND TYPE: FEE
LONGITUDE: 107.96616

INTRODUCTION

XTO Energy Inc. (XTO) acquired the Bruington Gas Com #1 well site from Amoco Production Company (Amoco) in January 1998. This is a gas producing well in the Dakota Sandstone formation and is currently active. The Citizen's Irrigation Ditch runs parallel to this location and flows in the summer months, while dry in the winter months. A topographic map and site map are presented as **Figures 1 and 2**.

HISTORY

Historical records indicate an earthen blow pit was excavated and backfilled approximately 125 feet south of the wellhead in October 1993 by Amoco. The pit closure report indicates the limits of the excavation were approximately 40 feet by 75 feet and no more than 20 feet maximum depth (**Attachment 1**). In November, 1993 additional excavation work was done to include the previously excavated blow pit and an earthen separator pit (**Attachment 2**). Field notes state the excavation was 120 to 150 feet south-southwest of the wellhead encompassing the original excavation. The second excavation was "L" shaped with the two longest sides estimated at 120 feet by 150 feet. A third pit excavation report was also completed at the Site (**Attachment 3**). Site diagrams of both excavation events show the majority of the excavated materials were southwest of the wellhead (**Figure 1**). Field notes also indicate groundwater was encountered and that additional soil and groundwater remediation were recommended.

An approved risk-based closure request (**Attachment 4**) was discovered in the New Mexico Oil Conservation Division (OCD) records for an earthen production pit located east of the earthen pits previously excavated by Amoco. This pit was operated by the gas gathering company, El Paso Field Services (EPFS). The closure request included a field pit site assessment along with field notes for additional excavation and one bore hole for sampling. According to the pit closure form the dimensions of the pit were 17 feet by 16 feet by 12 feet below ground surface. The report indicates elevated field screening measurements and heavy staining on the side walls and the floor of the excavation. Upon further review of the closure it is apparent that hydrocarbon impact was left in place on the surface and possibly within the exposed sandstone benches during the excavation of the blow pit.

Amoco had three (3) monitoring wells (MW-1, MW-2 & MW-3) installed in April 1996. Completion Diagrams and Borehole Logs are presented as **Figures 6-8** documenting drilling that occurred on site in April 1996. These monitoring wells were sampled in June 1996. Monitoring wells MW-1 and MW-3 revealed benzene, toluene, ethyl benzene, and total xylene (BTEX) concentrations were non-detect or below New Mexico Water Quality Control Commission (WQCC) standards. Monitor well MW-2 revealed benzene and total

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xylene concentrations exceeding WQCC standards. At this time it was determined monitoring well MW-2 would be sampled annually in accordance with the OCD approved Groundwater Management Plan. After the installation of the three (3) monitoring wells, it became apparent that the groundwater elevations at the pit area were dramatically influenced by a seasonal fluctuation in the nearby irrigation ditch immediately to the west of the site.

Upon the purchase of this location by XTO, another site assessment was performed in May of 1998. Monitoring wells MW-1 and MW-2 were damaged or not functional. Both monitoring wells were replaced (MW-1R & MW-2R) in June 1998. Completion Diagrams and Borehole Logs for the monitoring wells installed during 1998 are presented in **Figures 9-10**.

An annual groundwater report for 1996-1998 was submitted to the OCD in February of 1999 proposing further evaluation of monitoring well MW-2R and annual sampling of monitoring wells MW-1R and MW-3 to verify hydrocarbon impact in monitoring well MW-2R. OCD responded in April of 1999 requiring that the extent of downgradient and lateral BTEX contamination be further defined. Annual sampling continued throughout 1999 and 2000.

XTO installed monitoring wells MW-4, MW-5 and MW-6 in February 2001 in an effort to further delineate the extent of impacted groundwater. Completion Diagrams and Borehole Logs for the monitoring wells installed during 2001 are presented in **Figures 11-13**. All six (6) monitoring wells were sampled twice in 2001 with the exception of monitoring well MW-4; it was sampled only once. Laboratory results revealed high concentrations of BTEX constituents in monitoring wells MW-1, MW-2R, MW-5 and MW-6. Groundwater from monitoring wells MW-3 and MW-4 was non-detect or below WQCC standards.

An additional monitoring well was installed in May 2003 (MW-7) and monitoring well MW-3 was repaired in 2003 (MW-3R). Completion Diagram and Borehole Log for the monitoring well installed during 2003 is presented in **Figure 14**. All wells continued to be sampled and, with the exception of monitoring wells MW-1R, MW-3R and MW-4, consistently show elevated concentrations of BTEX.

In 2005 XTO initiated further investigation of subsurface conditions. Test holes and trenches were dug to evaluate whether historically impacted soils were fully removed and if the soil was continuing to contribute hydrocarbons to the groundwater. Limited field studies were conducted indicating vadose zone impact at depths below 15 feet (**Figures 17-18**). This appears to be consistent with the most concentrated area of groundwater impact around monitoring wells MW-2R, MW-5, MW-6, and MW-7.

The 2005 annual groundwater report was submitted to the OCD in January 2006 proposing possible additional excavation and consideration of an in-situ remediation system.

The 2006 annual groundwater report was submitted to the OCD in February 2007 proposing collection of groundwater levels during months when the unlined Citizen's Irrigation Ditch was not flowing to confirm the groundwater gradients and better understand the influence of the ditch within the project area; and continued evaluation of appropriate remediation technologies along with other potential sources for groundwater impacts.

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Monitoring well MW-8 was installed in May of 2007 adjacent to a former pit operated and closed by EPFS. Completion Diagram and Borehole Log for the monitoring well installed during 2007 is presented in **Figure 15**. The installation revealed impacted soil from 12-25 feet below ground surface. The approved risk based closure request in 1994 was based on bedrock encountered at 22 feet below ground surface and no apparent groundwater. The presence of impacted soil and seasonal groundwater gradients indicates the former pit may be a source of groundwater impact at this site.

The 2007 annual groundwater report was submitted to the OCD in February of 2008 proposing continued investigation including dissolved oxygen readings, water levels and gradient information and requested OCD encourage EPFS conduct an evaluation of groundwater associated with the Risk Based Closure of the production pit at this site.

The 2008 annual groundwater report was submitted to the OCD in April of 2009 proposing installation of two 4" recovery wells, installation of two (2) additional monitoring wells, the addition of chemical oxygenate, and quarterly sampling.

In October of 2009 a geoprobe subsurface investigation was conducted in an effort to further delineate the extent of hydrocarbon impacted soil. The results are included in the Subsurface Investigation Report (**Attachment 5**).

In March of 2010, the 2009 Annual Groundwater Report was submitted to Mr. Glenn Von Gonten, proposing continued quarterly sampling of the site, as well as the continued addition of chemical oxygenate to the groundwater.

In January of 2011, a soil boring investigation was conducted in an effort to further delineate the extent of hydrocarbon impacted soil and MW-9 was installed on the northern boundary of the well pad (**Figure 16**). The report of the investigation is included as **Attachment 5**.

In March of 2011, the 2010 Annual Groundwater Report was submitted to Mr. Glenn Von Gonten, proposing semi-annual sampling of the site.

Summaries of laboratory results and water level data from historical and current groundwater monitoring are presented in **Table 1** and **Table 2**. Copies of the laboratory reports are included as **Attachment 6**.

METHODOLOGY

Groundwater samples were collected in the second and fourth quarters in 2011 from monitoring wells MW-1R, MW-2R, MW-3R, MW-4, MW-5, MW-6, MW-7, MW-8, and in the first quarter only from MW-9.

Water Level Measurements

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

Groundwater Sampling

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

Once each monitoring well is properly purged, groundwater samples are collected by filling at least two 40-milliliter (ml) glass vials. The pre-cleaned and non-preserved vials are filled and capped with no air inside to prevent degradation of the sample. Samples are labeled with the date and time of collection, well designation, project name, collector's name and parameters to be analyzed. They are immediately sealed and packed on ice. The samples are shipped to Environmental Science Corporation (ESC) based out of Mt. Juliet, Tennessee for analysis. Samples were shipped with ice via Fed Ex overnight. Proper chain-of-custody (COC) procedures are followed with logs documenting the date and time sampled, sample number, type of sample, sampler's name, preservative used, analyses required and sampler's signature. Field notes are included as **Attachment 7**.

Groundwater Contour Maps

Top of casing well elevations were surveyed using a surveyor's level; and groundwater depths obtained from monitoring wells during site visits were used to draft groundwater contour maps. Contours were inferred based on groundwater elevations obtained and observation of physical characteristics at the site (topography, proximity to irrigation ditches, etc.). **Figures 3-5** illustrate the estimated groundwater gradients during 2011.

RESULTS

2011 laboratory results from monitoring wells MW-1R, MW-3R, MW-4, and MW-9 indicate BTEX constituents are below standards or not detectable. Laboratory results from monitoring wells MW-2R, MW-5, MW-6, MW-7 and MW-8 have indicated elevated concentrations of BTEX constituents. BTEX concentrations in monitoring wells MW-2R, MW-5, MW-6, MW-7 and MW-8 remained fairly constant in 2011, showing little decline. BTEX concentrations in all monitoring wells except MW-6 have shown an overall decrease since 2007, when the wells were first installed.

Site monitoring activities indicate groundwater flow is controlled by the adjacent unlined irrigation ditch and subsurface geology. When the ditch is dry, during the winter months, the groundwater gradient near the center and eastern portion of the site is toward MW-5. Groundwater directly adjacent to the ditch trends steeply towards the ditch. During the spring and summer months, when flow within the irrigation ditch is high, the small depression appears to be absent and groundwater at the site is essentially level, but flows slightly away from the ditch.

CONCLUSIONS

The groundwater analytical results indicate that source material is still in contact with groundwater, causing the elevated concentrations of BTEX in the groundwater. Soil at the

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Site has been impacted by historical releases of petroleum hydrocarbons from three known sources (former Amoco blowdown pit former Amoco separator pit, and former EPFS production pit). The petroleum hydrocarbon impact attributable to these multiple sources is comingled in subsurface soil and groundwater at the Site and can be loosely characterized by a western source area (the former Amoco blowdown pit, and former Amoco separator pit) and an eastern source area (the former EPFS production pit).

Petroleum hydrocarbon impact to soil resides primarily in the sandy clay unit with a lesser area of the underlying consolidated sand unit also being impacted by petroleum hydrocarbons. The upper silty sand is not impacted by petroleum hydrocarbons. Petroleum hydrocarbon impact to soil is encountered at the shallowest depth of 10 feet bgs and extends to a maximum depth of 27 feet bgs. The lateral extent of petroleum hydrocarbon impact to soil extends at least 300 feet from east to west (the eastern extent is not completely defined) and approximately 150 feet from north to south. Based on this distribution, an estimated total volume of 13,000 cubic yards of impacted soil exists in the subsurface.

Groundwater flow direction and elevation fluctuation at the Site appear to be in response to the presence of water in the nearby irrigation ditch. This influence is reduced farther away from the ditch. When water is present in the ditch, groundwater flow is east/northeast away from the ditch; this trend reverses during the drying cycle when water flow ceases in the ditch and groundwater flow gradually returns west/southwest toward the ditch.

Groundwater has been impacted by BTEX concentrations in excess of the NMWQCC groundwater standards in monitoring wells MW-2R, MW-5, MW-6, MW-7, and MW-8; BTEX in groundwater in monitoring wells MW-1R, MW-3R, MW-4, and MW-9 remain below the NMWQCC standards. BTEX concentrations in MW-7 remain consistently lower than adjacent MW-8 and MW-6, indicating there are likely two separate groundwater plumes that have comingled. BTEX impact in groundwater is defined to the north, south, and west; yet remain undefined to the east.

RECOMMENDATIONS

On October 5, 2011 XTO and LTE met with the New Mexico Oil Conservation Division (NMOCD) to discuss the site and potential cost sharing options with El Paso Natural Gas. XTO is awaiting comments from NMOCD and proposes to conduct groundwater sampling annually and collect water level measurements semi-annually during 2012.

Table 1

Water Level Summary Table

TABLE 1

**GROUNDWATER LEVELS AND ELEVATIONS
BRUINGTON GAS COM #1
XTO ENERGY, INC.**

Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet AMSL)	Dissolved Oxygen (mg/l unless indicated by a %)
MW-1	7/6/1996	7.00	-	NM
MW-1R	5/5/1999	10.55	5556.08	NM
MW-1R	6/29/2000	11.14	5555.49	NM
MW-1R	5/17/2001	11.33	5555.30	NM
MW-1R	9/24/2001	9.84	5556.79	NM
MW-1R	7/27/2002	9.93	5556.70	NM
MW-1R	6/25/2003	11.45	5555.18	NM
MW-1R	8/25/2003	12.14	5554.49	NM
MW-1R	4/25/2006	11.55	5555.08	1.13
MW-1R	11/10/2006	NM	NM	1.14
MW-1R	11/27/2006	13.17	5553.46	NM
MW-1R	2/23/2007	14.24	5552.39	0.51
MW-1R	3/28/2007	16.78	5549.85	NM
MW-1R	4/11/2007	13.51	5553.12	1.13
MW-1R	6/13/2007	7.51	5559.12	0.76
MW-1R	8/21/2007	7.20	5559.43	0.82
MW-1R	9/25/2007	7.07	5559.56	0.99
MW-1R	10/30/2007	7.66	5558.97	1.00
MW-1R	11/27/2007	11.50	5555.13	0.85
MW-1R	12/20/2007	12.97	5553.66	0.75
MW-1R	2/26/2008	NM	NM	0.32
MW-1R	3/12/2008	13.18	5553.45	NM
MW-1R	4/7/2008	NM	NM	11.60
MW-1R	6/2/2008	7.53	5559.10	2.60
MW-1R	8/12/2008	6.77	5559.86	3.7%
MW-1R	9/22/2008	7.76	5558.87	NM
MW-1R	10/22/2008	6.39	5560.24	4.6%
MW-1R	12/5/2008	11.26	5555.37	NM
MW-1R	2/6/2009	12.55	5554.08	NM
MW-1R	3/3/2009	15.24	5551.39	NM
MW-1R	6/24/2009	6.52	5560.11	NM
MW-1R	9/15/2009	6.98	5559.65	NM
MW-1R	12/7/2009	11.22	5555.41	NM
MW-1R	3/3/2010	15.17	5551.46	NM
MW-1R	6/21/2010	6.74	5559.89	NM
MW-1R	9/9/2010	7.70	5558.93	NM



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Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet) AMSL)	Dissolved Oxygen (mg/l unless indicated by a %)
MW-1R	1/13/2011	13.70	5552.93	NM
MW-1R	3/2/2011	13.69	5552.94	NM
MW-1R	6/15/2011	7.04	5559.59	NM
MW-1R	12/15/2011	12.24	5554.39	NM

MW-2	6/7/1996	10.12	5557.87	NM
MW-2	6/27/1997	12.65	5555.34	NM
MW-2R	6/12/1998	11.00	5556.99	NM
MW-2R	5/5/1999	10.78	5557.21	NM
MW-2R	6/29/2000	11.50	5556.49	NM
MW-2R	5/17/2001	12.12	5555.87	NM
MW-2R	9/24/2001	10.08	5557.91	NM
MW-2R	6/27/2002	9.77	5558.22	NM
MW-2R	6/25/2003	11.53	5556.46	NM
MW-2R	6/18/2004	12.07	5555.92	NM
MW-2R	6/27/2005	10.14	5557.85	NM
MW-2R	4/25/2006	11.64	5556.35	0.64
MW-2R	11/10/2006	NM	NM	0.35
MW-2R	11/27/2006	11.32	5556.67	NM
MW-2R	2/23/2007	12.55	5555.44	0.37
MW-2R	3/28/2007	14.72	5553.27	NM
MW-2R	4/11/2007	12.79	5555.20	0.64
MW-2R	6/13/2007	9.94	5558.05	0.43
MW-2R	8/21/2007	9.36	5558.63	0.28
MW-2R	9/25/2007	9.33	5558.66	0.54
MW-2R	10/30/2007	9.45	5558.54	0.50
MW-2R	11/27/2007	12.02	5555.97	0.55
MW-2R	12/20/2007	13.13	5554.86	0.42
MW-2R	2/26/2008	NM	NM	0.51
MW-2R	3/12/2008	13.51	5554.48	NM
MW-2R	4/7/2008	NM	NM	12.50
MW-2R	6/2/2008	10.07	5557.92	2.60
MW-2R	8/12/2008	9.38	5558.61	0.4%
MW-2R	9/22/2008	10.29	5557.70	NM
MW-2R	10/22/2008	9.10	5558.89	0.1%
MW-2R	12/5/2008	12.05	5555.94	NM



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Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet AMSL)	Dissolved Oxygen (mg/l unless indicated by a %)
MW-2R	2/6/2009	13.40	5554.59	NM
MW-2R	3/3/2009	15.64	5552.35	NM
MW-2R	6/24/2009	9.16	5558.83	NM
MW-2R	9/15/2009	8.37	5559.62	NM
MW-2R	12/7/2009	11.81	5556.18	NM
MW-2R	3/3/2010	15.41	5552.58	NM
MW-2R	6/21/2010	9.46	5558.53	NM
MW-2R	9/9/2010	9.24	5558.75	NM
MW-2R	1/13/2011	14.42	5553.57	NM
MW-2R	3/2/2011	14.76	5553.23	NM
MW-2R	6/15/2011	9.42	5558.57	NM
MW-2R	12/15/2011	12.99	5555.00	NM

MW-3	6/7/1996	13.05	NM	NM
MW-3	5/5/1999	13.64	NM	NM
MW-3	6/29/2000	13.52	NM	NM
MW-3	5/17/2001	14.51	NM	NM
MW-3	9/24/2001	12.15	NM	NM
MW-3R	8/25/2003	11.81	5558.09	NM
MW-3R	11/19/2003	12.28	5557.62	NM
MW-3R	4/25/2006	12.56	5557.34	0.54
MW-3R	11/10/2006	NM	NM	0.42
MW-3R	11/27/2006	12.60	5557.30	NM
MW-3R	2/23/2007	14.33	5555.57	0.96
MW-3R	3/28/2007	15.83	5554.07	NM
MW-3R	4/11/2007	14.99	5554.91	0.54
MW-3R	6/13/2007	NM	NM	NM
MW-3R	10/30/2007	NM	NM	NM
MW-3R	11/27/2007	13.14	5556.76	0.88
MW-3R	12/20/2007	14.25	5555.65	0.71
MW-3R	2/26/2008	NM	NM	0.43
MW-3R	3/12/2008	15.23	5554.67	NM
MW-3R	4/7/2008	NM	NM	35.20
MW-3R	6/2/2008	12.07	5557.83	3.30
MW-3R	8/12/2008	11.15	5558.75	1.5%
MW-3R	9/22/2008	11.86	5558.04	NM



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Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet) AMSL)	Dissolved Oxygen (mg/l unless indicated by a %)
MW-3R	10/22/2008	11.80	5558.10	3.6%
MW-3R	12/5/2008	13.23	5556.67	NM
MW-3R	2/6/2009	14.82	5555.08	NM
MW-3R	3/3/2009	16.37	5553.53	NM
MW-3R	6/24/2009	11.52	5558.38	NM
MW-3R	9/15/2009	10.66	5559.24	NM
MW-3R	12/7/2009	12.63	5557.27	NM
MW-3R	3/3/2010	16.09	5553.81	NM
MW-3R	6/21/2010	11.59	5558.31	NM
MW-3R	9/9/2010	11.18	5558.72	NM
MW-3R	1/13/2011	16.77	5553.13	NM
MW-3R*	3/2/2011	17.21	5554.19	NM
MW-3R	6/15/2011	13.42	5557.98	NM
MW-3R	12/15/2011	15.22	5556.18	NM

MW-4	5/17/2001	10.88	5557.57	
MW-4	4/25/2006	11.11	5557.34	3.03
MW-4	11/10/2006	NM	NM	0.91
MW-4	11/27/2006	12.41	5556.04	NM
MW-4	2/23/2007	13.62	5554.83	0.87
MW-4	3/28/2007	16.17	5552.28	NM
MW-4	4/11/2007	13.34	5555.11	3.03
MW-4	6/13/2007	9.87	5558.58	2.26
MW-4	8/21/2007	9.35	5559.10	0.75
MW-4	9/25/2007	9.24	5559.21	1.78
MW-4	10/30/2007	9.75	5558.70	0.64
MW-4	11/27/2007	13.43	5555.02	0.66
MW-4	12/20/2007	14.91	5553.54	0.55
MW-4	2/26/2008	NM	NM	0.19
MW-4	3/12/2008	15.09	5553.36	NM
MW-4	4/7/2008	NM	NM	25.60
MW-4	6/2/2008	9.59	5558.86	1.60
MW-4	8/12/2008	8.97	5559.48	1.3%
MW-4	9/22/2008	9.96	5558.49	NM
MW-4	10/22/2008	8.53	5559.92	3.1%
MW-4	12/5/2008	13.21	5555.24	NM



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BRUINGTON GAS COM #1
XTO ENERGY, INC.**

Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet AMSL)	Dissolved Oxygen (mg/l unless indicated by a %)
MW-4	2/6/2009	14.35	5554.10	NM
MW-4	3/3/2009	17.06	5551.39	NM
MW-4	6/24/2009	8.10	5560.35	NM
MW-4	9/15/2009	8.17	5560.28	NM
MW-4	12/7/2009	13.11	5555.34	NM
MW-4	3/3/2010	17.08	5551.37	NM
MW-4	6/21/2010	9.00	5559.45	NM
MW-4	9/9/2010	8.83	5559.62	NM
MW-4	1/13/2011	15.63	5552.82	NM
MW-4	3/2/2011	15.65	5552.80	NM
MW-4	6/15/2011	9.23	5559.22	NM
MW-4	12/15/2011	14.16	5554.29	NM

MW-5	5/17/2001	16.00	5556.07	NM
MW-5	9/24/2001	13.70	5558.37	NM
MW-5	6/27/2002	13.83	5558.24	NM
MW-5	6/25/2003	15.73	5556.34	NM
MW-5	6/18/2004	15.82	5556.25	NM
MW-5	6/27/2005	14.21	5557.86	NM
MW-5	4/25/2006	16.21	5555.86	0.51
MW-5	11/10/2006	NM	NM	0.26
MW-5	11/27/2006	15.24	5556.83	NM
MW-5	2/23/2007	18.92	5553.15	0.34
MW-5	3/28/2007	18.63	5553.44	NM
MW-5	4/11/2007	17.48	5554.59	0.51
MW-5	6/13/2007	14.17	5557.90	0.58
MW-5	8/21/2007	14.12	5557.95	0.49
MW-5	9/25/2007	13.38	5558.69	0.50
MW-5	10/30/2007	13.57	5558.50	0.61
MW-5	11/27/2007	16.13	5555.94	0.62
MW-5	12/20/2007	17.34	5554.73	0.54
MW-5	2/26/2008	NM	NM	0.11
MW-5	3/12/2008	17.75	5554.32	NM
MW-5	4/7/2008	NM	NM	11.50
MW-5	6/2/2008	13.92	5558.15	1.60
MW-5	8/12/2008	12.99	5559.08	0.7%



TABLE 1

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XTO ENERGY, INC.**

Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet AMSL)	Dissolved Oxygen (mg/l unless indicated by a %)
MW-5	9/22/2008	13.80	5558.27	NM
MW-5	10/22/2008	12.77	5559.30	1.8%
MW-5	12/5/2008	15.93	5556.14	NM
MW-5	2/6/2009	17.33	5554.74	NM
MW-5	3/3/2009	19.26	5552.81	NM
MW-5	6/24/2009	13.34	5558.73	NM
MW-5	9/15/2009	12.56	5559.51	NM
MW-5	12/7/2009	15.71	5556.36	NM
MW-5	3/3/2010	19.29	5552.78	NM
MW-5	6/21/2010	13.61	5558.46	NM
MW-5	9/9/2010	13.03	5559.04	NM
MW-5	1/13/2011	18.08	5553.99	NM
MW-5	3/2/2011	18.41	5553.66	NM
MW-5	6/15/2011	13.89	5558.18	NM
MW-5	12/15/2011	16.75	5555.32	NM

MW-6	5/17/2001	19.47	5554.86	NM
MW-6	9/24/2001	14.46	5559.87	NM
MW-6	6/27/2002	16.68	5557.65	NM
MW-6	6/25/2003	18.94	5555.39	NM
MW-6	6/18/2004	18.71	5555.62	NM
MW-6	6/27/2005	17.09	5557.24	NM
MW-6	4/25/2006	19.28	5555.05	0.11
MW-6	11/10/2006	NM	NM	0.06
MW-6	11/27/2006	17.08	5557.25	NM
MW-6	2/23/2007	18.92	5555.41	0.28
MW-6	3/28/2007	20.36	5553.97	NM
MW-6	4/11/2007	19.69	5554.64	0.11
MW-6	6/13/2007	16.87	5557.46	0.18
MW-6	8/21/2007	16.04	5558.29	0.33
MW-6	9/25/2007	15.98	5558.35	0.34
MW-6	10/30/2007	15.91	5558.42	0.21
MW-6	11/27/2007	17.79	5556.54	0.35
MW-6	12/20/2007	18.83	5555.50	0.33
MW-6	2/26/2008	NM	NM	0.26
MW-6	3/12/2008	19.42	5554.91	NM



TABLE 1

**GROUNDWATER LEVELS AND ELEVATIONS
BRUINGTON GAS COM #1
XTO ENERGY, INC.**

Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet AMSL)	Dissolved Oxygen (mg/l unless indicated by a %)
MW-6	4/7/2008	NM	NM	18.60
MW-6	6/2/2008	16.61	5557.72	0.10
MW-6	8/12/2008	15.61	5558.72	0.6%
MW-6	9/22/2008	16.15	5558.18	NM
MW-6	10/22/2008	15.49	5558.84	1.4%
MW-6	12/5/2008	17.70	5556.63	NM
MW-6	2/6/2009	19.33	5555.00	NM
MW-6	3/3/2009	20.67	5553.66	NM
MW-6	6/24/2009	16.18	5558.15	NM
MW-6	9/15/2009	15.25	5559.08	NM
MW-6	12/7/2009	17.52	5556.81	NM
MW-6	3/3/2010	20.69	5553.64	NM
MW-6	6/21/2010	16.44	5557.89	NM
MW-6	9/9/2010	15.60	5558.73	NM
MW-6	1/13/2011	19.55	5554.78	NM
MW-6	3/2/2011	20.08	5554.25	NM
MW-6	6/15/2011	16.55	5557.78	NM
MW-6	12/15/2011	18.32	5556.01	NM

MW-7	8/25/2003	17.93	5555.95	NM
MW-7	6/18/2004	18.87	5555.01	NM
MW-7	6/27/2005	17.40	5556.48	NM
MW-7	4/25/2006	19.14	5554.74	0.60
MW-7	11/10/2006	NM	NM	0.69
MW-7	11/27/2006	16.94	5556.94	NM
MW-7	2/23/2007	17.71	5556.17	0.71
MW-7	3/28/2007	18.62	5555.26	NM
MW-7	4/11/2007	18.63	5555.25	0.60
MW-7	6/13/2007	16.75	5557.13	0.43
MW-7	8/21/2007	15.86	5558.02	0.36
MW-7	9/25/2007	15.65	5558.23	0.34
MW-7	10/30/2007	15.46	5558.42	0.17
MW-7	11/27/2007	16.46	5557.42	0.42
MW-7	12/20/2007	17.14	5556.74	0.36
MW-7	2/26/2008	NM	NM	0.32
MW-7	3/12/2008	17.23	5556.65	NM



TABLE 1

**GROUNDWATER LEVELS AND ELEVATIONS
BRUINGTON GAS COM #1
XTO ENERGY, INC.**

Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet AMSL)	Dissolved Oxygen (mg/l unless indicated by a %)
MW-7	4/7/2008	NM	NM	32.90
MW-7	6/2/2008	16.22	5557.66	0.10
MW-7	8/12/2008	15.30	5558.58	0.7%
MW-7	9/22/2008	15.47	5558.41	NM
MW-7	10/22/2008	15.22	5558.66	0.1%
MW-7	12/5/2008	16.23	5557.65	NM
MW-7	2/6/2009	17.85	5556.03	NM
MW-7	3/3/2009	18.60	5555.28	NM
MW-7	6/24/2009	16.38	5557.50	NM
MW-7	9/15/2009	15.21	5558.67	NM
MW-7	12/7/2009	16.05	5557.83	NM
MW-7	3/3/2010	18.64	5555.24	NM
MW-7	6/21/2010	16.58	5557.30	NM
MW-7	9/9/2010	15.49	5558.39	NM
MW-7	1/13/2011	17.78	5556.10	NM
MW-7	3/2/2011	18.54	5555.34	NM
MW-7	6/15/2011	16.72	5557.16	NM
MW-7	12/15/2011	16.75	5557.13	NM

MW-8	6/13/2007	19.19	5556.85	0.40
MW-8	8/21/2007	18.30	5557.74	0.61
MW-8	9/25/2007	18.00	5558.04	0.57
MW-8	10/30/2007	15.46	5560.58	0.52
MW-8	11/27/2007	18.30	5557.74	0.68
MW-8	12/20/2007	18.81	5557.23	0.42
MW-8	2/26/2008	NM	NM	0.30
MW-8	3/12/2008	18.92	5557.12	NM
MW-8	4/7/2008	NM	NM	12.40
MW-8	6/2/2008	18.23	5557.81	0.80
MW-8	8/12/2008	17.52	5558.52	0.6%
MW-8	9/22/2008	17.56	5558.48	NM
MW-8	10/22/2008	17.47	5558.57	1.4%
MW-8	12/5/2008	17.99	5558.05	NM
MW-8	2/6/2009	19.50	5556.54	NM
MW-8	3/3/2009	20.03	5556.01	NM
MW-8	6/24/2009	19.00	5557.04	NM



TABLE 1

**GROUNDWATER LEVELS AND ELEVATIONS
BRUINGTON GAS COM #1
XTO ENERGY, INC.**

Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet AMSL)	Dissolved Oxygen (mg/l unless indicated by a %)
MW-8	9/15/2009	17.74	5558.30	NM
MW-8	12/7/2009	17.81	5558.23	NM
MW-8	3/3/2010	20.11	5555.93	NM
MW-8	6/21/2010	19.31	5556.73	NM
MW-8	9/9/2010	18.02	5558.02	NM
MW-8	1/13/2011	19.35	5556.69	NM
MW-8	3/2/2011	21.09	5554.95	NM
MW-8	6/15/2011	19.38	5556.66	NM
MW-8	12/15/2011	18.53	5557.51	NM

MW-9	1/13/2011	Dry	Dry	NM
MW-9	3/2/2011	21.06	5555.80	NM
MW-9	6/15/2011	18.78	5558.08	NM
MW-9	12/15/2011	16.97	5559.89	NM

Notes:

BTOC - Below Top of Casing

AMSL - Above Mean Sea Level

NM - Not Measured

* - Top of Casing Modified, New Elevation



Table 2

Groundwater Results Summary Table

TABLE 2

**GROUNDWATER ANALYTICAL RESULTS
BRUINGTON GAS COM #1
XTO ENERGY, INC.**

Well ID	Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
NMWQCC Groundwater Standard		10	750	750	620
MW-1	7/6/1996	ND	ND	ND	ND
MW-1R	5/5/1999	16.5	26.0	8.1	78.2
MW-1R	6/29/2000	17.0	ND	130.0	455.5
MW-1R	5/17/2001	29.0	19.0	33.0	127.0
MW-1R	9/24/2001	5.8	0.5	15.0	36.0
MW-1R	7/27/2002	ND	ND	17.0	52.1
MW-1R	6/25/2003	3.1	ND	ND	ND
MW-1R	8/25/2003	ND	ND	2.2	0.9
MW-1R	4/25/2006	1.0	1.3	1.8	5.9
MW-1R	11/27/2006	<1.0	<1.0	<1.0	<3.0
MW-1R	3/28/2007	<1.0	<1.0	<1.0	<2.0
MW-1R	6/13/2007	<1.0	<1.0	<1.0	<2.0
MW-1R	9/25/2007	<1.0	1.2	<1.0	<2.0
MW-1R	3/12/2008	<1.0	<1.0	<1.0	<2.0
MW-1R	6/2/2008	<1.0	<1.0	<1.0	<2.0
MW-1R	9/22/2008	<1.0	<1.0	<1.0	<2.0
MW-1R	12/5/2008	<1.0	<1.0	<1.0	<2.0
MW-1R	3/3/2009	<1.0	<1.0	<1.0	<2.0
MW-1R	6/24/2009	<1.0	<1.0	<1.0	<3.0
MW-1R	9/15/2009	<1.0	<1.0	<1.0	<2.0
MW-1R	12/7/2009	<1.0	<1.0	<1.0	<2.0
MW-1R	3/3/2010	<1.0	<1.0	<1.0	<2.0
MW-1R	6/21/2010	<1.0	<1.0	<1.0	<2.0
MW-1R	9/9/2010	<0.5	< 5	<0.5	<1.5
MW-1R	1/13/2011	<0.5	<5	<0.5	<1.5
MW-1R	6/15/2011	<0.5	<5	1.9	<1.5
MW-1R	12/15/2011	<0.5	<5	<0.5	<1.5

MW-2	6/7/1996	347	29	156	1,580
MW-2	6/27/1997	429	68	46	402
MW-2R	6/12/1998	13,440	13,330	1,030	6,040
MW-2R	5/5/1999	1,020	554	175	679
MW-2R	6/29/2000	7,600	2,600	630	4,210
MW-2R	5/17/2001	1,700	320	390	1,620
MW-2R	9/24/2001	15,000	1,200	880	5,900
MW-2R	6/27/2002	13,000	1,100	680	4,120
MW-2R	6/25/2003	3,700	1,000	380	2,500
MW-2R	6/18/2004	5,500	1,400	710	3,500
MW-2R	6/27/2005	16,000	1,900	900	5,400
MW-2R	4/25/2006	5,000	1,100	700	3,800
MW-2R	11/27/2006	12,000	1,600	690	3,900
MW-2R	3/28/2007	4,300	1,000	810	6,000
MW-2R	6/13/2007	13,000	1,100	720	4,000



TABLE 2

**GROUNDWATER ANALYTICAL RESULTS
BRUINGTON GAS COM #1
XTO ENERGY, INC.**

Well ID	Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
NMWQCC Groundwater Standard		10	750	750	620
MW-2R	9/25/2007	18,000	1,900	990	5,500
MW-2R	3/12/2008	2,800	890	750	5,300
MW-2R	6/2/2008	5,900	430	510	2,200
MW-2R	9/22/2008	18,000	920	950	4,900
MW-2R	12/5/2008	20,000	1,700	1,100	5,300
MW-2R	3/3/2009	5,500	1,400	470	2,900
MW-2R	6/24/2009	18,000	2,200	970	6,500
MW-2R	9/15/2009	18,000	760	850	4,400
MW-2R	12/7/2009	11,000	1,000	720	3,600
MW-2R	3/3/2010	2,100	460	410	2,400
MW-2R	6/21/2010	9,500	960	630	3,100
MW-2R	9/9/2010	19,000	530	940	3,200
MW-2R	1/13/2011	16,000	2,500	940	4,900
MW-2R	6/15/2011	20,000	<2,500	870	4,200
MW-2R	12/15/2011	11,000	<2,500	710	3,000

MW-3	6/7/1996	ND	1.8	ND	ND
MW-3	5/5/1999	73.2	38.3	31.2	200.1
MW-3	6/29/2000	87.0	ND	3.4	8.3
MW-3	5/17/2001	ND	0.6	0.7	ND
MW-3	9/24/2001	ND	ND	ND	ND
MW-3R	8/25/2003	ND	ND	1.3	ND
MW-3R	11/19/2003	ND	ND	1.4	ND
MW-3R	4/25/2006	<1.0	<1.0	<1.0	<3.0
MW-3R	11/27/2006	<1.0	<1.0	<1.0	<2.0
MW-3R	3/28/2007	<1.0	<1.0	<1.0	<2.0
MW-3R	3/12/2008	<1.0	<1.0	<1.0	<2.0
MW-3R	6/2/2008	<1.0	<1.0	<1.0	<2.0
MW-3R	9/22/2008	<1.0	<1.0	<1.0	<2.0
MW-3R	12/5/2008	<1.0	<1.0	<1.0	<2.0
MW-3R	3/3/2009	<1.0	<1.0	<1.0	<2.0
MW-3R	6/24/2009	7.2	<1.0	<1.0	<3.0
MW-3R	9/15/2009	<1.0	<1.0	<1.0	<2.0
MW-3R	12/7/2009	<1.0	<1.0	<1.0	<2.0
MW-3R	3/3/2010	<1.0	<1.0	<1.0	<2.0
MW-3R	6/21/2010	75	<1.0	<1.0	<2.0
MW-3R	9/9/2010	94	50	4.4	30
MW-3R	1/13/2011	<0.5	<5	<0.5	<1.5
MW-3R	6/15/2011	<0.5	<5	<0.5	<1.5
MW-3R	12/15/2011	<0.5	<5	<0.5	<1.5

MW-4	5/17/2001	ND	ND	ND	ND
MW-4	4/25/2006	ND	ND	ND	ND



TABLE 2

**GROUNDWATER ANALYTICAL RESULTS
BRUINGTON GAS COM #1
XTO ENERGY, INC.**

Well ID	Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
NMWQCC Groundwater Standard		10	750	750	620
MW-4	11/27/2006	<1.0	<1.0	<1.0	<3.0
MW-4	3/28/2007	1.8	<1.0	<1.0	<2.0
MW-4	6/13/2007	<1.0	<1.0	<1.0	<2.0
MW-4	9/25/2007	<1.0	<1.0	<1.0	<2.0
MW-4	3/12/2008	<1.0	<1.0	<1.0	<2.0
MW-4	6/2/2008	<1.0	<1.0	<1.0	<2.0
MW-4	9/22/2008	<1.0	<1.0	<1.0	<2.0
MW-4	12/5/2008	<1.0	<1.0	<1.0	<2.0
MW-4	3/3/2009	<1.0	<1.0	<1.0	<2.0
MW-4	6/24/2009	<1.0	<1.0	<1.0	<2.0
MW-4	9/15/2009	<1.0	<1.0	<1.0	<2.0
MW-4	12/7/2009	<1.0	<1.0	<1.0	<2.0
MW-4	3/3/2010	<1.0	<1.0	<1.0	<2.0
MW-4	6/21/2010	<1.0	<1.0	<1.0	<2.0
MW-4	9/9/2010	<0.50	< 5.0	<0.50	<1.5
MW-4	1/13/2011	<0.5	<5	<0.5	<1.5
MW-4	6/15/2011	<0.5	<5	<0.5	<1.5
MW-4	12/15/2011	<0.5	<5	<0.5	<1.5

MW-5	5/17/2001	25,000	620	870	6,610
MW-5	9/24/2001	26,000	110	470	6,900
MW-5	6/27/2002	26,000	280	900	6,670
MW-5	6/25/2003	26,000	ND	ND	4,400
MW-5	6/18/2004	26,000	ND	1,100	3,400
MW-5	6/27/2005	29,000	ND	920	3,400
MW-5	4/25/2006	28,000	ND	1,600	2,700
MW-5	11/27/2006	22,000	<250	630	1,700
MW-5	3/28/2007	30,000	590	1,700	4,600
MW-5	6/13/2007	32,000	91	940	2,000
MW-5	9/25/2007	25,000	170	620	1,700
MW-5	3/12/2008	28,000	110	1,200	2,300
MW-5	6/2/2008	25,000	<100	1,100	1,300
MW-5	9/22/2008	20,000	<200	760	1,100
MW-5	12/5/2008	24,000	<100	580	1,400
MW-5	3/3/2009	9,800	<100	450	920
MW-5	6/24/2009	25,000	46	40	1,400
MW-5	9/15/2009	27,000	<400	770	2,000
MW-5	12/7/2009	23,000	<400	690	1,400
MW-5	3/3/2010	16,000	<100	350	710
MW-5	6/21/2010	18,000	<100	430	890
MW-5	9/9/2010	25,000	130	510	1,600
MW-5	1/13/2011	17,000	<500	360	900
MW-5	6/15/2011	27,000	<500	<50	1,400



TABLE 2

**GROUNDWATER ANALYTICAL RESULTS
BRUINGTON GAS COM #1
XTO ENERGY, INC.**

Well ID	Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
NMWQCC Groundwater Standard		10	750	750	620
MW-5	12/15/2011	15,000	<500	310	810

MW-6	5/17/2001	28,000	15,000	1,000	9,400
MW-6	9/24/2001	22,000	6,000	1,100	6,900
MW-6	6/27/2002	28,000	16,000	990	9,800
MW-6	6/25/2003	22,000	16,000	ND	6,300
MW-6	6/18/2004	23,000	19,000	1,000	8,800
MW-6	6/27/2005	28,000	20,000	1,200	9,600
MW-6	4/25/2006	26,000	25,000	1,700	8,900
MW-6	11/27/2006	22,000	23,000	990	9,700
MW-6	3/28/2007	25,000	27,000	1,900	19,000
MW-6	6/13/2007	21,000	19,000	780	7,900
MW-6	9/25/2007	27,000	21,000	1,200	11,000
MW-6	3/12/2008	21,000	21,000	1,200	11,000
MW-6	6/2/2008	19,000	16,000	870	9,000
MW-6	9/22/2008	15,000	14,000	770	8,500
MW-6	12/5/2008	28,000	27,000	1,100	12,000
MW-6	3/3/2009	19,000	20,000	880	9,300
MW-6	6/24/2009	23,000	18,000	900	9,200
MW-6	9/15/2009	18,000	14,000	740	7,700
MW-6	12/7/2009	19,000	19,000	1,000	10,000
MW-6	3/3/2010	15,000	16,000	860	9,300
MW-6	6/21/2010	18,000	15,000	680	7,000
MW-6	9/9/2010	21,000	16,000	880	8,300
MW-6	1/13/2011	19,000	18,000	1,000	10,000
MW-6	6/15/2011	21,000	17,000	730	7,500
MW-6	12/15/2011	25,000	22,000	960	9,700

MW-7	8/25/2003	18,000	11,000	930	8,200
MW-7	6/18/2004	11,000	7,800	670	5,000
MW-7	6/27/2005	14,000	8,700	880	5,000
MW-7	4/25/2006	19,000	6,600	1,200	5,100
MW-7	11/27/2006	6,100	4,400	420	2,500
MW-7	3/28/2007	11,000	9,500	100	7,500
MW-7	6/13/2007	3,800	2,000	320	1,700
MW-7	9/25/2007	2,900	2,400	210	1,400
MW-7	3/12/2008	14,000	9,200	830	4,800
MW-7	6/2/2008	8,800	5,300	560	3,100
MW-7	9/22/2008	7,100	4,600	450	2,800
MW-7	12/5/2008	11,000	9,300	680	5,200
MW-7	3/3/2009	11,000	7,800	660	4,500
MW-7	6/24/2009	21,000	14,000	640	6,400
MW-7	9/15/2009	15,000	4,900	640	3,600



TABLE 2

**GROUNDWATER ANALYTICAL RESULTS
BRUINGTON GAS COM #1
XTO ENERGY, INC.**

Well ID	Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
NMWQCC Groundwater Standard		10	750	750	620
MW-7	12/7/2009	9,600	7,700	530	4,200
MW-7	3/3/2010	10,000	7,000	560	4,000
MW-7	6/21/2010	4,100	2,900	280	1,500
MW-7	9/9/2010	3,000	2,300	280	1,400
MW-7	1/13/2011	8,500	5,600	500	2,500
MW-7	6/15/2011	16,000	8,500	760	4,700
MW-7	12/15/2011	8,900	4,300	510	2,700
MW-8	6/13/2007	24,000	24,000	350	10,000
MW-8	9/25/2007	18,000	4,000	960	9,100
MW-8	3/12/2008	730	64	ND	2,000
MW-8	6/2/2008	12,000	7,100	490	5,300
MW-8	9/22/2008	15,000	13,000	520	7,200
MW-8	12/5/2008	18,000	15,000	810	7,700
MW-8	3/3/2009	16,000	12,000	660	5,700
MW-8	6/24/2009	21,000	13,000	690	5,700
MW-8	9/15/2009	15,000	7,800	590	4,900
MW-8	12/7/2009	10,000	1,300	570	2,500
MW-8	3/3/2010	14,000	7,800	610	3,900
MW-8	6/21/2010	17,000	15,000	630	6,600
MW-8	9/9/2010	17,000	7,800	760	4,600
MW-8	1/13/2011	18,000	10,000	730	4,700
MW-8	6/15/2011	12,000	5,300	460	2,300
MW-8	12/15/2011	16,000	10,000	810	6,000
MW-9	3/10/2011	<0.5	<5	<0.5	<1.5
MW-9	6/15/2011	<0.5	<5	<0.5	<1.5

Notes:

ND - not detected above the laboratory detection limit

ug/l - micrograms per liter

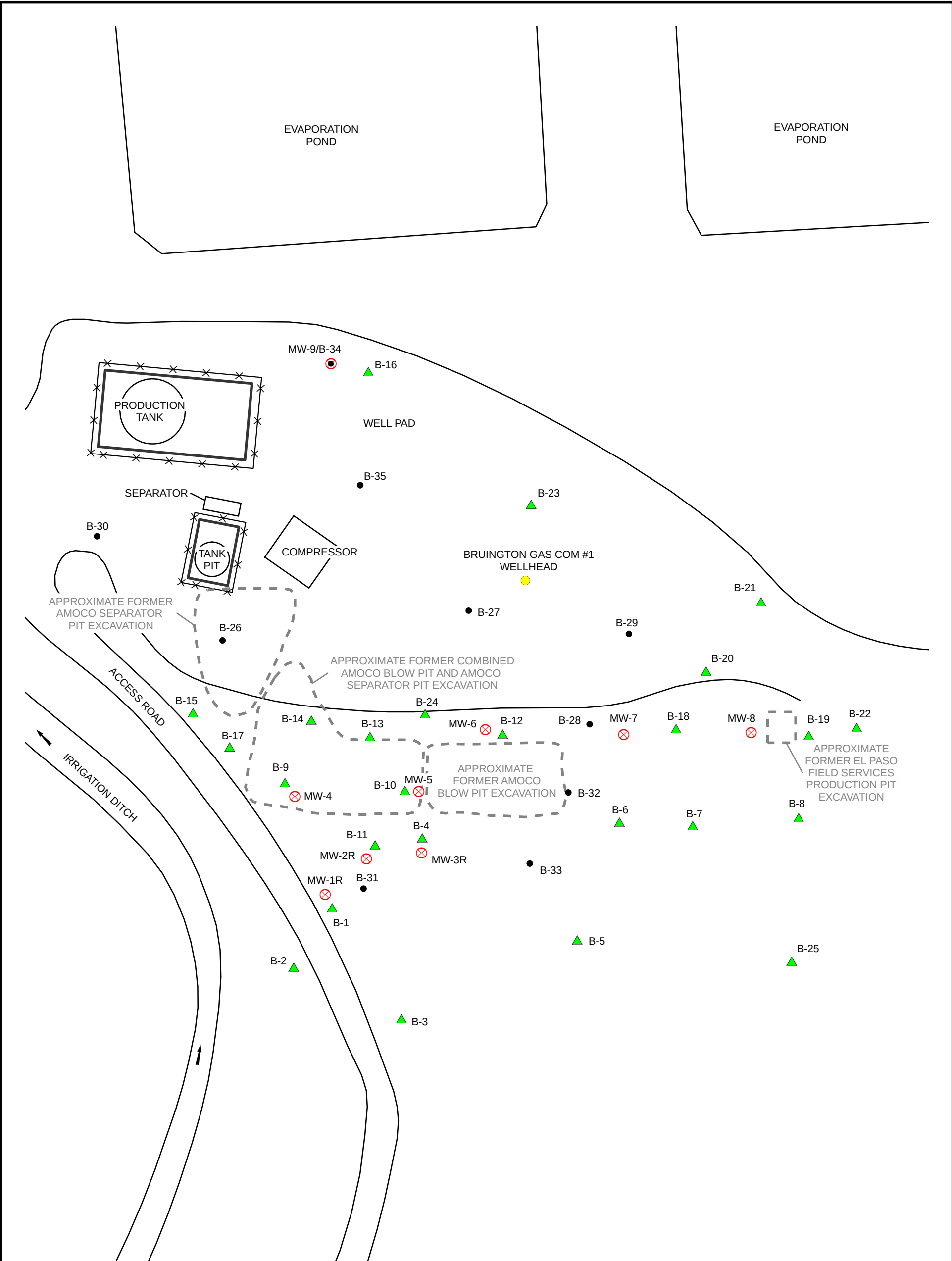
< - indicates the result was less than the laboratory detection limit

NMWQCC - New Mexico Water Quality Control Commission

BOLD values exceed the NMWQCC Standard

Figure 1

Site Map



LEGEND

- WELLHEAD
- MONITORING WELL
- MONITORING WELL/HOLLOWSTEM BOREHOLE (JANUARY 2011)
- HOLLOWSTEM BOREHOLE (JANUARY 2011)
- GEOPROBE BOREHOLE (OCTOBER 2009)
- DITCH FLOW DIRECTION
- FORMER PIT
- BERM
- FENCE

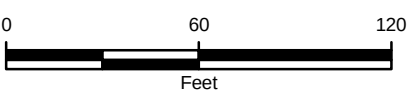
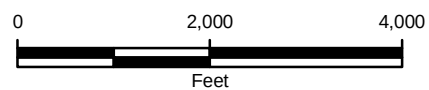
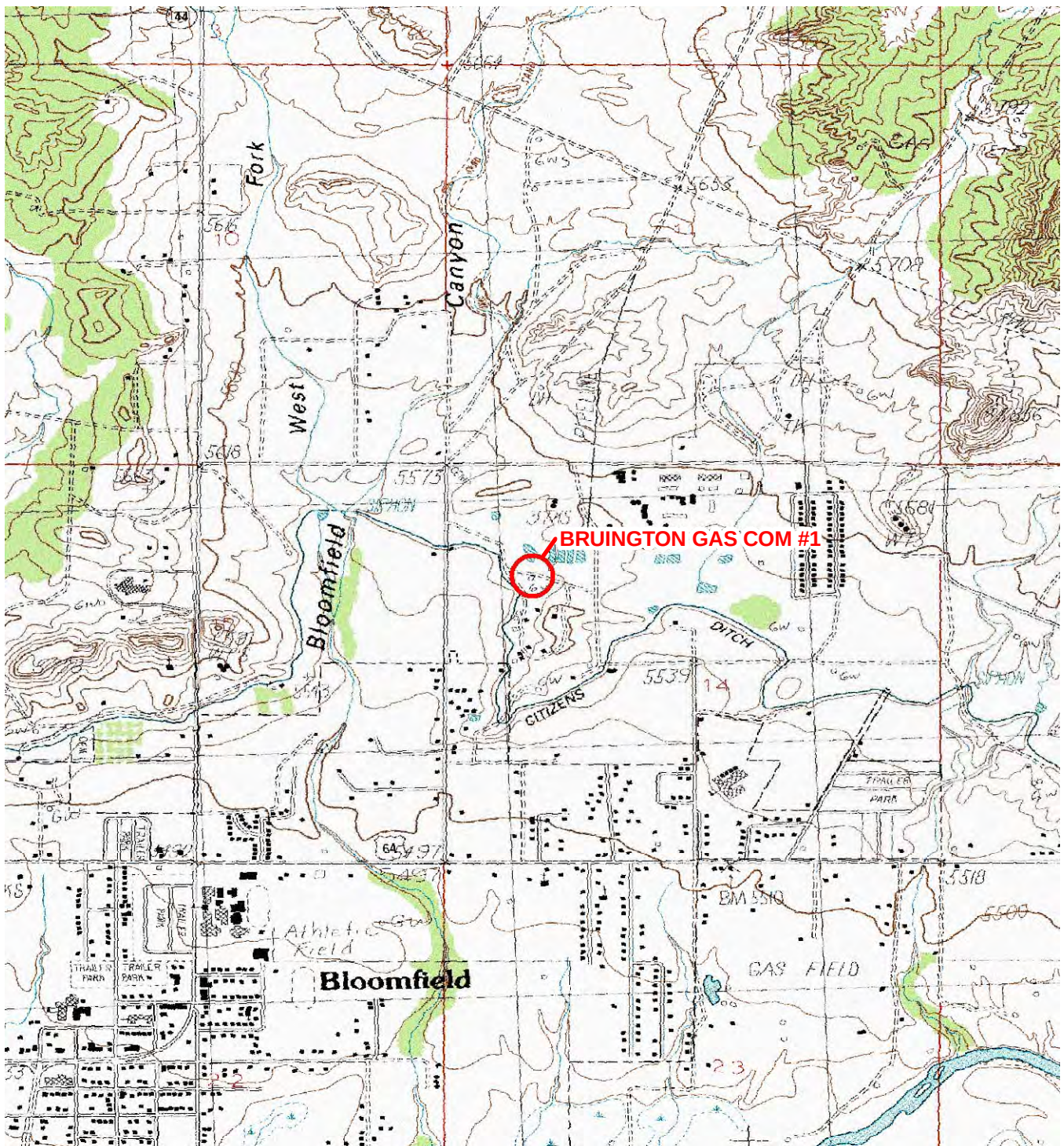


FIGURE 2
SITE MAP
BRUINGTON GAS COM #1
SWNW SEC 14 T29N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.



Figure 2

Topographic Map



LEGEND

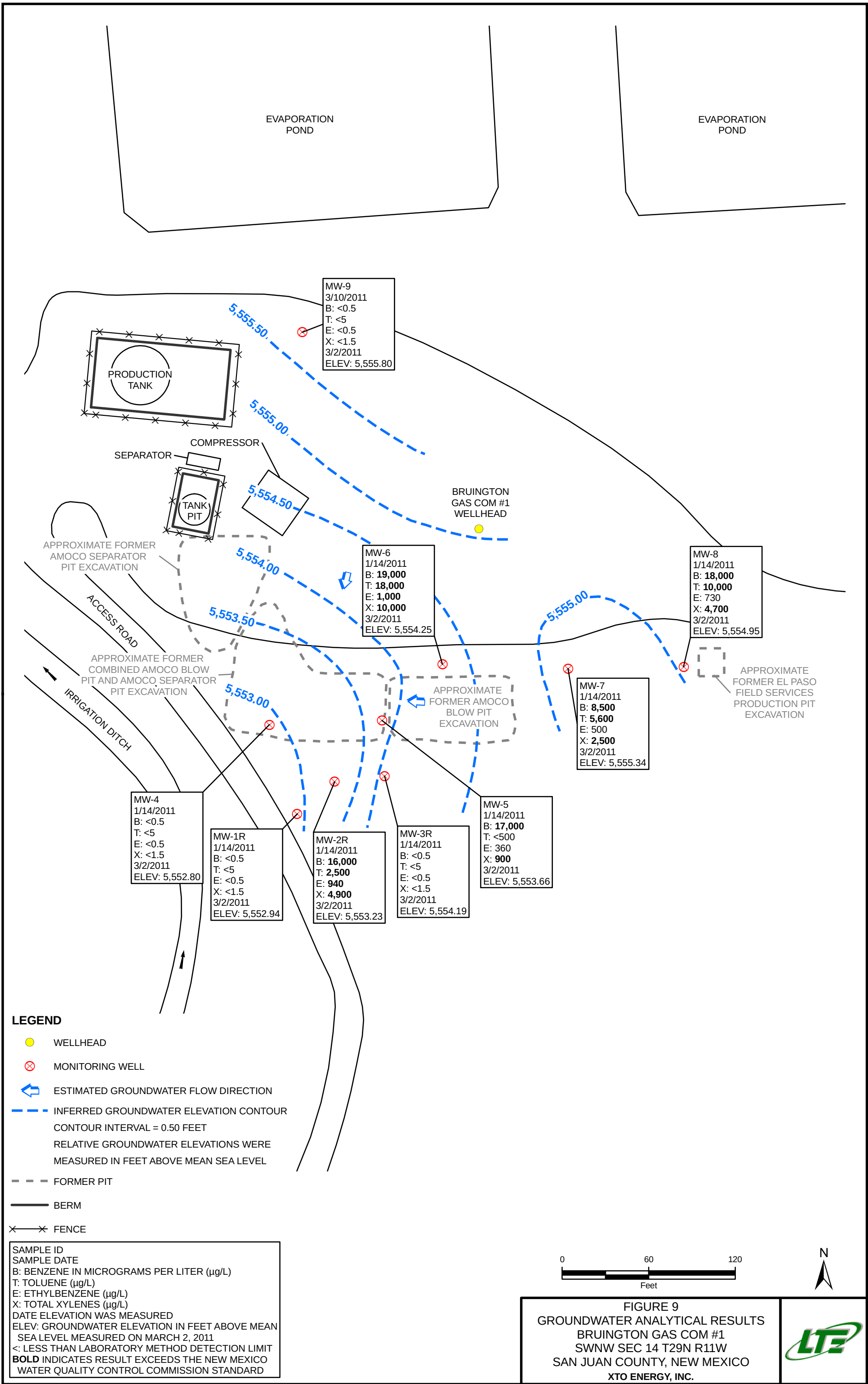
 SITE LOCATION

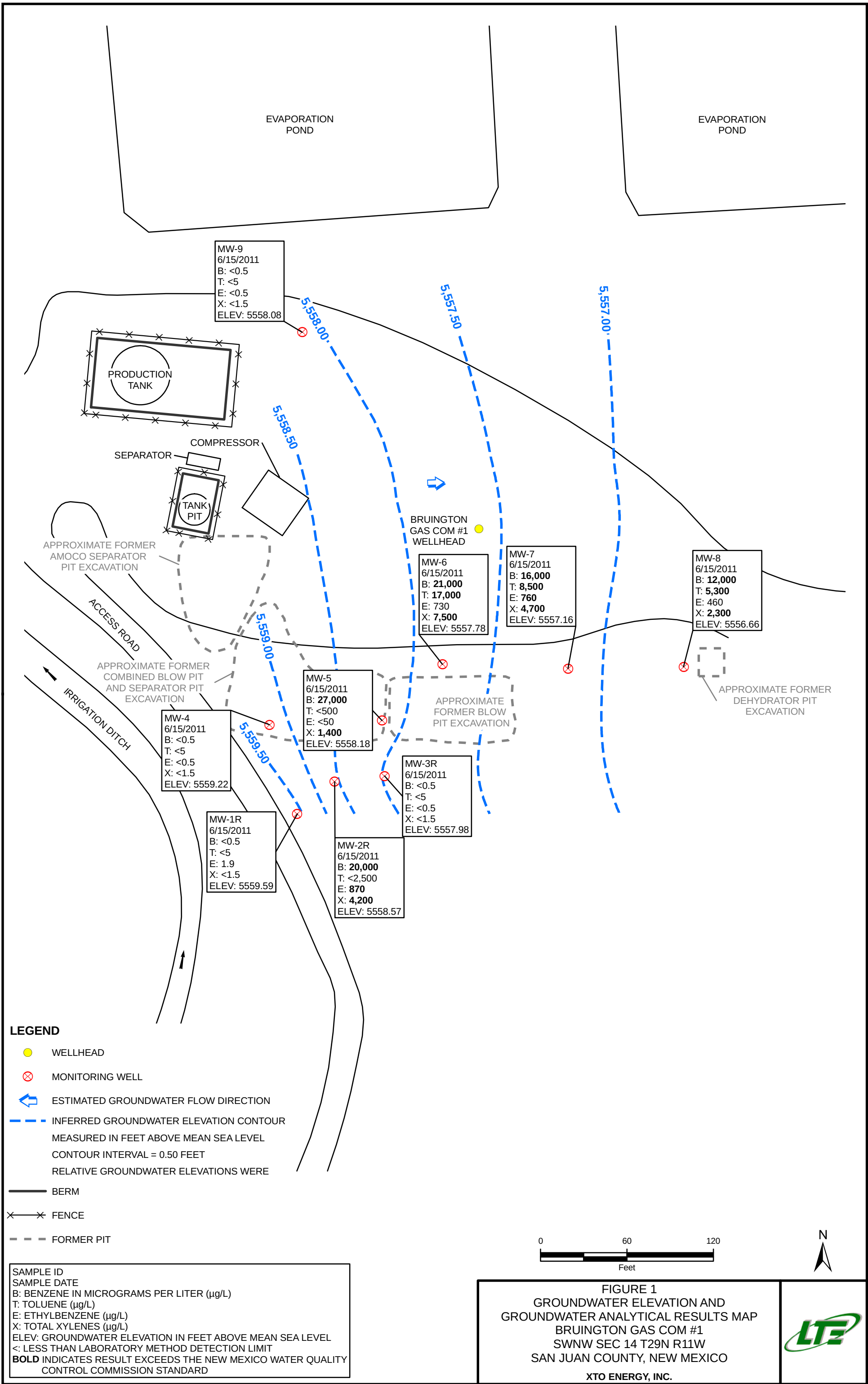
FIGURE 1
SITE LOCATION MAP
BRUINGTON GAS COM #1
SWNW SEC 14 T29N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.



Figure 3-5

2011 Potentiometric Surface Maps





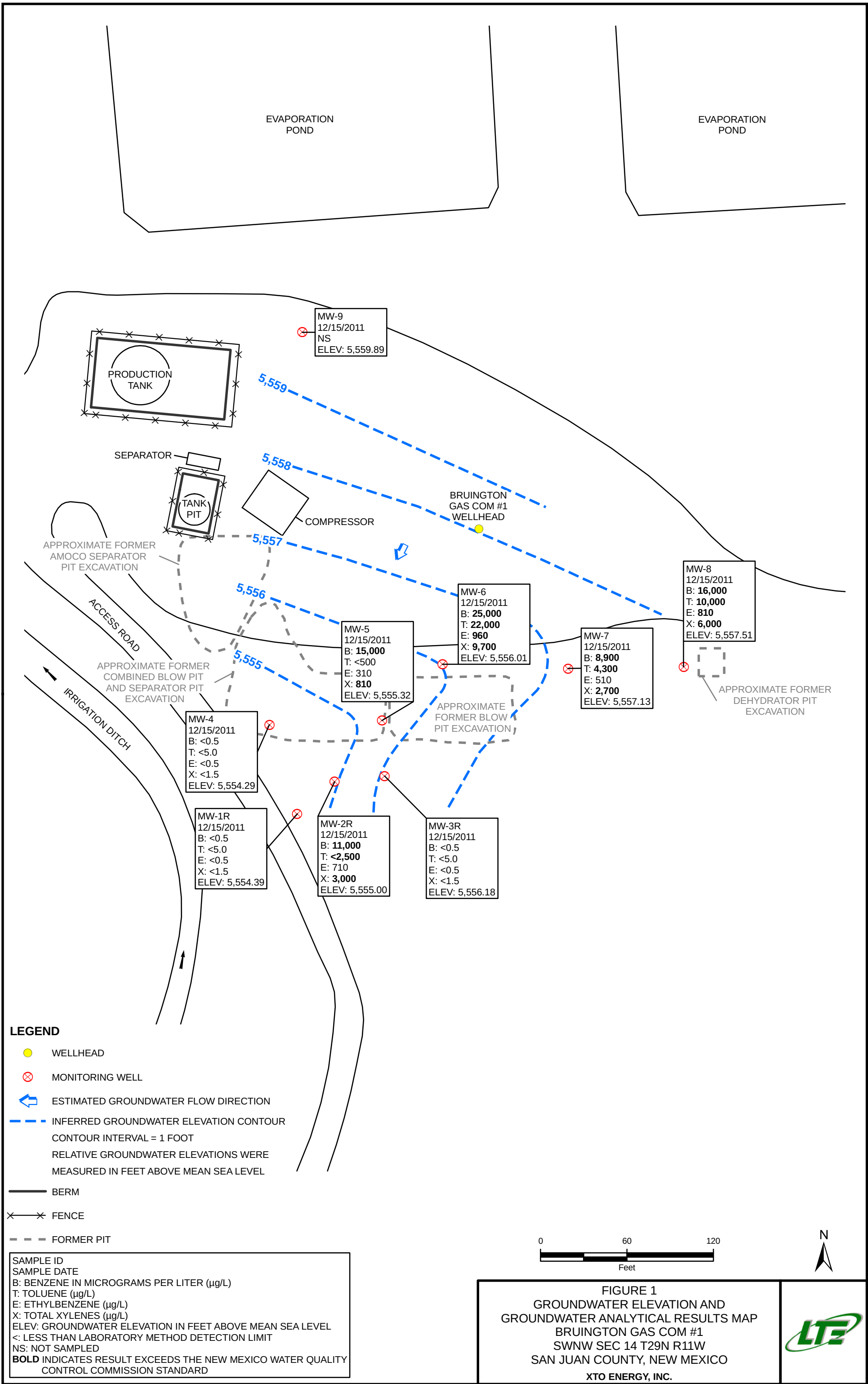


Figure 6-16

Borehole Diagrams

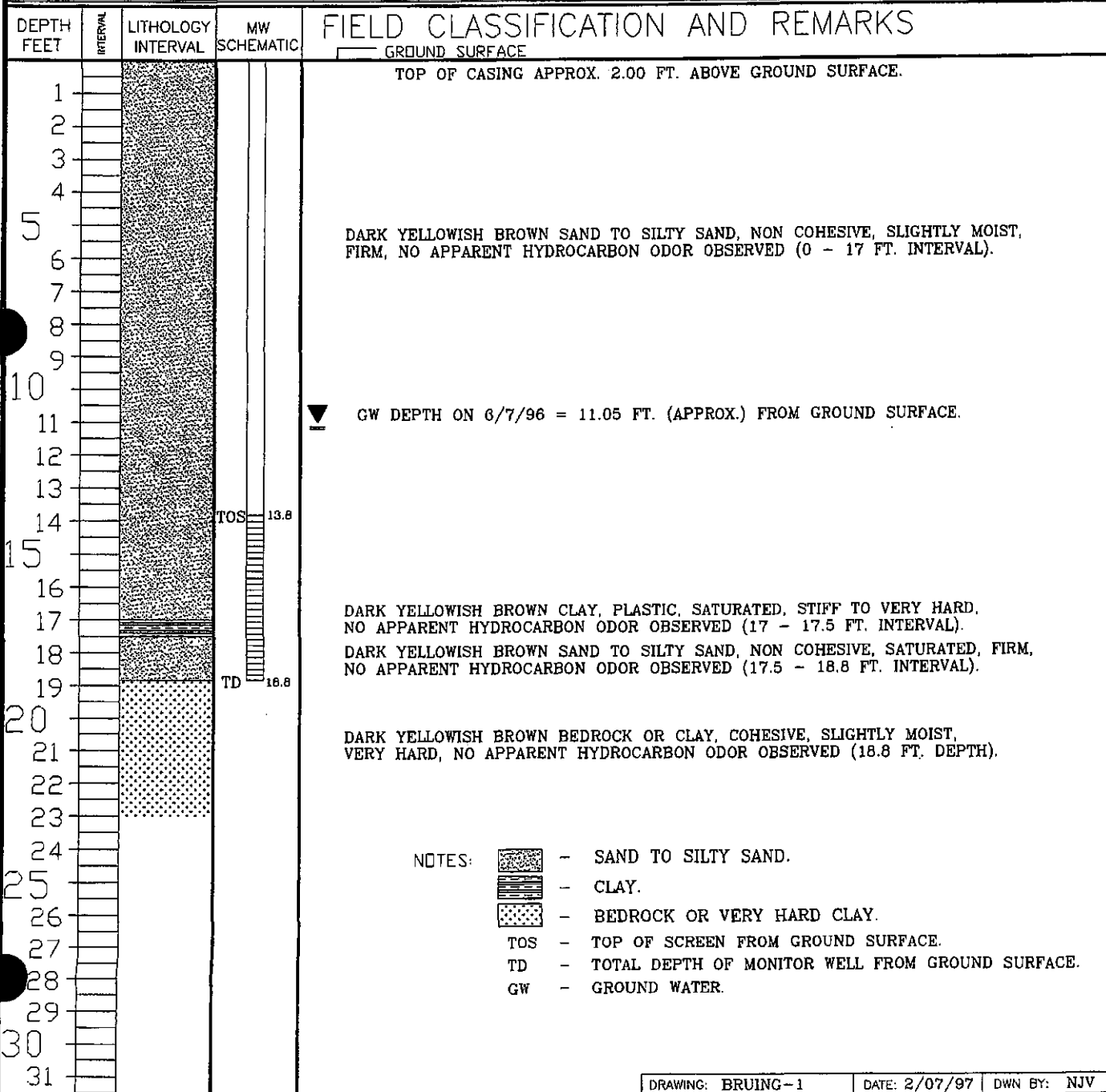
BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

LOCATION NAME: BRUINGTON GC # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: S20W, 156 FEET FROM WELL HEAD.

BORING #..... BH - 1
MW #..... 1
PAGE #..... 1
DATE STARTED 4/25/96
DATE FINISHED 4/25/96
OPERATOR..... JCB
PREPARED BY NJV



BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

LOCATION NAME: BRUINGTON GC # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: S34W, 210 FEET FROM WELL HEAD.

BORING #..... BH - 1R
MW #..... 1R
PAGE #..... 1R
DATE STARTED 6/19/98
DATE FINISHED 6/19/98
OPERATOR..... REP
PREPARED BY NJV

DEPTH FEET	INTERVAL	LITHOLOGY INTERVAL	MW SCHEMATIC	FIELD CLASSIFICATION AND REMARKS
				GROUND SURFACE
1				TOP OF CASING APPROX. 4.92 FT. ABOVE GROUND SURFACE.
2				
3				
4				
5			TOS 5.08	DARK YELLOWISH BROWN SAND TO SILTY SAND CONTINUOUS THROUGHOUT ENTIRE BORING, NON COHESIVE, SLIGHTLY MOIST TO SATURATED (SCREENED INTERVAL), FIRM, NO APPARENT HYDROCARBON ODOR DETECTED (0.0 - 15.08 FT. INTERVAL).
6				
7				
8				▼ GW DEPTH ON 6/20/98 = 8.24 FT. (APPROX.) FROM GROUND SURFACE.
9				
10				
11				
12				
13				
14				
15			TD 16.08	
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				

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

DRAWING: BRU-1R

DATE: 6/22/98 DWN BY: NJV

BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

LOCATION NAME: BRUINGTON GC # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: S34W, 171 FEET FROM WELL HEAD.

BORING #..... BH - 2
MW #..... 2
PAGE #..... 2
DATE STARTED 4/25/96
DATE FINISHED 4/25/96
OPERATOR..... JCB
PREPARED BY NJV

DEPTH FEET INTERVAL LITHOLOGY INTERVAL MW SCHEMATIC FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.90 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM,
NO APPARENT HYDROCARBON ODOR OBSERVED (0 - 13.5 FT. INTERVAL).

▼ GW DEPTH ON 6/7/96 = 8.22 FT. (APPROX.) FROM GROUND SURFACE.

OLIVE TO DARK GRAY SAND TO SILTY SAND, NON COHESIVE, SATURATED, FIRM,
STRONG HYDROCARBON ODOR OBSERVED (13.5 - 19.5 FT. INTERVAL).

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

DRAWING: BRUING-2

DATE: 2/07/97

DWN BY: NJV

BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

LOCATION NAME: BRUINGTON GC # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: S34W, 171 FEET FROM WELL HEAD.

BORING #..... BH - 2R
MW #..... 2R
PAGE #..... 2A
DATE STARTED 6/5/98
DATE FINISHED 6/5/98
OPERATOR..... REP
PREPARED BY NJV

DEPTH FEET	LITHOLOGY INTERVAL	MW SCHEMATIC	FIELD CLASSIFICATION AND REMARKS
			GROUND SURFACE
1			TOP OF CASING APPROX. 2.05 FT. ABOVE GROUND SURFACE.
2			
3			
4			DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON ODOR DETECTED (0 - 10.0 FT. INTERVAL).
5			
6		TOS 6.95	
7			
8			GW DEPTH ON 6/12/98 = 8.95 FT. (APPROX.) FROM GROUND SURFACE.
9			
10			
11			
12			
13			
14			
15			OLIVE TO DARK GRAY SAND TO SILTY SAND, NON COHESIVE, SATURATED, FIRM, STRONG HYDROCARBON ODOR DETECTED (10.0 - 20.95 FT. INTERVAL).
16			
17			
18			
19			
20			
21		TD 20.95	
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			

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

BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

LOCATION NAME: BRUINGTON GC # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: S34W, 210 FEET FROM WELL HEAD.

BORING #..... BH - 3
MW #..... 3
PAGE #..... 3
DATE STARTED 4/25/96
DATE FINISHED 4/25/96
OPERATOR..... JCB
PREPARED BY NJV

DEPTH
FEET

INTERVAL
LITHOLOGY
INTERVAL

MW
SCHEMATIC

FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.25 FT. ABOVE GROUND SURFACE.

▼ GW DEPTH ON 6/7/96 = 5.75 FT. (APPROX.) FROM GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND CONTINUOUS THROUGHOUT ENTIRE BORING, NON COHESIVE, SLIGHTLY MOIST TO SATURATED (SCREENED INTERVAL), FIRM, NO APPARENT HYDROCARBON ODOR OBSERVED (0.0 - 18.75 FT. INTERVAL).

TOS 13.75

TD 18.75

NOTES:

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

DRAWING: BRUING-3

DATE: 2/07/97

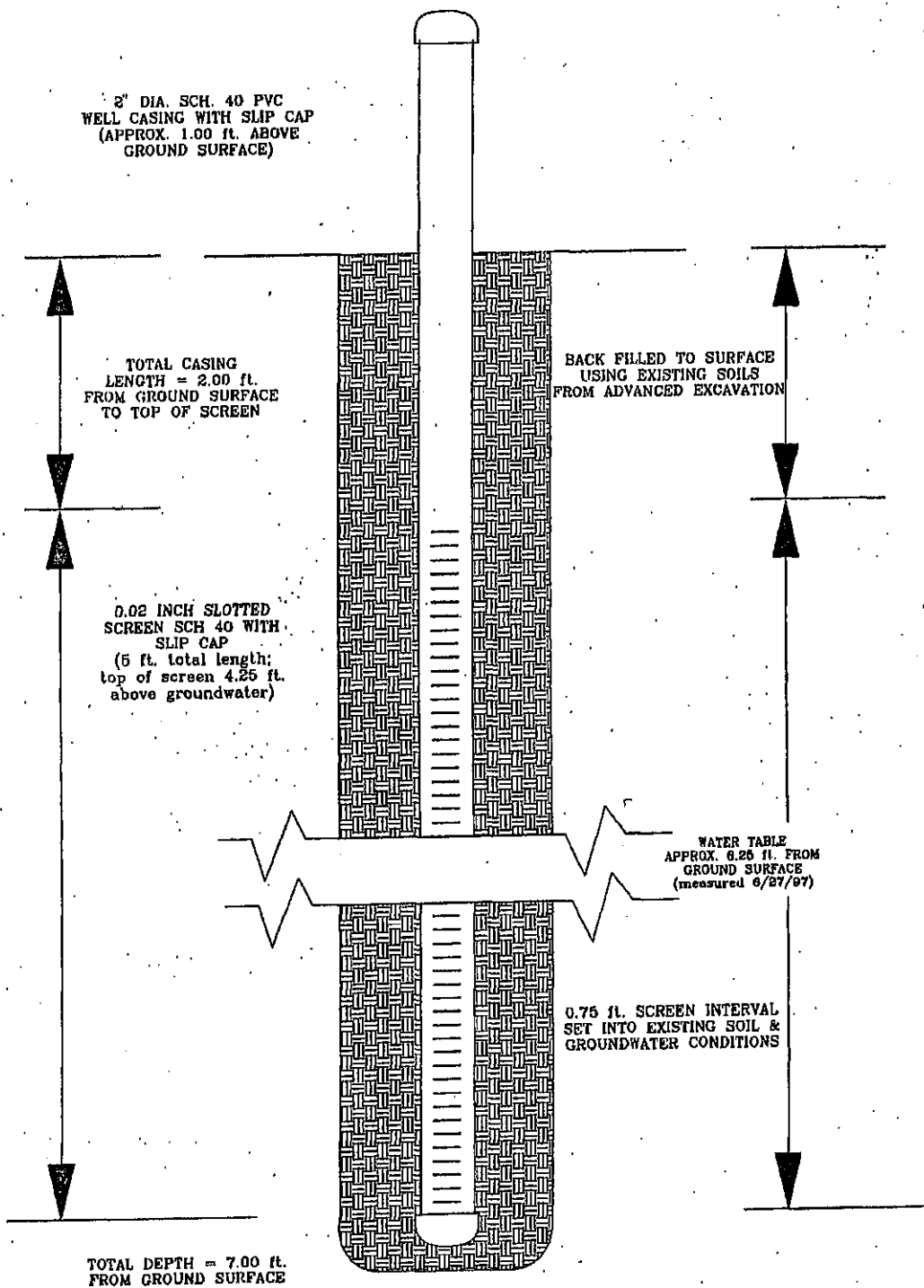
OWN BY: NJV

MONITOR WELL #1A

AMOCO PRODUCTION COMPANY
BRUINGTON GC # 1
MONITOR WELL CONSTRUCTION & COMPLETION
INSTALLED WITH MOBILE DRILL RIG

BLAGG ENGINEERING, INC.
CONSULTING PETROLEUM / RECLAMATION SERVICES
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199

MONITOR WELL SCHEMATIC
DRAFTED BY: NJV
DATE: JUN. 97
FILENAME: MW-



MONITOR WELL #1R

2" DIA. SCH. 40 PVC
WELL CASING WITH SLIP CAP
(approx. 4.92 ft. above
ground surface)

TOTAL CASING
LENGTH = 5.08 ft.
FROM GROUND SURFACE
TO TOP OF SCREEN

0.02 INCH SLOTTED
SCREEN SCH 40 WITH
POINTED END CAP
(10 ft. total length;
top of screen 3.16 ft.
above groundwater)

TOTAL DEPTH = 15.08 ft.
FROM GROUND SURFACE

BACK FILLED WITH
CLEAN NATIVE SOIL
TO SURFACE

8 TO 12 MESH COLORADO
SILICA SAND
(approx. 2 ft. above
top of screen)

WATER TABLE
APPROX. 8.24 ft. FROM
GROUND SURFACE
(measured 6/20/98)

6.84 ft. SCREEN INTERVAL
SET INTO EXISTING SOIL &
GROUNDWATER CONDITIONS

AMOCO PRODUCTION COMPANY

BRUINGTON GC # 1

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: JUN. '98

FILENAME: MW-1

MONITOR WELL #2R

AMOCO PRODUCTION COMPANY
BRUNINGTON GC # 1
MONITOR WELL CONSTRUCTION & COMPLETION
INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.
CONSULTING PETROLEUM / RECLAMATION SERVICES
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199

MONITOR WELL SCHEMATIC
DRAFTED BY: NJV
DATE: JUN. '98
FILENAME: MW-2

2" DIA. SCH. 40 PVC
WELL CASING WITH SLIP CAP
(approx. 2.05 ft. above
ground surface)

TOTAL CASING
LENGTH = 5.95 ft.
FROM GROUND SURFACE
TO TOP OF SCREEN

0.02 INCH SLOTTED
SCREEN SCH 40 WITH
POINTED END CAP
(10 ft. total length;
top of screen 3.00 ft.
above groundwater)

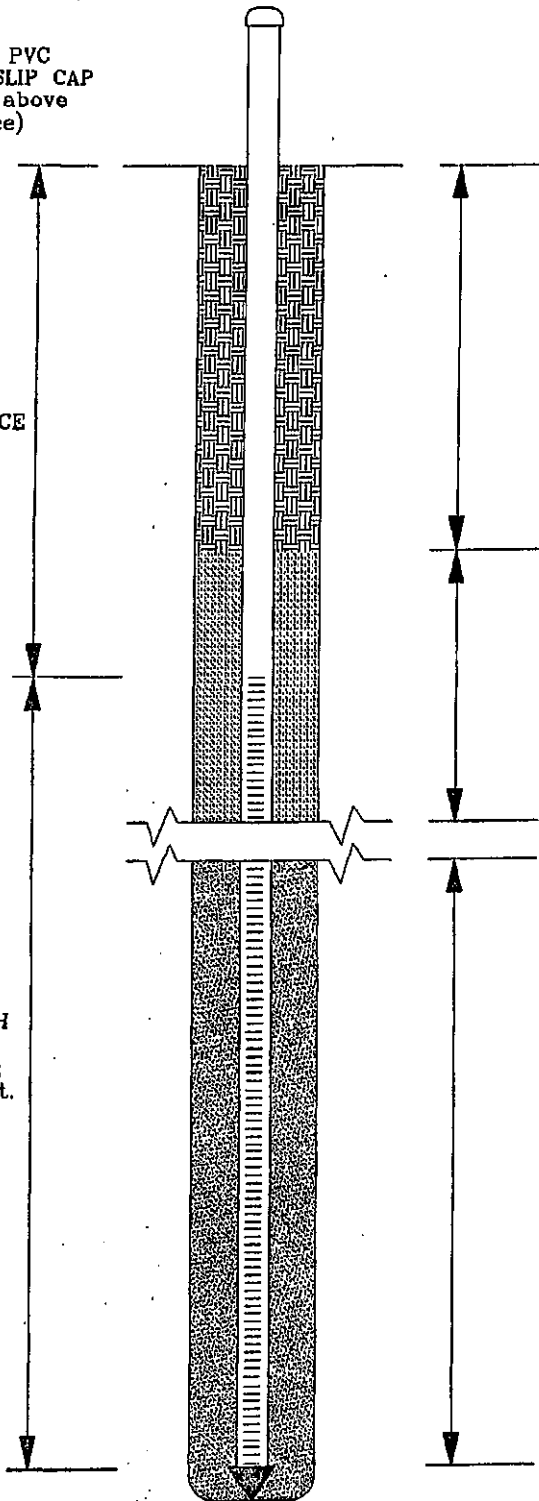
TOTAL DEPTH = 20.95 ft.
FROM GROUND SURFACE

BACK FILLED WITH
CLEAN NATIVE SOIL
TO SURFACE

8 TO 12 MESH COLORADO
SILICA SAND
(approx. 2 ft. above
top of screen)

WATER TABLE
APPROX. 8.95 ft. FROM
GROUND SURFACE
(measured 6/12/98)

12.00 ft. SCREEN INTERVAL
SET INTO EXISTING SOIL &
GROUNDWATER CONDITIONS



MONITOR WELL #3

AMOCO PRODUCTION COMPANY
BRUINGTON GC # 1
MONITOR WELL CONSTRUCTION & COMPLETION
INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.
CONSULTING PETROLEUM / RECLAMATION SERVICES
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199

MONITOR WELL SCHEMATIC
DRAFTED BY: NJV
DATE: APR. '97
FILENAME: MW-2

2" DIA. SCH. 40 PVC
WELL CASING WITH SLIP CAP
(approx. 2.00 ft. above
ground surface)

TOTAL CASING
LENGTH = 13.8 ft.
FROM GROUND SURFACE
TO TOP OF SCREEN

0.02 INCH SLOTTED
SCREEN SCH 40 WITH
POINTED ENC CAP
(5 ft. total length)

TOTAL DEPTH = 18.8 ft.
FROM GROUND SURFACE

BACK FILLED WITH
CLEAN NATIVE SOIL
TO SURFACE

8 TO 12 MESH COLORADO
SILICA SAND
(approx. 2 ft. above
top of screen)

WATER TABLE
APPROX. 11.05 ft. FROM
GROUND SURFACE
(measured 6/07/96)

SCREEN INTERVAL SET
INTO EXISTING SOIL &
GROUNDWATER CONDITIONS

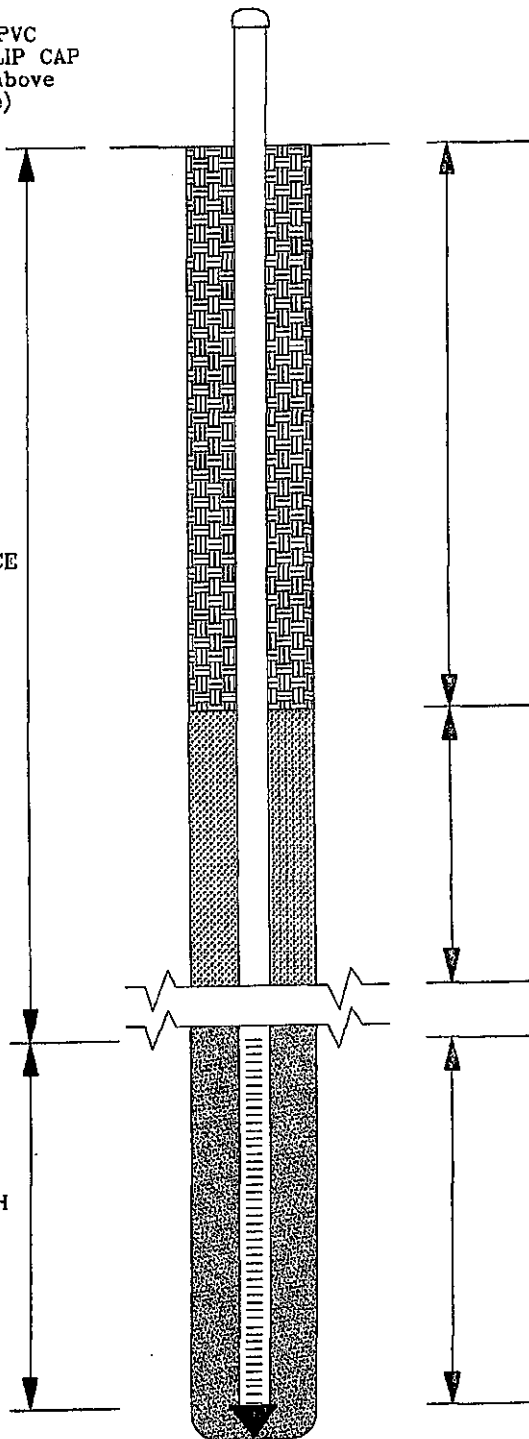


FIGURE 4

BLAGG ENGINEERING, INC.

P.O. BOX 87

BLOOMFIELD, NM 87413

(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME: **BRUINGTON GC # 1**

CLIENT: **XTO ENERGY INC.**

CONTRACTOR: **BLAGG ENGINEERING, INC.**

EQUIPMENT USED: **MOBILE DRILL RIG (EARTHPROBE)**

BORING LOCATION: **N30W, 39.5 FEET FROM MW # 2R.**

BORING #..... **BH - 4**

MW #..... **4**

PAGE #..... **4**

DATE STARTED **2/20/01**

DATE FINISHED **2/20/01**

OPERATOR..... **JCB**

PREPARED BY **NJV**

DEPTH FEET	INTERVAL	LITHOLOGY INTERVAL	MW SCHEMATIC	FIELD CLASSIFICATION AND REMARKS
				GROUND SURFACE
				TOP OF CASING APPROX. 3.00 FT. ABOVE GROUND SURFACE.
1				
2				
3				
4				
5				
6				
7			TOS 7.00	
8				
9				
10				
11				▼ GW DEPTH DN 4/30/01 = 11.52 FT. (APPROX.) FROM GROUND SURFACE.
12				
13				
14				
15				
16				
17			TD 17.00	
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				

NOTES:

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

FIGURE 5

BLAGG ENGINEERING, INC.

P.O. BOX 87

BLOOMFIELD, NM 87413

(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME: **BRUINGTON GC # 1**
 CLIENT: **XTO ENERGY INC.**
 CONTRACTOR: **BLAGG ENGINEERING, INC.**
 EQUIPMENT USED: **MOBILE DRILL RIG (EARTHPROBE)**
 BORING LOCATION: **N42E, 64.2 FEET FROM MW # 2R.**

BORING #..... **BH-5**
 MW #..... **5**
 PAGE #..... **5**
 DATE STARTED **2/20/01**
 DATE FINISHED **2/20/01**
 OPERATOR..... **JCB**
 PREPARED BY **NJV**

DEPTH FEET	INTERVAL	LITHOLOGY INTERVAL	MW SCHEMATIC	FIELD CLASSIFICATION AND REMARKS
				GROUND SURFACE
				TOP OF CASING APPROX. 2.30 FT. ABOVE GROUND SURFACE.
1				
2				
3				DARK YELLOWISH ORANGE SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT DISCOLORATION OBSERVED OR HYDROCARBON ODOR DETECTED PHYSICALLY (0.0 - 6.0 FT. INTERVAL).
4				
5				
6				
7				SAME AS ABOVE EXCEPT DENSE (6.0 - 8.0 FT. INTERVAL).
8				
9				MODERATE YELLOWISH ORANGE TO DARK YELLOWISH BROWN SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM. NO APPARENT DISCOLORATION OBSERVED OR HYDROCARBON ODOR DETECTED PHYSICALLY (8.0 - 11.0 FT. INTERVAL).
10				
11				
12				SAME AS ABOVE EXCEPT MODERATE TO DARK YELLOWISH BROWN (11.0 - 13.0 FT. INTERVAL).
13				GW DEPTH ON 5/17/01 = 13.70 FT. (APPROX.) FROM GROUND SURFACE.
14				LIGHT TO MEDIUM GRAY SILTY CLAY TO CLAY, SLIGHTLY COHESIVE TO PLASTIC, SLIGHTLY SATURATED TO SATURATED, FIRM TO SLIGHTLY STIFF, SLIGHT HYDROCARBON ODOR DETECTED PHYSICALLY (13.0 - 16.0 FT. INTERVAL).
15				
16				
17				MEDIUM GRAY SILTY CLAY TO CLAY, SLIGHTLY COHESIVE TO SLIGHTLY PLASTIC, SLIGHTLY MOIST TO WET, FIRM TO SLIGHTLY STIFF, STRONGER HYDROCARBON ODOR DETECTED PHYSICALLY (16.0 - 20.0 FT. INTERVAL).
18				
19				
20				MODERATE YELLOWISH BROWN SILTY CLAY, SLIGHTLY COHESIVE, SATURATED, FIRM TO SLIGHTLY STIFF, NO APPARENT DISCOLORATION OBSERVED OR HYDROCARBON ODOR DETECTED PHYSICALLY (20.0 - 23.0 FT. INTERVAL).
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				

TOS 12.70
 TD 22.70

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

FIGURE 6

BLAGG ENGINEERING, INC.

P.O. BOX 87

BLOOMFIELD, NM 87413

(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME: **BRUINGTON GC # 1**
 CLIENT: **XTO ENERGY INC.**
 CONTRACTOR: **BLAGG ENGINEERING, INC.**
 EQUIPMENT USED: **MOBILE DRILL RIG (EARTHPROBE)**
 BORING LOCATION: **N47E, 106.8 FEET FROM MW # 2R.**

BORING #..... **BH - 6**
 MW #..... **6**
 PAGE #..... **6**
 DATE STARTED **2/20/01**
 DATE FINISHED **2/20/01**
 OPERATOR..... **JCB**
 PREPARED BY **NJV**

DEPTH FEET	INTERVAL	LITHOLOGY INTERVAL	MW SCHEMATIC	FIELD CLASSIFICATION AND REMARKS
				GROUND SURFACE
				TOP OF CASING APPROX. 1.90 FT. ABOVE GROUND SURFACE.
1				
2				
3				
4				
5				DARK YELLOWISH ORANGE SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT DISCOLORATION OBSERVED OR HYDROCARBON ODOR DETECTED PHYSICALLY (0.0 - 8.0 FT. INTERVAL).
6				
7				
8				
9				MODERATE YELLOWISH ORANGE TO DARK YELLOWISH BROWN SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT DISCOLORATION OBSERVED OR HYDROCARBON ODOR DETECTED PHYSICALLY (8.0 - 11.0 FT. INTERVAL).
10				
11				
12				SAME AS ABOVE EXCEPT MODERATE TO DARK YELLOWISH BROWN (11.0 - 13.0 FT. INTERVAL).
13				
14				
15				MEDIUM GRAY SILTY CLAY TO CLAY, SLIGHTLY COHESIVE, WET TO SATURATED, FIRM TO SLIGHTLY STIFF, HYDROCARBON ODOR DETECTED PHYSICALLY (13.0 - 16.0 FT. INTERVAL).
16				
17				▼ GW DEPTH ON 5/17/01 = 17.57 FT. (APPROX.) FROM GROUND SURFACE.
18				MEDIUM TO DARK GRAY SILTY CLAY TO CLAY, SLIGHTLY COHESIVE TO SLIGHTLY PLASTIC, SLIGHTLY MOIST TO WET, FIRM TO SLIGHTLY STIFF, STRONGER HYDROCARBON ODOR DETECTED PHYSICALLY (16.0 - 20.0 FT. INTERVAL).
19				
20				
21				MODERATE YELLOWISH BROWN SILTY CLAY, SLIGHTLY COHESIVE, SATURATED, FIRM TO SLIGHTLY STIFF, NO APPARENT DISCOLORATION OBSERVED OR HYDROCARBON ODOR DETECTED PHYSICALLY (20.0 - 23.0 FT. INTERVAL).
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				

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

FIGURE 7

BLAGG ENGINEERING, INC.

P.O. BOX 87

BLOOMFIELD, NM 87413

(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME: **BRUINGTON GC # 1**
 CLIENT: **XTO ENERGY INC.**
 CONTRACTOR: **BLAGG ENGINEERING, INC.**
 EQUIPMENT USED: **MOBILE DRILL RIG (EARTHPROBE)**
 BORING LOCATION: **S34.5E, 93 FEET FROM WELL HEAD.**

BORING #..... **BH - 7**
 MW #..... **7**
 PAGE #..... **7**
 DATE STARTED **7/10/03**
 DATE FINISHED **7/10/03**
 OPERATOR..... **JCB**
 PREPARED BY **NJV**

DEPTH FEET	INTERVAL	LITHOLOGY INTERVAL	MW SCHEMATIC	FIELD CLASSIFICATION AND REMARKS
				GROUND SURFACE
				TOP OF CASING APPROX. AT GROUND SURFACE.
1				
2				
3				
4				DARK YELLOWISH ORANGE SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT DISCOLORATION OBSERVED OR HYDROCARBON ODOR DETECTED PHYSICALLY (0.0 - 6.0 FT. INTERVAL).
5				
6				
7				MODERATE YELLOWISH ORANGE TO DARK YELLOWISH BROWN SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT DISCOLORATION OBSERVED OR HYDROCARBON ODOR DETECTED PHYSICALLY (6.0 - 9.5 FT. INTERVAL).
8				
9				
10				
11				
12				
13				MODERATE BROWN SILTY CLAY TO CLAY, SLIGHTLY COHESIVE, WET TO SATURATED, FIRM TO STIFF, HYDROCARBON ODOR DETECTED PHYSICALLY (9.5 - 16.5 FT. INTERVAL).
14				
15				
16				
17				
18				▼ GW DEPTH ON 8/25/03 = 17.93 FT. (APPROX.) FROM GROUND SURFACE. MEDIUM TO DARK GRAY SILTY CLAY TO CLAY, SLIGHTLY COHESIVE TO SLIGHTLY PLASTIC, SLIGHTLY MOIST TO WET, FIRM TO SLIGHTLY STIFF, STRONGER HYDROCARBON ODOR DETECTED PHYSICALLY (16.5 - 20.0 FT. INTERVAL).
19				
20				
21				
22				
23				MODERATE YELLOWISH BROWN SILTY CLAY, SLIGHTLY COHESIVE, SATURATED, FIRM TO SLIGHTLY STIFF, NO APPARENT DISCOLORATION OBSERVED OR HYDROCARBON ODOR DETECTED PHYSICALLY (20.0 - 28.0 FT. INTERVAL).
24				
25				
26				
27				
28				
29				
30				
31				

TOS 15.00
 TD 25.00

NOTES:
 [] - SAND.
 [] - SILTY SAND.
 [] - SILTY CLAY AND/OR SILTY CLAY TO CLAY.
 TOS - TOP OF SCREEN FROM GROUND SURFACE.
 TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
 GW - GROUND WATER.

DRAWING: BRU-MW7.SKF DATE: 9/15/03 DWN BY: NJV

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: Bruington Gas Com #1

Borehole Location: 36° 43.718' N, 107° 57.991' W
GWL Depth: 20
Drilled By: Enviro-Drill
Well Logged By: Ashley Ager
Date Started: 05/04/07
Date Completed: 05/04/07

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	20-21.5: bluish gray, sandy clay, very strong odor, coarse sand content, damp 21.5-22: grayish black coarse sand, saturated, unconsolidated	710 1580	Easy
25	6	25-26.3	split spoon	blackish gray sandy clay containing brown sandstone fragments	1120	Easy
30	7	26.5-27'	cuttings	brown sandstone		Hard
35						
40						

Comments: Reached sandstone bedrock at 26.5'
Called Kim at XTO to arrange for affected soil in cuttings to be collected and removed
from site.

Geologist Signature Ashley L. Ager



Compliance • Engineering • Remediation
LT Environmental, Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301

Boring/Well Number:

B-34

Date:

11/6/11

Project:

Brumington GC #1

Project Number:

XTO-1001

Logged By:

DMH

Drilled By:

Envirosdall

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:	Elevation:	Detector:	Drilling Method:	Sample Method:	Hole Diameter:	Total Depth:
		PID	Hollow Stem	Continuous Split Spoon	8"	30'
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	Depth to Water:	
PVC	2"	33'	0.10	15'	20'	

Gravel Pack:	Seal:	Grout:	Comments:
30'-13.8'	13.8'-11.8'	11.8'-0'	MW-9

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
None	WET (surface)	0.1	Ø		0			0-2.75' no recovery	
					1				
					2				
					3		SM	2.75-5' 1042 5/4 yellowish brown, silty sand, 40% silt, 30% fine sand, 30% med sand, loose	
					4				
					5				
					6				
					7		SM	silty sand, 40% silt, 40% fine sand, 20% med sand, loose, minor white staining (Ca log)	
					8				
					9				
					10				
					11				



Compliance • Engineering • Remediation
LT Environmental, Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301

Boring/Well Number:

B-34

Date:

1/6/11

Project:

Brington GC #1

Project Number:

XTO1001

Logged By:

DmH

Drilled By:

Enviro drill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

Elevation:

Detector:

PID

Drilling Method:

Hand/low stem

Sampling Method:

Continuous Split Spoon

Hole Diameter:

8"

Total Depth:

30'

Casing Type:

DVC

Casing Diameter:

2"

Casing Length:

33'

Slot Size:

0.10

Slot Length:

15'

Depth to Water:

20'

Gravel Pack:

30' - 13.0'

Seal:

13.0' - 11.8'

Grout:

11.8' - 0'

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Very Difficult	Day	0.0	Ø		11		SP	Sand, 60% med sand 30% fine sand, 10% coarse light semi-consolidated, very hard, 104R 7/4 very Pale brown	
					12				
					13				
					14				
Very Difficult	Day	0.0	Ø		15		SP	Same as above	
					16			15-17' no recovery	
					17		SP	Same as above, one small stained zone, containing some Red Fe Oxide staining and a 1/4" thick black vein @ 19'	
					18				
					19				
Very Difficult					20			20-21.5 no recovery	
					21				
					22				



Compliance • Engineering • Remediation
LT Environmental, Inc.
 2243 Main Avenue, Suite 3
 Durango, Colorado 81301

Boring/Well Number:

B-34

Date:

11/6/11

Project:

Brington GC #1

Project Number:

XTO1001

Logged By:

DMH

Drilled By:

Enviro-drill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

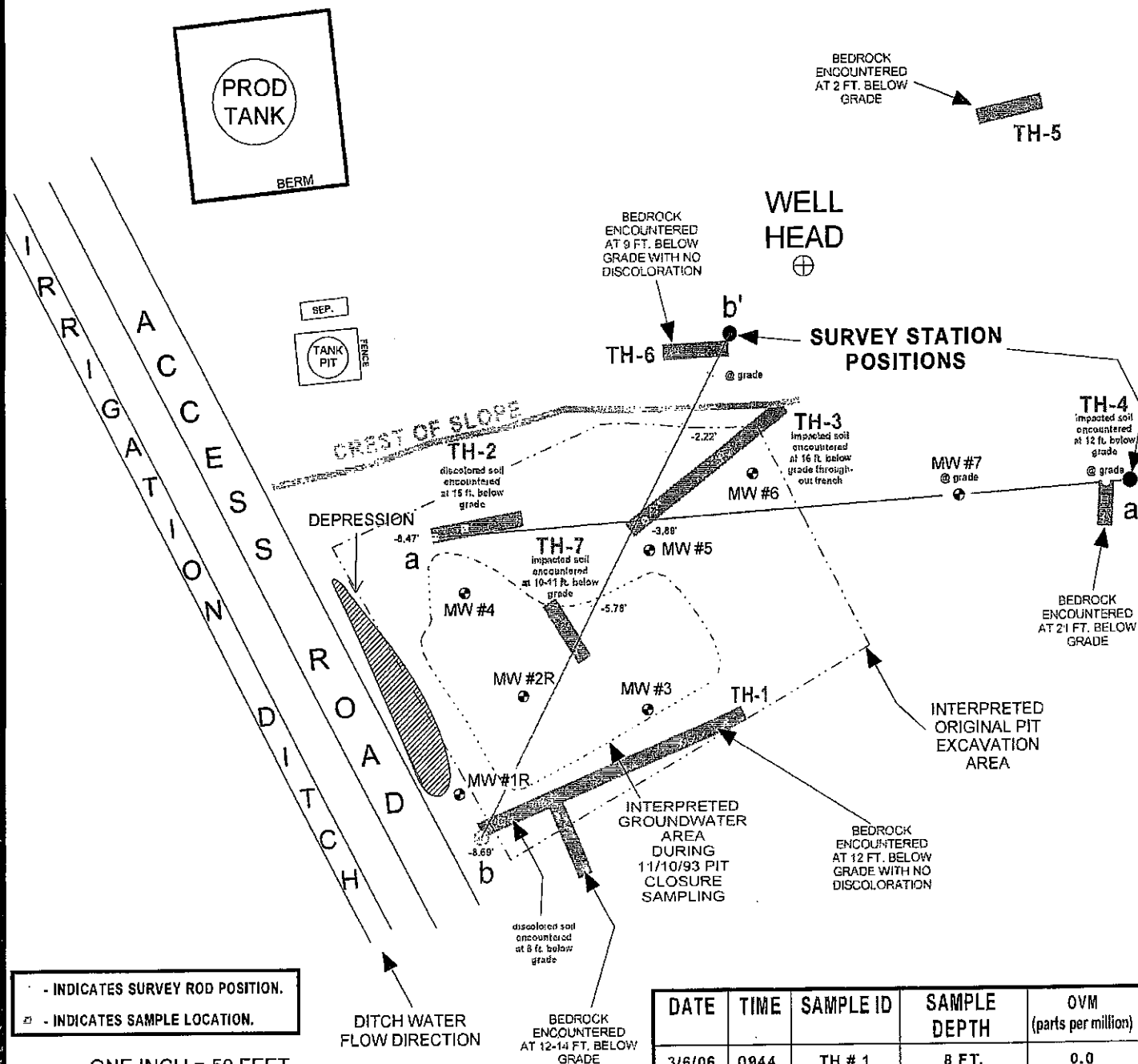
Lat/Long:	Elevation:	Detector:	Drilling Method:	Sampling Method:	Hole Diameter:	Total Depth:
		PID	Hollow stem	Continuous Split Spoon	8"	30'
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	Depth to Water:	
PVC	2"	33'	0.110	15'	~ 20'	
Gravel Pack:	Seal:	Grout:	Comments:			
30' - 13.8'	13.8' - 11.8'	11.8' - 0				

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Very Difficult	Wet		Ø		22		SP	Same as above	
					23				
					24				
Very Difficult	Wet	2.0	Ø		25				
					26				
					27				
					28		SM	27.5' - 30' silty sand, 10% 7/16 light gray, 30% silt, 40% fine sand, 30% med sand, very tight/compact semi-consolidated	
Very Difficult	Damp	0.0	Ø	B-34-30'	30				
					31				
					32				
					33				

Figure 17-18

2005 Investigation

FIGURE 8



DATE	TIME	SAMPLE ID	SAMPLE DEPTH	OVM (parts per million)
3/6/06	0944	TH # 1	8 FT.	0.0
3/6/06	1402	TH # 2	15 FT.	5.6 *
3/6/06	1445	TH # 3	16 FT.	729
3/6/06	1525	TH # 4	12 FT.	40.6 *
3/6/06	1535	TH # 4	20 FT.	144.3 *

* - INDICATES SAMPLE SUBMITTED TO LAB FOR APPROPRIATE ANALYSES.

XTO ENERGY INC.

BRUINGTON GC 1

SW/4 NW/4 SEC. 14, T29N, R11W
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: SITE ASSESSMENT

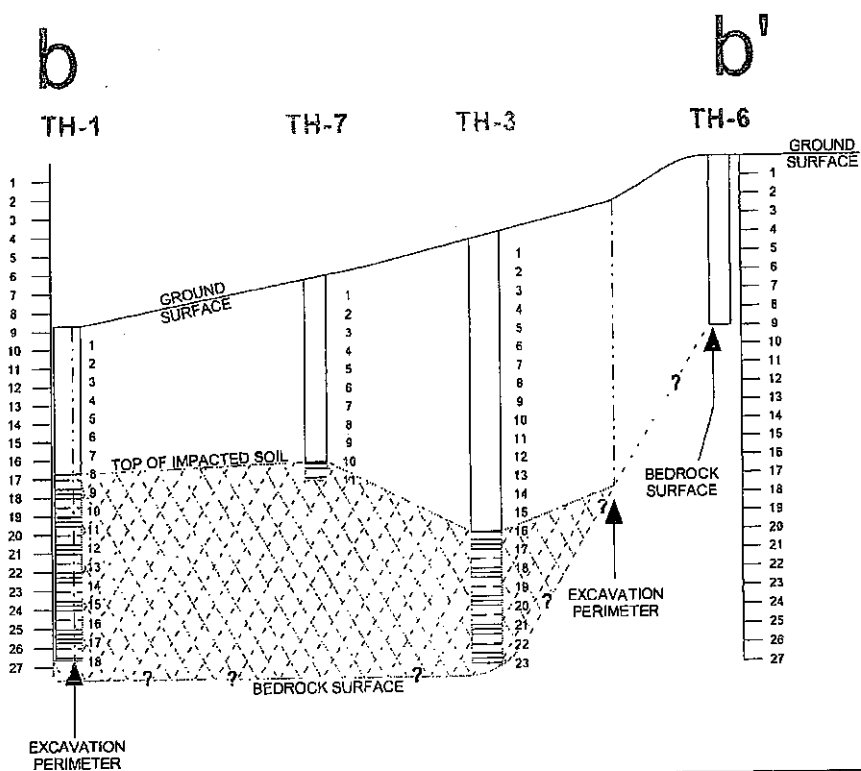
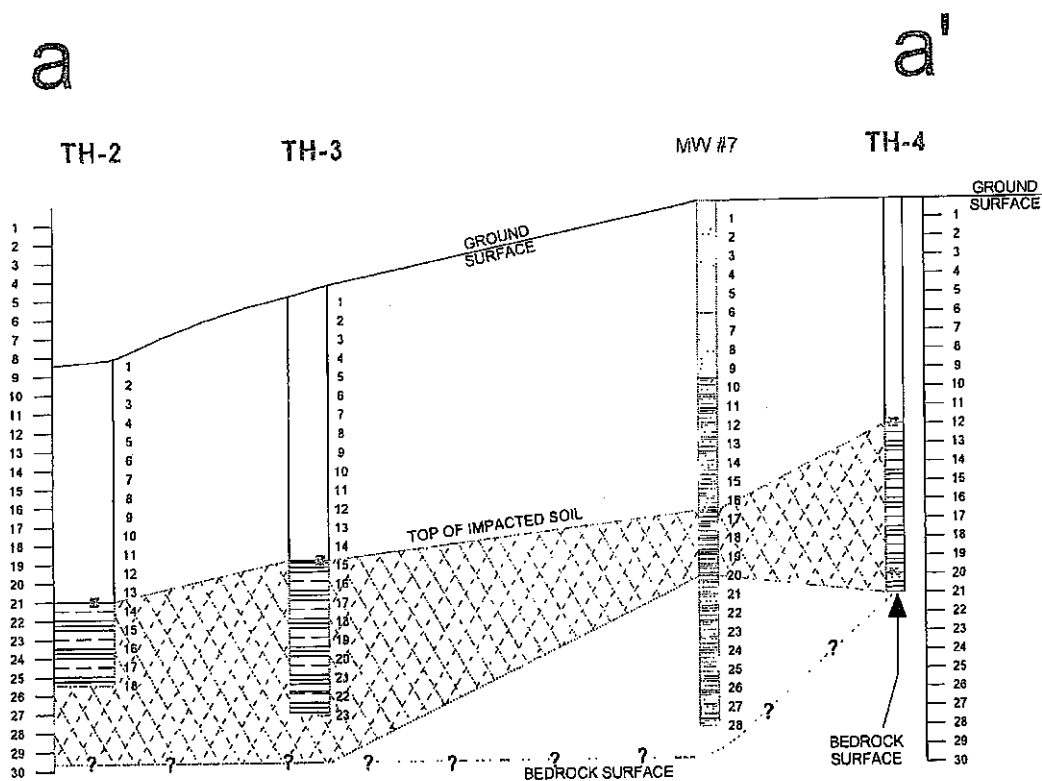
DRAWN BY: NJV

FILENAME: BRUINGTON-SM2.SKF

REVISED: 03/11/06 NJV

03/06

FIGURE 9



XTO ENERGY INC.

BRUINGTON GC 1

SW/4 NW/4 SEC. 14, T29N, R11W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1139

PROJECT: SITE ASSESSMENT

DRAWN BY: NJV

FILENAME: BRUINGTON-SM2-XSEC-A-SKF

DRAFTED: 03/11/06 NJV

**CROSS
SECTION
VIEWS**

03/06

Attachment 1

Envirotech Spill Clean-Up Report (1993)

LAB RESULTS TO PAUL V. ON 11-3-93. SOIL OK, WATER CONTAMINATED.

OVM RESULTS TO PAUL V. ON 10-20-93

(VERY CONTAMINATED)

ENVIROTECH Inc.

5796 US HWY 64, FARMINGTON, NM 87401
(505) 632 0615

PIT NO. C4948

C.D.C. NO. —3141

FIELD REPORT CLOSURE VERIFICATION

JOH No. 92140
PAGE No. 1 of 1

LOCATION: LEASE: BRUNINGTON GAS WELL #1 OD SW/4, NW/4 (E) DATE STARTED: 10-20-93
SEC. 14 TWP. 29N RING: 11W BM. NM CNTY: SJ ST. NM PIT: BLOW DATE FINISHED: 10-27-93
CONTRACTOR: PAUL VELASQUEZ
EQUIPMENT USED: EXCAVATOR ENVIRONMENTAL SPECIALIST: REO

SOIL REMEDIATION: QUANTITY: EXCAVATION APPROX. 40' x 75' x 20' MAX. DEEP.

DISPOSAL FACILITY: CROUCH MESA

LAND USE: RESIDENTIAL/INDUSTRIAL

SURFACE CONDITIONS: EXCAVATED PRIOR TO ARRIVAL

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 125 FEET SOUTH FROM WELLHEAD.
EXCAVATION 18-20' DEEP - TOP 8-10" APPEARS UNCONTAMINATED. FROM 8"-10" DOWN,
HEAVY CONTAMINATION EVIDENCED BY DARK GRAY TO BLACK, WITH HEAVY PETROLEUM ODOOR.
SOIL IS SILTY SAND, BOTTOM @ 18-20' IS SANDSTONE BEDROCK. WATER SLOWLY
SEEPING INTO EXCAVATION.

IRRIGATION CANAL ~ 100 DOWNGRADIENT TO THE SOUTHWEST.

EXCAVATION CONTINUING ON WEST END OF PIT AT THIS TIME.

10/27: LEDGE ROCK ON SOUTH EDGE OF EXCAVATION @ ~ 12' DEEP. COARSE SANDY SOIL.

FIELD 4181 CALCULATIONS

SAMPLE I.D.	LAB No.	WEIGHT (g)	ML. FREON	DILUTION	READING	CALC. ppm

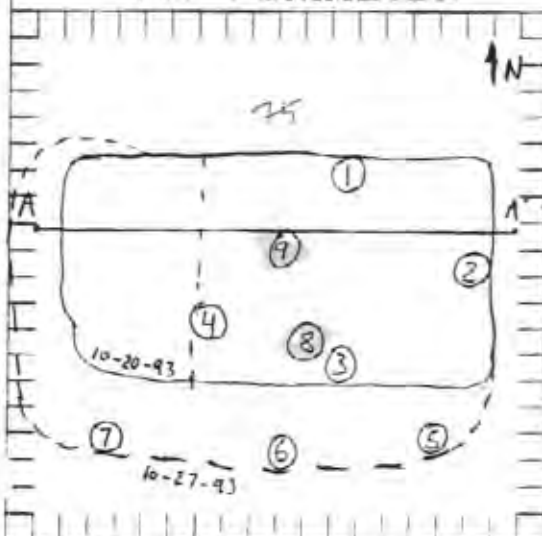
DEPTH TO GROUNDWATER:
NEAREST WATER SOURCE: CANAL ~ 100'
NEAREST SURFACE WATER:
UNDOED FILLING SCORE
UNDOED TO CLOSURE STD 100 PPM TPH

SCALE



0 10 20 FEET

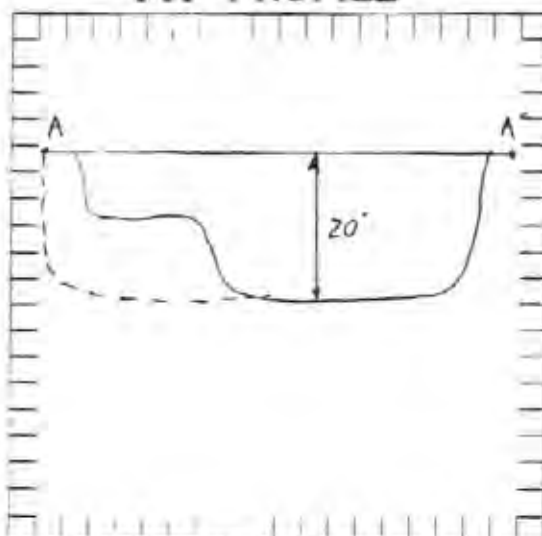
PIT PERIMETER



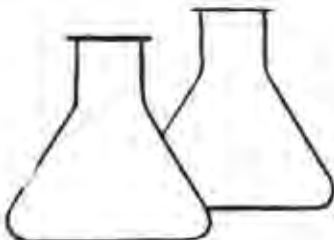
OVM RESULTS

SAMPLE ID	FIELD HEADSPACE P.D. (ppm)
① NS@15'	625
② ES@14'	598
③ SS@15'	710
④ WSS@15'	736
⑤ SES@12'	6.0
⑥ SCSE@12'	ND
⑦ SWS@12'	ND
⑧ SB@17'	3.6
⑨ CB@18'	WATER
LAB	
⑧	418.1 SOIL
⑨	BTEX WATER

PIT PROFILE



TRAVEL NOTES CALLISTO 10-20-93 1500 HRS. 1-4
10-27-93 1030 HRS. 5-9



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	8 SB @ 17'	Date Sampled:	10-27-93
Laboratory Number:	6409	Date Received:	10-27-93
Sample Matrix:	Soil	Date Analyzed:	11-02-93
Preservative:	Cool	Date Reported:	11-02-93
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter -----	Concentration (mg/kg) -----	Det. Limit (mg/kg) -----
Total Petroleum Hydrocarbons	ND	10.0

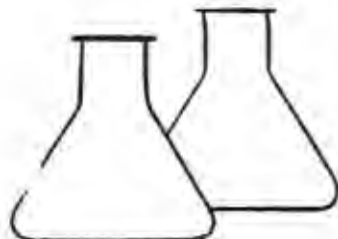
ND = Parameter not detected at the stated detection limit.
N/A = Not applicable

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

Comments: Bruington GC #1, Blow Pit, C4948.

Tony Tipton
Analyst

Married Young
Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE (505) 632-0615 • FAX: (505) 632 1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	9 CB @ 18'	Date Reported:	10-28-93
Laboratory Number:	6410	Date Sampled:	10-27-93
Sample Matrix:	Water	Date Received:	10-27-93
Preservative:	HgCl and Cool	Date Analyzed:	10-28-93
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	3,320	1.0
Toluene	3,500	2.0
Ethylbenzene	87	1.0
p,m-Xylene	2,010	1.5
o-Xylene	448	1.5

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	101 %
	Bromofluorobenzene	102 %

Method: Method 5030A, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Bruington GC #1 Blow Pit C4948

Dennis L. Jensen
Analyst

Tony Trestano
Review

CHAIN OF CUSTODY RECORD

Client/Project Name Amoco # 92140			Project Location BRUINGTON GC #1 Blow PIT		ANALYSIS/PARAMETERS C4948							
Sampler: (Signature) R. E. Ornela			Chain of Custody Tape No.		No. of Containers 418.1	BTEX						Remarks
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix								
(8) SB @ 17"	10-27-93	1125	6409	SOIL	1	✓						
(9) CB @ 18"	10-27-93	1140	6410	WATER	2		✓					
Relinquished by: (Signature) R. E. Ornela			Date 10-27-93	Time 1430	Received by: (Signature) Tony Tinian						Date 10/27/93	Time 1430
Relinquished by: (Signature)					Received by: (Signature)							
Relinquished by: (Signature)					Received by: (Signature)							

ENVIROTECH INC.

5796 U.S. Highway 64-3014
Farmington, New Mexico 87401
(505) 632-0615

Attachment 2

Envirotech Spill Clean-Up Report (1993)

ENVIROTECH Inc.

5796 US HWY. 64, FARMINGTON, NM 87401
(505) 632-0615

PIT NO. C4950

C.O.C. NO. 3146

FIELD REPORT CLOSURE VERIFICATION

JOB NO. 92140
PAGE No. 1 of 1

LOCATION: LEASE BRUNTING G.C. WELL #1 QD SW/4, NW/4 (E)
SEC 14 TWP 29 N RNG 11 W BM NM CNTY ST ST NM PIT SEP
CONTRACTOR: PAUL VELASQUEZ
EQUIPMENT USED: EXCAVATOR

DATE STARTED: 10-29-93
DATE FINISHED: 10-29-93

ENVIRONMENTAL SPECIALIST RED

SOIL REMEDIATION: QUANTITY: EXCAVATION APPROX: 65' x 75' x 8' MAX. DEPTH

DISPOSAL FACILITY: CROUCH MESA ?

LAND USE: RESIDENTIAL SOUTH / INDUSTRIAL NORTH

SURFACE CONDITIONS: EXCAVATED PRIOR TO ARRIVAL

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 160 FEET WEST FROM WELLHEAD. PIT IS EXCAVATED TO BEDROCK SANDSTONE. APPROX. 8' DEEP ON NORTH END TO APPROX. 2' DEEP ON SOUTH END. - MINOR TRACES OF CONTAMINATION IN SANDSTONE SURFACE IRRIGATION CANAL APPROX. 40' WEST OF PIT.

PIT SOILS CONSIST OF A SILTY SAND OVER SANDSTONE BEDROCK - GRAY CONTAMINATION STAIN APPARENT IN SURFACE OF SANDSTONE - DISAPPEARS SEVERAL INCHES INTO THE ROCK.

FIELD 4181 CALCULATIONS

SAMPLE ID	LAB No.	WEIGHT (g)	ML FREON	DILUTION	READING CALI	ppm

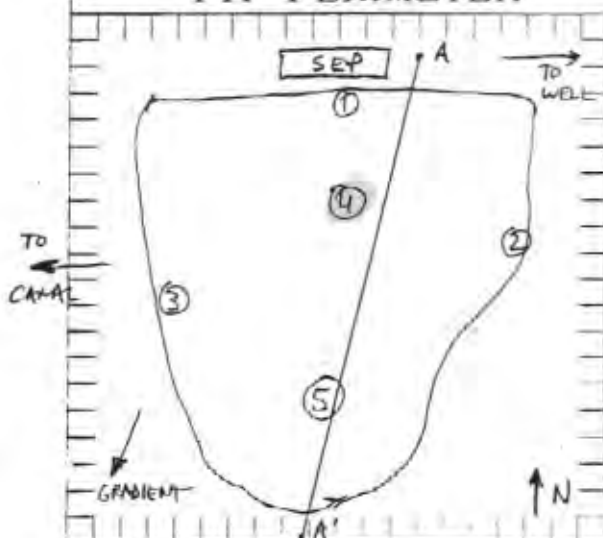
DEPTH TO GROUNDWATER: ~20'
NEAREST WATER SOURCE CANAL - 40'
NEAREST SURFACE WATER CANAL -
"MOOD RAINING DEGRE" >20
"MOOD TFM CLOSURE STD: 100 PPM TFM.

SCALE



0 10 20 FEET

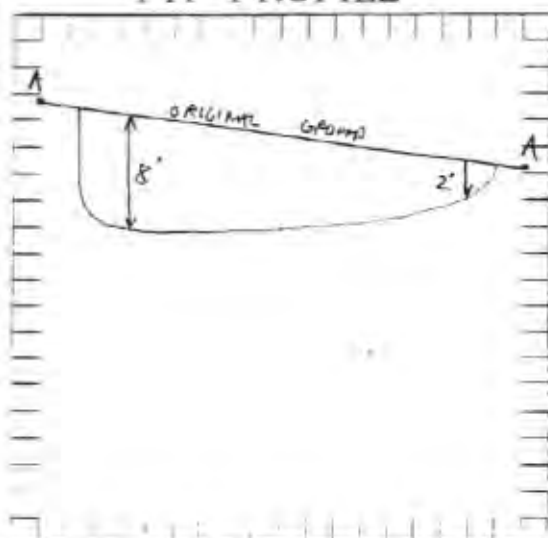
PIT PERIMETER



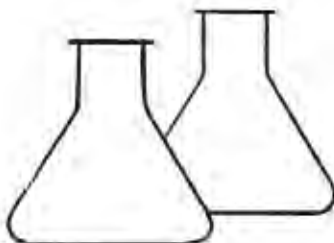
OVM RESULTS

SAMPLE ID	FIELD HEADSPACE (in)
1	NS@6' 978
2	ES@4' 1717
3	WS@3' 84
4	NB@8' 555
5	SB@4' 605
	LAB
④	418.1

PIT PROFILE



TRAVEL NOTES: PAUL U. 10-29-93 OROO ONEITE 10-29-93 ORSO



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	4 NB @ B'	Date Sampled:	10-29-93
Laboratory Number:	6417	Date Received:	10-29-93
Sample Matrix:	Soil	Date Analyzed:	11-02-93
Preservative:	Cool	Date Reported:	11-02-93
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	ND	10.0

ND = Parameter not detected at the stated detection limit.
N/A = Not applicable

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

Comments: Bruington GC #1, Sep. Pit, C4950

Tony Tistano
Analyst

Maris D. Young
Review

CHAIN OF CUSTODY RECORD

Client/Project Name AMOCO # 92140			Project Location BRUINGTON G.C. #1 SEP. PIT		ANALYSIS/PARAMETERS C4950							
Sampler: (Signature) R. E. O'Neil			Chain of Custody Tape No.		No. of Containers 418.1	✓						Remarks
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix								
(4) NB @ 8'	10-29-93	0930	6417	SOIL	1	✓						
Relinquished by: (Signature) R. E. O'Neil			Date 10-29-93	Time 1502	Received by: (Signature) Kevin L. Gorman			Date 10-29-93	Time 1502			
Relinquished by: (Signature)					Received by: (Signature)							
Relinquished by: (Signature)					Received by: (Signature)							

ENVIROTECH INC.

5796 U.S. Highway 64-3014
Farmington, New Mexico 87401
(505) 632-0615

Attachment 3

Envirotech Spill Clean-Up Report (1993)

ENVIROTECH Inc

5796 US HWY 64 FARMINGTON NM 87401
(505) 832-0615

4948

COC 3179

FIELD REPORT CLOSURE VERIFICATION

92140

LOCATION LEASE BRINGTON GAS CO. WELL #1 QD SW/4 NW/4 (E)
SEC 14 T1P 29N R1G 11W BM. NMPH CNTY ST ST. MA PIT BLOW
CONTRACT # PAUL VELASQUEZ
EQUIPMENT USED TRACK HOB

DATE STARTED 11/10/93
DATE FINISHED 11/11/93

EQUIPMENT USED Rmy

DISPOSAL FACILITY CROUCH MESA

LAND USE RESIDENTIAL/INDUSTRIAL

EXCAVATED PRIOR TO ARRIVAL

FIELD NOTES & REMARKS PIT LOCATED APPROXIMATELY 4050 YARDS S40W FROM WELLHEAD

DEPTH TO GROUNDWATER 12'-15'
NEAREST WATER SOURCE UNKNOWN
NEAREST SURFACE WATER 100' CANAL

ACCORDING TO MR. VELASQUEZ, ALL AREAS OF PIT HAVE BEEN PREVIOUSLY CLOSED WITH THE EXCEPTION OF THE 2 SANDSTONE benches and the bottom (below GROUNDWATER)

THIS PIT IS A COMBINED EXCAVATION OF BOTH THE BLOW PIT AND THE Separator Pit.

- 1 SAMPLE OF TOP 1" SANDSTONE (GRAY DISCOLORATION) (BTEX/TPH LAB)
- 2 SAMPLE OF SH/MC 1 FOOT ABOVE SANDSTONE (GRAY DISCOLORATION) (BTEX/TPH LAB)
- 3 SAMPLE OF GROUNDWATER FOR LABORATORY ANALYSIS

Recommend Conditional Closure Pending Removal of 2'-3' Contaminated Sand layer directly above Sandstone @ Sample Point 3, covering entire bench area on north side.

* Sample locations per MR. Velasquez.

Recommend Monitor Wells for Groundwater Verification.

SCALE
SURFACE FEET

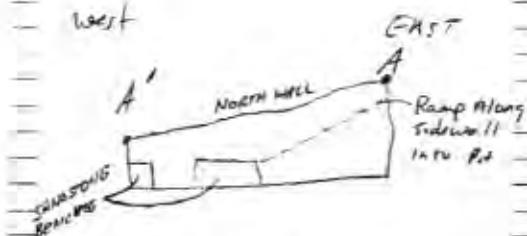
PIT PERIMETER

AREAS THAT HAVE BEEN REPORTED AS CLOSED, THEN BACKFILLED

OVM RESULTS

SAMPLE TEST RESULTS
0-10' 1.77 ppm
10-15' 1.04 ppm

PIT PROFILE



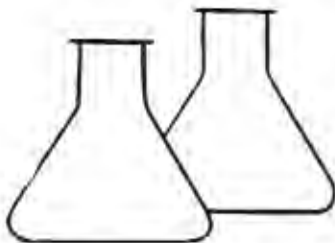
SIDEWALLS ARE SH/MC ON SANDSTONE

0'-10' Silty Sand, loose, uniform, pale yellowish brown, visible gray discoloration in east sandstone bench
10'-15'

SANDSTONE: Pale Yellow Brown, Gray on top 1'-2"

TRAVEL NOTES CALLOUT:

DISCITE



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	#1 @ 10' bgs	Date Sampled:	11-10-93
Laboratory Number:	6476	Date Received:	11-10-93
Sample Matrix:	Soil	Date Analyzed:	11-12-93
Preservative:	Cool	Date Reported:	11-12-93
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	310	10.0

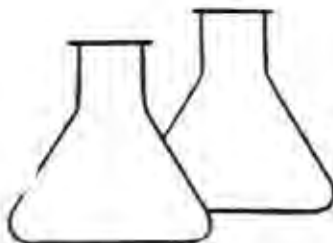
ND = Parameter not detected at the stated detection limit.
N/A = Not applicable

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

Comments: Bruington GC #1, Blow Pit, C4948

Tony Tristano
Analyst

Mavis D. Young
Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401

PHONE (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	#1 @ 10' bgs	Date Reported:	11-11-93
Laboratory Number:	6476	Date Sampled:	11-10-93
Sample Matrix:	Soil	Date Received:	11-10-93
Preservative:	Cool	Date Extracted:	11-11-93
Condition:	Cool & Intact	Date Analyzed:	11-11-93
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	192	13.2
Toluene	2,180	19.8
Ethylbenzene	2,360	13.2
p,m-Xylene	29,700	19.8
o-Xylene	14,100	19.8

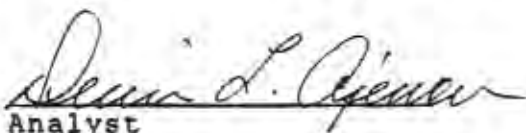
SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	101 %
	Bromofluorobenzene	102 %

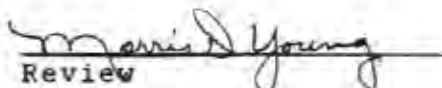
Method: Method 5030, Purge-and-Trap, Test Methods for
Evaluating Solid Waste, SW-846, USEPA, July 1992

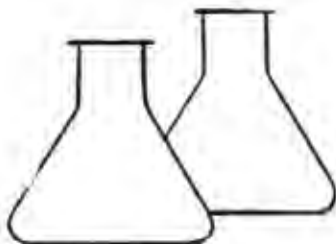
Method 8020, Aromatic Volatile Organics, Test Methods
for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

ND - Parameter not detected at the stated detection limit.

Comments: Bruington GC #1 Blow Pit C4948


Analyst


Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	#2 @ 9' bgs	Date Sampled:	11-10-93
Laboratory Number:	6477	Date Received:	11-10-93
Sample Matrix:	Soil	Date Analyzed:	11-12-93
Preservative:	Cool	Date Reported:	11-12-93
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
-----	-----	-----
Total Petroleum Hydrocarbons	358	10.0

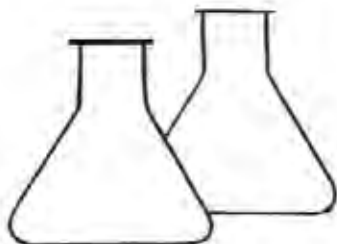
ND = Parameter not detected at the stated detection limit.
N/A = Not applicable

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

Comments: Bruington GC #1, Blow Pit, C4948

Tony Tostone
Analyst

Morris D. Young
Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	#2 @ 9' bgs	Date Reported:	11-11-93
Laboratory Number:	6477	Date Sampled:	11-10-93
Sample Matrix:	Soil	Date Received:	11-10-93
Preservative:	Cool	Date Extracted:	11-11-93
Condition:	Cool & Intact	Date Analyzed:	11-11-93
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	61	13.1
Toluene	940	19.6
Ethylbenzene	890	13.1
p,m-Xylene	5,000	19.6
o-Xylene	1,530	19.6

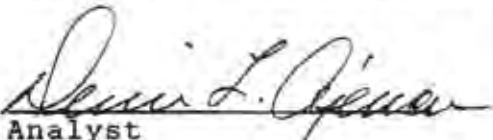
SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	98 %
	Bromofluorobenzene	101 %

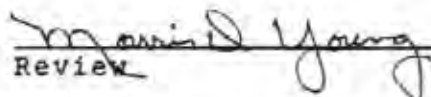
Method: Method 5030, Purge-and-Trap, Test Methods for
Evaluating Solid Waste, SW-846, USEPA, July 1992

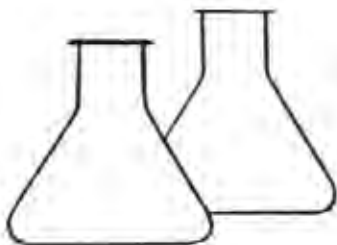
Method 8020, Aromatic Volatile Organics, Test Methods
for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

ND - Parameter not detected at the stated detection limit.

Comments: Bruington GC #1 Blow Pit C4948


Analyst


Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	Pit Water	Date Reported:	11-11-93
Laboratory Number:	6478	Date Sampled:	11-10-93
Sample Matrix:	Water	Date Received:	11-10-93
Preservative:	HgCl and Cool	Date Analyzed:	11-11-93
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	5,500	1.0
Toluene	4,380	1.5
Ethylbenzene	438	1.0
p,m-Xylene	2,660	1.5
o-Xylene	790	1.5

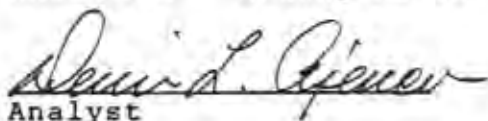
SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	100 %
	Bromofluorobenzene	102 %

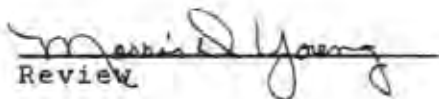
Method: Method 5030A, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Bruington GC #1 Blow Pit C4948


Analyst


Review

CHAIN OF CUSTODY RECORD

[illegible]**ENVIROTECH INC.**

5796 U.S. Highway 64-3014
Farmington, New Mexico 87401
(505) 632-0615

Attachment 4

Approved Risk Based Closure Request (1994)

DEC 21 1993

BRUINGTON GAS COM #1
Meter/Line ID - 73746

RECEIVED
JUL 2 1993

SITE DETAILS

Legals - Twn: 29

Rng: 11

Sec: 14

Unit: E

NMOCD Hazard Ranking: 20

Land Type: 4 - Fee

Operator: AMOCO PRODUCTION COMPANY

Pit Closure Date: 04/28/94

RATIONALE FOR RISK-BASED CLOSURE:

The above mentioned production pit was assessed and ranked according to the criteria in the New Mexico Conservation Division's Unlined Surface Impoundment Closure Guidelines.

The primary source, discharge to the pit, has been removed. There has been no discharge to the production pit for at least five years and the pit has been closed for at least three years.

The production pit has been remediated to the practical extent of the trackhoe or to the top of bedrock. Initial laboratory analysis has indicated that the soil remaining at the bottom of the excavation is above standards based on the hazard ranking score. Contaminated soil was removed and transported to an approved landfarm for disposal. The initial excavation was backfilled with clean soil and graded in a manner to divert precipitation away from the excavated area. Any rainfall that does infiltrate the ground surface must migrate through clean backfill before reaching any residual hydrocarbons remaining in the soil. Therefore, further mobility of residual hydrocarbons is unlikely.

Since the soil samples from the initial excavation were above standards, a test boring was drilled and a sample was collected to evaluate the vertical extent of impact to soils. Test boring sample results indicated soils below standards beneath the original excavation.

El Paso Field Services Company (EPFS) requests closure of the above mentioned production pit location for the following reasons:

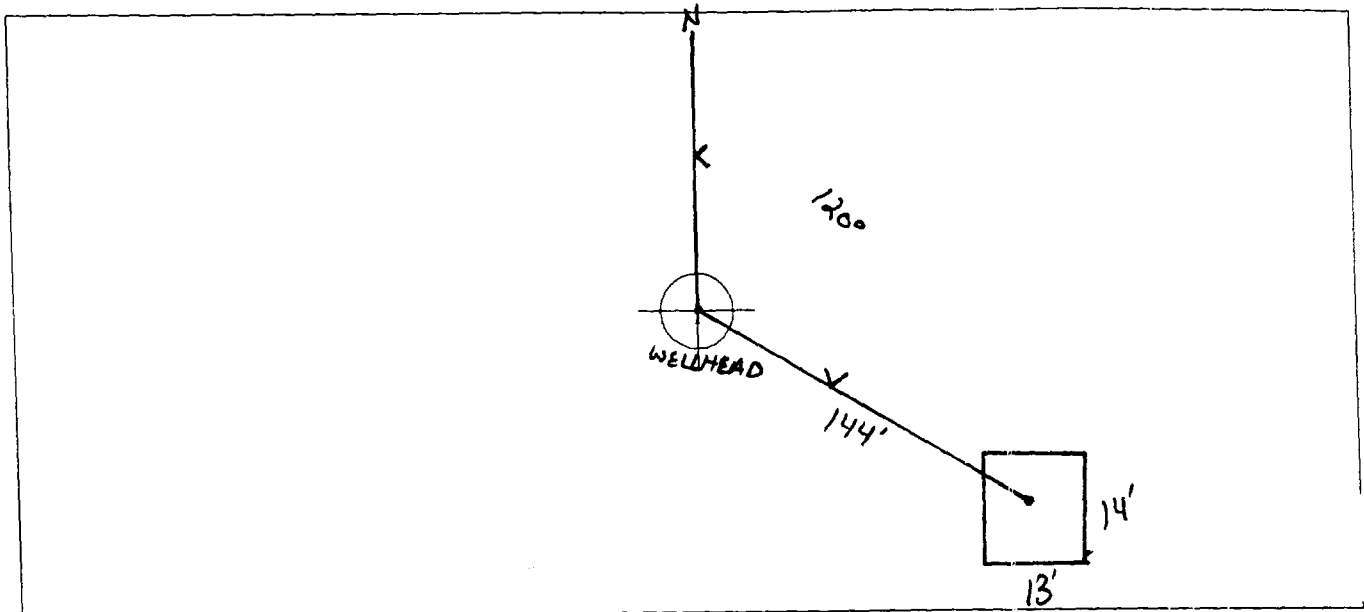
- Discharge to the pit has not occurred in over five years and the pit has been closed for over three years.
- The bulk of the impacted soil was removed during the initial excavation.
- The excavation was backfilled with clean soil and graded to divert precipitation away from the excavation area.
- All source material has been removed from the ground surface, eliminating potential direct contact with livestock and the general public.
- Groundwater was not encountered in the initial excavation or test boring; therefore, impact to groundwater is unlikely.
- Soil samples collected beneath the initial excavation were below standards.
- No potential receptors are within 1,000 feet of the site.
- Residual hydrocarbons remaining in the soil at the bottom of the initial excavation will naturally degrade in time with minimal risk to the environment.

FIELD PIT SITE ASSESSMENT FORM

GENERAL	Meter: <u>73746</u> Location: <u>BRUINGTON GAS COM #1</u> Operator #: <u>0203</u> Operator Name: <u>AMOCO</u> P/L District: <u>BLOOMFIELD</u> Coordinates: Letter: <u>E</u> Section <u>14</u> Township: <u>29</u> Range: <u>11</u> Or Latitude _____ Longitude _____ Pit Type: Dehydrator ☒ Location Drip: _____ Line Drip: _____ Other: _____ Site Visit Date: <u>4.14.94</u> Run: <u>10</u> <u>81</u>
	NMOCD Zone: Inside ☐ Land Type: BLM ☐ (From NMOCD Vulnerable State ☐ Maps) Zone ☒ Fee ☒ Outside ☐ Indian _____ Depth to Groundwater Less Than 50 Feet (20 points) ☐ 50 Ft to 99 Ft (10 points) ☒ Greater Than 100 Ft (0 points) ☐ Wellhead Protection Area : Is it less than 1000 ft from wells, springs, or other sources of fresh water extraction? , or ; Is it less than 200 ft from a private domestic water source? ☐ YES (20 points) ☒ NO (0 points) Horizontal Distance to Surface Water Body Less Than 200 Ft (20 points) ☐ 200 Ft to 1000 Ft (10 points) ☒ Greater Than 1000 Ft (0 points) ☐ Name of Surface Water Body ^{CITIZENS} IRRIGATION DITCH (Surface Water Body : Perennial Rivers, Major Wash, Streams, Creeks, Irrigation Canals, Ditches, Lakes, Ponds) TOTAL HAZARD RANKING SCORE: <u>20</u> POINTS
REMARKS	Remarks : <u>TWO PITS ON LOCATION. WILL CLOSE ONLY ONE. PIT IS DRY. LOCATION IS UP ON A HILL. LOCATED RIGHT BEHIND CONOC PLANT IN BLOOMFIELD.</u>

ORIGINAL PIT LOCATION

Original Pit : a) Degrees from North 120° Footage to Wellhead 144'
 b) Degrees from North _____ Footage to Dogleg _____
 Dogleg Name _____
 c) Length : 14' Width : 13' Depth : 1'



Remarks :

STARTED TAKING PICTURES AT 10:06 A.M.
END DUMP

Completed By:

Robert Thompson
 Signature

4.14.04
 Date

PHASE I EXCAVATION

GENERAL	Meter: <u>73746</u> Location: <u>Brewington Gas Com #1</u> Coordinates: Letter: <u>E</u> Section <u>14</u> Township: <u>29</u> Range: <u>11</u> Or Latitude _____ Longitude _____ Date Started : <u>4-28-94</u> Area: <u>10</u> Run: <u>81</u>
FIELD OBSERVATIONS	Sample Number(s): ⁹⁴⁵⁰³⁶ <u>JP5</u> Sample Depth: <u>12</u> Feet Final PID Reading <u>0410 ppm</u> PID Reading Depth <u>12</u> Feet Yes No Groundwater Encountered ☐ (1) ☒ (2) Approximate Depth _____ Feet
CLOSURE	Remediation Method : Excavation ☒ (1) Approx. Cubic Yards <u>75</u> Onsite Bioremediation ☐ (2) Backfill Pit Without Excavation ☐ (3) Soil Disposition: Envirotech ☐ (1) ☒ (3) Tierra Other Facility ☐ (2) Name: _____ Pit Closure Date: <u>4-28-94</u> Pit Closed By: <u>BFI</u>
REMARKS	Remarks : <u>Dug test hole to 10' took Initial PID reading was 210 ppm at 75'. Remediated pit to 12' took VC sample PID reading was 410 ppm at 75' pit size is 17x16x12 closed pit side walls & Floor still read Black.</u> Signature of Specialist: <u>James J Penno</u>



FIELD SERVICES LABORATORY

ANALYTICAL REPORT

PIT CLOSURE PROJECT - Soil

SAMPLE IDENTIFICATION

SAMPLE NUMBER:

Field ID

Lab ID

MTR CODE | SITE NAME:

SAMPLE DATE | TIME (Hrs):

SAMPLED BY:

DATE OF TPH EXT. | ANAL.:

DATE OF BTEX EXT. | ANAL.:

TYPE | DESCRIPTION:

N/A

REMARKS:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q	M(g)	V(ml)
BENZENE	2.6	MG/KG				
TOLUENE	59	MG/KG				
ETHYL BENZENE	8.8	MG/KG				
TOTAL XYLENES	110	MG/KG				
TOTAL BTEX	180	MG/KG				
TPH (418.1)	432	MG/KG			2.63	28
HEADSPACE PID	410	PPM				
PERCENT SOLIDS	85.5	%				

- TPH is by EPA Method 418.1 and BTEX is by EPA Method 8020 -

The Surrogate Recovery was at 81 % for this sample All QA/QC was acceptable.
Narrative:

ATI Results attached.

DF = Dilution Factor Used

Approved By:

Date:

5/21/94

```

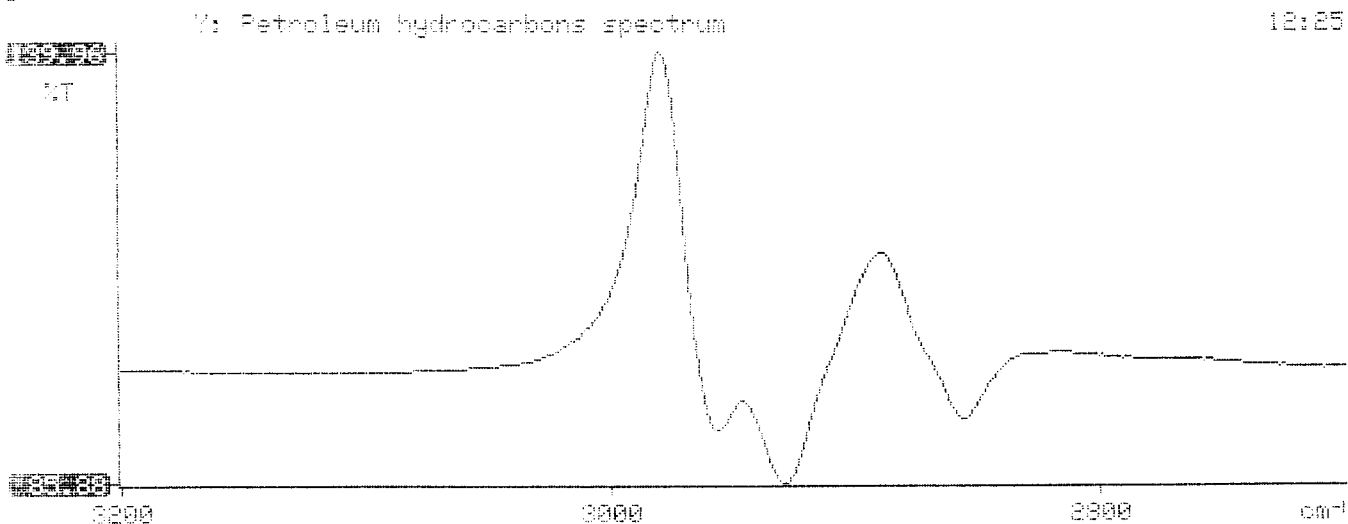
*****
Test Method for
Oil and Grease and Petroleum Hydrocarbons
in Water and Soil
*****
Perkin-Elmer Model 1600 FT-IR
Analysis Report
*****

```

```

94/05/02 12:25
Sample Identification
945036
Initial mass of sample, g
2.030
Volume of sample after extraction, ml
29.000
Petroleum hydrocarbons, ppm
432.965
Net absorbance of hydrocarbons (2930 cm-1)
0.068

```





ATI I.D. **405313**

May 13, 1994

El Paso Natural Gas Company
P.O. Box 4990
Farmington, NM 87499

Project Name/Number: PIT CLOSURE 24324

Attention: John Lambdin

On **05/03/94**, Analytical Technologies, Inc., (ADHS License No. AZ0015), received a request to analyze **non-aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

EPA Method 8015 analysis was added on 05/05/94 for sample 945008 per Stacy Sendler.

The matrix spike/spike duplicate data from the samples extracted on 05/05/94 is reported twice reflecting quantification using both the internal standard and external standard protocols. Both protocols were employed to quantify the samples submitted for this project.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Letitia Krakowski, Ph.D.
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jd

Enclosure



GAS CHROMATOGRAPHY RESULTS

TEST : BTEX, MTBE (EPA 8020)
 CLIENT : EL PASO NATURAL GAS CO. ATI I.D.: 405313
 PROJECT # : 24324
 PROJECT NAME : PIT CLOSURE

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
22	945033	NON-AQ	04/28/94	05/05/94	05/05/94	1
23	945035	NON-AQ	04/28/94	05/05/94	05/05/94	1
24	945036	NON-AQ	04/28/94	05/05/94	05/06/94	20

PARAMETER	UNITS	22	23	24
BENZENE	MG/KG	<0.025	<0.025	2.6
TOLUENE	MG/KG	<0.025	<0.025	59
ETHYLBENZENE	MG/KG	<0.025	<0.025	8.8
TOTAL XYLENES	MG/KG	<0.025	<0.025	110
METHYL-t-BUTYL ETHER	MG/KG	<0.12	<0.12	<2.4

SURROGATE:

BROMOFLUOROBENZENE (%)	91	95	81
------------------------	----	----	----



Analytical Technologies, Inc.

COPY

ORIGINAL

INVOICE

AL 72053

Albuquerque Office: 2709-D Pan American Fwy., NE
Albuquerque, NM 87107
(505) 344-3777

Remit To:
Analytical Technologies, Inc.
P. O. Box 840436
Dallas, Texas 75284-0436

Billed to: EL PASO NATURAL GAS COMPANY
P.O. BOX 4990
FARMINGTON, NM 87499
Accession No.: 9405-313
Date: 05/13/94
Client No.: 850-020
810

Attention: ACCOUNTS PAYABLE

Telephone: 505-325-2841

Authorized by: JOHN LAMBDIN

P.O. Number: 38822

Samples: 39 NON-AQ

Project: PIT CLOSURE
Project No.: 24324

EPNG SAMPLE # 945008
to
945027
945032, 945033, 945035 to 945039, 945041
to 945050, 945034 and 945040
received 05/03/94

TEST DESCRIPTION	QUANTITY	PRICE	TOTAL
EPA METHOD 8015M/8020	-10 % 1	125.00	112.50
BTEX/MTBE (8020)	-10 % 38	80.00	2736.00
NM GROSS RECEIPTS TAX	1	165.57	165.57
***** Amount due: 3014.07 *****			



5/17/94
APPROVED FOR PAYMENT

DATE 5/17/94

CHARGE 108-52452-24-0001-0012-SI-2010

SIGNATURE

David Hall
541-3531

TERMS: Net 30 Days - 1½% Finance Charge on Balance Due over 30 days.

PHASE II

RECORD OF SUBSURFACE EXPLORATION

PHILIP ENVIRONMENTAL

4000 Monroe Road

Farmington, New Mexico 87401

(505) 326-2262 FAX (505) 326-2388

Borehole # BH-1

Well #

Page 1 of 1

Project Name

EPNG PITS

Project Number

14509

Phase

6000 / 77

Project Location

Bravington Gas Com #1 73746

Elevation

Borehole Location

GWL Depth

Logged By

CM CHANCE

Drilled By

M. DONOHUE K. Padilla

Date/Time Started

6/13/95-0930

Date/Time Completed

6/13/95-1050

Well Logged By

CM Chance

Personnel On-Site

K. Padilla, F. Rivera, D. Tsalats

Contractors On-Site

Client Personnel On-Site

Drilling Method

4 1/4" ID HSA

Air Monitoring Method

PID, CGI

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM			Drilling Conditions & Blow Counts
							BZ	BH	HS	
0				Backfill to 12'						
5										
10										
15	1	15-17	6"	BLK silty CLAY, with x+ln parting, med stiff, sl moist, odor			0	26	292 298	0940 hr
20	2	20-22	6"	BLK silty SAND, vf-f sand, tr med sand med dense, sl moist, odor			3	69	28 232	0949
25	3	25-25.5	3"	lt br SANDSTONE, med sand, sl x+ln, v. hard			0	40	12	hard drilling 1007 Refusal @ 25.5'
30				TDB 25.5						
35										
40										

Comments:

25-25.5 sample sent to lab (CMC 50) (BTEX, TPH) BH grouted to surface

Geologist Signature

**FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT**

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC50	946892
MTR CODE SITE NAME:	73746	Bruington Gas Com #1
SAMPLE DATE TIME (Hrs):	6/13/95	1007
PROJECT:	PHASE II Drilling	
DATE OF TPH EXT. ANAL.:	6/15/95	6/15/95
DATE OF BTEX EXT. ANAL.:	6/16/95	6/16/95
TYPE DESCRIPTION:	VG	Light tan fine sand

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q	M(g)	V(ml)
BENZENE	<0.03	MG/KG				
TOLUENE	<0.03	MG/KG				
ETHYL BENZENE	<0.03	MG/KG				
TOTAL XYLENES	<0.03	MG/KG				
TOTAL BTEX	<0.10	MG/KG				
TPH (418.1)	23.2	MG/KG			2.00	28
HEADSPACE PID	1	PPM				
PERCENT SOLIDS	94.1	%				

-- TPH is by EPA Method 418.1 and BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 97.0 for this sample All QA/QC was acceptable.
Narrative: _____

DF = Dilution Factor Used

Approved By: _____

INGVZPIT.XLS

Date: _____

6/28/95
7/17/97



FIELD SERVICES LABORATORY

ANALYTICAL REPORT

PIT CLOSURE PROJECT - Soil Samples Inside the GWV Zone

Phase II

SAMPLE IDENTIFICATION

SAMPLE NUMBER:

Field ID

Lab ID

MTR CODE | SITE NAME:

SAMPLE DATE | TIME (Hrs):

Project SAMPLED BY:

DATE OF TPH EXT. | ANAL.:

DATE OF BTEX EXT. | ANAL.:

TYPE | DESCRIPTION:

REMARKS:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q	M(g)	V(ml)
BENZENE	<0.025	MG/KG	1			
TOLUENE	<0.025	MG/KG	1			
ETHYL BENZENE	<0.025	MG/KG	1			
TOTAL XYLENES	<0.025	MG/KG	1			
TOTAL BTEX	<0.10	MG/KG				
TPH (418.1)	23.2	MG/KG			2.0	28
HEADSPACE PID	1	PPM				
PERCENT SOLIDS	94.1	%				

-- TPH is by EPA Method 418.1 and BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 97 % for this sample All QA/QC was acceptable.
Narrative:

All Results attached.

DF = Dilution Factor Used

Approved By:

Date:

6/28/95

GAS CHROMATOGRAPHY RESULTS

TEST : BTEX (EPA 8020)
CLIENT : EL PASO NATURAL GAS CO. ATI I.D.: 506376
PROJECT # : 24324
PROJECT NAME : PIT CLOSURE/PHASE II

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	946891	NON-AQ	06/13/95	06/16/95	06/16/95	1
02	946892	NON-AQ	06/13/95	06/16/95	06/16/95	1
03	946893	NON-AQ	06/13/95	06/16/95	06/16/95	1
PARAMETER			UNITS	01	02	03
BENZENE			MG/KG	<0.025	<0.025	<0.025
TOLUENE			MG/KG	<0.025	<0.025	<0.025
ETHYLBENZENE			MG/KG	<0.025	<0.025	<0.025
TOTAL XYLENES			MG/KG	<0.025	<0.025	<0.025

SURROGATE:

BROMOFLUOROBENZENE (%) 111 97 97



ATI I.D. 506376

June 21, 1995

El Paso Natural Gas Co.
P.O. Box 4990
Farmington, NM 87499

Project Name/Number: PIT CLOSURE/PHASE II 24324

Attention: John Lambdin

On 06/16/95, Analytical Technologies, Inc., (ADHS License No. AZ0015), received a request to analyze **non-aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

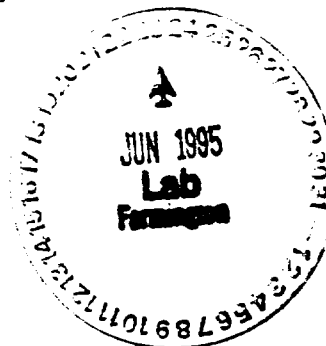
If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jt

Enclosure





Page _____ of _____

White - Testing Laboratory Canary - EPNG Lab Pink - Field Sampler

Attachment 5

LT Environmental Subsurface Investigation Report (2011)

SUBSURFACE INVESTIGATION REPORT

BRUINGTON GAS COM #1

**SECTION 14, TOWNSHIP 29 NORTH, RANGE 11 WEST
SAN JUAN COUNTY, NEW MEXICO**

APRIL 14, 2011

Prepared for:

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SUBSURFACE INVESTIGATION REPORT
BRUINGTON GAS COM #1
SECTION 14, TOWNSHIP 29 NORTH, RANGE 11 WEST
SAN JUAN COUNTY, NEW MEXICO

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EXECUTIVE SUMMARY

XTO Energy, Inc. (XTO) retained LT Environmental, Inc. (LTE) to conduct two subsurface soil investigations to define the vertical and lateral extent of petroleum hydrocarbon impacted soil and conduct groundwater monitoring activities to define the lateral extent of groundwater impacted by benzene, toluene, ethylbenzene, and total xylenes (BTEX) at the Bruington Gas Com #1 natural gas well site (Site). In addition to the soil and groundwater investigation activities, LTE reviewed four historical excavation reports, one each for the closure of a former Amoco unlined blowdown pit, a former Amoco unlined separator pit, an El Paso Field Services (EPFS) unlined production pit, and one excavation in between the former Amoco blowdown pit and the former Amoco separator pit. The excavation reports indicate impacted soil was left in place in the bottom and/or sides of the respective excavations. Groundwater monitoring wells were installed to address remaining impacts from the former Amoco pits, which is currently addressed by XTO.

A pit closure report for the former EPFS production pit was submitted to and approved by the New Mexico Oil Conservation Division (NMOCD) for risk-based closure siting presence of sandstone bedrock at 25 feet below ground surface (bgs) and no indication of groundwater above the sandstone. In May 2007, XTO installed a groundwater monitoring well adjacent to the former EPFS production pit and identified petroleum hydrocarbon impacted soil and groundwater above 25 feet bgs.

During the subsurface investigations covered by this report, LTE identified petroleum hydrocarbon impacted soil and groundwater across the Site. The concentrations of total petroleum hydrocarbons and BTEX in soil samples exceed NMOCD standards and concentrations of BTEX in five groundwater monitoring wells exceed the New Mexico Water Quality Control Commission groundwater standards. Lithology at the Site is characterized by a consolidated sand unit, which is most likely highly weathered Nacimiento Sandstone, overlain by a sandy clay to clay unit, in turn overlain by a silty sand unit. The petroleum hydrocarbon impact to soil resides primarily in the sandy clay unit with a lesser area of the underlying consolidated sand unit also being impacted by petroleum hydrocarbons. The upper silty sand is not impacted.

The petroleum hydrocarbon impact to soil and groundwater is most likely attributable to multiple sources and comingled in subsurface soil and groundwater at the Site. It can be characterized by a western source area (the former Amoco blowdown and separator pits) and an eastern source area (the former EPFS production pit).

1.0 INTRODUCTION

XTO Energy, Inc. (XTO) retained LT Environmental, Inc. (LTE) to conduct two subsurface soil investigations to define the vertical and lateral extent of petroleum hydrocarbon impacted soil and conduct groundwater monitoring activities to define the lateral extent of impacted groundwater at the Bruington Gas Com #1 well site (Site) due to historical operations. The subsurface investigation included installation of 25 Geoprobe® boreholes (B-1 through B-25) in October 2009, installation of 10 hollow stem auger boreholes (B-26 through B-35) in January 2011, and installation of one groundwater monitoring well (MW-9) in January 2011. Additionally, LTE collected soil samples for analysis of total petroleum hydrocarbons (TPH) and benzene, toluene, ethylbenzene, and total xylenes (BTEX), measured groundwater elevations in nine groundwater monitoring wells, and collected groundwater samples for analysis of BTEX.

2.0 SITE SETTING AND BACKGROUND

2.1 SITE DESCRIPTION

The Site is a natural gas well location and adjacent parcel of private property in the southwest quarter of the northwest quarter of Section 14, Township 29 North, and Range 11 West in San Juan County, New Mexico. Surface topography is a faint elongated depression gently sloped to the west toward the Citizens Irrigation Ditch, which is approximately 150 feet from the well location (Figure 1).

2.2 SITE GEOLOGY AND HYDROGEOLOGY

The Site is located in the northern San Juan Basin on the north slope of the San Juan River Valley and 0.5 miles east of Bloomfield Canyon (Figure 1). Asymmetrically layered Tertiary sandstones and shales of the Nacimiento Formation along with Quaternary alluvial deposits dominate surficial geology (Dane and Bachman, 1965). Miles of arroyos, washes, and intermittent streams exist as part of the drainage network toward the San Juan River. These features often cut into exposed surfaces of the Nacimiento Formation, contributing to sedimentation downstream. The sudden influx of water from storm events easily erodes soil that covers the area. Alluvial aquifers are prevalent in the valley fill of the San Juan River and its tributaries (Stone et al., 1983).

2.3 SITE HISTORY

The Site includes one natural gas well (Bruington Gas Com #1) and related production equipment. Amoco Production Company (Amoco) operated the well and related production equipment until December 7, 1997, at which time XTO (doing business as Cross Timbers Operating Company) began operations. Amoco operated a former unlined separator pit and a former unlined blowdown pit that were taken out of service and excavated in 1993. El Paso Field Services, LLC (EPFS) formerly operated a gas gathering system and utilized a former unlined production pit on site that was excavated in 1994. Copies of the excavation reports for the above-referenced pits are in Appendix A of this report.

2.3.1 Soil Impact

From October 20 to 27, 1993, Amoco excavated an area approximately 40 feet by 75 feet by 20 feet deep to remove petroleum hydrocarbon impacted soil adjacent to the decommissioned blowdown pit. The excavation was overseen by Envirotech, Inc. (Envirotech) of Farmington, New Mexico. The excavation report prepared by Envirotech (Appendix A) indicates the blowdown pit was located 125 feet south of the wellhead (Figure 2). Petroleum hydrocarbon impacted soil was not encountered in the excavation until 8 feet below ground surface (bgs) to 10 feet bgs, at which depth soil with dark grey to black staining and heavy petroleum odor was encountered. The impacted soil extended to the bottom of the excavation at 18 feet bgs to 20 feet bgs, at which depth sandstone bedrock was interpreted to be present. The headspace of soil samples collected from a depth of 15 feet bgs were field screened with an organic vapor meter (OVM) and contained 625 parts per million (ppm) to 736 ppm of organic vapors. One soil sample was collected from a depth of 17 feet bgs and analyzed by Envirotech Laboratories of Farmington, New Mexico (Envirotech Labs) for TPH. TPH concentrations were not detected in the soil sample above the laboratory detection limit of 10 milligrams per kilogram (mg/kg). Groundwater was encountered during the excavation at a depth of approximately 18 feet bgs and sampled for analysis of BTEX. The groundwater sample contained 3,320 micrograms per liter ($\mu\text{g/l}$) of benzene, 3,500 $\mu\text{g/l}$ of toluene, 87 $\mu\text{g/l}$ of ethylbenzene, and 2,458 $\mu\text{g/l}$ of total xylenes.

On October 22, 1993, Amoco excavated an area approximately 65 feet by 75 feet by 2 feet to 8 feet deep to remove petroleum hydrocarbon impacted soil adjacent to the former separator pit. The separator pit was removed from service and replaced by a closed loop separator. The excavation was overseen by Envirotech. The excavation report prepared by Envirotech (Appendix A) indicates the separator pit was located 160 feet west of the wellhead (Figure 2). The bottom of the excavation extended to a depth of 8 feet bgs in the north end of the excavation to 2 feet bgs in the south end of the excavation, at which depth sandstone bedrock was interpreted to be present. The headspace of soil samples from 4 feet bgs to 8 feet bgs were screened with an OVM and contained 555 ppm to 1,717 ppm of organic vapors. One soil sample was collected from a depth of 8 feet bgs and analyzed by Envirotech Labs for TPH. TPH concentrations were not detected above the detection limit of 10 mg/kg. Groundwater was not encountered during the excavation.

On November 10, 1993, Amoco excavated an area approximately 120 feet by 144 feet by 15 feet deep to remove petroleum hydrocarbon impacted soil located between the blowdown pit and separator pit excavations. The excavation was overseen by Envirotech. The excavation report prepared by Envirotech (Appendix A) indicates the center of the excavation was located 40 yards to 50 yards (120 feet to 150 feet) south 40 degrees ($^{\circ}$) west of the wellhead (Figure 2). The depth of the excavation was variable and extended to a maximum of 15 feet bgs, at which depth sandstone bedrock was interpreted to be present. The headspaces of two soil samples (9 feet bgs to 10 feet bgs) were screened with an OVM and contained 604 ppm and 677 ppm, respectively, of organic vapors. The soil samples were analyzed by Envirotech Labs for TPH and BTEX. The sample collected at 9 feet bgs contained 358 mg/kg of TPH, 0.061 mg/kg of benzene, 0.940 mg/kg of toluene, 0.890 mg/kg of ethylbenzene, and 6.53 mg/kg of total xylenes, and the sample collected at 10 feet bgs contained 310 mg/kg of TPH, 0.192 mg/kg of benzene, 2.18 mg/kg of toluene, 2.36 mg/kg of ethylbenzene, and 43.8 mg/kg of total xylenes. Groundwater was encountered during the excavation and sampled for analysis of BTEX; the depth was not noted.

The groundwater sample contained 5,500 µg/l of benzene, 4,380 µg/l of toluene, 438 µg/l of ethylbenzene, and 3,450 µg/l of total xylenes.

On April 28, 1994, a production pit owned by EPFS was removed and an unknown volume of petroleum impacted soil adjacent to the pit was excavated. The excavation report (Appendix A) is not on letterhead; therefore, it is not known what firm oversaw the excavation. The excavation report indicates there were two pits on site, however only one was closed. The EPFS production pit was located 144 feet south 120° east of the wellhead. The final excavation of the pit was approximately 17 feet by 16 feet by 12 feet deep (Figure 2), and the side walls and floor were ‘still real black’ as noted in the remarks section. One soil sample from 12 feet bgs was field screened with an OVM and contained 410 ppm of organic vapors. The soil sample was analyzed by Analytical Technologies, Inc. (ATI) for TPH and BTEX. The sample contained 433 mg/kg of TPH, 2.6 mg/kg of benzene, 59 mg/kg of toluene, 8.8 mg/kg of ethylbenzene, and 110 mg/kg of total xylenes. On June 13, 1995, Philip Environmental of Farmington, New Mexico completed one borehole to a depth of 25.5 feet bgs and submitted one soil sample from a depth of 25 feet bgs to 25.5 feet bgs to ATI for analysis of BTEX. BTEX was not detected in the sample above the laboratory detection limit of <0.025 mg/kg. The borehole log indicated black soil from approximately 15 feet bgs to 22 feet bgs. On July 2, 1998, New Mexico Oil Conservation Division (NMOCD) received the “Rationale for Risk-Based Closure” for the dehydration pit prepared by EPFS, which was approved by NMOCD on December 21, 1998.

In October 2009, LTE conducted a Geoprobe® investigation for XTO, and in January 2011, LTE conducted a supplementary soil boring investigation using a hollow stem auger with continuous core (Figure 2). Results of these two investigations are discussed in this report.

2.3.2 Groundwater Impact

In April 1996, Blagg Engineering, Inc. (Blagg) was retained by Amoco to install three groundwater monitoring wells (MW-1, MW-2, and MW-3) and monitor groundwater quality. To correct the submerged screen intervals in MW-1, MW-2, and MS-3, in June 1997, Blagg drilled MW-1A immediately adjacent to MW-1 and pulled the casings of MW-2 and MW-3 up 7.47 feet and 3.00 feet, respectively.

During the May 1998 site visit, Blagg observed the casing for monitoring well MW-1 was broken and MW-1A and MW-2 were dry. In June 1998, Blagg installed groundwater monitoring wells MW-1R and MW-2R to replace MW-1A and MW-2, respectively. In February 2001, Blagg installed groundwater monitoring wells MW-4, MW-5, and MW-6; and in July 2003, Blagg installed groundwater monitoring MW-7. MW-8 was installed by Lodestar Services, Inc. (Lodestar) in May 2007 and MW-9 was installed by LTE in January 2011.

Groundwater monitoring and sampling for BTEX has occurred at varying frequencies from quarterly to annually by Blagg, Lodestar, and LTE from April 2006 until present.

3.0 METHODS

This section provides a description of the methods that were employed to complete the LTE subsurface investigation. LTE notified New Mexico One-Call and had all underground utilities identified prior to initiating ground disturbing activities.

3.1 SOIL INVESTIGATION METHODS

LTE provided a geologist trained in conducting soil sampling and logging to oversee site investigation activities. The geologist described soil samples according to the Unified Soil Classification System and conducted field screening of organic vapors to determine which soil samples were to be submitted for laboratory analysis. Lithologic logs are presented in Appendix B.

Field screening for volatile aromatic hydrocarbons using a photoionization detector (PID) with a 10.6 electron-volt lamp was conducted on the soil sample collected from the interval immediately beneath the ground surface and every two feet thereafter in addition to any soil that was visibly stained or had a hydrocarbon odor. Field screening was conducted in accordance with the NMOCD's *Guidelines for Remediation of Leaks, Spills, and Releases*, dated August 13, 1993. Soil samples for laboratory analysis were collected from the section of core containing the highest field screening results and from the bottom of each soil boring.

To minimize loss of volatile aromatic hydrocarbons from the soil samples, the soil was firmly packed into glass soil jars supplied by the laboratory and immediately placed on ice in a cooler. The sample jars were labeled with the date and time of collection, sample identifier, project name, collector's name, and parameters to be analyzed. Strict chain-of-custody (COC) protocol was followed from sampling through shipment. The date and time sampled, sample identifier, sampler's name, required analyses, and sampler's signatures were included on the COC.

All down-hole equipment was thoroughly decontaminated on site prior to each use; decontamination water was containerized in a lined bin and collected into 55-gallon drums for disposal in an on-site below-grade tank. Impacted soil was containerized in 55-gallon drums, labeled for their contents, and disposed of at the Envirotech landfarm in Hilltop, New Mexico. Upon completion, all soil borings were filled to ground surface with grout.

3.1.1 Geoprobe® Soil Samples

October 27 and 28, 2009, LTE utilized a Geoprobe® 6620-DT track rig (Geoprobe®) to investigate the soil at 25 point locations (soil borings B-1 through B-25, Figure 2). Samples collected from these soil borings were shipped on ice via overnight courier to Hall Environmental Analytical Laboratories (HEAL) of Albuquerque, New Mexico for analysis of BTEX by United States Environmental Protection Agency (EPA) Method 8021B, and TPH by EPA Method 8015B.

3.1.2 Hollow Stem Auger Soil Samples

January 4 to 7, 2011, LTE utilized a CME-75 drilling rig equipped with hollow stem augers and a split spoon sampler to continuously core 10 soil borings (B-26 through B-35, Figure 2). Samples collected from these soil borings were shipped on ice via overnight courier to Environmental Science Corporation (ESC) Laboratories, Mt. Juliet, Tennessee for analysis of BTEX by EPA Method 8021B, and TPH-gasoline range organics (GRO) and TPH-diesel range organics (DRO) by EPA Method 8015B.

3.2 GROUNDWATER INVESTIGATION METHODS

3.2.1 Groundwater Monitoring Well Installation & Development

Soil boring B-34 was converted to a groundwater monitoring well (MW-9) with a total depth of 33 feet bgs. The well completion diagram for MW-9 is presented in Appendix B. The groundwater monitoring well was constructed of 2-inch diameter schedule 40 polyvinyl-chloride (PVC) and included 15 feet of 0.01 inch machine slotted flush-threaded PVC well screen. A clean 10-20 grade silica sand gravel pack was placed from the bottom of the soil boring to two feet above the top of the screen. Two feet of three-eighths inch bentonite chips were set above the gravel pack, followed by a neat cement slurry to the surface, containing a minimum of 5 percent powdered bentonite. On January 13, 2011, LTE gauged depth to groundwater in MW-9 and determined the well was dry.

On March 2, 2011, LTE measured the depth to groundwater in MW-9 and upon determining the well contained sufficient water, LTE developed MW-9 utilizing a clean, disposable PVC bailer to remove groundwater from the monitoring well. During well development, LTE monitored pH, electrical conductivity, and temperature until parameters stabilized and turbidity was reduced to the greatest extent possible. The monitoring well was allowed to recharge a minimum of 7 days prior to collection of groundwater samples.

3.2.2 Groundwater Sampling

Prior to sampling the groundwater monitor wells, depth to groundwater and total depth of each well was measured with a Keck[®] oil/water interface probe. No phase-separated hydrocarbons were measured in any of the groundwater monitoring wells. The interface probe was decontaminated with Alconox[®] soap and rinsed with de-ionized water prior to each measurement.

The volume of water in each groundwater monitoring well casing was calculated by subtracting the depth to groundwater from the total depth of the well and a minimum of three well casing volumes of water was purged from the well or the well was purged dry using a dedicated disposable polyethylene bailer. As water was purged from the groundwater monitoring well, pH, electric conductivity, and temperature were monitored until these parameters stabilized, indicating that the water was representative of aquifer conditions. Stabilization was defined as three consecutive stable readings for each water parameter (± 0.4 units for pH, ± 10 percent for electric conductivity, and $\pm 2^\circ$ Celsius for temperature). The field parameters were recorded on Sampling Purge Logs, which are provided in Appendix C. All purge water was disposed of into the on-site below-grade tank.

Once each groundwater monitoring well was purged, groundwater samples for BTEX analysis were collected by filling three 40-milliliter (ml) glass vials. The pre-cleaned, non-preserved vials were filled and capped with zero headspace to prevent loss of volatiles and immediately placed on ice in a cooler. The sample vials were labeled with the date and time of collection, sample identifier, project name, collector's name, preservative, and parameters to be analyzed. Strict COC protocol was followed from sampling through shipment. The date and time sampled, sample identifier, sampler's name, preservative used, required analyses, and sampler's signature was included on the COC.

On January 13, 2011, LTE measured depth to groundwater in nine groundwater monitoring wells (MW-1 through MW-9) and collected groundwater samples from all monitoring wells except MW-9, which was dry. Samples were shipped in a cooler on ice via overnight courier to ESC Laboratories in Mt. Juliet, Tennessee for analysis of BTEX by EPA Method 8021B.

On March 2, 2011, LTE measured depth to groundwater in all groundwater monitoring wells and utilized the data to calculate groundwater elevations and prepare a potentiometric surface map for the Site. LTE determined there was sufficient water to sample MW-9.

On March 10, 2011, LTE measured depth to groundwater and collected a groundwater sample from MW-9. Samples were shipped in a cooler on ice via overnight courier to ESC Laboratories in Mt. Juliet, Tennessee for analysis of BTEX by EPA Method 8021B.

4.0 RESULTS

4.1 SOIL

4.1.1 Lithology

The deepest lithologic unit encountered at the Site is a consolidated sand unit, which appears to have a variable topography, forming a large, elongated depression aligned northeast/southwest with steep sides on the north, east, and south (Figure 3). The consolidated sand unit was shallowest in soil boring B-29 (3.5 feet bgs) and deepest in soil boring B-12 (31.5 feet bgs); this unit occasionally contains lenses of silty sand or sandy silt. A smaller and shallower secondary depression in the consolidated sand unit is present in the eastern part of the Site, near the former unlined EPFS pit, separated from the primary axis of the depression by a small lithologic rise in the consolidated sand unit near monitoring well MW-7. To the south of the smaller depression, a plateau in the consolidated sand unit is interpreted to be present. The thickness of the consolidated sand unit is not known; that determination was beyond the scope of this investigation. This consolidated sand unit was interpreted as bedrock during the 1993 and 1994 excavations at the Site and is most likely a highly weathered Naciminto sandstone. It was penetrated less than one foot deep by the Geoprobe[®] equipment during the October 2009 investigation, but additional penetration and sampling was possible utilizing the hollow stem auger and continuous core sampling during the January 2011 investigation. Samples collected from the continuous core indicate the sand is impacted in some areas.

The central portion of the depression in the consolidated sand has been filled with a sandy clay to clay unit, which is interbedded with unconsolidated well sorted sand and/or sandy silt along the

northern and southern flanks. The sandy clay to clay unit is encountered at depths varying from 10.25 feet bgs to 23 feet bgs. This unit ranges in thickness from 0.5 feet to 20.75 feet; it is thickest in the depressions and is pinched out where the consolidated sand unit rises in elevation.

A silty sand unit overlies the sandy clay, sandy silt, and unconsolidated sand units and is present to ground surface. The silty sand unit ranges in thickness from 0.5 feet to 20.75 feet. Cross sections through the Site have been prepared to depict the lithology and contaminant distribution in the soil (Figures 4, 5, 6, and 7).

4.1.2 Field Screening Results

Field screening results indicate organic vapors greater than 50 ppm as measured on the PID are first encountered in soil borings at a depth ranging from 10 feet bgs in B-6, B-13, and B-25 to 17 feet bgs in B-24; and extend to depths ranging from 12 feet bgs in B-13 to 28.5 feet bgs in B-32. The highest PID concentrations were encountered at a depth of 16 feet bgs to 17 feet bgs in B-19 (3,444 ppm), which is adjacent to and below the total depth of the former EPFS production pit excavation and at a depth of 17 feet bgs in B-24 (3,060 ppm), which is northwest of the former Amoco blowdown pit excavation. Soil less than 10 feet bgs does not contain any detectable organic vapors as measured by the PID except for B-6 (1,402 ppm at 10 feet bgs) and B-25 (250 ppm at 10 feet bgs); all field screening results are shown in the lithologic logs in Appendix B.

4.1.3 Soil Sampling Results

Soil sample analytical results exceed the NMOCD standards for TPH, benzene, and/or total BTEX in the area of the former Amoco blowdown pit, the former EPFS production pit, and the north end of the well location. Soil samples near the former Amoco separator pit do not exceed NMOCD standards. The soil sample from soil boring B-34, at the north end of the well location, exceeds the NMOCD standard for TPH, but associated staining was only a ¼-inch thick in the continuous core. This soil sample is likely unrelated to the former pits. Table 1 and Figure 8 summarize the soil sample laboratory analytical results and copies of the laboratory analytical reports are presented in Appendix D.

The NMOCD standard of 10 mg/kg for benzene was exceeded in three soil samples located near the former Amoco blowdown pit excavation, collected at depths ranging from 12 feet bgs to 22 feet bgs. The concentration of benzene in these three soil samples ranged from 12 mg/kg to 48 mg/kg.

The NMOCD standard of 50 mg/kg for total BTEX was exceeded in nine soil samples: five soil samples collected west of the former Amoco blowdown pit excavation, one sample collected immediately east of the former Amoco blowdown pit excavation, two soil samples collected between the former Amoco blowdown pit excavation and the former EPFS production pit excavations, and one soil sample collected east of the former EPFS production pit excavation. The concentration of total BTEX in these soil samples ranged from 77.7 mg/kg to 80.2 mg/kg in B-7 to 768.6 mg/kg in B-14. The soil sample from B-14 was collected from a depth of 13 feet bgs, the other eight soil samples were collected at depths ranging from 16 feet bgs to 22 feet bgs.

The NMOCD standard of 100 mg/kg for TPH was exceeded in 12 soil samples: seven soil samples collected from west, north, and east of the former Amoco blowdown pit excavation, four

soil samples collected between the former Amoco blowdown pit and former EPFS production pit excavations, and one soil sample collected east of the former EPFS production pit excavation. The concentration of TPH in these soil samples ranged from 193 mg/kg in B-18 to 6,700 mg/kg in B-14. One soil sample (B-14) was collected at a depth of 13 feet bgs, the other eleven were collected at depths ranging from 16 feet bgs to 24 feet bgs.

4.2 GROUNDWATER

Groundwater elevations ranged from 5,552.80 feet above mean sea level (amsl) in MW-4 to 5,555.80 feet amsl in MW-9 on March 2, 2011 (Table 2). Groundwater flow direction on March 2, 2011 was generally to the south and west, toward the irrigation ditch (Figure 9) except between MW-6 and MW-7, where a groundwater divide is present. The groundwater near and west of MW-6 was flowing to the west and the groundwater in the vicinity of MW-7 was flowing to the east.

Groundwater analytical results from the January 14, 2011, and March 10, 2011 sampling events indicate MW-1R, MW-3R, MW-4, and MW-9 do not contain detectable concentrations of any BTEX parameter. Concentrations of benzene in MW-5 exceed the New Mexico Water Quality Control Commission (NMWQCC) groundwater standards for benzene and total xylenes. Concentrations of benzene, toluene, and total xylenes in MW-7 and MW-8 exceed the NMWQCC groundwater standard for benzene, toluene, and total xylenes; and concentrations of all BTEX compounds exceed the NMWQCC groundwater standard in MW-2 and MW-6. Figure 9 depicts the groundwater analytical results from the January 14 and March 10, 2011 sampling events and Table 3 summarizes the historical groundwater analytical results. The groundwater laboratory analytical reports can be found in Appendix E.

5.0 DATA INTERPRETATION

5.1 LOCAL GEOLOGY AND HYDROLOGY

The material encountered below the Site was deposited in a floodplain, fluvial, or lacustrine setting and a paleochannel was carved beneath the Site that eventually filled with fine-grained material that settled out as the topography flattened and water and debris flow was slowed. This is the zone containing shallow groundwater.

Cross-section C-C' has a lense of sandy silt within the consolidated sand and cross-section B-B' has a lense of silty sand within the consolidated sand which indicate that the consolidated sand unit is not homogeneous and implies water and contamination may penetrate more readily. On cross-section C-C', the shape of the impacted area mirrors the channel shape above it, implying this area is a low point for water collection and has been eroded over time and to become less resistant to erosion than the surrounding consolidated sand, therefore allowing the vertical migration of water and contamination.

It does appear that the contamination migrated vertically from the source areas through the silty sand to the groundwater, which appears to occur primarily atop the consolidated sand with some interconnection in less resistant/less consolidated areas of the consolidated sand unit. The impact to the east on cross-section A-A' appears to be from the former EPFS production pit and the

impact to the west appears to be from the former Amoco blowdown pit and former Amoco separator pit with some commingling. The impact appears to migrate within water to the southwest within the paleochannel atop the consolidated sand with limited vertical migration when the water table fluctuates.

Groundwater elevation along the southwestern and central portion of the Site is highly influenced by the presence of water in the irrigation ditch through seasonal wetting and drying cycles. Hysteresis in the hydrology of the Site likely causes the spring wetting cycle (March thru June) to be of shorter duration when compared to the winter drying cycle (September through March). Observed groundwater elevation fluctuations in groundwater monitoring well MW-1R have been greater than 9 feet during a 3-month wetting cycle in 2007 and have been over 8 feet during a 6-month drying cycle in 2009-2010 (Table 2). Groundwater monitoring well MW-4 exhibits similar trends. The large variability in groundwater elevation attributable to the presence of water in the ditch is lessened as the groundwater table progresses east across the Site and does not appear to be observed in groundwater monitoring wells east of MW-6. The lithologic rise in the consolidated sand unit just west of groundwater monitoring well MW-7 appears to contribute to this lessening effect. The groundwater elevation in groundwater monitoring wells MW-7 and MW-8 does not appear to be influenced by the presence of water in the ditch; observed groundwater elevation fluctuations in MW-7 and MW-8 average 2 feet to 3 feet seasonally.

Groundwater flow direction is highly variable at the Site due to the presence or absence of water in the irrigation ditch and resulting wetting and drying cycles. During wetting cycles, groundwater flow is to the east/northeast, away from the irrigation ditch; however, once the drying cycle begins, groundwater flow direction slowly migrates toward the west/southwest, toward the irrigation ditch.

The petroleum hydrocarbon impact in the consolidated sand unit is likely attributed to period(s) of low groundwater elevation in which petroleum hydrocarbon impacted groundwater migrated into the underlying consolidated sand and remained in the groundwater smear zone.

5.2 SOIL IMPACT

Impacted soil is primarily within the sandy clay unit, although impacted soil extends into the consolidated sand unit in soil borings B-28, B32, and B33. This coincides with thinning or absence of the sandy clay unit where the consolidated sand unit rises in elevation. It is not known how far to the south and southeast, in the vicinity of soil boring B-6 and B-7, the petroleum hydrocarbon impact in the consolidated sand unit extends since soil borings B-6, B-7, B-8, and B-25 did not penetrate the consolidated sand unit. Potential impact east of the former EPFS production pit is also not fully defined. In the vicinity of monitoring well MW-8, and soil borings B-18 and B-19, near the former EPFS production pit where the shallower depression is located, the soil impact is primarily within the sandy clay unit that fills the shallower depression. This trend is also observed in the larger depression near soil borings B-10, and B-12, where the sandy clay unit is impacted by petroleum hydrocarbons. The elevation of the top of petroleum hydrocarbon impacted soil is depicted in Figure 10.

The TPH impact in the consolidated sand unit (B-28 and B-32) is comprised primarily of the DRO fraction (80-90% DRO); whereas the TPH impact in the sandy clay unit (B-6, B-7, B-10,

B-11, B-12, B-14, B-18, B-19, and B-24) is comprised primarily of the GRO fraction (70-95% GRO). This may be a result of the higher clay content of the sandy clay unit and the GRO fraction preferentially adsorbing to the finer grained sediments, or it may be a result of the GRO fraction being more volatilized during the blowdown process, resulting in a higher fraction of DRO impact to soil in this area.

The lateral extent of soil impacted by petroleum hydrocarbons in excess of the NMOCD standards is limited to the central portion of the Site in a general east to west alignment following the trend of the two consolidated sand depressions. Soil impact is defined in soil borings to the north by B-27 and B-29, to the east by B-21 and B-22, to the south by B-5 and B-3 and to the west by B-2, B-9, and B-26, yet remains undefined to the southeast (southeast of B-8 and B-25) and east (east of MW-8).

The vertical extent of petroleum hydrocarbon impacted soil in the sandy clay unit is approximately 24 feet bgs in the west as observed in soil boring B-10, and approximately 17 feet bgs in the east as observed in soil boring B-17. The vertical extent of petroleum hydrocarbon impacted soil in the consolidated sand is deepest in soil boring B-32, extending to 30 feet bgs. The thickest section of impacted soil occurs near soil boring/monitoring well B-12/MW-6, where impacted soil is approximately 16 feet thick. Based on this distribution, an estimated total of approximately 13,000 cubic yards of soil are impacted by BTEX and/or TPH above the NMOCD standards at the Site.

5.3 GROUNDWATER IMPACT

Groundwater monitoring wells MW-1R, MW-3R, MW-4, and MW-9 do not have concentrations of benzene, toluene, ethylbenzene, or total xylenes exceeding the NMWQCC groundwater standards. Groundwater is impacted by benzene, toluene, ethylbenzene, or total xylenes above the NMWQCC groundwater standards in groundwater monitoring wells MW-2R, MW-5, MW-6, MW-7, and MW-8. The BTEX concentrations in MW-7 are historically less than either MW-8 or MW-6; indicating there may be two separate sources that have comingled in this area (Figure 11).

The western groundwater plume is likely derived from petroleum hydrocarbon impacted soil left in place after excavation of the former Amoco blowdown pit. The eastern groundwater plume appears to be sourced from petroleum hydrocarbon impacted soil left in place after excavation of the former EPFS production pit. The extent of the groundwater contaminant plume is defined to the north by MW-9, to the west by MW-1R and MW-4, and to the south by MW-3R, and to the west by MW-1R and MW-4; however the groundwater contaminant plume is not defined to the southeast, east, and northeast.

6.0 SUMMARY AND CONCLUSIONS

Soil at the Site has been impacted by historical releases of petroleum hydrocarbons from three known sources (former Amoco blowdown pit, former Amoco separator pit, and former EPFS production pit). The petroleum hydrocarbon impact attributable to these multiple sources is comingled in subsurface soil and groundwater at the Site and can be loosely characterized by a

western source area (the former Amoco blowdown pit, and former Amoco separator pit) and an eastern source area (the former EPFS production pit).

Petroleum hydrocarbon impact to soil resides primarily in the sandy clay unit with a lesser area of the underlying consolidated sand unit also being impacted by petroleum hydrocarbons. The upper silty sand is not impacted by petroleum hydrocarbons. Petroleum hydrocarbon impact to soil is encountered at the shallowest depth of 10 feet bgs and extends to a maximum depth of 27 feet bgs. The lateral extent of petroleum hydrocarbon impact to soil extends at least 300 feet from east to west (the eastern extent is not completely defined) and approximately 150 feet from north to south. Based on this distribution, an estimated total volume of 13,000 cubic yards of impacted soil exists in the subsurface.

Groundwater flow direction and elevation fluctuation at the Site appear to be in response to the presence of water in the nearby irrigation ditch. This influence is reduced farther away from the ditch. When water is present in the ditch, groundwater flow is east/northeast away from the ditch; this trend reverses during the drying cycle when water flow ceases in the ditch and groundwater flow gradually returns west/southwest toward the ditch.

Groundwater has been impacted by BTEX concentrations in excess of the NMWQCC groundwater standards in monitoring wells MW-2R, MW-5, MW-6, MW-7, and MW-8; BTEX in groundwater in monitoring wells MW-1R, MW-3R, MW-4, and MW-9 remain below the NMWQCC standards. BTEX concentrations in MW-7 remain consistently lower than adjacent MW-8 and MW-6, indicating there are likely two separate groundwater plumes that have comingled. BTEX impact in groundwater is defined to the north, south, and west; yet remain undefined to the east.

7.0 LIMITATIONS

No investigation is infallible. Some uncertainty will always exist concerning the presence or absence of potential contaminants at a particular property, irrespective of the rigor of the investigation. Accordingly, LTE does not warrant that contaminants, other than those identified in this report, do not exist at the subject property or may not exist there in the future.

LTE believes that it has performed the services summarized in this report in a manner consistent with the level of care and skill ordinarily exercised by members of the environmental profession practicing at the same time and under similar conditions in the area of the project.

8.0 REFERENCES

Brister, B.S. and Hoffman, G.K., 2002, *Fundamental Geology of San Juan Basin Energy Resources*, in *New Mexico's Energy, Present and Future: Policy, Production, Economics, and the Environment* edited by B.S. Brister and L.G. Price. New Mexico Bureau of Geology and Mineral Resources.

Stone, W.J., Lyford, F. P., Frenzel, P.F., Mizell, N.H. and Padgett, E.T., 1983, *Hydrogeology and water resources of the San Juan Basin, New Mexico*, HR-6 New Mexico Bureau of Geology and Mineral Resources Hydrology Report 6.

FIGURES

TABLES

APPENDIX A
HISTORICAL EXCAVATION REPORTS



APPENDIX B
LITHOLOGIC LOGS AND WELL COMPLETION DIAGRAMS



APPENDIX C
GROUNDWATER SAMPLING PURGE LOGS



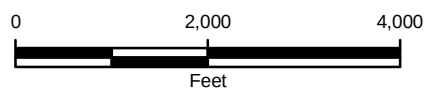
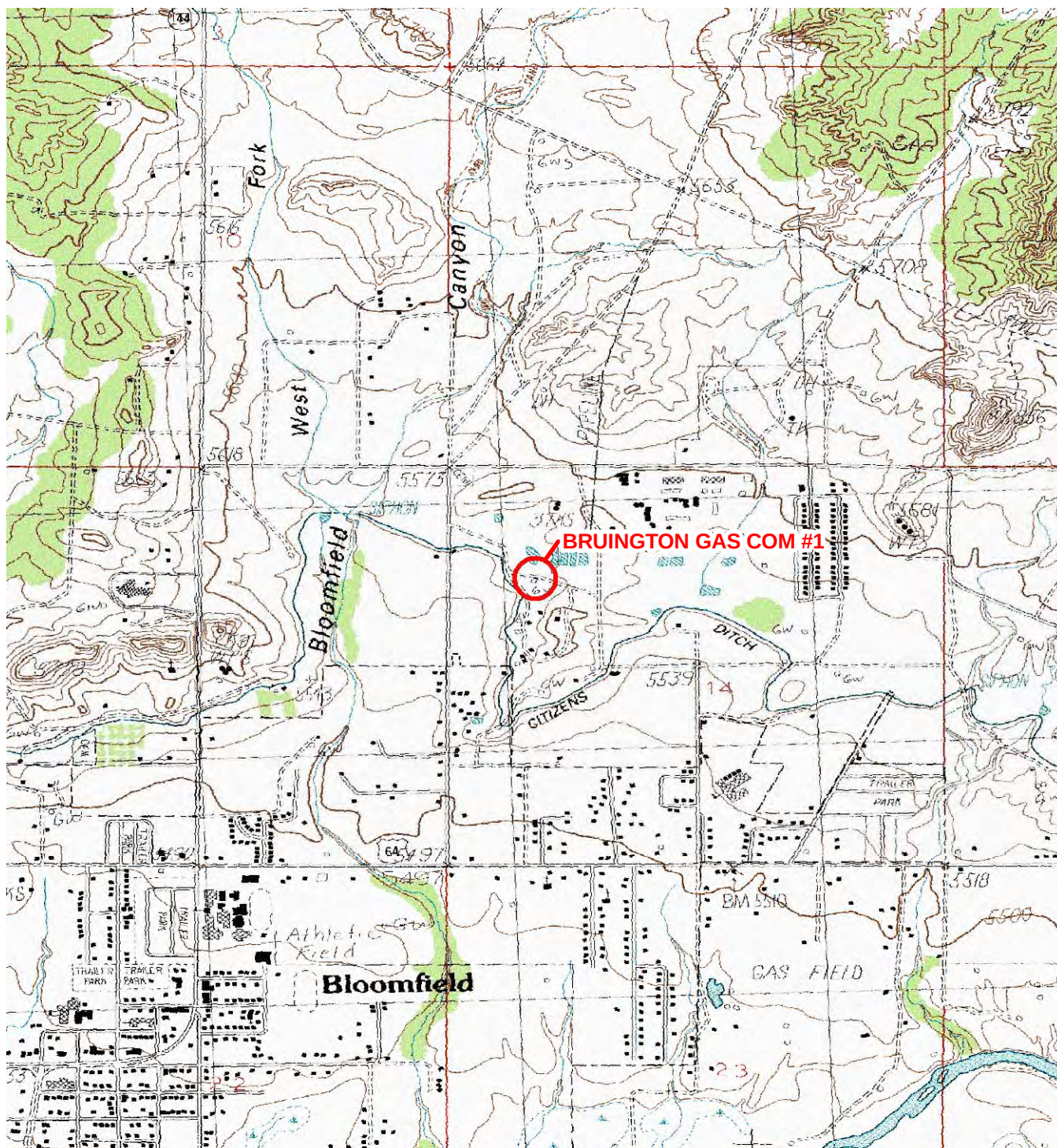
APPENDIX D
SOIL LABORATORY ANALYTICAL REPORTS



APPENDIX E
GROUNDWATER LABORATORY ANALYTICAL REPORTS



FIGURES

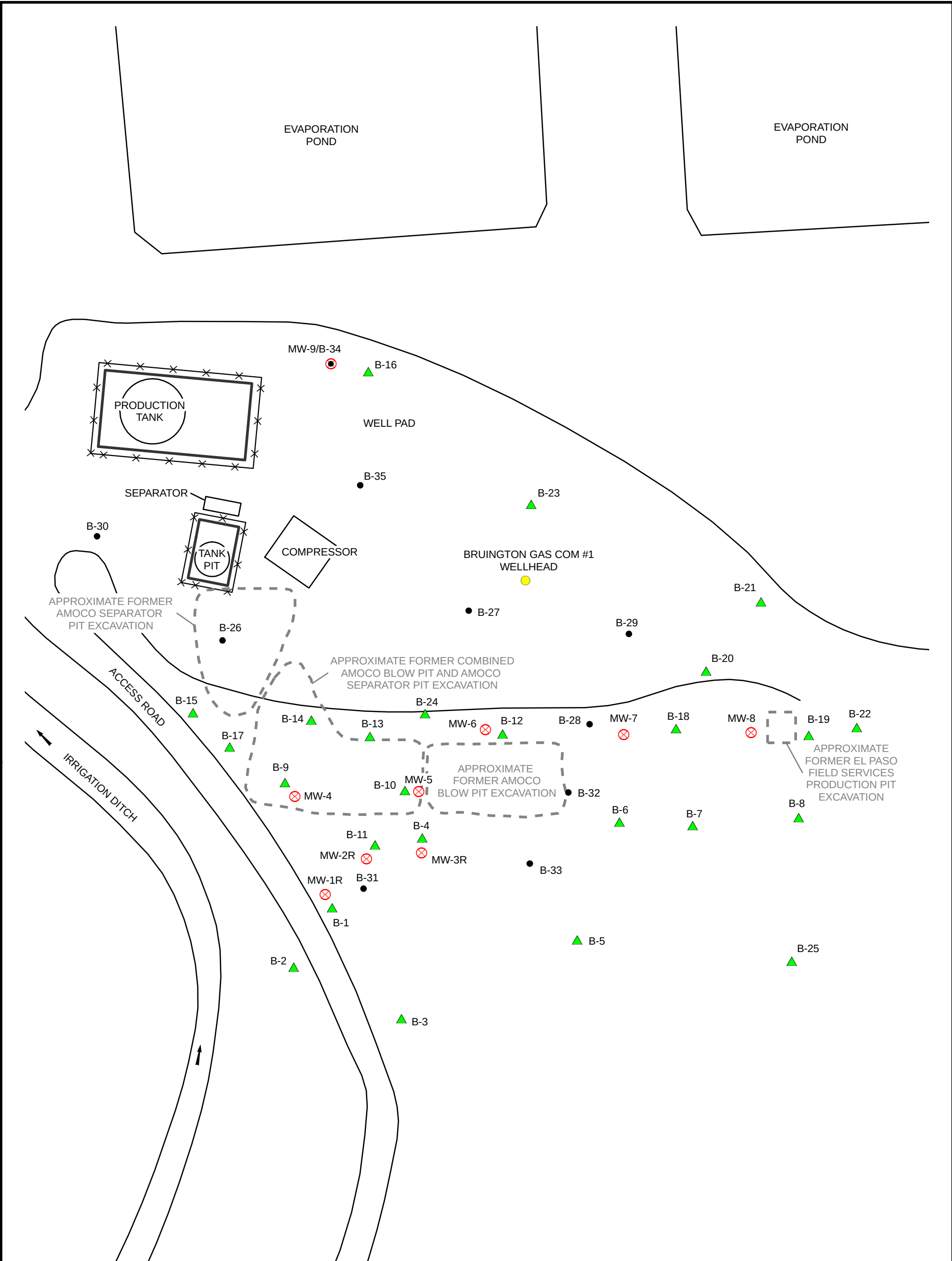


LEGEND



FIGURE 1
SITE LOCATION MAP
BRUINGTON GAS COM #1
SWNW SEC 14 T29N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.





LEGEND

- WELLHEAD
- MONITORING WELL
- MONITORING WELL/HOLLOWSTEM BOREHOLE (JANUARY 2011)
- HOLLOWSTEM BOREHOLE (JANUARY 2011)
- GEOPROBE BOREHOLE (OCTOBER 2009)
- DITCH FLOW DIRECTION
- FORMER PIT
- BERM
- FENCE

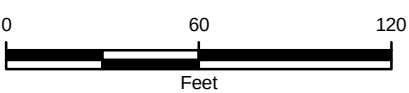
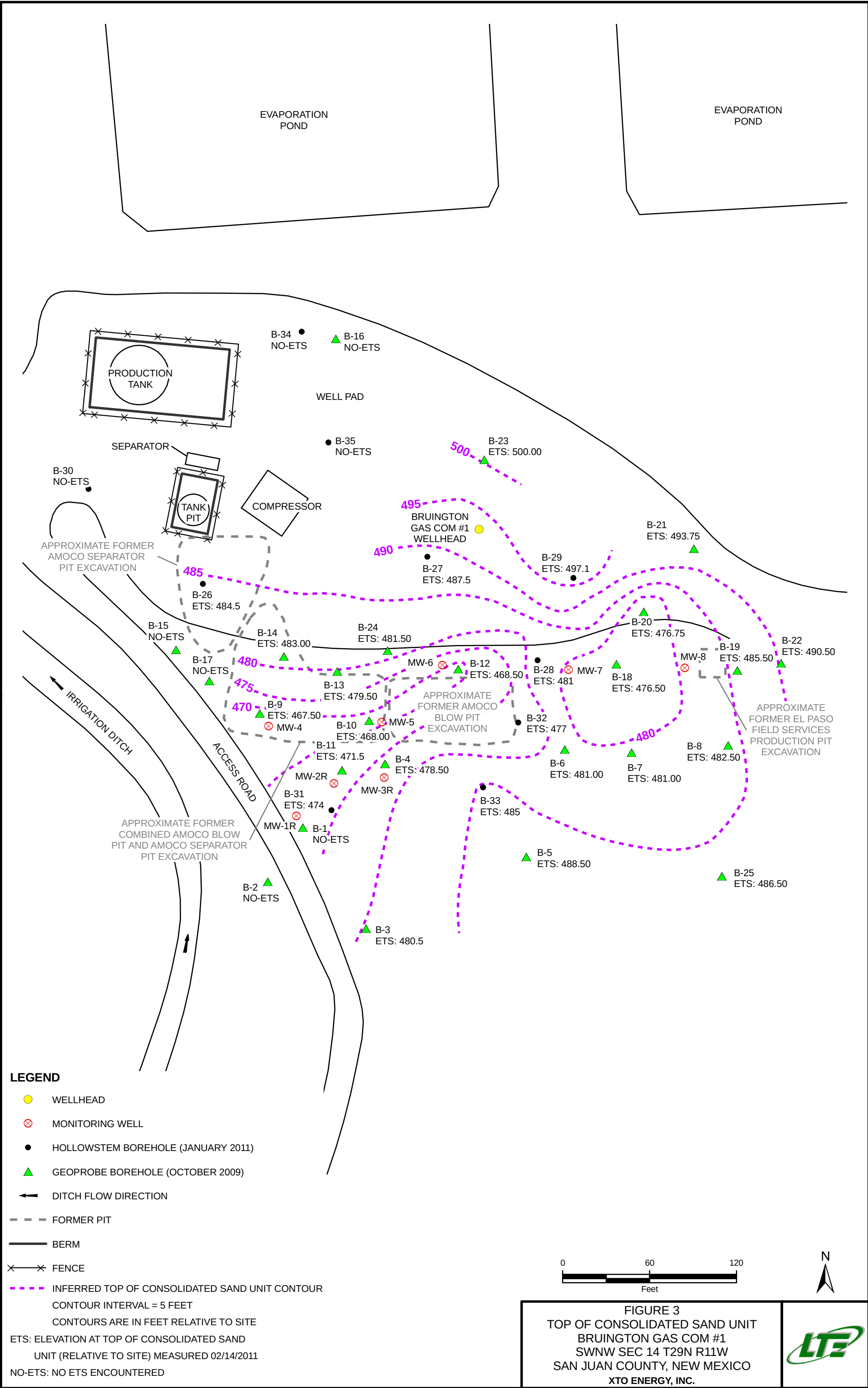
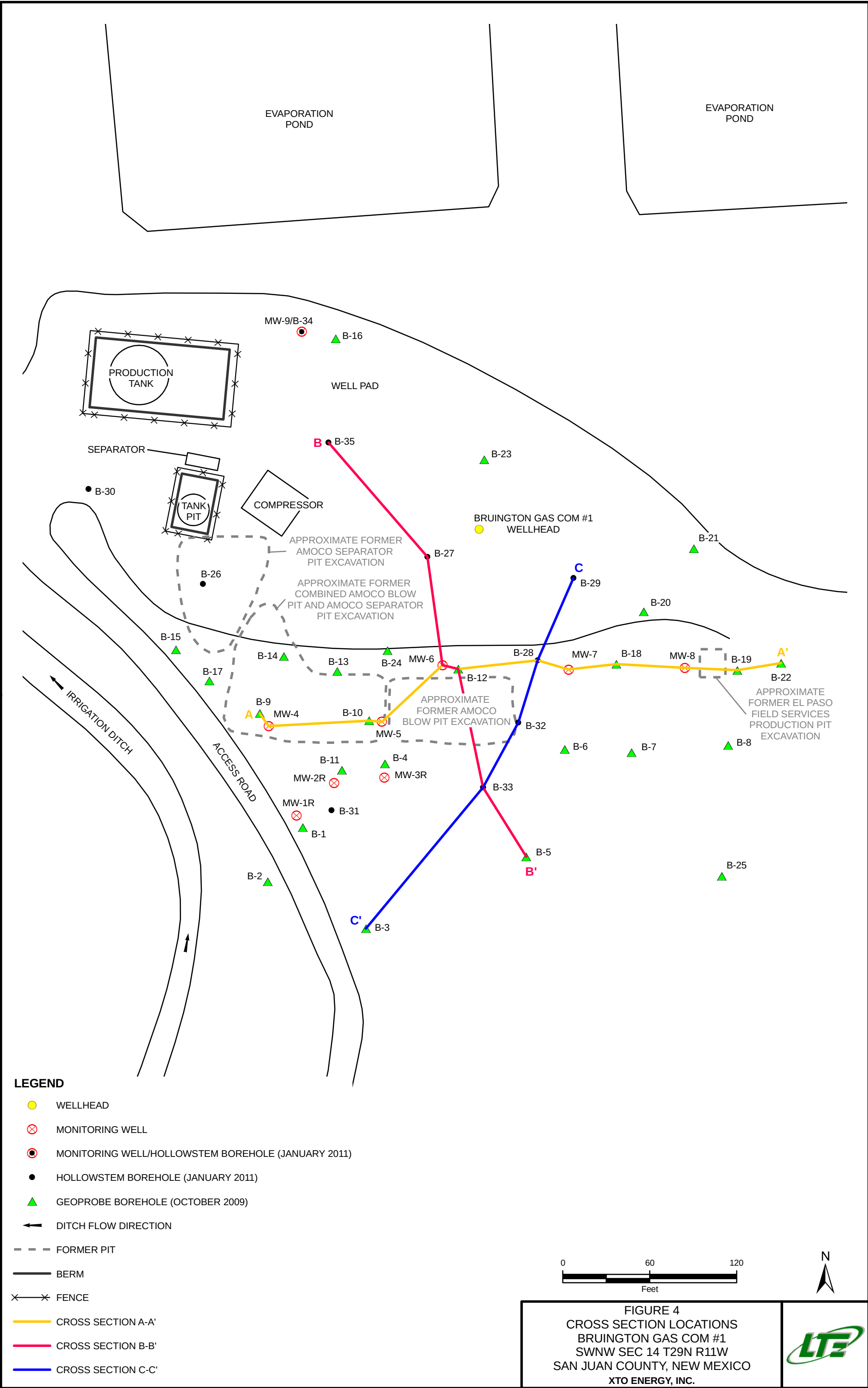
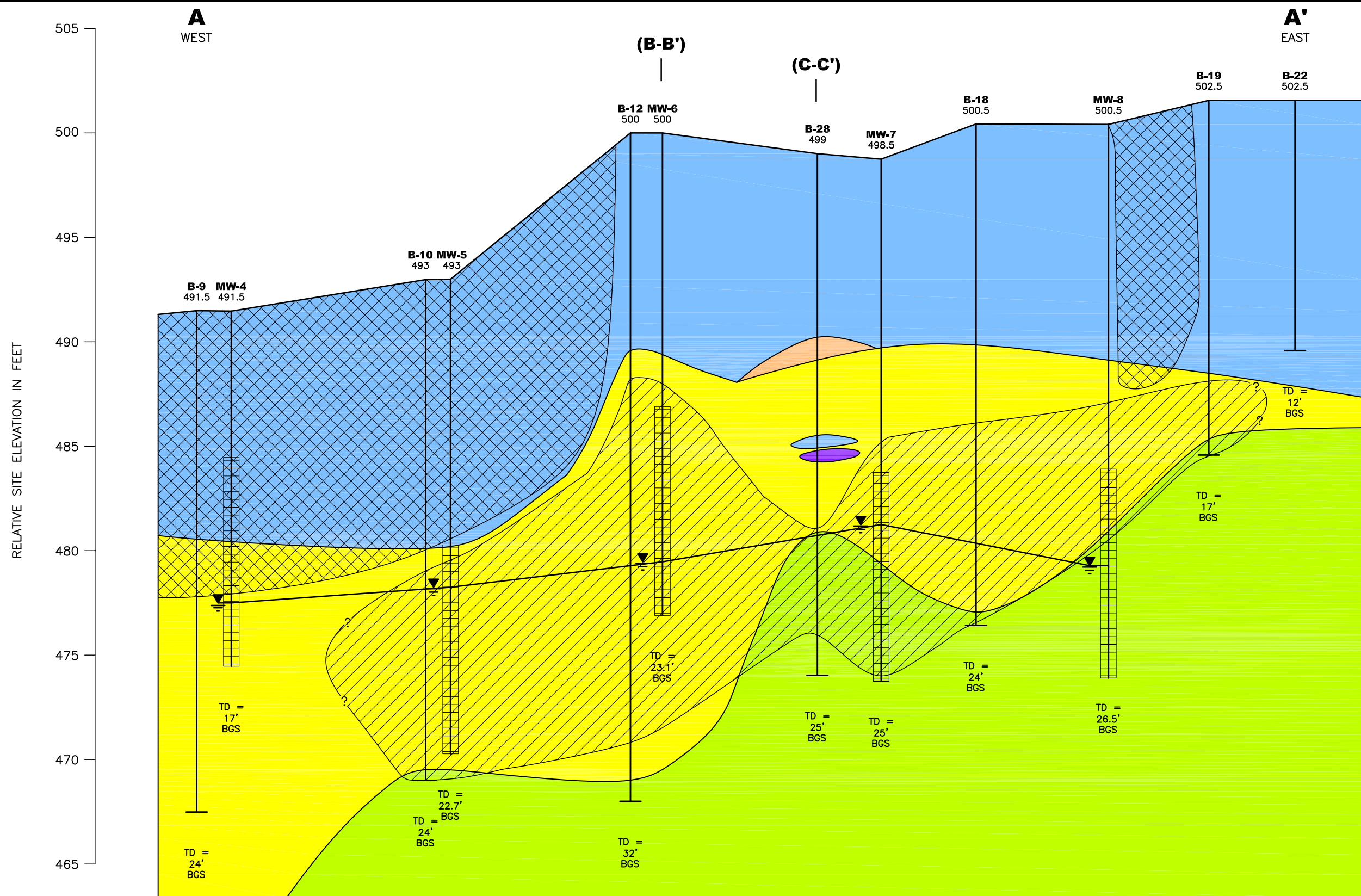


FIGURE 2
SITE MAP
BRUINGTON GAS COM #1
SWNW SEC 14 T29N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.









LEGEND

- APPROXIMATE FORMER EXCAVATION
- SILTY SAND
- SANDY SILT
- SANDY CLAY/CLAYEY SAND

- CONSOLIDATED SAND
- PETROLEUM HYDROCARBON IMPACTED SOIL
- UNCONSOLIDATED SAND

- BGS BELOW GROUND SURFACE
- GROUND SURFACE
- BOREHOLE
- MONITOR WELL SCREENED INTERVAL

- TD TOTAL DEPTH IN FEET BGS
- APPROXIMATE GROUNDWATER ELEVATION ON MARCH 2, 2011 SAMPLE EVENT
- (B-B') DENOTES INTERSECTION WITH GEOLOGIC CROSS SECTION B-B'

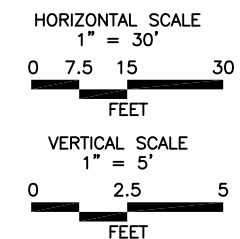
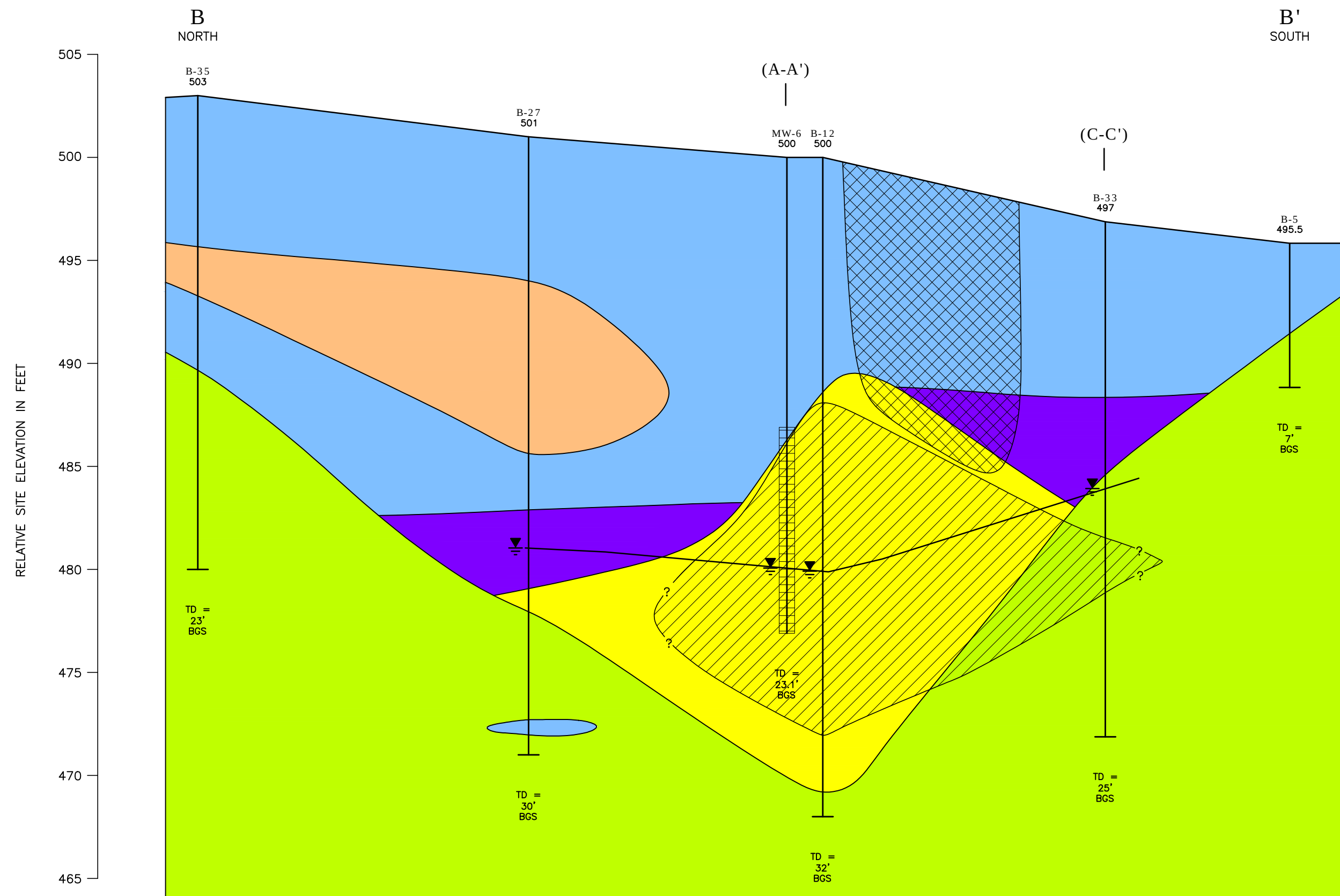


FIGURE 5
CROSS-SECTION A-A'
BRUINGTON GAS COM#1
SWNW SEC 14 T29N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.





LEGEND

- APPROXIMATE FORMER EXCAVATION
- SILTY SAND
- SANDY SILT
- SANDY CLAY/CLAYEY SAND

- CONSOLIDATED SAND
- PETROLEUM HYDROCARBON IMPACTED SOIL
- UNCONSOLIDATED SAND

- BGS BELOW GROUND SURFACE
- GROUND SURFACE
- BOREHOLE
- MONITOR WELL SCREENED INTERVAL

- TD TOTAL DEPTH IN FEET BGS
- APPROXIMATE GROUNDWATER ELEVATION (INTERPRETED FROM THE PRESENCE OF SATURATED SOIL IN THE BOREHOLE DURING DRILLING)
- (A-A') DENOTES INTERSECTION WITH GEOLOGIC CROSS SECTION A-A'

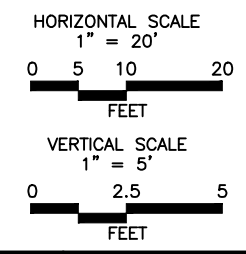
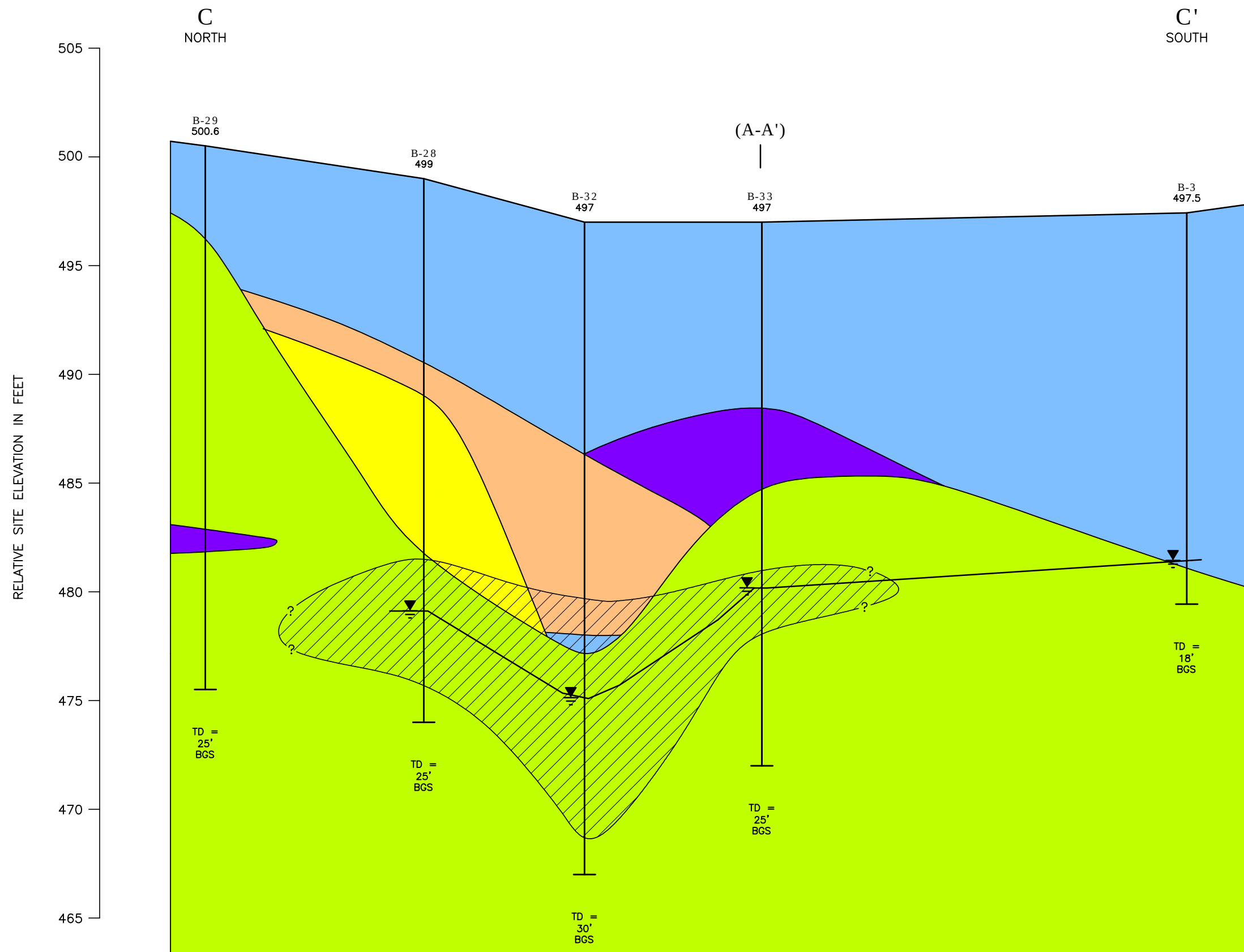


FIGURE 6
CROSS-SECTION B-B'
BRUINGTON GAS COM#1
SWNW SEC 14 T29N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.



LEGEND

- SILTY SAND
- SANDY SILT
- SANDY CLAY/CLAYEY SAND

- CONSOLIDATED SAND
- PETROLEUM HYDROCARBON IMPACTED SOIL
- UNCONSOLIDATED SAND

- BGS BELOW GROUND SURFACE
- GROUND SURFACE
- BOREHOLE

- TD TOTAL DEPTH IN FEET BGS
- APPROXIMATE GROUNDWATER ELEVATION (INTERPRETED FROM THE PRESENCE OF SATURATED SOIL IN THE BOREHOLE DURING DRILLING)

(A-A') DENOTES INTERSECTION WITH GEOLOGIC CROSS SECTION A-A'

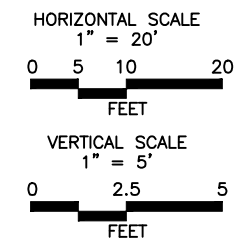
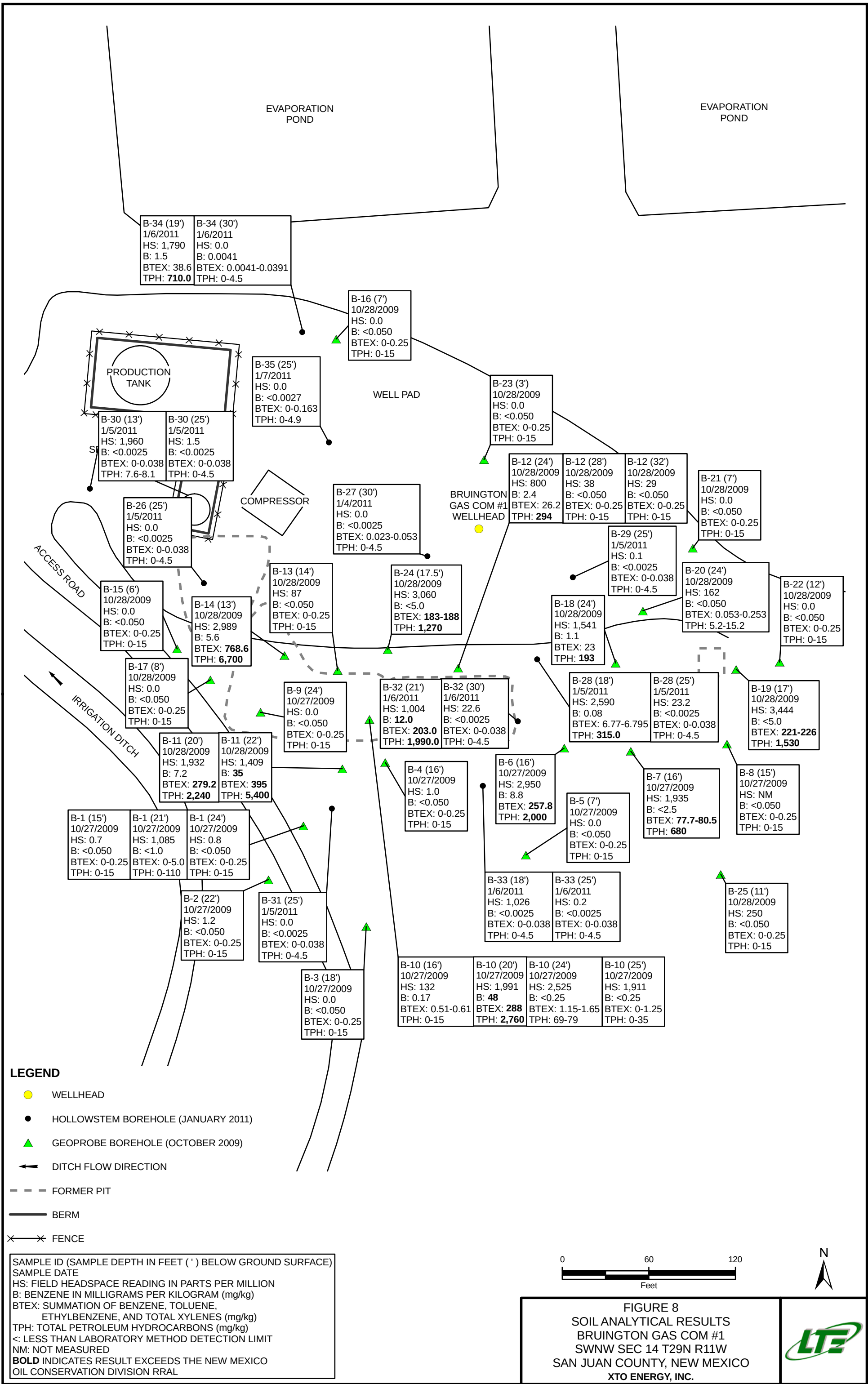
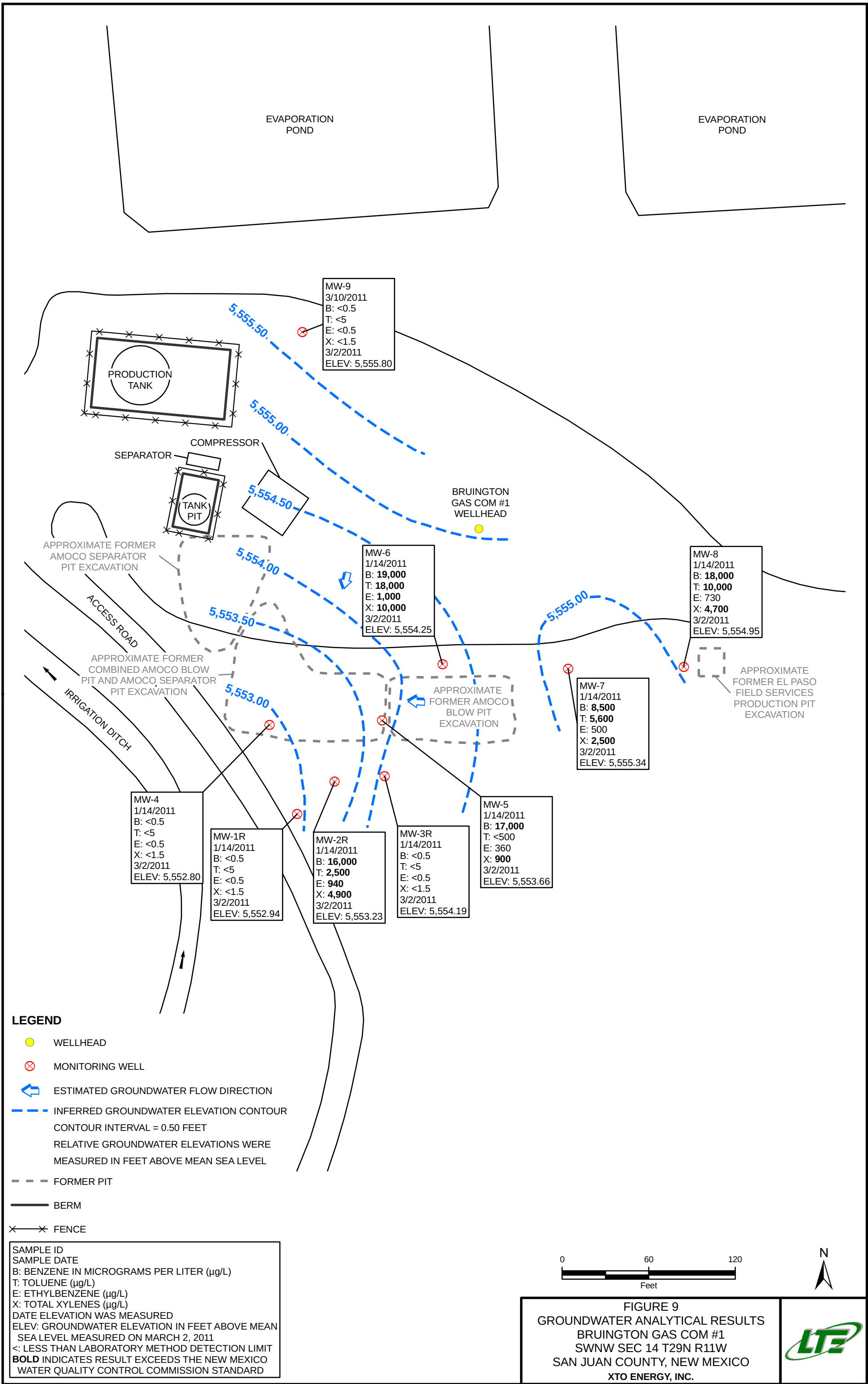
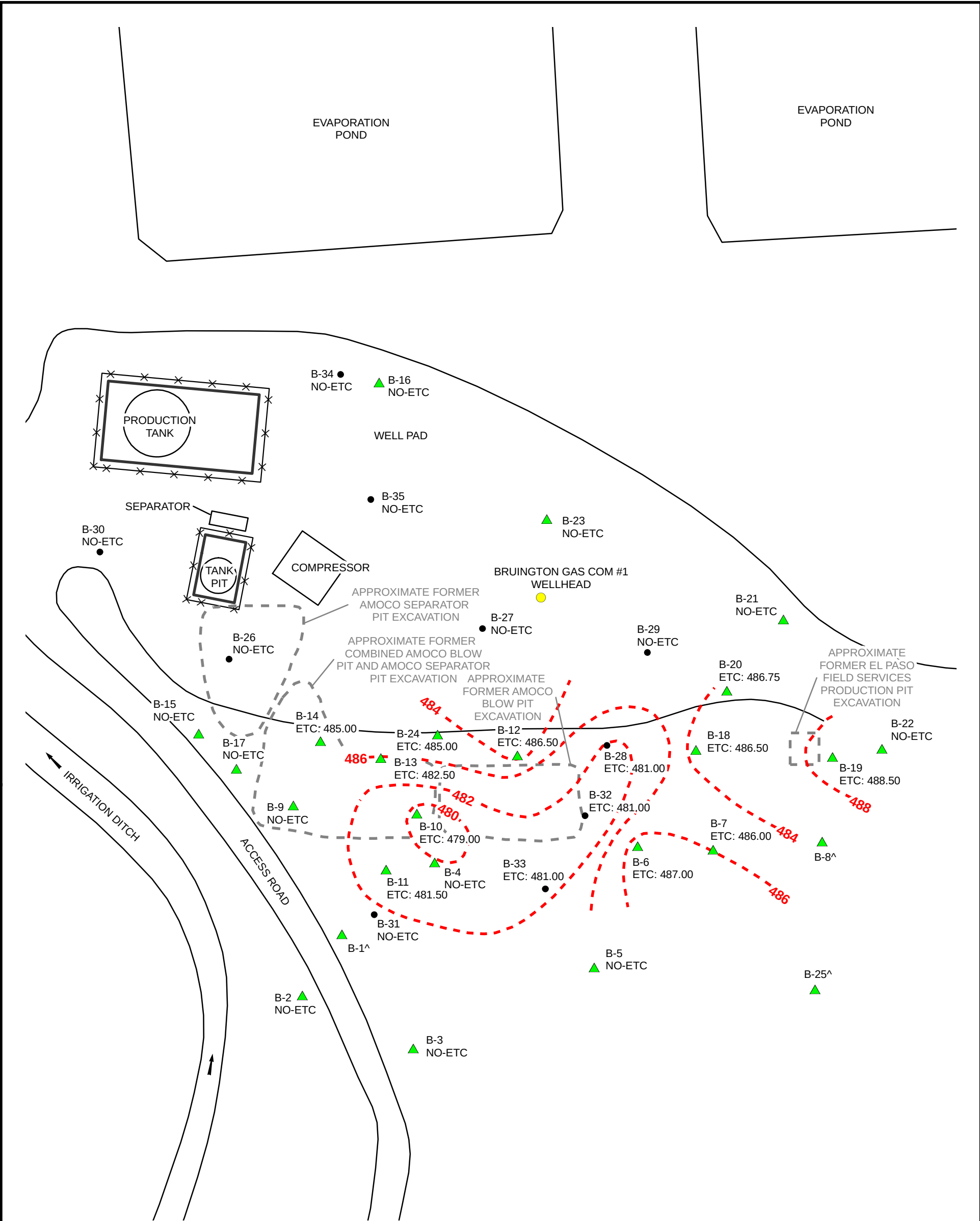


FIGURE 7
CROSS-SECTION C-C'
BRUINGTON GAS COM#1
SWNW SEC 14 T29N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.









LEGEND

- WELLHEAD
- HOLLOWSTEM BOREHOLE (JANUARY 2011)
- ▲ GEOPROBE BOREHOLE (OCTOBER 2009)
- ← DITCH FLOW DIRECTION
- - - FORMER PIT
- BERM
- × — × FENCE
- - - INFERRED TOP OF CONTAMINATION CONTOUR
IN FEET RELATIVE TO SITE
CONTOUR INTERVAL = 2 FEET
- ETC: ELEVATION AT TOP OF CONTAMINATION
(RELATIVE TO SITE) MEASURED 2/14/2011
- NO-ETC: NO ETC ENCOUNTERED
- ^: REFUSAL BY GEOPROBE AT SHALLOW DEPTH (NOT USED FOR CONTOURING)

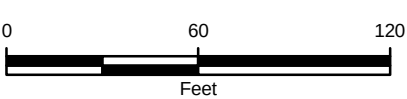
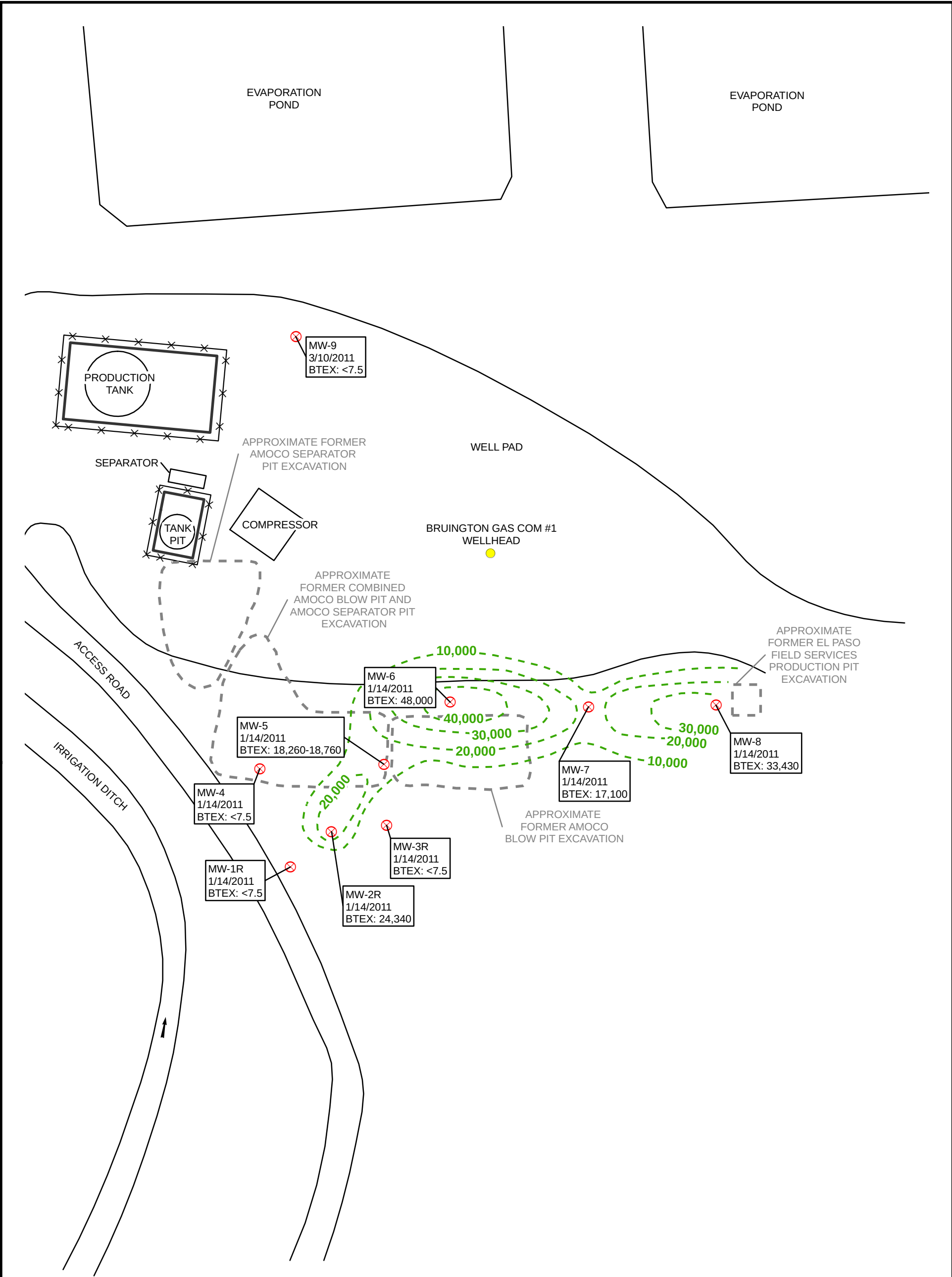


FIGURE 10
TOP OF IMPACTED SOIL
BRUINGTON GAS COM #1
SWNW SEC 14 T29N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.





LEGEND

- WELLHEAD
- MONITORING WELL
- FORMER PIT
- BERM
- FENCE

SAMPLE ID
SAMPLE DATE
BTEX: SUMMATION OF BENZENE, TOLUENE,
ETHYLBENZENE AND TOTAL XYLENES IN
MICROGRAMS PER LITER (µg/L)
<: LESS THAN LABORATORY METHOD DETECTION LIMIT

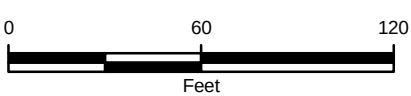


FIGURE 11
GROUNDWATER IMPACT MAP
BRUINGTON GAS COM #1
SWNW SEC 14 T29N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.



TABLES

TABLE 1

**SOIL LABORATORY ANALYTICAL RESULTS
BRUINGTON GAS COM #1
XTO ENERGY, INC.**

Sample ID	Date Sampled	Field Headspace Reading (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	TPH (mg/kg)
New Mexico Oil Conservation Division Recommended Remediation Action Level			10	N/E	N/E	N/E	50	N/E	N/E	100
B1-15ft	10/27/2009	0.7	< 0.050	< 0.050	< 0.050	< 0.10	0 - 0.25	< 5.0	< 10	0 - 15
B1-21ft	10/27/2009	1,085	< 1.0	< 1.0	< 1.0	< 2.0	0 - 5.0	< 100	< 10	0 - 110
B1-24ft	10/27/2009	0.8	< 0.050	< 0.050	< 0.050	< 0.10	0 - 0.25	< 5.0	< 10	0 - 15
B2-22ft	10/27/2009	1.2	< 0.050	< 0.050	< 0.050	< 0.10	0 - 0.25	< 5.0	< 10	0 - 15
B3-18ft	10/27/2009	0.0	< 0.050	< 0.050	< 0.050	< 0.10	0 - 0.25	< 5.0	< 10	0 - 15
B4-16ft	10/27/2009	1.0	< 0.050	< 0.050	< 0.050	< 0.10	0 - 0.25	< 5.0	< 10	0 - 15
B5-7ft	10/27/2009	0.0	< 0.050	< 0.050	< 0.050	< 0.10	0 - 0.25	< 5.0	< 10	0 - 15
B6-16ft	10/27/2009	2,950	8.8	84	15	150	257.8	1,800	200	2,000
B7-16ft	10/27/2009	1,935	< 2.5	14	5.7	58	77.7 - 80.2	570	110	680
B8-15ft	10/27/2009	NM	< 0.050	< 0.050	< 0.050	< 0.10	0 - 0.25	< 5.0	< 10	0 - 15
B9-24ft	10/27/2009	0.0	< 0.050	< 0.050	< 0.050	< 0.10	0 - 0.25	< 5.0	< 10	0 - 15
B10-16ft	10/27/2009	132	0.17	< 0.050	< 0.050	0.34	0.51 - 0.61	< 5.0	< 10	0 - 15
B10-20ft	10/27/2009	1,991	48	26	24	190	288	2,600	160	2,760
B10-24ft	10/27/2009	2,525	< 0.25	< 0.25	0.31	0.84	1.15 - 1.65	69	< 10	69 - 79
B10-25ft	10/27/2009	1,911	< 0.25	< 0.25	< 0.25	< 0.50	0 - 1.25	< 25	< 10	0 - 35
B11-20ft	10/28/2009	1,932	7.2	40	22	210	279.2	2,000	240	2,240
B11-22ft	10/28/2009	1,409	35	43	47	270	395	4,300	1,100	5,400
B12-24ft	10/28/2009	800	2.4	1.8	2.0	20	26.2	230	64	294
B12-28ft	10/28/2009	38	< 0.050	< 0.050	< 0.050	< 0.10	0 - 0.25	< 5.0	< 10	0 - 15
B12-32ft	10/28/2009	29	< 0.050	< 0.050	< 0.050	< 0.10	0 - 0.25	< 5.0	< 10	0 - 15
B13-14ft	10/28/2009	87	< 0.050	< 0.050	< 0.050	< 0.10	0 - 0.25	< 5.0	< 10	0 - 15
B14-13ft	10/28/2009	2,989	5.6	100	73	590	768.6	5,300	1,400	6,700



TABLE 1

**SOIL LABORATORY ANALYTICAL RESULTS
BRUINGTON GAS COM #1
XTO ENERGY, INC.**

Sample ID	Date Sampled	Field Headspace Reading (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	TPH (mg/kg)
New Mexico Oil Conservation Division Recommended Remediation Action Level			10	N/E	N/E	N/E	50	N/E	N/E	100
B15-6ft	10/28/2009	0.0	< 0.050	< 0.050	< 0.050	< 0.10	0 - 0.25	< 5.0	< 10	0 - 15
B16-7ft	10/28/2009	0.0	< 0.050	< 0.050	< 0.050	< 0.10	0 - 0.25	< 5.0	< 10	0 - 15
B17-8ft	10/28/2009	0.0	< 0.050	< 0.050	< 0.050	< 0.10	0 - 0.25	< 5.0	< 10	0 - 15
B18-24ft	10/28/2009	1,541	1.1	6.1	1.8	14	23	170	23	193
B19-17ft	10/28/2009	3,444	< 5.0	38	13	170	221 - 226	1,100	430	1,530
B20-24ft	10/28/2009	162	< 0.050	0.053	< 0.050	< 0.10	0.053 - 0.253	5.2	< 10	5.2 - 15.2
B21-7ft	10/28/2009	0.0	< 0.050	< 0.050	< 0.050	< 0.10	0 - 0.25	< 5.0	< 10	0 - 15
B22-12ft	10/28/2009	0.0	< 0.050	< 0.050	< 0.050	< 0.10	0 - 0.25	< 5.0	< 10	0 - 15
B23-3ft	10/28/2009	0.0	< 0.050	< 0.050	< 0.050	< 0.10	0 - 0.25	< 5.0	< 10	0 - 15
B24-17.5ft	10/28/2009	3,060	< 5.0	11	12	160	183 - 188	1,000	270	1,270
B25-11ft	10/28/2009	250	< 0.050	< 0.050	< 0.050	< 0.10	0 - 0.25	< 5.0	< 10	0 - 15
B-26-25ft	1/5/2011	0.0	< 0.0025	< 0.025	< 0.0025	< 0.0075	0 - 0.038	< 4.0	< 0.50	0 - 4.5
B-27-30ft	1/4/2011	0.0	< 0.0025	< 0.025	< 0.0025	0.023	0.023 - 0.053	< 4.0	< 0.50	0 - 4.5
B-28-18ft	1/5/2011	2,590	0.081	< 0.025	0.49	6.2	6.77 - 6.795	35	280	315
B-28-25ft	1/5/2011	23.2	< 0.0025	< 0.025	< 0.0025	< 0.0075	0 - 0.038	< 4.0	< 0.50	0 - 4.5
B-29-25ft	1/5/2011	0.1	< 0.0025	< 0.025	< 0.0025	< 0.0075	0 - 0.038	< 4.0	< 0.50	0 - 4.5
B-30-13ft	1/5/2011	1,960	< 0.0025	< 0.025	< 0.0025	< 0.0075	0 - 0.038	7.6	< 0.50	7.6-8.1
B-30-25ft	1/5/2011	1.5	< 0.0025	< 0.025	< 0.0025	< 0.0075	0 - 0.038	< 4.0	< 0.50	0 - 4.5
B-31-25ft	1/5/2011	0.0	< 0.0025	< 0.025	< 0.0025	< 0.0075	0 - 0.038	< 4.0	< 0.50	0 - 4.5
B-32-21ft	1/6/2011	1,004	12	60	11	120	203	390	1,600	1,990
B-32-30ft	1/6/2011	22.6	< 0.0025	< 0.025	< 0.0025	< 0.0075	0 - 0.038	< 4.0	< 0.50	0 - 4.5
B-33-18ft	1/6/2011	1,026	< 0.0025	< 0.025	< 0.0025	< 0.0075	0 - 0.038	< 4.0	< 0.50	0 - 4.5



TABLE 1
SOIL LABORATORY ANALYTICAL RESULTS
BRUINGTON GAS COM #1
XTO ENERGY, INC.

Sample ID	Date Sampled	Field Headspace Reading (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	TPH (mg/kg)
New Mexico Oil Conservation Division Recommended Remediation Action Level			10	N/E	N/E	N/E	50	N/E	N/E	100
B-33-25ft	1/6/2011	0.2	<0.0025	<0.025	<0.0025	<0.0075	0 - 0.038	<4.0	<0.50	0 - 4.5
B-34-19ft	1/6/2011	1,790	1.5	1.4	4.7	31	38.6	100	610	710
B-34-30ft	1/6/2011	0.0	0.0041	<0.025	<0.0025	<0.0075	0.0041-0.0391	<4.0	<0.50	0 - 4.5
B-35-25ft	1/7/2011	0.0	<0.0027	<0.027	<0.0027	<0.0082	0-0.163	<4.4	<0.54	0 - 4.9

Notes:

ppm - parts per million

mg/kg - milligrams per kilogram

BTEX - benzene, toluene, ethylbenzene, and total xylenes

GRO - Gasoline Range Organics

DRO - Diesel Range Organics

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

Bold font indicates value exceeds NMOCD recommended remediation action level

NM - Not Measured

N/E - Not Established

TABLE 2

**GROUNDWATER LEVELS AND ELEVATIONS
BRUINGTON GAS COM #1
XTO ENERGY, INC.**

Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet AMSL)	Dissolved Oxygen (mg/l unless indicated by a %)
MW-1	7/6/1996	7.00	-	NM
MW-1R	5/5/1999	10.55	5556.08	NM
MW-1R	6/29/2000	11.14	5555.49	NM
MW-1R	5/17/2001	11.33	5555.30	NM
MW-1R	9/24/2001	9.84	5556.79	NM
MW-1R	7/27/2002	9.93	5556.70	NM
MW-1R	6/25/2003	11.45	5555.18	NM
MW-1R	8/25/2003	12.14	5554.49	NM
MW-1R	4/25/2006	11.55	5555.08	1.13
MW-1R	11/10/2006	NM	NM	1.14
MW-1R	11/27/2006	13.17	5553.46	NM
MW-1R	2/23/2007	14.24	5552.39	0.51
MW-1R	3/28/2007	16.78	5549.85	NM
MW-1R	4/11/2007	13.51	5553.12	1.13
MW-1R	6/13/2007	7.51	5559.12	0.76
MW-1R	8/21/2007	7.20	5559.43	0.82
MW-1R	9/25/2007	7.07	5559.56	0.99
MW-1R	10/30/2007	7.66	5558.97	1.00
MW-1R	11/27/2007	11.50	5555.13	0.85
MW-1R	12/20/2007	12.97	5553.66	0.75
MW-1R	2/26/2008	NM	NM	0.32
MW-1R	3/12/2008	13.18	5553.45	NM
MW-1R	4/7/2008	NM	NM	11.60
MW-1R	6/2/2008	7.53	5559.10	2.60
MW-1R	8/12/2008	6.77	5559.86	3.7%
MW-1R	9/22/2008	7.76	5558.87	NM
MW-1R	10/22/2008	6.39	5560.24	4.6%
MW-1R	12/5/2008	11.26	5555.37	NM
MW-1R	2/6/2009	12.55	5554.08	NM
MW-1R	3/3/2009	15.24	5551.39	NM
MW-1R	6/24/2009	6.52	5560.11	NM
MW-1R	9/15/2009	6.98	5559.65	NM
MW-1R	12/7/2009	11.22	5555.41	NM
MW-1R	3/3/2010	15.17	5551.46	NM



TABLE 2

**GROUNDWATER LEVELS AND ELEVATIONS
BRUINGTON GAS COM #1
XTO ENERGY, INC.**

Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet) AMSL)	Dissolved Oxygen (mg/l unless indicated by a %)
MW-1R	6/21/2010	6.74	5559.89	NM
MW-1R	9/9/2010	7.70	5558.93	NM
MW-1R	1/13/2011	13.70	5552.93	NM
MW-1R	3/2/2011	13.69	5552.94	NM

MW-2	6/7/1996	10.12	5557.87	NM
MW-2	6/27/1997	12.65	5555.34	NM
MW-2R	6/12/1998	11.00	5556.99	NM
MW-2R	5/5/1999	10.78	5557.21	NM
MW-2R	6/29/2000	11.50	5556.49	NM
MW-2R	5/17/2001	12.12	5555.87	NM
MW-2R	9/24/2001	10.08	5557.91	NM
MW-2R	6/27/2002	9.77	5558.22	NM
MW-2R	6/25/2003	11.53	5556.46	NM
MW-2R	6/18/2004	12.07	5555.92	NM
MW-2R	6/27/2005	10.14	5557.85	NM
MW-2R	4/25/2006	11.64	5556.35	0.64
MW-2R	11/10/2006	NM	NM	0.35
MW-2R	11/27/2006	11.32	5556.67	NM
MW-2R	2/23/2007	12.55	5555.44	0.37
MW-2R	3/28/2007	14.72	5553.27	NM
MW-2R	4/11/2007	12.79	5555.20	0.64
MW-2R	6/13/2007	9.94	5558.05	0.43
MW-2R	8/21/2007	9.36	5558.63	0.28
MW-2R	9/25/2007	9.33	5558.66	0.54
MW-2R	10/30/2007	9.45	5558.54	0.50
MW-2R	11/27/2007	12.02	5555.97	0.55
MW-2R	12/20/2007	13.13	5554.86	0.42
MW-2R	2/26/2008	NM	NM	0.51
MW-2R	3/12/2008	13.51	5554.48	NM
MW-2R	4/7/2008	NM	NM	12.50
MW-2R	6/2/2008	10.07	5557.92	2.60
MW-2R	8/12/2008	9.38	5558.61	0.4%
MW-2R	9/22/2008	10.29	5557.70	NM



TABLE 2

**GROUNDWATER LEVELS AND ELEVATIONS
BRUINGTON GAS COM #1
XTO ENERGY, INC.**

Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet) AMSL)	Dissolved Oxygen (mg/l unless indicated by a %)
MW-2R	10/22/2008	9.10	5558.89	0.1%
MW-2R	12/5/2008	12.05	5555.94	NM
MW-2R	2/6/2009	13.40	5554.59	NM
MW-2R	3/3/2009	15.64	5552.35	NM
MW-2R	6/24/2009	9.16	5558.83	NM
MW-2R	9/15/2009	8.37	5559.62	NM
MW-2R	12/7/2009	11.81	5556.18	NM
MW-2R	3/3/2010	15.41	5552.58	NM
MW-2R	6/21/2010	9.46	5558.53	NM
MW-2R	9/9/2010	9.24	5558.75	NM
MW-2R	1/13/2011	14.42	5553.57	NM
MW-2R	3/2/2011	14.76	5553.23	NM

MW-3	6/7/1996	13.05	NM	NM
MW-3	5/5/1999	13.64	NM	NM
MW-3	6/29/2000	13.52	NM	NM
MW-3	5/17/2001	14.51	NM	NM
MW-3	9/24/2001	12.15	NM	NM
MW-3R	8/25/2003	11.81	5558.09	NM
MW-3R	11/19/2003	12.28	5557.62	NM
MW-3R	4/25/2006	12.56	5557.34	0.54
MW-3R	11/10/2006	NM	NM	0.42
MW-3R	11/27/2006	12.60	5557.30	NM
MW-3R	2/23/2007	14.33	5555.57	0.96
MW-3R	3/28/2007	15.83	5554.07	NM
MW-3R	4/11/2007	14.99	5554.91	0.54
MW-3R	6/13/2007	NM	NM	NM
MW-3R	10/30/2007	NM	NM	NM
MW-3R	11/27/2007	13.14	5556.76	0.88
MW-3R	12/20/2007	14.25	5555.65	0.71
MW-3R	2/26/2008	NM	NM	0.43
MW-3R	3/12/2008	15.23	5554.67	NM
MW-3R	4/7/2008	NM	NM	35.20
MW-3R	6/2/2008	12.07	5557.83	3.30



TABLE 2

**GROUNDWATER LEVELS AND ELEVATIONS
BRUINGTON GAS COM #1
XTO ENERGY, INC.**

Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet) AMSL)	Dissolved Oxygen (mg/l unless indicated by a %)
MW-3R	8/12/2008	11.15	5558.75	1.5%
MW-3R	9/22/2008	11.86	5558.04	NM
MW-3R	10/22/2008	11.80	5558.10	3.6%
MW-3R	12/5/2008	13.23	5556.67	NM
MW-3R	2/6/2009	14.82	5555.08	NM
MW-3R	3/3/2009	16.37	5553.53	NM
MW-3R	6/24/2009	11.52	5558.38	NM
MW-3R	9/15/2009	10.66	5559.24	NM
MW-3R	12/7/2009	12.63	5557.27	NM
MW-3R	3/3/2010	16.09	5553.81	NM
MW-3R	6/21/2010	11.59	5558.31	NM
MW-3R	9/9/2010	11.18	5558.72	NM
MW-3R	1/13/2011	16.77	5553.13	NM
MW-3R*	3/2/2011	17.21	5554.19	NM

MW-4	5/17/2001	10.88	5557.57	
MW-4	4/25/2006	11.11	5557.34	3.03
MW-4	11/10/2006	NM	NM	0.91
MW-4	11/27/2006	12.41	5556.04	NM
MW-4	2/23/2007	13.62	5554.83	0.87
MW-4	3/28/2007	16.17	5552.28	NM
MW-4	4/11/2007	13.34	5555.11	3.03
MW-4	6/13/2007	9.87	5558.58	2.26
MW-4	8/21/2007	9.35	5559.10	0.75
MW-4	9/25/2007	9.24	5559.21	1.78
MW-4	10/30/2007	9.75	5558.70	0.64
MW-4	11/27/2007	13.43	5555.02	0.66
MW-4	12/20/2007	14.91	5553.54	0.55
MW-4	2/26/2008	NM	NM	0.19
MW-4	3/12/2008	15.09	5553.36	NM
MW-4	4/7/2008	NM	NM	25.60
MW-4	6/2/2008	9.59	5558.86	1.60
MW-4	8/12/2008	8.97	5559.48	1.3%
MW-4	9/22/2008	9.96	5558.49	NM



TABLE 2

**GROUNDWATER LEVELS AND ELEVATIONS
BRUINGTON GAS COM #1
XTO ENERGY, INC.**

Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet) AMSL)	Dissolved Oxygen (mg/l unless indicated by a %)
MW-4	10/22/2008	8.53	5559.92	3.1%
MW-4	12/5/2008	13.21	5555.24	NM
MW-4	2/6/2009	14.35	5554.10	NM
MW-4	3/3/2009	17.06	5551.39	NM
MW-4	6/24/2009	8.10	5560.35	NM
MW-4	9/15/2009	8.17	5560.28	NM
MW-4	12/7/2009	13.11	5555.34	NM
MW-4	3/3/2010	17.08	5551.37	NM
MW-4	6/21/2010	9.00	5559.45	NM
MW-4	9/9/2010	8.83	5559.62	NM
MW-4	1/13/2011	15.63	5552.82	NM
MW-4	3/2/2011	15.65	5552.80	NM

MW-5	5/17/2001	16.00	5556.07	NM
MW-5	9/24/2001	13.70	5558.37	NM
MW-5	6/27/2002	13.83	5558.24	NM
MW-5	6/25/2003	15.73	5556.34	NM
MW-5	6/18/2004	15.82	5556.25	NM
MW-5	6/27/2005	14.21	5557.86	NM
MW-5	4/25/2006	16.21	5555.86	0.51
MW-5	11/10/2006	NM	NM	0.26
MW-5	11/27/2006	15.24	5556.83	NM
MW-5	2/23/2007	18.92	5553.15	0.34
MW-5	3/28/2007	18.63	5553.44	NM
MW-5	4/11/2007	17.48	5554.59	0.51
MW-5	6/13/2007	14.17	5557.90	0.58
MW-5	8/21/2007	14.12	5557.95	0.49
MW-5	9/25/2007	13.38	5558.69	0.50
MW-5	10/30/2007	13.57	5558.50	0.61
MW-5	11/27/2007	16.13	5555.94	0.62
MW-5	12/20/2007	17.34	5554.73	0.54
MW-5	2/26/2008	NM	NM	0.11
MW-5	3/12/2008	17.75	5554.32	NM
MW-5	4/7/2008	NM	NM	11.50



TABLE 2

**GROUNDWATER LEVELS AND ELEVATIONS
BRUINGTON GAS COM #1
XTO ENERGY, INC.**

Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet) AMSL)	Dissolved Oxygen (mg/l unless indicated by a %)
MW-5	6/2/2008	13.92	5558.15	1.60
MW-5	8/12/2008	12.99	5559.08	0.7%
MW-5	9/22/2008	13.80	5558.27	NM
MW-5	10/22/2008	12.77	5559.30	1.8%
MW-5	12/5/2008	15.93	5556.14	NM
MW-5	2/6/2009	17.33	5554.74	NM
MW-5	3/3/2009	19.26	5552.81	NM
MW-5	6/24/2009	13.34	5558.73	NM
MW-5	9/15/2009	12.56	5559.51	NM
MW-5	12/7/2009	15.71	5556.36	NM
MW-5	3/3/2010	19.29	5552.78	NM
MW-5	6/21/2010	13.61	5558.46	NM
MW-5	9/9/2010	13.03	5559.04	NM
MW-5	1/13/2011	18.08	5553.99	NM
MW-5	3/2/2011	18.41	5553.66	NM

MW-6	5/17/2001	19.47	5554.86	NM
MW-6	9/24/2001	14.46	5559.87	NM
MW-6	6/27/2002	16.68	5557.65	NM
MW-6	6/25/2003	18.94	5555.39	NM
MW-6	6/18/2004	18.71	5555.62	NM
MW-6	6/27/2005	17.09	5557.24	NM
MW-6	4/25/2006	19.28	5555.05	0.11
MW-6	11/10/2006	NM	NM	0.06
MW-6	11/27/2006	17.08	5557.25	NM
MW-6	2/23/2007	18.92	5555.41	0.28
MW-6	3/28/2007	20.36	5553.97	NM
MW-6	4/11/2007	19.69	5554.64	0.11
MW-6	6/13/2007	16.87	5557.46	0.18
MW-6	8/21/2007	16.04	5558.29	0.33
MW-6	9/25/2007	15.98	5558.35	0.34
MW-6	10/30/2007	15.91	5558.42	0.21
MW-6	11/27/2007	17.79	5556.54	0.35
MW-6	12/20/2007	18.83	5555.50	0.33



TABLE 2

**GROUNDWATER LEVELS AND ELEVATIONS
BRUINGTON GAS COM #1
XTO ENERGY, INC.**

Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet AMSL)	Dissolved Oxygen (mg/l unless indicated by a %)
MW-6	2/26/2008	NM	NM	0.26
MW-6	3/12/2008	19.42	5554.91	NM
MW-6	4/7/2008	NM	NM	18.60
MW-6	6/2/2008	16.61	5557.72	0.10
MW-6	8/12/2008	15.61	5558.72	0.6%
MW-6	9/22/2008	16.15	5558.18	NM
MW-6	10/22/2008	15.49	5558.84	1.4%
MW-6	12/5/2008	17.70	5556.63	NM
MW-6	2/6/2009	19.33	5555.00	NM
MW-6	3/3/2009	20.67	5553.66	NM
MW-6	6/24/2009	16.18	5558.15	NM
MW-6	9/15/2009	15.25	5559.08	NM
MW-6	12/7/2009	17.52	5556.81	NM
MW-6	3/3/2010	20.69	5553.64	NM
MW-6	6/21/2010	16.44	5557.89	NM
MW-6	9/9/2010	15.60	5558.73	NM
MW-6	1/13/2011	19.55	5554.78	NM
MW-6	3/2/2011	20.08	5554.25	NM

MW-7	8/25/2003	17.93	5555.95	NM
MW-7	6/18/2004	18.87	5555.01	NM
MW-7	6/27/2005	17.40	5556.48	NM
MW-7	4/25/2006	19.14	5554.74	0.60
MW-7	11/10/2006	NM	NM	0.69
MW-7	11/27/2006	16.94	5556.94	NM
MW-7	2/23/2007	17.71	5556.17	0.71
MW-7	3/28/2007	18.62	5555.26	NM
MW-7	4/11/2007	18.63	5555.25	0.60
MW-7	6/13/2007	16.75	5557.13	0.43
MW-7	8/21/2007	15.86	5558.02	0.36
MW-7	9/25/2007	15.65	5558.23	0.34
MW-7	10/30/2007	15.46	5558.42	0.17
MW-7	11/27/2007	16.46	5557.42	0.42
MW-7	12/20/2007	17.14	5556.74	0.36



TABLE 2

**GROUNDWATER LEVELS AND ELEVATIONS
BRUINGTON GAS COM #1
XTO ENERGY, INC.**

Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet) AMSL)	Dissolved Oxygen (mg/l unless indicated by a %)
MW-7	2/26/2008	NM	NM	0.32
MW-7	3/12/2008	17.23	5556.65	NM
MW-7	4/7/2008	NM	NM	32.90
MW-7	6/2/2008	16.22	5557.66	0.10
MW-7	8/12/2008	15.30	5558.58	0.7%
MW-7	9/22/2008	15.47	5558.41	NM
MW-7	10/22/2008	15.22	5558.66	0.1%
MW-7	12/5/2008	16.23	5557.65	NM
MW-7	2/6/2009	17.85	5556.03	NM
MW-7	3/3/2009	18.60	5555.28	NM
MW-7	6/24/2009	16.38	5557.50	NM
MW-7	9/15/2009	15.21	5558.67	NM
MW-7	12/7/2009	16.05	5557.83	NM
MW-7	3/3/2010	18.64	5555.24	NM
MW-7	6/21/2010	16.58	5557.30	NM
MW-7	9/9/2010	15.49	5558.39	NM
MW-7	1/13/2011	17.78	5556.10	NM
MW-7	3/2/2011	18.54	5555.34	NM

MW-8	6/13/2007	19.19	5556.85	0.40
MW-8	8/21/2007	18.30	5557.74	0.61
MW-8	9/25/2007	18.00	5558.04	0.57
MW-8	10/30/2007	15.46	5560.58	0.52
MW-8	11/27/2007	18.30	5557.74	0.68
MW-8	12/20/2007	18.81	5557.23	0.42
MW-8	2/26/2008	NM	NM	0.30
MW-8	3/12/2008	18.92	5557.12	NM
MW-8	4/7/2008	NM	NM	12.40
MW-8	6/2/2008	18.23	5557.81	0.80
MW-8	8/12/2008	17.52	5558.52	0.6%
MW-8	9/22/2008	17.56	5558.48	NM
MW-8	10/22/2008	17.47	5558.57	1.4%
MW-8	12/5/2008	17.99	5558.05	NM
MW-8	2/6/2009	19.50	5556.54	NM



TABLE 2

GROUNDWATER LEVELS AND ELEVATIONS
BRUINGTON GAS COM #1
XTO ENERGY, INC.

Well ID	Date	Depth to Water (feet) (BTOC)	Groundwater Elevation (feet AMSL)	Dissolved Oxygen (mg/l unless indicated by a %)
MW-8	3/3/2009	20.03	5556.01	NM
MW-8	6/24/2009	19.00	5557.04	NM
MW-8	9/15/2009	17.74	5558.30	NM
MW-8	12/7/2009	17.81	5558.23	NM
MW-8	3/3/2010	20.11	5555.93	NM
MW-8	6/21/2010	19.31	5556.73	NM
MW-8	9/9/2010	18.02	5558.02	NM
MW-8	1/13/2011	19.35	5556.69	NM
MW-8	3/2/2011	21.09	5554.95	NM

MW-9	1/13/2011	Dry	Dry	NM
MW-9	3/2/2011	21.06	5555.80	NM

Notes:

BTOC - Below Top of Casing

AMSL - Above Mean Sea Level

NM - Not Measured

* - Top of Casing Modified, New Elevation

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
BRUINGTON GAS COM #1
XTO ENERGY, INC.

Well ID	Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
NMWQCC Groundwater Standard		10	750	750	620
MW-1	7/6/1996	ND	ND	ND	ND
MW-1R	5/5/1999	16.5	26.0	8.1	78.2
MW-1R	6/29/2000	17.0	ND	130.0	455.5
MW-1R	5/17/2001	29.0	19.0	33.0	127.0
MW-1R	9/24/2001	5.8	0.5	15.0	36.0
MW-1R	7/27/2002	ND	ND	17.0	52.1
MW-1R	6/25/2003	3.1	ND	ND	ND
MW-1R	8/25/2003	ND	ND	2.2	0.9
MW-1R	4/25/2006	1.0	1.3	1.8	5.9
MW-1R	11/27/2006	<1.0	<1.0	<1.0	<3.0
MW-1R	3/28/2007	<1.0	<1.0	<1.0	<2.0
MW-1R	6/13/2007	<1.0	<1.0	<1.0	<2.0
MW-1R	9/25/2007	<1.0	1.2	<1.0	<2.0
MW-1R	3/12/2008	<1.0	<1.0	<1.0	<2.0
MW-1R	6/2/2008	<1.0	<1.0	<1.0	<2.0
MW-1R	9/22/2008	<1.0	<1.0	<1.0	<2.0
MW-1R	12/5/2008	<1.0	<1.0	<1.0	<2.0
MW-1R	3/3/2009	<1.0	<1.0	<1.0	<2.0
MW-1R	6/24/2009	<1.0	<1.0	<1.0	<3.0
MW-1R	9/15/2009	<1.0	<1.0	<1.0	<2.0
MW-1R	12/7/2009	<1.0	<1.0	<1.0	<2.0
MW-1R	3/3/2010	<1.0	<1.0	<1.0	<2.0
MW-1R	6/21/2010	<1.0	<1.0	<1.0	<2.0
MW-1R	9/9/2010	<0.5	< 5	<0.5	<1.5
MW-1R	1/13/2011	<0.5	<5	<0.5	<1.5
MW-2	6/7/1996	347	29	156	1,580
MW-2	6/27/1997	429	68	46	402
MW-2R	6/12/1998	13,440	13,330	1,030	6,040
MW-2R	5/5/1999	1,020	554	175	679
MW-2R	6/29/2000	7,600	2,600	630	4,210
MW-2R	5/17/2001	1,700	320	390	1,620
MW-2R	9/24/2001	15,000	1,200	880	5,900
MW-2R	6/27/2002	13,000	1,100	680	4,120
MW-2R	6/25/2003	3,700	1,000	380	2,500
MW-2R	6/18/2004	5,500	1,400	710	3,500
MW-2R	6/27/2005	16,000	1,900	900	5,400
MW-2R	4/25/2006	5,000	1,100	700	3,800
MW-2R	11/27/2006	12,000	1,600	690	3,900
MW-2R	3/28/2007	4,300	1,000	810	6,000
MW-2R	6/13/2007	13,000	1,100	720	4,000
MW-2R	9/25/2007	18,000	1,900	990	5,500



TABLE 3
GROUNDWATER ANALYTICAL RESULTS
BRUINGTON GAS COM #1
XTO ENERGY, INC.

Well ID	Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
NMWQCC Groundwater Standard		10	750	750	620
MW-2R	3/12/2008	2,800	890	750	5,300
MW-2R	6/2/2008	5,900	430	510	2,200
MW-2R	9/22/2008	18,000	920	950	4,900
MW-2R	12/5/2008	20,000	1,700	1,100	5,300
MW-2R	3/3/2009	5,500	1,400	470	2,900
MW-2R	6/24/2009	18,000	2,200	970	6,500
MW-2R	9/15/2009	18,000	760	850	4,400
MW-2R	12/7/2009	11,000	1,000	720	3,600
MW-2R	3/3/2010	2,100	460	410	2,400
MW-2R	6/21/2010	9,500	960	630	3,100
MW-2R	9/9/2010	19,000	530	940	3,200
MW-2R	1/13/2011	16,000	2,500	940	4,900
MW-3	6/7/1996	ND	1.8	ND	ND
MW-3	5/5/1999	73.2	38.3	31.2	200.1
MW-3	6/29/2000	87.0	ND	3.4	8.3
MW-3	5/17/2001	ND	0.6	0.7	ND
MW-3	9/24/2001	ND	ND	ND	ND
MW-3R	8/25/2003	ND	ND	1.3	ND
MW-3R	11/19/2003	ND	ND	1.4	ND
MW-3R	4/25/2006	<1.0	<1.0	<1.0	<3.0
MW-3R	11/27/2006	<1.0	<1.0	<1.0	<2.0
MW-3R	3/28/2007	<1.0	<1.0	<1.0	<2.0
MW-3R	3/12/2008	<1.0	<1.0	<1.0	<2.0
MW-3R	6/2/2008	<1.0	<1.0	<1.0	<2.0
MW-3R	9/22/2008	<1.0	<1.0	<1.0	<2.0
MW-3R	12/5/2008	<1.0	<1.0	<1.0	<2.0
MW-3R	3/3/2009	<1.0	<1.0	<1.0	<2.0
MW-3R	6/24/2009	7.2	<1.0	<1.0	<3.0
MW-3R	9/15/2009	<1.0	<1.0	<1.0	<2.0
MW-3R	12/7/2009	<1.0	<1.0	<1.0	<2.0
MW-3R	3/3/2010	<1.0	<1.0	<1.0	<2.0
MW-3R	6/21/2010	75	<1.0	<1.0	<2.0
MW-3R	9/9/2010	94	50	4.4	30
MW-3R	1/13/2011	<0.5	<5	<0.5	<1.5
MW-4	5/17/2001	ND	ND	ND	ND
MW-4	4/25/2006	ND	ND	ND	ND
MW-4	11/27/2006	<1.0	<1.0	<1.0	<3.0
MW-4	3/28/2007	1.8	<1.0	<1.0	<2.0
MW-4	6/13/2007	<1.0	<1.0	<1.0	<2.0
MW-4	9/25/2007	<1.0	<1.0	<1.0	<2.0



TABLE 3
GROUNDWATER ANALYTICAL RESULTS
BRUINGTON GAS COM #1
XTO ENERGY, INC.

Well ID	Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
NMWQCC Groundwater Standard		10	750	750	620
MW-4	3/12/2008	<1.0	<1.0	<1.0	<2.0
MW-4	6/2/2008	<1.0	<1.0	<1.0	<2.0
MW-4	9/22/2008	<1.0	<1.0	<1.0	<2.0
MW-4	12/5/2008	<1.0	<1.0	<1.0	<2.0
MW-4	3/3/2009	<1.0	<1.0	<1.0	<2.0
MW-4	6/24/2009	<1.0	<1.0	<1.0	<2.0
MW-4	9/15/2009	<1.0	<1.0	<1.0	<2.0
MW-4	12/7/2009	<1.0	<1.0	<1.0	<2.0
MW-4	3/3/2010	<1.0	<1.0	<1.0	<2.0
MW-4	6/21/2010	<1.0	<1.0	<1.0	<2.0
MW-4	9/9/2010	<0.50	< 5.0	<0.50	<1.5
MW-4	1/13/2011	<0.5	<5	<0.5	<1.5
MW-5	5/17/2001	25,000	620	870	6,610
MW-5	9/24/2001	26,000	110	470	6,900
MW-5	6/27/2002	26,000	280	900	6,670
MW-5	6/25/2003	26,000	ND	ND	4,400
MW-5	6/18/2004	26,000	ND	1,100	3,400
MW-5	6/27/2005	29,000	ND	920	3,400
MW-5	4/25/2006	28,000	ND	1,600	2,700
MW-5	11/27/2006	22,000	<250	630	1,700
MW-5	3/28/2007	30,000	590	1,700	4,600
MW-5	6/13/2007	32,000	91	940	2,000
MW-5	9/25/2007	25,000	170	620	1,700
MW-5	3/12/2008	28,000	110	1,200	2,300
MW-5	6/2/2008	25,000	<100	1,100	1,300
MW-5	9/22/2008	20,000	<200	760	1,100
MW-5	12/5/2008	24,000	<100	580	1,400
MW-5	3/3/2009	9,800	<100	450	920
MW-5	6/24/2009	25,000	46	40	1,400
MW-5	9/15/2009	27,000	<400	770	2,000
MW-5	12/7/2009	23,000	<400	690	1,400
MW-5	3/3/2010	16,000	<100	350	710
MW-5	6/21/2010	18,000	<100	430	890
MW-5	9/9/2010	25,000	130	510	1,600
MW-5	1/13/2011	17,000	<500	360	900
MW-6	5/17/2001	28,000	15,000	1,000	9,400
MW-6	9/24/2001	22,000	6,000	1,100	6,900
MW-6	6/27/2002	28,000	16,000	990	9,800
MW-6	6/25/2003	22,000	16,000	ND	6,300
MW-6	6/18/2004	23,000	19,000	1,000	8,800



TABLE 3
GROUNDWATER ANALYTICAL RESULTS
BRUINGTON GAS COM #1
XTO ENERGY, INC.

Well ID	Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
NMWQCC Groundwater Standard		10	750	750	620
MW-6	6/27/2005	28,000	20,000	1,200	9,600
MW-6	4/25/2006	26,000	25,000	1,700	8,900
MW-6	11/27/2006	22,000	23,000	990	9,700
MW-6	3/28/2007	25,000	27,000	1,900	19,000
MW-6	6/13/2007	21,000	19,000	780	7,900
MW-6	9/25/2007	27,000	21,000	1,200	11,000
MW-6	3/12/2008	21,000	21,000	1,200	11,000
MW-6	6/2/2008	19,000	16,000	870	9,000
MW-6	9/22/2008	15,000	14,000	770	8,500
MW-6	12/5/2008	28,000	27,000	1,100	12,000
MW-6	3/3/2009	19,000	20,000	880	9,300
MW-6	6/24/2009	23,000	18,000	900	9,200
MW-6	9/15/2009	18,000	14,000	740	7,700
MW-6	12/7/2009	19,000	19,000	1,000	10,000
MW-6	3/3/2010	15,000	16,000	860	9,300
MW-6	6/21/2010	18,000	15,000	680	7,000
MW-6	9/9/2010	21,000	16,000	880	8,300
MW-6	1/13/2011	19,000	18,000	1,000	10,000
MW-7	8/25/2003	18,000	11,000	930	8,200
MW-7	6/18/2004	11,000	7,800	670	5,000
MW-7	6/27/2005	14,000	8,700	880	5,000
MW-7	4/25/2006	19,000	6,600	1,200	5,100
MW-7	11/27/2006	6,100	4,400	420	2,500
MW-7	3/28/2007	11,000	9,500	100	7,500
MW-7	6/13/2007	3,800	2,000	320	1,700
MW-7	9/25/2007	2,900	2,400	210	1,400
MW-7	3/12/2008	14,000	9,200	830	4,800
MW-7	6/2/2008	8,800	5,300	560	3,100
MW-7	9/22/2008	7,100	4,600	450	2,800
MW-7	12/5/2008	11,000	9,300	680	5,200
MW-7	3/3/2009	11,000	7,800	660	4,500
MW-7	6/24/2009	21,000	14,000	640	6,400
MW-7	9/15/2009	15,000	4,900	640	3,600
MW-7	12/7/2009	9,600	7,700	530	4,200
MW-7	3/3/2010	10,000	7,000	560	4,000
MW-7	6/21/2010	4,100	2,900	280	1,500
MW-7	9/9/2010	3,000	2,300	280	1,400
MW-7	1/13/2011	8,500	5,600	500	2,500
MW-8	6/13/2007	24,000	24,000	350	10,000
MW-8	9/25/2007	18,000	4,000	960	9,100



TABLE 3
GROUNDWATER ANALYTICAL RESULTS
BRUINGTON GAS COM #1
XTO ENERGY, INC.

Well ID	Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
NMWQCC Groundwater Standard		10	750	750	620
MW-8	3/12/2008	730	64	ND	2,000
MW-8	6/2/2008	12,000	7,100	490	5,300
MW-8	9/22/2008	15,000	13,000	520	7,200
MW-8	12/5/2008	18,000	15,000	810	7,700
MW-8	3/3/2009	16,000	12,000	660	5,700
MW-8	6/24/2009	21,000	13,000	690	5,700
MW-8	9/15/2009	15,000	7,800	590	4,900
MW-8	12/7/2009	10,000	1,300	570	2,500
MW-8	3/3/2010	14,000	7,800	610	3,900
MW-8	6/21/2010	17,000	15,000	630	6,600
MW-8	9/9/2010	17,000	7,800	760	4,600
MW-8	1/13/2011	18,000	10,000	730	4,700
MW-9	3/10/2011	<0.5	<5	<0.5	<1.5

Notes:

ND - not detected above the laboratory detection limit

ug/l - micrograms per liter

< - indicates the result was less than the laboratory detection limit

NMWQCC - New Mexico Water Quality Control Commission

BOLD values exceed the NMWQCC Standard



APPENDIX A
HISTORICAL EXCAVATION REPORTS



LAB RESULTS TO PAUL V. ON 11-3-93. SOIL OK, WATER CONTAMINATED.

OVM RESULTS TO PAUL V. ON 10-20-93

(VERY CONTAMINATED)

ENVIROTECH Inc.

5796 US HWY 64, FARMINGTON, NM 87401
(505) 632 0615

PIT NO. C4948

C.D.C. NO. —3141

FIELD REPORT CLOSURE VERIFICATION

JOH No. 92140
PAGE No. 1 of 1

LOCATION: LEASE: BRUNINGTON GAS WELL #1 OD SW/4, NW/4 (E) DATE STARTED: 10-20-93
SEC. 14 TWP. 29N RING: 11W BM. NM CNTY: SJ ST. NM PIT: BLOW DATE FINISHED: 10-27-93
CONTRACTOR: PAUL VELASQUEZ
EQUIPMENT USED: EXCAVATOR ENVIRONMENTAL SPECIALIST: REO

SOIL REMEDIATION: QUANTITY: EXCAVATION APPROX. 40' x 75' x 20' MAX. DEEP.

DISPOSAL FACILITY: CROUCH MESA

LAND USE: RESIDENTIAL/INDUSTRIAL

SURFACE CONDITIONS: EXCAVATED PRIOR TO ARRIVAL

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 125 FEET SOUTH FROM WELLHEAD.
EXCAVATION 18-20' DEEP - TOP 8-10" APPEARS UNCONTAMINATED. FROM 8"-10" DOWN,
HEAVY CONTAMINATION EVIDENCED BY DARK GRAY TO BLACK, WITH HEAVY PETROLEUM ODOOR.
SOIL IS SILTY SAND, BOTTOM @ 18-20' IS SANDSTONE BEDROCK. WATER SLOWLY
SEEPING INTO EXCAVATION.

IRRIGATION CANAL ~ 100 DOWNGRADIENT TO THE SOUTHWEST.

EXCAVATION CONTINUING ON WEST END OF PIT AT THIS TIME.

10/27: LEDGE ROCK ON SOUTH EDGE OF EXCAVATION @ ~ 12' DEEP. COARSE SANDY SOIL.

FIELD 4181 CALCULATIONS

SAMPLE I.D.	LAB No.	WEIGHT (g)	ML. FREON	DILUTION	READING	CALC. ppm

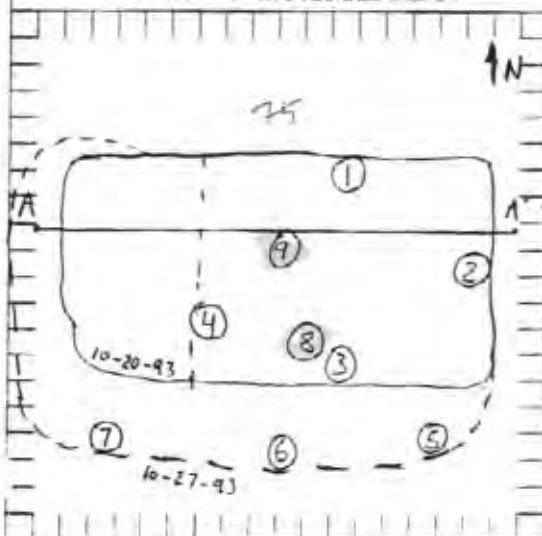
DEPTH TO GROUNDWATER:
NEAREST WATER SOURCE: CANAL ~ 100'
NEAREST SURFACE WATER:
UNDOED FILLING SCORE
UNDOED TO CLOSURE STD 100 PPM TPH

SCALE



0 10 20 FEET

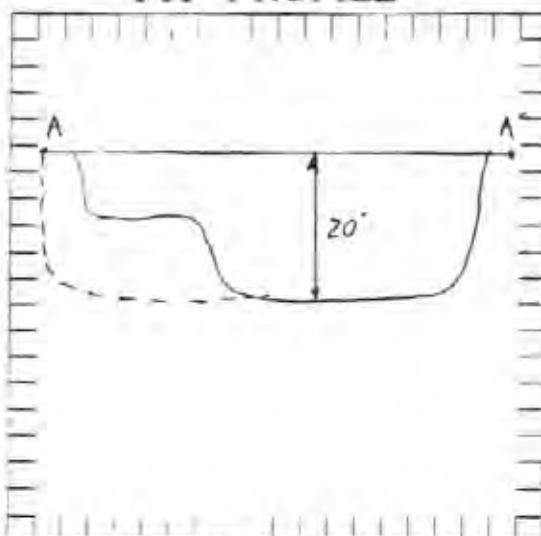
PIT PERIMETER



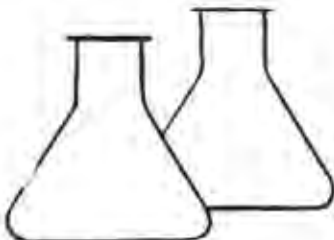
OVM RESULTS

SAMPLE ID	FIELD HEADSPACE P.D. (ppm)
① NS@15'	625
② ES@14'	598
③ SS@15'	710
④ WSS@15'	736
⑤ SES@12'	6.0
⑥ SCSE@12'	ND
⑦ SWS@12'	ND
⑧ SB@17'	3.6
⑨ CB@18'	WATER
LAB	
⑧	418.1 SOIL
⑨	BTEX WATER

PIT PROFILE



TRAVEL NOTES CALLISTO 10-20-93 1500 HRS. 1-4
10-27-93 1030 HRS. 5-9



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	8 SB @ 17'	Date Sampled:	10-27-93
Laboratory Number:	6409	Date Received:	10-27-93
Sample Matrix:	Soil	Date Analyzed:	11-02-93
Preservative:	Cool	Date Reported:	11-02-93
Condition:	Cool & Intact	Analysis Needed:	TPH

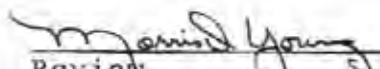
Parameter -----	Concentration (mg/kg) -----	Det. Limit (mg/kg) -----
Total Petroleum Hydrocarbons	ND	10.0

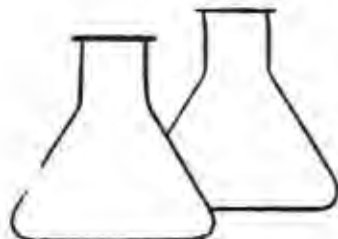
ND = Parameter not detected at the stated detection limit.
N/A = Not applicable

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

Comments: Bruington GC #1, Blow Pit, C4948.


Analyst


Review



ENVIROTECH LABS

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PHONE (505) 632-0615 • FAX: (505) 632 1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	9 CB @ 18'	Date Reported:	10-28-93
Laboratory Number:	6410	Date Sampled:	10-27-93
Sample Matrix:	Water	Date Received:	10-27-93
Preservative:	HgCl and Cool	Date Analyzed:	10-28-93
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	3,320	1.0
Toluene	3,500	2.0
Ethylbenzene	87	1.0
p,m-Xylene	2,010	1.5
o-Xylene	448	1.5

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	101 %
	Bromofluorobenzene	102 %

Method: Method 5030A, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Bruington GC #1 Blow Pit C4948

Dennis L. Jensen
Analyst

Tony Trestano
Review

CHAIN OF CUSTODY RECORD

Client/Project Name Amoco # 92140			Project Location BRUINGTON GC #1 ^{Blow} PIT		ANALYSIS/PARAMETERS C4948							
Sampler: (Signature) R. E. Ornela			Chain of Custody Tape No.		No. of Containers 418.1	✓	BTEX					Remarks
Sample No / Identification	Sample Date	Sample Time	Lab Number	Sample Matrix								
(8) SB @ 17"	10-27-93	1125	6409	SOIL								
(9) CB @ 18"	10-27-93	1140	6410	WATER	2		✓					
Relinquished by: (Signature) R. E. Ornela			Date 10-27-93	Time 1430	Received by: (Signature) Tony Tintano						Date 10/27/93	Time 1430
Relinquished by: (Signature)					Received by: (Signature)							
Relinquished by: (Signature)					Received by: (Signature)							

ENVIROTECH INC.

5796 U.S. Highway 64-3014
Farmington, New Mexico 87401
(505) 632-0615

ENVIROTECH Inc.

5796 US HWY. 64, FARMINGTON, NM 87401
(505) 632-0615

PIT NO. C4950

C.O.C. NO. 3146

FIELD REPORT CLOSURE VERIFICATION

JOB NO. 92140
PAGE No. 1 of 1

LOCATION: LEASE BRUNTING G.C. WELL #1 QD SW/4, NW/4 (E)
SEC 14 TWP 29 N RNG. 11 W BM NM CNTY ST ST NM PIT SEP
CONTRACTOR: PAUL VELASQUEZ
EQUIPMENT USED: EXCAVATOR

DATE STARTED: 10-29-93
DATE FINISHED: 10-29-93

ENVIRONMENTAL SPECIALIST RED

SOIL REMEDIATION: QUANTITY: EXCAVATION APPROX: 65' x 75' x 8' MAX. DEPTH

DISPOSAL FACILITY: CROUCH MESA ?

LAND USE: RESIDENTIAL SOUTH / INDUSTRIAL NORTH

SURFACE CONDITIONS: EXCAVATED PRIOR TO ARRIVAL

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 160 FEET WEST FROM WELLHEAD. PIT IS EXCAVATED TO BEDROCK SANDSTONE. APPROX. 8' DEEP ON NORTH END TO APPROX. 2' DEEP ON SOUTH END. - MINOR TRACES OF CONTAMINATION IN SANDSTONE SURFACE IRRIGATION CANAL APPROX. 40' WEST OF PIT.

PIT SOILS CONSIST OF A SILTY SAND OVER SANDSTONE BEDROCK - GRAY CONTAMINATION STAIN APPARENT IN SURFACE OF SANDSTONE - DISAPPEARS SEVERAL INCHES INTO THE ROCK.

FIELD 4181 CALCULATIONS

SAMPLE ID	LAB No.	WEIGHT (g)	ML FREON	DILUTION	READING CALI	ppm

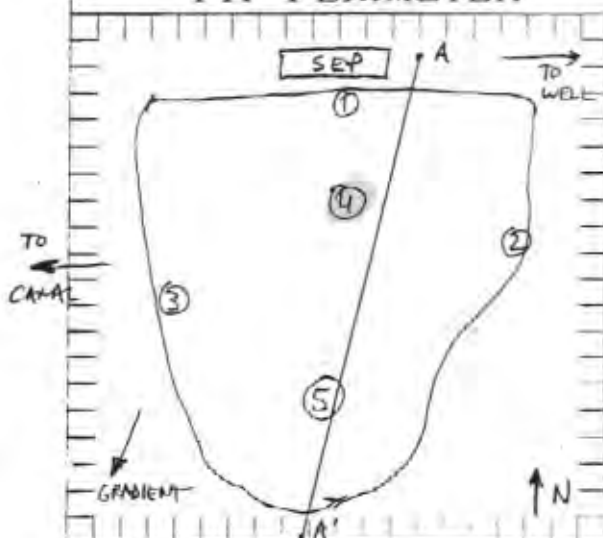
DEPTH TO GROUNDWATER: ~20'
NEAREST WATER SOURCE CANAL - 40'
NEAREST SURFACE WATER CANAL -
"MOOD RAINING DEGRE" >20
"MOOD TFM CLOSURE STD: 100 PPM TFM.

SCALE



0 10 20 FEET

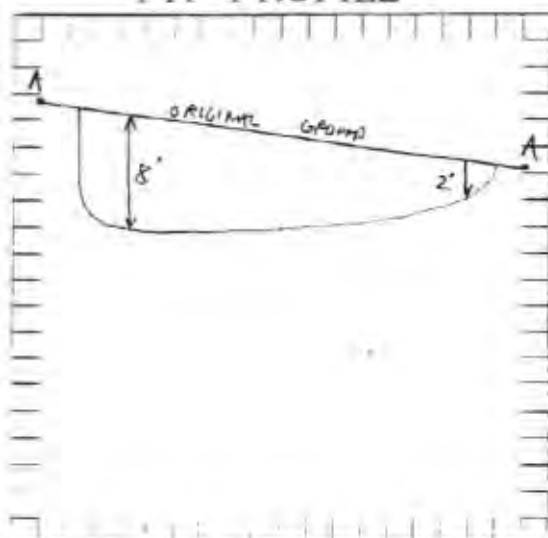
PIT PERIMETER



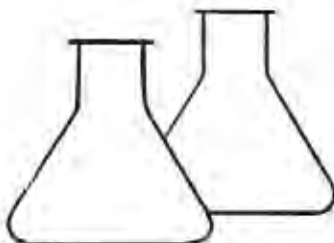
OVM RESULTS

SAMPLE ID	FIELD HEADSPACE (in)
1	NS@6' 978
2	ES@4' 1717
3	WS@3' 84
4	NB@8' 555
5	SB@4' 605
	LAB
④	418.1

PIT PROFILE



TRAVEL NOTES: PAUL U. 10-29-93 OROO ONEITE 10-29-93 ORSO



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	4 NB @ 8'	Date Sampled:	10-29-93
Laboratory Number:	6417	Date Received:	10-29-93
Sample Matrix:	Soil	Date Analyzed:	11-02-93
Preservative:	Cool	Date Reported:	11-02-93
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	ND	10.0

ND = Parameter not detected at the stated detection limit.
N/A = Not applicable

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

Comments: Bruington GC #1, Sep. Pit, C4950

Tony Tistano
Analyst

Maria D. Young
Review

CHAIN OF CUSTODY RECORD

Client/Project Name AMOCO # 92140			Project Location BRUNGTON G.C. #1 SEP. PIT		ANALYSIS/PARAMETERS C4950							
Sampler: (Signature) R. E. O'Neil			Chain of Custody Tape No.		No. of Containers 418.1	✓						Remarks
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix								
(4) NB @ 8'	10-29-93	0930	6417	SOIL	1	✓						
Relinquished by: (Signature) R. E. O'Neil			Date 10-29-93	Time 1502	Received by: (Signature) Kevin L. Gorman			Date 10-29-93	Time 1502			
Relinquished by: (Signature)					Received by: (Signature)							
Relinquished by: (Signature)					Received by: (Signature)							

ENVIROTECH INC.

5796 U.S. Highway 64-3014
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ENVIROTECH Inc

5796 US HWY 64 FARMINGTON NM 87401
(505) 832-0815

4948

COC 3179

FIELD REPORT CLOSURE VERIFICATION

92140

LOCATION LEASE BRINGTON GAS CO. WELL #1 QD SW/4 NW/4 (E)
SEC 14 T1P 29N R1G 11W BM. NM. CO. ST. ST. NM. PIT BLOW
CONTRACT # PAUL VELASQUEZ
EQUIPMENT USED TRACK HOE

DATE STARTED 11/10/93
DATE COMPLETED 11/11/93

ENVIRONMENTAL
SPECIALIST Rmy

DISPOSAL FACILITY CROUCH MESA

LAND USE RESIDENTIAL/INDUSTRIAL

EXCAVATED PRIOR TO ARRIVAL

FIELD NOTES & REMARKS PIT LOCATED APPROXIMATELY 405 YARDS S40°W FROM WELLHEAD

DEPTH TO GROUNDWATER 12'-15'
NEAREST WATER SOURCE UNKNOWN
NEAREST SURFACE WATER 100' CANAL

ACCORDING TO MR. VELASQUEZ, ALL AREAS OF PIT HAVE BEEN PREVIOUSLY CLOSED WITH THE EXCEPTION OF THE 2 SANDSTONE benches and the bottom (below GROUNDWATER)

THIS PIT IS A COMBINED EXCAVATION OF BOTH THE BLOW PIT AND THE Separator Pit.

* Sample locations per MR. Velasquez.

1. SAMPLE OF TOP 1" SANDSTONE (GRAY DISCOLORATION) (BTEX/TPH LAB)
2. SAMPLE OF SH/MC 1 FOOT ABOVE SANDSTONE (GRAY DISCOLORATION) (BTEX/TPH LAB)
3. SAMPLE OF GROUNDWATER FOR LABORATORY ANALYSIS

Recommend Conditional Closure Pending Removal of 2'-3' Contaminated Sand layer directly above Sandstone @ Sample Point 3, covering entire bench area on north side.

Recommend Monitor Wells for Groundwater Verification.

SCALE
SURFACE FEET
N

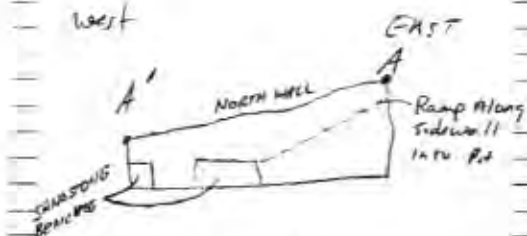
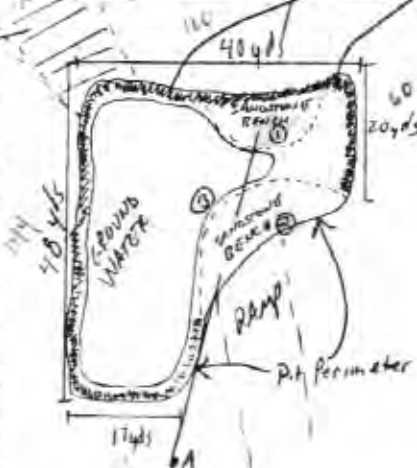
PIT PERIMETER

AREAS THAT HAVE BEEN REPORTED AS CLOSED, THEN BACKFILLED

OVM RESULTS

SAMPLE TEST RESULTS
0-10' 1.77 ppm
10-15' 6.04 ppm

PIT PROFILE



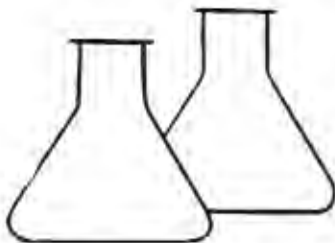
SIDEWALLS ARE SH/MC ON SANDSTONE

0-10' Silty Sand, LOOSE, WORKING, PALE YELLOWISH BROWN, VISIBLE GRAY DISCOLORATION IN EAST SANDSTONE BENCH

10-15' SANDSTONE: Pale Yellow Brown, GRAY on top 1"-2"

TRAVEL NOTES CALLOUT:

DISCITE



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	#1 @ 10' bgs	Date Sampled:	11-10-93
Laboratory Number:	6476	Date Received:	11-10-93
Sample Matrix:	Soil	Date Analyzed:	11-12-93
Preservative:	Cool	Date Reported:	11-12-93
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	310	10.0

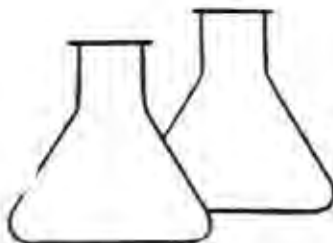
ND = Parameter not detected at the stated detection limit.
N/A = Not applicable

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

Comments: Bruington GC #1, Blow Pit, C4948

Tony Tristano
Analyst

Mavis D. Young
Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401

PHONE (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	#1 @ 10' bgs	Date Reported:	11-11-93
Laboratory Number:	6476	Date Sampled:	11-10-93
Sample Matrix:	Soil	Date Received:	11-10-93
Preservative:	Cool	Date Extracted:	11-11-93
Condition:	Cool & Intact	Date Analyzed:	11-11-93
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	192	13.2
Toluene	2,180	19.8
Ethylbenzene	2,360	13.2
p,m-Xylene	29,700	19.8
o-Xylene	14,100	19.8

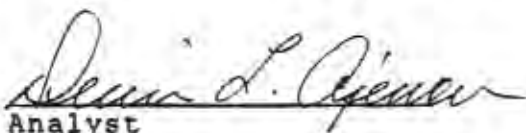
SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	101 %
	Bromofluorobenzene	102 %

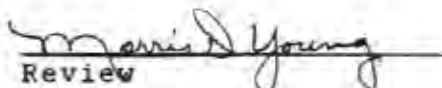
Method: Method 5030, Purge-and-Trap, Test Methods for
Evaluating Solid Waste, SW-846, USEPA, July 1992

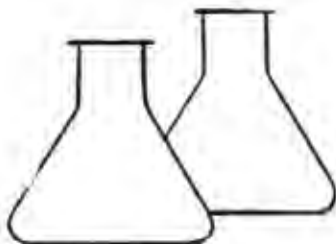
Method 8020, Aromatic Volatile Organics, Test Methods
for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

ND - Parameter not detected at the stated detection limit.

Comments: Bruington GC #1 Blow Pit C4948


Analyst


Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	#2 @ 9' bgs	Date Sampled:	11-10-93
Laboratory Number:	6477	Date Received:	11-10-93
Sample Matrix:	Soil	Date Analyzed:	11-12-93
Preservative:	Cool	Date Reported:	11-12-93
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
-----	-----	-----
Total Petroleum Hydrocarbons	358	10.0

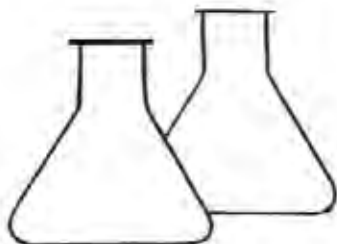
ND = Parameter not detected at the stated detection limit.
N/A = Not applicable

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

Comments: Bruington GC #1, Blow Pit, C4948

Tony Tostone
Analyst

Morris D. Young
Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	#2 @ 9' bgs	Date Reported:	11-11-93
Laboratory Number:	6477	Date Sampled:	11-10-93
Sample Matrix:	Soil	Date Received:	11-10-93
Preservative:	Cool	Date Extracted:	11-11-93
Condition:	Cool & Intact	Date Analyzed:	11-11-93
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	61	13.1
Toluene	940	19.6
Ethylbenzene	890	13.1
p,m-Xylene	5,000	19.6
o-Xylene	1,530	19.6

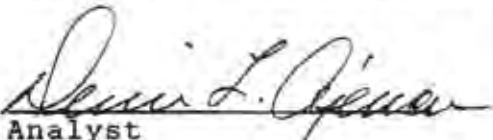
SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	98 %
	Bromofluorobenzene	101 %

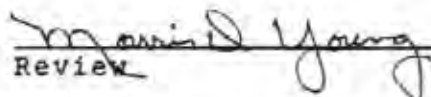
Method: Method 5030, Purge-and-Trap, Test Methods for
Evaluating Solid Waste, SW-846, USEPA, July 1992

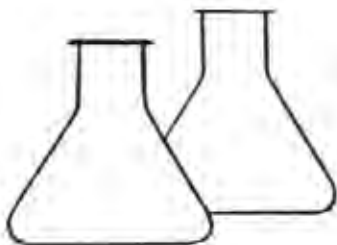
Method 8020, Aromatic Volatile Organics, Test Methods
for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

ND - Parameter not detected at the stated detection limit.

Comments: Bruington GC #1 Blow Pit C4948


Analyst


Review



ENVIROTECH LABS

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PHONE (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	Pit Water	Date Reported:	11-11-93
Laboratory Number:	6478	Date Sampled:	11-10-93
Sample Matrix:	Water	Date Received:	11-10-93
Preservative:	HgCl and Cool	Date Analyzed:	11-11-93
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	5,500	1.0
Toluene	4,380	1.5
Ethylbenzene	438	1.0
p,m-Xylene	2,660	1.5
o-Xylene	790	1.5

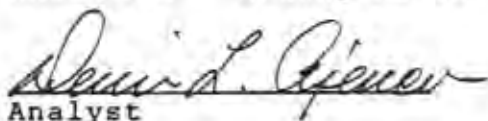
SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	100 %
	Bromofluorobenzene	102 %

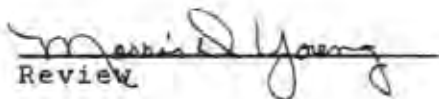
Method: Method 5030A, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Bruington GC #1 Blow Pit C4948


Analyst


Review

CHAIN OF CUSTODY RECORD

Client/Project Name <i>Amoco 92140</i>			Project Location <i>Blow Pit</i> <i>BRUINGTON GC #1</i>		ANALYSIS/PARAMETERS <i>C4948</i>							
Sampler: (Signature) <i>Robert M. Young</i>			Chain of Custody Tape No.		No. of Containers	<i>4/8.1</i>	<i>12/15</i>					Remarks
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix								
<i>#1 @ 10' bgs</i>	<i>11/10/93</i>	<i>1415</i>	<i>6476</i>	<i>SOIL</i>	<i>1</i>	<i>✓</i>	<i>✓</i>					
<i>#2 @ 9' bgs</i>	<i>11/10/93</i>	<i>1415</i>	<i>6477</i>	<i>SOIL</i>	<i>1</i>	<i>✓</i>	<i>✓</i>					
<i>Pit Water</i>	<i>11/10/93</i>	<i>1400</i>	<i>6478</i>	<i>WATER</i>	<i>2</i>		<i>✓</i>					
Relinquished by: (Signature) <i>Robert M. Young</i>			Date <i>11/10/93</i>	Time <i>1530</i>	Received by: (Signature) <i>Tony Tinton</i>					Date <i>11/10/93</i>	Time <i>1530</i>	
Relinquished by: (Signature)					Received by: (Signature)							
Relinquished by: (Signature)					Received by: (Signature)							

ENVIROTECH INC.

5796 U.S. Highway 64-3014
Farmington, New Mexico 87401
(505) 632-0615

DEC 21 1993

BRUINGTON GAS COM #1
Meter/Line ID - 73746

RECEIVED
JUL 2 1993

SITE DETAILS

Legals - Twn: 29

Rng: 11

Sec: 14

Unit: E

NMOCD Hazard Ranking: 20

Land Type: 4 - Fee

Operator: AMOCO PRODUCTION COMPANY

Pit Closure Date: 04/28/94

RATIONALE FOR RISK-BASED CLOSURE:

The above mentioned production pit was assessed and ranked according to the criteria in the New Mexico Conservation Division's Unlined Surface Impoundment Closure Guidelines.

The primary source, discharge to the pit, has been removed. There has been no discharge to the production pit for at least five years and the pit has been closed for at least three years.

The production pit has been remediated to the practical extent of the trackhoe or to the top of bedrock. Initial laboratory analysis has indicated that the soil remaining at the bottom of the excavation is above standards based on the hazard ranking score. Contaminated soil was removed and transported to an approved landfarm for disposal. The initial excavation was backfilled with clean soil and graded in a manner to divert precipitation away from the excavated area. Any rainfall that does infiltrate the ground surface must migrate through clean backfill before reaching any residual hydrocarbons remaining in the soil. Therefore, further mobility of residual hydrocarbons is unlikely.

Since the soil samples from the initial excavation were above standards, a test boring was drilled and a sample was collected to evaluate the vertical extent of impact to soils. Test boring sample results indicated soils below standards beneath the original excavation.

El Paso Field Services Company (EPFS) requests closure of the above mentioned production pit location for the following reasons:

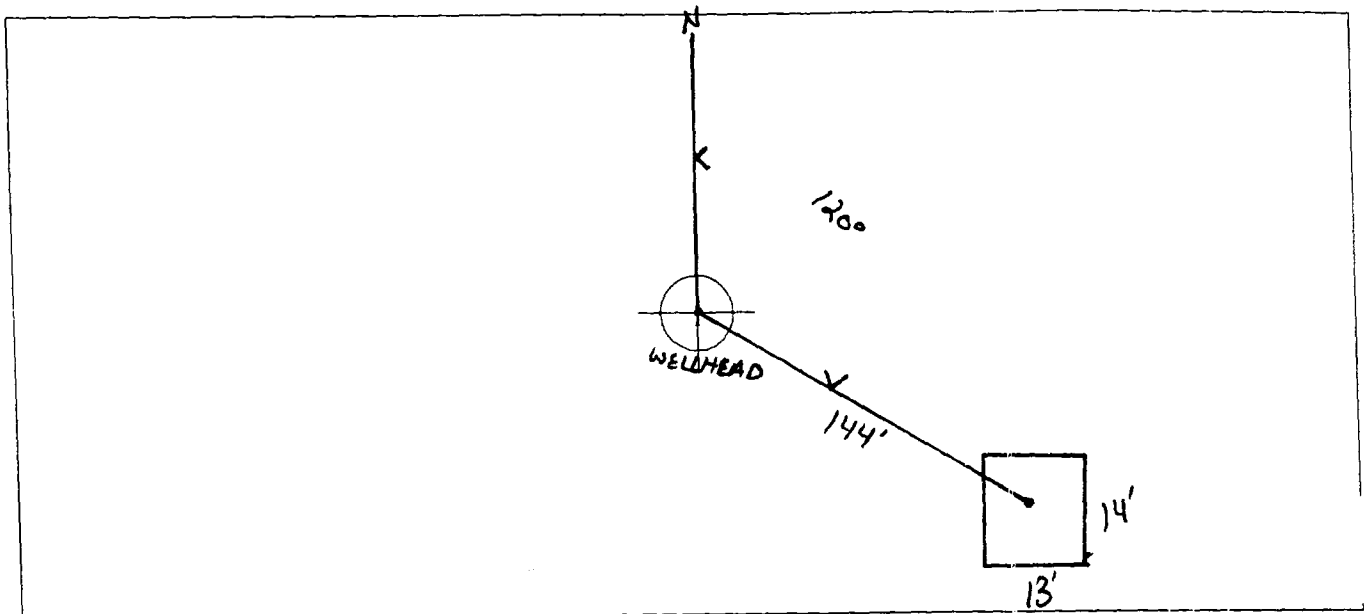
- Discharge to the pit has not occurred in over five years and the pit has been closed for over three years.
- The bulk of the impacted soil was removed during the initial excavation.
- The excavation was backfilled with clean soil and graded to divert precipitation away from the excavation area.
- All source material has been removed from the ground surface, eliminating potential direct contact with livestock and the general public.
- Groundwater was not encountered in the initial excavation or test boring; therefore, impact to groundwater is unlikely.
- Soil samples collected beneath the initial excavation were below standards.
- No potential receptors are within 1,000 feet of the site.
- Residual hydrocarbons remaining in the soil at the bottom of the initial excavation will naturally degrade in time with minimal risk to the environment.

FIELD PIT SITE ASSESSMENT FORM

GENERAL	Meter: <u>73746</u> Location: <u>BRUINGTON GAS COM #1</u> Operator #: <u>0203</u> Operator Name: <u>AMOCO</u> P/L District: <u>BLOOMFIELD</u> Coordinates: Letter: <u>E</u> Section <u>14</u> Township: <u>29</u> Range: <u>11</u> Or Latitude _____ Longitude _____ Pit Type: Dehydrator ☒ Location Drip: _____ Line Drip: _____ Other: _____ Site Visit Date: <u>4.14.94</u> Run: <u>10</u> <u>81</u>
	NMOCD Zone: Inside ☐ Land Type: BLM ☐ (From NMOCD Vulnerable State ☐ Maps) Zone ☒ Fee ☒ Outside ☐ Indian _____ Depth to Groundwater Less Than 50 Feet (20 points) ☐ 50 Ft to 99 Ft (10 points) ☒ Greater Than 100 Ft (0 points) ☐ Wellhead Protection Area : Is it less than 1000 ft from wells, springs, or other sources of fresh water extraction? , or ; Is it less than 200 ft from a private domestic water source? ☐ YES (20 points) ☒ NO (0 points) Horizontal Distance to Surface Water Body Less Than 200 Ft (20 points) ☐ 200 Ft to 1000 Ft (10 points) ☒ Greater Than 1000 Ft (0 points) ☐ Name of Surface Water Body ^{CITIZENS} IRRIGATION DITCH (Surface Water Body : Perennial Rivers, Major Wash, Streams, Creeks, Irrigation Canals, Ditches, Lakes, Ponds) TOTAL HAZARD RANKING SCORE: <u>20</u> POINTS
REMARKS	Remarks : <u>TWO PITS ON LOCATION. WILL CLOSE ONLY ONE. PIT IS DRY. LOCATION IS UP ON A HILL. LOCATED RIGHT BEHIND CONOC PLANT IN BLOOMFIELD.</u>

ORIGINAL PIT LOCATION

Original Pit : a) Degrees from North 120° Footage to Wellhead 144'
 b) Degrees from North _____ Footage to Dogleg _____
 Dogleg Name _____
 c) Length : 14' Width : 13' Depth : 1'



Remarks :

STARTED TAKING PICTURES AT 10:06 A.M.
END DUMP

Completed By:

Robert Thompson
 Signature

4.14.04
 Date

PHASE I EXCAVATION

GENERAL	Meter: <u>73746</u> Location: <u>Brewington Gas Com #1</u> Coordinates: Letter: <u>E</u> Section <u>14</u> Township: <u>29</u> Range: <u>11</u> Or Latitude _____ Longitude _____ Date Started : <u>4-28-94</u> Area: <u>10</u> Run: <u>81</u>
FIELD OBSERVATIONS	Sample Number(s): ⁹⁴⁵⁰³⁶ <u>JP5</u> Sample Depth: <u>12</u> Feet Final PID Reading <u>0410 ppm</u> PID Reading Depth <u>12</u> Feet Yes No Groundwater Encountered ☐ (1) ☒ (2) Approximate Depth _____ Feet
CLOSURE	Remediation Method : Excavation ☒ (1) Approx. Cubic Yards <u>75</u> Onsite Bioremediation ☐ (2) Backfill Pit Without Excavation ☐ (3) Soil Disposition: Envirotech ☐ (1) ☒ (3) Tierra Other Facility ☐ (2) Name: _____ Pit Closure Date: <u>4-28-94</u> Pit Closed By: <u>BFI</u>
REMARKS	Remarks : <u>Dug test hole to 10' took Initial PID reading was 210 ppm at 75'. Remediated pit to 12' took VC sample PID reading was 410 ppm at 75' pit size is 17x16x12 closed pit side walls & Floor still read Black.</u> Signature of Specialist: <u>James J Penno</u>



FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT - Soil

SAMPLE IDENTIFICATION

SAMPLE NUMBER:

Field ID

Lab ID

MTR CODE | SITE NAME:

SAMPLE DATE | TIME (Hrs):

SAMPLED BY:

DATE OF TPH EXT. | ANAL.:

DATE OF BTEX EXT. | ANAL.:

TYPE | DESCRIPTION:

JP5

945036

73746

N/A

4/28/94

1315

N/A

5-2-94

5-2-94

5/5/94

5/6/94

VC

Brown/Grey Clay/Sand

REMARKS:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q	M(g)	V(ml)
BENZENE	2.6	MG/KG				
TOLUENE	59	MG/KG				
ETHYL BENZENE	8.8	MG/KG				
TOTAL XYLENES	110	MG/KG				
TOTAL BTEX	180	MG/KG				
TPH (418.1)	432	MG/KG			2.63	28
HEADSPACE PID	410	PPM				
PERCENT SOLIDS	85.5	%				

- TPH is by EPA Method 418.1 and BTEX is by EPA Method 8020 -

The Surrogate Recovery was at 81 % for this sample All QA/QC was acceptable.
Narrative:

ATI Results attached.

DF = Dilution Factor Used

Approved By:

Date:

John Sandoz

5/21/94

```

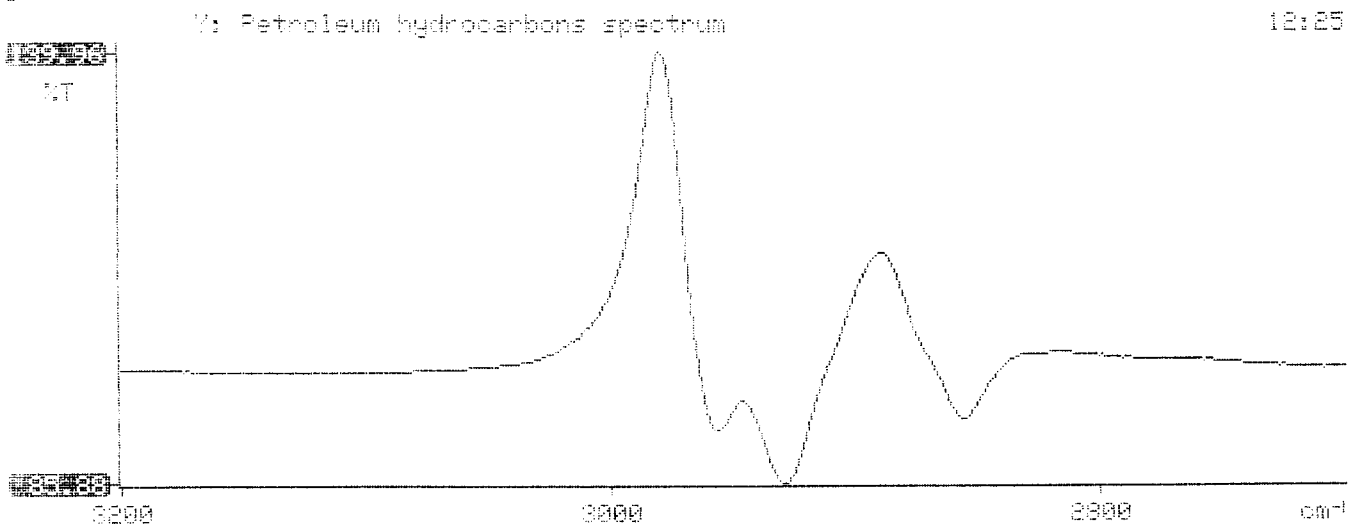
*****
Test Method for
Oil and Grease and Petroleum Hydrocarbons
in Water and Soil
*****
Perkin-Elmer Model 1600 FT-IR
Analysis Report
*****

```

```

94/05/02 12:25
Sample Identification
945036
Initial mass of sample, g
2.030
Volume of sample after extraction, ml
29.000
Petroleum hydrocarbons, ppm
432.965
Net absorbance of hydrocarbons (2930 cm-1)
0.068

```





ATI I.D. **405313**

May 13, 1994

El Paso Natural Gas Company
P.O. Box 4990
Farmington, NM 87499

Project Name/Number: PIT CLOSURE 24324

Attention: John Lambdin

On **05/03/94**, Analytical Technologies, Inc., (ADHS License No. AZ0015), received a request to analyze **non-aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

EPA Method 8015 analysis was added on 05/05/94 for sample 945008 per Stacy Sendler.

The matrix spike/spike duplicate data from the samples extracted on 05/05/94 is reported twice reflecting quantification using both the internal standard and external standard protocols. Both protocols were employed to quantify the samples submitted for this project.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Letitia Krakowski, Ph.D.
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jd

Enclosure



GAS CHROMATOGRAPHY RESULTS

TEST : BTEX, MTBE (EPA 8020)
 CLIENT : EL PASO NATURAL GAS CO. ATI I.D.: 405313
 PROJECT # : 24324
 PROJECT NAME : PIT CLOSURE

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
22	945033	NON-AQ	04/28/94	05/05/94	05/05/94	1
23	945035	NON-AQ	04/28/94	05/05/94	05/05/94	1
24	945036	NON-AQ	04/28/94	05/05/94	05/06/94	20

PARAMETER	UNITS	22	23	24
BENZENE	MG/KG	<0.025	<0.025	2.6
TOLUENE	MG/KG	<0.025	<0.025	59
ETHYLBENZENE	MG/KG	<0.025	<0.025	8.8
TOTAL XYLENES	MG/KG	<0.025	<0.025	110
METHYL-t-BUTYL ETHER	MG/KG	<0.12	<0.12	<2.4

SURROGATE:

BROMOFLUOROBENZENE (%)	91	95	81
------------------------	----	----	----



Analytical Technologies, Inc.

COPY

ORIGINAL

INVOICE

AL 72053

Albuquerque Office: 2709-D Pan American Fwy., NE
Albuquerque, NM 87107
(505) 344-3777

Remit To:
Analytical Technologies, Inc.
P. O. Box 840436
Dallas, Texas 75284-0436

Billed to: EL PASO NATURAL GAS COMPANY
P.O. BOX 4990
FARMINGTON, NM 87499
Accession No.: 9405-313
Date: 05/13/94
Client No.: 850-020
810

Attention: ACCOUNTS PAYABLE

Telephone: 505-325-2841

Authorized by: JOHN LAMBDIN

P.O. Number: 38822

Samples: 39 NON-AQ

Project: PIT CLOSURE
Project No.: 24324

EPNG SAMPLE # 945008
to
945027
945032, 945033, 945035 to 945039, 945041
to 945050, 945034 and 945040
received 05/03/94

TEST DESCRIPTION	QUANTITY	PRICE	TOTAL
EPA METHOD 8015M/8020	-10 % 1	125.00	112.50
BTEX/MTBE (8020)	-10 % 38	80.00	2736.00
NM GROSS RECEIPTS TAX	1	165.57	165.57
***** Amount due: 3014.07 *****			



5/17/94
APPROVED FOR PAYMENT

DATE 5/17/94
CHARGE 108-52452-24-0001-0012-SI-2010
50% 108-51570-24-0001-0012-SI-2010
SIGNATURE

David Hall
541-3531

TERMS: Net 30 Days - 1½% Finance Charge on Balance Due over 30 days.

PHASE II

RECORD OF SUBSURFACE EXPLORATION

PHILIP ENVIRONMENTAL

4000 Monroe Road

Farmington, New Mexico 87401

(505) 326-2262 FAX (505) 326-2388

Borehole # BH-1

Well #

Page 1 of 1

Project Name

EPNG PITS

Project Number

14509

Phase

6000 / 77

Project Location

Bravington Gas Com #1 73746

Elevation

Borehole Location

GWL Depth

Logged By

CM CHANCE

Drilled By

M. DONOHUE K. Padilla

Date/Time Started

6/13/95-0930

Date/Time Completed

6/13/95-1050

Well Logged By

CM Chance

Personnel On-Site

K. Padilla, F. Rivera, D. Tsalats

Contractors On-Site

Client Personnel On-Site

Drilling Method

4 1/4" ID HSA

Air Monitoring Method

PID, CGI

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM			Drilling Conditions & Blow Counts
							BZ	BH	HS	
0				Backfill to 12'						
5										
10										
15	1	15-17	6"	BLK silty CLAY, with x+ln parting, med stiff, sl moist, odor			0	26	292 298	0940 hr
20	2	20-22	6"	BLK silty SAND, vf-f sand, tr med sand med dense, sl moist, odor			3	69	28 232	0949
25	3	25-25.5	3"	lt br SANDSTONE, med sand, sl x+ln, v. hard			0	40	12	hard drilling 1007 Refusal @ 25.5'
30				TDB 25.5						
35										
40										

Comments:

25-25.5 sample sent to lab (CMC 50) (BTEX, TPH) BH grouted to surface

Geologist Signature

**FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT**

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC50	946892
MTR CODE SITE NAME:	73746	Bruington Gas Com #1
SAMPLE DATE TIME (Hrs):	6/13/95	1007
PROJECT:	PHASE II Drilling	
DATE OF TPH EXT. ANAL.:	6/15/95	6/15/95
DATE OF BTEX EXT. ANAL.:	6/16/95	6/16/95
TYPE DESCRIPTION:	VG	Light tan fine sand

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q	M(g)	V(ml)
BENZENE	<0.03	MG/KG				
TOLUENE	<0.03	MG/KG				
ETHYL BENZENE	<0.03	MG/KG				
TOTAL XYLENES	<0.03	MG/KG				
TOTAL BTEX	<0.10	MG/KG				
TPH (418.1)	23.2	MG/KG			2.00	28
HEADSPACE PID	1	PPM				
PERCENT SOLIDS	94.1	%				

-- TPH is by EPA Method 418.1 and BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 97.0 for this sample All QA/QC was acceptable.
Narrative: _____

DF = Dilution Factor Used

Approved By: _____

INGVZPIT.XLS

Date: _____

6/28/95
7/17/97



FIELD SERVICES LABORATORY
ANALYTICAL REPORT

PIT CLOSURE PROJECT - Soil Samples Inside the GWV Zone

Phase II

SAMPLE IDENTIFICATION

SAMPLE NUMBER:

Field ID

Lab ID

MTR CODE | SITE NAME:

SAMPLE DATE | TIME (Hrs):

Project

SAMPLED BY:

DATE OF TPH EXT. | ANAL.:

DATE OF BTEX EXT. | ANAL.:

TYPE | DESCRIPTION:

000000 <i>000000</i> <i>CNC50</i>	000000 <i>946892</i>
000000 <i>73746</i>	N/A
<i>6-13-95</i>	0000 <i>1007</i>
<i>6-15-95</i>	<i>N/A Phase II Drilling</i>
<i>6-16-95</i>	<i>6-15-95</i>
<i>6-16-95</i>	<i>6-16-95</i>
<i>VG</i>	0000000000

Light tan Fine Sand

REMARKS:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q	M(g)	V(ml)
BENZENE	<i><0.025</i>	MG/KG	<i>1</i>			
TOLUENE	<i><0.025</i>	MG/KG	<i>1</i>			
ETHYL BENZENE	<i><0.025</i>	MG/KG	<i>1</i>			
TOTAL XYLENES	<i><0.025</i>	MG/KG	<i>1</i>			
TOTAL BTEX	<i><0.10</i>	MG/KG				
TPH (418.1)	000 <i>23.2</i>	MG/KG			<i>2.0</i>	<i>28</i>
HEADSPACE PID	00 <i>1</i>	PPM				
PERCENT SOLIDS	<i>94.1</i> 000	%				

-- TPH is by EPA Method 418.1 and BTEX is by EPA Method 8020 --

The Surrogate Recovery was at *000 97* % for this sample All QA/QC was acceptable.
Narrative:

All Results attached.

DF = Dilution Factor Used

Approved By: *J.F.*

Date: *6/28/95*

GAS CHROMATOGRAPHY RESULTS

TEST : BTEX (EPA 8020)
CLIENT : EL PASO NATURAL GAS CO. ATI I.D.: 506376
PROJECT # : 24324
PROJECT NAME : PIT CLOSURE/PHASE II

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	946891	NON-AQ	06/13/95	06/16/95	06/16/95	1
02	946892	NON-AQ	06/13/95	06/16/95	06/16/95	1
03	946893	NON-AQ	06/13/95	06/16/95	06/16/95	1
PARAMETER			UNITS	01	02	03
BENZENE			MG/KG	<0.025	<0.025	<0.025
TOLUENE			MG/KG	<0.025	<0.025	<0.025
ETHYLBENZENE			MG/KG	<0.025	<0.025	<0.025
TOTAL XYLENES			MG/KG	<0.025	<0.025	<0.025

SURROGATE:

BROMOFLUOROBENZENE (%) 111 97 97



ATI I.D. 506376

June 21, 1995

El Paso Natural Gas Co.
P.O. Box 4990
Farmington, NM 87499

Project Name/Number: PIT CLOSURE/PHASE II 24324

Attention: John Lambdin

On 06/16/95, Analytical Technologies, Inc., (ADHS License No. AZ0015), received a request to analyze **non-aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

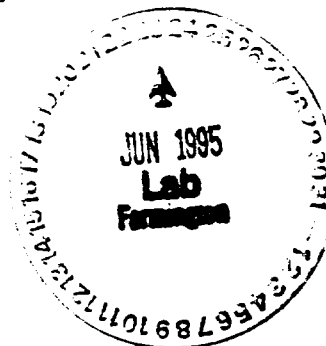
If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jt

Enclosure





Page _____ of _____

White - Testing Laboratory Canary - EPNG Lab Pink - Field Sampler

APPENDIX B
LITHOLOGIC LOGS AND WELL COMPLETION DIAGRAMS





Compliance • Engineering • Remediation
LT Environmental, Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301

Boring/Well Number:

B-1

Date:

10/27/09

Project:

Brington GC #1

Project Number:

Logged By:

ALA

Drilled By:

Earthwork

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long: 36 43.704
-107.58.031

Elevation:

Detector:

PID

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

24'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

12'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0			0-2' NO recovery	
					1				
					2				
					3		sm	2'-4' silty sand, 5/4 R, reddish brown, minor coarse grains, minor FeO ₂	
					4				
					5				
					6			4'-8' NO recovery Likely loose sand	
					7				
					8				
					9			8'-10' NO recovery	
					10		sm	10'-10 1/2' SM, silty sand 5/4 R 4/4	
					11				



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

Boring/Well Number:

B-1

Date:

10/27/09

Project:

Bruington GC #1

Project Number:

Logged By:

ALA

Drilled By:

Earthwork

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long: 36° 43.704' N
-107° 58.031' W

Elevation:

Detector:

PID

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

24'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

12'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
easy		12' = 7.2 ppm			11		SC	10 1/2' - 12' grey sandy clay Gley 2 %/10B	
					12		X	12' - 13' No Recovery	
					13		X		
easy	Sat.	14' = 194 ppm	minor black		14		SC	13' - 15' saturated grey sandy clay, medium grained sand, gley 2 %/10B Minor black staining	
	Dry				15		SC	15' - 16' coarse to medium sand with clay	
					16		X	16' - 18' No recovery	
					17		X		
					18		SM	18' - 19' medium grained sand with minor silt/clay, saturated	
	Sat.				19		CL	19' - 20' grey clay, minor medium grained sand, HC impacts present	
EASY		20' = 170 ppm			20		X	20' - 21 1/2' No recovery	
		21' = 1085 ppm			21		X		
					22			21 1/2' - 22' grey clay, medium plasticity	



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Durango, Colorado 81301

Boring/Well Number:

B-1

Date:

10/27/09

Project:

Brington GC #1

Project Number:

Logged By:

Drilled By:

Earthwork

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long: 36° 43.704' N
107° 58.031' W

Elevation:

Detector:

PID

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

24'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

12'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Refused		25' = 0.8 ppm			22		SP	22'-22 1/2' grey medium coarse sand, contamination ends	
					23		SP	22 1/2'-23 1/2' GS to med grained sand, light brown	
					24		CL	23 1/2'-24' Hard clay	
					25				
					26				
					27				
					28				
					29				
					30				
					31				
					32				
					33				



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

Boring/Well Number:

B-2

Date:

10/27/2009

Project:

Brighton GC#1

Project Number:

Logged By:

ALA

Drilled By:

EarthWork

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.706, 107 52.024

Elevation:

Detector:

PID, LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

24'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

12.5'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy		2=0.0			0			0'-4' 7.54 7/2 light brown, sand and gravel, poorly sorted, GP	
					1			0'-25" no recovery	
					2				
					3				
Easy		4=0.7			4			4'-8' 7.54 7/2 light brown, poorly sorted silty sand, sm, medium to coarse sand, damp @ 6.25"	
					5				
					6			4'-6.25" no recovery	
					7				
Easy		8=0.0			8			8'-12' poorly sorted silty sand as above	
					9			8'-9.25" no recovery	
					10				
		10=0.0			11				



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 Durango, Colorado 81301

Boring/Well Number:

B-2

Date:

10/27/2009

Project:

Bruington GC #1

Project Number:

Logged By:

ALA

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.700 107 52.634

Elevation:

Detector:

PID, CEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

24'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

12.5'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy	SAT @ 13.2"	12' = 0.2			11				
					12				
					13			12-16' 10B 6/2 gray, poorly sorted sand, silt and gravel, SM-SP, minor clay contents in matrix, saturated @ 13.2"	
					14			12-13.2" no Recovery	
					15				
Easy		14' = 0.0			16				
					17			16-20' 17.25-18' 10B 6/2 gray, poorly sorted silty sand, SM, saturated	
	SAT	16' = 0.7			18			18-19.5' increasing coarse sand content	
					19			19.5-20' 10B 6/2 gray clay, CL, medium plasticity, some sand content	
					20				
Easy		20' = 0.0			21			20-24' 21.75-22.5' 10B 6/2 gray sand, medium to coarse grained, SM, poorly sorted, saturated	
	SAT				22			22.5-24' brown silty clay, low plasticity, saturated	



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Durango, Colorado 81301

Boring/Well Number: B-2	Date: 10/27/2009
Project: Burlington GC #1	Project Number:
Logged By: ALA	Drilled By: Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long: 36 43.700, 107 58.054	Elevation:	Detector: PID, CEL	Drilling Method: Geoprobe	Sampling Method:	Hole Diameter:	Total Depth: 24'
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	Depth to Water: 12.5'	
Gravel Pack:	Seal:	Grout:	Comments:			

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy	Sat	22' = 1.2		B-2-22'	22				
		23							
		24							
		25							
		26							
		27							
		28							
		29							
		30							
		31							
		32							
33									



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

Boring/Well Number:

B-3

Date:

10/27/2009

Project:

Brington GL #1

Project Number:

Logged By:

ALA

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.048, 107 58.026

Elevation:

Detector:

PID, LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

18'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

16'

Gravel Pack:

Seal:

Grout:

Comments:

refusal @ 18'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy		2' = 0.0			0		SM	0-4' light brown, poorly sorted silty sand, minor coarse sand content, sm	
		4' = 0.0			1			0-2.75" no recovery	
					2				
					3				
					4				
					5				
					6			No Recovery	
					7				
					8		SM	8-12' gray poorly sorted medium to coarse sand, sm, damp @ 10'	
Easy	Damp	10' = 0.0			9				
					10				
					11				



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Boring/Well Number:

B-3

Date:

10/27/2009

Project:

Brington GC #1

Project Number:

Logged By:

ALA

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.698, 107 53.026

Elevation:

Detector:

PID, LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

18'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

16'

Gravel Pack:

Seal:

Grout:

Comments:

Refusal @ 18'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy		12' = 0.0			11				
		14' = 0.0			12		SM	12-16' gray poorly sorted medium to coarse sand as above,	
		16' = 0.0			13			12-13.25" no recovery	
		18' = 0.0			14				
		20' = 0.0			15				
	SAT				16		SM	16-18' brown poorly sorted s.lly sand, SM, minor coarse sand content, saturated @ 16'	
				B-3-18'	17		SP	17-18' light tan, coarse to medium sand, SP, minor fines, poorly sorted	
					18				
					19				
					20				
					21				
					22				



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2243 Main Avenue, Suite 3
Durango, Colorado 81301

Boring/Well Number:

B-4

Date:

10/27/2009

Project:

Brownington GL #1

Project Number:

Logged By:

ALA

Drilled By:

Earth Works

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long: 36 43.140, 107 58.626	Elevation:	Detector: PID LEL	Drilling Method: Geoprobe	Sampling Method:	Hole Diameter:	Total Depth: 16'
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	Depth to Water:	NA

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy		2' = 0.0			0			0-4' light brown poorly sorted silty sand, sm, medium to coarse sand content	
					1			0-2.25" NO Recovery	
					2				
					3				
		4' = 0.0			4			4-8'	
					5				
					6			No Recovery	
					7				
					8			8-12' light brown, poorly sorted medium to coarse sand, hard and dry	
Easy	Dry	10' = 0.0			9				
					10			8-11' NO Recovery	
					11				



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Durango, Colorado 81301

Boring/Well Number: B-4
Date: 10/27/2009

Project: Brington GC #1
Project Number:

Logged By: ALA
Drilled By: Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long: 36 43.698, 107 58.024
Elevation:
Detector: PID, LEL
Drilling Method: Geoprobe
Sampling Method:
Hole Diameter:
Total Depth: 16'
Casing Type:
Casing Diameter:
Casing Length:
Slot Size:
Slot Length:
Depth to Water:

Gravel Pack:
Seal:
Grout:
Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Earth		12' = 0.0 14' = 0.0 16' = 1.0		B-4-16'	11 12 13 14 15 16 17 18 19 20 21 22			12-16' 14-14.75' brown silty sand, sm, medium sand content, minor coarse grained sand, dry 14.75'-15.5' brown sandy clay, CL, damp gray staining, minor black streaks, no odor 15.5-16' semi-consolidated coarse sand, visible staining, occasional iron staining, compact	



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LT Environmental, Inc.
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 Durango, Colorado 81301

Boring/Well Number:

B-5

Date:

10/27/2009

Project:

Brington GC #1

Project Number:

Logged By:

ALA

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36° 43.705' 107° 58.011'

Elevation:

Detector:

PID, UEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

NA

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
E-254		2' = 0.0			0			0-4' light brown, silty sand, sm, med grained sand content, dry	
		4' = 0.0			1				
		6' = 0.0			2				
					3				
					4			4-7' semi-consolidated coarse sand, light tan color, minor black stainings, white carbonate ppt.	
					5				
					6				
					7				
					8				
					9				
					10				
					11				



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2243 Main Avenue, Suite 3
Durango, Colorado 81301

Boring/Well Number:

B-6

Date:

10/27/2009

Project:

Brington GC #1

Project Number:

Logged By:

ALA

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.765, 711 58.007

Elevation:

Detector:

P10 LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

16

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

NA

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
EASY		2' = 0.0	Minor FE Staining		0			0-4' light brown silty sand, SM, poorly sorted, medium sand grains and minor iron staining	
		4' = 0.0			1				
					2				
					3				
EASY		6' = 0.0			4			4-8' SM as above	
					5			4.5-8' no recovery	
					6				
					7				
		8' = 0.4			8			8-12' 8-10.25' no recovery	
EASY					9			10-25-11' light brown sandy silt, SM, hard and dry, poorly sorted	
		10' = 1402			10			11-12' black sandy clay, strong HC odor	
			HC odor		11				



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Boring/Well Number:

B-6

Date:

10/27/2010

Project:

Broughton GC#1

Project Number:

Logged By:

ALA

Drilled By:

Earthwork

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.105, 711 58.007

Elevation:

Detector:

PID, LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
EASY		12=1925			11				
					12			12-12.6 No Recovery	
					13			12.6'-14 grayish black silty clay, strong HC odor	
EASY		14=2456	HC odor		14			14-16' black coarse sand, minor fine content, visible staining and HC odor	
					15				
		16=2950	HC odor		16				
				B-6-16'	17				
					18				
					19				
					20				
					21				
					22				



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

Boring/Well Number:

B-7

Date:

10/27/2009

Project:

Brington GC #1

Project Number:

Logged By:

ALA

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.712, 711 58 006

Elevation:

Detector:

PID, LEL

Drilling Method:

Geoprobe

Sampling Method:

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Hole Diameter:

Total Depth:

Depth to Water:

NA

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy		2.25'-0.0			0			0-4' 0-2.25' no recovery	
					1			2.25-4' brown silty sand, SM, poorly sorted with minor coarse sand content	
					2				
					3				
Easy		4'-0.0			4			4-8' 4-6.5' no recovery	
					5			6.5'-8' light brown silty sand as above	
					6				
					7				
					8			8-12' 8-10.75' no recovery	
Easy		8'-1.8			9			10.75-12' light brown silty sand as above, black staining @ 12'	
					10				
					11				



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

Boring/Well Number:

B-1

Date:

10/27/2009

Project:

Brumington GL #1

Project Number:

Logged By:

ALA

Drilled By:

Earth Works

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.712 711 58.006

Elevation:

Detector:

PID UCL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

16'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

NA

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy		12.25 = 1935	Black		11				
Easy		14 = 2531			12			12-16' 12-12.25 no recovery	
					13			12.5-13' black silty sand as above	
					14			13-14' coarse to med sand, heavy iron staining and some carbonate ppt	
		16 = 1935	Black HC odor	B-1-16'	15			14-16' sandy clay heavy black staining and HC odor	
					16				
					17				
					18				
					19				
					20				
					21				
					22				



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Boring/Well Number: B-8	Date: 10/27/2009
Project: Brington GC #1	Project Number:
Logged By: ALA	Drilled By: Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long: 36 43.712 711 58.004	Elevation:	Detector: PID WEL	Drilling Method: Geoprobe	Sampling Method:	Hole Diameter:	Total Depth: 15'
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	Depth to Water:	NA

Gravel Pack:	Seal:	Grout:	Comments:
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Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy	2=0.0				0			0-4' 0-2' no recovery	
					1			2-4' brown silty sand, sm, poorly sorted with minor coarse sand content	
					2				
Harder poor recovery	4=0.0				3				
					4			4-8' 4-7' no recovery	
					5				
Poor recovery	6=0.0				6			7-8' light brown silty sand as above	
					7				
					8				
	10=0.0				9				
					10				
					11			8-12'	



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Boring/Well Number:

B-8

Date:

10/27/2009

Project:

- Brington GC #1

Project Number:

Logged By:

ALA

Drilled By:

Earth Works

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.712 711 58.004

Elevation:

Detector:

PID LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

15'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

NA

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
		12' = 0.0			11			11-12' brown silty sand as above	
					12			12-15'	
		14' = 34.2	Black		13			12.25'-14' brown coarse sand, SP, minor fine content, abundant carbonate ppt and iron staining	
			Hc odor		14			14-14.5' sandy clay, black, Hc odor	
				B-8-15'	15			14.5-15' tan semi consolidated coarse sand, black staining & iron staining	
					16				
					17				
					18				
					19				
					20				
					21				
					22				



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Boring/Well Number:

B-9

Date:

10/27/2009

Project:

Burlington GC #1

Project Number:

Logged By:

ALA

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.712, T16 S8.03W

Elevation:

Detector:

PID LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

24'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

20'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy		2=0.0			0			0-4' 0-2.5' no recovery	
					1			2.5'-4' brown silty sand, sm, poorly sorted with minor coarse sand content	
					2				
					3				
		4=0.0			4				
Easy					5			4-8' NO Recovery	
					6				
					7				
					8			8-12'	
Easy					9			8-10.75' no recovery	
					10			10.75-11.25' light brown silty sand as above	
					11				



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Boring/Well Number:

B-9

Date:

10/27/2009

Project:

-Brington GC #1

Project Number:

Logged By:

ALA

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.712, 716 SB.036

Elevation:

Detector:

PID LEL Geoprobe

Drilling Method:

Sampling Method:

Hole Diameter:

Total Depth:

24'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

20'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy	Damp	12=0.0			11			11.25-12' brown sandy clay, cl, medium plasticity, damp, occasional med sand grains	
					12			12-16'	
					13			12-14.75' NO recovery	
					14			14.75-16' brown sandy clay as above	
					15				
Easy		14=0.8			16			16-20' 16-18.25' NO recovery	
					17			18.25-20' brown sandy clay as above	
					18				
					19				
					20			20-24'	
Easy	Slur	16=1.2			21			20-23' NO recovery	
					22				



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Boring/Well Number:

B-9

Date:

10/21/2009

Project:

Brington GC #1

Project Number:

Logged By:

ALA

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.712, 71658.036

Elevation:

Detector:

PID LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

24'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

20'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
				B-9-24'	22				
					23			23-24' sandy clay as above, saturated @ 20'	
					24				
					25				
					26				
					27				
					28				
					29				
					30				
					31				
					32				
					33				



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Boring/Well Number: B-10
 Date: 10/28/2009
 Project: Brington GC #1
 Project Number:
 Logged By: ALA
 Drilled By: Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long: 36 43.716, 716 58.022
 Elevation:
 Detector: PID, LEL
 Drilling Method: Greaseprobe
 Sampling Method:
 Hole Diameter: 24"
 Casing Type:
 Casing Diameter:
 Casing Length:
 Slot Size:
 Slot Length:
 Depth to Water: 20'

Gravel Pack:
 Seal:
 Grout:
 Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy		2=0.0			0			0-4' 0-2.5' - no recovery	
					1			2.5-4' brown silty sand, SM, poorly sorted with minor coarse sand content	
		4=0.0			2				
					3				
Easy		6=0.0			4			4-8' 4-5.75' no recovery	
					5			5.75-8' silty sand as above	
		8=0.0			6				
					7				
Easy		10=0.0			8			8-12' 8-10.25' no recovery	
					9			10.25'-10.75' silty sand same as above	
					10			10.75'-12' brown sandy clay, SC, med to coarse sand content, med plasticity, damp	
					11				



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Boring/Well Number:

B-10

Date:

10/28/2009

Project:

Brownington GL #1

Project Number:

Logged By:

ALA

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long: 36 43.714, 716 SR-022	Elevation:	Detector: PID IEL	Drilling Method: Gasprobe	Sampling Method:	Hole Diameter:	Total Depth: 24'
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	Depth to Water: 20'	

Gravel Pack:	Seal:	Grout:	Comments:
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Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy	Damp	12'-0.0			11				
					12			12-16' 12-13.25' no recovery	
					13			13.25-14' brown sandy clay as above	
		14'-0.6	Hc odor		14			14-16' black sand sandy clay, Hc odor	
					15				
Easy		16'-132		B-10-16'	16			16-20' 16-16.75' no recovery	
					17			16.75-20' grayish black sandy clay as above	
		18'-532			18				
					19				
		20'-1491		B-20-20'	20			20-24'	
					21			20-20.25' no recovery	
					22				



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Boring/Well Number:

B-10

Date:

10/28/2009

Project:

Brington GC #1

Project Number:

Logged By:

ALA

Drilled By:

Earth Works

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.116, 716 58.022

Elevation:

Detector:

PIN LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

24'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

20'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy		22' = 2459			22			20.25'-24' black sandy clay	
					23			as above, but saturated, sheen	
		24' = 2525			24			can be seen in water	
Refuse!				B-10-24'	24			24-25' 24'-24.2' no recovery	
@ 25'		25' = 1911			25			24.2-25' black semi-consolidated	
					26			coarse sand, saturated sheen in	
					27			water	
					28				
					29				
					30				
					31				
					32				
					33				



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Boring/Well Number:

B-11

Date:

10/28/2009

Project:

Brington GC #1

Project Number:

Logged By:

ALA

Drilled By:

Earth Works

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.711, 107 58.021

Elevation:

Detector:

PID LEL

Drilling Method:

Geoprobe

Sampling Method:

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Hole Diameter:

Total Depth:

22'

Depth to Water:

20'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
EASY		0			0			0-4' 0-2.5' no recovery	
					1			2.5-4' brown silty sand, SM, poorly sorted with minor medium grain sand content, 54R 5/4	
					2				
					3				
					4				
tough					5			4-6' No Recovery	
					6				
					7			6-12' No Recovery	
					8			6-10' No Recovery	
		0			9			10-11' SM, silty sand, poorly sorted, 54R 5/4	
Hard					10				
					11				



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Boring/Well Number:

B-11

Date:

10/28/2009

Project:

Brington GC#1

Project Number:

Logged By:

ALA

Drilled By:

Earth Works

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.711, 107 58.027

Elevation:

Detector:

PID LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

22'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

20'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy		16-1349		B-11-17'	11			11-12' brown sandy clay, SC, medium to coarse sand content, medium plasticity, damp slightly stained, light HC odor	
					12			12-16'	
					13			12-14.25' no recovery	
					14			14.25'-14.75' brown sandy clay as above (SC), slightly stained	
					15			14.75'-16' sandy clay, heavily stained, strong HC odor	
					16			16-20'	
					17			16-17' no recovery	
					18			17-20' sandy clay, heavily stained, strong HC odor	
					19				
					20			20-22' 1" of no recovery	
					21			20-21' dark grey sandy clay as above, strong HC odor	
					22			21-22' coarse sand, poorly sorted, dark grey, strong HC odor	



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Boring/Well Number:

B-12

Date:

10/28/2009

Project:

Brington GC #1

Project Number:

Logged By:

DMH

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.720, 107 58.013

Elevation:

Detector:

PID LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

32'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

20'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy		0			0			0-4'	
					1			0-2.25' no recovery	
					2			2.25-4' silty sand, sm, poorly sorted with minor medium grain sand content. S&R 4/5	
					3				
Easy		0			4			4-8'	
					5			4-7.25' no recovery	
					6			7.25-8' sm, silty sand, poorly sorted, med coarse grain sand, S&R 4/5, abundant FeO2	
					7				
Dry		0	Iron oxide		8			8-12'	
					9			8-10.75' no recovery	
					10			10.75-12' sc, clayey sand, minor clay content, dry, med coarse grain sand, FeO2 present, 4/4	
					11				



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Boring/Well Number: B-12	Date: 10/28/2009
Project: Brington GC #1	Project Number:
Logged By: DMH	Drilled By: Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long: 36 43.720, 107 58.103	Elevation:	Detector: PID LEL	Drilling Method: Geoprobe	Sampling Method:	Hole Diameter:	Total Depth: 32'
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	Depth to Water: 20'	

Gravel Pack:	Seal:	Grout:	Comments:
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Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy		1223			11				
					12			12-16'	
					13			12-13' no recovery	
					14			13-13.5' clean clayey to silty sand, SC, SM	
Easy					15			13.5-16' dirty, clayey sand to silt, heavily stained, strong HC odor	
			HC odor		16			16-20'	
					17			16-16.5' no recovery	
					18			16.5'-20' CL, sandy clays, med. sand grains, poorly sorted, heavily stained, strong HC odor, damp	
					19				
					20			20-24' 1" of no recovery	
Damp					21			20.1'-24' - SC-CL, sandy clay as above, saturated, heavily stained, strong HC odor	
SAT					22				



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Boring/Well Number: B-12	Date: 10/28/2009
Project: Baington GC #1	Project Number:
Logged By: DMH	Drilled By: Earth Works

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long: 36 43.720, 107 58.103	Elevation:	Detector: PID, LEL	Drilling Method: Cable probe	Sampling Method:	Hole Diameter:	Total Depth: 32'
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	Depth to Water: 20'	
Gravel Pack:	Seal:	Grout:	Comments:			

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
		38			22				
					23				
					24			24-28'	
					25			24-25.25' no recovery	
					26			25.25-27.25' sandy clay as above, stained, strong HC odor	
					27			27.25-29' sandy clay as above but less dirty, starts to clean up, less staining	
		29			28			28-34'	
					29			28-29.5' no recovery	
					30			29.5-31.5' sandy clay, med-fine gr sand, 5/16, 1/4 appears clear	
					31			31.5-32' coarse semi-consolidated sand, SW	
					32				
					33				



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Boring/Well Number: **B-13**
 Date: **10/28/2009**
 Project: **Brington GC#1**
 Project Number:
 Logged By: **DMH**
 Drilled By: **Earth Works**

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long: **36 43.722, 107 58.625**
 Elevation:
 Detector: **PID UEL**
 Drilling Method: **Geoprobe**
 Sampling Method:
 Casing Type:
 Casing Diameter:
 Casing Length:
 Slot Size:
 Slot Length:
 Hole Diameter: **14"**
 Total Depth:
 Depth to Water: **ND**

Gravel Pack:
 Seal:
 Grout:
 Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
EASY		2=0.0 4=0.0 0 2707			0			0-4'	
					1			0-2' no recovery	
					2			2-4' sm, silty sand, poorly sorted with med-coarse grain sand content, 5/4	
					3				
					4			4-8'	
					5			4-6.5' no recovery	
					6			6.5'-8' sm, silty sand, poorly sorted with med-coarse grain sand content, 5/4	
					7				
					8			8-12'	
					9			8-10.25' no recovery	
					10			10.25' hard carbonate layer	
EASY					11			10.25-11' sm, silty sand, 5/4 med gr sand	
					12			11-12' sc, clayey sand, heavily stained, HC odor	



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Boring/Well Number:

B-13

Date:

10/20/2009

Project:

Brington 66#1

Project Number:

Logged By:

DMH

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.722, 107.58.025

Elevation:

Detector:

DID LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

14'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

ND

Gravel Pack:

Seal:

Grout:

Comments:

Refusal @ 14'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
		11-12' = 2707			11				
		12' = 1076			12			12-16'	
					13			12-14' clayey sand, SC, dry, med-coarse gr. sand 12-13' stained	
					14			13-14' not stained, looks clean, lots of carbonate present	
		14' = 87		B-13-14'	15			14-16' NO Recovery	
					16				
					17				
					18				
					19				
					20				
					21				
					22				



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Boring/Well Number:

B-14

Date:

10/20/2009

Project:

Brington GC #1

Project Number:

Logged By:

DMH

Drilled By:

Earth Worx

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.728, 107 52.033

Elevation:

Detector:

PID UEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

13'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

ND

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
E-001		200.0			0			0-4'	
					1			0-1.75' NO Recovery	
					2			1.75-4' sm, silty sand, poorly sorted with med-coarse grain sand content, 5/4	
					3				
					4			4-8'	
					5			4-6' NO Recovery	
					6			6-7.25' sm, silty sand, poorly sorted with med-coarse grain sand content, 5/4	
					7			7.25-8' SC, clayey sand, med gr. sand, 5/4	
					8			8-12'	
					9			8-9.5' NO Recovery	
					10			9.5-10.5 SC/CL, clayey sand grading into sandy clay 5/4	
					11				



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Boring/Well Number:

B-14

Date:

10/22/2009

Project:

Burlington GC #1

Project Number:

Logged By:

DMH

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36.43.728, 107.58.03

Elevation:

Detector:

PID LEL

Drilling Method:

Grapple

Sampling Method:

Hole Diameter:

Total Depth:

13'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

ND

Gravel Pack:

Seal:

Grout:

Comments:

rebasal @ 13'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
		12-2489	Strong HC odor	B-14 @ 13	11			10.5-12' SC, clayey sand, heavily stained, strong HC odor	
					12			12-13'	
					13			2" of no recovery	
					14			12.2-13' SP, coarse to very coarse sand, heavily stained, strong HC odor	
					15				
					16				
					17				
					18				
					19				
					20				
					21				
					22				



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Boring/Well Number:

B-15

Date:

10/28/2009

Project:

Brington GC #1

Project Number:

Logged By:

DMH

Drilled By:

EarthWork

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.728, 107 58.646

Elevation:

Detector:

PID UEL

Drilling Method:

Gasprobe

Sampling Method:

Hole Diameter:

Total Depth:

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

ND

Gravel Pack:

Seal:

Grout:

Comments:

refusal @ 6'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Est		2=0.0			0			0-4'	
					1			0-1.75' no recovery	
Grading to harder					2			1.75'-4' sm, silty sand, poorly sorted with med-coarse grain sand content, 5/16 5/4	
		4=0.0			3				
					4			4-6' - sm silty sand, poorly sorted with med-coarse grain sand content, 5/16 5/4 grades down to clayey sand, med. grain size. Abundant carbonate and FeO ₂ .	
					5				
				B-15-6'	6				
					7				
					8				
					9				
					10				
					11				



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Boring/Well Number:

B-16

Date:

10/20/2009

Project:

Braington GC #1

Project Number:

Logged By:

DMH

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.756, 107 58.033

Elevation:

Detector:

PID LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

7'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

ND

Gravel Pack:

Seal:

Grout:

Comments:

refusal @ 7'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
EPBY		0			0			0-4'	
					1			0-2.5' no recovery	
					2			2.5-4' sm, silty sand, poorly sorted with med-coarse grain sand content, s ₇ r ₂ 7/3	
					3				
					4			4-7'	
					5			5.75-7' sm, sc silty sand grading to clayey sand poorly sorted with med-coarse grain sand content, s ₇ r ₂ 7/3, abundant carbonate and FeO ₂	
					6				
					7				
					8				
					9				
					10				
					11				

B-16
7'



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Boring/Well Number:

B-17

Date:

10/28/2009

Project:

Brington GC #1

Project Number:

Logged By:

DMH

Drilled By:

Earthwork

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.725, 107 58.045

Elevation:

Detector:

PID, LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

8'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

ND

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
HARD		300			0			0-4'	
					1			0-2.5' no recovery	
					2			2.5-4' sm, silty sand, poorly sorted with med-coarse grain sand content, SYR 5/4	
					3				
					4			4-8'	
					5			4-7' no recovery	
					6			7-8' sm, sc silty sand grading to coarse sand, poorly sorted, SYR 5/4	
					7				
					8				
					9				
					10				
					11				



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Boring/Well Number:

B-18

Date:

10/28/2009

Project:

Brington GC #1

Project Number:

Logged By:

DMH

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long: 36 43.721 107 57.997	Elevation:	Detector: PID LEL	Drilling Method: Geoprobe	Sampling Method:	Hole Diameter:	Total Depth: 24'
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	Depth to Water:	16'

Gravel Pack:

Seal:

Grout:

Comments:

refusal @ 24'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Hard		0			0			0-4	
					1			0-22" NO recovery	
					2			22"-4' sm silty sand, poorly sorted with fine-med grain sand content 5% 6/4	
					3				
					4			4-8'	
Hard		0			5			4-6' NO recovery	
					6			6-8' sm, silty sand, med grain sand, poorly sorted, 5% 6/4	
					7				
					8			8-12'	
					9			8-10.25' NO recovery	
		0			10			10.25'-12' SC, clayey sands, med grain, poorly sorted, 5% 5/4	
					11				



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Boring/Well Number: B-18	Date: 10/28/2009
Project: Brington GC #1	Project Number:
Logged By: DMH	Drilled By: Earth Work
Sampling Method:	Hole Diameter:
Slot Size:	Total Depth: 24'
Slot Length:	Depth to Water: 16'

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long: 36° 43.72' 107° 53.97'	Elevation:	Detector: PID LEL	Drilling Method: Grabber
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:

Gravel Pack:	Seal:	Grout:	Comments: refusal @ 24'
--------------	-------	--------	-----------------------------------

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					11				
					12			12-16'	
					13			12-13.75' no recovery	
					14			13.75 - 14' - same as above	
					15			14-16' black, sandy clay, HC odor	
					16			16-20'	
					17			16-16.5" NO Recovery	
					18			16.5" dark gray sandy clay, HC odor, saturated @ 16.5"	
					19				
					20			20-24' 1" of no recovery	
					21			20.1" - 23.8" dark gray sandy clay, HC odor	
					22				

13.75' = 16' = 2232
 HC odor
 SAT
 18' = 1929



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Boring/Well Number:

B-18

Date:

10/28/2009

Project:

Brington GC #1

Project Number:

Logged By:

DMH

Drilled By:

Earth Works

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.721 107 57.997

Elevation:

Detector:

RD LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

24'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

16'

Gravel Pack:

Seal:

Grout:

Comments:

refusal @ 24'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					22			23.8" - 24' coarse sand stained dark gray, H ₂ S odor	
					23				
					24				
					25				
					26				
					27				
					28				
					29				
					30				
					31				
					32				
					33				



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Boring/Well Number:

B-19

Date:

10/28/2009

Project:

Brington GC#1

Project Number:

Logged By:

DMH

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.719, 107 57.986

Elevation:

Detector:

PID LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

17'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

ND

Gravel Pack:

Seal:

Grout:

Comments:

refusal @ 17'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy		0			0			0-4'	
					1			0-1.25' NO Recovery	
					2			1.25-4' SM, silty sand, poorly sorted with med. grain sand content SYR 4/5	
					3				
					4			4-8'	
Easy		0			5			4-5.5' no recovery	
					6			5.5'-8' sm, silty sand, med. grain. Sand and minor coarse grain, sand poorly sorted, SYR 6/4	
					7				
					8			8-12'	
					9			8-9.25' - NO Recovery	
		0			10			9.25-10.5' sm/sc, silty sand and minor clayey sands, med. grain poorly sorted SYR 4/5	
					11				



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Boring/Well Number:

B-19

Date:

10/20/2009

Project:

Bravington GC#1

Project Number:

Logged By:

DMH

Drilled By:

Earthwork

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.719, 107.51.986

Elevation:

Detector:

PID LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

17'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

ND

Gravel Pack:

Seal:

Grout:

Comments:

refusal @ 17'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
		M=3444			11			10.5-12' sm silty sand, poorly sorted, med-coarse grain sand	
					12			57R 4/5	
					13			12-16'	
					14			12-13 NO Recovery	
					15			13-14' sandy clay cl, poorly sorted, med grain sand	
					16			14-16' dark clayey sand sc, strong HC odor, stained	
					17			16-17' coarse sand, SP, stained, HC odor	
					18				
					19				
					20				
					21				
					22				



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Boring/Well Number:

B-20

Date:

10/28/2009

Project:

Brington GC #1

Project Number:

Logged By:

DMH

Drilled By:

Earthwork

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long: 36 43.127, 107 51.989 Elevation: Detector: PID, LEL Drilling Method: Geoprobe Sampling Method: Hole Diameter: Total Depth: 24' Casing Type: Casing Diameter: Casing Length: Slot Size: Slot Length: Depth to Water: 17'

Gravel Pack: Seal: Grout: Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
EASY		0			0			0-4'	
					1			0-25" NO RECOVERY	
					2			25"-4' SM, silty sand, poorly sorted with med. grain sand content, SYR 4/5	
					3				
					4			4-8'	
					5			4-5.25' NO RECOVERY	
EASY		0			6			5.25-8' SM, silty sand, med. grain sand, poorly sorted SYR 4/5	
					7				
					8			8-12'	
					9			8-10.2" NO RECOVERY	
					10			10.2"-12' SM, silty sand, med. grain sand, poorly sorted, SYR 4/5 abundant carbonate	
					11				



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Boring/Well Number:

B-20

Date:

10/28/2009

Project:

Brington GC #1

Project Number:

Logged By:

DMH

Drilled By:

Earthwork

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36.43.727, 107.57.989

Elevation:

Detector:

PID LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

24'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

17'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					11				
					12			12'-16'	
					13			12'-13.25' no recovery	
					14			13.25'-14.25' SC, clayey sand, poorly sorted.	
					15			14.25'-16' dark clayey sand SC, HC odor, stained black	
					16			16'-20'	
					17			16'-16.5" no recovery	
					18			16.5"-20' saturated, SC clayey sand, med grain sand stained dark gray, HC odor	
					19				
					20			20'-24' SC, clayey sand, med grain sand, stained dark gray, HC odor	
					21				
					22				



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Boring/Well Number:

B-20

Date:

10/28/2009

Project:

Brumpton GC#1

Project Number:

Logged By:

DMH

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.727, 10759.989

Elevation:

Detector:

PID LEL

Drilling Method:

Gasprobe

Sampling Method:

Hole Diameter:

Total Depth:

24'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

17'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
		23=162		B-20-24'	22				
					23				
					24				
					25				
					26				
					27				
					28				
					29				
					30				
					31				
					32				
					33				



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Boring/Well Number:

B-21

Date:

10/28/2009

Project:

Brownington GC #1

Project Number:

Logged By:

DMH

Drilled By:

Earthwork

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36° 43.730, 107° 57.985

Elevation:

Detector:

PID LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

7'

Gravel Pack:

Seal:

Grout:

Comments:

refusal @ 7'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Hard		2=0.0			0			0-4'	
					1			0-1.75' no recovery	
					2			1.75'-4' SM, silty sand, poorly sorted with med. fine grain sand content, abundant carbonate	
					3				
					4			4-7'	
					5			4'-4.5' no recovery	
		5=0.0			6			4.5'-7' SM, silty sand, med. coarse grain, grading to coarse sand, poorly sorted, 5/4	
					7				
					8				
					9				
					10				
					11				



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Boring/Well Number:

B-22

Date:

10/20/2009

Project:

Brumington GC#1

Project Number:

Logged By:

DMH

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36° 43.716, 107° 57.380

Elevation:

Detector:

PID LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

12'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

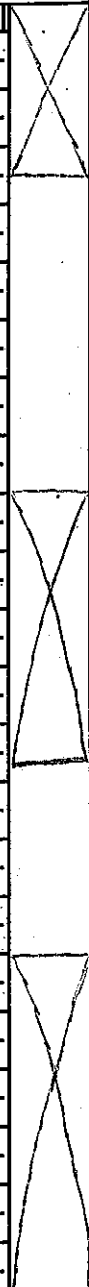
ND

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy		0			0			0-4'	
					1			0-1.25' NO Recovery	
					2			1.25'-4' SM, silty sand, poorly sorted with med-fine grain sand content 54% 4/5	
					3				
					4			4-8'	
					5			4-6.5" NO Recovery	
					6			6.5"-8' SM, silty sand, med-fine grain, poorly sorted, 54% 5/4, minor carbonate present	
					7				
					8			8-12'	
					9			8-11.5" NO Recovery	
					10				
11									



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Boring/Well Number: B-22	Date: 10/28/2009
Project: Brunington GC#1	Project Number:
Logged By: DMH	Drilled By: Earth Worx
Sampling Method:	Hole Diameter:
	Total Depth: 12'
Slot Length:	Depth to Water: ND

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long: 31° 43.716, 107° 51.780	Elevation:	Detector: PID LEL	Drilling Method: Geoprobe
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:

Gravel Pack:	Seal:	Grout:	Comments: Refusal @ 12'
--------------	-------	--------	----------------------------

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
		12=0.0		B-22-12'	11			11.5" - 12' SM, silty sand, poorly sorted with med-fine grain sand content, 54R 4/5, abundant carbonate	
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				
					21				
					22				



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Boring/Well Number:

B23

Date:

10/29/2009

Project:

Brington GC #1

Project Number:

Logged By:

DMH

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.10, 107 58.069

Elevation:

Detector:

PID LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

3'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

ND

Gravel Pack:

Seal:

Grout:

Comments:

Reusal @ 3'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
		3=0.0			0	X		0-4'	
					1			0-4" no recovery	
					2			4'-3' sm, silty sand poorly sorted with med-fine grains	
					3			sand content, 54% G/S, carbonate present	
					4				
					5				
					6				
					7				
					8				
					9				
					10				
					11				



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Boring/Well Number:

B-24

Date:

10/28/2009

Project:

Brington GC #1

Project Number:

Logged By:

DMH

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.124 107 58.017

Elevation:

Detector:

PID LEL

Drilling Method:

Sampling Method:

Hole Diameter:

Total Depth:

17'6"

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
		0			0			0-4'	
					1			0-34" no recovery	
					2			34"-4' SM, silty sand, poorly sorted with med-coarse grain sand content, 54% 5/4	
					3				
					4			4'-8'	
					5			4'-6.5" no recovery	
		0			6			6.5'-8' SM, silty sand, poorly sorted with med-coarse grain sand content 54% 5/4	
					7				
					8			8'-16'	
					9			8'-14.5' no recovery	
					10				
					11				



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Boring/Well Number:

B-24

Date:

10/28/2009

Project:

Burlington GC #1

Project Number:

Logged By:

DMH

Drilled By:

Earth Work

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

36 43.724, 107 58.017

Elevation:

Detector:

PID LEL

Drilling Method:

Geoprobe

Sampling Method:

Hole Diameter:

Total Depth:

17' 6"

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
		0			11			8'-16' poor recovery	
					12			14.5'-16' - SM, silty sand, poorly sorted with med-coarse grain sand content 5/4 5/4	
					13				
					14				
					15				
					16			16'-17.6"	
					17			16'-16.4" SM, silty sand, poorly sorted with med-coarse grain sand content, 5/4, 5/4	
					18			16.4" - 17.6" SP, coarse sand stained black, HC odor	
					19				
					20				
					21				
					22				

16' = 3060

B-24-17.6"



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 Durango, Colorado 81301

Boring/Well Number: B-25	Date: 10/28/2009
Project: Bruington GC #1	Project Number:
Logged By: DmH	Drilled By: Earth Work
Sampling Method:	Hole Diameter:
Slot Length:	Total Depth: 11'
	Depth to Water: ND

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long: 36 43.703, 107 58.006	Elevation:	Detector: PID LEL	Drilling Method: Geoprobe
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:
Gravel Pack:	Seal:	Grout:	Comments: refusal @ 11'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
		○			0			0-4'	
					1			0-22" no recovery	
					2			22" - 4' sm, silty sand, poorly sorted with med-fine grain sand content, 5YR 6/4	
					3				
					4			4-8'	
					5			4'-4'2" no recovery	
		○			6			4'2" - 8' sm, silty sand, poorly sorted with med-coarse grain sand content, 5YR 6/4	
					7				
					8			8-11'	
					9			8-9' no recovery	
					10			9-11' sc, clayey sand, poorly sorted, with med-coarse grain sand content 5YR 5/4	
		10=250		B-25-11'	11				



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Boring/Well Number:

B-26

Date:

1/4/11

Project:

Brington

Project Number:

XTO 1001

Logged By:

DMH

Drilled By:

Enviro drill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

Elevation:

Detector:

PD

Drilling Method:

Hollow Stem

Sampling Method:

Continuous SPT Spoon

Hole Diameter:

8"

Total Depth:

25'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

21'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy	Damp (surface)	0.0	Ø		0				
					1				
					2		SM	2'-5' 7.54R 5/4 Brown Silty sand, 20% silt, 50% fine sand, 30% med sand, minor coarse, loose	
	Day	0.0			3				
					4				
Easy					5				
					6				
					7		SM	7'-9' 7.54R 5/4 Brown Same as above	
Mod. Resistant			Ø		8				
					9		SP	9'-10' 10.4R 7/3 very pale brown sand, 60% med sand, 30% fine sand, 10% coarse sand, tight very hard to break apart	
		0.0	Yellow Fe-Oxide		10				
					11				



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Boring/Well Number: B-26	Date: 1/4/11
Project: Brunington	Project Number: XTO1001
Logged By: DH	Drilled By: Enuro drill
Sampling Method: continuous split spoon	Hole Diameter: 8"
Slot Size:	Total Depth: 25'
Slot Length:	Depth to Water: 21'

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:	Elevation:	Detector: PID	Drilling Method: Hollow Stem
Casing Type:	Casing Diameter:	Casing Length:	Grout:
Gravel Pack:	Seal:	Comments:	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Difficult	Dry	0.0	red yellow Fe oxide		11		SP	10'-15' 7/3 very pale brown, sand. 40% coarse grained 40% med grained, 20% fine sand very hard compact sand, minor black specks no odor	
					12				
					13				
Difficult	Dry	0.0			14			15'-20' 10 7/8 7/3 Very Pale brown, sand 50% coarse sand, 40% med sand, 10% fine sand, very hard compact, appears to contain calcite cement (white fines)	
					15				
					16		SP		
Difficult	Wet	0.1	Minor yellow Fe oxide		17			20'-25' Same as above	
					18				
					19				
Sat Damp					20				
					21		SP		
					22				



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Boring/Well Number: B-26 Date: 11/4/11

Project: Brington GC #1 Project Number:

Logged By: DMH Drilled By: Enveredrill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:	Elevation:	Detector: PID	Drilling Method: Hollow Stem	Sampling Method: continuous Split Spear	Hole Diameter: 8"	Total Depth: 25'
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	Depth to Water: 21'	

Gravel Pack:	Seal:	Grout:	Comments:
--------------	-------	--------	-----------

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Difficult	SAR Damp	0.2	Yellow	B-26- 25'	22		SP	Same as above	
					23				
					24				
					25				
		0.0			26				
					27				
					28				
					29				
					30				
					31				
					32				
				33					



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Boring/Well Number:

B-27

Date:

1/4/11

Project:

Brington GC #1

Project Number:

XTG-1001

Logged By:

DMH

Drilled By:

Envirosdrill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

Elevation:

Detector:

PID

Drilling Method:

Hollow Stem

Sampling Method:

Split spoon

Hole Diameter:

8"

Total Depth:

30'

Depth to Water:

20'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0				
					1			0-2.5' no recovery	
					2				
					3		sm	2.5'-5' silty sand, 30% silt, 50% fine sand, 20% med sand, loose 7.5YR 4/4 Brown	
EASY	Damp (surface)	0.0	Ø		4				
					5			5'-6' no recovery	
					6		sm	6-7' silty sand, same as above	
EASY	Dry	0.0	Ø		7				
					8		SP	7-10' 10YR 6/3 pale brown sand 60% med grains, 30% fine sand, 10% coarse, loose to med. consolidated	
					9				
EASY	Dry	0.0	Ø		10			10-10.75' no recovery	
					11				



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Boring/Well Number:

B-27

Date:

11/4/11

Project:

Brington GC #1

Project Number:

LTO 1001

Logged By:

DMH

Drilled By:

Enviro drill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

Elevation:

Detector:

PID

Drilling Method:

Hollow Stem

Sampling Method:

continuous split spoon

Hole Diameter:

8"

Total Depth:

30'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

20'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Tuff	Dry	0.0	Ø		11		SP	10.75-13.5	
					12			Same as above	
					13				
Difficult	Dry	0.1	Minor red-orange Fe Oxide		14		SP	13.5 - 15' 40% coarse, 40% med sand, 20% fine sand, hard semi-consolidated tight sand	
					15				
					16			15' - 18.5' NO Recovery	
					17				
					18				
					19		ML	18.5 - 20' clayey silt, slight plasticity, 70% silt, 30% clay	
Tuff	Damp	0.1	Ø		20			10% 3/2 very dark, grayish brown	
					21			20' - 22.5'	
					22			NO Recovery	



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Boring/Well Number:

B-27

Date:

1/4/11

Project:

Broughton GC # 1

Project Number:

XTO 1001

Logged By:

DMH

Drilled By:

Enviro-drill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:	Elevation:	Detector:	Drilling Method:	Sampling Method:	Hole Diameter:	Total Depth:
		PID	Hollow Stem	Continuous Split Spoon	8"	30'
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	Depth to Water:	
					20'	
Gravel Pack:	Seal:	Grout:	Comments:			

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Tuff	Damp	0.2	Ø		22				
					23		SC	22.5' - 23.5' clayey sand very slight platy, 25% clay, 50% fine sand, 25% med. sand	
					24		SP	23.5' - 25' 60% fine sand, 35% med sand, 5% coarse, tight semi-consolidated	
					25				
					26			25' - 28.5' NO Recovery	
					27				
					28				
					29		SM	28.5' - 29.5' silty sand 2.5% 7/1 light gray, 40% silt, 40% fine sand, 20% med sand, med-consolidated	
					30				
					31		SP	29.5' - 30' sand, 70% med grain, 20% fine grains, 10% coarse, tight semi-consolidated	
					32				
					33				

B-27-30'



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Boring/Well Number:

B-28

Date:

11/5/11

Project:

Brington GG#1

Project Number:

XTO 1001

Logged By:

DMH

Drilled By:

Enviro drill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

Elevation:

Detector:

PID

Drilling Method:

Hollow Stem

Sampling Method:

Continuous split spoon

Hole Diameter:

8"

Total Depth:

25'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

20'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
None	Wet (surface)	0.0	Orange Fe oxide		0			0-2.5' NO Recovery	
					1				
					2				
					3				
					4		SM	3.5-5 7.54% 5/6 yellowish brown, silty sand, 30% silt, 40% fine sand, 30% med sand, loose	
					5				
					6				
					7				
					8				
					9		SP	5-9' NO Recovery	
None	WET	0.0	Ø		10			9-10 7.54% 5/6 yellowish brown sand, 70% fine sand 30% med sand, loose & soft	
					11				



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Boring/Well Number: B-28	Date: 1/5/11	
Project: Burlington GC # 1	Project Number: XTO 1001	
Logged By: DWH	Drilled By: Envirodrill	
Sampling Method: Continuous split screen	Hole Diameter: 8"	Total Depth: 25'
Slot Length:	Depth to Water: 20'	

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:	Elevation:	Detector: PID	Drilling Method: Hollow Stem
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:
Gravel Pack:	Seal:	Grout:	Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
None	DAMP	0.0	Ø		11			11-13.75 No Recovery	
		0.0			12				
					13				
					14		SM	13.75 - 14.5' silty fine sand slight plasticity, 40% silt 55% fine sand, 5% med sand	
					15		ML	14.5 - 15' 10% 4/1 dark gray sand silty to clayey fine sand, slight plasticity, 60% silt, 10% clay, 30% fine sand	
					16				
					17			15-18' NO Recovery	
					18		DP	18-20' sand, 50% fine sand, 40% med sand, 10% coarse, fairly loose sand, strong odor	
					19				
					20				
					21				
					22				



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Boring/Well Number:

B-28

Date:

11/5/11

Project:

Bringing GC #1

Project Number:

XTO1001

Logged By:

DMH

Drilled By:

Enviro-drill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:	Elevation:	Detector:	Drilling Method:	Sampling Method:	Hole Diameter:	Total Depth:
		PID	Hollow Stem	Continuous Solid Spoon	8"	25'
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	Depth to Water:	
					20'	
Gravel Pack:	Seal:	Grout:	Comments:			

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Difficult	SAT	23' = 1001	Ø		22				
					23		Sp	23'-25' sand, 40% med grains, 40% fine sand, 20% coarse, light semi-consolidated, very slight odor, no staining	
		25' = 232	Ø	B-28-25'	24				
					25				
					26				
					27				
					28				
					29				
					30				
					31				
					32				
					33				



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Boring/Well Number:

B-29

Date:

1/15/11

Project:

Brington GC #1

Project Number:

XTO1001

Logged By:

DMH

Drilled By:

Enviro drill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:	Elevation:	Detector:	Drilling Method:	Sampling Method:	Hole Diameter:	Total Depth:
		PID	Hollow Stem	Continuous Split Spoon	8"	
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	Depth to Water:	

Gravel Pack:	Seal:	Grout:	Comments:
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Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
None	Wet (surface)	0.0	Ø		0				
					1				
					2		SM	2'-3.5' 104% 7/3 very pale brown, silty sand, 35% silt, 45% fine sand, 20% med sand, loose	
Difficult					3				
					4		SP	3.5'-5' 104% 6/3 pale brown sand, 40% fine sand, 50% med sand, 10% coarse, minor silt, tight semi-consolidated	
		0.0	Ø		5				
					6				
Difficult		0.0	Ø		7		SP	Same as above	
					8				
					9		SP	Same as above	
		0.0	Ø		10				
					11		SP	Same as above	



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Boring/Well Number: B-29	Date: 1/5/11
Project: Brington GC #1	Project Number: XT01001
Logged By: DMH	Drilled By: Enveredr.11
Drilling Method: Hollow Stem	Sampling Method: Continuous Split Spear
Casing Length: -	Hole Diameter: 8"
Slot Size: -	Total Depth: 25'
Grout: -	Depth to Water: 21'

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:	Elevation:	Detector: PID	Drilling Method: Hollow Stem	Sampling Method: Continuous Split Spear	Hole Diameter: 8"	Total Depth: 25'
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	Depth to Water:	
Gravel Pack:	Seal:	Grout:	Comments:			

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Difficult	Dry	0.0	Orange Minor Fe oxide		11		SP	10-15' sand, 10% 5/8 yellowish brown, 70% med grains, 15% fine, 15% coarse, very tight, semi-consolidated	
Difficult	Dry	0.2	Ø		12				
					13				
					14		SP	Same as above	
					15			15-17' no recovery	
					16				
					17		SP	17-17.5' same as above	
					18		ML	17.5-18.5' sandy silt, 10% 4/3 Brown, 70% silt, 30% fine to very fine sand slight plasticity	
Difficult	Damp	1.0	red orange yellowish Fe oxide		19		SP	18.5-20' 60% fine sand, 30% med sand, 10% coarse, minor silt, tight semi-consolidated	
					20				
					21				
Difficult	Sat				22		SP	Same as above	



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Boring/Well Number:

B-29

Date:

11/5/11

Project:

Brownington GC #1

Project Number:

XTO 1001

Logged By:

DMH

Drilled By:

Enviro-drill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:	Elevation:	Detector:	Drilling Method:	Sampling Method:	Hole Diameter:	Total Depth:
		PID	Blow Stem	Continuous Split Spoon	8"	25'
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	Depth to Water:	
					21'	
Gravel Pack:	Seal:	Grout:	Comments:			

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Defect	Damp	0.0	Red yellow Fe Oxide		22		Sp	Same as above	
					23				
					24				
	Wet	0.1		B-29-25'	25				
					26				
					27				
					28				
					29				
					30				
					31				
					32				
					33				



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Boring/Well Number:

B-30

Date:

11/5/11

Project:

Brington GC #1

Project Number:

XT01001

Logged By:

DMH

Drilled By:

Envirodrill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:	Elevation:	Detector:	Drilling Method:	Sampling Method:	Hole Diameter:	Total Depth:
		PID	Follow Stem	Continuous Split Spoon	8"	25'
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	Depth to Water:	
					23'	

Gravel Pack:	Seal:	Grout:	Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0			0-2.5' no recovery	
					1				
					2				
					3		SM	2.5'-3.5' silty sand, 30% silt, 50% fine sand, 20% med sand, loose, poorly sorted, 7.5 YR 4/6 strong brown	
					4		SP	3.5'-5' 10 YR 6/6 Brownish Yellow sand, 40% med sand, 50% fine sand, 10% coarse sand, minor silt, loose, becoming more consolidated towards 5'	
					5			5-7' no recovery	
					6				
					7		SP	7-8.5' 10 YR 5/2 grayish brown sand, 70% med grain, 20% fine, 10% coarse, light semi-consolidated, contains (carbonate)	
					8				
					9		SM	8.5'-10' silty fine sand, 40% silt, 50% fine sand, 10% med sand, very tight, slight platy, semi-consolidated	
					10			10-11' no recovery	
					11				



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Boring/Well Number:

B-30

Date:

11/5/11

Project:

Brington GC #1

Project Number:

YTO 1001

Logged By:

DMH

Drilled By:

Enviro-drill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

Elevation:

Detector:

PID

Drilling Method:

Hollow Stem

Sampling Method:

Continuous Split Spoon

Hole Diameter:

8"

Total Depth:

25'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

23'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					11			11'-12.5' no recovery	
					12				
Mod.	Damp	13=960	red yellow orange Fe oxide	B-30-13'	13		SP	sand, 60% med grains, 30% fine grains, 10% coarse, tight semi-consolidated, odor & staining	
					14				
Difficult	Damp	15=1000			15				
					16		SP	Same as above	
Difficult	Dry	16=174			17				
					18		SP	18'-20' same as above, no odor no staining	
					19				
Difficult	Dry	20=3.5			20			20'-22.5' NO Recovery	
					21				
					22				



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Boring/Well Number:

B-30

Date:

11/5/11

Project:

Brington 66#1

Project Number:

XTO1001

Logged By:

DMH

Drilled By:

EnviroDrill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

Elevation:

Detector:

PID

Drilling Method:

Hollow Stem

Sampling Method:

Continuous Split Spoon

Hole Diameter:

8"

Total Depth:

25'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

23'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
D. H ₂ O	SAR	23' = 15.5'			22				
					23		SP	22.5' - 25' sand 60% med grains, 30% fine grains, 10% coarse. tight semi-consolidated 10YR 7/2 light gray to 10YR 6/2 light brownish gray.	
D. H ₂ O	Damp	24' = 5.2'	Red rust Fe Oxide		24				
		25' = 1.5'		B-30 25'	25				
					26				
					27				
					28				
					29				
					30				
					31				
					32				
					33				



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Durango, Colorado 81301

Boring/Well Number:

B-31

Date:

1/5/11

Project:

Brington GC #1

Project Number:

XTO-1001

Logged By:

DL

Drilled By:

Enviro drill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

Elevation:

Detector:

AD

Drilling Method:

Hollow Stem

Sampling Method:

Continuous Split Spoon

Hole Diameter:

8"

Total Depth:

25'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

18'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0			0-3 no recovery	
					1				
					2				
					3				
None	Wet (surface)	0.0	Ø	Ø	4			3-5 silty sand, 10% 4/3 Brown, 30% silt, 50% fine sand, 20% med sand, loose	
					5				
					6			5-6.5 no recovery	
					7		SP	6.5-10 10% 4/3 pale brown, sand, 50% med sand, 40% fine sand, 10% coarse, minor silt, loose from 6.5-7.5 semi-consolidated, tight from 7.5-10	
Mod.	Dry	0.1	Ø		8				
					9				
					10		SP	10-10.5 same as above	
D. Result	Dry	0.0	Ø		11				



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Boring/Well Number: B-31	Date: 1/5/11
Project: Brunington GC #1	Project Number: XTO 1001
Logged By: DmH	Drilled By: Envirol drill
Drilling Method: Hollow Stem	Sampling Method: Continuous Split Spoon
Casing Type:	Hole Diameter: 8"
Casing Diameter:	Total Depth: 25'
Casing Length:	Depth to Water: 18'
Slot Size:	
Slot Length:	

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:		Elevation:		Detector: PID		Drilling Method: Hollow Stem		Sampling Method: Continuous Split Spoon		Hole Diameter: 8"		Total Depth: 25'	
Casing Type:		Casing Diameter:		Casing Length:		Slot Size:		Slot Length:		Depth to Water: 18'			
Gravel Pack:		Seal:		Grout:		Comments:							
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks				Well Completion	
Easy	Damp	0.0	Ø		11		ML	10.5'-13' 10 yr 6 1/2 light brownish gray, sandy to clayey silt, 50% silt, 35% fine sand, 15% Clay, slight plasticity, loose to moderate consolidated					
Difficult	Dry	0.0	Red Orange Fe Oxide		12								
					13		SP	13-15 10 yr 5 1/2 grayish brown, sand, 30% med sand, 50% fine sand, 10% coarse sand, tight semi-consolidated					
Difficult	Dry	0.0			14								
					15			15'-16.5' NO Recovery					
					16								
		0.0			17		SP	Same as above					
Difficult	WET SAT.				18								
		0.0	Red Orange Fe Oxide		19								
					20		SP	Same as above					
					21			20'-21.5' NO Recovery					
					22								



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Boring/Well Number: 13-31 Date: 1/15/11
Project: Brington GC #1 Project Number: XTO 1001
Logged By: DMH Drilled By: Envirodrill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long: Elevation: Detector: PID Drilling Method: Hollow Stem Sampling Method: Continuous Split Spoon
Casing Type: Casing Diameter: Casing Length: Slot Size: Slot Length: Hole Diameter: 8" Total Depth: 25'
Gravel Pack: Seal: Grout: Comments: Depth to Water: 18'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Diff.	SAT	0.0			22		sp	sand 60% med sand, 30% fine sand, 10% coarse sand, very tight semi-consolidated, 10yr 5/2 grayish brown	
Difficult	Dry	0.0	Minor Red Orange Fe Oxide	13-31-25'	23				
					24				
					25		sp	same as above	
					26				
					27				
					28				
					29				
					30				
					31				
					32				
					33				



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Boring/Well Number:

B3-32

Date:

11/6/11

Project:

Brington GC #1

Project Number:

XTO1001

Logged By:

DMH

Drilled By:

Envirodrill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

Elevation:

Detector:

PID

Drilling Method:

Follow Stem

Sampling Method:

Continuous Split Spoon

Hole Diameter:

8"

Total Depth:

30'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

22'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
NONE	WET SURFACE Frozen	0.0	Ø		0			0-2.5' NO Recovery	
					1				
					2				
					3		SM	2.5'-5' silty sand, 30% silt, 50% fine sand, 20% med sand loose, 7.5% strong brown	
			Red orange Fe oxide		4				
					5			5'-5.5' NO Recovery	
					6			5.5'-10' silty sand, 35% silt, 55% fine sand, 10% med sand, very slight plasticity, loose 7.5% strong brown	
					7				
					8				
			Ø		9				
					10				
NONE	Dry	0.0			11				



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Boring/Well Number:

B-32

Date:

11/6/11

Project:

Brington GC #1

Project Number:

XTO 1001

Logged By:

DMH

Drilled By:

Envirodrill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

Elevation:

Detector:

PID

Drilling Method:

Follow Stem

Sampling Method:

Continuous Split Spoon

Hole Diameter:

8"

Total Depth:

30'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

22'

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
None	Dry	0.0	Ø		11			11-13.5' no recovery	
					12				
					13				
					14		SP	13.5'-15' 1042 6/6 brownish yellow, sand, 60% fine grained, 30% med, 10% coarse, loose minor silt	
					15				
					16			15-18.5' no recovery	
					17				
					18				
					19		SP	18.5'-19' same as above, but stained gray black, staining begins @ 18.75'	
					20		SM	19'-20' 1042 2/1 Black 60% silt, 20% clay, 20% fine sand, heavily stained black, strong odor	
					21				
					22				



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Boring/Well Number: B-32	Date: 1/6/11
Project: Burlington GC#1	Project Number: XTO1001
Logged By: DH	Drilled By: Enviros drill
Sampling Method: Continuous split spoon	Hole Diameter: 8"
Slot Size: —	Total Depth: 30'
Slot Length: —	Depth to Water: 22'

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:	Elevation:	Detector: PID	Drilling Method: Hollow stem
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:
Gravel Pack:	Seal:	Grout:	Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Easy	SAT	23 = 1374	Black		22		SP	20.5' - 25' 60% med grain, 25% fine grains, 15% coarse, loose to 23' then becomes more consolidated heavily stained to 24.75' then sand becomes unstained, 7.5% 2.5/3 - very dark brown	
	WET	25 = 280			23				
					24				
					25				
					26		SP	Sand 50% med grains, 25% coarse grains, 25% fine grains loose to moderately consolidated, slight odor minor Fe oxide staining 7.5% 4/2 - brown	
Difficult	SAT	27 = 127			27				
					28				
Difficult	SAT	28.5 = 792			29				
					30				
		30 = 22.6			31				
					32				
					33				



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Boring/Well Number:

B-33

Date:

11/6/11

Project:

Brington GC #1

Project Number:

XTO1001

Logged By:

DMH

Drilled By:

Enviro-drill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:	Elevation:	Detector:	Drilling Method:	Sampling Method:	Hole Diameter:	Total Depth:
		PID	Hollow Stem	Continuous Split Spoon	8"	25'
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	Depth to Water:	
					17'	
Gravel Pack:	Seal:	Grout:	Comments:			

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
None					0			0-2' NO Recovery	
None	Damp Frozen (surface)	0.0	Ø		1				
					2		SM	2-5' 10% 4/6 dark yellow brown, silty sand, 35% silt, 50% fine sand, 15% med sand, loose	
		0.0	Ø		3				
					4				
					5			5-8' NO Recovery	
					6				
					7				
					8		SM	8-8.5' same as above	
					9		ML	8.5-10' sandy silt, 60% silt, 40% fine to very fine sand, semi-consolidated, compact	
None	Dry	0.0	Ø		10			10-10.5' NO Recovery	
		0.0			11		ML	same as above	



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Boring/Well Number: B-33	Date: 11/6/11
Project: Brington GC #1	Project Number: XTO 1001
Logged By: DMH	Drilled By: Envirolite
Drilling Method: Hollow Stem	Sampling Method: Continuous Split Spoon
Casing Diameter: 8"	Hole Diameter: 8"
Casing Length: 25'	Total Depth: 25'
Slot Size: 17'	Depth to Water: 17'

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:		Elevation:		Detector: PID		Drilling Method: Hollow Stem		Sampling Method: Continuous Split Spoon		Hole Diameter: 8"		Total Depth: 25'	
Casing Type:		Casing Diameter:		Casing Length:		Slot Size:		Slot Length:		Depth to Water: 17'			
Gravel Pack:		Seal:		Grout:		Comments:							
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks					Well Completion
None	Dry	0.0	red, white, Gray		11		ML	10.5'-12' same as above					
Difficult	Day	15' = 1.5			12		SP	12'-15' 10% 6/8 Brownish yellow, sand, 65% fine sand, 30% med sand, 5% coarse sand, semi-consolidated, tight, Banded coloring, red, white, brown, minor gray bands, no odor					
					13								
Difficult	Day	16' = 1.31			14								
					15								
D. Difficult	3AT	18' = 1026			16		Sp	16'-20' sand, 40% med grains, 50% fine sand, 10% coarse, tight, semi-consolidated, slight odor, some minor gray banded staining, very compact					
					17								
	Damp	20' = 2.7			18								
	Dry				19								
					20								
					21								
					22								



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Boring/Well Number:	Date: 1/16/11	
Project:	Project Number:	
Brington GC #1	XTU1001	
Logged By:	Drilled By:	
DMH	Enviro drill	
Sampling Method:	Hole Diameter:	Total Depth:
Continuous Split Spoon	8"	25'
Slot Length:	Depth to Water:	
	17'	

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:	Elevation:	Detector:	Drilling Method:	Sampling Method:	
		P112	Hollow Stem	Continuous Split Spoon	
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	
Gravel Pack:	Seal:	Grout:	Comments:		

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Very Difficult	Damp	215-0.4	Minor Fe Oxide Red/Orange		22		SD	21.5-25' 1042 7/4 very pale brown, sand, 70% med sand, 20% coarse sand, 10% fine sand, very compact, semi-consolidated	
Very Difficult	Dry	23-0.3			23				
		25-0.2		B-33-25	24				
					25				
					26				
					27				
					28				
					29				
					30				
					31				
					32				
					33				



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Boring/Well Number:

B-34

Date:

11/6/11

Project:

Brington GC #1

Project Number:

XTO 1001

Logged By:

DMH

Drilled By:

Enviro-dall

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:	Elevation:	Detector:	Drilling Method:	Sampling Method:	Hole Diameter:	Total Depth:
		PID	Hollow Stem	Continuous Split Spoon	8"	30'
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	Depth to Water:	
PVC	2"	33'	0.10	15'	20'	

Gravel Pack:	Seal:	Grout:	Comments:
30' - 13.8'	13.8' - 11.8'	11.8' - 0'	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
NONE	WET (surface)	0.1	Ø		0			0-2.75' no recovery	
					1				
					2				
					3		SM	2.75'-5' 10% 5/4 yellowish brown, silty sand, 40% silt	
					4			30% fine sand, 30% med sand, loose	
					5				
					6				
					7		SM	silty sand, 40% silt, 40% fine sand, 20% med sand, loose, minor white staining (CaCO ₃)	
					8				
					9				
					10				
					11				



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Boring/Well Number:

B-34

Date:

1/6/11

Project:

Brington GC #1

Project Number:

XT01001

Logged By:

DMH

Drilled By:

Enviro drill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:	Elevation:	Detector:	Drilling Method:	Sampling Method:	Hole Diameter:	Total Depth:
		PID	Hydrow stem	continuous Split Spoon	8"	30'
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	Depth to Water:	
PVC	2"	33'	0.10	15'	20'	

Gravel Pack:	Seal:	Grout:	Comments:
30'-13.8'	13.8'-11.8'	11.8'-0'	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Very Difficult	Day	0.0	Ø		11		SP	Sand, 60% med sand 30% fine sand, 10% coarse light semi-consolidated, very hard, 104R 7/4 Very Pale brown	
					12				
					13				
					14				
Very Difficult	Day	0.0	Ø		15		SP	Same as above	
					16			15-17' no recovery	
					17		SP	Same as above, one small stained zone, containing some Red Fe Oxide staining and a 1/4" thick black vein @ 19'	
					18				
					19				
Very Difficult					20			20-21.5' no recovery	
					21				
					22				



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Boring/Well Number: B-34	Date: 1/6/11
Project: Bruington GC #1	Project Number: XTO1001
Logged By: DMH	Drilled By: Envirodrill
Sampling Method: Continuous Split Spoon	Hole Diameter: 8"
Slot Size: 0.10	Total Depth: 30'
Slot Length: 15'	Depth to Water: ~ 20'

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:	Elevation:	Detector: PID	Drilling Method: Hollow Stem
Casing Type: PVC	Casing Diameter: 2"	Casing Length: 33'	Comments:
Gravel Pack: 30' - 13.8'	Seal: 13.8' - 11.8'	Grout: 11.8' - 0	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Very Difficult	Wet		Ø		22		SP	Same as above	
					23				
					24				
Very Difficult	Wet	2.0	Ø		25				
					26				
					27				
					28		SM	27.5' - 30' silty sand, 10% 7/16 light gray, 30% silt, 40% fine sand, 30% med sand, very tight/compact semi-consolidated	
Very Difficult	Damp	0.0	Ø	B-34-30'	30				
					31				
					32				
					33				



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Boring/Well Number:

B-35

Date:

1/7/11

Project:

Brington GC #1

Project Number:

XTO1001

Logged By:

DMH

Drilled By:

Enviro-drill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:	Elevation:	Detector:	Drilling Method:	Sampling Method:	Hole Diameter:	Total Depth:
		PID	Flow Stem	Continuous split spoon	8"	23'
Casing Type:	Casing Diameter:	Casing Length:	Slot Size:	Slot Length:	Depth to Water: Dry	

Gravel Pack:	Seal:	Grout:	Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
None	WET Frozen (surface)	0.0	Ø		0			0-2.5' no recovery	
					1				
					2				
					3		SM	2.5'-3.75' 104% S/L Brown silty sand, 30% silt, 40% fine sand, 30% med sand, frozen/loose	
					4			3.75'-5' 104% G/L gray, sand, 60% med sand, 30% fine sand, 10% coarse, very compact, semi-consolidated	
None	Dry	0.0	Ø		5			5'-8.75' no recovery	
					6				
					7				
					8				
					9		SP	8.75'-9.5' 104% G/L pale brown, sand, 60% fine sand, 35% med sand, 5% coarse sand, loose	
None		0.0	Ø		10		SM	9.5'-10' silty sand, 45% silt, 50% fine sand, 5% med sand, loose	
					11				



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Boring/Well Number: B-35	Date: 11/17/11
Project: Brington GC #1	Project Number: XT01001
Logged By: DMH	Drilled By: Enviro drill
Drilling Method: Hollow Stem	Sampling Method: Continuous Split Spoon
Slot Size:	Hole Diameter: 8"
Slot Length:	Total Depth: 23'
Gravel Pack:	Depth to Water: Dry

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:		Elevation:		Detector: <u>DID</u>		Drilling Method: <u>Hollow Stem</u>		Sampling Method: <u>Continuous Split Spoon</u>		Hole Diameter: <u>8"</u>		Total Depth: <u>23'</u>	
Casing Type:		Casing Diameter:		Casing Length:		Slot Size:		Slot Length:		Depth to Water: <u>Dry</u>			
Gravel Pack:		Seal:		Grout:		Comments:							
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks					Well Completion
Difficult	Dry	0.0	Ø		11			11-12.5' no recovery					
					12								
					13								
Difficult	Dry	0.0	Ø		14		Sm	12.5-14' same as above					
					15								
					16								
Very Difficult	Dry	0.0	Ø		17		Sp	14'-15' 10YR 6/5 Pale Brown Sand, 60% fine sand, 35% med sand, 5% coarse, tight semi-consolidated					
					18								
					19								
Very Difficult	Dry	0.0	Ø		20		Sp	16.5-18' same as above					
					21								
					22								
					22			18-20' 10YR 6/1 gray Sand, 60% med sand, 30% fine Sand, 10% coarse sand, very Consolidated, 10YR 6/3 pale brown					



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Boring/Well Number:

B-35

Date:

11/7/11

Project:

Brington GC #1

Project Number:

XT01001

Logged By:

DMH

Drilled By:

EnviroDrill

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Lat/Long:

Elevation:

Detector:

PID

Drilling Method:

Hollow Stem

Sampling Method:

Continuous Split Spoon

Hole Diameter:

8"

Total Depth:

23'

Casing Type:

Casing Diameter:

Casing Length:

Slot Size:

Slot Length:

Depth to Water:

Dry

Gravel Pack:

Seal:

Grout:

Comments:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Refusal @ 23'	Dry	0.0	Ø	B-35 23'	22			22'-22.5' NO Recovery	
					23		Sp	22.5'-23' same as above	
					24				
					25				
					26				
					27				
					28				
					29				
					30				
					31				
					32				
					33				

APPENDIX C
GROUNDWATER SAMPLING PURGE LOGS



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-1R
 Client: XTO Energy, Inc. Date: 1/13/2011 Time: 9:15
 Project Manager: Julie Linn Sampler's Name: Brooke Herb & Sam LaRue

Measuring Point: TOC Depth to Water: 13.7 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 17.63 ft Product Thickness: NA ft
 Water Column Height: 3.93 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	3.93	0.640983	1.92

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Ounces	Comments/Flow Rate
9:18	6.89	5.30	11.5				16	Slight yellow color, no odor
9:19	6.87	5.39	12.7				48	cloudy brown color, no odor
9:20	6.87	5.40	12.9				80	no change
9:22	6.97	5.17	12.6				96	no change
9:23	7.09	4.95	12.5				112	grey, silty, no odor, bailing down
9:25	7.16	4.72	12.4				128	no change
9:28	7.25	4.63	12.0				144	no change
9:30	7.24	4.54	11.8				160	no change; bailed dry
13:23	6.72	4.58	13.4				192	clear, very minor silt, no odor
13:24	6.77	4.52	13.6				224	no change
13:25	6.79	4.54	13.4				240	grey, silty, no odor, bailing down
Final:	6.79	4.54	13.4				240	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-1R Sample Time: 13:30

Analysis Requested: ☒ BTEX ☐ VOC: ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other _____

Trip Blank: No Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-2R
 Client: XTO Energy, Inc. Date: 1/13/2011 Time: 11:24
 Project Manager: Julie Linn Sampler's Name: Brooke Herb & Sam LaRue

Measuring Point: TOC Depth to Water: 14.42 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 23.14 ft Product Thickness: NA ft
 Water Column Height: 8.72 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	8.72	1.422232	4.27

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Ounces	Comments/Flow Rate
11:32	6.88	8.42	14.1				32	clear, yellow-gray, strong odor
11:33	6.86	8.60	14.6				64	no change
11:35	6.92	8.63	14.2				96	no change
11:36	6.86	8.59	14.9				120	no change
11:37	6.87	8.59	15.0				160	cloudy, gray, strong odor
11:39	6.85	8.61	15.0				176	no change
11:40	6.91	8.59	14.9				192	no change, bailing down
11:42	6.89	8.61	15.0				208	no change, bailing down
11:45	6.89	8.63	14.6				224	no change, bailing down
11:47	6.94	8.58	14.5				240	no change, bailing down
11:52	6.92	8.48	14.7				272	no change, bailing down
11:54	6.89	8.56	14.9				304	no change, bailing down
11:55	6.92	8.62	14.9				336	darker gray, strong odor
11:57	6.99	8.57	14.8				352	no change
11:58	7.00	8.66	14.5				368	no change, bailing down
12:03	7.12	8.61	13.8				400	no change, bailed dry
14:22	6.9	8.37	14.5				432	clear, strong odor
14:23	6.89	8.36	15.1				464	no change
14:25	6.91	8.37	15				496	slight gray, sheen, strong odor
14:26	6.92	8.42	15.2				528	no change
14:28	6.88	8.47	15.3				560	no change
Final:	6.88	8.47	15.3				560	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-2R Sample Time: 14:30

Analysis Requested: ☒ BTEX ☐ VOC: ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other _____

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-3R
 Client: XTO Energy, Inc. Date: 1/13/2011 Time: 9:37
 Project Manager: Julie Linn Sampler's Name: Brooke Herb & Sam LaRue

Measuring Point: TOC Depth to Water: 16.77 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 23.62 ft Product Thickness: NA ft
 Water Column Height: 6.85 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	6.85	1.117235	3.35

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
9:40	7.15	10.84	13.9				0.25	clear, no odor, debris (sticks)
9:42	7.16	11.09	15.0				0.5	clear with debris (sticks, leaves)
9:43	7.12	11.25	15.2				0.75	gray with debris
9:44	7.05	11.29	15.4				1	more silt, gray
9:45	7.07	11.37	15.2				1.25	less debris
9:47	7.07	11.39	14.7				1.4	no change, bailing down
9:48	7.11	11.30	14.8				1.5	no debris, bailing down
9:52	7.31	11.20	13.8				1.75	dark gray, no odor, bailed dry
13:38	7.08	11.23	14.9				2	clear, same debris, no odor
13:40	7.05	11.53	15.6				2.25	cloudy, no odor, debris
13:42	7.07	11.61	15.5				2.5	cloudy, brown, no odor, debris
13:43	7.08	11.62	15.5				2.75	silty brown, no odor, debris
13:45	7.05	11.59	15.6				3	no change
13:46	7.11	11.58	15.6				3.15	no change
13:48	7.20	11.51	15.5				3.3	silty brown, no odor
13:58	7.24	11.54	15.2				3.45	no change
Final:	7.24	11.54	15.2				3.45	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-3R Sample Time: 13:54

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

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-4
 Client: XTO Energy, Inc. Date: 1/13/2011 Time: 8:48
 Project Manager: Julie Linn Sampler's Name: Brooke Herb & Sam LaRue

Measuring Point: TOC Depth to Water: 15.63 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 20.2 ft Product Thickness: NA ft
 Water Column Height: 4.57 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	4.57	0.745367	2.24

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
8:57	6.75	6.58	13.5				0.25	light brown to clear, no odor
8:58	6.85	6.83	14.4				0.5	turbid, dark brown
9:00	6.85	6.95	14.5				0.75	no change
9:01	6.80	6.88	14.7				1	no change
9:02	6.85	6.92	14.4				1.15	no change
9:03	6.88	6.93	14.3				1.25	less silt, bailing down
9:05	7.04	6.96	13.8				1.5	no change, bailing down
9:07	7.02	6.98	13.5				1.75	no change, bailing down
9:08	7.06	6.98	13.7				2	bailed dry
13:09	6.75	7.05	14.9				2.25	clear to light brown,
13:11	6.68	7.12	14.9				2.5	slightly silty, light brown, no odor
Final:	6.68	7.12	14.9				2.5	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-4 Sample Time: 13:16

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

Trip Blank: No Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-5
 Client: XTO Energy, Inc. Date: 1/13/2011 Time: 12:45
 Project Manager: Julie Linn Sampler's Name: Brooke Herb & Sam LaRue

Measuring Point: TOC Depth to Water: 18.08 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 25.2 ft Product Thickness: NA ft
 Water Column Height: 7.12 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	7.12	1.161272	3.48

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
12:50	6.74	10.25	15.8				0.25	clear, strong odor
12:52	6.61	11.58	16.1				0.5	cloudier, strong odor
12:53	6.65	11.49	16.0				0.75	no change
12:54	6.68	11.51	16.0				1	no change, bailing down
12:56	6.64	12.65	16.1				1.19	darker black, strong odor, bailing down
12:57	6.86	12.40	15.0				1.44	no change, bailed dry
14:53	7.22	11.73	15.2				1.69	gray, strong odor, bailing dry
14:56	7.23	11.78	15.1				1.81	bailed dry
Final:	7.23	11.78	15.1				1.81	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-5 Sample Time: 15:01

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

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-6
 Client: XTO Energy, Inc. Date: 1/13/2011 Time: 12:45
 Project Manager: Julie Linn Sampler's Name: Brooke Herb & Sam LaRue

Measuring Point: TOC Depth to Water: 19.55 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 25.2 ft Product Thickness: NA ft
 Water Column Height: 5.65 ft

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

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

Water Volume in Well

Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	5.65	0.921515	2.76

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
12:32	6.85	13.92	16.7				0.25	blackish gray, HC Odor, black flecks
12:32	6.81	14.19	16.5				0.5	no change
12:35	6.85	14.23	16.5				0.75	blackish gray, bailing down
12:37	6.82	14.18	16.7				1	strong odor, gray/ black color
12:40	6.90	14.21	16.0				1.06	no change, bailed dry
14:40	6.91	13.53	16.1				1.31	gray, minor silt, strong odor
14:42	6.94	14.03	16.5				1.56	gray, strong odor, slight sheen
14:43	6.94	14.10	16.3				1.68	gray, bailing dry
Final:	6.94	14.10	16.3				1.68	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-6 Sample Time: 14:48

Analysis Requested: ☒ BTEX ☐ VOC: ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other _____

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-7
 Client: XTO Energy, Inc. Date: 1/13/2011 Time: 10:08
 Project Manager: Julie Linn Sampler's Name: Brooke Herb & Sam LaRue

Measuring Point: TOC Depth to Water: 17.78 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 25.33 ft Product Thickness: NA ft
 Water Column Height: 7.55 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	7.55	1.231405	3.69

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
10:13	6.97	10.93	15.7				0.25	clear, gray, strong odor
10:15	6.89	11.04	16.1				0.5	no change
10:16	6.97	11.20	16.7				0.75	no change
10:18	6.82	11.30	16.7				1	no change
10:19	6.75	12.12	16.6				1.06	no change
10:21	6.81	12.13	16.5				1.187	no change
10:21	6.95	12.09	16.2				1.31	no change
10:26	7.20	12.21	15.0				1.44	no change, bailed dry
14:03	6.73	10.63	16.5				1.68	very strong odor, clear, dark gray
14:04	6.68	12.24	17.0				1.94	no change, darker black
14:05	6.71	12.78	17.1				2.19	no change
14:06	6.68	12.82	17.1				2.44	no change
14:07	6.68	12.83	16.9				2.69	no change
14:10	6.72	12.59	16.8				2.81	bailing dry
Final:	6.72	12.59	16.8				2.81	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-7 Sample Time: 14:15

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

Trip Blank: No Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-8
 Client: XTO Energy, Inc. Date: 1/13/2011 Time: 10:38
 Project Manager: Julie Linn Sampler's Name: Brooke Herb & Sam LaRue

Measuring Point: TOC Depth to Water: 19.35 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 26.35 ft Product Thickness: NA ft
 Water Column Height: 7 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	7	1.1417	3.43

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
10:40	6.70	5.72	15.8				0.25	Black/gray, strong odor with black flecks
10:42	6.68	6.04	16.1				0.5	no change
10:43	6.65	4.85	16.4				0.75	black, strong odor
10:45	6.67	5.30	16.2				1	no change
10:46	6.67	4.59	16.4				1.25	no change
10:47	6.67	5.08	16.2				1.5	no change
10:48	6.70	4.85	16.4				1.75	no change
10:50	6.66	4.95	16.4				2	no change
10:51	6.69	5.50	16.4				2.25	no change
10:52	6.69	5.39	16.3				2.5	no change
10:53	6.74	5.56	16.2				2.75	no change
10:54	6.71	5.76	16.4				3	no change
10:55	6.74	5.87	16.3				3.25	no change
10:56	6.72	5.89	16.4				3.5	black, strong odor, black flecks
Final:	6.72	5.89	16.4				3.5	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-8 Sample Time: 11:01

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

Trip Blank: No Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-9
 Client: XTO Energy, Inc. Date: 3/10/2011 Time: 8:57
 Project Manager: Julie Linn Sampler's Name: Brooke Herb

Measuring Point: TOC Depth to Water: 28.21 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 32.27 ft Product Thickness: NA ft
 Water Column Height: 4.06 ft

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

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

Water Volume in Well

Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	4.06	0.662186	1.99

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
9:13	6.78	36.5	14.0				0.25	No odor, dark greenish brown; no sheen
9:16	6.77	35.8	14.0				0.5	no change
9:18	6.79	36.2	14.2				0.75	no change
9:21	6.62	35.7	14.2				1	lighter brown
9:22	6.74	36.4	14.3				1.25	no change
9:22								bailed dry
9:23	6.74	36.0	13.5				1.5	no change
9:23	6.79	36.4	13.8				1.65	bailing dry
9:24	6.76	36.4	14.1				1.75	bailing dry
Final:	6.76	36.40	14.1				1.75	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: On site BGT

Sample ID: Bruington MW-9 Sample Time: _____

Analysis Requested: ☒ BTEX ☐ VOC: ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other _____

Trip Blank: No

Duplicate Sample: No



APPENDIX D
SOIL LABORATORY ANALYTICAL REPORTS



COVER LETTER

Tuesday, November 17, 2009

Kim Champlin
XTO Energy
382 County Road 3100
Aztec, NM 87410

TEL: (505) 333-3207

FAX (505) 333-3280

RE: Bruington GC #1

Order No.: 0910559

Dear Kim Champlin:

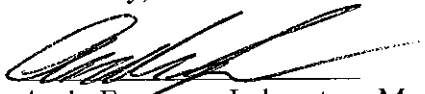
Hall Environmental Analysis Laboratory, Inc. received 33 sample(s) on 10/30/2009 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,



Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901

AZ license # AZ0682

ORELAP Lab # NM100001

Texas Lab# T104704424-08-TX



CLIENT: XTO Energy
Project: Bruington GC #1
Lab Order: 0910559

CASE NARRATIVE

"S" flags denote that the surrogate was not recoverable or elevated due to sample dilution or matrix interferences.

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy

Client Sample ID: B1-15ft

Lab Order: 0910559

Collection Date: 10/27/2009 11:57:00 AM

Project: Bruington GC #1

Date Received: 10/30/2009

Lab ID: 0910559-01

Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/5/2009 3:00:45 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/5/2009 3:00:45 PM
Surr: DNOP	97.2	61.7-135		%REC	1	11/5/2009 3:00:45 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/3/2009 6:08:51 PM
Surr: BFB	100	65.9-118		%REC	1	11/3/2009 6:08:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	ND	0.050		mg/Kg	1	11/3/2009 6:08:51 PM
Toluene	ND	0.050		mg/Kg	1	11/3/2009 6:08:51 PM
Ethylbenzene	ND	0.050		mg/Kg	1	11/3/2009 6:08:51 PM
Xylenes, Total	ND	0.10		mg/Kg	1	11/3/2009 6:08:51 PM
Surr: 4-Bromofluorobenzene	99.5	64.7-120		%REC	1	11/3/2009 6:08:51 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-02

Client Sample ID: B1-21ft
Collection Date: 10/27/2009 12:45:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/5/2009 4:44:21 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/5/2009 4:44:21 PM
Surr: DNOP	98.6	61.7-135		%REC	1	11/5/2009 4:44:21 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	ND	100		mg/Kg	20	11/3/2009 6:39:06 PM
Surr: BFB	92.4	65.9-118		%REC	20	11/3/2009 6:39:06 PM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	ND	1.0		mg/Kg	20	11/3/2009 6:39:06 PM
Toluene	ND	1.0		mg/Kg	20	11/3/2009 6:39:06 PM
Ethylbenzene	ND	1.0		mg/Kg	20	11/3/2009 6:39:06 PM
Xylenes, Total	ND	2.0		mg/Kg	20	11/3/2009 6:39:06 PM
Surr: 4-Bromofluorobenzene	69.1	64.7-120		%REC	20	11/3/2009 6:39:06 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-03

Client Sample ID: B1-24ft
Collection Date: 10/27/2009 12:30:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/5/2009 5:19:14 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/5/2009 5:19:14 PM
Surr: DNOP	94.9	61.7-135		%REC	1	11/5/2009 5:19:14 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/3/2009 7:09:23 PM
Surr: BFB	102	65.9-118		%REC	1	11/3/2009 7:09:23 PM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	ND	0.050		mg/Kg	1	11/3/2009 7:09:23 PM
Toluene	ND	0.050		mg/Kg	1	11/3/2009 7:09:23 PM
Ethylbenzene	ND	0.050		mg/Kg	1	11/3/2009 7:09:23 PM
Xylenes, Total	ND	0.10		mg/Kg	1	11/3/2009 7:09:23 PM
Surr: 4-Bromofluorobenzene	103	64.7-120		%REC	1	11/3/2009 7:09:23 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-04

Client Sample ID: B2-22ft
Collection Date: 10/27/2009 12:50:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/5/2009 5:54:26 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/5/2009 5:54:26 PM
Surr: DNOP	93.6	61.7-135		%REC	1	11/5/2009 5:54:26 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/3/2009 7:39:51 PM
Surr: BFB	107	65.9-118		%REC	1	11/3/2009 7:39:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	ND	0.050		mg/Kg	1	11/3/2009 7:39:51 PM
Toluene	ND	0.050		mg/Kg	1	11/3/2009 7:39:51 PM
Ethylbenzene	ND	0.050		mg/Kg	1	11/3/2009 7:39:51 PM
Xylenes, Total	ND	0.10		mg/Kg	1	11/3/2009 7:39:51 PM
Surr: 4-Bromofluorobenzene	110	64.7-120		%REC	1	11/3/2009 7:39:51 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-05

Client Sample ID: B3-18ft
Collection Date: 10/27/2009 1:27:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/5/2009 6:29:45 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/5/2009 6:29:45 PM
Surr: DNOP	96.9	61.7-135		%REC	1	11/5/2009 6:29:45 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/3/2009 8:10:06 PM
Surr: BFB	99.9	65.9-118		%REC	1	11/3/2009 8:10:06 PM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	ND	0.050		mg/Kg	1	11/3/2009 8:10:06 PM
Toluene	ND	0.050		mg/Kg	1	11/3/2009 8:10:06 PM
Ethylbenzene	ND	0.050		mg/Kg	1	11/3/2009 8:10:06 PM
Xylenes, Total	ND	0.10		mg/Kg	1	11/3/2009 8:10:06 PM
Surr: 4-Bromofluorobenzene	100	64.7-120		%REC	1	11/3/2009 8:10:06 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-06

Client Sample ID: B4-16ft
Collection Date: 10/27/2009 2:07:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/5/2009 7:04:52 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/5/2009 7:04:52 PM
Surr: DNOP	95.2	61.7-135		%REC	1	11/5/2009 7:04:52 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/3/2009 10:41:56 PM
Surr: BFB	94.3	65.9-118		%REC	1	11/3/2009 10:41:56 PM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	ND	0.050		mg/Kg	1	11/3/2009 10:41:56 PM
Toluene	ND	0.050		mg/Kg	1	11/3/2009 10:41:56 PM
Ethylbenzene	ND	0.050		mg/Kg	1	11/3/2009 10:41:56 PM
Xylenes, Total	ND	0.10		mg/Kg	1	11/3/2009 10:41:56 PM
Surr: 4-Bromofluorobenzene	93.8	64.7-120		%REC	1	11/3/2009 10:41:56 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-07

Client Sample ID: B5-7ft
Collection Date: 10/27/2009 2:20:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
						Analyst: JB
EPA METHOD 8015B: DIESEL RANGE ORGANICS						
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/5/2009 7:40:11 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/5/2009 7:40:11 PM
Surr: DNOP	96.3	61.7-135		%REC	1	11/5/2009 7:40:11 PM
						Analyst: DAM
EPA METHOD 8015B: GASOLINE RANGE						
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/3/2009 11:12:04 PM
Surr: BFB	102	65.9-118		%REC	1	11/3/2009 11:12:04 PM
						Analyst: DAM
EPA METHOD 8021B: VOLATILES						
Benzene	ND	0.050		mg/Kg	1	11/3/2009 11:12:04 PM
Toluene	ND	0.050		mg/Kg	1	11/3/2009 11:12:04 PM
Ethylbenzene	ND	0.050		mg/Kg	1	11/3/2009 11:12:04 PM
Xylenes, Total	ND	0.10		mg/Kg	1	11/3/2009 11:12:04 PM
Surr: 4-Bromofluorobenzene	102	64.7-120		%REC	1	11/3/2009 11:12:04 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

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

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Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-08

Client Sample ID: B6-16ft
Collection Date: 10/27/2009 2:44:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	200	10		mg/Kg	1	11/5/2009 8:15:14 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/5/2009 8:15:14 PM
Surr: DNOP	100	61.7-135		%REC	1	11/5/2009 8:15:14 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	1800	250		mg/Kg	50	11/3/2009 11:42:20 PM
Surr: BFB	127	65.9-118	S	%REC	50	11/3/2009 11:42:20 PM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	8.8	2.5		mg/Kg	50	11/3/2009 11:42:20 PM
Toluene	84	2.5		mg/Kg	50	11/3/2009 11:42:20 PM
Ethylbenzene	15	2.5		mg/Kg	50	11/3/2009 11:42:20 PM
Xylenes, Total	150	5.0		mg/Kg	50	11/3/2009 11:42:20 PM
Surr: 4-Bromofluorobenzene	86.4	64.7-120		%REC	50	11/3/2009 11:42:20 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-09

Client Sample ID: B7-16ft
Collection Date: 10/27/2009 3:01:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	110	10		mg/Kg	1	11/5/2009 9:26:10 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/5/2009 9:26:10 PM
Surr: DNOP	97.6	61.7-135		%REC	1	11/5/2009 9:26:10 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	570	250		mg/Kg	50	11/4/2009 12:12:37 AM
Surr: BFB	114	65.9-118		%REC	50	11/4/2009 12:12:37 AM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	ND	2.5		mg/Kg	50	11/4/2009 12:12:37 AM
Toluene	14	2.5		mg/Kg	50	11/4/2009 12:12:37 AM
Ethylbenzene	5.7	2.5		mg/Kg	50	11/4/2009 12:12:37 AM
Xylenes, Total	58	5.0		mg/Kg	50	11/4/2009 12:12:37 AM
Surr: 4-Bromofluorobenzene	97.0	64.7-120		%REC	50	11/4/2009 12:12:37 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-10

Client Sample ID: B8-15ft
Collection Date: 10/27/2009 3:30:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/5/2009 10:01:31 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/5/2009 10:01:31 PM
Surr: DNOP	93.7	61.7-135		%REC	1	11/5/2009 10:01:31 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/4/2009 4:15:09 PM
Surr: BFB	100	65.9-118		%REC	1	11/4/2009 4:15:09 PM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	ND	0.050		mg/Kg	1	11/4/2009 4:15:09 PM
Toluene	ND	0.050		mg/Kg	1	11/4/2009 4:15:09 PM
Ethylbenzene	ND	0.050		mg/Kg	1	11/4/2009 4:15:09 PM
Xylenes, Total	ND	0.10		mg/Kg	1	11/4/2009 4:15:09 PM
Surr: 4-Bromofluorobenzene	97.3	64.7-120		%REC	1	11/4/2009 4:15:09 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-11

Client Sample ID: B9-24ft
Collection Date: 10/27/2009 4:18:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/5/2009 10:36:58 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/5/2009 10:36:58 PM
Surr: DNOP	96.9	61.7-135		%REC	1	11/5/2009 10:36:58 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/4/2009 1:13:37 AM
Surr: BFB	102	65.9-118		%REC	1	11/4/2009 1:13:37 AM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	ND	0.050		mg/Kg	1	11/4/2009 1:13:37 AM
Toluene	ND	0.050		mg/Kg	1	11/4/2009 1:13:37 AM
Ethylbenzene	ND	0.050		mg/Kg	1	11/4/2009 1:13:37 AM
Xylenes, Total	ND	0.10		mg/Kg	1	11/4/2009 1:13:37 AM
Surr: 4-Bromofluorobenzene	103	64.7-120		%REC	1	11/4/2009 1:13:37 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-12

Client Sample ID: B10-16ft
Collection Date: 10/27/2009 4:35:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/5/2009 11:12:24 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/5/2009 11:12:24 PM
Surr: DNOP	94.7	61.7-135		%REC	1	11/5/2009 11:12:24 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/4/2009 4:45:40 PM
Surr: BFB	99.8	65.9-118		%REC	1	11/4/2009 4:45:40 PM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	0.17	0.050		mg/Kg	1	11/4/2009 4:45:40 PM
Toluene	ND	0.050		mg/Kg	1	11/4/2009 4:45:40 PM
Ethylbenzene	ND	0.050		mg/Kg	1	11/4/2009 4:45:40 PM
Xylenes, Total	0.34	0.10		mg/Kg	1	11/4/2009 4:45:40 PM
Surr: 4-Bromofluorobenzene	88.9	64.7-120		%REC	1	11/4/2009 4:45:40 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-13

Client Sample ID: B-10-20ft
Collection Date: 10/27/2009 4:40:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	160	10		mg/Kg	1	11/5/2009 11:48:01 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/5/2009 11:48:01 PM
Surr: DNOP	93.8	61.7-135		%REC	1	11/5/2009 11:48:01 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	2600	250		mg/Kg	50	11/4/2009 2:17:06 AM
Surr: BFB	131	65.9-118	S	%REC	50	11/4/2009 2:17:06 AM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	48	2.5		mg/Kg	50	11/4/2009 2:17:06 AM
Toluene	26	2.5		mg/Kg	50	11/4/2009 2:17:06 AM
Ethylbenzene	24	2.5		mg/Kg	50	11/4/2009 2:17:06 AM
Xylenes, Total	190	5.0		mg/Kg	50	11/4/2009 2:17:06 AM
Surr: 4-Bromofluorobenzene	107	64.7-120		%REC	50	11/4/2009 2:17:06 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-14

Client Sample ID: B-10-24ft
Collection Date: 10/27/2009 4:41:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Analyst: JB						
EPA METHOD 8015B: DIESEL RANGE ORGANICS						
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/6/2009 12:23:44 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/6/2009 12:23:44 AM
Surr: DNOP	95.2	61.7-135		%REC	1	11/6/2009 12:23:44 AM
Analyst: DAM						
EPA METHOD 8015B: GASOLINE RANGE						
Gasoline Range Organics (GRO)	69	25		mg/Kg	5	11/4/2009 5:16:10 PM
Surr: BFB	139	65.9-118	S	%REC	5	11/4/2009 5:16:10 PM
Analyst: DAM						
EPA METHOD 8021B: VOLATILES						
Benzene	ND	0.25		mg/Kg	5	11/4/2009 5:16:10 PM
Toluene	ND	0.25		mg/Kg	5	11/4/2009 5:16:10 PM
Ethylbenzene	0.31	0.25		mg/Kg	5	11/4/2009 5:16:10 PM
Xylenes, Total	0.84	0.50		mg/Kg	5	11/4/2009 5:16:10 PM
Surr: 4-Bromofluorobenzene	92.0	64.7-120		%REC	5	11/4/2009 5:16:10 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-15

Client Sample ID: B-10-25ft
Collection Date: 10/27/2009 4:50:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/6/2009 12:59:26 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/6/2009 12:59:26 AM
Surr: DNOP	96.5	61.7-135		%REC	1	11/6/2009 12:59:26 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	ND	25		mg/Kg	5	11/4/2009 6:16:51 PM
Surr: BFB	95.2	65.9-118		%REC	5	11/4/2009 6:16:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	ND	0.25		mg/Kg	5	11/4/2009 6:16:51 PM
Toluene	ND	0.25		mg/Kg	5	11/4/2009 6:16:51 PM
Ethylbenzene	ND	0.25		mg/Kg	5	11/4/2009 6:16:51 PM
Xylenes, Total	ND	0.50		mg/Kg	5	11/4/2009 6:16:51 PM
Surr: 4-Bromofluorobenzene	88.6	64.7-120		%REC	5	11/4/2009 6:16:51 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-16

Client Sample ID: B11-20ft
Collection Date: 10/28/2009 9:40:00 AM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	240	10		mg/Kg	1	11/6/2009 1:34:53 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/6/2009 1:34:53 AM
Surr: DNOP	68.8	61.7-135		%REC	1	11/6/2009 1:34:53 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	2000	250		mg/Kg	50	11/4/2009 8:48:34 PM
Surr: BFB	181	65.9-118	S	%REC	50	11/4/2009 8:48:34 PM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	7.2	2.5		mg/Kg	50	11/4/2009 8:48:34 PM
Toluene	40	2.5		mg/Kg	50	11/4/2009 8:48:34 PM
Ethylbenzene	22	2.5		mg/Kg	50	11/4/2009 8:48:34 PM
Xylenes, Total	210	5.0		mg/Kg	50	11/4/2009 8:48:34 PM
Surr: 4-Bromofluorobenzene	116	64.7-120		%REC	50	11/4/2009 8:48:34 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-17

Client Sample ID: B11-22ft
Collection Date: 10/28/2009 9:50:00 AM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Analyst: SCC						
EPA METHOD 8015B: DIESEL RANGE ORGANICS						
Diesel Range Organics (DRO)	1100	100		mg/Kg	10	11/9/2009 12:07:06 PM
Motor Oil Range Organics (MRO)	ND	500		mg/Kg	10	11/9/2009 12:07:06 PM
Surr: DNOP	0	61.7-135	S	%REC	10	11/9/2009 12:07:06 PM
Analyst: DAM						
EPA METHOD 8015B: GASOLINE RANGE						
Gasoline Range Organics (GRO)	4300	250		mg/Kg	50	11/4/2009 9:18:57 PM
Surr: BFB	271	65.9-118	S	%REC	50	11/4/2009 9:18:57 PM
Analyst: DAM						
EPA METHOD 8021B: VOLATILES						
Benzene	35	2.5		mg/Kg	50	11/4/2009 9:18:57 PM
Toluene	43	2.5		mg/Kg	50	11/4/2009 9:18:57 PM
Ethylbenzene	47	2.5		mg/Kg	50	11/4/2009 9:18:57 PM
Xylenes, Total	270	5.0		mg/Kg	50	11/4/2009 9:18:57 PM
Surr: 4-Bromofluorobenzene	115	64.7-120		%REC	50	11/4/2009 9:18:57 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-18

Client Sample ID: B12-24ft
Collection Date: 10/28/2009 11:15:00 AM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	64	10		mg/Kg	1	11/6/2009 2:45:57 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/6/2009 2:45:57 AM
Surr: DNOP	98.9	61.7-135		%REC	1	11/6/2009 2:45:57 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	230	25		mg/Kg	5	11/5/2009 1:18:07 PM
Surr: BFB	245	65.9-118	S	%REC	5	11/5/2009 1:18:07 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	2.4	0.25		mg/Kg	5	11/5/2009 1:18:07 PM
Toluene	1.8	0.25		mg/Kg	5	11/5/2009 1:18:07 PM
Ethylbenzene	2.0	0.25		mg/Kg	5	11/5/2009 1:18:07 PM
Xylenes, Total	20	0.50		mg/Kg	5	11/5/2009 1:18:07 PM
Surr: 4-Bromofluorobenzene	110	64.7-120		%REC	5	11/5/2009 1:18:07 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

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

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Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy

Lab Order: 0910559

Project: Bruington GC #1

Lab ID: 0910559-19

Client Sample ID: B12-28ft

Collection Date: 10/28/2009 11:20:00 AM

Date Received: 10/30/2009

Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/6/2009 3:57:04 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/6/2009 3:57:04 AM
Surr: DNOP	100	61.7-135		%REC	1	11/6/2009 3:57:04 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/5/2009 2:18:56 PM
Surr: BFB	108	65.9-118		%REC	1	11/5/2009 2:18:56 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.050		mg/Kg	1	11/5/2009 2:18:56 PM
Toluene	ND	0.050		mg/Kg	1	11/5/2009 2:18:56 PM
Ethylbenzene	ND	0.050		mg/Kg	1	11/5/2009 2:18:56 PM
Xylenes, Total	ND	0.10		mg/Kg	1	11/5/2009 2:18:56 PM
Surr: 4-Bromofluorobenzene	99.7	64.7-120		%REC	1	11/5/2009 2:18:56 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-20

Client Sample ID: B12-32ft
Collection Date: 10/28/2009 11:56:00 AM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/6/2009 4:32:31 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/6/2009 4:32:31 AM
Surr: DNOP	99.0	61.7-135		%REC	1	11/6/2009 4:32:31 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/5/2009 12:51:09 AM
Surr: BFB	96.4	65.9-118		%REC	1	11/5/2009 12:51:09 AM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	ND	0.050		mg/Kg	1	11/5/2009 12:51:09 AM
Toluene	ND	0.050		mg/Kg	1	11/5/2009 12:51:09 AM
Ethylbenzene	ND	0.050		mg/Kg	1	11/5/2009 12:51:09 AM
Xylenes, Total	ND	0.10		mg/Kg	1	11/5/2009 12:51:09 AM
Surr: 4-Bromofluorobenzene	93.7	64.7-120		%REC	1	11/5/2009 12:51:09 AM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-21

Client Sample ID: B13-14ft
Collection Date: 10/28/2009 11:57:00 AM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/6/2009 6:55:06 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/6/2009 6:55:06 AM
Surr: DNOP	86.7	61.7-135		%REC	1	11/6/2009 6:55:06 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/5/2009 1:21:34 AM
Surr: BFB	97.4	65.9-118		%REC	1	11/5/2009 1:21:34 AM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	ND	0.050		mg/Kg	1	11/5/2009 1:21:34 AM
Toluene	ND	0.050		mg/Kg	1	11/5/2009 1:21:34 AM
Ethylbenzene	ND	0.050		mg/Kg	1	11/5/2009 1:21:34 AM
Xylenes, Total	ND	0.10		mg/Kg	1	11/5/2009 1:21:34 AM
Surr: 4-Bromofluorobenzene	96.5	64.7-120		%REC	1	11/5/2009 1:21:34 AM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy

Lab Order: 0910559

Project: Bruington GC #1

Lab ID: 0910559-22

Client Sample ID: B14-13ft

Collection Date: 10/28/2009 12:43:00 PM

Date Received: 10/30/2009

Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	1400	100		mg/Kg	10	11/6/2009 5:26:33 PM
Motor Oil Range Organics (MRO)	ND	500		mg/Kg	10	11/6/2009 5:26:33 PM
Surr: DNOP	0	61.7-135	S	%REC	10	11/6/2009 5:26:33 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	5300	250		mg/Kg	50	11/5/2009 1:51:56 AM
Surr: BFB	487	65.9-118	S	%REC	50	11/5/2009 1:51:56 AM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	5.6	2.5		mg/Kg	50	11/5/2009 1:51:56 AM
Toluene	100	2.5		mg/Kg	50	11/5/2009 1:51:56 AM
Ethylbenzene	73	2.5		mg/Kg	50	11/5/2009 1:51:56 AM
Xylenes, Total	590	5.0		mg/Kg	50	11/5/2009 1:51:56 AM
Surr: 4-Bromofluorobenzene	138	64.7-120	S	%REC	50	11/5/2009 1:51:56 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-23

Client Sample ID: B15-6ft
Collection Date: 10/28/2009 12:55:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/6/2009 9:18:02 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/6/2009 9:18:02 AM
Surr: DNOP	95.9	61.7-135		%REC	1	11/6/2009 9:18:02 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/5/2009 2:49:07 PM
Surr: BFB	97.7	65.9-118		%REC	1	11/5/2009 2:49:07 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.050		mg/Kg	1	11/5/2009 2:49:07 PM
Toluene	ND	0.050		mg/Kg	1	11/5/2009 2:49:07 PM
Ethylbenzene	ND	0.050		mg/Kg	1	11/5/2009 2:49:07 PM
Xylenes, Total	ND	0.10		mg/Kg	1	11/5/2009 2:49:07 PM
Surr: 4-Bromofluorobenzene	94.4	64.7-120		%REC	1	11/5/2009 2:49:07 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-24

Client Sample ID: B16-7ft
Collection Date: 10/28/2009 1:18:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/6/2009 10:28:52 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/6/2009 10:28:52 AM
Surr: DNOP	97.6	61.7-135		%REC	1	11/6/2009 10:28:52 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/5/2009 2:52:22 AM
Surr: BFB	113	65.9-118		%REC	1	11/5/2009 2:52:22 AM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	ND	0.050		mg/Kg	1	11/5/2009 2:52:22 AM
Toluene	ND	0.050		mg/Kg	1	11/5/2009 2:52:22 AM
Ethylbenzene	ND	0.050		mg/Kg	1	11/5/2009 2:52:22 AM
Xylenes, Total	ND	0.10		mg/Kg	1	11/5/2009 2:52:22 AM
Surr: 4-Bromofluorobenzene	106	64.7-120		%REC	1	11/5/2009 2:52:22 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-25

Client Sample ID: B17-8ft
Collection Date: 10/28/2009 1:20:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/6/2009 11:03:58 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/6/2009 11:03:58 AM
Surr: DNOP	102	61.7-135		%REC	1	11/6/2009 11:03:58 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/5/2009 3:22:36 AM
Surr: BFB	97.3	65.9-118		%REC	1	11/5/2009 3:22:36 AM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	ND	0.050		mg/Kg	1	11/5/2009 3:22:36 AM
Toluene	ND	0.050		mg/Kg	1	11/5/2009 3:22:36 AM
Ethylbenzene	ND	0.050		mg/Kg	1	11/5/2009 3:22:36 AM
Xylenes, Total	ND	0.10		mg/Kg	1	11/5/2009 3:22:36 AM
Surr: 4-Bromofluorobenzene	93.1	64.7-120		%REC	1	11/5/2009 3:22:36 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-26

Client Sample ID: B18-24ft
Collection Date: 10/28/2009 1:58:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	23	10		mg/Kg	1	11/6/2009 11:39:05 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/6/2009 11:39:05 AM
Surr: DNOP	100	61.7-135		%REC	1	11/6/2009 11:39:05 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	170	25		mg/Kg	5	11/6/2009 10:39:51 PM
Surr: BFB	191	65.9-118	S	%REC	5	11/6/2009 10:39:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	1.1	0.25		mg/Kg	5	11/6/2009 10:39:51 PM
Toluene	6.1	0.25		mg/Kg	5	11/6/2009 10:39:51 PM
Ethylbenzene	1.8	0.25		mg/Kg	5	11/6/2009 10:39:51 PM
Xylenes, Total	14	0.50		mg/Kg	5	11/6/2009 10:39:51 PM
Surr: 4-Bromofluorobenzene	101	64.7-120		%REC	5	11/6/2009 10:39:51 PM

Qualifiers:

* Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-27

Client Sample ID: B19-17ft
Collection Date: 10/28/2009 2:05:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	430	10		mg/Kg	1	11/6/2009 12:14:10 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/6/2009 12:14:10 PM
Surr: DNOP	100	61.7-135		%REC	1	11/6/2009 12:14:10 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	1100	500		mg/Kg	100	11/5/2009 3:49:58 PM
Surr: BFB	123	65.9-118	S	%REC	100	11/5/2009 3:49:58 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	5.0		mg/Kg	100	11/5/2009 3:49:58 PM
Toluene	38	5.0		mg/Kg	100	11/5/2009 3:49:58 PM
Ethylbenzene	13	5.0		mg/Kg	100	11/5/2009 3:49:58 PM
Xylenes, Total	170	10		mg/Kg	100	11/5/2009 3:49:58 PM
Surr: 4-Bromofluorobenzene	102	64.7-120		%REC	100	11/5/2009 3:49:58 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-28

Client Sample ID: B20-24ft
Collection Date: 10/28/2009 3:00:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/6/2009 12:49:06 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/6/2009 12:49:06 PM
Surr: DNOP	94.9	61.7-135		%REC	1	11/6/2009 12:49:06 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: DAM
Gasoline Range Organics (GRO)	5.2	5.0		mg/Kg	1	11/6/2009 11:40:47 PM
Surr: BFB	114	65.9-118		%REC	1	11/6/2009 11:40:47 PM
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	ND	0.050		mg/Kg	1	11/6/2009 11:40:47 PM
Toluene	0.053	0.050		mg/Kg	1	11/6/2009 11:40:47 PM
Ethylbenzene	ND	0.050		mg/Kg	1	11/6/2009 11:40:47 PM
Xylenes, Total	ND	0.10		mg/Kg	1	11/6/2009 11:40:47 PM
Surr: 4-Bromofluorobenzene	98.3	64.7-120		%REC	1	11/6/2009 11:40:47 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy**Client Sample ID:** B21-7ft**Lab Order:** 0910559**Collection Date:** 10/28/2009 2:40:00 PM**Project:** Bruington GC #1**Date Received:** 10/30/2009**Lab ID:** 0910559-29**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/6/2009 1:23:56 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/6/2009 1:23:56 PM
Surr: DNOP	97.6	61.7-135		%REC	1	11/6/2009 1:23:58 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/5/2009 4:50:45 PM
Surr: BFB	102	65.9-118		%REC	1	11/5/2009 4:50:45 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.050		mg/Kg	1	11/5/2009 4:50:45 PM
Toluene	ND	0.050		mg/Kg	1	11/5/2009 4:50:45 PM
Ethylbenzene	ND	0.050		mg/Kg	1	11/5/2009 4:50:45 PM
Xylenes, Total	ND	0.10		mg/Kg	1	11/5/2009 4:50:45 PM
Surr: 4-Bromofluorobenzene	101	64.7-120		%REC	1	11/5/2009 4:50:45 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-30

Client Sample ID: B22-12ft
Collection Date: 10/28/2009 3:20:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/6/2009 1:57:32 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/6/2009 1:57:32 PM
Surr: DNOP	98.1	61.7-135		%REC	1	11/6/2009 1:57:32 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/5/2009 5:21:01 PM
Surr: BFB	102	65.9-118		%REC	1	11/5/2009 5:21:01 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.050		mg/Kg	1	11/5/2009 5:21:01 PM
Toluene	ND	0.050		mg/Kg	1	11/5/2009 5:21:01 PM
Ethylbenzene	ND	0.050		mg/Kg	1	11/5/2009 5:21:01 PM
Xylenes, Total	ND	0.10		mg/Kg	1	11/5/2009 5:21:01 PM
Surr: 4-Bromofluorobenzene	98.6	64.7-120		%REC	1	11/5/2009 5:21:01 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level	B Analyte detected in the associated Method Blank
	E Estimated value	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: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-31

Client Sample ID: B23-3ft
Collection Date: 10/28/2009 3:35:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/6/2009 2:32:43 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/6/2009 2:32:43 PM
Surr: DNOP	95.1	61.7-135		%REC	1	11/6/2009 2:32:43 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/5/2009 5:51:17 PM
Surr: BFB	108	65.9-118		%REC	1	11/5/2009 5:51:17 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.050		mg/Kg	1	11/5/2009 5:51:17 PM
Toluene	ND	0.050		mg/Kg	1	11/5/2009 5:51:17 PM
Ethylbenzene	ND	0.050		mg/Kg	1	11/5/2009 5:51:17 PM
Xylenes, Total	ND	0.10		mg/Kg	1	11/5/2009 5:51:17 PM
Surr: 4-Bromofluorobenzene	108	64.7-120		%REC	1	11/5/2009 5:51:17 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-32

Client Sample ID: B24-17.5ft
Collection Date: 10/28/2009 3:54:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	270	10		mg/Kg	1	11/6/2009 3:06:14 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/6/2009 3:06:14 PM
Surr: DNOP	96.1	61.7-135		%REC	1	11/8/2009 3:06:14 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	1000	500		mg/Kg	100	11/5/2009 6:21:45 PM
Surr: BFB	126	65.9-118	S	%REC	100	11/5/2009 6:21:45 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	5.0		mg/Kg	100	11/5/2009 6:21:45 PM
Toluene	11	5.0		mg/Kg	100	11/5/2009 6:21:45 PM
Ethylbenzene	12	5.0		mg/Kg	100	11/5/2009 6:21:45 PM
Xylenes, Total	160	10		mg/Kg	100	11/5/2009 6:21:45 PM
Surr: 4-Bromofluorobenzene	103	64.7-120		%REC	100	11/5/2009 6:21:45 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-09

CLIENT: XTO Energy
Lab Order: 0910559
Project: Bruington GC #1
Lab ID: 0910559-33

Client Sample ID: B25-11ft
Collection Date: 10/28/2009 4:16:00 PM
Date Received: 10/30/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/6/2009 3:41:10 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/6/2009 3:41:10 PM
Surr: DNOP	96.1	61.7-135		%REC	1	11/6/2009 3:41:10 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/5/2009 10:55:22 PM
Surr: BFB	103	65.9-118		%REC	1	11/5/2009 10:55:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.050		mg/Kg	1	11/5/2009 10:55:22 PM
Toluene	ND	0.050		mg/Kg	1	11/5/2009 10:55:22 PM
Ethylbenzene	ND	0.050		mg/Kg	1	11/5/2009 10:55:22 PM
Xylenes, Total	ND	0.10		mg/Kg	1	11/5/2009 10:55:22 PM
Surr: 4-Bromofluorobenzene	103	64.7-120		%REC	1	11/5/2009 10:55:22 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level	B Analyte detected in the associated Method Blank
	E Estimated value	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: Bruington GC #1

Work Order: 0910559

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8015B: Diesel Range Organics											
Sample ID: MB-20486		MBLK									
Diesel Range Organics (DRO)	ND	mg/Kg	10								
Motor Oil Range Organics (MRO)	ND	mg/Kg	50								
Sample ID: MB-20487		MBLK									
Diesel Range Organics (DRO)	ND	mg/Kg	10								
Motor Oil Range Organics (MRO)	ND	mg/Kg	50								
Sample ID: LCS-20486		LCS									
Diesel Range Organics (DRO)	43.25	mg/Kg	10	50	0	86.5	64.6	116			
Sample ID: LCS-20487		LCS									
Diesel Range Organics (DRO)	35.47	mg/Kg	10	50	0	70.9	64.6	116			
Method: EPA Method 8015B: Gasoline Range											
Sample ID: MB-20500		MBLK									
Gasoline Range Organics (GRO)	ND	mg/Kg	5.0								
Sample ID: MB-20501		MBLK									
Gasoline Range Organics (GRO)	ND	mg/Kg	5.0								
Sample ID: LCS-20500		LCS									
Gasoline Range Organics (GRO)	31.05	mg/Kg	5.0	25	1.57	118	64.4	133			
Sample ID: LCS-20501		LCS									
Gasoline Range Organics (GRO)	30.73	mg/Kg	5.0	25	1.22	118	64.4	133			
Method: EPA Method 8021B: Volatiles											
Sample ID: MB-20500		MBLK									
Benzene	ND	mg/Kg	0.050								
Toluene	ND	mg/Kg	0.050								
Ethylbenzene	ND	mg/Kg	0.050								
Xylenes, Total	ND	mg/Kg	0.10								
Sample ID: MB-20501		MBLK									
Benzene	ND	mg/Kg	0.050								
Toluene	ND	mg/Kg	0.050								
Ethylbenzene	ND	mg/Kg	0.050								
Xylenes, Total	ND	mg/Kg	0.10								
Sample ID: LCS-20501		LCS									
Benzene	0.8251	mg/Kg	0.050	1	0.0122	81.3	78.8	132			
Toluene	0.8343	mg/Kg	0.050	1	0.0114	82.3	78.9	112			
Ethylbenzene	0.8809	mg/Kg	0.050	1	0	88.1	69.3	125			
Xylenes, Total	2.664	mg/Kg	0.10	3	0	88.8	73	128			

Qualifiers:

E Estimated value
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **XTO ENERGY**

Date Received:

10/30/2009

Work Order Number **0910559**

Received by: **ARS**

Sample ID labels checked by:

TS
Initials

Checklist completed by:

Signature

10/30/09
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 - Preservation labels on bottle and cap match?

Yes ☐

No ☐

N/A ☒

Water - pH acceptable upon receipt?

Yes ☐

No ☐

N/A ☒

Number of preserved
bottles checked for
pH:

<2 >12 unless noted
below.

Container/Temp Blank temperature?

4.5°

<6° C Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding:

Comments:

As per D.H., correct sample ID for 0910559-22 is B14-13P1.1/2

Corrective Action

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chain-of-Custody Record

Client: XTO

Kim Champlin

Mailing Address: 382 CR 3100

AZtec, NM 87410

Phone #: (505) 333-3207

email or Fax#:

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☐ EDD (Type)

Date	Time	Matrix	Sample Request ID
10-27-09	1640	Soil	B10-20ft
10-27-09	1641	Soil	B10-24ft
10-22-09	1650	Soil	B10-25ft
10-28-09	940	Soil	B11-20ft
10-28-09	950	Soil	B11-22ft
10-28-09	1115	Soil	B12-24ft
10-28-09	1120	Soil	B12-28ft
10-28-09	1156	Soil	B12-32ft
10-28-09	1157	Soil	B13-14ft
10-28-09	1243	Soil	B14-15ft
10-28-09	1255	Soil	B15-6ft
10-28-09	1318	Soil	B16-7ft

Relinquished by:

Date: 10-29-09 Time: 18:35

Relinquished by:

Date:

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

Brington GC #1

Project #:

Project Manager:

Ashley Ager

Sampler: Devon Henemann

On Ice: ☒ Yes ☐ No

Sample Temperature: 45

Container Type and #	Preservative Type	HEAL No.
40Z	<u>As</u>	<u>09100559</u>
40Z	<u>-</u>	<u>13</u>
40Z	<u>-</u>	<u>14</u>
40Z	<u>-</u>	<u>15</u>
40Z	<u>-</u>	<u>16</u>
40Z	<u>-</u>	<u>17</u>
40Z	<u>-</u>	<u>18</u>
40Z	<u>-</u>	<u>19</u>
40Z	<u>-</u>	<u>20</u>
40Z	<u>-</u>	<u>21</u>
40Z	<u>-</u>	<u>22</u>
40Z	<u>-</u>	<u>23</u>
40Z	<u>-</u>	<u>24</u>

Received by:

Date: 10/30/09 Time: 10:00

Received by:

Date:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	BTEX 8021	Air Bubbles (Y or N)
		X									X	
		X									X	
		X									X	
		X									X	
		X									X	
		X									X	
		X									X	
		X									X	
		X									X	
		X									X	
		X									X	
		X									X	
		X									X	
		X									X	

Remarks: Please forward results to

ala @ lodestar services.com

Chain-of-Custody Record

Client: XTO

Kim Champion

Mailing Address: 382 CR 3100

Aztel, NM 87410

Phone #: (505) 332-3207

email or Fax#:

QA/QC Package: ☒ Standard ☐ Level 4 (Full Validation)

☒ Standard ☐ Other

☐ EDD (Type) _____

Date	Time	Matrix	Sample Request ID
10-28-09	1320	Soil	B-17 - 8ft
10-28-09	1358	Soil	B18 - 24ft
10-28-09	1405	Soil	B19 - 17ft
10-28-09	1500	Soil	B20 - 24ft
10-28-09	1440	Soil	B21 - 7ft
10-28-09	1520	Soil	B22 - 12ft
10-28-09	1535	Soil	B23 - 3ft
10-28-09	1554	Soil	B24 - 17.5ft
10-28-09	1616	Soil	B25 - 11ft

Date: 10-24-09 Time: 18:35

Date: _____ Time: _____

Relinquished by: [Signature]

Relinquished by: _____

Turn-Around Time: ☒ Standard ☐ Rush

Project Name: Broughton GC #1

Project #: _____

Project Manager: Ashley Ager

Sampler: Devon Hencemann

On-site / Yes / No

Sample Temperature: _____

Container Type and #	Preservative Type	HEALING CROSS
402	—	25
402	—	24
402	—	27
402	—	28
402	—	29
402	—	30
402	—	31
402	—	32
402	—	33

Received by: [Signature] Date: 10/30/09 Time: 10:00

Received by: _____ Date: _____ Time: _____



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

BTEX + MTBE + TMBs (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)	8081 Pesticides / 8082 PCBs	8260B (VOA)	8270 (Semi-VOA)	BTEX 8021	Air Bubbles (Y or N)
		X									X	
		X									X	
		X									X	
		X									X	
		X									X	
		X									X	
		X									X	
		X									X	
		X									X	

Remarks: Please forward results to:
ala@LodeStarServices.com



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

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

Report Summary

Thursday January 13, 2011

Report Number: L496949

Samples Received: 01/08/11

Client Project:

Description: Bruington GC 1 Deliniation

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 Richards , ESC Representative

Laboratory Certification Numbers

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

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

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

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REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

January 13, 2011

Date Received : January 08, 2011
Description : Bruington GC 1 Deliniation
Sample ID : B-34 19 FT
Collected By : Devin Hencwann
Collection Date : 01/06/11 15:45

ESC Sample # : L496949-01

Site ID : BRUINGTON GC 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	91.8		%	2540G	01/12/11	1
Benzene	1.5	0.12	mg/kg	8021/8015	01/11/11	250
Toluene	1.4	1.2	mg/kg	8021/8015	01/11/11	250
Ethylbenzene	4.7	0.12	mg/kg	8021/8015	01/11/11	250
Total Xylene	31.	0.38	mg/kg	8021/8015	01/11/11	250
TPH (GC/FID) Low Fraction	610	25.	mg/kg	GRO	01/11/11	250
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	99.1		% Rec.	8021/8015	01/11/11	250
a,a,a-Trifluorotoluene(PID)	97.0		% Rec.	8021/8015	01/11/11	250
TPH (GC/FID) High Fraction	100	4.0	mg/kg	3546/DR0	01/12/11	1
Surrogate recovery(%)						
o-Terphenyl	77.2		% Rec.	3546/DR0	01/12/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 01/13/11 11:04 Revised: 01/13/11 15:26

REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

January 13, 2011

Date Received : January 08, 2011
Description : Bruington GC 1 Deliniation
Sample ID : B-34 30 FT
Collected By : Devin Hencwann
Collection Date : 01/06/11 16:10

ESC Sample # : L496949-02

Site ID : BRUINGTON GC 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	93.6		%	2540G	01/12/11	1
Benzene	0.0041	0.0025	mg/kg	8021/8015	01/12/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	01/12/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	01/12/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	01/12/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	100.		% Rec.	8021/8015	01/12/11	5
a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021/8015	01/12/11	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DR0	01/12/11	1
Surrogate recovery(%)						
o-Terphenyl	80.6		% Rec.	3546/DR0	01/12/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 01/13/11 11:04 Revised: 01/13/11 15:26

REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

January 13, 2011

Date Received : January 08, 2011
Description : Bruington GC 1 Deliniation
Sample ID : B-32 30 FT
Collected By : Devin Hencwann
Collection Date : 01/06/11 11:17

ESC Sample # : L496949-03

Site ID : BRUINGTON GC 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	88.6		%	2540G	01/12/11	1
Benzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	01/12/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	01/12/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	01/12/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	101.		% Rec.	8021/8015	01/12/11	5
a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021/8015	01/12/11	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DR0	01/12/11	1
Surrogate recovery(%)						
o-Terphenyl	65.0		% Rec.	3546/DR0	01/12/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 01/13/11 11:04 Revised: 01/13/11 15:26

REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

January 13, 2011

Date Received : January 08, 2011
Description : Bruington GC 1 Deliniation
Sample ID : B-32 21 FT
Collected By : Devin Hencwann
Collection Date : 01/06/11 11:05

ESC Sample # : L496949-04

Site ID : BRUINGTON GC 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	83.8		%	2540G	01/12/11	1
Benzene	12.	2.5	mg/kg	8021/8015	01/12/11	5000
Toluene	60.	25.	mg/kg	8021/8015	01/12/11	5000
Ethylbenzene	11.	2.5	mg/kg	8021/8015	01/12/11	5000
Total Xylene	120	7.5	mg/kg	8021/8015	01/12/11	5000
TPH (GC/FID) Low Fraction	1600	500	mg/kg	GRO	01/12/11	5000
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	102.		% Rec.	8021/8015	01/12/11	5000
a,a,a-Trifluorotoluene(PID)	108.		% Rec.	8021/8015	01/12/11	5000
TPH (GC/FID) High Fraction	390	4.0	mg/kg	3546/DR0	01/12/11	1
Surrogate recovery(%)						
o-Terphenyl	77.1		% Rec.	3546/DR0	01/12/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 01/13/11 11:04 Revised: 01/13/11 15:26

REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

January 13, 2011

Date Received : January 08, 2011
Description : Bruington GC 1 Deliniation
Sample ID : B-33 18 FT
Collected By : Devin Hencwonn
Collection Date : 01/06/11 12:45

ESC Sample # : L496949-05

Site ID : BRUINGTON GC 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	90.8		%	2540G	01/12/11	1
Benzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	01/12/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	01/12/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	01/12/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	101.		% Rec.	8021/8015	01/12/11	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	01/12/11	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DR0	01/12/11	1
Surrogate recovery(%)						
o-Terphenyl	77.5		% Rec.	3546/DR0	01/12/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 01/13/11 11:04 Revised: 01/13/11 15:26

REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

January 13, 2011

Date Received : January 08, 2011
Description : Bruington GC 1 Deliniation
Sample ID : B-33 25 FT
Collected By : Devin Hencwann
Collection Date : 01/06/11 12:54

ESC Sample # : L496949-06

Site ID : BRUINGTON GC 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	92.9		%	2540G	01/12/11	1
Benzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	01/12/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	01/12/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	01/12/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	99.9		% Rec.	8021/8015	01/12/11	5
a,a,a-Trifluorotoluene(PID)	99.6		% Rec.	8021/8015	01/12/11	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DR0	01/12/11	1
Surrogate recovery(%)						
o-Terphenyl	83.2		% Rec.	3546/DR0	01/12/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 01/13/11 11:04 Revised: 01/13/11 15:26

REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

January 13, 2011

Date Received : January 08, 2011
Description : Bruington GC 1 Deliniation
Sample ID : B-29 25 FT
Collected By : Devin Hencwann
Collection Date : 01/05/11 13:10

ESC Sample # : L496949-07

Site ID : BRUINGTON GC 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	92.0		%	2540G	01/12/11	1
Benzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	01/12/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	01/12/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	01/12/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	99.9		% Rec.	8021/8015	01/12/11	5
a,a,a-Trifluorotoluene(PID)	98.8		% Rec.	8021/8015	01/12/11	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DR0	01/12/11	1
Surrogate recovery(%)						
o-Terphenyl	73.7		% Rec.	3546/DR0	01/12/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 01/13/11 11:04 Revised: 01/13/11 15:26

REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

January 13, 2011

Date Received : January 08, 2011
Description : Bruington GC 1 Deliniation
Sample ID : B-27 30 FT
Collected By : Devin Hencwann
Collection Date : 01/04/11 16:20

ESC Sample # : L496949-08

Site ID : BRUINGTON GC 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	92.6		%	2540G	01/12/11	1
Benzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	01/12/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Total Xylene	0.023	0.0075	mg/kg	8021/8015	01/12/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	01/12/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	101.		% Rec.	8021/8015	01/12/11	5
a,a,a-Trifluorotoluene(PID)	100.		% Rec.	8021/8015	01/12/11	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DR0	01/12/11	1
Surrogate recovery(%)						
o-Terphenyl	71.5		% Rec.	3546/DR0	01/12/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 01/13/11 11:04 Revised: 01/13/11 15:26

REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

January 13, 2011

Date Received : January 08, 2011
Description : Bruington GC 1 Deliniation
Sample ID : B-31 25 FT
Collected By : Devin Hencwann
Collection Date : 01/05/11 16:01

ESC Sample # : L496949-09

Site ID : BRUINGTON GC 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	92.0		%	2540G	01/12/11	1
Benzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	01/12/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	01/12/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	01/12/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	100.		% Rec.	8021/8015	01/12/11	5
a,a,a-Trifluorotoluene(PID)	99.1		% Rec.	8021/8015	01/12/11	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DR0	01/12/11	1
Surrogate recovery(%)						
o-Terphenyl	83.1		% Rec.	3546/DR0	01/12/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 01/13/11 11:04 Revised: 01/13/11 15:26

REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

January 13, 2011

Date Received : January 08, 2011
Description : Bruington GC 1 Deliniation
Sample ID : B-30 13 FT
Collected By : Devin Hencwann
Collection Date : 01/05/11 13:45

ESC Sample # : L496949-10

Site ID : BRUINGTON GC 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	91.0		%	2540G	01/12/11	1
Benzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	01/12/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	01/12/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	01/12/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	102.		% Rec.	8021/8015	01/12/11	5
a,a,a-Trifluorotoluene(PID)	100.		% Rec.	8021/8015	01/12/11	5
TPH (GC/FID) High Fraction	7.6	4.0	mg/kg	3546/DR0	01/12/11	1
Surrogate recovery(%)						
o-Terphenyl	81.1		% Rec.	3546/DR0	01/12/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 01/13/11 11:04 Revised: 01/13/11 15:26

REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

January 13, 2011

Date Received : January 08, 2011
Description : Bruington GC 1 Deliniation
Sample ID : B-28 18 FT
Collected By : Devin Hencwann
Collection Date : 01/05/11 10:59

ESC Sample # : L496949-11

Site ID : BRUINGTON GC 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	89.8		%	2540G	01/12/11	1
Benzene	0.081	0.025	mg/kg	8021/8015	01/12/11	50
Toluene	BDL	0.25	mg/kg	8021/8015	01/12/11	50
Ethylbenzene	0.49	0.025	mg/kg	8021/8015	01/12/11	50
Total Xylene	6.2	0.075	mg/kg	8021/8015	01/12/11	50
TPH (GC/FID) Low Fraction	280	5.0	mg/kg	GRO	01/12/11	50
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	99.7		% Rec.	8021/8015	01/12/11	50
a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021/8015	01/12/11	50
TPH (GC/FID) High Fraction	35.	4.0	mg/kg	3546/DR0	01/12/11	1
Surrogate recovery(%)						
o-Terphenyl	75.4		% Rec.	3546/DR0	01/12/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 01/13/11 11:04 Revised: 01/13/11 15:26



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

James McDaniel
XT0 Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

January 13, 2011

Date Received : January 08, 2011
Description : Bruington GC 1 Deliniation
Sample ID : B-30 25 FT
Collected By : Devin Hencwonn
Collection Date : 01/05/11 14:52

ESC Sample # : L496949-12

Site ID : BRUINGTON GC 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	94.1		%	2540G	01/12/11	1
Benzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	01/12/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	01/12/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	01/12/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	101.		% Rec.	8021/8015	01/12/11	5
a,a,a-Trifluorotoluene(PID)	100.		% Rec.	8021/8015	01/12/11	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DR0	01/12/11	1
Surrogate recovery(%)						
o-Terphenyl	88.8		% Rec.	3546/DR0	01/12/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 01/13/11 11:04 Revised: 01/13/11 15:26

REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

January 13, 2011

Date Received : January 08, 2011
Description : Bruington GC 1 Deliniation
Sample ID : B-28 25 FT
Collected By : Devin Hencwann
Collection Date : 01/05/11 10:58

ESC Sample # : L496949-13

Site ID : BRUINGTON GC 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	92.3		%	2540G	01/12/11	1
Benzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	01/12/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	01/12/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	01/12/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	100.		% Rec.	8021/8015	01/12/11	5
a,a,a-Trifluorotoluene(PID)	99.0		% Rec.	8021/8015	01/12/11	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DR0	01/12/11	1
Surrogate recovery(%)						
o-Terphenyl	88.3		% Rec.	3546/DR0	01/12/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

January 13, 2011

Date Received : January 08, 2011
Description : Bruington GC 1 Deliniation
Sample ID : B-26 25 FT
Collected By : Devin Hencwann
Collection Date : 01/05/11 15:40

ESC Sample # : L496949-14

Site ID : BRUINGTON GC 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	91.9		%	2540G	01/12/11	1
Benzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	01/12/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	01/12/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	01/12/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	01/12/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	99.1		% Rec.	8021/8015	01/12/11	5
a,a,a-Trifluorotoluene(PID)	98.5		% Rec.	8021/8015	01/12/11	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DR0	01/12/11	1
Surrogate recovery(%)						
o-Terphenyl	92.3		% Rec.	3546/DR0	01/12/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L496949-02	WG516936	SAMP	Total Xylene	R1535971	B3
	WG516936	SAMP	TPH (GC/FID) Low Fraction	R1535971	J3
L496949-03	WG516936	SAMP	Total Xylene	R1535971	B3

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
B3	(ESC) - The indicated compound was found in the associated method blank, but all reported samples were non-detect.
J3	The associated batch QC was outside the established quality control range for precision.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
01/13/11 at 15:26:55

TSR Signing Reports: 288
R5 - Desired TAT

No Energy fee. Charge \$10 Shipping Fee per Dave V 1/4/10 When transferring TS to a new dash # D0
NOT charge a fee

Sample: L496949-01 Account: XTORNM Received: 01/08/11 09:00 Due Date: 01/14/11 00:00 RPT Date: 01/13/11 11:04
Sample: L496949-02 Account: XTORNM Received: 01/08/11 09:00 Due Date: 01/14/11 00:00 RPT Date: 01/13/11 11:04
Sample: L496949-03 Account: XTORNM Received: 01/08/11 09:00 Due Date: 01/14/11 00:00 RPT Date: 01/13/11 11:04
Sample: L496949-04 Account: XTORNM Received: 01/08/11 09:00 Due Date: 01/14/11 00:00 RPT Date: 01/13/11 11:04
Sample: L496949-05 Account: XTORNM Received: 01/08/11 09:00 Due Date: 01/14/11 00:00 RPT Date: 01/13/11 11:04
Sample: L496949-06 Account: XTORNM Received: 01/08/11 09:00 Due Date: 01/14/11 00:00 RPT Date: 01/13/11 11:04
Sample: L496949-07 Account: XTORNM Received: 01/08/11 09:00 Due Date: 01/14/11 00:00 RPT Date: 01/13/11 11:04
Sample: L496949-08 Account: XTORNM Received: 01/08/11 09:00 Due Date: 01/14/11 00:00 RPT Date: 01/13/11 11:04
Sample: L496949-09 Account: XTORNM Received: 01/08/11 09:00 Due Date: 01/14/11 00:00 RPT Date: 01/13/11 11:04
Sample: L496949-10 Account: XTORNM Received: 01/08/11 09:00 Due Date: 01/14/11 00:00 RPT Date: 01/13/11 11:04
Sample: L496949-11 Account: XTORNM Received: 01/08/11 09:00 Due Date: 01/14/11 00:00 RPT Date: 01/13/11 11:04
Sample: L496949-12 Account: XTORNM Received: 01/08/11 09:00 Due Date: 01/14/11 00:00 RPT Date: 01/13/11 11:04
Sample: L496949-13 Account: XTORNM Received: 01/08/11 09:00 Due Date: 01/14/11 00:00 RPT Date: 01/13/11 11:04
Sample: L496949-14 Account: XTORNM Received: 01/08/11 09:00 Due Date: 01/14/11 00:00 RPT Date: 01/13/11 11:04



YOUR LAB OF CHOICE

XT0 Energy - San Juan Division
James McDaniel
382 County Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L496949

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

January 13, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG516804	01/11/11 15:03
Ethylbenzene	< .0005	mg/kg			WG516804	01/11/11 15:03
Toluene	< .005	mg/kg			WG516804	01/11/11 15:03
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG516804	01/11/11 15:03
Total Xylene	< .0015	mg/kg			WG516804	01/11/11 15:03
a,a,a-Trifluorotoluene(FID)		% Rec.	101.9	59-128	WG516804	01/11/11 15:03
a,a,a-Trifluorotoluene(PID)		% Rec.	102.5	54-144	WG516804	01/11/11 15:03
Total Solids	< .1	%			WG516808	01/12/11 11:18
Total Solids	< .1	%			WG516809	01/12/11 11:23
TPH (GC/FID) High Fraction	< 4	ppm			WG516595	01/12/11 02:37
o-Terphenyl		% Rec.	78.46	50-150	WG516595	01/12/11 02:37
TPH (GC/FID) High Fraction	< 4	ppm			WG516861	01/12/11 03:10
o-Terphenyl		% Rec.	80.02	50-150	WG516861	01/12/11 03:10
Benzene	< .0005	mg/kg			WG516936	01/12/11 13:32
Ethylbenzene	< .0005	mg/kg			WG516936	01/12/11 13:32
Toluene	< .005	mg/kg			WG516936	01/12/11 13:32
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG516936	01/12/11 13:32
Total Xylene	< .0015	mg/kg			WG516936	01/12/11 13:32
a,a,a-Trifluorotoluene(FID)		% Rec.	102.3	59-128	WG516936	01/12/11 13:32
a,a,a-Trifluorotoluene(PID)		% Rec.	106.3	54-144	WG516936	01/12/11 13:32

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Total Solids	%	91.0	90.8	0.150	5	L496949-05	WG516808
Total Solids	%	92.0	91.9	0.188	5	L496949-14	WG516809

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0505	101.	76-113	WG516804
Ethylbenzene	mg/kg	.05	0.0535	107.	78-115	WG516804
Toluene	mg/kg	.05	0.0518	104.	76-114	WG516804
Total Xylene	mg/kg	.15	0.164	109.	81-118	WG516804
a,a,a-Trifluorotoluene(PID)				99.08	54-144	WG516804
TPH (GC/FID) Low Fraction				113.	67-135	WG516804
a,a,a-Trifluorotoluene(FID)				92.85	59-128	WG516804
Total Solids	%	50	50.0	100.	85-115	WG516808
Total Solids	%	50	46.3	92.5	85-115	WG516809
TPH (GC/FID) High Fraction	ppm	60	45.8	76.3	50-150	WG516595
o-Terphenyl				75.67	50-150	WG516595

* 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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Quality Assurance Report
Level II

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January 13, 2011

Analyte	Units	Laboratory Control Known Val	Sample Result	% Rec	Limit	Batch
TPH (GC/FID) High Fraction o-Terphenyl	ppm	60	45.1	75.2 73.99	50-150 50-150	WG516861 WG516861
Benzene	mg/kg	.05	0.0501	100.	76-113	WG516936
Ethylbenzene	mg/kg	.05	0.0546	109.	78-115	WG516936
Toluene	mg/kg	.05	0.0516	103.	76-114	WG516936
Total Xylene	mg/kg	.15	0.160	107.	81-118	WG516936
a,a,a-Trifluorotoluene(PID)				105.5	54-144	WG516936
TPH (GC/FID) Low Fraction	mg/kg	5.5	7.02	128.	67-135	WG516936
a,a,a-Trifluorotoluene(FID)				105.8	59-128	WG516936

Analyte	Units	Laboratory Control Result	Sample Ref	Duplicate %Rec	Limit	RPD	Limit	Batch
Benzene	mg/kg	0.0473	0.0505	95.0	76-113	6.52	20	WG516804
Ethylbenzene	mg/kg	0.0497	0.0535	99.0	78-115	7.46	20	WG516804
Toluene	mg/kg	0.0482	0.0518	96.0	76-114	7.22	20	WG516804
Total Xylene	mg/kg	0.152	0.164	101.	81-118	7.30	20	WG516804
a,a,a-Trifluorotoluene(PID)				98.32	54-144			WG516804
TPH (GC/FID) Low Fraction	mg/kg	6.66	6.19	121.	67-135	7.42	20	WG516804
a,a,a-Trifluorotoluene(FID)				95.65	59-128			WG516804
TPH (GC/FID) High Fraction o-Terphenyl	ppm	42.2	45.8	70.0 70.34	50-150 50-150	8.11	25	WG516595 WG516595
TPH (GC/FID) High Fraction o-Terphenyl	ppm	46.4	45.1	77.0 78.78	50-150 50-150	2.75	25	WG516861 WG516861
Benzene	mg/kg	0.0500	0.0501	100.	76-113	0.200	20	WG516936
Ethylbenzene	mg/kg	0.0537	0.0546	107.	78-115	1.64	20	WG516936
Toluene	mg/kg	0.0508	0.0516	102.	76-114	1.67	20	WG516936
Total Xylene	mg/kg	0.158	0.160	105.	81-118	1.76	20	WG516936
a,a,a-Trifluorotoluene(PID)				105.7	54-144			WG516936
TPH (GC/FID) Low Fraction	mg/kg	7.18	7.02	130.	67-135	2.28	20	WG516936
a,a,a-Trifluorotoluene(FID)				106.2	59-128			WG516936

Analyte	Units	MS Res	Matrix Spike Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Benzene	mg/kg	0.298	0.0670	.05	92.3	32-137	L496953-18	WG516804
Ethylbenzene	mg/kg	0.241	0.0180	.05	89.4	10-150	L496953-18	WG516804
Toluene	mg/kg	0.233	0.00990	.05	89.0	20-142	L496953-18	WG516804
Total Xylene	mg/kg	0.750	0.0580	.15	92.2	16-141	L496953-18	WG516804
a,a,a-Trifluorotoluene(PID)					97.95	54-144		WG516804
TPH (GC/FID) Low Fraction	mg/kg	6.32	0.556	5.5	105.	55-109	L496904-05	WG516804
a,a,a-Trifluorotoluene(FID)					92.02	59-128		WG516804
TPH (GC/FID) High Fraction o-Terphenyl	ppm	45.6	0	60	76.0 76.97	50-150 50-150	L496854-05	WG516595 WG516595
TPH (GC/FID) High Fraction o-Terphenyl	ppm	44.8	0	60	74.6 63.80	50-150 50-150	L496949-13	WG516861 WG516861

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Benzene	mg/kg	0.242	0	.05	96.9	32-137	L496947-02	WG516936
Ethylbenzene	mg/kg	0.257	0	.05	103.	10-150	L496947-02	WG516936
Toluene	mg/kg	0.247	0	.05	98.9	20-142	L496947-02	WG516936
Total Xylene	mg/kg	0.757	0	.15	101.	16-141	L496947-02	WG516936
a,a,a-Trifluorotoluene(PID)					105.9	54-144		WG516936
TPH (GC/FID) Low Fraction	mg/kg	28.8	0	5.5	105.	55-109	L496949-02	WG516936
a,a,a-Trifluorotoluene(FID)					103.7	59-128		WG516936

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.372	0.298	122.	32-137	22.3	39	L496953-18	WG516804
Ethylbenzene	mg/kg	0.293	0.241	110.	10-150	19.4	44	L496953-18	WG516804
Toluene	mg/kg	0.280	0.233	108.	20-142	18.5	42	L496953-18	WG516804
Total Xylene	mg/kg	0.893	0.750	111.	16-141	17.5	46	L496953-18	WG516804
a,a,a-Trifluorotoluene(PID)				97.93	54-144				WG516804
TPH (GC/FID) Low Fraction	mg/kg	6.88	6.32	115.*	55-109	8.46	20	L496904-05	WG516804
a,a,a-Trifluorotoluene(FID)				93.01	59-128				WG516804
TPH (GC/FID) High Fraction	ppm	41.3	45.6	68.8	50-150	9.96	25	L496854-05	WG516595
o-Terphenyl				69.92	50-150				WG516595
TPH (GC/FID) High Fraction	ppm	41.5	44.8	69.1	50-150	7.64	25	L496949-13	WG516861
o-Terphenyl				63.64	50-150				WG516861
Benzene	mg/kg	0.221	0.242	88.3	32-137	9.24	39	L496947-02	WG516936
Ethylbenzene	mg/kg	0.230	0.257	92.1	10-150	11.2	44	L496947-02	WG516936
Toluene	mg/kg	0.222	0.247	88.9	20-142	10.7	42	L496947-02	WG516936
Total Xylene	mg/kg	0.673	0.757	89.7	16-141	11.8	46	L496947-02	WG516936
a,a,a-Trifluorotoluene(PID)				105.7	54-144				WG516936
TPH (GC/FID) Low Fraction	mg/kg	21.6	28.8	78.7	55-109	28.3*	20	L496949-02	WG516936
a,a,a-Trifluorotoluene(FID)				102.2	59-128				WG516936

Batch number /Run number / Sample number cross reference

WG516804: R1534429: L496949-01 05 06 07 08 09 10 12 13 14
WG516808: R1535010: L496949-01 02 03 04 05
WG516809: R1535011: L496949-06 07 08 09 10 11 12 13 14
WG516595: R1535149: L496949-01 02 03 04 05 06 07 08 09 10
WG516861: R1535150: L496949-11 12 13 14
WG516936: R1535971: L496949-02 03 04 11

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

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

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

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

Company Name/Address LT Environmental, Inc. 2243 Main Avenue, Ste. 3 Durango, CO 81301				Alternate Billing Report to: E-mail to:		Analysis/Container/Preservative BTEX 8021 TPH 8015 [Empty Columns for Analysis/Container/Preservative]						Chain of Custody Page <u>1</u> of <u>2</u> D039 Prepared by: ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859	
Project Description: <u>Bruington GC#1 Delinution</u>				City/State Collected: <u>NM</u>									
PHONE: 970-946-1093 FAX: 970-385-1873		Client Project No.		Lab Project #									
Collected by: <u>Dmit</u>		Site/Facility ID# <u>Bruington GC#1</u>		P.O.#									
Collected by (signature): <u>[Signature]</u>		Rush? (Lab MUST be Notified) ☐ Next Day.....100% ☐ Two Day.....50% ☐ Three Day.....25%		Date Results Needed		No of Cntrs		BTEX 8021 TPH 8015					
				Email? ☐ No ☒ Yes FAX? ☐ No ☒ Yes									
Packed on Ice N ☐ Y ☒													
Sample ID	Comp/Grab	Matrix	Depth	Date	Time								
B-34 19'		SS	19'	1/6/11	1545	1	X	X				1496949	14968080
B-34 30'		SS	30'	1/6/11	1610	1	X	X					02
B-32 30'		SS	30'	1/6/11	1117	1	X	X					03
B-32 21'		SS	21'	1/6/11	1108 ^{PM}	1	X	X					04
B-33 18'		SS	18'	1/6/11	1245	1	X	X					05
B-33 25'		SS	25'	1/6/11	1254	1	X	X					06
B-29 25'		SS	25'	1/5/11	1310	1	X	X					07
B-27 30'		SS	30'	1/4/11	1620	1	X	X					08
B-31 25'		SS	25'	1/5/11	1601	1	X	X					09

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other _____

pH _____ Temp _____

Remarks:

Flow _____ Other _____

Relinquisher by: (Signature) <u>[Signature]</u>	Date <u>1/7/11</u>	Time <u>12:00</u>	Received by: (Signature) 	Samples returned via: FedEx ☒ UPS ☐ Other _____ <u>871960298974</u>	Condition (lab use only) <u>0051</u>
Relinquisher by: (Signature)	Date	Time	Received by: (Signature)	Temp: <u>34°</u>	Bottles Received: <u>14 402</u>
Relinquisher by: (Signature)	Date	Time	Received for lab by: (Signature) <u>[Signature]</u>	Date: <u>1/8/11</u>	Time: <u>09:00</u>
				pH Checked:	NCF: ☒

Company Name/Address LT Environmental, Inc. 2243 Main Avenue, Ste. 3 Durango, CO 81301				Alternate Billing Report to: E-mail to:		Analysis/Container/Preservative BTEX 8021 TPH 8015						Chain of Custody Page <u>2</u> of <u>2</u> Prepared by: ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859	
Project Description: <u>Bowlington GC #2 Delamination</u>				City/State Collected: <u>NM</u>									
PHONE: 970-946-1093 FAX: 970-385-1873		Client Project No.		Lab Project #									
Collected by: <u>DmH</u>		Site/Facility ID# <u>Bowlington GC #1</u>		P.O.#									
Collected by (signature): <u>[Signature]</u>		☒ Rush? (Lab MUST be Notified) _____ Next Day.....100% _____ Two Day.....50% _____ Three Day.....25%		Date Results Needed		No _____ of _____ Cntrs							
				Email? _____ No _____ Yes FAX? _____ No _____ Yes									
Packed on Ice N <u>Y</u> X													
Sample ID		Comp/Grab	Matrix	Depth	Date	Time							
<u>B-30 13'</u>			<u>SS</u>	<u>13'</u>	<u>1/5/11</u>	<u>1345</u>	<u>1</u>	<u>X</u>	<u>X</u>				
<u>B-28 18'</u>			<u>SS</u>	<u>18'</u>	<u>1/5/11</u>	<u>1059</u>	<u>1</u>	<u>X</u>	<u>X</u>				
<u>B-30 25'</u>			<u>SS</u>	<u>25'</u>	<u>1/5/11</u>	<u>1452</u>	<u>1</u>	<u>X</u>	<u>X</u>				
<u>B-28 25'</u>			<u>SS</u>	<u>25'</u>	<u>1/5/11</u>	<u>1058</u>	<u>1</u>	<u>X</u>	<u>X</u>				
<u>B-26 25'</u>			<u>SS</u>	<u>25'</u>	<u>1/4/11</u>	<u>1540</u>	<u>1</u>	<u>X</u>	<u>X</u>				
<u>B-27 30'</u>			<u>SS</u>	<u>30'</u>	<u>1/4/11</u>	<u>1620</u>	<u>1</u>	<u>X</u>	<u>X</u>				

Matrix: SS=Soil/Solid GW=Groundwater WW=Wastewater DW=Drinking Water OT= Other _____

pH _____ Temp _____

Remarks:

Flow _____ Other _____

Relinquisher by: (Signature) <u>[Signature]</u>		Date: <u>1/7/11</u> Time: <u>12:10</u>		Received by: (Signature) <u>[Signature]</u>		Samples returned via: FedEx ☒ UPS ☐ Other _____		Condition (lab use only) <u>CUCS1</u>	
Relinquisher by: (Signature)		Date: Time:		Received by: (Signature)		Temp: <u>3.4</u>		Bottles Received: <u>14</u> 402	
Relinquisher by: (Signature)		Date: Time:		Received for lab by: (Signature) <u>[Signature]</u>		Date: <u>1/8/11</u> Time: <u>09:00</u>		pH Checked: NCF: <u>✓</u>	



L • A • B S • C • I • E • N • C • E • S

NON-CONFORMANCE FORM

Login No.: L496949Date: 1/8/11Evaluated by: Matthew MacLeodClient: LTENVCO

Non-Conformance (check applicable items)

- ☐ Parameter(s) past holding time ☒ Login Clarification Needed *0/0*
- ☐ Improper temperature ☐ Chain of custody is incomplete
- ☐ Improper container type ☐ Chain of Custody is missing (see below)
- ☐ Improper preservation ☐ Broken container(s) (See below)
- ☐ Container lid not intact ☐ Broken container: sufficient sample

volume remains for analysis requested (See below)

If no COC: Received by: _____

Date: _____ Time: _____

Temp: _____ Cont. Rec: _____ pH: _____

☐ FedEx ☐ UPS ☐ SWA ☐ Other _____

Tracking # _____

- ☐ Insufficient packing material around container
- ☐ Insufficient packing material inside cooler
- ☐ Improper handling by carrier (FedEx / UPS / Courier)
- ☐ Sample was frozen

Comments: Lab has 2 B-27 30' with sigal time/inter depth.

Received only 1 sample B-27 30'. ~~From~~ from

② What TPH?

Login Instructions:

TSR Initial DRClient informed by call / mail / fax / voice mail date: 1/11 time: 9:35Client contact: ① written twice by mistake② DRU, ARO



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James McDaniel
XT0 Energy - San Juan Division
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Report Summary

Wednesday January 19, 2011

Report Number: L497538

Samples Received: 01/15/11

Client Project:

Description: Bruington GC 1

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 Richards , ESC Representative

Laboratory Certification Numbers

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

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

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

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REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

January 19, 2011

Date Received : January 15, 2011
Description : Bruington GC 1
Sample ID : B-35 23FT
Collected By : Devin Hencemann
Collection Date : 01/07/11 10:56

ESC Sample # : L497538-01

Site ID : BRUINGTON 6C 1

Project # :

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	91.9		%	2540G	01/18/11	1
Benzene	BDL	0.0027	mg/kg	8021/8015	01/17/11	5
Toluene	BDL	0.027	mg/kg	8021/8015	01/17/11	5
Ethylbenzene	BDL	0.0027	mg/kg	8021/8015	01/17/11	5
Total Xylene	BDL	0.0082	mg/kg	8021/8015	01/17/11	5
TPH (GC/FID) Low Fraction	BDL	0.54	mg/kg	GRO	01/17/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	100.		% Rec.	8021/8015	01/17/11	5
a,a,a-Trifluorotoluene(PID)	99.4		% Rec.	8021/8015	01/17/11	5
TPH (GC/FID) High Fraction	BDL	4.4	mg/kg	3546/DRO	01/19/11	1
Surrogate recovery(%)						
o-Terphenyl	94.7		% Rec.	3546/DRO	01/19/11	1

Results listed are dry weight basis.

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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The reported analytical results relate only to the sample submitted

Reported: 01/19/11 11:03 Printed: 01/19/11 11:41

Summary of Remarks For Samples Printed
01/19/11 at 11:41:27

TSR Signing Reports: 288
R5 - Desired TAT

No Energy fee. Charge \$10 Shipping Fee per Dave V 1/4/10 When transferring TS to a new dash # D0
NOT charge a fee

Sample: L497538-01 Account: XTORNM Received: 01/15/11 09:00 Due Date: 01/21/11 00:00 RPT Date: 01/19/11 11:03
removed TPHTX and added GRO/DRO per Daphne - JCR 1/17



YOUR LAB OF CHOICE

XT0 Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L497538

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

January 19, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG517488	01/17/11 14:15
Ethylbenzene	< .0005	mg/kg			WG517488	01/17/11 14:15
Toluene	< .005	mg/kg			WG517488	01/17/11 14:15
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG517488	01/17/11 14:15
Total Xylene	< .0015	mg/kg			WG517488	01/17/11 14:15
a,a,a-Trifluorotoluene(FID)		% Rec.	101.2	59-128	WG517488	01/17/11 14:15
a,a,a-Trifluorotoluene(PID)		% Rec.	100.8	54-144	WG517488	01/17/11 14:15
Total Solids	< .1	%			WG517504	01/18/11 10:42
TPH (GC/FID) High Fraction	< 4	ppm			WG517611	01/18/11 21:59
o-Terphenyl		% Rec.	100.0	50-150	WG517611	01/18/11 21:59

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Total Solids	%	78.0	78.0	0.00660	5	L497559-09	WG517504

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0465	93.1	76-113	WG517488
Ethylbenzene	mg/kg	.05	0.0487	97.5	78-115	WG517488
Toluene	mg/kg	.05	0.0470	94.1	76-114	WG517488
Total Xylene	mg/kg	.15	0.149	99.2	81-118	WG517488
a,a,a-Trifluorotoluene(PID)				96.10	54-144	WG517488
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.44	117.	67-135	WG517488
a,a,a-Trifluorotoluene(FID)				89.69	59-128	WG517488
Total Solids	%	50	50.0	100.	85-115	WG517504
TPH (GC/FID) High Fraction	ppm	60	57.3	95.6	50-150	WG517611
o-Terphenyl				98.70	50-150	WG517611

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0453	0.0465	91.0	76-113	2.65	20	WG517488
Ethylbenzene	mg/kg	0.0473	0.0487	94.0	78-115	3.07	20	WG517488
Toluene	mg/kg	0.0457	0.0470	91.0	76-114	2.82	20	WG517488
Total Xylene	mg/kg	0.144	0.149	96.0	81-118	3.24	20	WG517488
a,a,a-Trifluorotoluene(PID)				97.33	54-144			WG517488
TPH (GC/FID) Low Fraction	mg/kg	6.58	6.44	120.	67-135	2.25	20	WG517488
a,a,a-Trifluorotoluene(FID)				89.79	59-128			WG517488
TPH (GC/FID) High Fraction	ppm	58.9	57.3	98.0	50-150	2.60	20	WG517611
o-Terphenyl				101.6	50-150			WG517611

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Benzene	mg/kg	0.197	0	.05	78.7	32-137	L497538-01	WG517488
Ethylbenzene	mg/kg	0.213	0	.05	85.1	10-150	L497538-01	WG517488
Toluene	mg/kg	0.211	0	.05	84.3	20-142	L497538-01	WG517488

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

XT0 Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L497538

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Est. 1970

January 19, 2011

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Total Xylene	mg/kg	0.656	0	.15	87.5	16-141	L497538-01	WG517488
a,a,a-Trifluorotoluene(PID)					96.41	54-144		WG517488
TPH (GC/FID) Low Fraction	mg/kg	5.61	0	5.5	102.	55-109	L497602-07	WG517488
a,a,a-Trifluorotoluene(FID)					91.92	59-128		WG517488
TPH (GC/FID) High Fraction	ppm	57.2	8.10	60	81.9	50-150	L497291-01	WG517611
o-Terphenyl					91.49	50-150		WG517611

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.203	0.197	81.0	32-137	2.90	39	L497538-01	WG517488
Ethylbenzene	mg/kg	0.209	0.213	83.7	10-150	1.61	44	L497538-01	WG517488
Toluene	mg/kg	0.208	0.211	83.0	20-142	1.47	42	L497538-01	WG517488
Total Xylene	mg/kg	0.642	0.656	85.6	16-141	2.16	46	L497538-01	WG517488
a,a,a-Trifluorotoluene(PID)				97.31	54-144				WG517488
TPH (GC/FID) Low Fraction	mg/kg	4.96	5.61	90.2	55-109	12.2	20	L497602-07	WG517488
a,a,a-Trifluorotoluene(FID)				91.69	59-128				WG517488
TPH (GC/FID) High Fraction	ppm	58.7	57.2	84.3	50-150	2.49	20	L497291-01	WG517611
o-Terphenyl				91.48	50-150				WG517611

Batch number /Run number / Sample number cross reference

WG517488: R1541170: L497538-01
WG517504: R1541932: L497538-01
WG517611: R1543169: L497538-01

* * 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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January 19, 2011

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

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

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

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

Company Name/Address XTO Energy, Inc. 382 County Road 3100 Aztec, NM 87410				Alternate Billing XTORNMA031810S XTORNMA081910S Report to: James McDaniel E-mail to: James.McDaniel@xtoenergy.com				Analysis/Container/Preservative BTEX 8021 TPH 8015						D154		Chain of Custody Page ___ of ___	
Project Description: (Well Name) Brington GC #1				Bloom Site City/State Collected: New Mexico				Prepared by: ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859									
PHONE: 505-333-3701 FAX:		Client Project No.		Lab Project #		BTEX 8021 TPH 8015											
Collected by: James McDaniel Denise Heremans		Site/Facility ID# (Well Name) Brington GC #1		P.O.#													
Collected by (signature): <i>[Signature]</i>		Rush? (Lab MUST be Notified) _____ Next Day.....100% _____ Two Day.....50% _____ Three Day.....25%		Date Results Needed Email? ☐ No ☒ Yes FAX? ☐ No ☒ Yes													
Packed on Ice N <u>YK</u>				No ☐ of ☐ Cnrs		BTEX 8021 TPH 8015											
Sample ID B-35 23'		Comp/Grab Grab	Matrix SS	Depth 23'	Date 1/7/11							Time 1056	Cnrs 1				
Remarks/contaminant *Note Collection Date - Short Holding time left*				Sample # (lab only) 497538 -01													

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

pH _____ Temp _____

Remarks:

Flow	Other
1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16
17	18
19	20
21	22
23	24
25	26
27	28
29	30
31	32
33	34
35	36
37	38
39	40
41	42
43	44
45	46
47	48
49	50
51	52
53	54
55	56
57	58
59	60
61	62
63	64
65	66
67	68
69	70
71	72
73	74
75	76
77	78
79	80
81	82
83	84
85	86
87	88
89	90
91	92
93	94
95	96
97	98
99	100

Relinquisher by: (Signature) 	Date: 1/14/11	Time: 12:00	Received by: (Signature) 	Samples returned via: FedEx_X_UPS_Other_ 8719 4025 8955	Condition (lab use only)	OK
Relinquisher by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.2 °C	Bottles Received: 1 - 402	
Relinquisher by: (Signature)	Date:	Time:	Received for lab by: (Signature) 	Date: 1/15/11	Time: 0940	

APPENDIX E
GROUNDWATER LABORATORY ANALYTICAL REPORTS





12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
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Tax I.D. 62-0814289

Est. 1970

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

Report Summary

Tuesday January 18, 2011

Report Number: L497439

Samples Received: 01/14/11

Client Project: XT01001

Description: XTO GW Monit. - Bruington

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 Richards , ESC Representative

Laboratory Certification Numbers

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

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

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

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REPORT OF ANALYSIS

January 18, 2011

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

Date Received : January 14, 2011
Description : XTO GW Monit. - Bruington

Sample ID : MW-4

Collected By : Brooke Herb
Collection Date : 01/13/11 13:16

ESC Sample # : L497439-01

Site ID : BRUINGTON

Project # : XTO1001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.00050	mg/l	8021B	01/15/11	1
Toluene	BDL	0.0050	mg/l	8021B	01/15/11	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	01/15/11	1
Total Xylene	BDL	0.0015	mg/l	8021B	01/15/11	1
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021B	01/15/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Est. 1970

REPORT OF ANALYSIS

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

January 18, 2011

Date Received : January 14, 2011
Description : XTO GW Monit. - Bruington

Sample ID : MW-1R

Collected By : Brooke Herb
Collection Date : 01/13/11 13:30

ESC Sample # : L497439-02

Site ID : BRUINGTON

Project # : XTO1001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.00050	mg/l	8021B	01/14/11	1
Toluene	BDL	0.0050	mg/l	8021B	01/14/11	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	01/14/11	1
Total Xylene	BDL	0.0015	mg/l	8021B	01/14/11	1
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	98.5		% Rec.	8021B	01/14/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

January 18, 2011

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

Date Received : January 14, 2011
Description : XTO GW Monit. - Bruington

Sample ID : MW-3R

Collected By : Brooke Herb
Collection Date : 01/13/11 13:54

ESC Sample # : L497439-03

Site ID : BRUINGTON

Project # : XTO1001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.00050	mg/l	8021B	01/15/11	1
Toluene	BDL	0.0050	mg/l	8021B	01/15/11	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	01/15/11	1
Total Xylene	BDL	0.0015	mg/l	8021B	01/15/11	1
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	107.		% Rec.	8021B	01/15/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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January 18, 2011

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XT0 Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

Date Received : January 14, 2011
Description : XT0 GW Monit. - Bruington

Sample ID : MW-7

Collected By : Brooke Herb
Collection Date : 01/13/11 14:15

ESC Sample # : L497439-04

Site ID : BRUINGTON

Project # : XT01001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	8.5	0.050	mg/l	8021B	01/17/11	100
Toluene	5.6	0.50	mg/l	8021B	01/17/11	100
Ethylbenzene	0.50	0.0025	mg/l	8021B	01/15/11	5
Total Xylene	2.5	0.0075	mg/l	8021B	01/15/11	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	92.7		% Rec.	8021B	01/15/11	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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

January 18, 2011

Date Received : January 14, 2011
Description : XTO GW Monit. - Bruington

Sample ID : MW-8

Collected By : Brooke Herb
Collection Date : 01/13/11 11:01

ESC Sample # : L497439-05

Site ID : BRUINGTON

Project # : XTO1001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	18.	0.10	mg/l	8021B	01/17/11	200
Toluene	10.	1.0	mg/l	8021B	01/17/11	200
Ethylbenzene	0.73	0.0050	mg/l	8021B	01/15/11	10
Total Xylene	4.7	0.015	mg/l	8021B	01/15/11	10
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	93.5		% Rec.	8021B	01/15/11	10

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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Date Received : January 14, 2011
Description : XT0 GW Monit. - Bruington

Sample ID : MW-2R

Collected By : Brooke Herb
Collection Date : 01/13/11 14:30

ESC Sample # : L497439-06

Site ID : BRUINGTON

Project # : XT01001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	16.	0.25	mg/l	8021B	01/17/11	500
Toluene	2.5	2.5	mg/l	8021B	01/17/11	500
Ethylbenzene	0.94	0.025	mg/l	8021B	01/15/11	50
Total Xylene	4.9	0.075	mg/l	8021B	01/15/11	50
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	95.4		% Rec.	8021B	01/15/11	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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January 18, 2011

Date Received : January 14, 2011
Description : XTO GW Monit. - Bruington

Sample ID : MW-6

Collected By : Brooke Herb
Collection Date : 01/13/11 14:48

ESC Sample # : L497439-07

Site ID : BRUINGTON

Project # : XTO1001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	19.	0.25	mg/l	8021B	01/17/11	500
Toluene	18.	2.5	mg/l	8021B	01/17/11	500
Ethylbenzene	1.0	0.025	mg/l	8021B	01/15/11	50
Total Xylene	10.	0.075	mg/l	8021B	01/15/11	50
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	95.4		% Rec.	8021B	01/15/11	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

January 18, 2011

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XTO Energy - San Juan Division
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Aztec, NM 87410

Date Received : January 14, 2011
Description : XTO GW Monit. - Bruington

Sample ID : MW-5

Collected By : Brooke Herb
Collection Date : 01/13/11 15:01

ESC Sample # : L497439-08

Site ID : BRUINGTON

Project # : XTO1001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	17.	0.050	mg/l	8021B	01/17/11	100
Toluene	BDL	0.50	mg/l	8021B	01/17/11	100
Ethylbenzene	0.36	0.0025	mg/l	8021B	01/15/11	5
Total Xylene	0.90	0.0075	mg/l	8021B	01/15/11	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	85.7		% Rec.	8021B	01/15/11	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 01/18/11 09:53 Printed: 01/18/11 09:53

Summary of Remarks For Samples Printed
01/18/11 at 09:53:53

TSR Signing Reports: 288
R5 - Desired TAT

No Energy fee. Charge \$10 Shipping Fee per Dave V 1/4/10 When transferring TS to a new dash # D0
NOT charge a fee

Sample: L497439-01 Account: XTORNM Received: 01/14/11 09:15 Due Date: 01/21/11 00:00 RPT Date: 01/18/11 09:53
not preserved.
Sample: L497439-02 Account: XTORNM Received: 01/14/11 09:15 Due Date: 01/21/11 00:00 RPT Date: 01/18/11 09:53
not preserved.
Sample: L497439-03 Account: XTORNM Received: 01/14/11 09:15 Due Date: 01/21/11 00:00 RPT Date: 01/18/11 09:53
not preserved.
Sample: L497439-04 Account: XTORNM Received: 01/14/11 09:15 Due Date: 01/21/11 00:00 RPT Date: 01/18/11 09:53
not preserved.
Sample: L497439-05 Account: XTORNM Received: 01/14/11 09:15 Due Date: 01/21/11 00:00 RPT Date: 01/18/11 09:53
not preserved.
Sample: L497439-06 Account: XTORNM Received: 01/14/11 09:15 Due Date: 01/21/11 00:00 RPT Date: 01/18/11 09:53
not preserved.
Sample: L497439-07 Account: XTORNM Received: 01/14/11 09:15 Due Date: 01/21/11 00:00 RPT Date: 01/18/11 09:53
not preserved.
Sample: L497439-08 Account: XTORNM Received: 01/14/11 09:15 Due Date: 01/21/11 00:00 RPT Date: 01/18/11 09:53
not preserved.



YOUR LAB OF CHOICE

XT0 Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L497439

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

January 18, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/l			WG517284	01/14/11 17:22
Ethylbenzene	< .0005	mg/l			WG517284	01/14/11 17:22
Toluene	< .005	mg/l			WG517284	01/14/11 17:22
Total Xylene	< .0015	mg/l			WG517284	01/14/11 17:22
a,a,a-Trifluorotoluene(PID)		% Rec.	98.70	55-122	WG517284	01/14/11 17:22
Benzene	< .0005	mg/l			WG517338	01/15/11 00:55
Ethylbenzene	< .0005	mg/l			WG517338	01/15/11 00:55
Toluene	< .005	mg/l			WG517338	01/15/11 00:55
Total Xylene	< .0015	mg/l			WG517338	01/15/11 00:55
a,a,a-Trifluorotoluene(PID)		% Rec.	106.4	55-122	WG517338	01/15/11 00:55
Benzene	< .0005	mg/l			WG517487	01/17/11 15:31
Toluene	< .005	mg/l			WG517487	01/17/11 15:31
a,a,a-Trifluorotoluene(PID)		% Rec.	98.83	55-122	WG517487	01/17/11 15:31

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/l	.05	0.0514	103.	79-114	WG517284
Ethylbenzene	mg/l	.05	0.0549	110.	80-116	WG517284
Toluene	mg/l	.05	0.0531	106.	79-112	WG517284
Total Xylene	mg/l	.15	0.165	110.	84-118	WG517284
a,a,a-Trifluorotoluene(PID)				97.08	55-122	WG517284
Benzene	mg/l	.05	0.0510	102.	79-114	WG517338
Ethylbenzene	mg/l	.05	0.0555	111.	80-116	WG517338
Toluene	mg/l	.05	0.0509	102.	79-112	WG517338
Total Xylene	mg/l	.15	0.171	114.	84-118	WG517338
a,a,a-Trifluorotoluene(PID)				106.4	55-122	WG517338
Benzene	mg/l	.05	0.0522	104.	79-114	WG517487
Toluene	mg/l	.05	0.0535	107.	79-112	WG517487
a,a,a-Trifluorotoluene(PID)				97.55	55-122	WG517487

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/l	0.0471	0.0514	94.0	79-114	8.73	20	WG517284
Ethylbenzene	mg/l	0.0499	0.0549	100.	80-116	9.41	20	WG517284
Toluene	mg/l	0.0482	0.0531	96.0	79-112	9.64	20	WG517284
Total Xylene	mg/l	0.150	0.165	100.	84-118	9.46	20	WG517284
a,a,a-Trifluorotoluene(PID)				98.39	55-122			WG517284
Benzene	mg/l	0.0522	0.0510	104.	79-114	2.24	20	WG517338
Ethylbenzene	mg/l	0.0555	0.0555	111.	80-116	0.0600	20	WG517338
Toluene	mg/l	0.0534	0.0509	107.	79-112	4.68	20	WG517338
Total Xylene	mg/l	0.172	0.171	115.	84-118	0.470	20	WG517338
a,a,a-Trifluorotoluene(PID)				107.6	55-122			WG517338
Benzene	mg/l	0.0467	0.0522	93.0	79-114	11.1	20	WG517487
Toluene	mg/l	0.0478	0.0535	96.0	79-112	11.2	20	WG517487
a,a,a-Trifluorotoluene(PID)				98.68	55-122			WG517487

* 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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James McDaniel
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Quality Assurance Report
Level II

L497439

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Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

January 18, 2011

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Benzene	mg/l	0.0577	0.000910	.05	114.	35-147	L497396-04	WG517284
Ethylbenzene	mg/l	0.0665	0.00320	.05	127.	39-141	L497396-04	WG517284
Toluene	mg/l	0.0630	0	.05	126.	35-148	L497396-04	WG517284
Total Xylene	mg/l	0.194	0.00400	.15	126.	33-151	L497396-04	WG517284
a,a,a-Trifluorotoluene(PID)					98.83	55-122		WG517284
Benzene	mg/l	0.0523	0	.05	105.	35-147	L497470-01	WG517338
Ethylbenzene	mg/l	0.0534	0	.05	107.	39-141	L497470-01	WG517338
Toluene	mg/l	0.0510	0	.05	102.	35-148	L497470-01	WG517338
Total Xylene	mg/l	0.166	0	.15	111.	33-151	L497470-01	WG517338
a,a,a-Trifluorotoluene(PID)					107.5	55-122		WG517338
Benzene	mg/l	0.0489	0	.05	97.8	35-147	L497616-01	WG517487
Toluene	mg/l	0.0510	0	.05	102.	35-148	L497616-01	WG517487
a,a,a-Trifluorotoluene(PID)					95.79	55-122		WG517487

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/l	0.0490	0.0577	96.2	35-147	16.3	20	L497396-04	WG517284
Ethylbenzene	mg/l	0.0566	0.0665	107.	39-141	16.2	20	L497396-04	WG517284
Toluene	mg/l	0.0524	0.0630	105.	35-148	18.4	20	L497396-04	WG517284
Total Xylene	mg/l	0.163	0.194	106.	33-151	17.0	20	L497396-04	WG517284
a,a,a-Trifluorotoluene(PID)				98.97	55-122				WG517284
Benzene	mg/l	0.0535	0.0523	107.	35-147	2.16	20	L497470-01	WG517338
Ethylbenzene	mg/l	0.0551	0.0534	110.	39-141	3.01	20	L497470-01	WG517338
Toluene	mg/l	0.0528	0.0510	106.	35-148	3.54	20	L497470-01	WG517338
Total Xylene	mg/l	0.170	0.166	113.	33-151	2.28	20	L497470-01	WG517338
a,a,a-Trifluorotoluene(PID)				107.1	55-122				WG517338
Benzene	mg/l	0.0467	0.0489	93.5	35-147	4.48	20	L497616-01	WG517487
Toluene	mg/l	0.0477	0.0510	95.4	35-148	6.65	20	L497616-01	WG517487
a,a,a-Trifluorotoluene(PID)				96.93	55-122				WG517487

Batch number /Run number / Sample number cross reference

WG517284: R1538649: L497439-02 04 05 06 07 08
WG517338: R1539429: L497439-01 03
WG517487: R1541189: L497439-04 05 06 07 08

* * 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.'



YOUR LAB OF CHOICE

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Quality Assurance Report
Level II

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Est. 1970

January 18, 2011

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

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

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

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

Company Name/Address XTO Energy, Inc. 382 County Road 3100 Aztec, NM 87410				Alternate Billing XTORNMO81810S XTORNMO81910S Report to: James McDaniel E-mail to: James_McDaniel@xtoenergy.com				Analysis/Container/Preservative 				Chain of Custody Page 1 of 1 Prepared by: A194 ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859			
Project Description: XTO GW Monit. - BRINGTON				City/State Collected: Bloomfield, NM				BTEX 8021 B							
PHONE: 505-333-3701 FAX:		Client Project No. XTO1002		Lab Project #											
Collected by: James McDaniel Brooke Herb Sam Lake		Site/Facility ID# BRINGTON		P.O.#											
Collected by (signature) 		Rush? (Lab MUST be Notified) ☐ Next Day.....100% ☐ Two Day.....50% ☐ Three Day.....25%		Date Results Needed Email? ☐ No ☒ Yes FAX? ☐ No ☒ Yes											
Packed on Ice ☒ Y ☐ N															

Sample ID	Comp/Grab	Matrix	Depth	Date	Time	Cntrs	Remarks/contaminant	Sample # (lab only)
MW-4	GRAB	GW	NA	1/13/11	13:16	2	✓	NOT PRESERVED 497439 -01
MW-1R		GW		1/13/11	13:30	2	✓	-02
MW-3R		GW		1/13/11	13:54	2	✓	-03
MW-7		GW		1/13/11	14:15	2	✓	-04
MW-8		GW		1/13/11	11:01	2	✓	-05
MW-9		GW		1/13/11		2	✓	NO SAMPLE COLLECTED FOR MW-9
MW-2R		GW		1/13/11	14:30	2	✓	-06
MW-6		GW		1/13/11	14:48	2	✓	-07
MW-5	✓	GW	✓	1/13/11	15:01	2	✓	-08

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

pH_____ Temp_____

Remarks:

Flow_____ Other_____

Relinquisher by (Signature) 		Date: 1/13/11 Time: 1530		Received by: (Signature) 		Samples returned via: FedEx ☒ UPS ☐ Other _____		Condition (lab use only) OK	
Relinquisher by (Signature)		Date: Time:		Received by: (Signature)		Temp: 3.2°C Bottles Received: 16w		pH Checked: COCSE NCF:	
Relinquisher by (Signature)		Date: Time:		Received for lab by: (Signature) 		Date: 1/14/11 Time: 0915		pH Checked: NCF:	

Susan Peach

From: Daphne Richards
Sent: Friday, January 14, 2011 2:28 PM
To: Reporting
Subject: FW: XTO Groundwater Samples

Can we please scan this email behind the CoC for L497439

Thanks

From: Julie Linn [mailto:jlinn@ltenv.com]
Sent: Friday, January 14, 2011 1:40 PM
To: Daphne Richards
Cc: 'Ashley Ager'; 'Brooke Herb'
Subject: XTO Groundwater Samples

Daphne

On the COC we prepared for the XTO GW Monit. – Bruington water samples we collected on 1/13/11 and you should have received on 1/14/11 (today); we put the incorrect "Client Project #" as XTO1002. Can you please correct this project number on the COC to "XTO1001". The sample jar labels were also all incorrectly labeled with XTO1002 and should be XTO1001. Thank you for your attention to this matter.

Julie

*Julie Linn, P.G.
Senior Geologist
LT Environmental, Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
(970) 385-1096
(970) 903-9197 cell
jlinn@ltenv.com*



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1/14/2011



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Est. 1970

James McDaniel
XT0 Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

Report Summary

Tuesday March 15, 2011

Report Number: L505867

Samples Received: 03/11/11

Client Project:

Description: Bruington GC 1

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 Richards , ESC Representative

Laboratory Certification Numbers

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

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

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REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

March 15, 2011

Date Received : March 11, 2011
Description : Bruington GC 1
Sample ID : BRUINGTON MW-9
Collected By : Brooke Herb
Collection Date : 03/10/11 09:35

ESC Sample # : L505867-01

Site ID : BRUINGTON GC1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.00050	mg/l	8021B	03/12/11	1
Toluene	BDL	0.0050	mg/l	8021B	03/12/11	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	03/12/11	1
Total Xylene	BDL	0.0015	mg/l	8021B	03/12/11	1
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	99.6		% Rec.	8021B	03/12/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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

Summary of Remarks For Samples Printed
03/15/11 at 16:16:26

TSR Signing Reports: 288
R5 - Desired TAT

drywt

Sample: L505867-01 Account: XTORNM Received: 03/11/11 08:30 Due Date: 03/18/11 00:00 RPT Date: 03/15/11 16:16



YOUR LAB OF CHOICE

XT0 Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L505867

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Est. 1970

March 15, 2011

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

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

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

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

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

Batch number /Run number / Sample number cross reference

WG525601: R1611749: L505867-01

* * 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.'



YOUR LAB OF CHOICE

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Quality Assurance Report
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March 15, 2011

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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

2011 Laboratory Reports



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

Report Summary

Tuesday January 18, 2011

Report Number: L497439

Samples Received: 01/14/11

Client Project: XT01001

Description: XTO GW Monit. - Bruington

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 Richards , ESC Representative

Laboratory Certification Numbers

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

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

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

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REPORT OF ANALYSIS

January 18, 2011

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

Date Received : January 14, 2011
Description : XTO GW Monit. - Bruington

Sample ID : MW-4

Collected By : Brooke Herb
Collection Date : 01/13/11 13:16

ESC Sample # : L497439-01

Site ID : BRUINGTON

Project # : XTO1001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.00050	mg/l	8021B	01/15/11	1
Toluene	BDL	0.0050	mg/l	8021B	01/15/11	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	01/15/11	1
Total Xylene	BDL	0.0015	mg/l	8021B	01/15/11	1
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021B	01/15/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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James McDaniel
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382 Road 3100
Aztec, NM 87410

Date Received : January 14, 2011
Description : XTO GW Monit. - Bruington

Sample ID : MW-1R

Collected By : Brooke Herb
Collection Date : 01/13/11 13:30

ESC Sample # : L497439-02

Site ID : BRUINGTON

Project # : XTO1001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.00050	mg/l	8021B	01/14/11	1
Toluene	BDL	0.0050	mg/l	8021B	01/14/11	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	01/14/11	1
Total Xylene	BDL	0.0015	mg/l	8021B	01/14/11	1
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	98.5		% Rec.	8021B	01/14/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Aztec, NM 87410

Date Received : January 14, 2011
Description : XTO GW Monit. - Bruington

Sample ID : MW-3R

Collected By : Brooke Herb
Collection Date : 01/13/11 13:54

ESC Sample # : L497439-03

Site ID : BRUINGTON

Project # : XTO1001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.00050	mg/l	8021B	01/15/11	1
Toluene	BDL	0.0050	mg/l	8021B	01/15/11	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	01/15/11	1
Total Xylene	BDL	0.0015	mg/l	8021B	01/15/11	1
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	107.		% Rec.	8021B	01/15/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Date Received : January 14, 2011
Description : XT0 GW Monit. - Bruington

Sample ID : MW-7

Collected By : Brooke Herb
Collection Date : 01/13/11 14:15

ESC Sample # : L497439-04

Site ID : BRUINGTON

Project # : XT01001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	8.5	0.050	mg/l	8021B	01/17/11	100
Toluene	5.6	0.50	mg/l	8021B	01/17/11	100
Ethylbenzene	0.50	0.0025	mg/l	8021B	01/15/11	5
Total Xylene	2.5	0.0075	mg/l	8021B	01/15/11	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	92.7		% Rec.	8021B	01/15/11	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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James McDaniel
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January 18, 2011

Date Received : January 14, 2011
Description : XTO GW Monit. - Bruington

Sample ID : MW-8

Collected By : Brooke Herb
Collection Date : 01/13/11 11:01

ESC Sample # : L497439-05

Site ID : BRUINGTON

Project # : XTO1001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	18.	0.10	mg/l	8021B	01/17/11	200
Toluene	10.	1.0	mg/l	8021B	01/17/11	200
Ethylbenzene	0.73	0.0050	mg/l	8021B	01/15/11	10
Total Xylene	4.7	0.015	mg/l	8021B	01/15/11	10
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	93.5		% Rec.	8021B	01/15/11	10

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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XT0 Energy - San Juan Division
382 Road 3100
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Date Received : January 14, 2011
Description : XT0 GW Monit. - Bruington

Sample ID : MW-2R

Collected By : Brooke Herb
Collection Date : 01/13/11 14:30

ESC Sample # : L497439-06

Site ID : BRUINGTON

Project # : XT01001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	16.	0.25	mg/l	8021B	01/17/11	500
Toluene	2.5	2.5	mg/l	8021B	01/17/11	500
Ethylbenzene	0.94	0.025	mg/l	8021B	01/15/11	50
Total Xylene	4.9	0.075	mg/l	8021B	01/15/11	50
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	95.4		% Rec.	8021B	01/15/11	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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January 18, 2011

James McDaniel
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Date Received : January 14, 2011
Description : XTO GW Monit. - Bruington

Sample ID : MW-6

Collected By : Brooke Herb
Collection Date : 01/13/11 14:48

ESC Sample # : L497439-07

Site ID : BRUINGTON

Project # : XTO1001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	19.	0.25	mg/l	8021B	01/17/11	500
Toluene	18.	2.5	mg/l	8021B	01/17/11	500
Ethylbenzene	1.0	0.025	mg/l	8021B	01/15/11	50
Total Xylene	10.	0.075	mg/l	8021B	01/15/11	50
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	95.4		% Rec.	8021B	01/15/11	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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James McDaniel
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January 18, 2011

Date Received : January 14, 2011
Description : XTO GW Monit. - Bruington

Sample ID : MW-5

Collected By : Brooke Herb
Collection Date : 01/13/11 15:01

ESC Sample # : L497439-08

Site ID : BRUINGTON

Project # : XTO1001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	17.	0.050	mg/l	8021B	01/17/11	100
Toluene	BDL	0.50	mg/l	8021B	01/17/11	100
Ethylbenzene	0.36	0.0025	mg/l	8021B	01/15/11	5
Total Xylene	0.90	0.0075	mg/l	8021B	01/15/11	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	85.7		% Rec.	8021B	01/15/11	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Summary of Remarks For Samples Printed
01/18/11 at 09:53:53

TSR Signing Reports: 288
R5 - Desired TAT

No Energy fee. Charge \$10 Shipping Fee per Dave V 1/4/10 When transferring TS to a new dash # D0
NOT charge a fee

Sample: L497439-01 Account: XTORNM Received: 01/14/11 09:15 Due Date: 01/21/11 00:00 RPT Date: 01/18/11 09:53
not preserved.
Sample: L497439-02 Account: XTORNM Received: 01/14/11 09:15 Due Date: 01/21/11 00:00 RPT Date: 01/18/11 09:53
not preserved.
Sample: L497439-03 Account: XTORNM Received: 01/14/11 09:15 Due Date: 01/21/11 00:00 RPT Date: 01/18/11 09:53
not preserved.
Sample: L497439-04 Account: XTORNM Received: 01/14/11 09:15 Due Date: 01/21/11 00:00 RPT Date: 01/18/11 09:53
not preserved.
Sample: L497439-05 Account: XTORNM Received: 01/14/11 09:15 Due Date: 01/21/11 00:00 RPT Date: 01/18/11 09:53
not preserved.
Sample: L497439-06 Account: XTORNM Received: 01/14/11 09:15 Due Date: 01/21/11 00:00 RPT Date: 01/18/11 09:53
not preserved.
Sample: L497439-07 Account: XTORNM Received: 01/14/11 09:15 Due Date: 01/21/11 00:00 RPT Date: 01/18/11 09:53
not preserved.
Sample: L497439-08 Account: XTORNM Received: 01/14/11 09:15 Due Date: 01/21/11 00:00 RPT Date: 01/18/11 09:53
not preserved.



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Quality Assurance Report
Level II

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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/l			WG517284	01/14/11 17:22
Ethylbenzene	< .0005	mg/l			WG517284	01/14/11 17:22
Toluene	< .005	mg/l			WG517284	01/14/11 17:22
Total Xylene	< .0015	mg/l			WG517284	01/14/11 17:22
a,a,a-Trifluorotoluene(PID)		% Rec.	98.70	55-122	WG517284	01/14/11 17:22
Benzene	< .0005	mg/l			WG517338	01/15/11 00:55
Ethylbenzene	< .0005	mg/l			WG517338	01/15/11 00:55
Toluene	< .005	mg/l			WG517338	01/15/11 00:55
Total Xylene	< .0015	mg/l			WG517338	01/15/11 00:55
a,a,a-Trifluorotoluene(PID)		% Rec.	106.4	55-122	WG517338	01/15/11 00:55
Benzene	< .0005	mg/l			WG517487	01/17/11 15:31
Toluene	< .005	mg/l			WG517487	01/17/11 15:31
a,a,a-Trifluorotoluene(PID)		% Rec.	98.83	55-122	WG517487	01/17/11 15:31

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/l	.05	0.0514	103.	79-114	WG517284
Ethylbenzene	mg/l	.05	0.0549	110.	80-116	WG517284
Toluene	mg/l	.05	0.0531	106.	79-112	WG517284
Total Xylene	mg/l	.15	0.165	110.	84-118	WG517284
a,a,a-Trifluorotoluene(PID)				97.08	55-122	WG517284
Benzene	mg/l	.05	0.0510	102.	79-114	WG517338
Ethylbenzene	mg/l	.05	0.0555	111.	80-116	WG517338
Toluene	mg/l	.05	0.0509	102.	79-112	WG517338
Total Xylene	mg/l	.15	0.171	114.	84-118	WG517338
a,a,a-Trifluorotoluene(PID)				106.4	55-122	WG517338
Benzene	mg/l	.05	0.0522	104.	79-114	WG517487
Toluene	mg/l	.05	0.0535	107.	79-112	WG517487
a,a,a-Trifluorotoluene(PID)				97.55	55-122	WG517487

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/l	0.0471	0.0514	94.0	79-114	8.73	20	WG517284
Ethylbenzene	mg/l	0.0499	0.0549	100.	80-116	9.41	20	WG517284
Toluene	mg/l	0.0482	0.0531	96.0	79-112	9.64	20	WG517284
Total Xylene	mg/l	0.150	0.165	100.	84-118	9.46	20	WG517284
a,a,a-Trifluorotoluene(PID)				98.39	55-122			WG517284
Benzene	mg/l	0.0522	0.0510	104.	79-114	2.24	20	WG517338
Ethylbenzene	mg/l	0.0555	0.0555	111.	80-116	0.0600	20	WG517338
Toluene	mg/l	0.0534	0.0509	107.	79-112	4.68	20	WG517338
Total Xylene	mg/l	0.172	0.171	115.	84-118	0.470	20	WG517338
a,a,a-Trifluorotoluene(PID)				107.6	55-122			WG517338
Benzene	mg/l	0.0467	0.0522	93.0	79-114	11.1	20	WG517487
Toluene	mg/l	0.0478	0.0535	96.0	79-112	11.2	20	WG517487
a,a,a-Trifluorotoluene(PID)				98.68	55-122			WG517487

* 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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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Benzene	mg/l	0.0577	0.000910	.05	114.	35-147	L497396-04	WG517284
Ethylbenzene	mg/l	0.0665	0.00320	.05	127.	39-141	L497396-04	WG517284
Toluene	mg/l	0.0630	0	.05	126.	35-148	L497396-04	WG517284
Total Xylene	mg/l	0.194	0.00400	.15	126.	33-151	L497396-04	WG517284
a,a,a-Trifluorotoluene(PID)					98.83	55-122		WG517284
Benzene	mg/l	0.0523	0	.05	105.	35-147	L497470-01	WG517338
Ethylbenzene	mg/l	0.0534	0	.05	107.	39-141	L497470-01	WG517338
Toluene	mg/l	0.0510	0	.05	102.	35-148	L497470-01	WG517338
Total Xylene	mg/l	0.166	0	.15	111.	33-151	L497470-01	WG517338
a,a,a-Trifluorotoluene(PID)					107.5	55-122		WG517338
Benzene	mg/l	0.0489	0	.05	97.8	35-147	L497616-01	WG517487
Toluene	mg/l	0.0510	0	.05	102.	35-148	L497616-01	WG517487
a,a,a-Trifluorotoluene(PID)					95.79	55-122		WG517487

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/l	0.0490	0.0577	96.2	35-147	16.3	20	L497396-04	WG517284
Ethylbenzene	mg/l	0.0566	0.0665	107.	39-141	16.2	20	L497396-04	WG517284
Toluene	mg/l	0.0524	0.0630	105.	35-148	18.4	20	L497396-04	WG517284
Total Xylene	mg/l	0.163	0.194	106.	33-151	17.0	20	L497396-04	WG517284
a,a,a-Trifluorotoluene(PID)				98.97	55-122				WG517284
Benzene	mg/l	0.0535	0.0523	107.	35-147	2.16	20	L497470-01	WG517338
Ethylbenzene	mg/l	0.0551	0.0534	110.	39-141	3.01	20	L497470-01	WG517338
Toluene	mg/l	0.0528	0.0510	106.	35-148	3.54	20	L497470-01	WG517338
Total Xylene	mg/l	0.170	0.166	113.	33-151	2.28	20	L497470-01	WG517338
a,a,a-Trifluorotoluene(PID)				107.1	55-122				WG517338
Benzene	mg/l	0.0467	0.0489	93.5	35-147	4.48	20	L497616-01	WG517487
Toluene	mg/l	0.0477	0.0510	95.4	35-148	6.65	20	L497616-01	WG517487
a,a,a-Trifluorotoluene(PID)				96.93	55-122				WG517487

Batch number /Run number / Sample number cross reference

WG517284: R1538649: L497439-02 04 05 06 07 08
WG517338: R1539429: L497439-01 03
WG517487: R1541189: L497439-04 05 06 07 08

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

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

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

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

Company Name/Address XTO Energy, Inc. 382 County Road 3100 Aztec, NM 87410				Alternate Billing XTORNMO81810S XTORNMO81910S Report to: James McDaniel E-mail to: James_McDaniel@xtoenergy.com				Analysis/Container/Preservative				Chain of Custody Page 1 of 1 Prepared by: A194 ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859																																																																																									
Project Description: XTO GW Monit. - BRINGTON				City/State Collected: Bloomfield, NM				BTEX 8021 B																																																																																													
PHONE: 505-333-3701 FAX:		Client Project No. XTO1002		Lab Project #																																																																																																	
Collected by: James McDaniel Brooke Herb		Site/Facility ID# BRINGTON		P.O.#																																																																																																	
Collected by (signature): 		Rush? (Lab MUST be Notified) ☐ Next Day.....100% ☐ Two Day.....50% ☐ Three Day.....25%		Date Results Needed Email? ☐ No ☒ Yes FAX? ☐ No ☒ Yes																																																																																																	
Packed on Ice ☒ Y ☐ N																																																																																																					
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Sample ID</th> <th>Comp/Grab</th> <th>Matrix</th> <th>Depth</th> <th>Date</th> <th>Time</th> <th>Cntrs</th> </tr> </thead> <tbody> <tr> <td>MW-4</td> <td>GRAB</td> <td>GW</td> <td>NA</td> <td>1/13/11</td> <td>13:16</td> <td>2</td> </tr> <tr> <td>MW-1R</td> <td></td> <td>GW</td> <td></td> <td>1/13/11</td> <td>13:30</td> <td>2</td> </tr> <tr> <td>MW-3R</td> <td></td> <td>GW</td> <td></td> <td>1/13/11</td> <td>13:54</td> <td>2</td> </tr> <tr> <td>MW-7</td> <td></td> <td>GW</td> <td></td> <td>1/13/11</td> <td>14:15</td> <td>2</td> </tr> <tr> <td>MW-8</td> <td></td> <td>GW</td> <td></td> <td>1/13/11</td> <td>11:01</td> <td>2</td> </tr> <tr> <td>MW-9</td> <td></td> <td>GW</td> <td></td> <td>1/13/11</td> <td></td> <td>2</td> </tr> <tr> <td>MW-2R</td> <td></td> <td>GW</td> <td></td> <td>1/13/11</td> <td>14:30</td> <td>2</td> </tr> <tr> <td>MW-6</td> <td></td> <td>GW</td> <td></td> <td>1/13/11</td> <td>14:48</td> <td>2</td> </tr> <tr> <td>MW-5</td> <td>✓</td> <td>GW</td> <td>✓</td> <td>1/13/11</td> <td>15:01</td> <td>2</td> </tr> </tbody> </table>				Sample ID	Comp/Grab	Matrix	Depth	Date	Time	Cntrs	MW-4	GRAB	GW	NA	1/13/11	13:16	2	MW-1R		GW		1/13/11	13:30	2	MW-3R		GW		1/13/11	13:54	2	MW-7		GW		1/13/11	14:15	2	MW-8		GW		1/13/11	11:01	2	MW-9		GW		1/13/11		2	MW-2R		GW		1/13/11	14:30	2	MW-6		GW		1/13/11	14:48	2	MW-5	✓	GW	✓	1/13/11	15:01	2	BTEX 8021 B				CoCode (lab use only) XTORNM Template/Prelogin Shipped Via: Fed Ex <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Remarks/contaminant</th> <th>Sample # (lab only)</th> </tr> </thead> <tbody> <tr> <td>NOT PRESERVED</td> <td>497439 -01</td> </tr> <tr> <td></td> <td>-02</td> </tr> <tr> <td></td> <td>-03</td> </tr> <tr> <td></td> <td>-04</td> </tr> <tr> <td></td> <td>-05</td> </tr> <tr> <td colspan="2" style="text-align: center;">NO SAMPLE COLLECTED FOR MW-9</td> </tr> <tr> <td></td> <td>-06</td> </tr> <tr> <td></td> <td>-07</td> </tr> <tr> <td></td> <td>-08</td> </tr> </tbody> </table>				Remarks/contaminant	Sample # (lab only)	NOT PRESERVED	497439 -01		-02		-03		-04		-05	NO SAMPLE COLLECTED FOR MW-9			-06		-07		-08
Sample ID	Comp/Grab	Matrix	Depth	Date	Time	Cntrs																																																																																															
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	-08																																																																																																				

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

pH_____ Temp_____

Remarks:

Flow_____ Other_____

Relinquisher by (Signature) 		Date: 1/13/11 Time: 1530		Received by: (Signature) 		Samples returned via: FedEx ☒ UPS ☐ Other _____		Condition (lab use only) OK	
Relinquisher by (Signature)		Date: Time:		Received by: (Signature)		Temp: 3.2°C Bottles Received: 16w		cocSI	
Relinquisher by (Signature)		Date: Time:		Received for lab by: (Signature) 		Date: 1/14/11 Time: 0915		pH Checked: NCF:	

Susan Peach

From: Daphne Richards
Sent: Friday, January 14, 2011 2:28 PM
To: Reporting
Subject: FW: XTO Groundwater Samples
Can we please scan this email behind the CoC for L497439

Thanks

From: Julie Linn [mailto:jlinn@ltenv.com]
Sent: Friday, January 14, 2011 1:40 PM
To: Daphne Richards
Cc: 'Ashley Ager'; 'Brooke Herb'
Subject: XTO Groundwater Samples

Daphne

On the CoC we prepared for the XTO GW Monit. – Bruington water samples we collected on 1/13/11 and you should have received on 1/14/11 (today); we put the incorrect "Client Project #" as XTO1002. Can you please correct this project number on the CoC to "XTO1001". The sample jar labels were also all incorrectly labeled with XTO1002 and should be XTO1001. Thank you for your attention to this matter.

Julie

Julie Linn, P.G.
Senior Geologist
LT Environmental, Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
(970) 385-1096
(970) 903-9197 cell
jlinn@ltenv.com



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1/14/2011



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Tax I.D. 62-0814289

Est. 1970

James McDaniel
XT0 Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

Report Summary

Monday June 27, 2011

Report Number: L521667

Samples Received: 06/17/11

Client Project:

Description: Bruington

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 Richards , ESC Representative

Laboratory Certification Numbers

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

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

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

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REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

June 27, 2011

Date Received : June 17, 2011
Description : Bruington

Sample ID : MW-1R

Collected By : Julie Linn
Collection Date : 06/15/11 14:38

ESC Sample # : L521667-01

Site ID : BRUINGTON

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.00050	mg/l	8021B	06/19/11	1
Toluene	BDL	0.0050	mg/l	8021B	06/19/11	1
Ethylbenzene	0.0019	0.00050	mg/l	8021B	06/19/11	1
Total Xylene	BDL	0.0015	mg/l	8021B	06/19/11	1
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021B	06/19/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

June 27, 2011

Date Received : June 17, 2011
Description : Bruington

Sample ID : MW-2R

Collected By : Julie Linn
Collection Date : 06/15/11 14:24

ESC Sample # : L521667-02

Site ID : BRUINGTON

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	20.	0.25	mg/l	8021B	06/20/11	500
Toluene	BDL	2.5	mg/l	8021B	06/20/11	500
Ethylbenzene	0.87	0.25	mg/l	8021B	06/20/11	500
Total Xylene	4.2	0.75	mg/l	8021B	06/20/11	500
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	97.0		% Rec.	8021B	06/20/11	500

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

James McDaniel
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382 Road 3100
Aztec, NM 87410

June 27, 2011

Date Received : June 17, 2011
Description : Bruington

Sample ID : MW-3R

Collected By : Julie Linn
Collection Date : 06/15/11 13:18

ESC Sample # : L521667-03

Site ID : BRUINGTON

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.00050	mg/l	8021B	06/23/11	1
Toluene	BDL	0.0050	mg/l	8021B	06/23/11	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	06/23/11	1
Total Xylene	BDL	0.0015	mg/l	8021B	06/23/11	1
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021B	06/23/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

June 27, 2011

Date Received : June 17, 2011
Description : Bruington

Sample ID : MW-4

Collected By : Julie Linn
Collection Date : 06/15/11 14:13

ESC Sample # : L521667-04

Site ID : BRUINGTON

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.00050	mg/l	8021B	06/20/11	1
Toluene	BDL	0.0050	mg/l	8021B	06/20/11	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	06/20/11	1
Total Xylene	BDL	0.0015	mg/l	8021B	06/20/11	1
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021B	06/20/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

June 27, 2011

Date Received : June 17, 2011
Description : Bruington

Sample ID : MW-5

Collected By : Julie Linn
Collection Date : 06/15/11 15:15

ESC Sample # : L521667-05

Site ID : BRUINGTON

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	27.	0.050	mg/l	8021B	06/20/11	100
Toluene	BDL	0.50	mg/l	8021B	06/20/11	100
Ethylbenzene	BDL	0.050	mg/l	8021B	06/20/11	100
Total Xylene	1.4	0.15	mg/l	8021B	06/20/11	100
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	86.3		% Rec.	8021B	06/20/11	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
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Aztec, NM 87410

June 27, 2011

Date Received : June 17, 2011
Description : Bruington

Sample ID : MKW-6

Collected By : Julie Linn
Collection Date : 06/15/11 15:25

ESC Sample # : L521667-06

Site ID : BRUINGTON

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	21.	0.25	mg/l	8021B	06/20/11	500
Toluene	17.	2.5	mg/l	8021B	06/20/11	500
Ethylbenzene	0.73	0.25	mg/l	8021B	06/20/11	500
Total Xylene	7.5	0.75	mg/l	8021B	06/20/11	500
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021B	06/20/11	500

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

June 27, 2011

Date Received : June 17, 2011
Description : Bruington

Sample ID : MW-7

Collected By : Julie Linn
Collection Date : 06/15/11 15:04

ESC Sample # : L521667-07

Site ID : BRUINGTON

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	16.	0.050	mg/l	8021B	06/20/11	100
Toluene	8.5	0.50	mg/l	8021B	06/20/11	100
Ethylbenzene	0.76	0.050	mg/l	8021B	06/20/11	100
Total Xylene	4.7	0.15	mg/l	8021B	06/20/11	100
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	97.0		% Rec.	8021B	06/20/11	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

June 27, 2011

Date Received : June 17, 2011
Description : Bruington
Sample ID : MW-8
Collected By : Julie Linn
Collection Date : 06/15/11 11:07

ESC Sample # : L521667-08

Site ID : BRUINGTON

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	12.	0.12	mg/l	8021B	06/20/11	250
Toluene	5.3	1.2	mg/l	8021B	06/20/11	250
Ethylbenzene	0.46	0.12	mg/l	8021B	06/20/11	250
Total Xylene	2.3	0.38	mg/l	8021B	06/20/11	250
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	96.0		% Rec.	8021B	06/20/11	250

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

June 27, 2011

Date Received : June 17, 2011
Description : Bruington

Sample ID : MW-9

Collected By : Julie Linn
Collection Date : 06/15/11 09:33

ESC Sample # : L521667-09

Site ID : BRUINGTON

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.00050	mg/l	8021B	06/20/11	1
Toluene	BDL	0.0050	mg/l	8021B	06/20/11	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	06/20/11	1
Total Xylene	BDL	0.0015	mg/l	8021B	06/20/11	1
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	95.9		% Rec.	8021B	06/20/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L521667-05	WG541267	SAMP	Benzene	R1735372	E

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
E	GTL (EPA) - Greater than upper calibration limit: Actual value is known to be greater than the upper calibration range.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
06/27/11 at 08:44:18

TSR Signing Reports: 288
R5 - Desired TAT

drywt

Sample: L521667-01 Account: XTORNM Received: 06/17/11 09:00 Due Date: 06/24/11 00:00 RPT Date: 06/27/11 08:43
No Pres.
Sample: L521667-02 Account: XTORNM Received: 06/17/11 09:00 Due Date: 06/24/11 00:00 RPT Date: 06/27/11 08:43
No Pres.
Sample: L521667-03 Account: XTORNM Received: 06/17/11 09:00 Due Date: 06/24/11 00:00 RPT Date: 06/27/11 08:43
No Pres.
Sample: L521667-04 Account: XTORNM Received: 06/17/11 09:00 Due Date: 06/24/11 00:00 RPT Date: 06/27/11 08:43
No Pres.
Sample: L521667-05 Account: XTORNM Received: 06/17/11 09:00 Due Date: 06/24/11 00:00 RPT Date: 06/27/11 08:43
No Pres.
Sample: L521667-06 Account: XTORNM Received: 06/17/11 09:00 Due Date: 06/24/11 00:00 RPT Date: 06/27/11 08:43
No Pres.
Sample: L521667-07 Account: XTORNM Received: 06/17/11 09:00 Due Date: 06/24/11 00:00 RPT Date: 06/27/11 08:43
No Pres.
Sample: L521667-08 Account: XTORNM Received: 06/17/11 09:00 Due Date: 06/24/11 00:00 RPT Date: 06/27/11 08:43
No Pres.
Sample: L521667-09 Account: XTORNM Received: 06/17/11 09:00 Due Date: 06/24/11 00:00 RPT Date: 06/27/11 08:43
No Pres.



YOUR LAB OF CHOICE

XT0 Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

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Quality Assurance Report
Level II

L521667

June 27, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/l			WG541255	06/18/11 20:29
Ethylbenzene	< .0005	mg/l			WG541255	06/18/11 20:29
Toluene	< .005	mg/l			WG541255	06/18/11 20:29
Total Xylene	< .0015	mg/l			WG541255	06/18/11 20:29
a,a,a-Trifluorotoluene(PID)		% Rec.	103.2	55-122	WG541255	06/18/11 20:29
Benzene	< .0005	mg/l			WG541267	06/19/11 21:43
Ethylbenzene	< .0005	mg/l			WG541267	06/19/11 21:43
Toluene	< .005	mg/l			WG541267	06/19/11 21:43
Total Xylene	< .0015	mg/l			WG541267	06/19/11 21:43
a,a,a-Trifluorotoluene(PID)		% Rec.	100.4	55-122	WG541267	06/19/11 21:43

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/l	.05	0.0491	98.2	79-114	WG541255
Ethylbenzene	mg/l	.05	0.0479	95.8	80-116	WG541255
Toluene	mg/l	.05	0.0478	95.6	79-112	WG541255
Total Xylene	mg/l	.15	0.146	97.4	84-118	WG541255
a,a,a-Trifluorotoluene(PID)				102.6	55-122	WG541255
Benzene	mg/l	.05	0.0526	105.	79-114	WG541267
Ethylbenzene	mg/l	.05	0.0565	113.	80-116	WG541267
Toluene	mg/l	.05	0.0554	111.	79-112	WG541267
Total Xylene	mg/l	.15	0.167	111.	84-118	WG541267
a,a,a-Trifluorotoluene(PID)				102.6	55-122	WG541267

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/l	0.0468	0.0491	94.0	79-114	4.79	20	WG541255
Ethylbenzene	mg/l	0.0456	0.0479	91.0	80-116	4.99	20	WG541255
Toluene	mg/l	0.0455	0.0478	91.0	79-112	5.02	20	WG541255
Total Xylene	mg/l	0.139	0.146	93.0	84-118	4.94	20	WG541255
a,a,a-Trifluorotoluene(PID)				102.8	55-122			WG541255
Benzene	mg/l	0.0501	0.0526	100.	79-114	4.86	20	WG541267
Ethylbenzene	mg/l	0.0539	0.0565	108.	80-116	4.61	20	WG541267
Toluene	mg/l	0.0526	0.0554	105.	79-112	5.07	20	WG541267
Total Xylene	mg/l	0.160	0.167	107.	84-118	4.47	20	WG541267
a,a,a-Trifluorotoluene(PID)				101.4	55-122			WG541267

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Benzene	mg/l	0.0457	0	.05	91.5	35-147	L521510-01	WG541255
Ethylbenzene	mg/l	0.0436	0	.05	87.2	39-141	L521510-01	WG541255
Toluene	mg/l	0.0441	0	.05	88.1	35-148	L521510-01	WG541255
Total Xylene	mg/l	0.133	0	.15	88.8	33-151	L521510-01	WG541255
a,a,a-Trifluorotoluene(PID)					102.8	55-122		WG541255
Benzene	mg/l	0.0510	0	.05	102.	35-147	L521667-03	WG541267
Ethylbenzene	mg/l	0.0516	0	.05	103.	39-141	L521667-03	WG541267
Toluene	mg/l	0.0500	0	.05	100.	35-148	L521667-03	WG541267
Total Xylene	mg/l	0.154	0	.15	102.	33-151	L521667-03	WG541267

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

XT0 Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L521667

12065 Lebanon Rd.
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June 27, 2011

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
a,a,a-Trifluorotoluene(PID)					100.8	55-122				
Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
Benzene	mg/l	0.0444	0.0457	88.8	35-147	3.00	20	L521510-01		WG541255
Ethylbenzene	mg/l	0.0424	0.0436	84.7	39-141	2.86	20	L521510-01		WG541255
Toluene	mg/l	0.0431	0.0441	86.1	35-148	2.30	20	L521510-01		WG541255
Total Xylene	mg/l	0.130	0.133	86.6	33-151	2.45	20	L521510-01		WG541255
a,a,a-Trifluorotoluene(PID)				102.3	55-122					WG541255
Benzene	mg/l	0.0531	0.0510	106.	35-147	3.91	20	L521667-03		WG541267
Ethylbenzene	mg/l	0.0540	0.0516	108.	39-141	4.44	20	L521667-03		WG541267
Toluene	mg/l	0.0520	0.0500	104.	35-148	3.88	20	L521667-03		WG541267
Total Xylene	mg/l	0.160	0.154	107.	33-151	4.10	20	L521667-03		WG541267
a,a,a-Trifluorotoluene(PID)				101.1	55-122					WG541267

Batch number /Run number / Sample number cross reference

WG541255: R1728870: L521667-01

WG541267: R1735372 R1737129: L521667-02 04 05 06 07 08 09 03

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

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

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

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

Company Name/Address XTO Energy, Inc. 382 County Road 3100 Aztec, NM 87410				Alternate Billing XTORN031810S Report to: James McDaniel E-mail to: james_mcdaniel@xtoenergy.com				Analysis/Container/Preservative BTEX 8021 (Non-preserved) <table border="1" style="width: 100%; height: 100px;"> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>														Chain of Custody Page <u>1</u> of <u>1</u> Prepared by: A167 ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859			
Project Description: Bruington				City/State Collected: Bloomfield, NM				CoCode (lab use only) XTORNM Template/Prelogin Shipped Via: Fed Ex Remarks/contaminant Sample # (lab only)																	
PHONE: 505-333-3701 FAX:		Client Project No.		Lab Project #		P.O.#																			
Collected by: Julie Linn		Site/Facility ID# BRUINGTON		Rush? (Lab MUST be Notified) ☒ Next Day100% ☐ Two Day50% ☐ Three Day25%		Date Results Needed Email? ☐ No ☒ Yes FAX? ☐ No ☒ Yes																			
Collected by (signature): <i>Julie L</i>		Packed on Ice ☒		No of Cntrs		No of Cntrs																			
Sample ID		Comp/Grab		Matrix		Depth						Date		Time		Cntrs									
MW-1R		Grab		GW		N/A		6/15/11		1438		3 X													
MW-2R		↓		↓		↓		↓		1424		3 X													
MW-3R		↓		↓		↓		↓		1318		3 X													
MW-4		↓		↓		↓		↓		1413		3 X													
MW-5		↓		↓		↓		↓		1515		3 X													
MW-6		↓		↓		↓		↓		1525		3 X													
MW-7		↓		↓		↓		↓		1504		3 X													
MW-8		↓		↓		↓		↓		1107		3 X													
MW-9		↓		↓		↓		↓		0933		3 X													

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other _____

pH _____ Temp _____

Remarks: "ONLY 1 COC Per Site!!"

Flow _____ Other _____

Relinquished by (Signature) <i>Julie L</i>		Date: 6-16-11		Time: 1445		Received by (Signature) <i>[Signature]</i>		Samples returned via: FedEx ☒ UPS ☐ Other ☐		Condition (lab use only)	
Relinquished by (Signature)		Date:		Time:		Received by (Signature)		Temp: 3.1		Bottles Received: 27	
Relinquished by (Signature)		Date:		Time:		Received for lab by (Signature) <i>[Signature]</i>		Date: 6/17/11		Time: 6900	
										pH Checked: NCF:	

OK



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James McDaniel
XT0 Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

Report Summary

Wednesday December 21, 2011

Report Number: L552343

Samples Received: 12/19/11

Client Project:

Description: Bruington Gas Com #1

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 Richards , ESC Representative

Laboratory Certification Numbers

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

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

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REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

December 21, 2011

Date Received : December 19, 2011
Description : Bruington Gas Com #1

Sample ID : MW-1R

Collected By : Devin Hencmann
Collection Date : 12/15/11 13:37

ESC Sample # : L552343-01

Site ID : BRUINGTON GAS COM 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.00050	mg/l	8021B	12/19/11	1
Toluene	BDL	0.0050	mg/l	8021B	12/19/11	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	12/19/11	1
Total Xylene	BDL	0.0015	mg/l	8021B	12/19/11	1
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	92.0		% Rec.	8021B	12/19/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

December 21, 2011

Date Received : December 19, 2011
Description : Bruington Gas Com #1

Sample ID : MW-2R

Collected By : Devin Hencmann
Collection Date : 12/15/11 14:35

ESC Sample # : L552343-02

Site ID : BRUINGTON GAS COM 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	11.	0.25	mg/l	8021B	12/19/11	500
Toluene	BDL	2.5	mg/l	8021B	12/19/11	500
Ethylbenzene	0.71	0.25	mg/l	8021B	12/19/11	500
Total Xylene	3.0	0.75	mg/l	8021B	12/19/11	500
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	91.7		% Rec.	8021B	12/19/11	500

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
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December 21, 2011

Date Received : December 19, 2011
Description : Bruington Gas Com #1

Sample ID : MW-3R

Collected By : Devin Hencmann
Collection Date : 12/15/11 15:25

ESC Sample # : L552343-03

Site ID : BRUINGTON GAS COM 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.00050	mg/l	8021B	12/19/11	1
Toluene	BDL	0.0050	mg/l	8021B	12/19/11	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	12/19/11	1
Total Xylene	BDL	0.0015	mg/l	8021B	12/19/11	1
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	91.5		% Rec.	8021B	12/19/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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James McDaniel
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Aztec, NM 87410

December 21, 2011

Date Received : December 19, 2011
Description : Bruington Gas Com #1

Sample ID : MW-4

Collected By : Devin Hencmann
Collection Date : 12/15/11 16:22

ESC Sample # : L552343-04

Site ID : BRUINGTON GAS COM 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.00050	mg/l	8021B	12/19/11	1
Toluene	BDL	0.0050	mg/l	8021B	12/19/11	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	12/19/11	1
Total Xylene	BDL	0.0015	mg/l	8021B	12/19/11	1
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	92.1		% Rec.	8021B	12/19/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

James McDaniel
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382 Road 3100
Aztec, NM 87410

December 21, 2011

Date Received : December 19, 2011
Description : Bruington Gas Com #1

Sample ID : MW-5

Collected By : Devin Hencmann
Collection Date : 12/15/11 16:30

ESC Sample # : L552343-05

Site ID : BRUINGTON GAS COM 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	15.	0.050	mg/l	8021B	12/19/11	100
Toluene	BDL	0.50	mg/l	8021B	12/19/11	100
Ethylbenzene	0.31	0.050	mg/l	8021B	12/19/11	100
Total Xylene	0.81	0.15	mg/l	8021B	12/19/11	100
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	90.1		% Rec.	8021B	12/19/11	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
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December 21, 2011

Date Received : December 19, 2011
Description : Bruington Gas Com #1

Sample ID : MW-6

Collected By : Devin Hencmann
Collection Date : 12/15/11 15:30

ESC Sample # : L552343-06

Site ID : BRUINGTON GAS COM 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	25.	0.25	mg/l	8021B	12/19/11	500
Toluene	22.	2.5	mg/l	8021B	12/19/11	500
Ethylbenzene	0.96	0.25	mg/l	8021B	12/19/11	500
Total Xylene	9.7	0.75	mg/l	8021B	12/19/11	500
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	91.7		% Rec.	8021B	12/19/11	500

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 12/21/11 15:32 Printed: 12/21/11 15:33



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REPORT OF ANALYSIS

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December 21, 2011

Date Received : December 19, 2011
Description : Bruington Gas Com #1

Sample ID : MW-7

Collected By : Devin Hencmann
Collection Date : 12/15/11 16:43

ESC Sample # : L552343-07

Site ID : BRUINGTON GAS COM 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	8.9	0.050	mg/l	8021B	12/19/11	100
Toluene	4.3	0.50	mg/l	8021B	12/19/11	100
Ethylbenzene	0.51	0.050	mg/l	8021B	12/19/11	100
Total Xylene	2.7	0.15	mg/l	8021B	12/19/11	100
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	90.9		% Rec.	8021B	12/19/11	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

James McDaniel
XT0 Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

December 21, 2011

Date Received : December 19, 2011
Description : Bruington Gas Com #1

Sample ID : MW-8

Collected By : Devin Hencmann
Collection Date : 12/15/11 12:47

ESC Sample # : L552343-08

Site ID : BRUINGTON GAS COM 1

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	16.	0.12	mg/l	8021B	12/20/11	250
Toluene	10.	1.2	mg/l	8021B	12/20/11	250
Ethylbenzene	0.81	0.12	mg/l	8021B	12/20/11	250
Total Xylene	6.0	0.38	mg/l	8021B	12/20/11	250
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	90.8		% Rec.	8021B	12/20/11	250

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 12/21/11 15:32 Printed: 12/21/11 15:33

Summary of Remarks For Samples Printed
12/21/11 at 15:33:27

TSR Signing Reports: 288
R5 - Desired TAT

drywt

Sample: L552343-01 Account: XTORNM Received: 12/19/11 09:00 Due Date: 12/27/11 00:00 RPT Date: 12/21/11 15:32
vials are unpreserved
Sample: L552343-02 Account: XTORNM Received: 12/19/11 09:00 Due Date: 12/27/11 00:00 RPT Date: 12/21/11 15:32
vials are unpreserved
Sample: L552343-03 Account: XTORNM Received: 12/19/11 09:00 Due Date: 12/27/11 00:00 RPT Date: 12/21/11 15:32
vials are unpreserved
Sample: L552343-04 Account: XTORNM Received: 12/19/11 09:00 Due Date: 12/27/11 00:00 RPT Date: 12/21/11 15:32
vials are unpreserved
Sample: L552343-05 Account: XTORNM Received: 12/19/11 09:00 Due Date: 12/27/11 00:00 RPT Date: 12/21/11 15:32
vials are unpreserved
Sample: L552343-06 Account: XTORNM Received: 12/19/11 09:00 Due Date: 12/27/11 00:00 RPT Date: 12/21/11 15:32
vials are unpreserved
Sample: L552343-07 Account: XTORNM Received: 12/19/11 09:00 Due Date: 12/27/11 00:00 RPT Date: 12/21/11 15:32
vials are unpreserved
Sample: L552343-08 Account: XTORNM Received: 12/19/11 09:00 Due Date: 12/27/11 00:00 RPT Date: 12/21/11 15:32
vials are unpreserved



YOUR LAB OF CHOICE

XT0 Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L552343

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

December 21, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/l			WG570757	12/19/11 21:05
Ethylbenzene	< .0005	mg/l			WG570757	12/19/11 21:05
Toluene	< .005	mg/l			WG570757	12/19/11 21:05
Total Xylene	< .0015	mg/l			WG570757	12/19/11 21:05
a,a,a-Trifluorotoluene(PID)		% Rec.	91.51	55-122	WG570757	12/19/11 21:05

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/l	.05	0.0459	91.7	79-114	WG570757
Ethylbenzene	mg/l	.05	0.0484	96.9	80-116	WG570757
Toluene	mg/l	.05	0.0464	92.7	79-112	WG570757
Total Xylene	mg/l	.15	0.143	95.4	84-118	WG570757
a,a,a-Trifluorotoluene(PID)				91.41	55-122	WG570757

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/l	0.0455	0.0459	91.0	79-114	0.780	20	WG570757
Ethylbenzene	mg/l	0.0486	0.0484	97.0	80-116	0.300	20	WG570757
Toluene	mg/l	0.0464	0.0464	93.0	79-112	0	20	WG570757
Total Xylene	mg/l	0.144	0.143	96.0	84-118	0.390	20	WG570757
a,a,a-Trifluorotoluene(PID)				91.44	55-122			WG570757

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Benzene	mg/l	0.0460	0	.05	92.1	35-147	L552343-01	WG570757
Ethylbenzene	mg/l	0.0484	0	.05	96.7	39-141	L552343-01	WG570757
Toluene	mg/l	0.0466	0	.05	93.2	35-148	L552343-01	WG570757
Total Xylene	mg/l	0.143	0	.15	95.6	33-151	L552343-01	WG570757
a,a,a-Trifluorotoluene(PID)					91.44	55-122		WG570757

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
Benzene	mg/l	0.0460	0.0460	92.0	35-147	0.0400	20	L552343-01	WG570757
Ethylbenzene	mg/l	0.0485	0.0484	97.1	39-141	0.380	20	L552343-01	WG570757
Toluene	mg/l	0.0467	0.0466	93.4	35-148	0.150	20	L552343-01	WG570757
Total Xylene	mg/l	0.143	0.143	95.6	33-151	0.0200	20	L552343-01	WG570757
a,a,a-Trifluorotoluene(PID)				92.55	55-122				WG570757

Batch number /Run number / Sample number cross reference

WG570757: R1974997: L552343-01 02 03 04 05 06 07 08

* * 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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December 21, 2011

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

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

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

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

Company Name/Address XTO Energy, Inc. 382 County Road 3100 Aztec, NM 87410				Alternate Billing XTORN031810S Report to: James McDaniel E-mail to: james_mcdaniel@xtoenergy.com				Analysis/Container/Preservative								Chain of Custody Page <u>1</u> of <u>1</u> E009																																																																																																																																																														
								Prepared by: ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859																																																																																																																																																																						
Project Description: <u>Broughton Gas Com #1</u>				City/State Collected: <u>Brownfield, NM</u>				BTEX 8021																																																																																																																																																																						
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Collected by: <u>Devin Heermann</u>		Collected by (signature): <u>[Signature]</u>		Rush? ☒ (Lab MUST be Notified) Next Day.....100% Two Day.....50% Three Day.....25%		Date Results Needed Email? ☐ No ☒ Yes FAX? ☐ No ☒ Yes																																																																																																																																																																								
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<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Sample ID</th> <th>Comp/Grab</th> <th>Matrix</th> <th>Depth</th> <th>Date</th> <th>Time</th> <th>Notes</th> <th colspan="8"></th> <th>Remarks/contaminant</th> <th>Sample # (lab only)</th> </tr> </thead> <tbody> <tr> <td>MW-1R</td> <td>Grab</td> <td>GW</td> <td>NA</td> <td>12/15/11</td> <td>13:37</td> <td>3</td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> <td>not Preserved</td> <td>1552343-01</td> </tr> <tr> <td>MW-2R</td> <td>Grab</td> <td>GW</td> <td>NA</td> <td>12/15/11</td> <td>14:35</td> <td>3</td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> <td>not Preserved</td> <td>-02</td> </tr> <tr> <td>MW-3R</td> <td>Grab</td> <td>GW</td> <td>NA</td> <td>12/15/11</td> <td>15:25</td> <td>3</td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> <td>not Preserved</td> <td>-03</td> </tr> <tr> <td>MW-4</td> <td>Grab</td> <td>GW</td> <td>NA</td> <td>12/15/11</td> <td>16:22</td> <td>3</td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> <td>not Preserved</td> <td>-04</td> </tr> <tr> <td>MW-5</td> <td>Grab</td> <td>GW</td> <td>NA</td> <td>12/15/11</td> <td>16:30</td> <td>3</td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> <td>not Preserved</td> <td>-05</td> </tr> <tr> <td>MW-6</td> <td>Grab</td> <td>GW</td> <td>NA</td> <td>12/15/11</td> <td>15:30</td> <td>3</td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> <td>not Preserved</td> <td>-06</td> </tr> <tr> <td>MW-7</td> <td>Grab</td> <td>GW</td> <td>NA</td> <td>12/15/11</td> <td>16:43</td> <td>3</td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> <td>not Preserved</td> <td>-07</td> </tr> <tr> <td>MW-8</td> <td>Grab</td> <td>GW</td> <td>NA</td> <td>12/15/11</td> <td>12:47</td> <td>3</td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> <td>not Preserved</td> <td>-08</td> </tr> </tbody> </table>														Sample ID	Comp/Grab	Matrix	Depth	Date	Time	Notes									Remarks/contaminant	Sample # (lab only)	MW-1R	Grab	GW	NA	12/15/11	13:37	3	X									not Preserved	1552343-01	MW-2R	Grab	GW	NA	12/15/11	14:35	3	X									not Preserved	-02	MW-3R	Grab	GW	NA	12/15/11	15:25	3	X									not Preserved	-03	MW-4	Grab	GW	NA	12/15/11	16:22	3	X									not Preserved	-04	MW-5	Grab	GW	NA	12/15/11	16:30	3	X									not Preserved	-05	MW-6	Grab	GW	NA	12/15/11	15:30	3	X									not Preserved	-06	MW-7	Grab	GW	NA	12/15/11	16:43	3	X									not Preserved	-07	MW-8	Grab	GW	NA	12/15/11	12:47	3	X									not Preserved	-08
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MW-8	Grab	GW	NA	12/15/11	12:47	3	X									not Preserved	-08																																																																																																																																																													

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

pH _____ Temp _____

Remarks: "ONLY 1 COC Per Site!!"

Flow _____ Other _____

Relinquisher by: (Signature) <u>[Signature]</u>		Date: <u>12/16/11</u>	Time: <u>1300</u>	Received by: (Signature) <u>[Signature]</u>		Samples returned via: FedEx ☒ UPS ☐ Other _____		Condition (lab use only) <u>OK</u>	
Relinquisher by: (Signature) <u>[Signature]</u>		Date:	Time:	Received by: (Signature) <u>[Signature]</u>		Temp: <u>18°C</u>	Bottles Received: <u>24</u>		
Relinquisher by: (Signature) <u>[Signature]</u>		Date:	Time:	Received for lab by: (Signature) <u>[Signature]</u>		Date: <u>12/19/11</u>	Time: <u>0900</u>	pH Checked:	NCF:

Attachment 7

2011 Field Notes

SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-1R
 Client: XTO Energy, Inc. Date: 1/13/2011 Time: 9:15
 Project Manager: Julie Linn Sampler's Name: Brooke Herb & Sam LaRue

Measuring Point: TOC Depth to Water: 13.7 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 17.63 ft Product Thickness: NA ft
 Water Column Height: 3.93 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	3.93	0.640983	1.92

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Ounces	Comments/Flow Rate
9:18	6.89	5.30	11.5				16	Slight yellow color, no odor
9:19	6.87	5.39	12.7				48	cloudy brown color, no odor
9:20	6.87	5.40	12.9				80	no change
9:22	6.97	5.17	12.6				96	no change
9:23	7.09	4.95	12.5				112	grey, silty, no odor, bailing down
9:25	7.16	4.72	12.4				128	no change
9:28	7.25	4.63	12.0				144	no change
9:30	7.24	4.54	11.8				160	no change; bailed dry
13:23	6.72	4.58	13.4				192	clear, very minor silt, no odor
13:24	6.77	4.52	13.6				224	no change
13:25	6.79	4.54	13.4				240	grey, silty, no odor, bailing down
Final:	6.79	4.54	13.4				240	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-1R Sample Time: 13:30

Analysis Requested: ☒ BTEX ☐ VOC: ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other _____

Trip Blank: No Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-2R
 Client: XTO Energy, Inc. Date: 1/13/2011 Time: 11:24
 Project Manager: Julie Linn Sampler's Name: Brooke Herb & Sam LaRue

Measuring Point: TOC Depth to Water: 14.42 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 23.14 ft Product Thickness: NA ft
 Water Column Height: 8.72 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	8.72	1.422232	4.27

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Ounces	Comments/Flow Rate
11:32	6.88	8.42	14.1				32	clear, yellow-gray, strong odor
11:33	6.86	8.60	14.6				64	no change
11:35	6.92	8.63	14.2				96	no change
11:36	6.86	8.59	14.9				120	no change
11:37	6.87	8.59	15.0				160	cloudy, gray, strong odor
11:39	6.85	8.61	15.0				176	no change
11:40	6.91	8.59	14.9				192	no change, bailing down
11:42	6.89	8.61	15.0				208	no change, bailing down
11:45	6.89	8.63	14.6				224	no change, bailing down
11:47	6.94	8.58	14.5				240	no change, bailing down
11:52	6.92	8.48	14.7				272	no change, bailing down
11:54	6.89	8.56	14.9				304	no change, bailing down
11:55	6.92	8.62	14.9				336	darker gray, strong odor
11:57	6.99	8.57	14.8				352	no change
11:58	7.00	8.66	14.5				368	no change, bailing down
12:03	7.12	8.61	13.8				400	no change, bailed dry
14:22	6.9	8.37	14.5				432	clear, strong odor
14:23	6.89	8.36	15.1				464	no change
14:25	6.91	8.37	15				496	slight gray, sheen, strong odor
14:26	6.92	8.42	15.2				528	no change
14:28	6.88	8.47	15.3				560	no change
Final:	6.88	8.47	15.3				560	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-2R Sample Time: 14:30

Analysis Requested: ☒ BTEX ☐ VOC: ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other _____

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-3R
 Client: XTO Energy, Inc. Date: 1/13/2011 Time: 9:37
 Project Manager: Julie Linn Sampler's Name: Brooke Herb & Sam LaRue

Measuring Point: TOC Depth to Water: 16.77 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 23.62 ft Product Thickness: NA ft
 Water Column Height: 6.85 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	6.85	1.117235	3.35

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
9:40	7.15	10.84	13.9				0.25	clear, no odor, debris (sticks)
9:42	7.16	11.09	15.0				0.5	clear with debris (sticks, leaves)
9:43	7.12	11.25	15.2				0.75	gray with debris
9:44	7.05	11.29	15.4				1	more silt, gray
9:45	7.07	11.37	15.2				1.25	less debris
9:47	7.07	11.39	14.7				1.4	no change, bailing down
9:48	7.11	11.30	14.8				1.5	no debris, bailing down
9:52	7.31	11.20	13.8				1.75	dark gray, no odor, bailed dry
13:38	7.08	11.23	14.9				2	clear, same debris, no odor
13:40	7.05	11.53	15.6				2.25	cloudy, no odor, debris
13:42	7.07	11.61	15.5				2.5	cloudy, brown, no odor, debris
13:43	7.08	11.62	15.5				2.75	silty brown, no odor, debris
13:45	7.05	11.59	15.6				3	no change
13:46	7.11	11.58	15.6				3.15	no change
13:48	7.20	11.51	15.5				3.3	silty brown, no odor
13:58	7.24	11.54	15.2				3.45	no change
Final:	7.24	11.54	15.2				3.45	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-3R Sample Time: 13:54

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

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-4
 Client: XTO Energy, Inc. Date: 1/13/2011 Time: 8:48
 Project Manager: Julie Linn Sampler's Name: Brooke Herb & Sam LaRue

Measuring Point: TOC Depth to Water: 15.63 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 20.2 ft Product Thickness: NA ft
 Water Column Height: 4.57 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	4.57	0.745367	2.24

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
8:57	6.75	6.58	13.5				0.25	light brown to clear, no odor
8:58	6.85	6.83	14.4				0.5	turbid, dark brown
9:00	6.85	6.95	14.5				0.75	no change
9:01	6.80	6.88	14.7				1	no change
9:02	6.85	6.92	14.4				1.15	no change
9:03	6.88	6.93	14.3				1.25	less silt, bailing down
9:05	7.04	6.96	13.8				1.5	no change, bailing down
9:07	7.02	6.98	13.5				1.75	no change, bailing down
9:08	7.06	6.98	13.7				2	bailed dry
13:09	6.75	7.05	14.9				2.25	clear to light brown,
13:11	6.68	7.12	14.9				2.5	slightly silty, light brown, no odor
Final:	6.68	7.12	14.9				2.5	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-4 Sample Time: 13:16

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

Trip Blank: No Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater	Location: Bruington GC #1	Well No: MW-5
Client: XTO Energy, Inc.	Date: 1/13/2011	Time: 12:45
Project Manager: Julie Linn	Sampler's Name: Brooke Herb & Sam LaRue	

Measuring Point: <u>TOC</u>	Depth to Water: <u>18.08</u> ft	Depth to Product: <u>NA</u> ft
Well Diameter: <u>2"</u>	Total Depth: <u>25.2</u> ft	Product Thickness: <u>NA</u> ft
	Water Column Height: <u>7.12</u> ft	

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	7.12	1.161272	3.48

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
12:50	6.74	10.25	15.8				0.25	clear, strong odor
12:52	6.61	11.58	16.1				0.5	cloudier, strong odor
12:53	6.65	11.49	16.0				0.75	no change
12:54	6.68	11.51	16.0				1	no change, bailing down
12:56	6.64	12.65	16.1				1.19	darker black, strong odor, bailing down
12:57	6.86	12.40	15.0				1.44	no change, bailed dry
14:53	7.22	11.73	15.2				1.69	gray, strong odor, bailing dry
14:56	7.23	11.78	15.1				1.81	bailed dry
Final:	7.23	11.78	15.1				1.81	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-5 Sample Time: 15:01

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

Trip Blank:

Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-6
 Client: XTO Energy, Inc. Date: 1/13/2011 Time: 12:45
 Project Manager: Julie Linn Sampler's Name: Brooke Herb & Sam LaRue

Measuring Point: TOC Depth to Water: 19.55 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 25.2 ft Product Thickness: NA ft
 Water Column Height: 5.65 ft

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

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

Water Volume in Well

Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	5.65	0.921515	2.76

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
12:32	6.85	13.92	16.7				0.25	blackish gray, HC Odor, black flecks
12:32	6.81	14.19	16.5				0.5	no change
12:35	6.85	14.23	16.5				0.75	blackish gray, bailing down
12:37	6.82	14.18	16.7				1	strong odor, gray/ black color
12:40	6.90	14.21	16.0				1.06	no change, bailed dry
14:40	6.91	13.53	16.1				1.31	gray, minor silt, strong odor
14:42	6.94	14.03	16.5				1.56	gray, strong odor, slight sheen
14:43	6.94	14.10	16.3				1.68	gray, bailing dry
Final:	6.94	14.10	16.3				1.68	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-6 Sample Time: 14:48

Analysis Requested: ☒ BTEX ☐ VOC: ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other _____

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-7
 Client: XTO Energy, Inc. Date: 1/13/2011 Time: 10:08
 Project Manager: Julie Linn Sampler's Name: Brooke Herb & Sam LaRue

Measuring Point: TOC Depth to Water: 17.78 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 25.33 ft Product Thickness: NA ft
 Water Column Height: 7.55 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	7.55	1.231405	3.69

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
10:13	6.97	10.93	15.7				0.25	clear, gray, strong odor
10:15	6.89	11.04	16.1				0.5	no change
10:16	6.97	11.20	16.7				0.75	no change
10:18	6.82	11.30	16.7				1	no change
10:19	6.75	12.12	16.6				1.06	no change
10:21	6.81	12.13	16.5				1.187	no change
10:21	6.95	12.09	16.2				1.31	no change
10:26	7.20	12.21	15.0				1.44	no change, bailed dry
14:03	6.73	10.63	16.5				1.68	very strong odor, clear, dark gray
14:04	6.68	12.24	17.0				1.94	no change, darker black
14:05	6.71	12.78	17.1				2.19	no change
14:06	6.68	12.82	17.1				2.44	no change
14:07	6.68	12.83	16.9				2.69	no change
14:10	6.72	12.59	16.8				2.81	bailling dry
Final:	6.72	12.59	16.8				2.81	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-7 Sample Time: 14:15

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

Trip Blank: No Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-8
 Client: XTO Energy, Inc. Date: 1/13/2011 Time: 10:38
 Project Manager: Julie Linn Sampler's Name: Brooke Herb & Sam LaRue

Measuring Point: TOC Depth to Water: 19.35 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 26.35 ft Product Thickness: NA ft
 Water Column Height: 7 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	7	1.1417	3.43

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
10:40	6.70	5.72	15.8				0.25	Black/gray, strong odor with black flecks
10:42	6.68	6.04	16.1				0.5	no change
10:43	6.65	4.85	16.4				0.75	black, strong odor
10:45	6.67	5.30	16.2				1	no change
10:46	6.67	4.59	16.4				1.25	no change
10:47	6.67	5.08	16.2				1.5	no change
10:48	6.70	4.85	16.4				1.75	no change
10:50	6.66	4.95	16.4				2	no change
10:51	6.69	5.50	16.4				2.25	no change
10:52	6.69	5.39	16.3				2.5	no change
10:53	6.74	5.56	16.2				2.75	no change
10:54	6.71	5.76	16.4				3	no change
10:55	6.74	5.87	16.3				3.25	no change
10:56	6.72	5.89	16.4				3.5	black, strong odor, black flecks
Final:	6.72	5.89	16.4				3.5	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-8 Sample Time: 11:01

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

Trip Blank: No Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-9
 Client: XTO Energy, Inc. Date: 3/10/2011 Time: 8:57
 Project Manager: Julie Linn Sampler's Name: Brooke Herb

Measuring Point: TOC Depth to Water: 28.21 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 32.27 ft Product Thickness: NA ft
 Water Column Height: 4.06 ft

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

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

Water Volume in Well

Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	4.06	0.662186	1.99

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
9:13	6.78	36.5	14.0				0.25	No odor, dark greenish brown; no sheen
9:16	6.77	35.8	14.0				0.5	no change
9:18	6.79	36.2	14.2				0.75	no change
9:21	6.62	35.7	14.2				1	lighter brown
9:22	6.74	36.4	14.3				1.25	no change
9:22								bailed dry
9:23	6.74	36.0	13.5				1.5	no change
9:23	6.79	36.4	13.8				1.65	bailing dry
9:24	6.76	36.4	14.1				1.75	bailing dry
Final:	6.76	36.40	14.1				1.75	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: On site BGT

Sample ID: Bruington MW-9 Sample Time: _____

Analysis Requested: ☒ BTEX ☐ VOC: ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other _____

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-1R
 Client: XTO Energy, Inc. Date: 6/15/2011 Time: 9:47
 Project Manager: Julie Linn Sampler's Name: J. Linn

Measuring Point: TOC Depth to Water: 7.04 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 17.5 ft Product Thickness: NA ft
 Water Column Height: 10.46 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	10.46	1.706026	5.12

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
9:49	6.98	3.92	16.1				0.25	Clear, no odor, no sheen
9:51	6.99	3.95	14.3				0.5	Slight brown turbidity
9:52	7.02	3.91	14.5				0.75	No change
9:52	7.05	3.95	14.1				1	Increasing brown turbidity
9:54	7.06	3.97	13.1				1	brown/grey turbidity
9:55	-	-	-				2.25	bailed dry
12:44	7.21	3.87	13.8				2.5	clear, slight light brown
12:46	7.13	3.67	14.4				2.75	No change
12:47	7.15	3.70	14.7				3	slight increase in turbidity
12:48	7.19	3.71	14.5				3.25	No change
12:49	7.21	3.76	14.0				3.5	No change
12:51	7.15	3.74	13.1				4	increase in grey color
12:53	7.20	3.69	13.1				4.5	bailing dry
14:32	7.19	3.77	13.6				4.75	brown/grey turbidity
14:33	7.1	3.67	14.1				5	No change
14:34	7.09	3.66	14.4				5.25	No change
14:35	7.09	3.70	13.9				5.5	No change
Final:	7.09	3.70	13.9				5.5	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-1R Sample Time: 14:38

Analysis Requested: ☒ BTEX ☐ VOC: ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other _____

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-2R
 Client: XTO Energy, Inc. Date: 6/15/2011 Time: 12:01
 Project Manager: Julie Linn Sampler's Name: J. Linn

Measuring Point: TOC Depth to Water: 9.42 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 23.25 ft Product Thickness: NA ft
 Water Column Height: 13.83 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	13.83	2.255673	6.77

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
12:04	7.07	9.33	16.3				0.25	Black, HC odor, slight sheen
12:06	7.12	9.21	15.2				0.5	No change
12:07	7.14	9.18	14.7				0.75	No change
12:08	7.15	9.18	14.4				1	No change
12:10	7.18	9.29	14.1				2	increasing grey turbidity, increasing odor
12:13	7.28	9.30	14.4				3	Bailing dry
12:16	-	-	-				3.5	Bailing dry
13:30	7.20	9.66	14.7				3.75	Dark grey, strong HC odor
13:32	7.17	9.16	14.5				4	Black, strong HC odor
13:32	7.19	9.19	14.4				4.25	No change
13:33	7.17	9.22	14.1				4.5	No change
13:35	7.17	9.32	14.0				5.5	No change
13:36	7.19	9.40	14.0				6	Bailing dry
14:18	7.33	9.25	14.5				6.25	Bailing dry
14:19	7.24	9.43	14.2				6.5	Dark grey, strong HC odor
14:20	7.21	9.07	14.1				6.75	No change
14:21	7.22	9.12	14.1				7	No change
14:22	7.2	9.13	14				7.25	No change
Final:	7.2	9.13	14				7.25	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-2R Sample Time: 14:24

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

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-3R
 Client: XTO Energy, Inc. Date: 6/15/2011 Time: 10:02
 Project Manager: Julie Linn Sampler's Name: J. Linn

Measuring Point: TOC Depth to Water: 13.42 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 23.67 ft Product Thickness: NA ft
 Water Column Height: 10.25 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	10.25	1.671775	5.02

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
10:06	7.12	11.10	15.6				0.25	Slightly light brown, organic matter (roots etc.), no odor, no sheen
10:08	7.16	11.10	15.0				0.5	No change
10:09	7.19	11.11	14.7				0.75	No change
10:10	7.16	11.09	14.6				1	No change
10:12	7.20	11.04	14.6				2	Less organic matter, grey turbid., bailing dry
10:15	-						2.5	Bailed Dry
12:58	7.39	11.32	15.0				2.75	Light grey turbidity
12:59	7.32	11.34	14.7				3	increase light brown color
13:00	7.30	11.32	14.5				3.25	No change
13:10	7.28	11.35	14.9				3.5	No change
13:12	7.30	11.21	14.6				4	increase light brown color
13:12	7.31	11.25	14.5				4.25	No change
13:13	7.28	11.24	14.5				4.5	No change
13:14	7.27	11.26	14.5				4.75	No change
13:15	7.29	11.24	14.5				5	bailing down
Final:	7.29	11.24	14.5				5	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-3R Sample Time: 13:18

Analysis Requested: ☒ BTEX ☐ VOC: ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other _____

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-4
 Client: XTO Energy, Inc. Date: 6/15/2011 Time: 8:35
 Project Manager: Julie Linn Sampler's Name: J. Linn

Measuring Point: TOC Depth to Water: 9.23 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 20.35 ft Product Thickness: NA ft
 Water Column Height: 11.12 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	11.12	1.813672	5.44

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
8:41	6.92	6.69	14.9				0.25	Clear, no odor, no sheen
8:42	6.96	6.68	14.6				0.5	Slightly tan
8:43	6.97	6.68	14.6				0.75	More turbid brown
8:45	6.99	6.68	14.3				1	no change
8:47	7.02	6.91	13.7				2	turbid brown, bailing dry
8:50	-	-	-				2.25	dry
12:32	7.05	7.02	14.9				2.5	Light brown turbidity, no odor, no sheen
12:33	7.12	6.80	15.1				2.75	no change
12:34	7.08	6.78	14.6				3	no change
12:35	7.06	6.85	14.2				3.25	Increasing turbidity
12:36	7.05	6.84	13.9				3.5	no change
12:38	7.05	6.99	13.8				4.5	increasing turbidity, light brown
12:40	7.14	6.85	14.2				4.75	bailing dry
14:07	7.12	6.94	14.1				5	bailed dry
14:08	7.07	6.71	14.3				5.25	brown turbid, no odor, no sheen
14:09	7.08	6.74	14.4				5.5	no change
14:10	7.1	6.73	14.3				5.75	no change
Final:	7.1	6.73	14.3				5.75	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-4 Sample Time: 14:13

Analysis Requested: ☒ BTEX ☐ VOC: ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other _____

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: <u>XTO Groundwater</u>	Location: <u>Bruington GC #1</u>	Well No: <u>MW-5</u>
Client: <u>XTO Energy, Inc.</u>	Date: <u>1/13/2011</u>	Time: <u>12:45</u>
Project Manager: <u>Julie Linn</u>	Sampler's Name: <u>Brooke Herb & Sam LaRue</u>	

Measuring Point: <u>TOC</u>	Depth to Water: <u>18.08</u> ft	Depth to Product: <u>NA</u> ft
Well Diameter: <u>2"</u>	Total Depth: <u>25.2</u> ft	Product Thickness: <u>NA</u> ft
	Water Column Height: <u>7.12</u> ft	

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	7.12	1.161272	3.48

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
12:50	6.74	10.25	15.8				0.25	clear, strong odor
12:52	6.61	11.58	16.1				0.5	cloudier, strong odor
12:53	6.65	11.49	16.0				0.75	no change
12:54	6.68	11.51	16.0				1	no change, bailing down
12:56	6.64	12.65	16.1				1.19	darker black, strong odor, bailing down
12:57	6.86	12.40	15.0				1.44	no change, bailed dry
14:53	7.22	11.73	15.2				1.69	gray, strong odor, bailing dry
14:56	7.23	11.78	15.1				1.81	bailed dry
Final:	7.23	11.78	15.1				1.81	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-5 Sample Time: 15:01

Analysis Requested: ☒ BTEX ☐ VOC: ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-6
 Client: XTO Energy, Inc. Date: 6/15/2011 Time: 11:42
 Project Manager: Julie Linn Sampler's Name: J. Linn

Measuring Point: TOC Depth to Water: 16.55 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 25.38 ft Product Thickness: NA ft
 Water Column Height: 8.83 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	8.83	1.440173	4.32

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
11:45	7.01	14.54	16.9				0.25	Strong HC odor, light grey, slight sheen
11:46	7.04	14.54	16.3				0.5	Darker grey
11:47	7.05	14.47	16.0				0.75	no change
11:48	7.05	14.48	15.9				1	increasing grey turbidity
11:50							1.75	bailed dry
13:53	7.22	14.45	16.3				2	grey, HC odor, sheen
13:55	7.09	14.43	15.9				2.25	no change
13:55	7.07	14.43	15.8				2.5	no change
13:57	7.13	14.33	16.2				2.72	bailing dry
14:54	7.20	14.42	16.1				3	light grey, HC odor, sheen
14:55	7.06	14.49	15.9				3.25	bailing dry
14:56	7.17	14.39	16.5				3.5	dry
15:21	7.29	14.47	16.3				3.75	dry
Final:	7.29	14.47	16.3				3.75	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-6 Sample Time: 15:25

Analysis Requested: ☒ BTEX ☐ VOC: ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other _____

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-7
 Client: XTO Energy, Inc. Date: 6/15/2011 Time: 10:24
 Project Manager: Julie Linn Sampler's Name: J. Linn

Measuring Point: TOC Depth to Water: 16.72 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 25.47 ft Product Thickness: NA ft
 Water Column Height: 8.75 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	8.75	1.427125	4.28

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
10:27	7.21	11.25	16.7				0.25	Strong HC odor, slight sheen, slight light grey turbidity
10:28	6.91	11.76	16.1				0.5	No change
10:29	6.93	11.68	16.0				0.75	Slightly more turbid
10:30	6.90	11.96	16.0				1	No change
10:35	-	-	-				1.75	Bailed dry
13:45	7.00	12.63	16.7				2	Black, strong HC odor, sheen
13:46	6.92	10.98	15.8				2.25	No change
13:47	6.92	11.15	15.8				2.5	No change
13:48	6.96	11.78	15.8				2.75	No change
13:49	7.05	12.71	16.0				3.25	Bailing dry
13:51	7.09	12.50	16.2				3.5	Bailed dry
14:58	7.02	12.89	16.1				3.75	Black, strong HC odor, sheen
14:59	6.84	12.03	15.9				4	No change
15:00	6.91	11.12	16.0				4.25	Bailing dry
Final:	6.91	11.12					4.25	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-7 Sample Time: 15:04

Analysis Requested: ☒ BTEX ☐ VOC: ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other _____

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-8
 Client: XTO Energy, Inc. Date: 6/15/2011 Time: 10:41
 Project Manager: Julie Linn Sampler's Name: J. Linn

Measuring Point: TOC Depth to Water: 19.38 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 28.89 ft Product Thickness: NA ft
 Water Column Height: 9.51 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	9.51	1.551081	4.65

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
10:44	6.89	5.24	16.2				0.25	Slight sheen, black, strong HC odor
10:46	6.83	5.39	15.8				0.5	No change
10:47	6.78	4.93	15.6				0.75	No change
10:48	6.89	5.33	15.4				1	No change
10:50	6.98	6.15	15.5				2	Increasing sheen
10:54	6.98	6.59	15.6				3	No change
10:57	7.04	6.74	15.7				4	No change
10:58	7.04	7.01	15.6				4.25	No change
11:00	7.04	7.17	15.7				4.5	No change
11:01	7.05	7.24	15.8				4.75	No change
11:02	7.07	7.28	15.8				5	No change
Final:	7.07	7.28	15.8				5	

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-8 Sample Time: 11:07

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

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington GC #1 Well No: MW-9
 Client: XTO Energy, Inc. Date: 6/15/2011 Time: 9:02
 Project Manager: Julie Linn Sampler's Name: J. Linn

Measuring Point: TOC Depth to Water: 18.78 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 32.35 ft Product Thickness: NA ft
 Water Column Height: 13.57 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	13.57	2.213267	6.64

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
9:07	7.16	>20	14.6				0.25	Yellow tint, no odor, no sheen
9:08	7.14	>20	13.9				0.5	No change
9:13	7.12	>20	13.9				0.75	No change
9:14	7.17	>20	13.8				1	No change
9:17	7.16	>20	13.9				2	Increase turbidity, more brownish
9:19	7.09	>20	14.0				3	No change
9:22	7.07	>20	14.1				4	No change
9:24	7.04	>20	14.1				5	No change
9:27	7.02	>20	14.2				6	Slight increase in turbidity
9:28	7.01	>20	14.2				6.25	No change
9:29	6.99	>20	14.2				6.5	No change
9:30	6.99	>20	14.2				6.75	No change
Final:	6.99	>20	14.2				6.75	

COMMENTS: No sign of bailing dry

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-9 Sample Time: 9:23

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

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

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

Location: Bruington
 Date: 12/15/2011
 Sampler's Name: Devin Hencmann

Well No: MW-1R
 Time: 12:55

Measuring Point: TOC Depth to Water: 12.24 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 17.73 ft Product Thickness: NA ft
 Water Column Height: 5.49 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	5.49	0.895419	2.69

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
13:05	7.19	4.98	13.8				0.25	light odor, clear with brown hue
	7.17	5.13	14.3				0.50	clear with light brown hue
	7.17	5.08	14.1				0.75	light turbidity, brown hue, light odor
	7.15	5.20	14.8				1.00	medium turbidity, medium brown hue
	7.20	4.88	14.3				1.25	high turbidity, medium light brown, bailing down
	7.26	4.64	14.1				1.50	no change
	7.32	4.54	14.5				1.75	bailing down, medium turbidity, medium brown
	7.32	4.35	14.5				2	bailing down, less turbidity, light brown
	7.31	4.37	14.7				2.25	bailing down, less turbidity, light brown
	7.28	4.41	14.5				2.50	bailing down, light turbidity, light brown
Final: 13:35	7.25	4.35	14.6				2.75	bailing down, light turbidity, light clear brown

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-1R Sample Time: 13:37

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

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington Well No: MW-2R
 Client: XTO Energy, Inc. Date: 12/15/2011 Time: 13:50
 Project Manager: Julie Linn Sampler's Name: Devin Hencmann

Measuring Point: TOC Depth to Water: 12.99 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 23.26 ft Product Thickness: NA ft
 Water Column Height: 10.27 ft

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

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	10.27	1.675037	5.03

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
13:50	7.32	8.71	15.1				0.25	light odor, white flecks, low turbidity
	7.24	8.69	16.0				0.50	light odor, sheen, white flecks, low turbidity
	7.25	8.87	15.6				0.75	no change
	7.25	8.71	15.6				1.00	strong HC odor, low turbidity, grey color
	7.24	8.88	15.7				1.25	sheen strong HC odor, light grey, low turbidity, white flecks
	7.25	8.96	15.6				1.50	minor roots, strong HC odor, sheen, light grey color
	7.26	8.83	15.6				1.75	sheen, light grey color, strong HC odor, low turbidity
	7.30	8.78	15.6				2.25	bailing down, sheen, light grey color, strong HC odor, white flecks
	7.39	8.92	15.6				2.75	light grey, sheen, HC odor, white flecks, bailing down
	7.41	8.82	15.4				3.25	sheen light green, low turbidity, HC odor, bailing down
	7.42	8.86	15.5				3.75	light sheen, grey, low turbidity, HC odor, bailing down
	7.41	8.78	15.4				4.25	light grey, white flecks, low turbidity, HC odor, bailing down
Final: 14:30	7.44	8.76	15.3				5.00	light grey, low turbidity, white flecks, HC odor

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-2R Sample Time: 14:35

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

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

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

Location: Bruington
 Date: 12/15/2011
 Sampler's Name: Devin Hencmann

Well No: MW-3R
 Time: 11:05

Measuring Point: TOC Depth to Water: 15.22 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 23.64 ft Product Thickness: NA ft
 Water Column Height: 8.42 ft

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

Criteria: ☒ 3 to 5 Casing Volumes of Water Removal ☒ Stabilization of Indicator Parameters ☒ Other Bailed dry

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	8.42	1.373302	4.12

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
11:10	7.31	11.04	15.7				0.25	cloudy/ silty, no odor
	7.34	11.24	16.0				0.50	no change
	7.37	11.19	15.9				0.75	no odor, slightly cloudy
	7.40	11.23	15.8				1.00	silty, slight HC odor
	7.40	11.18	15.8				1.25	no odor, light turbidity
	7.39	11.21	15.6				1.50	light turbidity, no odor, grey
	7.42	11.23	15.8				1.75	light turbidity, no odor, grey
	7.43	11.22	16.0				2.00	strong HC odor, black flecks, greyish black
Final: 11:30	7.57	10.85	15.7				2.50	bailed dry, black flecks, strong HC odor

COMMENTS: Bailed dry at 11:30, returned for sample at 15:25.

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-3R Sample Time: 15:25

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

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

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

Location: Bruington
 Date: 12/15/2011
 Sampler's Name: Devin Hencmann

Well No: MW-4
 Time: 14:45

Measuring Point: TOC Depth to Water: 14.16 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 23.33 ft Product Thickness: NA ft
 Water Column Height: 9.17 ft

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

Criteria: ☒ 3 to 5 Casing Volumes of Water Removal ☒ Stabilization of Indicator Parameters ☒ Other Bailed dry

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	9.17	1.495627	4.49

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
14:50	7.12	6.01	15.2				0.25	no odor, light brown tint, no turbidity
	7.10	6.26	15.4				0.50	no odor, light brown tint, low turbidity
	7.12	6.26	15.5				0.75	light brown, no odor, no sheen
	7.14	6.52	15.4				1.00	low turbidity, no odor, light brown
	7.16	6.51	15.5				1.25	light brown, no odor, low turbidity, bailing down
	7.36	6.36	15.2				1.50	light brown, no odor, medium turbidity, bailing down
	7.41	6.53	15.2				1.75	light clear brown, low turbidity, no odor, bailing down
	7.38	6.60	15.2				2.25	bailing down, light turbidity, no odor, light brown
Final: 15:36	7.26	6.62	15.6				2.75	bailed dry, low turbidity, no odor, light brown color

COMMENTS: Bailed dry at 15:36, returned for sample at 16:22.

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-4 Sample Time: 16:22

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

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

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

Location: Bruington
 Date: 12/15/2011
 Sampler's Name: Devin Hencmann

Well No: MW-5
 Time: 15:37

Measuring Point: TOC Depth to Water: 16.75 ft
 Well Diameter: 2" Total Depth: 25.33 ft
 Water Column Height: 8.58 ft
 Depth to Product: NA ft
 Product Thickness: NA ft

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

Criteria: ☒ 3 to 5 Casing Volumes of Water Removal ☒ Stabilization of Indicator Parameters ☒ Other Bailed dry

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	8.58	1.399398	4.20

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
15:38	7.14	11.27	16.7				0.25	medium HC odor, clear with light tinge, black flecks
	7.13	11.57	16.3				0.50	medium HC odor, medium dark greyish black, black flecks
	7.17	11.21	16.3				0.75	strong HC odor, medium dark grey
	7.14	11.38	15.9				1.00	strong HC odor, black flecks, greenish black
	7.14	11.45	16.5				1.25	strong HC odor, light greenish grey
	7.16	12.11	16.3				1.50	bailing down, strong HC odor, medium greenish grey, black flecks
Final: 15:43	7.17	12.11	16.4				2.00	bailed dry, strong HC odor, grayish green, black flecks

COMMENTS: Bailed dry at 15:43, returned for sample at 16:30.

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-5 Sample Time: 16:30

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

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: <u>XTO Groundwater</u>	Location: <u>Bruington</u>	Well No: <u>MW-6</u>
Client: <u>XTO Energy, Inc.</u>	Date: <u>12/15/2011</u>	Time: <u>11:40</u>
Project Manager: <u>Julie Linn</u>	Sampler's Name: <u>Devin Hencmann</u>	

Measuring Point: <u>TOC</u>	Depth to Water: <u>18.32</u> ft	Depth to Product: <u>NA</u> ft
Well Diameter: <u>2"</u>	Total Depth: <u>24.9</u> ft	Product Thickness: <u>NA</u> ft
Water Column Height: <u>6.58</u> ft		

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other _____

☒ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☒ 3 to 5 Casing Volumes of Water Removal ☒ Stabilization of Indicator Parameters ☒ Other Bailed dry

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	6.58	1.073198	3.22

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
11:50	7.33	13.61	16.2				0.25	strong HC odor, light green tinge
	7.36	13.82	16.6				0.50	strong HC odor, medium greenish grey tinge
	7.30	13.59	16.5				0.75	bailing down, strong HC odor, light grey
	7.25	13.80	16.3				1.00	bailing down, light grey, light turbidity, strong HC odor
	7.20	13.90	15.6				1.25	bailing down, white and black flecks, greyish green, strong HC odor
Final:								
12:03	7.31	13.63	15.5				1.75	bailed dry, strong HC odor, white and black flecks, grey, medium turbidity

COMMENTS: Bailed dry at 12:05, returned for sample at 15:30.

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-6 Sample Time: 15:30

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

☐ Other _____

Trip Blank: No Duplicate Sample: No



SAMPLING PURGE LOG

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

Location: Bruington
 Date: 12/15/2011
 Sampler's Name: Devin Hencmann

Well No: MW-7
 Time: 16:00

Measuring Point: TOC Depth to Water: 16.75 ft
 Well Diameter: 2" Total Depth: 25.44 ft
 Water Column Height: 8.69 ft
 Depth to Product: NA ft
 Product Thickness: NA ft

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

Criteria: ☒ 3 to 5 Casing Volumes of Water Removal ☒ Stabilization of Indicator Parameters ☒ Other Bailed dry

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	8.69	1.417339	4.25

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
16:04	7.34	11.71	17.0				0.25	light green, strong HC odor, white flecks
	7.27	11.90	17.3				0.50	light green, strong HC odor, white flecks, sheen
	7.19	11.90	17.3				0.75	sheen, strong HC odor, white flecks, light-medium grayish green
	7.11	12.26	17.2				1.00	sheen, light - medium grayish green, white flecks, strong HC odor
	7.08	12.95	17.0				1.25	light turbidity, medium dark gray, strong HC odor, sheen
	7.16	12.61	16.8				1.5	bailing down, dark gray, strong HC odor, sheen
	7.38	12.36	15.9				2.00	medium to light greyish black, sheen, strong HC odor
	7.27	13.70	16.3				2.25	dark brownish black, strong HC odor
Final: 16:43	7.25	12.57	16.4				2.50	bailed dry, dark greenish black, strong HC odor

COMMENTS: Bailed dry at 16:17, resume bailing at 16:33, returned to sample at 16:43.

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-7 Sample Time: 16:43

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

Trip Blank: No Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: XTO Groundwater Location: Bruington Well No: MW-8
 Client: XTO Energy, Inc. Date: 12/15/2011 Time: 12:05
 Project Manager: Julie Linn Sampler's Name: Devin Hencmann

Measuring Point: TOC Depth to Water: 18.53 ft Depth to Product: NA ft
 Well Diameter: 2" Total Depth: 28.87 ft Product Thickness: NA ft
 Water Column Height: 10.34 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other _____

☒ Bottom Valve Bailer ☐ Double Check Valve Bailer

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

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	10.34	1.686454	5.06

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
12:10	7.11	3.93	15.7				0.25	black flecks, dark hue, strong HC odor
	7.13	4.34	15.8				0.50	light gray black, black flecks, strong HC odor
	7.12	5.50	15.9				0.75	Black flecks, greyish black color, strong HC odor, low turbidity
	7.12	5.82	16.5				1.00	Sheen, Strong HC odor, Low turbidity, black color, black flecks
	7.10	6.37	16.7				1.25	no change
	7.08	5.36	16.6				1.50	no change
	7.08	5.25	16.8				1.75	no change
	7.08	5.23	16.9				2	no change
	7.14	4.84	16.2				2.25	bailing down, strong HC odor, black flecks, grayish black color
	7.12	5.17	16.4				2.5	strong HC odor, grayish blacksheen, black flecks
	7.13	5.54	16.3				3.0	no change
	7.11	5.87	16.8				3.5	no change
	7.14	6.81	16.6				4.5	no change
	7.11	7.24	16.7				5.0	no change
	7.11	7.16	16.3				5.25	bailing down, strong HC odor, black flecks, dark grayish black color
Final: 12:45	7.15	6.84	16.1				5.5	dark gray, strong HC odor, sheen

COMMENTS:

Instrumentation: ☒ pH Meter ☐ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter ☐ Other _____

Water Disposal: on site sump

Sample ID: MW-8 Sample Time: 12:47

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

Trip Blank: No

Duplicate Sample: No

