State of New Mexico Energy Minerals and Natural Resources

Form C-141 Revised August 8, 2011

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

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			Rele	ease Notifi	cation	and Co	orrective A	ction			
						<b>OPERA</b>	ГOR		nitial Report		Final Report
Name of Co	mpany: X	TO Energy,	Inc.				nes McDaniel				- mail report
		00, Aztec, N		ico 87410		Telephone 1	No.: (505) 333-3	701			
Facility Nat	ne: OH Ra	indel #5				Facility Typ	e: Gas Well (Ba	asin Dakota)			
Surface Ow	ner: Triba	l		Mineral 0	Owner			AP	No.: 30-045-	05964	
				LOC	ΑΤΙΟ	OF RE	LEASE				
Unit Letter	Section	Township	Range	Feet from the		South Line	Feet from the	East/West Li	ne County		
D	10	26N	11W	990	F	NL	990	FWL	San Juan		
0	10	2011		Latitude 36.50					Guirbuur		
			<b>eff</b> [33]			OF REL	tude -107.99655 EASE	<u>52</u>			
Type of Rele	ase: Produc	ed Oil / Produ	iced Wate			-	Release: 32.5 BB	BL's Volu	me Recovered:	0 BBL's	3
Source of Re	lease: 2" Di	rain Valve on	Productio	n Tank			Hour of Occurrenc		and Hour of Di	scovery:	1/18/2016
Was Immedi	ate Notice (	Given?					Time: Unknown Whom? Cory Sn	2:56p			
			Yes [	No 🗌 Not R	equired				,		
		orth (EH&S T	echnician	)		Date and H	Hour: 1/19/2016 @	7:53am			
Was a Water	course Read			2		If YES, Vo	olume Impacting t	he Watercours	e.		
			Yes 🛛	No					OIL CON JUL	IS. DR	DICT
If a Watercou	urse was Im	pacted, Descr	ibe Fully.	*							001.3
									JUL	1 3 2	2017
tank froze, s leaked onto NMOCD G is greater th BTEX. XT	splitting the the ground uidelines f an 100 fee O has utili	e valve body d with no flu or the Reme t and an arro zed a soil va	and rele and being diation o byo over apor extra	asing fluid on t recovered. Th f Leaks, Spills a 1000 feet. This ction system fo	he groun te 2" dra and Rele set the c	nd. An estim in valve has eases. The si- losure stand	H Randel #5. Th nated 27 bbls of s been replaced. ite was ranked a lard to 5000 ppn f this release coll	F produced oil The site was 0 due to an e n TPH, 10 pp	and 5.5 bbls then ranked a estimated dept ben benzene, an	of produ accordin h to gro nd 50 pp	uced water ng to the pundwater pm total
		and Cleanup Attached <u>Remainder</u>			nd Prop	osed Supple	emental Work Pl	lan			
regulations a public health should their o or the environ	ll operators or the envir operations h nment. In a	are required t ronment. The ave failed to a	o report and acceptance adequately OCD accept	nd/or file certain ce of a C-141 rep investigate and	release no ort by the remediate	e NMOCD m contamination	knowledge and u nd perform correc arked as "Initial R on that pose a thru e the operator of r	tive actions for Report" does no eat to ground v responsibility f	r releases which ot relieve the op vater, surface w for compliance	h may en berator of vater, hur with any	danger f liability man health
	1	// )					OIL CONS	SERVATIO	<u>ON DIVISIO</u>	MC	</th
Signature:	11	Ch	~					/		1.	1
Printed Name	a: James Mo	Daniel				Approved by	Environmental Sp	pecialist:	me 4	1	
Title: EH&S		Damer				Approval Dat	te: 7/25/1	7 Expirat	tion Date:		
E-mail Addre	ess: james_r	ncdaniel@xtc	energy.co	m		Conditions of	f Approval:		Attached	1 <b>1</b>	
Date: 7/12/20	017 Ph	one: 505-333	-3701							/	
Attach Addi				HNUFI	10	AZ 01	201			1	
			-	HNUFI	600	051	04(			(10	,3)

# Smith, Cory, EMNRD

Devin Hencmann
nessa, EMNRD

James,

The OCD has reviewed the C-141 work plan received on July 13, 2017 and has approved the work plan with the following conditions of approval:

- XTO will recommence the previous approved remediation operations of the SVE within the areas that were not successfully remediated following the April, 2017 confirmation sampling as soon as practicable but no later than August 15, 2017.
- XTO will notify the OCD within 72 hours but no more than 1 week prior to the start of additional delineation.
- As per the work plan XTO will commence Delineation within 30 days of approval (July 25, 2017)
- IF XTO proposed additional delineation bore holes fail to fully delineate the site additional delineation will be required.

If you have additional questions please let me know.

Cory Smith Environmental Specialist Oil Conservation Division Energy, Minerals, & Natural Resources 1000 Rio Brazos, Aztec, NM 87410 (505)334-6178 ext 115 cory.smith@state.nm.us

From: McDaniel, James [mailto:James\_McDaniel@xtoenergy.com]

Sent: Thursday, June 29, 2017 4:10 PM

To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Powell, Brandon, EMNRD <Brandon.Powell@state.nm.us> Cc: Nee, Martin <Martin\_Nee@xtoenergy.com>; Hixon, Logan <Logan\_Hixon@xtoenergy.com>; 'Ashley Ager (aager@ltenv.com)' <aager@ltenv.com>; 'Devin Hencmann (dhencmann@ltenv.com)' <dhencmann@ltenv.com> Subject: O H Randel #5 Sampling Results and Additional Work Plan

## Cory,

Please find attached the LT Environmental report outlining the results obtained during the closure sampling at the O H Randel #5 well site on 4/219-24/2017, and a work plan for additional delineation activities at this location. Please do not hesitate to contact me with additional questions regarding this site. Thank you.

James McDaniel EH&S Supervisor CHMM #15676



COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental, Inc.

848 2<sup>nd</sup> Avenue Durango, Colorado 81301 T 970.385.1096 / F 970.385.1873

June 29, 2017

Mr. Cory Smith New Mexico Oil Conservation Division 1000 Rio Brazos Road Aztec, NM 87410

# RE: Remediation Soil Sampling and Proposed Supplemental Work Plan XTO Energy, Inc. OH Randel #5, API # 30-045-05964 San Juan County, New Mexico

Dear Mr. Smith:

LT Environmental, Inc. (LTE), on behalf of XTO Energy, Inc. (XTO), presents the following summary report summarizing remediation monitoring and soil sampling activities performed on April 19, 2017 through April 24, 2017, to evaluate remediation progress and delineate remaining extent of petroleum hydrocarbon impacted soil at the OH Randel #5 natural gas production well (Site). The Site is located west of Highway 550 near Huerfano, New Mexico in Unit D of Section 10 of Township 26 North and Range 11 West (Figure 1).

## Background

On January 18, 2016, XTO discovered a frozen valve on a 100-barrel (bbl) production tank that resulted in approximately 27 bbl of condensate and 5.5 bbl of produced water draining onto the ground and infiltrating into the subsurface. The release was contained within the bermed area and no liquids were recovered. The Site was ranked a zero pursuant to the New Mexico Oil Conservation Division's (NMOCD) 1993 *Guidelines for Remediation of Leaks, Spills and Releases.* As such, the remediation action levels applied to the Site are 5,000 parts per million (ppm) total petroleum hydrocarbons (TPH), 10 ppm benzene, and 50 ppm total for the sum of benzene, toluene, ethylbenzene, and total xylenes (BTEX).

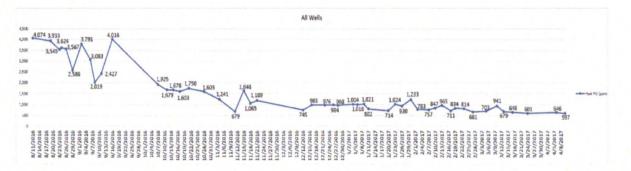
On January 19, 2016, XTO conducted a subsurface assessment using a hand auger. During the assessment, a photo-ionization detector (PID) was utilized to field screen for volatile organic compounds (VOCs) in soil samples collected from within the release footprint. Samples were collected at the surface and intermittently to 9.5 feet below ground surface (bgs). Samples were collected from four different borehole locations and field screened. Samples from two boreholes were submitted for laboratory analysis of BTEX according to United States Environmental Protection Agency (USEPA) Method 8021 and TPH according to USEPA Method 8015. Field screening and laboratory analytical results indicated that impacted soil exceeding NMOCD standards at the release location extended from the ground surface to 9.5 feet bgs vertically with a lateral extent of approximately 300 square feet. The location of the hand auger borings is depicted in Figure 2 and laboratory analytical results are summarized in Table 1.



Smith, C. Page 2

On August 3, through August 8, 2016, LTE conducted delineation and concurrently installed a soil vapor extraction (SVE) system for remediation. LTE advanced ten delineation boreholes (HA 1 through HA 5, and BH-6 through BH-10) to depths ranging from 10 feet to 20 feet bgs: one borehole was placed in each cardinal direction from the source area, then additional boreholes were installed outward as impacted soil was encountered (Figure 2). The soil from the delineation boreholes was described and field screened with a PID at one-foot intervals (Attachment A). Soil samples were collected from the interval with the highest Organic Vapor Measurement (OVM) observed and from the bottom of each borehole to confirm the vertical impact to the soil has been delineated. Soil samples were analyzed for BTEX using EPA Method 8021 and TPH using EPA Method 8015. If field screening results indicated that no impacted soil was present, no laboratory analysis was conducted (HA 2, HA 3, HA 4, and BH-10).

Based on the preliminary field screening and laboratory analytical results obtained by XTO and additional delineation data collected by LTE, six SVE wells were installed (Figure 2). SVE wells were screened at intervals spanning the impacted zones and placed so their radius of influence would affect the impacted soil encountered during delineation. The SVE system operated from August 11, 2016 until April 19, 2017, with greater than 92 percent (%) run time. XTO monitored OVM at each SVE well periodically to assess system performance and effectiveness. Below is a graph presenting OVM readings from the main line where vapors from all 6 SVE wells are routed. The graph presents data spanning the course of operation.



At start up, OVM readings exceeded 4,000 parts per million (ppm) and steadily declined during system operation to 512 ppm. The decline in OVM readings measured from the combined wells prompted XTO to conduct soil sampling to evaluate the site for closure and assess residual impacts.

On November 18, 2016, XTO utilized a hand auger to advance two boreholes, one in the original source area (BH-6) and one to the northeast of the source area (BH-5), to assess decline in TPH and BTEX concentrations in soil. Soil samples were collected from each borehole where elevated OVM readings were encountered and from the bottom of the boring. Soil samples were analyzed for BTEX using EPA Method 8021 and TPH using EPA Method 8015 (Table 1). Soil analyzed from these borings was below NMOCD closure standards for this Site. These preliminary results combined with reduced OVM readings from the SVE system prompted further evaluation and were proposed in a sampling plan submitted to the NMOCD and dated December 30, 2016.



#### **Remediation Soil Sampling**

On April 19, 2017 through April 24, 2017, LTE utilized a CME 75 hollow stem auger drill rig to advance nine boreholes (BH-11 through BH-19) with depths varying from 25 feet to 35 feet below ground surface (bgs). Boreholes were located in areas where impacted soil was encountered during previous investigations and within the radius of influence of the SVE wells (Figure 2). Additional boreholes were drilled outside of the SVE wells' radius of influence to confirm the subsurface impact was fully delineated during previous investigations. Continuous soil samples were logged by an LTE geologist and described using the Unified Soil Classification System (USCS). The intervals from immediately beneath the ground surface to 10 feet bgs and then every five-foot interval thereafter were composited and screened for volatile aromatic hydrocarbons. Screening was conducted with a PID in accordance with the NMOCD *Guidelines for Remediation of Leaks, Spills and Releases*. Soil with field screening results exceeding 100 ppm or that was stained or wet was collected for laboratory analysis of BTEX and TPH (GRO, DRO, and MRO).

## **Remediation Soil Sampling Results**

Soil samples collected during advancement of the soil borings were predominantly composed of silt and sand mixtures from the ground surface to approximately 25 to 35 feet bgs. A semiconsolidated weathered sandstone was encountered at approximately 30 to 35 feet bgs in BH-12, BH-13, BH-18, and BH-19. Field-identified soil impacts consisting of visual staining, hydrocarbon odors, and/or elevated field screening results were observed in BH-12 (13.5 feet to 18 feet bgs and 28 feet to 35 feet bgs), BH-13 (23 feet to 35 feet bgs), BH-15 (10 feet to 32 feet bgs), and BH-16 (12 feet to 29 feet bgs). Bore logs are included as Attachment A.

Laboratory analytical results indicated that soil samples from BH-12 exceeded the NMOCD action level of 5,000 mg/kg for TPH with a concentration of 12,114 mg/kg. Soils samples from BH-12, BH-13, BH-15 and BH-16 exceeded the NMOCD action level of 50 mg/kg for total BTEX with concentrations ranging from 61.3 mg/kg to 990 mg/kg. A benzene concentration exceeding the NMOCD action level of 10 mg/kg was detected at BH-12 with a concentration of 63 mg/kg. The soil analytical results as compared to the NMOCD action levels are presented in Table 1 and results exceeding NMOCD standards are depicted in Figure 3. The ESC laboratory analytical report is included as Attachment B.

#### **Proposed Supplemental Work Plan**

Soil sampling conducted to evaluate progress of remediation indicated residual BTEX concentrations slightly exceeding the NMOCD action level of 50 mg/kg and consisting primarily of the total xylenes constituent remain in the original source area and northeast of the source area from approximately 15 to 27 feet bgs. Additional vertical delineation in the northeastern portion of the Site identified a second, deeper interval of impact at 30 feet to 35 feet bgs with TPH exceeding the NMOCD Action Level of 5,000 mg/kg and higher BTEX concentrations. In order to address the remaining soil impact at the source and the deeper impact recently identified, LTE proposes more delineation boreholes and utilizing that data to evalute closure scenarios.



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LTE proposes to utilize a hollow stem auger drill rig to advance 5 boreholes to 40 feet below ground surface (bgs) or to the depth of impact, whichever is greater. Boreholes will be located in in the northeast, where impacted soil was not delineated during prior investigations (Figure 3). Should field screening indicate lateral extent of soil impact has not been defined, LTE will step out with additional boreholes.

Continuous soil samples will be logged by an LTE geologist and described using the Unified Soil Classification System (USCS). The intervals from immediately beneath the ground surface to 10 feet bgs and then every five-foot interval thereafter will be composited and screened for volatile aromatic hydrocarbons. Screening will be conducted with a PID in accordance with the NMOCD *Guidelines for Remediation of Leaks, Spills and Releases*. Soil with field screening results exceeding 100 ppm or that is stained or wet will be collected for laboratory analysis of BTEX, TPH (GRO, DRO, and MRO). Site data will be evaluated for possible risk-based closure or continued SVE once full delineation is achieved. XTO intends to begin future delineation within 30 days of receiving approval of this work plan.

LTE appreciates the opportunity to provide this remediation work plan to the NMOCD. If you have any questions or comments regarding this work plan, do not hesitate to contact me at (970) 385-1096 or via email at <u>dhencmann@ltenv.com</u> or James McDaniel at (505) 419-0915 or at james mcdaniel@xtoenergy.com.

Sincerely,

LT ENVIRONMENTAL, INC.

Sugar

Devin Hencmann Project Geologist

Attachments:

Figure 1 – Site Map Figure 2 – Site Map Figure 3 – Proposed Supplemental Work Plan Table 1 – Borehole Soil Analytical Results Appendix A– Soil Borehole Logs Appendix B – Analytical Laboratory Report

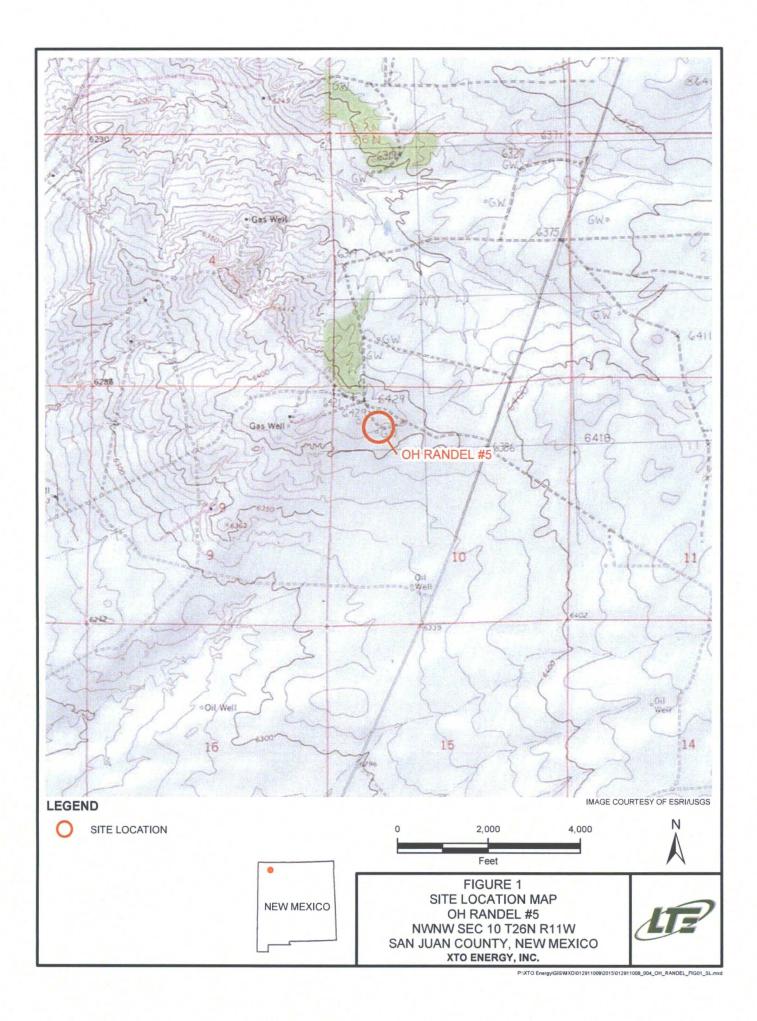
Ashley L. ager

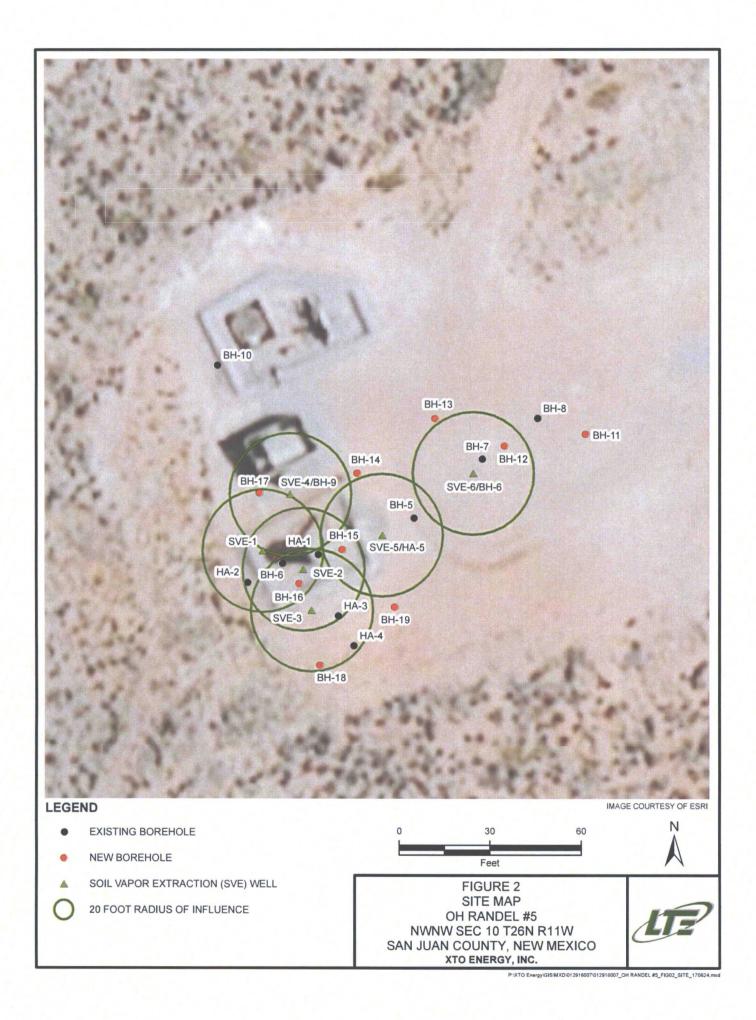
Ashley L. Ager, M.S., P.G. Senior Geologist

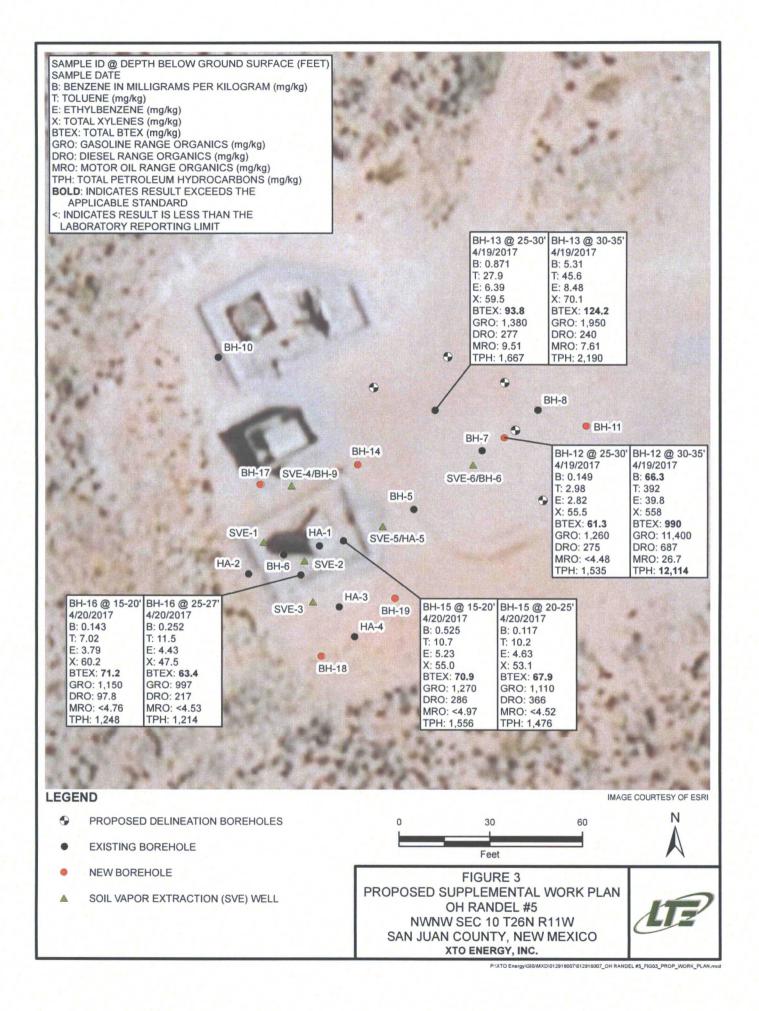
FIGURES

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TABLES

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#### TABLE 1 BOREHOLE SOIL ANALYTICAL RESULTS OH RANDEL #5 SAN JUAN COUNTY, NEW MEXICO XTO ENERGY, INC

Soil Sample ID	Sam ple Date	Depth (feet)	Vapor (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	TPH (mg/kg)
HA 1	7/5/2016	20	2,886	5.1	56	7.3	74	142.4	810	17	NA	827
HA 5	7/5/2016	16	2,356	0.21	3.5	1.3	15	20.01	310	150	NA	460
HA 5	7/5/2016	21.5	1,922	< 0.10	2.4	1.0	12	15.4	260	66	NA	326
BH-5 @ 9.2'	8/2/2016	9.2	2,494	< 0.121	<1.21	<0.121	9.2	9.2	783	137	NA	920
BH-5 @ 13'	8/2/2016	13	3,172	0.314	<2.45	1.28	25.9	27.494	633	54.1	NA	687.1
BH-6 @ 9'	8/2/2016	9	2,197	< 0.0495	<0.495	< 0.0495	<0.148	<0.148	51.1	17.9	NA	69
BH-6 @ 10'	8/2/2016	10	2,980	0.0218	< 0.00500	0.188	0.0413	0.2511	138	9.27	NA	147.27
BH-6 @ 12.6'	8/2/2016	12.6	2,347	< 0.0122	< 0.122	< 0.0122	< 0.0368	< 0.122	53.9	5.81	NA	59.71
*DUL C	11/18/2016	9	3,128	< 0.49	1.8	1.7	20	23.5	840	140	NA	980
*BH-6	11/18/2016	18	1,922	<0.49	7.3	2.4	27	36.7	1,000	120	NA	1,120
1011 7	11/18/2016	11	3,159	< 0.42	2.6	3.6	39	45.2	1,700	400	NA	2,100
*BH-7	11/18/2016	12	3,128	< 0.42	9.4	8.3	94	111.7	2,600	350	NA	2,950
*BH-8	11/18/2016	16	3,125	< 0.47	< 0.94	1.3	12	13.3	560	340	NA	900
*BH-9	11/18/2016	16	2,413	<1.0	23	8.7	100	131.7	2,200	240	NA	2,440
BH-11 @ 20-25'	4/19/2017	20-25	0.6	< 0.000612	< 0.00612	< 0.000612	0.00220	0.00220	< 0.122	<4.95	<4.95	<4.95
BH-12 @ 0-10'	4/19/2017	0-10	51.4	< 0.000538	< 0.00538	< 0.000538	< 0.00161	< 0.00538	< 0.108	5.66	<4.44	5.66
BH-12 @ 10-15'	4/19/2017	10-15	1,001	< 0.110	<1.10	0.403	2.11	2.51	401	39.7	4.39	441
BH-12 @ 15-20'	4/19/2017	15-20	73.1	0.000728	0.00750	0.00379	0.0779	0.0892	2.36	508	8.00	518
BH-12 @ 20-25'	4/19/2017	20-25	269	0.00535	0.0218	0.0114	0.156	0.189	4.02	67.1	<4.48	71.1
BH-12 @ 25-30'	4/19/2017	25-30	1,904	0.149	2.98	2.82	55.5	61.3	1,260	275	<4.48	1,535
BH-12 @ 30-35'	4/19/2017	30-35	1,632	66,3	392	39.8	558	990	11,400	687	26.7	12,114
BH-13 @ 0-10'	4/19/2017	0-10	0.7	< 0.000570	< 0.00570	< 0.000570	< 0.00171	<0.00570	< 0.114	<4.65	<4.65	<4.65
BH-13 @ 10-15'	4/19/2017	10-15	1.4	0.00113	< 0.00567	< 0.000567	0.0444	0.0455	1.32	<4.63	<4.63	1.32
BH-13 @ 15-20'	4/19/2017	15-20	68.1	< 0.000590	< 0.00590	< 0.000590	0.0132	0.0132	0.672	8.14	<4.72	8.81
BH-13 @ 20-25'	4/19/2017	20-25	3,040	< 0.114	<1.14	1.59	31.6	33.2	698	120	5.29	823
BH-13 @ 25-30'	4/19/2017	25-30	2,562	0.871	27.9	6.39	59.5	93.8	1,380	277	9.51	1,667
BH-13 @ 30-35'	4/19/2017	30-35	1,694	5.31	45.6	8.48	70.1	124.2	1,950	240	7.61	2,190
BH-14 @ 15'-20'	4/20/2017	15-20	231	0.00116	< 0.00586	0.0175	0.0491	0.0666	0.966	<4.78	<4.78	0.966
BH-14 @ 20'-25'	4/20/2017	20-25	16.0	< 0.000529	< 0.00529	< 0.000529	0.00185	0.00185	< 0.106	<4.50	<4.50	<4.50
BH-15 @ 0-10'	4/20/2017	0-10	2,949	< 0.0277	< 0.277	< 0.0277	2.04	2.04	61.8	50.5	<4.48	112
BH-15 @ 10-15'	4/20/2017	10-15	3,386	< 0.0572	3.87	2.82	29.7	36.4	651	147	<4.67	798
BH-15 @ 15-20'	4/20/2017	15-20	2,479	0.525	10.7	5.23	55.0	70.9	1,270	286	<4.97	1,556
BH-15 @ 20-25'	4/20/2017	20-25	2,192	0.117	10.2	4.63	53.1	67.9	1,110	366	<4.52	1,476
BH-15 @ 30-32'	4/20/2017	30-32	1,051	0.812	3.53	1.16	12.5	17.2	549	25.6	<4.43	575
BH-16 @ 0-10'	4/20/2017	0-10	164	< 0.000552	< 0.00552	< 0.000552	0.00315	0.00315	<0.110	7.67	<4.50	7.67
BH-16 @ 10-15'	4/20/2017	10-15	2,133	< 0.000558	0.00694	0.0352	0.442	0.484	11.5	22.7	<4.70	34
BH-16 @ 15-20'	4/20/2017	15-20	2,488	0.143	7.02	3.79	60.2	71.2	1,150	97.8	<4.76	1,248
BH-16 @ 23-25'	4/20/2017	23-25	2,606	<0.115	2.37	1.36	17.6	21.3	399	169	<4.59	568
BH-16 @ 25-27'	4/20/2017	25-27	2,968	0.252	11.5	4.43	47.5	63.4	997	217	<4.53	1,214
BH-16 @ 27-29'	4/20/2017	27-29	2,784	0.107	5.72	2.14	17.2	25.1	600	51.0	<4.51	651
BH-16 @ 33-35'	4/20/2017	33-35	374	0.0252	0.242	0.0393	0.343	0.624	5.34	32.9	<4.41	38.2
BH-17 @ 20-25'	4/21/2017	20-25	362	0.000588	0.00605	0.00778	0.150	0.164	5.52	5.26	<4.51	10.78
BH-18 @ 30-32'	4/21/2017	30-32	9.8	< 0.000522	< 0.00522	< 0.000522	0.00646	0.00646	<1.04	<4.26	<4.26	<4.26
BH-19 @ 30-35'	4/21/2017	30-35	113	0.000866	< 0.00521	<0.000521	0.00464	0.00464	< 0.104	<4.30	<4.30	<4.30
NMOCD Closur	e Criteria	1		10	NE	NE	NE	50	NE	NE	NE	5,000

#### NOTES:

< - indicates result is less than the stated laboratory reporting limit

\* - Boreholes drilled by XTO

Bold - indicates value exceeds stated NMOCD standard

BTEX - Benzene, Toluene, Ethylbenzene, Total Xylenes analyzed by EPA method 8021

DRO - diesel range organics analyzed by EPA Modified Method 8015

ESC - ESC Laboratory Sciences

GRO - gasoline range organics analyzed by EPA Modified Method 8015

Hall- Hall Environmental Analysis Laboratory

mg/kg - milligrams per kilogram

NA - not analyzed

NE - Not established

NMOCD - New Mexico Oil Conservation Division

ppm - parts per million

TPH- total petroleum hydrocarbons



APPENDIX A

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		B		Contraction of the			Statistics and	Ľ	LT Environn 848 E. 2nd A		nediation
		B. F.			th		No.	BORIN	G LOG/MONITORING W	WELL COMPLETIC	ON DIAGRAM
		TH		H H	and the	1131	1	Boring/Well	I Number: HA-1	Project: OH Ran	del #5
							1	Date:	6/29/2016	Project Number: 12916	1.00
Google		- State	N.		1-1-1-1		4-	Logged By:		Drilled By:	
Elevation:	Automa at		Detector:	1. 18. 19 1 A	AT LOCODOR			Josh Drilling Me		Josh Adams/Dev Sampling Method:	
Fravel Pacl	k:			Mi	ni Rae Lit	e		Seal:	Hand Auger	Grout:	uger
Casing Typ	NA								Length:	NA Hole Diameter:	Depth to Liquid
	NA							N	NA NA	3-inch	
Screen Typ	NA			Slot:	NA			Diameter:	Length: NA NA	Total Depth: 19.5'	Depth to Water:
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Re	emarks	Well Completio
					0						
		4187	yes		1	0-1'					t
		2822	yes	211	2	1-2'					Ŧ
											ţ
		483	yes		3 -	2-3'					+
	dry	859	yes		4	3-4'		SM	silty sand, 40% silt, 40% sa	and 10% mud brown,	Ŧ
	dry	473	yes		5	4-5'		SIVI	hc oder, HC stair	ns 10YR7/4	<u>†</u>
		564	no		6	5-6'					ł
		273	yes		7	6-7'				n (* 161 (* 1	Ţ
										같은 것 같아?	ţ
		785	yes		8 -	7-8'		1			t
		999	yes		9	8-9'	-				<u> </u>
	194	3066	yes		10	9-10'		1.1	silty sand 35% silt, 40% t		1
	dry	3746	yes		11	10-11'		ML	sand, 5% course grey color seems to be historic, b		t
		3584	yes			] 11-12'	-		consolidated 1		Ŧ
				1							-
- 10	dry	2655	yes		13 _	12-13'		SM	grey, stained, mc clay co	ompact 10YR 6/1	+
		3384	yes		14	13-14'		1.			<u>†</u>
	dry	3441	yes		15 -	14-15'		ML	transition to a s	silty clay	†

Image: Sec 1       Image: Sec 1 <th< th=""><th></th><th>-</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>Boring/Well #</th><th>144</th><th></th></th<>		-								Boring/Well #	144	
Date         Project # Date         Project # Date         Project # Date         Project # Date           09 19 19 19 19 19 10 10 10 10 10 10 10 10 10 10 10 10 10	M		Compli	ance "	Enaine	erina "	Remedia	atio	n	Project:		
Date         angle between the second		2	LTEnv	ironm	ental.	Inc.				Project #		
org         ju j	-											
dry         n         15         n         n         Light brown silty clay, ml compact 10YR 7/4           2886         yes         16         15-16'         ML         Light brown silty clay, ml compact 10YR 7/4           dry         1977         yes         18         17-18'         ML         light brown silty sand, loose, ml 10YR 7/4           2886         yes         19         18-19.5'         ML         light brown silty sand, loose, ml 10YR 7/4           2886         yes         19         18-19.5'         ML         light brown silty sand, loose, ml 10YR 7/4           4         28         22         1         18-19.5'         ML         light brown silty sand, loose, ml 10YR 7/4           19         18         22         1         1         12         1           21         22         1         1         23         1         1           24         23         24         25         1         1         1           28         29         30         31         1         1         1           33         34         35         36         1         1         1         1	e	0			-++-				×			
dry         n         15         n         n         Light brown silty clay, ml compact 10YR 7/4           2886         yes         16         15-16'         ML         Light brown silty clay, ml compact 10YR 7/4           dry         1977         yes         18         17-18'         ML         light brown silty sand, loose, ml 10YR 7/4           2886         yes         19         18-19.5'         ML         light brown silty sand, loose, ml 10YR 7/4           2886         yes         19         18-19.5'         ML         light brown silty sand, loose, ml 10YR 7/4           4         28         22         1         18-19.5'         ML         light brown silty sand, loose, ml 10YR 7/4           19         18         22         1         1         12         1           21         22         1         1         23         1         1           24         23         24         25         1         1         1           28         29         30         31         1         1         1           33         34         35         36         1         1         1         1	Resistance	ent	n)	ing	le #	Denth	Sample	/ery	oc			Well
dry         n         15         n         n         Light brown silty clay, ml compact 10YR 7/4           2886         yes         16         15-16'         ML         Light brown silty clay, ml compact 10YR 7/4           dry         1977         yes         18         17-18'         ML         light brown silty sand, loose, ml 10YR 7/4           2886         yes         19         18-19.5'         ML         light brown silty sand, loose, ml 10YR 7/4           2886         yes         19         18-19.5'         ML         light brown silty sand, loose, ml 10YR 7/4           4         28         22         1         18-19.5'         ML         light brown silty sand, loose, ml 10YR 7/4           19         18         22         1         1         12         1           21         22         1         1         23         1         1           24         23         24         25         1         1         1           28         29         30         31         1         1         1           33         34         35         36         1         1         1         1	sist	oist	/ap	ain	du			col	Typ	Lithe	ology/Remarks	
dry         n         15         n         n         Light brown silty clay, ml compact 10YR 7/4           2886         yes         16         15-16'         ML         Light brown silty clay, ml compact 10YR 7/4           dry         1977         yes         18         17-18'         ML         light brown silty sand, loose, ml 10YR 7/4           2886         yes         19         18-19.5'         ML         light brown silty sand, loose, ml 10YR 7/4           2886         yes         19         18-19.5'         ML         light brown silty sand, loose, ml 10YR 7/4           4         28         22         1         18-19.5'         ML         light brown silty sand, loose, ml 10YR 7/4           19         18         22         1         1         12         1           21         22         1         1         23         1         1           24         23         24         25         1         1         1           28         29         30         31         1         1         1           33         34         35         36         1         1         1         1	Res	C M	> -	St	Sa	(11. 055.)	ream	Re	Soi			Completic
dry         2886         yes         16         15-16         ML         Light brown silty clay, ml compact 10YR 7/4           dry         1977         yes         18         17-18         ML         light brown silty clay, ml compact 10YR 7/4           dry         1977         yes         18         17-18         ML         light brown silty sand, loose, ml 10YR 7/4           2886         yes         19         18-19.5*         ML         light brown silty sand, loose, ml 10YR 7/4           2886         yes         19         18-19.5*         ML         light brown silty sand, loose, ml 10YR 7/4           2886         yes         19         18-19.5*         ML         light brown silty sand, loose, ml 10YR 7/4           28         22         23         24         1         1         1           28         24         25         26         1         1         1           30         31         32         33         1         1         1           33         34         35         36         1         1         1	-+			-		15						
10       2886       yes       16       15-16'       15-16'       15-16'         11       1977       yes       18       17-18'       ML       light brown silty sand, loose, ml 10YR 7/4         10       2886       yes       19       18-19.5'       ML       light brown silty sand, loose, ml 10YR 7/4         11       2886       yes       19       18-19.5'       ML       light brown silty sand, loose, ml 10YR 7/4         12       20       21       22       23       16       17       16         12       22       23       24       25       16       17       16         13       24       25       26       27       16       17       16         14       15       26       27       17       16       17       16         15       26       27       28       17       16       17       16         15       30       31       31       16       16       16       16       16         16       16       16       16       16       16       16       16       16         16       16       16       16       16       16	-	dry				15		-	MI	Light brown silty	clay ml compact 10VR 7/4	
2322       yes       17       16-17'       ML       light brown silty sand, loose, ml 10YR 7/4         1977       yes       19       18-19.5'       ML       light brown silty sand, loose, ml 10YR 7/4         2886       yes       19       18-19.5'       ML       light brown silty sand, loose, ml 10YR 7/4         19       12       20       1       1       1         28       22       23       1       1         21       22       23       1       1         23       24       25       1       1         26       27       28       29       1       1         30       31       1       1       1       1       1         33       34       35       36       1       1       1	-	ury	2886	VAC		16	15 16		IVIL	Light brown sitty	enay, nil compact to the 74	ł
dry       1977       yes       18       17-18'       ML       light brown silty sand, loose, ml 10YR 7/4         2886       yes       19       18-19.5'       ML       light brown silty sand, loose, ml 10YR 7/4         19       21       22       23       1       1         22       23       24       23       1       1         24       25       26       1       1       1         28       29       30       1       1       1       1         30       31       32       33       1       1       1         33       34       35       36       1       1       1       1	-		2000	yes		10	15-10					
dry       1977       yes       18       17-18'       ML       light brown silty sand, loose, ml 10YR 7/4         2886       yes       19       18-19.5'       ML       light brown silty sand, loose, ml 10YR 7/4         19       21       22       23       1       1         22       23       24       23       1       1         24       25       26       1       1       1         28       29       30       1       1       1       1         30       31       32       33       1       1       1         33       34       35       36       1       1       1       1	-		2222			17						ł
2886       yes       19       18-19.5'         20       21       22         21       22         23       24         24       25         26       26         27       28         28       29         30       31         32       33         34       35         36       36	_		2322	yes	-	- 1/	H <sup>10-1</sup> /			1 C C C C C C C C C C C C C C C C C C C		-
2886       yes       19       18-19.5'         20       21       22         21       22         23       24         24       25         26       26         27       28         28       29         30       31         32       33         34       35         36       36	_		1077			10	+					ł
		dry	1977	yes		18 -	17-18		ML	light brown silty	sand, loose, ml IUYR //4	+
			0000			10						ł
			2886	yes		19 -	H18-19.5	)'				+
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	1						4					1
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30     -       31     -       32     -       33     -       34     -       35     -       36     -						28	Ц		1			
30     -       31     -       32     -       33     -       34     -       35     -       36     -	1						1					1
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		J. C.			th		1		G LOG/MONITORING	WELL COMPLETI	ON DIAGRA
a de la		-		12 Contraction	T		-	Boring/Well	I Number: HA-2	Project: OH Rar	ndel #5
28	HAR		The second	1.	R. E		-	Date:	6/29/2016	Project Number: 12910	5007
oogle oo u		The second			17161.0		A	Logged By:		Drilled By:	
evation:			Detector:					Josh Drilling Me		Josh Adams/De Sampling Method:	1
ravel Pacl	k:	_		Mi	ni Rae Lit	e	-	Seal:	Hand Auger	Grout:	Auger
asing Typ	NA								NA Length:	NA Hole Diameter:	Depth to Liquid
	NA							1	Length: NA NA	3-inch	
creen Typ	e: NA			Slot:	NA			Diameter:	Length: NA NA	Total Depth: 17.5	Depth to Water
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/R	emarks	Well Completic
		_	1		0		-				-
		0	no		1	0-1'			silty sand, 40% silt, 60%	6 sand light brown	t
	dry	0	no		2 -	- 1-2'		SM	10YR7		+
											†
		0	no		3	2-3'					
-		0	no		4 -	3-4'					Ŧ
		0	no		5	4-5'			1. 1. 100/ 11. 500/ 1	1 100/ 11/1	1
	dry	0	no		6	5-6'		SM	silty sand, 40%silt, 50% cl light brown to pale red co		' <del> </del>
		0	no	1.1	7	6-7'					Ŧ
	1.1										ţ
	- 14 F	0	no			7-8'		-			
11	dry	0	no		9	8-9'					ſ
		0	no		10	9-10'	1	SM	silty sand, 60% sand 40%		1
	maint	0	no		11	10-11'			10YR 7	//1	+
	moist					] 11-12'					Ŧ
		1.3	no			11-12 12-13'					ł
	moist	324	no			] 13-14'		SM	same lith as above, orang slight HC oder 10YR		Ŧ
		34.8	no		15	14-15'					+

	1.00								Boring/Well #		
14		Compli	ance "	Enaine	erina "	Remedia	tio	n	Project:		
	2		ironm	ental	Inc.				Project #		
-	- '			orrear,					Date		_
e a	0			-14-				×			
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	(ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lith	ology/Remarks	Well Completio
_	· .				15	1					
	moist	3.2	no		16	15-16'		SM		e, orange staining/stringers, r 10YR 7/1 and 5YR 7/8	1
		0	no		17	16-17'			ong		‡
		•	-		18						-
					19						<u>+</u>
					20					68.23.33.69.6	1
	12				21						1
					22						-
	1				23					전상 반응감	ł
					24						-
	1				25						Ŧ
	1.0				26						Ŧ
	17				27						Ŧ
	199				28						Ŧ
											ŧ
					29 30						ŧ
_					31						ţ
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					32						ŧ
					33						t
		•			34						+
					35						Ŧ
_					36						‡
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N. C. S. C.	記して		No Hora	-			0	LT Environn 848 E. 2nd A Durango, Co	ve blorado 81301	
*	and the second			d		1 and	BORIN Boring/Well	G LOG/MONITORING V	Project:	N DIAGRAM
all a start	e	-	Law.			127		HA-3	OH Rand	del #5
-	6.6	tr. Julier	E. IX		A		Date:	6/29/2016	Project Number: 12916	007
P	a Maria	· and		17:44		N		Adams/Devin Hencmann		in Hencmann
		Detector:	Mi	ni Rae Lit	e			thod:	Sampling Method:	
			IVII	III Itae Eit			Seal:		Grout:	uger
e:						-	Diameter:	Length:	Hole Diameter:	Depth to Liquid:
e:			Slot:		1.1.1		Diameter:	Length:	Total Depth:	Depth to Water:
	â		1					NA NA	10	
Moisture Content	Vapor (ppn	Staining	Sample #	Depth (ft. bgs.)		Recovery	Soil/Rock Type	Lithology/Re	emarks	Well Completion
				0						
	0	no		1	0-1'					ļ.
	0	no		2	1-2'					1
	0	no		3	2-3'					t
	0	no		4	3-4'					-
dry	0	no	. • 1	5	4-5'		SM			Ŧ
	0	no		6	5-6'			light brown 10	JYR //4	Ŧ
	0	no		7			1	6.6		Ŧ
	65	no		8	7-8'					Ŧ
	907	no	1	9	8-9'					Ŧ
	3062	Ves		10	9-10'		-			ł
	5002	905			-10			rock encountered, drilling	g advanced stopped	+
				-				1		+
	- · .			· ·						Ī
								1. E. C. S.		1
	1									+
	Moisture W A A Content	NA NA NA NA Content NA (udd) NA (udd) NA NA NA (udd) 0 0 0 0 0 0 0 0 0 0 0 0 0	NA NA NA NA NA NA Content NA NA NA NA NA NA NA NA NA NA	Mi         NA         NA         NA         NA         NA         NA         NA         Slot:         NA         Moistine         NA         NA	Mini Rae Lit         NA       Slot:         NA       NA         NA       NA         NA       NA         NA       NA         NA       NA         Image: NA       O         NA       NA         Image: NA       Optimized in the set of the s	Mini Rae Lite         Mini Rae Lite         NA       NA         Slot:         NA       NA         Main Iter       Slot:         NA       NA         Sample       One fit. bgs.)         Mini Rae Lite       One fit.         NA       NA         Main Iter       Slot:         NA       One fit.         Main Iter       One fit.       One fit.         Main Iter <th< td=""><td>Mini Rae Lite         Mini Rae Lite         NA       NA         NA       NA         NA       NA         NA       NA         Mini Rae Lite       NA         NA       NA         NA       NA         Mathematical Solution       Slot: NA         NA       Openth (ft. bgs.)       Sample Run       Slot: Run         O       no       1       0-1'       0</td></th<> <td><math display="block">\begin{array}{c c c c c c c c c c c c c c c c c c c </math></td> <td><math display="block">\begin{array}{c c c c c c c c c c c c c c c c c c c </math></td> <td></td>	Mini Rae Lite         Mini Rae Lite         NA       NA         NA       NA         NA       NA         NA       NA         Mini Rae Lite       NA         NA       NA         NA       NA         Mathematical Solution       Slot: NA         NA       Openth (ft. bgs.)       Sample Run       Slot: Run         O       no       1       0-1'       0	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	

		- De		The state			ENUM AND	Ľ	LT Environn 848 E. 2nd A		mediation
2 Ca	i T	Later			A			BORIN	G LOG/MONITORING V	VELL COMPLETI	ON DIAGRA
		TA		Y.	1		24	Boring/Well	Number: HA-4	Project: OH Rat	ndel #5
23							-30	Date:		Project Number: 1291	
		ano T		N. N.	Franktin at	173	x	Logged By:		Drilled By:	
evation:	all the	an inger	Detector:		e interest			Josh Drilling Met	Adams/Devin Hencmann	Josh Adams/De	vin Hencmann
				Mi	ni Rae Lit	e			Hand Auger	Hand	Auger
ravel Pacl	k: NA	1						Seal:	NA	Grout: NA	
asing Typ	NA							Diameter:	Length: NA NA	Hole Diameter: 3-inch	Depth to Liquid
reen Typ	e:	2.2		Slot:	LA			Diameter:	Length:	Total Depth:	Depth to Water
	NA	(۲			JA				NA NA	13	
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Re	emarks	Well Completio
11					0						
-		0	no		1 -	0-1'		1.1			+
			no								†
		0	no		2 -	1-2'					+
100		0	no		3	2-3'					1
		0	no		4	3-4'					+
		0				4-5'		SM	silty sand, 40% silt, 50% cl	ean sand 10% lithics	Ţ
	dry	0	no		5 -	4-5		SM	light brown 10	)YR 7/4	+
		0	no		6	5-6'					Ŧ
		0	no		7	6-7'		-			1
1	-	0	no		8	7-8'		- 14	1. S. T. S. S. M.		+
_		0	no		9	- 8-9'		1.0			Ŧ
								21			1
		0	no		10	9-10'	-				+
	moist	0	no		11			ML	silty/clay rich sand, cohesiv 7/4	e, light brown 10YR	Ŧ
1		0	no		12	-					†
	moist	0	no		13	-		SM	silty sand, 40% silt, 50% cl light brown 10		+
					14	-					+
											1
100					15		1				<u> </u>

	10	A					院にある	Ľ	LT Environi 848 E. 2nd		nediation
2	2 5				A			BORIN	G LOG/MONITORING	WELL COMPLETIC	N DIAGRA
	X	-		No.	1		1.1	Boring/Wel	I Number: HA-5	Project: OH Ranc	lel #5
221			and the second		7 . E	教につい	-	Date:	7/5/2016	Project Number: 12916	007
.cogk en		San Martin	and a		171314		A-'	Logged By:		Drilled By: Josh Adams/A	lex Crooks
Elevation:			Detector:	Mi	ni Rae Lit	e		Drilling Me	thod: Hand Auger	Sampling Method: Hand A	uger
Gravel Pac		-		IVII	III I Cue Die		-	Seal:		Grout:	4501
Casing Typ			-		1		-	Diameter:	Length:	NA Hole Diameter:	Depth to Liquid
Screen Typ	NA e:			Slot:				Diameter:	NA NA Length:	3-inch Total Depth:	Depth to Water:
sicon ryp	NA				JA				NA NA	21.5	- opin to trutt
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/F	Remarks	Well Completio
	dry	0	no		0	0-1'		SM	silty sand with some grave 5% gravel med-fine grain red brown 2.	ned subrounded, pale	-
		0	no		3	2-3'					-
	dry	0	no		4	3-4'		SM	Same as above except no silt 2.5YI	-	Į.
÷.,†.,		0	no		5	4-5'					ł
	dry	0	no		6	5-6'		SM	fine grained silty sand		-
	1.1	0	no	-	7	6-7'			subrounded, light gold	den tan 10 f K 7/6	†
	dry	0	no		8	- 7-8'		SM	silty sand with clay 60% sand light tan grey		-
	260	0	no		9	8-9'					†
		0	no		10	9-10'			4.2		÷
	dry	0	no		11	10-11'		SM	same lith as above, orang 10YR 7/2 and		ŧ
	2	0	no			11-12' 					
		164	no		13	12-13'			1	1000/ 11.1001	
	dry	427	no		14	13-14'		SM	silty sand with clay 60% savery fine to fine grained	d sand, dark golden	t
		2241	ves		15	14-15'		1.1.1.1	brown 10Y	r K 6/8	Ť i

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	-								Boring/Well #		
1		Compli	ance "	Engine	ering " l	Remedia	tio	n	Project:		
	2	LT Env	/ironm	nental,	Inc.				Project #		
-	_						_		Date		
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)		Recovery	Soil/Rock Type	Lithe	ology/Remarks	Well Completion
1	1.1	<u>_ 1</u> 1			15				Sec. Sec. 1		
		2356 2017	yes yes		16	15-16'			increase in clay o	content, silty sand with clay	-
25	dry	1857	yes		18	17-18'		ML		silt 15%clay, no staining	Ì
		1993	yes		19	18-19'					ł
	dry	2168	yes		20 _	19-20'		SM		ay 60% sand, 30% silt, 10% t tan grey 10YR7/2	-
		1922	yes		21	20-21.5	'		silty sand with gra	vel 55% sand 35% silt, 10%	
	dry	1116	yes					SM	gravel well rounde	ed, very fine to fine grainded	Ť.
-	-				22					brown grey 10YR 7/2 I, drilling advance stopped	
-		· .				H			TOCK encountered	, urnning advance stopped	+
					23						+
						H I					+
				1.1	24	†I					†
	·	1.1				Π					T .
				-	25	Ц					
1.1		× 4 - 4									Ļ
					26	H			1		+
	1	1.1.1			27	+			1.1.1.1.1.1.1.1		+
		-			27 -	H					+
-					28	+					+
	-					H					+
1					29	t I					†
						Π					Τ
	1.1				30	Ц				이 전 문화가 많이 많이 봐.	1
-						4		1	1 <b></b>		Ļ
					31 -	H			1.		+
	11		-			+			1.1		Ļ
					32	H					-
					33	+					ł
-						H					+
		- 1 -			34	+					†
	- 1				-	Ħ			1.16		†
-					35				1.1	정상에는 특성	1
	7	•			36						1
	14				37	-					+

	In			The diversity			Set all a set	Ľ	LT Environr 848 E. 2nd A		mediation
	i T	B. T.			- de	Constant of		BORI	NG LOG/MONITORING	WELL COMPLETI	ON DIAGRA
a de la compañía de la		TU	CMO	Y	all a			Boring/We	ll Number: BH-6	Project: OH Ran	del #5
23			ALL			1.15	-	Date:		Project Number:	
		345					4-	Logged By	8/2/2016	Drilled By:	5007
evation:	and the same	the series	Detector:		1 That			Jos Drilling Me	h Adams/Devin Hencmann	Louis T Sampling Method:	rujillo
-			Delector.	Mi	ni Rae Lit	e			Geo Probe	Contir	iuous
avel Pack	NA	1.1						Seal:	NA	Grout: NA	
asing Type								Diameter:	Length: NA NA	Hole Diameter: 3-inch	Depth to Liquid
een Type		-		Slot:	JA			Diameter:	Length: NA NA	Total Depth: 18	Depth to Water
Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/R		Well Completio
					0			SM			
		0	no	12.1	1	0-1'					+
	1	0	no		2	1-2'					T
			110								†
	<sup>2</sup> ,	0	no		3 -	2-3'				Gran and 100/ lithing	+
	dry	0	no		4	3-4'			silty sand, 40% silt, 50% silty sand, 40% silty silty silty sand, 40% silt, 50% silty sand, 40% silty sand, 40% silty silty sand, 40% silty silty silty sand, 40% silty		+
	Tr.	0	no		5	4-5'			1.112		1
		0	no		6	5-6'					t
-		0	no		7	6-7'					Ŧ
_		1034	yes		8	7-8'					Ŧ
		3128			9	8-9'					+
			yes						1.1.1.1.1.1.1.1.1		1
		2390	yes		10	9-10'	-		silty sand, 30% silt, 30%	fine sand, 30%med	
i.	dry	3010	yes		11	10-11'			sand 10% lithics light		‡
		2654	yes		12	11-12'					†
		1884	yes		13	12-13'			6 L 2 L 7 L 7		+
	dry	1927	yes			13-14'			silty sand 45% silt 50% fill light grey brown		+
_		3025	yes		15	14-15'			ingin grey brown	1101K //2	1

	-								Boring/Well #		
1-		Compli	ance "	Engine	ering " l	Remedia	tio	n	Project:		
4	-	LT Ėnv	vironm	ental.	Inc.				Project #		
_									Date		
Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lith	ology/Remarks	Well Completio
					15	1					
	dry	2390	yes		16	15-16'				50% fine sand 5%med sand y brown 10YR 7/2	
_		2425	yes		17	16-17'				-	-
		1922	yes		18	17-18'					-
					19         20         21         22         23         24         25         26         27         28         29         30         31         32         33         34         35					efusal at 18'	
_					36						ŧ.
_	1.00				37	tl					†

	- Inite	A					EN INTERNA	Ľ	LT Environ 848 E. 2nd		nediation
			ex.		d		1		G LOG/MONITORING		ON DIAGRA
	Y Y	a-	and the second	12 contractions	1		121	Boring/Well	Number: BH-7	Project: OH Ran	del #5
28				Terr		書:公	1	Date:	8/2/2016	Project Number: 12916	007
oogle ear	un de			R.S.	1791612	2 ist	A	Logged By:	Adams/Devin Hencmann	Drilled By: Louis Tr	miillo
vation:			Detector:					Drilling Met	hod:	Sampling Method:	
avel Pacl				Mii	ni Rae Lit	e	-	Seal:	Geo probe	Grout:	uous
sing Typ	NA e:		44	_	-		-	Diameter:	Length:	NA Hole Diameter:	Depth to Liquid
reen Typ	NA			Slot:			_		NA NA Length:	3-inch Total Depth:	Depth to Water
een Typ	NA				IA				IA NA	1 otal Depth: 12	Deput to water
Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/F	Remarks	Well Completic
					0	0-1'	N R		no reco	very	
	dry	108 3.5	no		$\begin{vmatrix} 3 \\ -4 \end{vmatrix}$	2-3' - 3-4'		SM	silty sand with gravel , 60 gravel light brow		ŧ
					5	4-5' 5-6'	NR		no recov	very	
	dry	13.9 34	no no		7 _	6-7' 7-8'		SM	silty sand 40% silt, 30% sand minor course light		+
	dry	1805 3159 3128	yes yes yes			8-9' 9-10' 10-11' 11-12'		SM	silty sand 30% silt 30% sand minor course, HC o 10YR	oder light grey brown 7/2	
						-			refusal a	t 12'	+

				11.673	E.		No. 1 Miles	Ľ	LT Environn 848 E. 2nd A		ediation	
	in the	J.		EDO	t		-		G LOG/MONITORING		N DIAGRA	
	**	A.		1. Ser	T		1	Boring/Well	Number: BH-8	Project: OH Rand	lel #5	
28					Fr E		1	Date:	8/2/2016	Project Number: 12916007		
cogle este	27	- Series			12:01		A-N	Logged By:		Drilled By:		
evation:		P. 7 6	Detector:		A ANTIN			Drilling Met	thod:	Louis Tru Sampling Method:		
avel Pack				Mi	ni Rae Lit	e		Seal:	Geo probe	Grout:	ious	
asing Type	NA		1				-	Diameter:	VA Length:	NA Hole Diameter:	Depth to Liquid	
	NA			<u>Elat</u>		1.1		N	NA NA	3-inch		
reen Type	NA	1.1		Slot:	JA			Diameter:	Length: NA NA	Total Depth: 16	Depth to Water	
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/R	emarks	Well Completio	
_					0							
-			1		1	0-1'	N					
					2	1-2'	R		no recov	very	F.	
									1.		-	
		0	no		3	2-3'		614	silty sand with surface grav	vel light brown 10YR		
_	dry	3	no		4	3-4'		SM	7/4		1	
		11			5	4-5'	NR		no recov	erv -	Ĺ	
		11			6	5-6'					+	
		5.3	no		7	6-7'						
_	dry	1.5	no		8	7-8'		SM	silty sand 60% sand 40% s	silt light brown 10YR	1.1.5	
	ury	2	no		9 -	8-9'		SIVI	7/4		+	
			10.									
		2.2	no	-	10	9-10'						
		468	no		11	10-11'					F	
	34	772	no		12	11-12'				1.4004	†	
	moist		1. T		13	12-13'		ML	silty sand with clay 50% clay, light grey bro			
1		0.5							,		ţ.	
		88	no		1.4	13-14'		1 A I				
			1.1		15	14-15'					t i	

-									Boring/Well #		
	Compli	ance "	Engine	ering "	Ren	nedia	tio	7	Project:		
LZ	LTEN	ironm	ental	Inc.					Project #		
_									Date		
2			74					×		-	
Moisture	n)	Staining	Sample #	Depth	Sar	mple	Recovery	Soil/Rock Type			Well
Dist	Vapor (ppm)	ain	du	(ft. bgs.)		lun	100	Type	Lith	nology/Remarks	Completio
U M	> 5	St	Sai	(n. 0gs.)	1	Guil	Re	Soi			Compictio
				15	the state						_
moist				15	₩		_	ML		y 50% sand 40% silt 10% clay -	
Inoist	3125			16	+	5-16'		IVIL	, light gr	rey brown 10YR 7/2	-
-	3123	yes		10	115	9-10			refusal at 16'		
	- 1 s <sup>21</sup> s	10 10		17	+1	1.1			relusar at 10		-
-		1.0		17 -	H						-
-				18	+1						-
-				10 -	H					-	-
-				19	+1						-
-				19 -	H					-	-
				20							
-				- 20	╢					and the first of the	-
-				21	+I						-
-				- 21	H						-
-				22	+I						+
-	<sup>-</sup> -			- 22	H						-
-				23	+1						
-				- 23	H						-
-				24	+I						-
-					H					-	-
-				25	ŧI.						
-					H					-	-
-	1.1			26	<u>†</u>	·					ł
-	1.0			- 20	H					-	-
-				27	†I	× . 1					-
-					H					-	-
-				28	†I –						
-										-	-
-				29	<b>†</b>						
-					H					-	-
-				30	†I						-
				-	Ħ						
-				31	†I						
					1						
-		1.1		32	+I						+
-				52 -	H					· · · · · · · · · · · · · · · · · · ·	-
1.1				33	tl I						-
-				-	H						-
-				34	tl I	-					
-				-	H					-	-
-				35	†I						
-					H					-	-
-				36	tl -						
-				- 30	H						
				37	tl I						
	1	_		31							

	I			The contraction			BUILT	Ľ	LT Environn 848 E. 2nd A		nediation
1		J.T.			t			BORIN	G LOG/MONITORING	WELL COMPLETIC	ON DIAGRA
		H a		A State	1		and and	Boring/Well	Number: BH-9	Project: OH Rand	del #5
28.3				Her.	7 · · · ·	書:云		Date:	8/2/2016	Project Number: 12916	007
cogle cost	2 Tanu	The Martin	A.		175.61	211	Art	Logged By: Josh	Adams/Devin Hencmann	Drilled By: Louis Tr	1.000
levation:			Detector:		. D. 1			Drilling Me	thod:	Sampling Method:	
ravel Pack			-	MI	ni Rae Lit	e	-	Seal:	Geo probe	Grout:	uous
asing Typ	NA e:							Diameter:	VA Length:	NA Hole Diameter:	Depth to Liquid
	NA			01				1	NA NA	3-inch	-
creen Typ	e: NA			Slot:	NA	1.74		Diameter:	Length: NA NA	Total Depth: 16	Depth to Water
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/R	emarks	Well Completio
					1	0-1' 1-2' 2-3'	N R		no recov		+
	dry	0	no		4	3-4'		SM	silty sand with surface grav 7/4	vel light brown 10YR	+
		0	no		5	4-5'		÷			-
	1	0	no		6	5-6'					†
-		0.4	no		7	6-7'					
-	dry	0.6	no		8	7-8'		SM	silty sand 40% silt 40%		t
	ury	0	no		9	8-9'		Givi	sand light brown	n 10YR7/4	†
	1	3.7	no		10	9-10'					+
		13.5	no		11	10-11'					+
1		776	yes		12	11-12'					†
		1927	yes		13	12-13'	1		1	00/ 6	1
	dry	2355	yes		14	13-14'		SM	silty sand 50% med sand 2 light grey 10YR7/2 hc		†
1		2114	yes		15	14-15'					+

									Boring/Well #		
_	-										
1	-	Compli	ance "	Engine	ering " l Inc.	Remedia	atio	n	Project:		
		LTEN	ronm	iental,	Inc.				Project #		
									Date		
Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lith	ology/Remarks	Well Completion
					15					1 1000/ 0 1000/	
	dry		6.4.					SM		ed sand 20% fine sand 30% · YR7/2 hc oder and staining	+
-	-	2413	yes		16	15-16'				5	-
_	1	1.1			17	-			refusal at 16'		+
_					18	-					+
					19						+
					20	-					÷
					21	H			1		-
-					22						+
					-						T I
					23					이는 것 같은 것 같아요.	Ţ
_					24						ł
											Ţ
_		_			25						+ .
	19	- <u>-</u>			26						1
_					27						ŧ.
					28						1
					29						1
_					30						1
	-				31		-			이 관계 말했	+
					32	-			-		+
	-				33	-					±
					34			1		606529	1
_		_			35	-		1			1
	-				36	-		- C			1
_	1.			1 <b>1</b>	37	-		-1-1			+
_	1.1										

A an	40			A III A			11111	0		olorado 81301	
		and the se		AT THE	d			BORIN Boring/Well	G LOG/MONITORING		N DIAGRA
	*		and a	P.C.	1		A. S. S. S.	Boring/ well	BH-10	Project: OH Rand	lel #5
28.3	No. Co		The second	To	The second	語にな	1	Date:	8/2/2016	Project Number: 129160	07
xogle es te		A.			1-24-161		A	Logged By:		Drilled By:	e the second
evation:		an alex	Detector:		A L'ADDAG		AND A	Josh Drilling Me	Adams/Devin Hencmann	Louis Tru Sampling Method:	ijillo
avel Pacl		-		Mi	ni Rae Lit	e	_	Seal:	Geo Probe	Grout:	ious
	NA			1				1	JA	NA	
ising Typ	e: NA							Diameter:	Length: NA NA	Hole Diameter: 3-inch	Depth to Liquid
reen Typ				Slot:	NA			Diameter:	Length: JA NA	Total Depth: 12	Depth to Water
Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery		Lithology/R		Well Completic
					0						
		0	no		1	0-1'			1		t
		0	no		2	1-2'					-
		U	no								
_		0	no		3	2-3'			A. 1997 A. 1997		-
	dry	0	no	-	4	3-4'		SM	silty sand, 40% silt, 509 surface gravel light b		ţ.
		0	no		5	4-5'			Survey Stater light 0		+
					]	T .					F I
-		0	no		6 -	5-6'					-
		0	no		7	6-7'			1. 1. 1. 1. A. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.		Į.
		0	no		8	7-8'					
		0	no	1.1	9 -	8-9'					-
			110	-							
	dry	0	no		10	9-10'		ML	silty sand with clay 50% sa cohesive, light gr		
		0	no		11	10-11'			concerve, ngit gr	-	ţ .
	·	0	no		12	11-12'		•	1		
									refusal at	: 12'	-
											L

学校でに	5							J	LT Enviror 848 E. 2nd	e " Engineering " Rem nmental, Inc. J Ave Colorado 81301	nediation
		agit -		1 th		1. 2 a 14		BORING	G LOG/MONITORING	WELL COMPLETIO	N DIAGRAM
				J.		Alt for		Boring/Well 1	Number: BH-11	Project: OH Rand	lel #5
			the states					Date:		Project Number:	1000
24			12.	74				Logged By:	4/19/2017	Drilled By:	007
levation:		and she	Detector:	No. St.	2 22	Constrainty		Drilling Meth	D. Burns	GEOM Sampling Method:	IAT
	6,424'			Mini I	Rae Lite I	PID			Hollowstem Auger	2' Split S	poon
ravel Pac	k: NA							Seal: N	A	Grout: NA	10 C
asing Typ	pe: NA							Diameter: N	A Length: NA	Hole Diameter: 6.25"	Depth to Liquid: NA
creen Typ				Slot:	IA			Diameter:	Length:	Total Depth: 25'	Depth to Water: NA
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)		Recovery	Soil/Rock Type	Lithology/		Well
-					0						Bentonite
	Dry	0.0	No		1	-		SW- SM	Well graded SAND	with silt, 10 YR 4/3	Cap
_	Dry	0.0	No	BH-11	-			SM	SILTY SAND vellow	II TY SAND vellowish grev 2.5 VR 6/3	
	Diy	0.3	No	0-10'	5 -			Sivi	SILTY SAND, yellowish grey, 2.5 YR 6/3		
	Dry	0.3	No		7	-		SM	Dense, SILTY SAND, 1	greyish brown and tan	Cuttings
	Dry	0.0	No		10	+		0.7			ŧ
	Dry	0.3	No	BH-11 10-15'	12	Ī	SP Coarse S		Coarse SAND, orangish tan (oxidized)		ŧ
					13	+	1	SP	Medium to coarse S	SAND, greyish tan	ŧ
	Dry	0.3	10		15	+		ML	SILT with SAND	, brownish olive	Ŧ

-								Boring/Well #	BH-11	
2/00	omplia	ance "	Engine	ering " I	Remedia	tio	n	Project:	OH Randel #5	
Z L1	T Env	ironm	nental,	Inc.				Project #	12916007	
-			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					Date	4/19/2017	
Moisture Content	v apor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Litho	ology/Remarks	Well Completion
				15 16			ML	SILT with SAN	D, brownish red and olive	
Dry	0.5	No BH-11 15-20'		17 18 19 20	-		ML	SILTSTONE with	sand, gray, lightly cemented	- Cuttings
Dry	0.6	No	BH-11 20-25'	20 21 22 23						- - - Hydratec
				24 25	-		SP-SM		ight brown and tan, some	- bentonit - chips
				26       -         27       -         28       -         29       -         30       -         31       -         32       -         33       -         34       -         35       -         36       -         37       -						

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1. The second se	in the	all -		- al		L'AN			G LOG/MONITORING		ON DIAGRAM
			1		1.257			Boring/Well	Number: BH-12	Project: OH Ran	del #5
1		T- +	A State	1 atting				Date:	4/19/2017	Project Number: 12916	5007
The second	-	The state		104		NATE OF		Logged By:	D. Burns	Drilled By: GEON	ЛАТ
Elevation:	6,424'		Detector:	Mini I	Rae Lite	PID		Drilling Meth		Sampling Method: 2' Split	
Gravel Pac	k:	-		IVIIIIII	the Litte			Seal: N		Grout: NA	Spoon
Casing Typ								Diameter:	Length:	Hole Diameter:	Depth to Liquid:
Screen Typ				Slot:				N Diameter:	Length:	6.25" Total Depth:	NA Depth to Water:
	NA	(		N	A			N	A NA	35'	NA
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/	Remarks	Well Completion
					0						
	Moist	0.1	No		1	+					ļ
		_									‡
-	Moist	0.0	No		3			1			
		0.0	110		4 -	H		SP-SM	Medium grained SANI brown, some carbon		+
		_		BH-12 0-10'	5	H					Ŧ
			1		6	ŧ.		-			†
1	Dry	0.8	No		7						± 1
		0.0	110		8	+					+
			1.1	••••	9				and shares in the	1	ļ.
	Dry	51.4	Slight								1
			Odor		10						
	Dry	656	Slight Odor	BH-12	11 12			SP-SM	SILTY SAND, light g moderate sweet de		Ī
	-			10-15'	13	T					Ţ
	Dry	1,001	Mod. Odor	-	14						† +
-					15	11				and the second s	

	-								Boring/Well #	BH-12	
1		Complia	nce " E	Enginee	ring "R	emediat	tion		Project:	OH Randel #5	
1	2	LT Envi	ronm	ental, I	nc.				Project #	12916007	
_		100.45.1	(41 - 7)	1. 101				-	Date	4/19/2017	
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithc	ology/Remarks	Well Completio
	C				15						
					16	-			N	o recovery	
			1.1	BH-11 15-20'	17						
_	11			10 20	18			-			
	Dry	73.1	No		19	-		ML	oxidation and	ND, brownish gray with some cementation, mild	-
	1.1.1	1.1.1			20		2		nyar	ocarbon odor	
					21	-					-
				BH-11	22				N	o recovery	ŧ.
				20-25'	23						
	Dry	269	No		24			SP-SM	SAND with SII	LT, light tan, slight odor	
					25						
					26				N	o recovery	
				BH-12 25-30'	27 28	-					-
-	Dry	1,904	No		29	-		SP-SM	SAND with SII	LT, light tan, slight odor	
					30	H					-
					31	-			N	o recovery	
					32	$\left  \right $					+
					33	-		SP-SM		coarse grained, light tan to ith gravel, oxidation, lenses -	
-	Dry	1,632	No	BH-12 30-35'	34			St. Miri		oderate odor.	
				30-35	35	-		SW	Coarse SANDSTONE, weathered, medium dense		F
					36	-					-
					37	-	1	•			ł

			and the second s			1		Ġ	LT 84	Environn 8 E. 2nd A	Engineering <sub>«</sub> Rem nental, Inc. Ave plorado 81301	nediation
E.C.		and a		1 AL		2 3 4 3		BORIN	G LOG/MON	ITORING V	WELL COMPLETIC	ON DIAGRAM
	N. P.			T				Boring/Well	Number: BH-13		Project: OH Rand	lel #5
								Date:	4/19/2017	7	Project Number: 12916	
		-	st.	1 A				Logged By:			Drilled By:	
Elevation:		A AN A A A A A A A A A A A A A A A A A	Detector:	Carlos K.			_	Drilling Met			GEOM Sampling Method:	1.00
Gravel Pac	6,424'	-		Mini F	Rae Lite	PID	_	Seal:	Hollow Stem	Auger	2' Split S Grout:	poon
1	NA								IA		NA Hole Diameter:	Depth to Liquid:
Casing Typ	NA							N	Length	NA	6.25"	
Screen Typ	NA		11	Slot: N	A			Diameter:	Length	NA	Total Depth: 35'	Depth to Water:
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery			Lithology/R		Well Completion
					0				-			·
					1	+				No Recov	very	+
	Moist	0.1	No		3	+		SP-SM	SAND	with SILT, r	reddish brown	
1 . 1				BH-12	5	+			SAND with S	LT. olive br	own, trace carbonate	ł
				0-10'	6 _ 7 _ 8 9 _	+				No Recov		
	Moist	0.7	No		10	+		SP-SM	SANI	) with SILT,	olive brown	}
				BH-12 10-15'	11 12 13	+				No Recov	very	
	Dry	1.4	No		14 15	+		SP-SM	SAND with	SILT, light g	gray with oxidation	ł

	-								Boring/Well #	BH-13	
Compliance " Engineering " Remediation									Project:	OH Randel #5	
L	2	LT Envi	ironm	ental, l	nc.		Project #	12916007			
						[	Date	4/19/2017			
Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Litho	logy/Remarks	
					15						
-			-		16	-				1	
		- 1		BH-11	17				No	Recovery -	
		1.1		15-20'	18	-				Ţ	
			No		19			SP-SM	SAND with SU T	, brownish gray and olive	
	Dry	68.1									
		-			20		_	ML	SILT with SA	ND, light grayish olive	
					21	-				<u> </u>	
		•			22				No	Recovery	
			BH-11 20-25'	23	-						
	Dry	3,040	No	20 25	24	-		SP-SM	SAND with SILT, light olive and brown,		
	,				25			01 0111	mo	derate odor	
_			-		25						
					26				No	Recovery -	
	· · · ·			BH-12	27						
				25-30'	28	-				-	
-	Dry	2,562	No		29	-		SP-SM		SAND with SILT, brown, derate odor	
						-					
					30				171		
					31				N	o recovery	
				BH-12 30-35'	32						
			1.1		33						
		Dry 1,694							Medium to coarse grained SAND with GRAVEL, very light gray	rse grained SAND with	
	Dry		No		34			SW			
			i se e di		35		_				
					36					1	
-		1.1			37	-				ł	
-							_				

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1								BORING LOG/MONITORING WELL COMPLETION DIAGRA					
				T	1.1.12			Boring/Well	Number: BH-14	Project: OH Rar	ndel #5		
								Date:	4/19/2017	Project Number:			
		and in the	at.	1 AN				Logged By:		Drilled By:			
Elevation:	and the second second	A AN C WA	Detector:	ALA X	2 Fride			Drilling Met	D. Burns	GEON Sampling Method:			
Gravel Pac	6,424'			Mini F	Rae Lite I	PID	_	Seal:	Hollow Stem Auger	2' Split Grout:	Spoon		
	NA		_					N	IA	NA	Death to Use id		
Casing Typ	NA		1.1						Length: NA NA	Hole Diameter: 6.25"	Depth to Liquid: NA		
Screen Typ	ne: NA			Slot: N	A			Diameter:	Length: JA NA	Total Depth: 25'	Depth to Water: NA		
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery			y/Remarks	Wall		
					0								
					1				No R	ecovery	İ		
					2			-	a second second		Ŧ		
					3						±.		
-	Damp	0.0	No		4	$\left  \right $		SP-SM	SAND with SIL	T, reddish brown	+		
				BH-14					CAND with CUT I	warm trace carbonate	- <b>†</b>		
				0-10'	5				SAND with SIL1, c	brown, trace carbonate	+		
1					6 _			1. A.			÷		
					7				No R	ecovery	1		
1					8						+		
				-	9 -	H					Ŧ		
	Dry	0.0	No		10	-		SP-SM	Medium grained SA	ND with SILT, brown			
			-		11								
			1.1			t l					<b>†</b>		
4.00 A				BH-14	12				No R	ecovery	+		
				10-15'	13	t I					‡		
			÷		14						+		
	Dry	0.1	No		15	•		SP-SM		y, some cementation and dation	1		

									Boring/Well #	BH-14	
1		Complia	nce " E	Enginee	ring " R	emediat	ion		Project:	OH Randel #5	
4	2	LT Envi	ironm	ental. I	nc.				Project #	12916007	
-	-								Date	4/19/2017	
e	0			**				×			
Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithol	ogy/Remarks	Well Completic
					15						
					16					_	
				BH-14	17				No	Recovery	-
				15-20'	18				(	-	-
			1.12		19		_				-
3 1 - 5	Dry	231	No		20			SP-SM	SILTY SANI	D, light grayish olive	-
					21				No	Recovery -	-
_				DU 14	22	-					-
	Dry	9.1	No	BH-14 20-25'	23	-		ML		gray with oxidation, partial n, light salty odor	-
	Dry	16.0	No		24	-		SP-SM	SILTY SAND, lig	- ht grayish brown, no odor	-
			_		25	-					
					26	-			- 1		-
					27	-			1.		-
1					28	-					-
					29					-	-
	-		- 1		30				111	-	-
-					31				100	-	-
					32						-
					33					-	-
					34						-
					35					-	_
-					36					-	-
	1				37						

		B	A A A A A A A A A A A A A A A A A A A				E'link / and	Ľ	LT Enviror 848 E. 2nd	e " Engineering " Ren nmental, Inc. Ave Colorado 81301	nediation
	2 1				th				G LOG/MONITORING		ON DIAGRA
and the second		NH .	ine 		1			Boring/Well	Number: BH-15	Project: OH Rand	del #5
28			- Aller			S and a start	3	Date:	4/20/2017	Project Number: 12916	007
cogle es u	-	3			Strain a			Logged By:		Drilled By:	
evation:		and the second	Detector:	1	C I Delle Alle			Drilling Met	D. Burns	GEON Sampling Method:	IAT
avel Pacl	6,424'			Mini F	Rae Lite	PID	_	Seal:	Hollow Stem Auger	2' Split S Grout:	Spoon
	NA		_					N	IA	NA	
asing Typ	e: NA							Diameter:	Length: IA NA	Hole Diameter: 6.25"	Depth to Liquid NA
reen Typ				Slot:	A			Diameter:	Length: IA NA	Total Depth: 35'	Depth to Water NA
Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology	/Remarks	Well Completio
-		-	-		0		-				
					1	ŧ.					‡
	1.1				2						<u>t</u> .
	21	-			3	$\left  \right $					ł
	Moist	0.4	No					SP-SM	SAND with SILT	, reddish brown	Ŧ
					4 -	H					t
	-		_	BH-15 0-10'	5		-				Ŧ
	1.1			0.10	6			-			<u>t</u>
-	-	1			7			CD CL	Medium grained SAN	D with SILT, reddish	ł
				1	8	T]		SP-SM	brov		Ŧ
	Moist	1.8	No			L I					†
	D	2.040	V		9						
1.4	Dry	2,949	Yes		10	T			SILTY SAND, oxidatio	n and carboante. Light	Ī
				1	11	t		ML	gray to		1
	1	1 I I I			12	$\left  \right $		1.1.			+
	(1, 1)			BH-15				1.1		1	ļ .
	Moist	3,386	Yes	10-15'	13 14			SP-SM	Medium grained SILTY dark g		ŧ
	Moist	2,785	Yes		15						Ţ

	-								Boring/Well #	BH-15	
1		Complia	nce " I	Enginee	rina " R	emediat	ion		Project:	OH Randel #5	
L	2	LT Envi	ronm	ental I	nc				Project #	12916007	1.1
~				critary n					Date	4/19/2017	
e	0			++				×			
Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Litho	ology/Remarks	Well Completic
		6 T			15			-		a ser a s	-
	-				16						ţ
				BH-15	17			ML	SILTY SA	ND, brownish olive.	ŧ
	-	1		15-20'	18						ţ
_					19						+
	Dry	2,479	Yes		20						
		10			21						1
		_			22						+
				BH-15 20-25'	23			ML	SILTY SAN	ND, olive gray brown.	†
	Dry	2,192	No		24			11			+
_		•	-		25						+
					26						+
					27						+
	- 1			BH-15	28						+
	Dry	2,568		25-32'	29						+
1					30				Possible slough	mix of light brown SILTY	+
	Dry	1,051	No		31				SAND and uncosol	lidated brown and tan coarse sand.	ŧ
					32						+
					33						ŧ
1					34			1			Ŧ
					35			ан. 191			Ŧ
					36			÷			Ŧ
					37	TI I					T





Compliance <sub>\*</sub> Engineering <sub>\*</sub> Remediation LT Environmental, Inc. 848 E. 2nd Ave Durango, Colorado 81301

# BORING LOG/MONITORING WELL COMPLETION DIAGRAM Boring/Well Number: Project:

10	2.00	C. C		- GL		A. A.			_	OG/MONTORING (		ION DIAGRAM
		4	Jan Barris	P	- total			Boring/Well	Num	BH-16	Project: OH Ra	ndel #5
				-				Date:	-	4/20/2017	Project Number: 1291	6007
		-	st	100				Logged By:		D. Burns	Drilled By: GEO	
Elevation:	A COLORED OF	AN AN	Detector:	AND NO.		Contraction - 1	-	Drilling Met	thod:	D. Burns	Sampling Method:	MAI
	6,424'			Mini F	Rae Lite F	PID		1.1	Hol	low Stem Auger	2' Split	Spoon
Gravel Pac	k: NA							Seal:	NA		Grout: NA	
Casing Typ	be:			_				Diameter:		Length:	Hole Diameter:	Depth to Liquid:
Screen Typ	NA be:			Slot:			-	Diameter:	NA	Length:	6.25" Total Depth:	NA Depth to Water:
	NA			N	A		_		NA	NA	35'	NA
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	PID Composite	Recovery	Soil/Rock Type		Lithology/R	emarks	Well Completion
		-			0		-					
					1					No Recov	very	Ī
		1.4			2	-						+
				]		-				1982 - 1987 - 1988 - 1988 - 1988 - 1988 - 1988 - 1988 - 1988 - 1988 - 1988 - 1988 - 1988 - 1988 - 1988 - 1988 -		T
	Der	0.7	No		3 _	H		SP-SM		SAND with SILT, r	addich broum	
	Dry	0.7	No		4			SP-SM		SAND with SILT, I	eddish brown	1
				BH-16	5 -	- 25.0						+
				0-10'		35.8				No Peco		-
					6 -	H			٠.	No Recov	very	1.0
				1	7							
					8 -			CD CM		CAND with CULT		+
	Moist	164	no					SP-SM		SAND with SILT, r	eddish brown	1 I
					9			÷				
	Dry		yes	1	10			ML		SILTY SAN	D, gray	=†
					11	-				No Recov	very	+
		707							-	OU TY CAND I'L	i i i i i i i i i i i i i i i i i i i	-T
		787	slight	BH-16	12	H	$\vdash$	ML		SILTY SAND, ligh	t gray to olive	-
		2,133	mod	10-15'	13	1,352			· .			1
		2,155	mou		14 -	-		SP-SM		SAND, gray, medium	to coarse grained	+
		2,039	Vac		14							1
		2,039	yes		15		:					
-									-			

-								Boring/Well #	BH-16	
	Complia	nce "I	Enginee	ering " Re	emedia	tion		Project:	OH Randel #5	
Z	LT Envi	ironm	ental I	nc	cinicala			Project #	12916007	
			Sincer, I					Date	4/20/2017	1.1.1.1.1
Resistance Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft.	PID Composite	Recovery	Soil/Rock Type	Litho	logy/Remarks	Well Completio
N N		S	Š	bgs.) 15	Ŭ	R	Sc			
				16						
			BH-16 15-20'	17 18	2,488			Nc	Recovery -	
		-		19						-
Dry	2,488	yes		20			ML	SILTY SAND, brow	wn to dark gray, slight odor	
			BH-16 20-25'	21 22 23	· 2,192			Nc	Recovery	
Dry	2,606	no		24	-		ML		, light olive brown, fine to rained, slight odor	
Dry	2968	no	BH-16 25-27'	26 27	-		SP-SM	SAND with SILT, I	ight brown to tan, moderate odor	
Dry	2,784	no	BH-16 27-29'	28 29			SP-SM		ight brownish gray, medium	
				30 31 32 33	-			Nc	Recovery	
Dry	374	no	BH-16 33-35'	34 35	-		SP-SM		ight brownish gray, medium sand, slight odor	
				36 37						

THE REAL PROPERTY OF									Ľ		LT Environ 848 E. 2nd	e " Engineering " Rem amental, Inc. Ave Colorado 81301	nediation
	in a	No.		The second		-					MONITORING	WELL COMPLETIC	ON DIAGRAM
			Jul	J.					Boring/Well		BH-17	Project: OH Rand	del #5
			and a			A A A			Date:	4/	20/2017	Project Number: 12916	007
		-	st.	12					Logged By:			Drilled By:	
Elevation:		1. 1. 1.	Detector:	and the second	1250		the the	-	Drilling Met		. Burns	GEOM Sampling Method:	IAT
Gravel Pac	6,424'	1.0	1	Mini F	Rae Lite I	PID	)	_	Seal:	Hollow	Stem Auger	2' Split S	poon
	NA	1.1	16.1			_			N	IA		NA	
Casing Typ	NA								Diameter:	IA	Length: NA	Hole Diameter: 6.25"	Depth to Liquid: NA
Screen Typ			1.14	Slot: N	A				Diameter:	IA	Length: NA	Total Depth: 30'	Depth to Water: NA
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	CIId	Composite	Recovery	Soil/Rock Type		Lithology/		Well Completion
			1		0	I					and the state of		Sec. A.
					1	-					No Rec	overy	
	Moist	0.5	No		3	-			SP-SM		SAND with SILT	, reddish brown	
				SP	6 _						No Rec	overy	+
					8	Ħ			SP-SM		SAND with SILT	, reddish brown	1
	Moist	0.0	No		9 10				ML	SIL	T with SAND, lig carbonate and	ht brown with some d oxidation	† †
				BH-16	11 12	-					No Rec	overy	
	Dry	0.3	No	10-15'	13 14				SP-SM		SAND with SII	LT, light gray	ļ
	Siy	0.0	110	•	15				ML	SILTY	SAND, light bro	wnish gray, very dense	

								Boring/Well #	BH-17	
17	Complia	nce " E	Enginee	ring " R	emedia	tion		Project:	OH Randel #5	
LZ	LT Envi	ronm	ental. I	nc.				Project #	12916007	( 40 ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )
			, .					Date	4/20/2017	1. 200
n Resistance Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	PID Composite	Recovery	Soil/Rock Type	Litho	ology/Remarks	Well Completic
			BH-16 15-20'	15 16 17 18 19	-			No	o Recovery	
Moist	0.0	No		20			SP	SAND, light gray	and tan, medium grained	
			BH-16 20-25'	21 22 23				No	o Recovery	
Dry	362	No		24 25	-		SP-SM		, light brown, fine grained, emi-dense	
			BH-16 25-30'	26 27 28	-			No	o Recovery	+
Dry	NA	No		29 30	-		SP-SM	SAND with SILT, I to coarse s	light brownish gray, medium	+
				31 32 33 34						
				35 36 37	-					

250			
Sec.			
			and the second s
			ALC LA
	and the second	inst in and	
and the second	and the second second	1 Con	and the second



Compliance <sub>"</sub> Engineering <sub>"</sub> Remediation LT Environmental, Inc. 848 E. 2nd Ave Durango, Colorado 81301

# BORING LOG/MONITORING WELL COMPLETION DIAGRAM Boring/Well Number: PH 19 Project: OH Randel #5

				The second					Boring/Wel	Number: BH-18	Project: OH Ranc	lel #5
			10-13			-	A AL		Date:	4/21/2017	Project Number: 129160	
		11	1	1 All					Logged By:		Drilled By:	1.1.1
Elevation:	a second	and a set	Detector:	Sec. 1	244		Sec.	- :	Drilling Me	D. Burns	GEOM Sampling Method:	AT
Elevation.	6,424'		Detector	Mini F	Rae Lite I	PID	,		Drining we	Hollow Stem Auger	2' Split S	poon
Gravel Pac	k: NA						_		Seal:	NA	Grout: NA	
Casing Typ		-	_		-	-			Diameter:	Length:	Hole Diameter:	Depth to Liquid:
C	NA	1.1		Slate		_		_		NA NA	6.25"	NA Depth to Water:
Screen Typ	NA	<u>.</u>		Slot: N	A				Diameter:	Length: NA NA	Total Depth: 32'	NA
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)		Composite	Recovery	Soil/Rock Type	Lithology/Re	emarks	Well Completion
					1					No Recov	ery	
	Dry	0.7	No		3 _				SP-SM	SAND with SILT, r	eddish brown	+ + -
1.00		1. C.	1.1	SP	5	Į.			ML	SILTY SAND, light gray, o	organics, carbonate	t
			Ś		6					No Recov	ery	† ‡
	Dry	0.0	No		8				ML	SILTY SAND, light gray,	organics, carbonate	† †
			1.1		10	t			SP-SM	SAND with SILT, light gr	ray, some oxidation	†
				BH-16 10-15'	11 12 13	-				No Recov	rery	
	Dry	0.0	No		14 15				SP	SILTY SAND, light brown	nish gray, very dense	† +

1

-								Boring/Well #	BH-18	
	Complia	nce " I	Enginee	ring "R	emedia	tion		Project:	OH Randel #5	
Z	LT Env	ironm	ental. I	nc.				Project #	12916007	
								Date	4/21/2017	
Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	PID Composite	Recovery	Soil/Rock Type	Lithol	logy/Remarks	Well Completio
			BH-16 15-20'	15 16 17 18	-			No	Recovery	- - - -
				19			ML	SANDY SILT, light	brown, partial cement lens -	
Dry	0.0	No		20			SP-SM	SAND with	SILT, light brown	
			BH-16 20-25'	21 22 23	-			No	Recovery	- - - - -
Dry	6.4	No		24 25	-		SP-SM		um grained, well graded, - ed with light sweet odor	
				26	-			No	Recovery -	
Dry	3.2	No	BH-16 25-30'	27 28 29 30	- - - -		SW		dium grained, slightly nsolidated	
Dry	9.8	No		31 32	-		SW		im to coarse grained with	-
				33 34 35 36 37						

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a de la				A	A R	1 24	12	BORIN	G LOG/MONITORIN	G WELL COMPLETI	ON DIAGRA
			R	T				Boring/Well	Number: BH-19	Project: OH Ran	del #5
				2			-	Date:	4/24/2017	Project Number: 12916	
ALC: NO		-		1. El			- 1 -	Logged By:	1996 - 1996 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	Drilled By:	-
levation:			Detector:	Case of The		SC BIOL		Drilling Met		GEON Sampling Method:	N 10 1 1
ravel Pacl	6,424'			Mini F	Rae Lite	PID		Seal:	Hollow Stem Auger	2' Split Grout:	Spoon
asing Typ	NA e:						-	Diameter:	IA Length:	NA Hole Diameter:	Depth to Liquid
creen Typ	NA			Slot:					IA NA Length:	6.25" Total Depth:	NA Depth to Water:
Accel Typ	NA		-	N	A		_		IA NA	35'	NA
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	PID Composite	Recovery	Soil/Rock Type	Litholog	y/Remarks	Well Completio
					0						· · · · · · · · ·
		48.4		1.	1	+			No.Po		
				÷.,	2				INO RE	ecovery	+
			60.5			ij					1
	Dry	0.7	no		3 -	H		SP-SM	SAND with SI	T, reddish brown	
1	Diy	0.7	110		4 _	H		SF-SIVI	SAND WITH SIL	r, reduisir brown	Ŧ
				BH-19	5	1					1
100			24	0-10'	6				No Re	ecovery	†
				11	7	+		1.1		lovery	+
	1.1.1		11		8	1					†
	Dry	0.1	no		9			SP-SM	SAND with SIL	T, reddish brown	
1		1	14.1		10		E	SP-SM	SAND with SILT, ligh	nt gray, medium grained	
			1		11	+					+
	24		A., .		12	Ţ			No Re	ecovery	Ŧ
				BH-19	1. A 1.	1	-			1,	1
	Dry	0.0	no	10-15'	13 14			SP	SAND with SILT, ligh	nt gray, medium grained	ł
		1.25			15	+	-	ML	SANDY SILT, bro	own, some oxidation	+

								Boring/Well #	BH-19	
	Complia	nce "I	Enginee	rina " R	emedia	tion		Project:	OH Randel #5	
Z	LT Envi	ronm	ental I	nc.	ula			Project #	12916007	
	///		circul, l					Date	4/24/2017	
ce t		ac	#	Depth	ite	2	ck			
Resistance Moisture Content	Vapor (ppm)	Staining	Sample #	(ft. bgs.)	PID Composite	Recovery	Soil/Rock Type	Lithc	ology/Remarks	Well Completic
_	1			15						-
4				16				N	lo Recovery	
· · ·			BH-19	17 _				-		-
-			15-20'	18						
Dry	0.4	no		19			ML	SILTY SAN	ID, tan to light brown	+
_				20						-
				21				No	o Recovery	+
-			BH-19	22					-	+
-			20-25'	23						ļ., ,
Dry	5.4	no		24			ML	SILTY SAN	D, tan to light brown	ŧ.
				25		$\square$	_			
-				26				N	o Recovery	Ē
-			BH-19	27	-				-	L .
Dry	109	no	25-30'	28	-	$\vdash$				-
				29			SW		and gray, medium to coarse the gas (xylenes) odor	ŧ.
		-		30	-			N	o Recovery	1
		1		31	-	-				ţ
_			BH-19 30-35'	32	-			SAND light broug	nish gray, medium to coarse	+
Dry	113	no	50-35	33 34	-		SW		this gray, medium to coarse the sweet gas smell	
				34 -	-					-
-				36	-					-
7				37	-					ļ.

APPENDIX B

-



### HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

July 07, 2016

Ashley Ager XTO Energy 382 County Road 3100 Aztec, NM 87410 TEL: (505) 787-0519 FAX (505) 333-3280

RE: OH Randel #5

OrderNo.: 1607132

Dear Ashley Ager:

Hall Environmental Analysis Laboratory received 3 sample(s) on 7/6/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <u>www.hallenvironmental.com</u> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

andy

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Analytical Report Lab Order 1607132 Date Reported: 7/7/2016

## Hall Environmental Analysis Laboratory, Inc.

EPA MET	HOD 8015M/D: DIESEL	RANGE ORGANICS	5			Analy	st: TOM
Analyses		Result	PQL	Qual	Units	DF Date Analyzed	Batch
Lab ID:	1607132-001	Matrix:	SOIL		Received	Date: 7/6/2016 7:35:00 AM	
<b>Project:</b>	OH Randel #5				Collection	Date: 7/5/2016 11:55:00 AM	
<b>CLIENT:</b>	XTO Energy			C	lient Samp	le ID: HA 5 @ 16'	

Diesel Ran	ge Organics (DRO)	150	10		mg/Kg	1	7/6/2016 10:55:46 AM	26242
Surr: DN	OP	90.4	70-130		%Rec	1	7/6/2016 10:55:46 AM	26242
EPA METH	OD 8015D: GASOLINE RA	NGE					Analyst:	NSB
Gasoline R	ange Organics (GRO)	310	21		mg/Kg	5	7/6/2016 11:30:14 AM	26229
Surr: BF	В	354	80-120	S	%Rec	5	7/6/2016 11:30:14 AM	26229
EPA METH	OD 8021B: VOLATILES						Analyst:	NSB
Benzene		0.21	0.10		mg/Kg	5	7/6/2016 11:30:14 AM	26229
Toluene		3.5	0.21		mg/Kg	5	7/6/2016 11:30:14 AM	26229
Ethylbenze	ne	1.3	0.21		mg/Kg	5	7/6/2016 11:30:14 AM	26229
Xylenes, To	otal	15	0.42		mg/Kg	5	7/6/2016 11:30:14 AM	26229
Surr: 4-B	Bromofluorobenzene	120	80-120	S	%Rec	5	7/6/2016 11:30:14 AM	26229

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 1 of 6
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report Lab Order 1607132 Date Reported: 7/7/2016

## Hall Environmental Analysis Laboratory, Inc.

 CLIENT: XTO Energy
 Client Sample ID: HA 5 @ 21.5'

 Project: OH Randel #5
 Collection Date: 7/5/2016 1:00:00 PM

 Lab ID: 1607132-002
 Matrix: SOIL
 Received Date: 7/6/2016 7:35:00 AM

 Analyses
 Result
 PQL
 Qual
 Units
 DF
 Date Analyzed
 Batch

					the second se	the second distance of	
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS					Analyst	том
Diesel Range Organics (DRO)	66	10		mg/Kg	1	7/6/2016 11:17:24 AM	26242
Surr: DNOP	91.7	70-130		%Rec	1	7/6/2016 11:17:24 AM	26242
EPA METHOD 8015D: GASOLINE RANG	E					Analyst	NSB
Gasoline Range Organics (GRO)	260	20		mg/Kg	5	7/6/2016 11:53:42 AM	26229
Surr: BFB	299	80-120	S	%Rec	5	7/6/2016 11:53:42 AM	26229
EPA METHOD 8021B: VOLATILES						Analyst	NSB
Benzene	ND	0.10		mg/Kg	5	7/6/2016 11:53:42 AM	26229
Toluene	2.4	0.20		mg/Kg	5	7/6/2016 11:53:42 AM	26229
Ethylbenzene	1.0	0.20		mg/Kg	5	7/6/2016 11:53:42 AM	26229
Xylenes, Total	12	0.41		mg/Kg	5	7/6/2016 11:53:42 AM	26229
Surr: 4-Bromofluorobenzene	114	80-120		%Rec	5	7/6/2016 11:53:42 AM	26229

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 2 of 6
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

**Analytical Report** Lab Order 1607132 Date Reported: 7/7/2016

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT: XTO Energy** Client Sample ID: HA 1 @ 20' Project: OH Randel #5 Collection Date: 7/5/2016 4:00:00 PM Lab ID: 1607132-003 Matrix: SOIL Received Date: 7/6/2016 7:35:00 AM Result **PQL** Qual Units **DF** Date Analyzed Batch Analyses

EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS	5				Analyst	TOM
Diesel Range Organics (DRO)	17	9.9		mg/Kg	1	7/6/2016 11:39:25 AM	26242
Surr: DNOP	90.7	70-130		%Rec	1	7/6/2016 11:39:25 AM	26242
EPA METHOD 8015D: GASOLINE RANGE	1					Analyst	NSB
Gasoline Range Organics (GRO)	810	65		mg/Kg	20	7/6/2016 12:17:10 PM	26229
Surr: BFB	166	80-120	S	%Rec	20	7/6/2016 12:17:10 PM	26229
EPA METHOD 8021B: VOLATILES						Analyst	NSB
Benzene	5.1	0.32		mg/Kg	20	7/6/2016 12:17:10 PM	26229
Toluene	56	0.65		mg/Kg	20	7/6/2016 12:17:10 PM	26229
Ethylbenzene	7.3	0.65		mg/Kg	20	7/6/2016 12:17:10 PM	26229
Xylenes, Total	74	1.3		mg/Kg	20	7/6/2016 12:17:10 PM	26229
Surr: 4-Bromofluorobenzene	113	80-120		%Rec	20	7/6/2016 12:17:10 PM	26229

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

\*

- Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix S
- Analyte detected in the associated Method Blank В
- E Value above quantitation range
- Analyte detected below quantitation limits Page 3 of 6 J
- Р Sample pH Not In Range
- Reporting Detection Limit RL
- Sample container temperature is out of limit as specified W

## QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

WO#: 1607132

Page 4 of 6

07-Jul-16

Client: XTO Energy

Project: OH Ra	ndel #5					
Sample ID LCS-26242	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range O	rganics			
Client ID: LCSS	Batch ID: 26242	RunNo: 35436				
Prep Date: 7/6/2016	Analysis Date: 7/6/2016	SeqNo: 1096556 Units: mg/Kg				
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD R	RPDLimit Qual			
Diesel Range Organics (DRO)	42 10 50.00	0 84.1 62.6 124				
Surr: DNOP	4.4 5.000	87.7 70 130				
Sample ID MB-26242	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range O	rganics			
Client ID: PBS	Batch ID: 26242	RunNo: 35436				
Prep Date: 7/6/2016	Analysis Date: 7/6/2016	SeqNo: 1096557 Units: mg/Kg				
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD R	RPDLimit Qual			
Diesel Range Organics (DRO)	ND 10					
Surr: DNOP	9.5 10.00	95.4 70 130				
Sample ID MB-26224	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range O	rganics			
Client ID: PBS	Batch ID: 26224	RunNo: 35437				
Prep Date: 7/5/2016	Analysis Date: 7/6/2016	SeqNo: 1096560 Units: %Rec				
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD R	PDLimit Qual			
Surr: DNOP	9.5 10.00	94.6 70 130				
Sample ID LCS-26224	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range O	rganics			
Client ID: LCSS	Batch ID: 26224	RunNo: 35437				
Prep Date: 7/5/2016	Analysis Date: 7/6/2016	SeqNo: 1096561 Units: %Rec				
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD R	RPDLimit Qual			
Surr: DNOP	4.1 5.000	82.6 70 130				

**Qualifiers:** 

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

# **QC SUMMARY REPORT** Hall Environmental Analysis Laboratory, Inc.

WO#: 1607132 07-Jul-16

**Client: Project:** 

XTO Energy OH Randel #5

Sample ID MB-26229	BLK	Tes	tCode: El	PA Method	od 8015D: Gasoline Range					
Client ID: PBS	Batch	h ID: 26	229	F	RunNo: 35443					
Prep Date: 7/5/2016	Analysis D	Date: 7/	6/2016	S	SeqNo: 1	097615	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	960		1000		95.5	80	120			
Sample ID LCS-26229	SampT	Type: LC	s	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	e	
Client ID: LCSS	Batch	h ID: 26	229	F	RunNo: 3	5443				
Prep Date: 7/5/2016	Analysis D	Date: 7/	6/2016	S	SeqNo: 1	097616	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Analyte Gasoline Range Organics (GRO)	Result 26	PQL 5.0	SPK value 25.00	SPK Ref Val	%REC 105	LowLimit 80	HighLimit 120	%RPD	RPDLimit	Qual
							0	%RPD	RPDLimit	Qual

Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits R
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- Analyte detected below quantitation limits J
- Р Sample pH Not In Range
- Reporting Detection Limit RL
- W Sample container temperature is out of limit as specified

- Page 5 of 6

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

**Client: Project:** 

**XTO Energy** OH Randel #5

Sample ID MB-26229	SampType: MBLK TestCode: EPA Method 8021B: Volatiles									
Client ID: PBS	Batch	Batch ID: 26229 RunNo: 35443				5443				
Prep Date: 7/5/2016	Analysis D	Date: 7/	6/2016	S	SeqNo: 1	097633	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.93		1.000		92.8	80	120			
Sample ID LCS-26229	SampT	Type: LC	S	Tes	tCode: E	PA Method	8021B: Volat	tiles		
Client ID: LCSS	Batch	h ID: 26	229	F	RunNo: 3	5443				
Prep Date: 7/5/2016	Analysis D	Date: 7/	6/2016	S	SeqNo: 1	097635	Units: mg/M	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.025	1.000	0	97.8	75.3	123			
Toluene	0.97	0.050	1.000	0	96.9	80	124			
Ethylbenzene	0.99	0.050	1.000	0	99.4	82.8	121			
Xylenes, Total	3.0	0.10	3.000	0	99.2	83.9	122			
Surr: 4-Bromofluorobenzene	0.99		1.000		98.6	80	120			

**Oualifiers:** 

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Holding times for preparation or analysis exceeded Н
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank B
- E Value above quantitation range
- Analyte detected below quantitation limits J
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Page 6 of 6

1607132 07-Jul-16

WO#:

ENVIRONMENTAL ANALYSIS LABORATORY TEL: 505-34	mental Analysis Laboratov 4901 Hawkins N Albuquerque, NM 8710 5-3975 FAX: 505-345-410 vww.hallenvironmental.co	4901 Hawkins NE muquerque, NM 87109 5 FAX: 505-345-4107					
Client Name: XTO Energy Work Order N	umber: 1607132	1	RcptNo: 1				
Received by/date: ATOT/dd/lg							
Logged By: Anne Thorne 7/6/2016 7:35:00	MA 0	ame Im	_				
Completed By: Anne Thorne 7/6/2016		anne Il-					
Reviewed By: TO 07/00/16		ame no					
Chain of Custody							
1. Custody seals intact on sample bottles?	Yes	No 🗌	Not Present				
2. Is Chain of Custody complete?	Yes 🗹	No 🗌	Not Present				
3. How was the sample delivered?	Courier						
Log In							
4. Was an attempt made to cool the samples?	Yes 🗹	No 🗌					
5. Were all samples received at a temperature of >0° C to 6.0°C	C Yes 🗹	No 🗌	NA 🗌				
6. Sample(s) in proper container(s)?	Yes 🗹	No 🗌					
7. Sufficient sample volume for indicated test(s)?	Yes 🗹	No 🗆					
8. Are samples (except VOA and ONG) properly preserved?	Yes 🗹	No 🗌					
9. Was preservative added to bottles?	Yes 🗌	No 🗹	NA 🗌				
10. VOA vials have zero headspace?	Yes	No 🗌	No VOA Vials 🗹				
11. Were any sample containers received broken?	Yes	No 🗹	# of preserved				
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes 🗹	No 🗆	bottles checked for pH: (<2 or >12 unless noted)				
13. Are matrices correctly identified on Chain of Custody?	Yes 🖌	No 🗌	Adjusted?				
14. Is it clear what analyses were requested?	Yes 🗹	No 🗌					
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes M	No 🗌	Checked by:				
Special Handling (if applicable)							

16.W	as client notified of all o	discrepancies wi	ith this order?		Yes	No 🗆	NA 🗹
	Person Notified: By Whom:			Date Via:	🗌 eMail	Phone Fax	In Person
	Regarding: Client Instructions:	Statistics of the local division of the loca	derinduction with Physics of	1. We to also of soldier list			an a

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			1

Page 1 of 1

Statement of the Owner water of	hain	-of-Cu	stody Record	Turn-Around	Time:	Same Day				н			E	NV	IF	20	NP	1EN	TA	L
ient:	Xto	ene	rau	Turn-Around Time: Same Day Standard PRush 21 Ways Project Name: OH Randel #5					E	-								RAT		
	and	S MO	dapiel	Project Name	Project Name: /					,	~~~~	,hal	lenv	iron	ment	al.co	m			
ailing	Address	: 38	2 Rd 3/00	OH K	lander.	#5		4901 Hawkins NE - Albuquerque, NM 87109												
			87410	Project #:			1	Tel. 505-345-3975 Fax 505-345-4107												
none	#: SD	5-419	1-0915												-	uest				
of the local division in which the local division in which the local division in the loc	r Fax#:			Project Manager:																
s/QC	Package: dard		Level 4 (Full Validation)				TMB's (8021)	TPH (Gas only)	SO HM			(SMIS)		PO4.SI	2 PCB's					
NEL		C Othe	er	Sampler: ASh Adams & Alex Crocks			BMH	HdT +	RO / DF	18.1)	04.1)	8270		D <sub>3</sub> ,NO <sub>2</sub>	s / 808		(A)			or N)
EDD	(Type)			Sample Tem	perature:	120			G	od 4	Spo	0 or	etals	J'N	cides	F	2			Z
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL NO.	BTEX +-MTBE	BTEX + MTBE	TPH 8015B (GRO / DRO / MRO	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	<b>RCRA 8 Metals</b>	Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> )	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)			Air Bubbles (Y or N)
15/10	1155	Sol	HASG16	1HOZUr	C001	ZUI	Ī	-	X	-	-	-	-		-	~	-	-		
Teli.		SOIL	HASQ ZI.5'	1. 402 Jar		202	V		Y	+		-						+	+	
5/10		SOIL	HABQ 20'	140 par	1007	703	Š		Â									1		
				0				-			-		-		_	_	_		+	
_											_							_	_	
							-	-		+	-	-	-		-	-		+	+	
												-								
-		177 - 17 179 - 19								-	-	-	-	-				+	+	
s//	Time:	Relinquish	Very-	Received by:	halt	Date Time 7/5/14 17/5	Ren	nark	s:	HA	50	210	1.5	1.	TA CO	RA	-C	751	6-	1155 300 600
ate: -	Time:	Relinquish	i Latte	Received by:	1 th	Date Time UT/OC/IC UT 35 es. This serves as notice of thi	1		-					_	-					

VIT. Howar P.D .: ..

### HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: <u>www.hallenvironmental.com</u>

August 09, 2016 James McDaniel

XTO Energy 382 County Road 3100 Aztec, NM 87410 TEL: (505) 787-0519 FAX (505) 333-3280

RE: OH Randel #5

OrderNo.: 1608126

Dear James McDaniel:

Hall Environmental Analysis Laboratory received 6 sample(s) on 8/3/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <u>www.hallenvironmental.com</u> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

andy

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

**Analytical Report** Lab Order 1608126

#### Date Reported: 8/9/2016

### Hall Environmental Analysis Laboratory, Inc.

CLIENT:	XTO Energy		(	Client Samp	le ID: BH	I-6@9'		
<b>Project:</b>	OH Randel #5		Collection Date: 8/2/2016 1:00:00 PM					
Lab ID:	1608126-001	Matrix: SC	Matrix: SOIL			/2016 7:20:00 AM		
Analyses		Result	PQL Qual	Units	DF	Date Analyzed	Batch	
EPA MET	HOD 8015M/D: DIESEL	RANGE ORGANICS				Analys	t KJH	
Diesel Ra	ange Organics (DRO)	140	9.7	mg/Kg	1	8/3/2016 1:23:47 PM	26760	
Surr: [	ONOP	105	70-130	%Rec	1	8/3/2016 1:23:47 PM	26760	
EPA MET	HOD 8015D: GASOLIN	ERANGE				Analys	NSB	

#### Gasoline Range Organics (GRO) 840 8/5/2016 2:53:37 PM 26763 99 mg/Kg 20 26763 Surr: BFB 302 49.4-163 S %Rec 20 8/5/2016 2:53:37 PM Analyst: NSB **EPA METHOD 8021B: VOLATILES** Benzene ND 0.49 mg/Kg 20 8/5/2016 2:53:37 PM 26763 Toluene 0.99 20 8/5/2016 2:53:37 PM 26763 1.8 mg/Kg Ethylbenzene 1.7 0.99 mg/Kg 20 8/5/2016 2:53:37 PM 26763 Xylenes, Total 20 2.0 mg/Kg 20 8/5/2016 2:53:37 PM 26763 20 8/5/2016 2:53:37 PM 26763 Surr: 4-Bromofluorobenzene 108 80-120 %Rec

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

\*

- Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix S
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- Analyte detected below quantitation limits Page 1 of 9 J
- Ρ Sample pH Not In Range
- Reporting Detection Limit RL
- Sample container temperature is out of limit as specified W

Analytical Report Lab Order 1608126 Date Reported: 8/9/2016

### Hall Environmental Analysis Laboratory, Inc.

 CLIENT:
 XTO Energy
 Client Sample ID: BH-6@18'

 Project:
 OH Randel #5
 Collection Date: 8/2/2016 1:05:00 PM

 Lab ID:
 1608126-002
 Matrix:
 SOIL
 Received Date: 8/3/2016 7:20:00 AM

 Analyses
 Result
 PQL
 Qual
 Units
 DF Date Analyzed
 Batch

RGANIC	S				Analyst:	KJH
120	9.5		mg/Kg	1	8/3/2016 2:29:08 PM	26760
107	70-130		%Rec	1	8/3/2016 2:29:08 PM	26760
					Analyst:	NSB
1000	98		mg/Kg	20	8/5/2016 3:17:13 PM	26763
226	49.4-163	S	%Rec	20	8/5/2016 3:17:13 PM	26763
					Analyst:	NSB
ND	0.49		mg/Kg	20	8/5/2016 3:17:13 PM	26763
7.3	0.98		mg/Kg	20	8/5/2016 3:17:13 PM	26763
2.4	0.98		mg/Kg	20	8/5/2016 3:17:13 PM	26763
27	2.0		mg/Kg	20	8/5/2016 3:17:13 PM	26763
105	80-120		%Rec	20	8/5/2016 3:17:13 PM	26763
	120 107 1000 226 ND 7.3 2.4 27	107         70-130           1000         98           226         49.4-163           ND         0.49           7.3         0.98           2.4         0.98           27         2.0	120       9.5         107       70-130         1000       98         226       49.4-163       S         ND       0.49         7.3       0.98         2.4       0.98         27       2.0	120         9.5         mg/Kg           107         70-130         %Rec           1000         98         mg/Kg           226         49.4-163         S         %Rec           ND         0.49         mg/Kg           7.3         0.98         mg/Kg           2.4         0.98         mg/Kg           27         2.0         mg/Kg	120         9.5         mg/Kg         1           107         70-130         %Rec         1           1000         98         mg/Kg         20           226         49.4-163         S         %Rec         20           ND         0.49         mg/Kg         20           7.3         0.98         mg/Kg         20           2.4         0.98         mg/Kg         20           27         2.0         mg/Kg         20	120         9.5         mg/Kg         1         8/3/2016 2:29:08 PM           107         70-130         %Rec         1         8/3/2016 2:29:08 PM           107         70-130         %Rec         1         8/3/2016 2:29:08 PM           1000         98         mg/Kg         20         8/5/2016 3:17:13 PM           226         49.4-163         S         %Rec         20         8/5/2016 3:17:13 PM           226         49.4-163         S         %Rec         20         8/5/2016 3:17:13 PM           226         49.4-163         S         %Rec         20         8/5/2016 3:17:13 PM           20         8/5/2016 3:17:13 PM         Analyst:         ND         0.49         mg/Kg         20         8/5/2016 3:17:13 PM           7.3         0.98         mg/Kg         20         8/5/2016 3:17:13 PM         2.4         0.98         mg/Kg         20         8/5/2016 3:17:13 PM           27         2.0         mg/Kg         20         8/5/2016 3:17:13 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits Page 2 of 9
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Analytical Report Lab Order 1608126 Date Reported: 8/9/2016

## Hall Environmental Analysis Laboratory, Inc.

Analyses		Result	POL Oua	Units	DF Date Analyzed	]
Lab ID:	1608126-003	Matrix:	MEOH (SOIL)	Received	Date: 8/3/2016 7:20:00 AM	
<b>Project:</b>	OH Randel #5			Collection	Date: 8/2/2016 12:50:00 PM	
CLIENT:	XTO Energy			Client Samp	le ID: BH-7@11'	

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS	6				Analyst	KJH
Diesel Range Organics (DRO)	400	10		mg/Kg	1	8/3/2016 10:03:18 AM	26760
Surr: DNOP	103	70-130		%Rec	1	8/3/2016 10:03:18 AM	26760
EPA METHOD 8015D: GASOLINE RANG	E					Analyst	NSB
Gasoline Range Organics (GRO)	1700	84		mg/Kg	20	8/3/2016 9:32:24 AM	26741
Surr: BFB	617	49.4-163	S	%Rec	20	8/3/2016 9:32:24 AM	26741
EPA METHOD 8021B: VOLATILES						Analyst	NSB
Benzene	ND	0.42		mg/Kg	20	8/3/2016 9:32:24 AM	26741
Toluene	2.6	0.84		mg/Kg	20	8/3/2016 9:32:24 AM	26741
Ethylbenzene	3.6	0.84		mg/Kg	20	8/3/2016 9:32:24 AM	26741
Xylenes, Total	39	1.7		mg/Kg	20	8/3/2016 9:32:24 AM	26741
Surr: 4-Bromofluorobenzene	127	80-120	S	%Rec	20	8/3/2016 9:32:24 AM	26741

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 3 of 9
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

**Analytical Report** Lab Order 1608126

#### Date Reported: 8/9/2016

### Hall Environmental Analysis Laboratory, Inc.

Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch
Lab ID:	1608126-004	Matrix:	MEOH (SOIL)	Received	Date: 8/3/2016 7:20:00 AM	
<b>Project:</b>	OH Randel #5			Collection	Date: 8/2/2016 12:55:00 PM	
CLIENT:	XTO Energy		(	lient Samp	le ID: BH-7@12'	

EPA METHOD 8015M/D: DIESEL RANGE	ORGANIC	S				Analyst	KJH
Diesel Range Organics (DRO)	350	10		mg/Kg	1	8/3/2016 10:25:02 AM	26760
Surr: DNOP	102	70-130		%Rec	1	8/3/2016 10:25:02 AM	26760
EPA METHOD 8015D: GASOLINE RANG	E					Analyst	NSB
Gasoline Range Organics (GRO)	2600	84		mg/Kg	20	8/3/2016 9:55:52 AM	26741
Surr: BFB	691	49.4-163	S	%Rec	20	8/3/2016 9:55:52 AM	26741
EPA METHOD 8021B: VOLATILES						Analyst	NSB
Benzene	ND	0.42		mg/Kg	20	8/3/2016 9:55:52 AM	26741
Toluene	9.4	0.84		mg/Kg	20	8/3/2016 9:55:52 AM	26741
Ethylbenzene	8.3	0.84		mg/Kg	20	8/3/2016 9:55:52 AM	26741
Xylenes, Total	94	1.7		mg/Kg	20	8/3/2016 9:55:52 AM	26741
Surr: 4-Bromofluorobenzene	137	80-120	S	%Rec	20	8/3/2016 9:55:52 AM	26741

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

\*

- Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- Analyte detected below quantitation limits Page 4 of 9 J
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

**Analytical Report** Lab Order 1608126

#### Date Reported: 8/9/2016

### Hall Environmental Analysis Laboratory, Inc.

CLIENT:	XTO Energy			Client Sampl	e ID: BH	H-8@16'	
	OH Randel #5					2/2016 12:45:00 PM	
Lab ID:	1608126-005	Matrix:	SOIL	Received	Date: 8/3	3/2016 7:20:00 AM	
Analyses		Result	PQL Qu	ual Units	DF	Date Analyzed	Batch
EPA ME	THOD 8015M/D: DIESEL	RANGE ORGANICS				Analys	st: KJH
Diesel R	ange Organics (DRO)	340	9.5	mg/Kg	1	8/3/2016 2:50:55 PM	26760

	Diesel Range Organics (DRO)	340	9.5		mg/kg	1	0/3/2010 2.50.55 PW	20700
	Surr: DNOP	107	70-130		%Rec	1	8/3/2016 2:50:55 PM	26760
E	PA METHOD 8015D: GASOLINE RANGE						Analyst:	NSB
	Gasoline Range Organics (GRO)	560	94		mg/Kg	20	8/4/2016 6:27:38 PM	26763
	Surr: BFB	296	49.4-163	S	%Rec	20	8/4/2016 6:27:38 PM	26763
E	PA METHOD 8021B: VOLATILES						Analyst:	NSB
	Benzene	ND	0.47		mg/Kg	20	8/4/2016 6:27:38 PM	26763
	Toluene	ND	0.94		mg/Kg	20	8/4/2016 6:27:38 PM	26763
	Ethylbenzene	1.3	0.94		mg/Kg	20	8/4/2016 6:27:38 PM	26763
	Xylenes, Total	12	1.9		mg/Kg	20	8/4/2016 6:27:38 PM	26763
	Surr: 4-Bromofluorobenzene	109	80-120		%Rec	20	8/4/2016 6:27:38 PM	26763

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	Н	Holding times for preparation or analysis excee

- ample Diluted Due to Matrix Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix S
- Analyte detected in the associated Method Blank В
- E Value above quantitation range
- Analyte detected below quantitation limits Page 5 of 9 J
- Р Sample pH Not In Range
- Reporting Detection Limit RL
- Sample container temperature is out of limit as specified W

<b>Analytical Report</b>
Lab Order 1608126
Date Reported: 8/9/2016

## Hall Environmental Analysis Laboratory, Inc.

Analyses		Result	PQL Qual	Units	<b>DF</b> Date Analyzed	
Lab ID:	1608126-006	Matrix:	MEOH (SOIL)	Received	Date: 8/3/2016 7:20:00 AM	
<b>Project:</b>	OH Randel #5			Collection	Date: 8/2/2016 12:40:00 PM	
CLIENT:	XTO Energy		0	lient Samp	ole ID: BH-9@16'	

Analyses	Result	PQL (	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANG		S			Analyst	KJH
Diesel Range Organics (DRO)	240	9.5	mg/Kg	1	8/3/2016 10:46:38 AM	26760
Surr: DNOP	94.4	70-130	%Rec	1	8/3/2016 10:46:38 AM	26760
EPA METHOD 8015D: GASOLINE RAN	GE				Analyst	NSB
Gasoline Range Organics (GRO)	2200	210	mg/Kg	50	8/3/2016 10:19:20 AM	26741
Surr: BFB	237	49.4-163	S %Rec	50	8/3/2016 10:19:20 AM	26741
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	1.0	mg/Kg	50	8/3/2016 10:19:20 AM	26741
Toluene	23	2.1	mg/Kg	50	8/3/2016 10:19:20 AM	26741
Ethylbenzene	8.7	2.1	mg/Kg	50	8/3/2016 10:19:20 AM	26741
Xylenes, Total	100	4.1	mg/Kg	50	8/3/2016 10:19:20 AM	26741
Surr: 4-Bromofluorobenzene	108	80-120	%Rec	50	8/3/2016 10:19:20 AM	26741

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 6 of 9
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

# **QC SUMMARY REPORT**

Hall Environmenta	<b>Analysis</b>	Laboratory,	Inc.
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**Client: XTO Energy Project:** 

OH Randel #5

Sample ID	LCS-26760	SampTy	pe: LC	s	Tes	tCode: El	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID:	LCSS	Batch	ID: 26	760	F	RunNo: 3	6186				
Prep Date:	8/3/2016	Analysis Da	ate: 8/	3/2016	S	SeqNo: 1	120950	Units: mg/k	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Or	rganics (DRO)	40	10	50.00	0	79.1	62.6	124			
Surr: DNOP		4.5		5.000		90.1	70	130			
Sample ID	MB-26760	SampTy	pe: ME	BLK	Tes	tCode: El	PA Method	8015M/D: Di	esel Range	e Organics	
Client ID:	PBS	Batch	ID: 26	760	F	RunNo: 3	6186				
Prep Date:	8/3/2016	Analysis Da	ate: 8/	3/2016	S	SeqNo: 1	120951	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Or	rganics (DRO)	ND	10								
Surr: DNOP		0.5									
Sull. DNOF	1	8.5		10.00		85.0	70	130			
	1608126-001AMS	8.5 SampTy	pe: MS		Tes			130 8015M/D: Di	esel Range	e Organics	
Sample ID 1	1608126-001AMS BH-6@9'	SampTy	pe: MS	3			PA Method		esel Rang	e Organics	
Sample ID 1 Client ID:		SampTy	ID: 26	5 760	F	tCode: El	PA Method 6185		Ū	e Organics	
Sample ID 1 Client ID:	BH-6@9'	SampTy Batch	ID: 26	3 760 3/2016	F	tCode: El	PA Method 6185	8015M/D: Di	Ū	e Organics	Qual
Sample ID 1 Client ID: E Prep Date:	BH-6@9' 8/3/2016	SampTy Batch Analysis Da	ID: 26 Ite: 8/	3 760 3/2016	F	tCode: El RunNo: 3 SeqNo: 1	PA Method 6185 121248	8015M/D: Di Units: mg/H	(g		Qual
Sample ID 1 Client ID: I Prep Date: Analyte	BH-6@9' 8/3/2016	SampTy Batch Analysis Da Result	ID: <b>26</b> ate: <b>8/</b> PQL	5 760 3/2016 SPK value	F S SPK Ref Val	tCode: El RunNo: 3 SeqNo: 1 %REC	PA Method 6185 121248 LowLimit	8015M/D: Die Units: mg/H HighLimit	(g		Qual
Sample ID 1 Client ID: Prep Date: Analyte Diesel Range Or Surr: DNOP	BH-6@9' 8/3/2016	SampTy Batch Analysis Da Result 170 5.3	ID: <b>26</b> Ite: <b>8/</b> PQL 9.8	5 760 3/2016 SPK value 49.12 4.912	F S SPK Ref Val 138.0	tCode: El RunNo: 3 SeqNo: 1 %REC 60.9 107	PA Method 6185 121248 LowLimit 33.9 70	8015M/D: Die Units: mg/k HighLimit 141	(g %RPD	RPDLimit	Qual
Sample ID 1 Client ID: E Prep Date: Analyte Diesel Range Or Surr: DNOP	BH-6@9' 8/3/2016 rganics (DRO)	SampTy Batch Analysis Da Result 170 5.3 SampTy	ID: <b>26</b> Ite: <b>8/</b> PQL 9.8	5 760 3/2016 SPK value 49.12 4.912 5D	F SPK Ref Val 138.0 Tes	tCode: El RunNo: 3 SeqNo: 1 %REC 60.9 107	PA Method 6185 121248 LowLimit 33.9 70 PA Method	8015M/D: Di Units: mg/F HighLimit 141 130	(g %RPD	RPDLimit	Qual
Sample ID 1 Client ID: E Prep Date: Analyte Diesel Range Or Surr: DNOP Sample ID 1 Client ID: E	BH-6@9' 8/3/2016 rganics (DRO) 1608126-001AMSD BH-6@9'	SampTy Batch Analysis Da Result 170 5.3 SampTy	ID: 26 Ite: 8/ PQL 9.8 Pe: MS ID: 26	5 760 3/2016 SPK value 49.12 4.912 5D 760	F S SPK Ref Val 138.0 Tes F	tCode: El RunNo: 3 SeqNo: 1 %REC 60.9 107 tCode: El	PA Method 6185 121248 LowLimit 33.9 70 PA Method 6185	8015M/D: Di Units: mg/F HighLimit 141 130	kg %RPD esel Rang	RPDLimit	Qual
Sample ID 1 Client ID: E Prep Date: Analyte Diesel Range Or Surr: DNOP Sample ID 1 Client ID: E	BH-6@9' 8/3/2016 rganics (DRO) 1608126-001AMSD BH-6@9'	SampTy Batch Analysis Da Result 170 5.3 SampTy Batch	ID: 26 Ite: 8/ PQL 9.8 Pe: MS ID: 26	5 760 3/2016 SPK value 49.12 4.912 5D 760 3/2016	F S SPK Ref Val 138.0 Tes F	tCode: El RunNo: 3 SeqNo: 1 %REC 60.9 107 tCode: El RunNo: 3 SeqNo: 1	PA Method 6185 121248 LowLimit 33.9 70 PA Method 6185	8015M/D: Di Units: mg/k HighLimit 141 130 8015M/D: Di	kg %RPD esel Rang	RPDLimit	Qual
Sample ID 1 Client ID: E Prep Date: Analyte Diesel Range Or Surr: DNOP Sample ID 1 Client ID: E Prep Date:	BH-6@9' 8/3/2016 rganics (DRO) 1608126-001AMSE BH-6@9' 8/3/2016	SampTy Batch Analysis Da Result 170 5.3 SampTy Batch Analysis Da	ID: 26 ate: 8/ PQL 9.8 rpe: MS ID: 26 ate: 8/	5 760 3/2016 SPK value 49.12 4.912 5D 760 3/2016	F SPK Ref Val 138.0 Tes F S	tCode: El RunNo: 3 SeqNo: 1 %REC 60.9 107 tCode: El RunNo: 3 SeqNo: 1	PA Method 6185 121248 LowLimit 33.9 70 PA Method 6185 121249	8015M/D: Di Units: mg/k HighLimit 141 130 8015M/D: Di Units: mg/k	Kg %RPD esel Range	RPDLimit	

Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- Reporting Detection Limit RL
- Sample container temperature is out of limit as specified W

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WO#: 1608126

09-Aug-16

# QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

WO#: 1608126

09-Aug-16

Client: Project:	XTO Ei OH Rar	0.									
Sample ID	MB-26741	SampT	ype: MI	BLK	Tes	tCode: El	PA Method	8015D: Gase	oline Rang	e	
Client ID:	PBS	Batch	ID: 26	741	F	RunNo: 3	6191				
Prep Date:	8/2/2016	Analysis D	ate: 8	3/2016	S	SeqNo: 1	121472	Units: mg/l	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang Surr: BFB	e Organics (GRO)	ND 960	5.0	1000		96.4	49.4	163			
Sample ID	LCS-26741	SampT	ype: LC	s	Tes	tCode: El	PA Method	8015D: Gase	oline Rang	e	
Client ID:	LCSS	Batch	ID: 26	741	F	RunNo: 3	6191				
Prep Date:	8/2/2016	Analysis D	ate: 8/	3/2016	S	SeqNo: 1	121473	Units: mg/l	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
-	e Organics (GRO)	26	5.0	25.00	0	102	80	120			
Surr: BFB		1100		1000		106	49.4	163			
Sample ID	MB-26763	SampT	ype: MI	BLK	Tes	tCode: El	PA Method	8015D: Gase	oline Rang	e	
Client ID:	PBS	Batch	ID: 26	763	F	RunNo: 3	6215				
Prep Date:	8/3/2016	Analysis D	ate: 8/	4/2016	5	SeqNo: 1	122450	Units: mg/ł	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang Surr: BFB	e Organics (GRO)	ND 970	5.0	1000		97.0	49.4	163			
Sample ID	LCS-26763	SampT	ype: LC	s	Tes	tCode: El	PA Method	8015D: Gase	oline Rang	е	
Client ID:	LCSS	Batch	ID: 26	763	F	RunNo: 3	6215				
Prep Date:	8/3/2016	Analysis D	ate: 8/	4/2016	S	SeqNo: 1	122452	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang Surr: BFB	e Organics (GRO)	26 1000	5.0	25.00 1000	0	102 105	80 49.4	120 163			
Gan. Di D		1000		1000		100	40.4	100			

**Qualifiers:** 

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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QC SUMMARY REPORT	
Hall Environmental Analysis Laboratory, Inc.	c.

Client: X7 Project: Of

XTO Energy OH Randel #5

Project: OH Ra	ndel #5							_		
Sample ID MB-26741	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	8021B: Volat	iles		
Client ID: PBS	Batch	n ID: 26	741	F	RunNo: 3	6191				
Prep Date: 8/2/2016	Analysis D	ate: 8/	3/2016	S	SeqNo: 1	121479	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.91		1.000		91.5	80	120			
Sample ID LCS-26741	SampT	ype: LC	s	Tes	tCode: E	PA Method	8021B: Volat	iles		
Client ID: LCSS	Batch	n ID: 26	741	F	RunNo: 3	6191				
Prep Date: 8/2/2016	Analysis D	)ate: 8/	3/2016	S	SeqNo: 1	121480	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	101	75.3	123			
Toluene	0.98	0.050	1.000	0	97.6	80	124			
Ethylbenzene	1.0	0.050	1.000	0	101	82.8	121			
Xylenes, Total	3.0	0.10	3.000	0	100	83.9	122			
Surr: 4-Bromofluorobenzene	0.96		1.000		96.5	80	120			
Sample ID MB-26763	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	8021B: Volat	tiles		
Client ID: PBS	Batch	n ID: 26	763	F	RunNo: 3	6215				
Prep Date: 8/3/2016	Analysis D	)ate: 8/	4/2016	5	SeqNo: 1	122473	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.92		1.000		91.5	80	120			
Sample ID LCS-26763	SampT	ype: LC	S	Tes	tCode: E	PA Method	8021B: Volat	iles		
Client ID: LCSS	Batch	n ID: 26	763	F	RunNo: 3	6215				
					ConNo: 1	122474	Units: mg/K	a		
Prep Date: 8/3/2016	Analysis D	)ate: 8/	4/2016	5	sequo. I	122414	ing.			
Prep Date: 8/3/2016 Analyte	Analysis D Result	ate: <b>8/</b> PQL		SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
	-							-	RPDLimit	Qual
Analyte Benzene	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	-	RPDLimit	Qual
Analyte Benzene Toluene	Result 0.94	PQL 0.025	SPK value 1.000	SPK Ref Val	%REC 94.4	LowLimit 75.3	HighLimit 123	-	RPDLimit	Qual
Analyte	Result 0.94 0.92	PQL 0.025 0.050	SPK value 1.000 1.000	SPK Ref Val 0 0	%REC 94.4 91.9	LowLimit 75.3 80	HighLimit 123 124	-	RPDLimit	Qual
Analyte Benzene Toluene Ethylbenzene	Result 0.94 0.92 0.96	PQL 0.025 0.050 0.050	SPK value 1.000 1.000 1.000	SPK Ref Val 0 0 0	%REC 94.4 91.9 95.8	LowLimit 75.3 80 82.8	HighLimit 123 124 121	-	RPDLimit	Qual

#### **Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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WO#: 1608126

09-Aug-16

HALL ENVIRONMENTAL ANALYSIS LABORATORY	Hall Environmental Albi TEL: 505-345-3975 Website: www.ha	4901 iquerqui FAX: 5	Hawkins NE 2. NM 87105 05-345-4107	Sa	mple Log-In	Check List
Client Name: XTO Energy	Work Order Number:	16081	26		RcptN	o: 1
Received by/date:	03/03/16			a lull	~	
	8/3/2016 7:20:00 AM		0		φO	
	8/3/2016 7:44:40 AM		0	- funday Aller	PD	
Reviewed By: TO	08/03/16					
Chain of Custody						
1. Custody seals intact on sample bottles?		Yes		No .	Not Present	
2. Is Chain of Custody complete?		Yes		No	Not Present	
3. How was the sample delivered?		Cour	er			
Log In						
4. Was an attempt made to cool the samples?		Yes	×	No .	NA	
5. Were all samples received at a temperature	of >0° C to 6.0°C	Yes	*	No	NA	
6. Sample(s) in proper container(s)?		Yes	<b>M</b>	No	.1	
7. Sufficient sample volume for indicated test(s)	?	Yes		No		
8. Are samples (except VOA and ONG) properly	y preserved?	Yes		No	1	
9. Was preservative added to bottles?		Yes		No 🦪	NA L	
10.VOA vials have zero headspace?		Yes		No	No VOA Vials	
11. Were any sample containers received broke	n?	Yes	Li	No		
			1.1		# of preserved bottles checked	
12.Does paperwork match bottle labels? (Note discrepancies on chain of custody)		Yes		No .		2 or >12 unless noted
13. Are matrices correctly identified on Chain of	Custody?	Yes		No		
14. Is it clear what analyses were requested?		Yes		No	1	
15.Were all holding times able to be met? (If no, notify customer for authorization.)		Yes	*	No [	Checked by	y:
Special Handling (if applicable)						
16. Was client notified of all discrepancies with the	nis order?	Yes	[]	No	NA	2
Person Notified:	Date:				-	
By Whom:	Via:	; eMa	il [] Pho	ne [   Fa	ax I In Person	
Regarding:				and the life is a second		
Client Instructions:					1.1.1.1.1.1.1	
17. Additional remarks:						
18. <u>Cooler Information</u> Cooler No Temp °C Condition Se	al Intact Seal No	Seal Da	ate Si	gned By	1	
1 1.7 Good Yes					٦	
Page 1 of 1						

ient:	XI( Address #: 50	D E 5 M 382 Azte	nergy Inc Doniel County Road 3100 2,NM 87410 9;0315	Project #: 0120	× Rush B: lande ( 31600	See Remarks Same Day #5 7		Te	al. 50	A	www ins N	AL v.hal NE - 975	YS lenvi Alb F	ironr uqui ax sis	5 L ment erqui	Al al.co	<b>30</b> om M 87 -410	<b>RA</b>			
Star	r Fax#: Package: ndard itation AP (Type)	🗆 Otho	Level 4 (Full Validation) or		Hencm Nin Hencm Ø Yes	ann/Josh Kolouns	T	BE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	d 418.1)	d 504.1)	PAH's (8310 or 8270 SIMS)	tals	Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> )	8081 Pesticides / 8082 PCB's	1)	(Semi-VOA)				(Y or N)
)ate	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL NO. 1608126	BTEX + MTBE	BTEX + MTBE	<b>TPH 8015B</b>	TPH (Method 418.1)	EDB (Method 504.1)	PAH'S (8310	<b>RCRA 8 Metals</b>	Anions (F,C	8081 Pestic	8250B (VOA)	8270 (Semi-				Air Bubbles (Y or N)
2-16	1300 1305 1250 1255 1245		BH-6@9' BH-6@18' BH-7@11' BH-7@12' BH-8@16'	(1) 402.	<u>2001</u>	-001 -002 -003 -001 -005	XXXXX		XXXXX												
	1240		BH-9@16'		-1/	-000	X		×												
ite: 16 ite:	Time: 1611 Time: 1834	Relinquish	ned by Many	Received by: Received by:	tu liae	Date Time 8/2/10 1611 Date Time 8/03/16 0720		narks Sø i		do	at	C	n a	ß	5.14	- (	2	Bily	B	H-	7

issary, 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.



# ANALYTICAL REPORT

May 05, 2017



### **XTO Energy - San Juan Division**

Sample Delivery Group: Samples Received: Project Number: Description: Site: Report To:

L905176 04/26/2017

OH RANDEL #5 James McDaniel 382 County Road 3100 Aztec, NM 87410

Entire Report Reviewed By: Naphne R Richards

Daphne Richards Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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L905176

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#### ONE LAB. NATIONWIDE.

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BH-11 20-25' L905176-01 Solid			Collected by D. Burns	Collected date/time 04/19/17 12:15	Received date/time 04/26/17 12:15
Method	Batch	Dilution	Preparation	Analysis	Analyst
			date/time	date/time	
Total Solids by Method 2540 G-2011	WG974587	1	04/28/17 09:43	04/28/17 09:54	KDW
Volatile Organic Compounds (GC) by Method 8015/8021	WG975972	.99	05/02/17 09:39	05/03/17 16:49	BMB
emi-Volatile Organic Compounds (GC) by Method 8015	WG975037	1	05/01/17 21:13	05/02/17 09:26	ACM
3H-12 0-10' L905176-02 Solid			Collected by D. Burns	Collected date/time 04/19/17 13:00	Received date/time 04/26/17 12:15
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Mothod 2E40 C 2011	WC074597	1	04/28/17 09:43		KDW
Total Solids by Method 2540 G-2011 Volatile Organic Compounds (GC) by Method 8015/8021	WG974587 WG975972	.97	05/02/17 09:39	04/28/17 09:54 05/03/17 17:11	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015/8021	WG975037	1	05/01/17 21:13	05/02/17 10:07	ACM
3H-12 10-15' L905176-03 Solid			Collected by D. Burns	Collected date/time 04/19/17 13:15	Received date/time 04/26/17 12:15
Method	Batch	Dilution	Preparation	Analysis	Analyst
			date/time	date/time	
Total Solids by Method 2540 G-2011	WG974587	1	04/28/17 09:43	04/28/17 09:54	KDW
/olatile Organic Compounds (GC) by Method 8015/8021	WG975972	200	05/02/17 09:39	05/03/17 13:29	BMB
emi-Volatile Organic Compounds (GC) by Method 8015	WG975037	1	05/01/17 21:13	05/02/17 10:20	ACM
BH-12 15-20' L905176-04 Solid			Collected by D. Burns	Collected date/time 04/19/17 13:25	Received date/time 04/26/17 12:15
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG974587	1	04/28/17 09:43	04/28/17 09:54	KDW
/olatile Organic Compounds (GC) by Method 8015/8021	WG975972	.93	05/02/17 09:39	05/03/17 17:33	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG975037	1	05/01/17 21:13	05/02/17 10:34	ACM
Semi-Volatile Organic Compounds (GC) by Method 8015	WG975037	10	05/01/17 21:13	05/02/17 12:10	ACM
BH-12 20-25' L905176-05 Solid			Collected by D. Burns	Collected date/time 04/19/17 13:40	Received date/tim 04/26/17 12:15
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG974587	1	04/28/17 09:43	04/28/17 09:54	KDW
Volatile Organic Compounds (GC) by Method 8015/8021	WG975972	.98	05/02/17 09:39	05/03/17 17:55	BMB
emi-Volatile Organic Compounds (GC) by Method 8015	WG975037	1	05/01/17 21:13	05/02/17 10:47	ACM
BH-12 25-30' L905176-06 Solid			Collected by D. Burns	Collected date/time 04/19/17 14:00	Received date/tim 04/26/17 12:15
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG974587	1	04/28/17 09:43	04/28/17 09:54	KDW
Volatile Organic Compounds (GC) by Method 8015/8021	WG975972	196	05/02/17 09:39	05/03/17 23:15	DWR

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Batch WG974587 WG975972 WG975037 WG975037 Batch	Dilution 1 2475 1 20 Dilution	Preparation date/time 04/28/17 09:43 05/02/17 09:39 05/01/17 21:13 05/01/17 21:13 Collected by D. Burns	Analysis date/time 04/28/17 09:54 05/03/17 23:36 05/02/17 15:10 05/02/17 15:24 Collected date/time 04/19/17 15:40	Analyst KDW DWR ACM ACM Received date/time 04/26/17 12:15
WG974587 WG975972 WG975037 WG975037	1 2475 1 20	date/time 04/28/17 09:43 05/02/17 09:39 05/01/17 21:13 05/01/17 21:13 Collected by D. Burns	date/time 04/28/17 09:54 05/03/17 23:36 05/02/17 15:10 05/02/17 15:24 Collected date/time	KDW DWR ACM ACM Received date/time
WG975972 WG975037 WG975037 Batch	2475 1 20	04/28/17 09:43 05/02/17 09:39 05/01/17 21:13 05/01/17 21:13 Collected by D. Burns	04/28/17 09:54 05/03/17 23:36 05/02/17 15:10 05/02/17 15:24 Collected date/time	DWR ACM ACM Received date/time
WG975972 WG975037 WG975037 Batch	1 20	05/02/17 09:39 05/01/17 21:13 05/01/17 21:13 Collected by D. Burns	05/03/17 23:36 05/02/17 15:10 05/02/17 15:24 Collected date/time	DWR ACM ACM Received date/tim
WG975037 WG975037 Batch	1 20	05/01/17 21:13 05/01/17 21:13 Collected by D. Burns	05/02/17 15:10 05/02/17 15:24 Collected date/time	ACM ACM Received date/tim
WG975037 Batch	20	05/01/17 21:13 Collected by D. Burns	05/02/17 15:24 Collected date/time	ACM Received date/tim
	Dilution	D. Burns		
	Dilution		04/19/17 15:40	04/26/17 12:15
	Dilution	D		
WCO74E97			Analysis date/time	Analyst
VV(19/400/	1			KDW
				BMB
WG975037	1	05/01/17 21:13	05/02/17 11:15	ACM
		Collected by	Collected date/time	Received date/tim
		D. Burns	04/19/17 15:50	04/26/17 12:15
Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
WG974587	1	04/28/17 09:43	04/28/17 09:54	KDW
WG975972	.98	05/02/17 09:39	05/03/17 19:23	BMB
WG975037	1	05/01/17 21:13	05/02/17 11:28	ACM
		Collected by	Collected date/time	Received date/tim
	1.1	D. Burns	04/19/17 16:00	04/26/17 12:15
Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
WG974587	1	04/28/17 09:43	04/28/17 09:54	KDW
WG975972	1	05/02/17 09:39	05/03/17 19:45	BMB
WG975037	1	05/01/17 21:13	05/02/17 11:42	ACM
		Collected by	Collected date/time	Received date/tim
	14-1	D. Burns	04/19/17 16:10	04/26/17 12:15
Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
WG974589	1			KDW
				DWR
WG975037	1	05/01/17 21:13	05/02/17 11:57	ACM
		Collected by D. Burns	Collected date/time 04/19/17 16:20	Received date/tim 04/26/17 12:15
Batch	Dilution	Preparation	Analysis date/time	Analyst
WG974580	1			KDM
				KDW BMB
WG3/203/	· · · ·	05/01/17 21:13	05/02/17 13:00	ACM
	Batch WG974587 WG975972 WG975037 Batch WG974587 WG975972 WG975037 Batch WG974589 WG975972 WG975972 WG975972 WG975972	WG974587       1         WG975037       .98         WG975037       1         Batch       Dilution         WG975972       .98         WG975972       .98         WG975037       1         Batch       Dilution         WG975037       1         WG975037       1         Batch       Dilution         WG975037       1         WG975972       200         WG975937       1	WG974587         1         04/28/17 09:43           WG975972         98         05/02/17 09:39           WG975037         1         05/01/17 21:13           WG975037         1         05/01/17 21:13           Batch         Dilution         Preparation date/time           WG974587         1         04/28/17 09:43           WG975972         .98         05/02/17 09:39           WG975037         1         05/02/17 09:39           WG975037         1         05/01/17 21:13           Batch         Dilution         Preparation date/time           WG974587         1         04/28/17 09:43           WG975972         .98         05/02/17 09:39           WG975972         1         05/01/17 21:13           WG975972         1         05/02/17 09:39           WG975037         1         05/01/17 21:13           WG975037         1         05/01/17 21:13           Batch         Dilution         Preparation date/time           WG975972         200         05/02/17 09:39           WG975037         1         05/01/17 21:13           Batch         Dilution         Preparation date/time           WG975972         200         05/02	date/time         date/time           WG974587         1         04/28/17 09:43         04/28/17 09:54           WG975037         38         05/02/17 09:39         05/03/17 23:36           WG975037         1         05/01/17 21:13         05/02/17 11:15           Batch         Dilution         Preparation date/time         Analysis           WG974587         1         04/28/17 09:43         04/28/17 09:54           WG974587         1         04/28/17 09:43         04/28/17 09:54           WG975972         .98         05/02/17 09:39         05/03/17 19:23           WG975037         1         05/01/17 21:13         05/02/17 11:28           WG975037         1         05/02/17 09:39         05/03/17 19:23           WG975972         .98         05/02/17 09:43         04/28/17 09:54           WG975972         1         05/02/17 09:39         05/03/17 19:23           WG975972         1         05/02/17 09:39         05/03/17 19:45           WG975972         1         05/02/17 09:39         05/03/17 19:45           WG975972         1         05/02/17 09:39         05/03/17 19:28           WG974589         1         04/27/17 15:10         04/27/17 15:28           WG975037

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BH-13 30-35' L905176-13 Solid			Collected by D. Burns	Collected date/time 04/19/17 16:35	Received date/time 04/26/17 12:15
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG974589	1	04/27/17 15:10	04/27/17 15:28	KDW
Volatile Organic Compounds (GC) by Method 8015/8021	WG975972	194	05/02/17 09:39	05/03/17 20:51	BMB
emi-Volatile Organic Compounds (GC) by Method 8015	WG975037	1	05/01/17 21:13	05/02/17 13:18	ACM
BH-14 15-20' L905176-14 Solid			Collected by D. Burns	Collected date/time 04/20/17 09:30	Received date/time 04/26/17 12:15
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG974589	1	04/27/17 15:10	04/27/17 15:28	KDW
/olatile Organic Compounds (GC) by Method 8015	WG975972	.97	05/02/17 09:39	05/03/17 21:13	BMB
/olatile Organic Compounds (GC) by Method 8021	WG975972	.98	05/02/17 09:39	05/04/17 04:25	ACG
semi-Volatile Organic Compounds (GC) by Method 8015	WG975037	1	05/01/17 21:13	05/02/17 13:33	ACM
3H-14 20-25' L905176-15 Solid			Collected by D. Burns	Collected date/time 04/20/17 09:45	Received date/time 04/26/17 12:15
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG974589	1	04/27/17 15:10	04/27/17 15:28	KDW
platile Organic Compounds (GC) by Method 8015/8021	WG975972	.94	05/02/17 09:39	05/03/17 23:58	ACG
emi-Volatile Organic Compounds (GC) by Method 8015	WG975037	1	05/01/17 21:13	05/02/17 13:46	ACM
3H-15 0-10' L905176-16 Solid			Collected by D. Burns	Collected date/time 04/20/17 11:30	Received date/time 04/26/17 12:15
Method	Batch	Dilution	Preparation	Analysis	Analyst
			date/time	date/time	
otal Solids by Method 2540 G-2011	WG974589	1	04/27/17 15:10	04/27/17 15:28	KDW
olatile Organic Compounds (GC) by Method 8015/8021	WG975972	49.5	05/02/17 09:39	05/04/17 18:39	BMB
emi-Volatile Organic Compounds (GC) by Method 8015	WG975037	1	05/01/17 21:13	05/02/17 14:00	ACM
BH-15 10-15' L905176-17 Solid			Collected by D. Burns	Collected date/time 04/20/17 11:40	Received date/time 04/26/17 12:15
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG974589	1	04/27/17 15:10	04/27/17 15:28	KDW
/olatile Organic Compounds (GC) by Method 8015/8021	WG975972	98	05/02/17 09:39	05/04/17 19:01	BMB
emi-Volatile Organic Compounds (GC) by Method 8015	WG975037	1	05/01/17 21:13	05/02/17 14:14	ACM
BH-15 15-20' L905176-18 Solid			Collected by D. Burns	Collected date/time 04/20/17 11:45	Received date/time 04/26/17 12:15
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG974589	1	04/27/17 15:10	04/27/17 15:28	KDW
Volatile Organic Compounds (GC) by Method 8015/8021	WG975972	196	05/02/17 09:39	05/04/17 01:05	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG975037	1	05/01/17 21:13	05/02/17 14:27	ACM

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BH-15 20-25' L905176-19 Solid			Collected by D. Burns	Collected date/time 04/20/17 12:00	Received date/time 04/26/17 12:15
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG974589	1	04/27/17 15:10	04/27/17 15:28	KDW
Volatile Organic Compounds (GC) by Method 8015/8021	WG975972	198	05/02/17 09:39	05/04/17 01:27	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG975037	1	05/01/17 21:13	05/02/17 14:41	ACM
			Collected by D. Burns	Collected date/time 04/20/17 13:20	Received date/time 04/26/17 12:15
BH-15 30-32' L905176-20 Solid	No. Contractor	1000			
Method	Batch	Dilution	Preparation	Analysis	Analyst
	north and the fit will be an an an and the statement of t		date/time	date/time	
Total Solids by Method 2540 G-2011	WG974589	1	04/27/17 15:10	04/27/17 15:28	KDW
Volatile Organic Compounds (GC) by Method 8015/8021	WG975972	49	05/02/17 09:39	05/04/17 19:24	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG975037	1	05/01/17 21:13	05/02/17 14:55	ACM
			Collected by D. Burns	Collected date/time 04/20/17 14:20	Received date/time 04/26/17 12:15
BH-16 0-10' L905176-21 Solid				0 120 11 1120	01/20/17 12:13
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG974591	1	04/27/17 14:57	04/27/17 15:05	KDW
Volatile Organic Compounds (GC) by Method 8015/8021	WG975980	.98	05/02/17 09:39	05/03/17 03:38	LRL
Semi-Volatile Organic Compounds (GC) by Method 8015	WG975038	1	04/29/17 12:28	05/01/17 13:39	KLM
BH-16 10-15' L905176-22 Solid			Collected by D. Burns	Collected date/time 04/20/17 14:30	Received date/time 04/26/17 12:15
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG974591	1	04/27/17 14:57	04/27/17 15:05	KDW
Volatile Organic Compounds (GC) by Method 8015/8021	WG975980	.95	05/02/17 09:39	05/03/17 04:00	LRL
Semi-Volatile Organic Compounds (GC) by Method 8015	WG975038	1	04/29/17 12:28	05/01/17 13:53	KLM
BH-16 15-20' L905176-23 Solid			Collected by D. Burns	Collected date/time 04/20/17 14:40	Received date/time 04/26/17 12:15
Method	Batch	Dilution	Preparation	Anabrais	Applyst
vietnou	Batch	Dilution	date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG974591	1	04/27/17 14:57	04/27/17 15:05	KDW
Volatile Organic Compounds (GC) by Method 8015/8021	WG975980	495	05/02/17 09:39	05/04/17 19:46	BMB
Volatile Organic Compounds (GC) by Method 8021	WG975980	24.75	05/02/17 09:39	05/04/17 02:33	GLN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG975038	1	04/29/17 12:28	05/01/17 13:26	KLM
BH-16 23-25' L905176-24 Solid			Collected by D. Burns	Collected date/time 04/20/17 15:15	Received date/time 04/26/17 12:15
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG974591	1	04/27/17 14:57	04/27/17 15:05	KDW
Volatile Organic Compounds (GC) by Method 8015/8021	WG975980	200	05/02/17 09:39	05/03/17 01:03	LRL
Semi-Volatile Organic Compounds (GC) by Method 8015/8021	WG975038	1	04/29/17 12:28	05/01/17 12:58	KLM
			5 1120111 12.2U	03/01/17 12:00	NLM

ONE LAB. NATIONWIDE.

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BH-16 25-27' L905176-25 Solid			Collected by D. Burns	Collected date/time 04/20/17 15:30	Received date/time 04/26/17 12:15
Method	Batch	Dilution	Preparation	Analysis	Analyst
			date/time	date/time	
Total Solids by Method 2540 G-2011	WG974591	1	04/27/17 14:57	04/27/17 15:05	KDW
Volatile Organic Compounds (GC) by Method 8015/8021	WG975980	200	05/02/17 09:39	05/03/17 04:44	LRL
Semi-Volatile Organic Compounds (GC) by Method 8015	WG975038	1	04/29/17 12:28	05/01/17 13:12	KLM
			Collected by	Collected date/time	Received date/tim
3H-16 27-29' L905176-26 Solid			D. Burns	04/20/17 15:40	04/26/17 12:15
Method	Batch	Dilution	Preparation	Analysis	Analyst
			date/time	date/time	
fotal Solids by Method 2540 G-2011	WG974591	1	04/27/17 14:57	04/27/17 15:05	KDW
/olatile Organic Compounds (GC) by Method 8015	WG975980	500	05/02/17 09:39	05/04/17 20:08	BMB
Volatile Organic Compounds (GC) by Method 8021	WG975980	25	05/02/17 09:39	05/04/17 02:55	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG975038	1	04/29/17 12:28	05/01/17 12:31	KLM
			Collected by	Collected date/time	Received date/tim
BH-16 33-35' L905176-27 Solid			D. Burns	04/20/17 16:05	04/26/17 12:15
Method	Batch	Dilution	Preparation	Analysis	Analyst
			date/time	date/time	WOUL
Total Solids by Method 2540 G-2011	WG974591	1	04/27/17 14:57	04/27/17 15:05	KDW
Volatile Organic Compounds (GC) by Method 8015/8021	WG975980	.97	05/02/17 09:39	05/03/17 05:28	LRL
Semi-Volatile Organic Compounds (GC) by Method 8015	WG975038	1	04/29/17 12:28	05/01/17 11:50	KLM
			Collected by	Collected date/time	Received date/tim
BH-17 20-25' L905176-28 Solid			D. Burns	04/21/17 10:30	04/26/17 12:15
Method	Batch	Dilution	Preparation	Analysis	Analyst
Total Salida by Mathad 2540 C 2011	WC074E01	1	date/time 04/27/17 14:57	date/time 04/27/17 15:05	KDW
Fotal Solids by Method 2540 G-2011	WG974591				
Volatile Organic Compounds (GC) by Method 8015/8021	WG975980	1	05/02/17 09:39	05/03/17 05:50	LRL
Semi-Volatile Organic Compounds (GC) by Method 8015	WG975038	1	04/29/17 12:28	05/01/17 12:45	KLM
			Collected by	Collected date/time	Received date/tim
BH-18 30-32' L905176-29 Solid			D. Burns	04/24/17 09:00	04/26/17 12:15
Method	Batch	Dilution	Preparation	Analysis	Analyst
			date/time	date/time	
Total Solids by Method 2540 G-2011	WG974591	1	04/27/17 14:57	04/27/17 15:05	KDW
Volatile Organic Compounds (GC) by Method 8015/8021	WG975980	.98	05/02/17 09:39	05/04/17 03:17	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG975038	1	04/29/17 12:28	05/01/17 12:18	KLM
BH-19 30-35' L905176-30 Solid			Collected by D. Burns	Collected date/time 04/24/17 10:25	Received date/tim 04/26/17 12:15
Method	Batch	Dilution	Preparation	Analysis	Analyst
	Daten	Unation	date/time	date/time	Analyst
	WG974591	1	04/27/17 14:57	04/27/17 15:05	KDW
Total Solids by Method 2540 G-2011 Volatile Organic Compounds (GC) by Method 8015/8021	WG974591 WG975980	1 .97		04/27/17 15:05 05/04/17 03:40	KDW ACG

PROJECT:

#### CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Dapline R Richards

Daphne Richards Technical Service Representative

ACCOUNT: XTO Energy - San Juan Division PROJECT:

SDG: L905176 DATE/TIME: 05/05/17 14:28 PAGE: 9 of 54

BH-11	20-25		
Collected	date/time:	04/19/17	12:15

# SAMPLE RESULTS - 01

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#### Total Solids by Method 2540 G-2011

,						
	Result	Qualifier	Dilution	Analysis	Batch	
Analyte	%			date / time		
Total Solids	80.9		1	04/28/2017 09:54	WG974587	

#### Volatile Organic Compounds (GC) by Method 8015/8021

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg		date / time		
Benzene	ND		0.000612	.99	05/03/2017 16:49	WG975972	
Toluene	ND		0.00612	.99	05/03/2017 16:49	WG975972	
Ethylbenzene	ND		0.000612	.99	05/03/2017 16:49	WG975972	
Total Xylene	0.00220	B	0.00184	.99	05/03/2017 16:49	WG975972	
TPH (GC/FID) Low Fraction	ND		0.122	.99	05/03/2017 16:49	WG975972	
(S) a,a,a-Trifluorotoluene(FID)	99.4		77.0-120		05/03/2017 16:49	WG975972	
(S) a,a,a-Trifluorotoluene(PID)	91.9		75.0-128		05/03/2017 16:49	WG975972	

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	A
Analyte	mg/kg		mg/kg		date / time		
C10-C28 Diesel Range	ND		4.95	1	05/02/2017 09:26	WG975037	950
C28-C40 Oil Range	ND		4.95	1	05/02/2017 09:26	WG975037	SC
(S) o-Terphenyl	70.0		18.0-148		05/02/2017 09:26	WG975037	

#### BH-12 0-10' Collected date/time: 04/19/17 13:00

# SAMPLE RESULTS - 02

ONE LAB. NATIONWIDE.

#### Total Solids by Method 2540 G-2011

	Result	Qualifier	Dilution	Analysis	Batch
Analyte	%			date / time	
Total Solids	90.1		1	04/28/2017 09:54	WG974587

#### Volatile Organic Compounds (GC) by Method 8015/8021

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg		date / time		
Benzene	ND		0.000538	.97	05/03/2017 17:11	WG975972	
Toluene	ND		0.00538	.97	05/03/2017 17:11	WG975972	
Ethylbenzene	ND		0.000538	.97	05/03/2017 17:11	WG975972	
Total Xylene	ND		0.00161	.97	05/03/2017 17:11	WG975972	
TPH (GC/FID) Low Fraction	ND		0.108	.97	05/03/2017 17:11	WG975972	
(S) a,a,a-Trifluorotoluene(FID)	101		77.0-120		05/03/2017 17:11	WG975972	
(S) a,a,a-Trifluorotoluene(PID)	92.2		75.0-128		05/03/2017 17:11	WG975972	

#### Semi-Volatile Organic Compounds (GC) by Method 8015

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	5.66		4.44	1	05/02/2017 10:07	WG975037
C28-C40 Oil Range	ND		4.44	1	05/02/2017 10:07	WG975037
(S) o-Terphenyl	68.5		18.0-148		05/02/2017 10:07	WG975037

<sup>2</sup>Tc <sup>3</sup>Ss <sup>4</sup>Cn <sup>5</sup>Sr <sup>6</sup>Qc <sup>7</sup>Gl <sup>8</sup>Al

BH-12 10-15' Collected date/time: 04/19/17	13:15	S	AMPL	E RESU	LTS - 03		ONE LAB. NATIONWIDE.	
Total Solids by Method	2540 G-20	11						1
1	Result	Qualifier	Dilution A	Analysis	Batch			C
Analyte	%		d	date / time				2
Total Solids	91.1		1 0	04/28/2017 09:54	WG974587			Ť
Volatile Organic Comp	ounds (GC)	hy Method	8015/80	)21				3
volatile erganne eentip	001103 (00)	by method	0010/00					5
relationer genier benip	Result (dry)	Qualifier	RDL (dry)		Analysis	Batch		S
Analyte		-			Analysis date / time	Batch	1	
	Result (dry)	-	RDL (dry)			Batch WG975972	1	
Analyte	Result (dry) mg/kg	-	RDL (dry) mg/kg	y) Dilution	date / time			4 C
Analyte Benzene	Result (dry) mg/kg ND	-	RDL (dry) mg/kg 0.110	y) Dilution	date / time 05/03/2017 13:29	WG975972		4
Analyte Benzene Toluene	Result (dry) mg/kg ND ND	Qualifier	RDL (dry) mg/kg 0.110 1.10	<ul> <li>Dilution</li> <li>200</li> <li>200</li> </ul>	date / time 05/03/2017 13:29 05/03/2017 13:29	WG975972 WG975972		4 C
Analyte Benzene Toluene Ethylbenzene Total Xylene	Result (dry) mg/kg ND ND 0.403	-	RDL (dry) mg/kg 0.110 1.10 0.110	<ul> <li>Dilution</li> <li>200</li> <li>200</li> <li>200</li> <li>200</li> </ul>	date / time 05/03/2017 13:29 05/03/2017 13:29 05/03/2017 13:29	WG975972 WG975972 WG975972		4 5 5 6
Analyte Benzene Toluene Ethylbenzene	Result (dry) mg/kg ND ND 0.403 2.11	Qualifier	RDL (dry) mg/kg 0.110 1.10 0.110 0.329	<ul> <li>Dilution</li> <li>200</li> <li>200</li> <li>200</li> <li>200</li> <li>200</li> <li>200</li> <li>200</li> <li>200</li> </ul>	date / time 05/03/2017 13:29 05/03/2017 13:29 05/03/2017 13:29 05/03/2017 13:29	WG975972 WG975972 WG975972 WG975972		4 C

Semi-Volatile Organ	nic Compounds	(GC) by M	ethod 8015	5		
	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	39.7		4.39	1	05/02/2017 10:20	WG975037
C28-C40 Oil Range	ND		4.39	1	05/02/2017 10:20	WG975037
(S) o-Terphenyl	70.7		18.0-148		05/02/2017 10:20	WG975037

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#### BH-12 15-20' Collected date/time: 04/19/17 13:25

# SAMPLE RESULTS - 04

#### Total Solids by Method 2540 G-2011

	Result	Qualifier	Dilution	Analysis	Batch	
Analyte	%			date / time		
Total Solids	86.9		1	04/28/2017 09:54	WG974587	

#### Volatile Organic Compounds (GC) by Method 8015/8021

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg		date / time		
Benzene	0.000728		0.000535	.93	05/03/2017 17:33	WG975972	
Toluene	0.00750		0.00535	.93	05/03/2017 17:33	WG975972	
Ethylbenzene	0.00379		0.000535	.93	05/03/2017 17:33	WG975972	
Total Xylene	0.0779		0.00161	.93	05/03/2017 17:33	WG975972	
TPH (GC/FID) Low Fraction	2.36		0.107	.93	05/03/2017 17:33	WG975972	
(S) a,a,a-Trifluorotoluene(FID)	101		77.0-120		05/03/2017 17:33	WG975972	
(S) a,a,a-Trifluorotoluene(PID)	91.9		75.0-128		05/03/2017 17:33	WG975972	

#### Semi-Volatile Organic Compounds (GC) by Method 8015

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	508		46.0	10	05/02/2017 12:10	WG975037
C28-C40 Oil Range	8.00		4.60	1	05/02/2017 10:34	WG975037
(S) o-Terphenyl	72.6		18.0-148		05/02/2017 10:34	WG975037
(S) o-Terphenyl	63.2		18.0-148		05/02/2017 12:10	WG975037

BH-12 20-25' Collected date/time: 04/19/17	13:40			L905176	LTS - 05		
Total Solids by Method	2540 G-20	011					1
	Result	Qualifier	Dilution Analys		Batch		
Analyte	%		date /	time			2
Total Solids	89.4		1 04/28	/2017 09:54	WG974587		T
Volatile Organic Comp	ounds (GC)	hy Method	8015/8021				3
Volatile Organie Comp	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	-
Analyte	mg/kg		mg/kg		date / time	and the second	4
Benzene	0.00535		0.000548	.98	05/03/2017 17:55	WG975972	
Toluene	0.0218		0.00548	.98	05/03/2017 17:55	WG975972	
Ethylbenzene	0.0114		0.000548	.98	05/03/2017 17:55	WG975972	ື S
Total Xylene	0.156		0.00164	.98	05/03/2017 17:55	WG975972	
TPH (GC/FID) Low Fraction	4.02		0.110	.98	05/03/2017 17:55	WG975972	6
(S) a,a,a-Trifluorotoluene(FID)	99.4		77.0-120		05/03/2017 17:55	WG975972	
(S) a,a,a-Trifluorotoluene(PID)	91.8		75.0-128		05/03/2017 17:55	WG975972	7
Semi-Volatile Organic	Compound	s (GC) by N	lethod 8015				0
and the second second	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	- <sup>8</sup> A
Analyte	mg/kg		mg/kg		date / time		L
C10-C28 Diesel Range	67.1		4.48	1	05/02/2017 10:47	WG975037	9
C28-C40 Oil Range	ND		4.48	1	05/02/2017 10:47	WG975037	-
(S) o-Terphenyl	62.1		18.0-148		05/02/2017 10:47	WG975037	

BH-12 25-30' Collected date/time: 04/19/1	7 14:00	S	SAMPL	E RESU	LTS - 06		ONE LAB. NATIONWIDE.	*
Total Solids by Method	d 2540 G-20	11						1
	Result	Qualifier	Dilution	Analysis	Batch			Ср
Analyte	%			date / time				2
Total Solids	89.2		1	04/28/2017 09:54	WG974587			Tc
Volatile Organic Comp	ounds (GC)	by Method	8015/80	021				<sup>3</sup> Ss
	Result (dry)	Qualifier	RDL (dr	y) Dilution	Analysis	Batch		
Analyte	mg/kg		mg/kg		date / time			4
Benzene	0.149		0.110	196	05/03/2017 23:15	WG975972		Cn
Toluene	2.98		1.10	196	05/03/2017 23:15	WG975972		c
Ethylbenzene	2.82		0.110	196	05/03/2017 23:15	WG975972		°Sr
Total Xylene	55.5		0.330	196	05/03/2017 23:15	WG975972		
TPH (GC/FID) Low Fraction	1260		22.0	196	05/03/2017 23:15	WG975972		<sup>6</sup> Qc
(S) a,a,a-Trifluorotoluene(FID)	102		77.0-12	0	05/03/2017 23:15	WG975972		ac
(S) a,a,a-Trifluorotoluene(PID)	105		75.0-12	8	05/03/2017 23:15	WG975972		7
Semi-Volatile Organic	Compounds	(GC) by N	lethod 8	015				GI
	Result (dry)	Qualifier	RDL (dr	ry) Dilution	Analysis	Batch		<sup>8</sup> AI
Analyte	mg/kg		mg/kg		date / time			
C10-C28 Diesel Range	275		4.48	1	05/02/2017 11:01	WG975037		9
C28-C40 Oil Range	ND		4.48	1	05/02/2017 11:01	WG975037		Sc
								Real Property lies and the second sec

05/02/2017 11:01

WG975037

18.0-148

70.2

(S) o-Terphenyl

<b>BH-12</b>	30-35	1	
Collected	date/time:	04/19/17	14:35

# SAMPLE RESULTS - 07

ONE LAB. NATIONWIDE.

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#### Total Solids by Method 2540 G-2011

	Result	Qualifier	Dilution	Analysis	Batch	Ср
Analyte	%			date / time		2
Total Solids	92.8		1	04/28/2017 09:54	WG974587	Tc

#### Volatile Organic Compounds (GC) by Method 8015/8021

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
Benzene	66.3		1.33	2475	05/03/2017 23:36	WG975972
Toluene	392		13.3	2475	05/03/2017 23:36	WG975972
Ethylbenzene	39.8		1.33	2475	05/03/2017 23:36	WG975972
Total Xylene	558		4.00	2475	05/03/2017 23:36	WG975972
TPH (GC/FID) Low Fraction	11400		267	2475	05/03/2017 23:36	WG975972
(S) a,a,a-Trifluorotoluene(FID)	93.5		77.0-120		05/03/2017 23:36	WG975972
(S) a,a,a-Trifluorotoluene(PID)	103		75.0-128		05/03/2017 23:36	WG975972

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	AI
Analyte	mg/kg		mg/kg		date / time		
C10-C28 Diesel Range	687		86.2	20	05/02/2017 15:24	WG975037	950
C28-C40 Oil Range	26.7		4.31	1	05/02/2017 15:10	WG975037	SC
(S) o-Terphenyl	81.2		18.0-148		05/02/2017 15:10	WG975037	-
(S) o-Terphenyl	54.8	<u>J7</u>	18.0-148		05/02/2017 15:24	WG975037	

BH-13 0-10' Collected date/time: 04/19/17	7 15:40	S	SAMPLE	RESU	LTS - 08	ONE LAB. NATIONWI	DE.
Total Solids by Method	d 2540 G-20	)11					1
	Result	Qualifier	Dilution Analy	sis	Batch		
Analyte	%		date /	time			
Total Solids	86.0		1 04/28	/2017 09:54	WG974587		
Volatile Organic Comp	ounds (GC)	by Method	8015/8021				3
	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	- L
Analyte	mg/kg		mg/kg		date / time		4
Benzene	ND		0.000570	.98	05/03/2017 23:36	WG975972	
Toluene	ND		0.00570	.98	05/03/2017 23:36	WG975972	
Ethylbenzene	ND		0.000570	.98	05/03/2017 23:36	WG975972	
Total Xylene	ND		0.00171	.98	05/03/2017 23:36	WG975972	
TPH (GC/FID) Low Fraction	ND		0.114	.98	05/03/2017 23:36	WG975972	6
(S) a,a,a-Trifluorotoluene(FID)	101		77.0-120		05/03/2017 23:36	WG975972	11
(S) a, a, a-Trifluorotoluene(PID)	92.3		75.0-128		05/03/2017 23:36	WG975972	Г
Semi-Volatile Organic	Compounds	GC) by N	lethod 8015				L
	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	8
Analyte	mg/kg		mg/kg		date / time		L
C10-C28 Diesel Range	ND		4.65	1	05/02/2017 11:15	WG975037	5
C28-C40 Oil Range	ND		4.65	1	05/02/2017 11:15	WG975037	
(S) o-Terphenyl	65.0		18.0-148		05/02/2017 11:15	WG975037	

BH-13 10-15' Collected date/time: 04/19/17	7 15:50	Ş		RESU	LTS - 09		ONE LAB. NATIONWIDE.
Total Solids by Method	1 2540 G-20	)11					
Analyte	Result %	Qualifier	Dilution Analys		Batch		
Total Solids	86.5		1 04/28/	/2017 09:54	WG974587		
Volatile Organic Comp	ounds (GC)	by Method	8015/8021				
	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg		date / time		
Benzene	0.00113		0.000567	.98	05/03/2017 19:23	WG975972	
Toluene	ND		0.00567	.98	05/03/2017 19:23	WG975972	
Ethylbenzene	ND		0.000567	.98	05/03/2017 19:23	WG975972	
Total Xylene	0.0444		0.00170	.98	05/03/2017 19:23	WG975972	
TPH (GC/FID) Low Fraction	1.32		0.113	.98	05/03/2017 19:23	WG975972	
(S) a,a,a-Trifluorotoluene(FID)	98.3		77.0-120		05/03/2017 19:23	WG975972	
(S) a,a,a-Trifluorotoluene(PID)	90.1		75.0-128		05/03/2017 19:23	WG975972	
Semi-Volatile Organic	Compounds	GC) by N	lethod 8015				
	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg		date / time		
C10-C28 Diesel Range	ND		4.63	1	05/02/2017 11:28	WG975037	
allow the second s							

1

05/02/2017 11:28

05/02/2017 11:28

4.63

18.0-148

C28-C40 Oil Range

(S) o-Terphenyl

ND

72.6

SDG: L905176 DATE/TIME: 05/05/17 14:28

WG975037

WG975037

PAGE: 18 of 54

-

Тс

Ss

Cn

Qc

GI

AI

BH-13	15-20	1	
Collected	date/time:	04/19/17	16:00

# SAMPLE RESULTS - 10

Тс

Ss

Cn

Qc

GI

#### Total Solids by Method 2540 G-2011

	Result	Qualifier	Dilution	Analysis	Batch	1
Analyte	%			date / time	17.44	
Total Solids	84.7		1	04/28/2017 09:54	WG974587	

#### Volatile Organic Compounds (GC) by Method 8015/8021

And the second	and the second se	and the second se	The second s	the second s	the second se	the second s
	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
Benzene	ND		0.000590	1	05/03/2017 19:45	WG975972
Toluene	ND		0.00590	1	05/03/2017 19:45	WG975972
Ethylbenzene	ND		0.000590	1	05/03/2017 19:45	WG975972
Total Xylene	0.0132		0.00177	1	05/03/2017 19:45	WG975972
TPH (GC/FID) Low Fraction	0.672		0.118	1	05/03/2017 19:45	WG975972
(S) a,a,a-Trifluorotoluene(FID)	98.9		77.0-120		05/03/2017 19:45	WG975972
(S) a,a,a-Trifluorotoluene(PID)	90.1		75.0-128		05/03/2017 19:45	WG975972

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	·	A
Analyte	mg/kg		mg/kg		date / time			
C10-C28 Diesel Range	8.14		4.72	1	05/02/2017 11:42	WG975037	and a second s	9
C28-C40 Oil Range	ND		4.72	1	05/02/2017 11:42	WG975037	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	SC
(S) o-Terphenyl	58.1		18.0-148		05/02/2017 11:42	WG975037		1

#### BH-13 20-25' Collected date/time: 04/19/17 16:10

### SAMPLE RESULTS - 11

#### Total Solids by Method 2540 G-2011

	Result	Qualifier	Dilution	Analysis	Batch
Analyte	%			date / time	
Total Solids	88.1		1	04/27/2017 15:28	WG974589

#### Volatile Organic Compounds (GC) by Method 8015/8021

1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
Benzene	ND		0.114	200	05/03/2017 23:57	WG975972
Toluene	ND		1.14	200	05/03/2017 23:57	WG975972
Ethylbenzene	1.59		0.114	200	05/03/2017 23:57	WG975972
Total Xylene	31.6		0.341	200	05/03/2017 23:57	WG975972
TPH (GC/FID) Low Fraction	698		22.7	200	05/03/2017 23:57	WG975972
(S) a,a,a-Trifluorotoluene(FID)	103		77.0-120		05/03/2017 23:57	WG975972
(S) a,a,a-Trifluorotoluene(PID)	105		75.0-128		05/03/2017 23:57	WG975972

#### Sample Narrative:

8015/8021 L905176-11 WG975972: Non-target compounds too high to run at a lower dilution.

#### Semi-Volatile Organic Compounds (GC) by Method 8015

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg		date / time		
C10-C28 Diesel Range	120		4.54	1	05/02/2017 11:57	WG975037	
C28-C40 Oil Range	5.29		4.54	1	05/02/2017 11:57	WG975037	
(S) o-Terphenyl	67.2		18.0-148		05/02/2017 11:57	WG975037	

Cp <sup>2</sup>Tc <sup>3</sup>Ss <sup>4</sup>Cn <sup>5</sup>Sr <sup>6</sup>Qc <sup>7</sup>Gl <sup>8</sup>Al

#### BH-13 25-30' Collected date/time: 04/19/17 16:20

# SAMPLE RESULTS - 12

Ss

Cn

Qc

GI

AI

Sc

#### Total Solids by Method 2540 G-2011

	Result	Qualifier	Dilution	Analysis	Batch	Cp	p
Analyte	%			date / time		2	-
Total Solids	87.8		1	04/27/2017 15:28	WG974589	To	C

#### Volatile Organic Compounds (GC) by Method 8015/8021

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
Benzene	0.871		0.114	200	05/03/2017 20:29	WG975972
Toluene	27.9		1.14	200	05/03/2017 20:29	WG975972
Ethylbenzene	6.39		0.114	200	05/03/2017 20:29	WG975972
Total Xylene	59.5		0.342	200	05/03/2017 20:29	WG975972
TPH (GC/FID) Low Fraction	1380		22.8	200	05/03/2017 20:29	WG975972
(S) a,a,a-Trifluorotoluene(FID)	90.8		77.0-120		05/03/2017 20:29	WG975972
(S) a,a,a-Trifluorotoluene(PID)	92.0		75.0-128		05/03/2017 20:29	WG975972

#### Semi-Volatile Organic Compounds (GC) by Method 8015

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	277		4.56	1	05/02/2017 13:06	WG975037
C28-C40 Oil Range	9.51		4.56	1	05/02/2017 13:06	WG975037
(S) o-Terphenyl	67.5		18.0-148		05/02/2017 13:06	WG975037

ACCOUNT: XTO Energy - San Juan Division

### BH-13 30-35'

# SAMPLE RESULTS - 13

ONE LAB. NATIONWIDE.

Ss

Cn

Qc

GI

Collected date/time: 04/19/17 16:35

#### Total Solids by Method 2540 G-2011

	Result	Qualifier	Dilution	Analysis	Batch	Ср
Analyte	%			date / time		2
Total Solids	93.1		1	04/27/2017 15:28	WG974589	Tc

#### Volatile Organic Compounds (GC) by Method 8015/8021

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg		date / time		
Benzene	5.31		0.104	194	05/03/2017 20:51	WG975972	
Toluene	45.6		1.04	194	05/03/2017 20:51	WG975972	
Ethylbenzene	8.48		0.104	194	05/03/2017 20:51	WG975972	
Total Xylene	70.1		0.313	194	05/03/2017 20:51	WG975972	
TPH (GC/FID) Low Fraction	1950		20.8	194	05/03/2017 20:51	WG975972	
(S) a,a,a-Trifluorotoluene(FID)	92.3		77.0-120		05/03/2017 20:51	WG975972	
(S) a,a,a-Trifluorotoluene(PID)	96.1		75.0-128		05/03/2017 20:51	WG975972	

and the second second	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	Å
Analyte	mg/kg		mg/kg		date / time		
C10-C28 Diesel Range	240		4.30	1	05/02/2017 13:18	WG975037	<sup>9</sup> Sc
C28-C40 Oil Range	7.61		4.30	1	05/02/2017 13:18	WG975037	SC
(S) o-Terphenyl	70.0		18.0-148		05/02/2017 13:18	WG975037	

	BH-14 15-20' Collected date/time: 04/20/17 09:30				SAMPLE RESULTS - 14				
Total Solids by M	lethod 2540 G-2	2011							
	Result	Qualifier	Dilution	Analysis	Batch				
Analyte	%			date / time					

04/27/2017 15:28

WG974589

1

#### Volatile Organic Compounds (GC) by Method 8015/8021

83.7

Total Solids

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg		date / time		
Benzene	0.00116		0.000586	.98	05/04/2017 04:25	WG975972	
Toluene	ND		0.00586	.98	05/04/2017 04:25	WG975972	
Ethylbenzene	0.0175		0.000586	.98	05/04/2017 04:25	WG975972	
Total Xylene	0.0491		0.00176	.98	05/04/2017 04:25	WG975972	
TPH (GC/FID) Low Fraction	0.966		0.116	.97	05/03/2017 21:13	WG975972	
(S) a,a,a-Trifluorotoluene(FID)	97.9		77.0-120		05/03/2017 21:13	WG975972	
(S) a,a,a-Trifluorotoluene(FID)	100		77.0-120		05/04/2017 04:25	WG975972	
(S) a,a,a-Trifluorotoluene(PID)	90.1		75.0-128		05/03/2017 21:13	WG975972	
(S) a,a,a-Trifluorotoluene(PID)	91.3		75.0-128		05/04/2017 04:25	WG975972	
Semi-Volatile Organic	Compounds	(GC) by M	ethod 8015				
	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg		date / time		

#### Semi-Volatile Organic Compounds (GC) by Method 8015

A., 10	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	Sc
Analyte	mg/kg		mg/kg		date / time		30
C10-C28 Diesel Range	ND		4.78	1	05/02/2017 13:33	WG975037	
C28-C40 Oil Range	ND		4.78	1	05/02/2017 13:33	WG975037	
(S) o-Terphenyl	62.7		18.0-148		05/02/2017 13:33	WG975037	

Тс

BH-14 20-25' Collected date/time: 04/20/1	7 09:45	\$	SAMF	LE RESU	ILTS - 15		ONE LAB. NATIONWIDE.	
Total Solids by Method	d 2540 G-20	011						F
	Result	Qualifier	Dilution	Analysis	Batch			
Analyte	%			date / time				2
Total Solids	88.8		1	04/27/2017 15:28	WG974589			
Volatile Organic Comp	ounds (GC)	by Method	8015/8	8021				ſ
	Result (dry)	Qualifier	RDL (	dry) Dilution	Analysis	Batch		L
Analyte	mg/kg		mg/kg	]	date / time			
Benzene	ND		0.000	.94	05/03/2017 23:58	WG975972		
Toluene	ND		0.005	.94	05/03/2017 23:58	WG975972		1
Ethylbenzene	ND		0.000	.94	05/03/2017 23:58	WG975972		
Total Xylene	0.00185	B	0.001	.94	05/03/2017 23:58	WG975972		
TPH (GC/FID) Low Fraction	ND		0.106	.94	05/03/2017 23:58	WG975972		
(S) a,a,a-Trifluorotoluene(FID)	102		77.0-1	120	05/03/2017 23:58	WG975972		
(S) a,a,a-Trifluorotoluene(PID)	92.0		75.0-1	128	05/03/2017 23:58	WG975972		ſ
Semi-Volatile Organic	Compound	s (GC) by N	lethod	8015				l
	Result (dry)	Qualifier	RDL (	dry) Dilution	Analysis	Batch		
Analyte	mg/kg		mg/kg	9	date / time			L
C10-C28 Diesel Range	ND		4.50	1	05/02/2017 13:46	WG975037		
C28-C40 Oil Range	ND		4.50	1	05/02/2017 13:46	WG975037		
(S) o-Terphenyl	71.0		18.0-1	148	05/02/2017 13:46	WG975037		

fotal Solids by Method	2540 G-20	11					C
	Result	Qualifier	Dilution Ar	nalysis	Batch		
nalyte	%		da	ite / time			2
otal Solids	89.2		1 04	/27/2017 15:28	WG974589		To
/olatile Organic Compo	ounds (GC)	by Method	8015/802	21			<sup>3</sup> S
1	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	
nalyte	mg/kg		mg/kg		date / time		<sup>4</sup> CI
Benzene	ND		0.0277	49.5	05/04/2017 18:39	WG975972	
oluene	ND		0.277	49.5	05/04/2017 18:39	WG975972	5
thylbenzene	ND		0.0277	49.5	05/04/2017 18:39	WG975972	Sr
otal Xylene	2.04		0.0832	49.5	05/04/2017 18:39	WG975972	100
	61.8		5.55	49.5	05/04/2017 18:39	WG975972	<sup>6</sup> Q
PH (GC/FID) Low Fraction			77.0-120		05/04/2017 18:39	WG975972	Q
PH (GC/FID) Low Fraction (S) a, a, a-Trifluorotoluene(FID)	103						
	103 93.5		75.0-128		05/04/2017 18:39	WG975972	7

### Semi-Volatile Organic Compounds (GC) by Method 8015

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg		date / time		
C10-C28 Diesel Range	50.5		4.48	1	05/02/2017 14:00	WG975037	
C28-C40 Oil Range	ND		4.48	1	05/02/2017 14:00	WG975037	
(S) o-Terphenyl	74.5		18.0-148		05/02/2017 14:00	WG975037	

#### BH-15 10-15' Collected date/time: 04/20/17 11:40

# SAMPLE RESULTS - 17

Tc

Ss

Cn

Qc

GI

AI

Sc

#### Total Solids by Method 2540 G-2011

	Result	Qualifier	Dilution	Analysis	Batch	
Analyte	%			date / time		
Total Solids	85.6		1	04/27/2017 15:28	WG974589	

#### Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.0572	98	05/04/2017 19:01	WG975972
Toluene	3.87		0.572	98	05/04/2017 19:01	WG975972
Ethylbenzene	2.82		0.0572	98	05/04/2017 19:01	WG975972
Total Xylene	29.7		0.172	98	05/04/2017 19:01	WG975972
TPH (GC/FID) Low Fraction	651		11.4	98	05/04/2017 19:01	WG975972
(S) a,a,a-Trifluorotoluene(FID)	100		77.0-120		05/04/2017 19:01	WG975972
(S) a,a,a-Trifluorotoluene(PID)	92.2		75.0-128		05/04/2017 19:01	WG975972

#### Sample Narrative:

8015/8021 L905176-17 WG975972: Non-target compounds too high to run at a lower dilution.

1999 - 1997 - 19	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	147		4.67	1	05/02/2017 14:14	WG975037
C28-C40 Oil Range	ND		4.67	1	05/02/2017 14:14	WG975037
(S) o-Terphenyl	74.3		18.0-148		05/02/2017 14:14	WG975037

BH-15 15-20' Collected date/time: 04/20/1	7 11:45		SAMP	LE RESU	LTS - 18		ONE LAB. NATIONWIDE.	*
Total Solids by Method	d 2540 G-20	011						1
	Result	Qualifier	Dilution	Analysis	Batch			Ср
Analyte	%			date / time				2
Total Solids	80.4		1	04/27/2017 15:28	WG974589			Tc
Volatile Organic Comp	ounds (GC)	by Method	8015/8	021				<sup>3</sup> Ss
	Result (dry)	Qualifier	RDL (c	dry) Dilution	Analysis	Batch		
Analyte	mg/kg		mg/kg		date / time			<sup>4</sup> Cn
Benzene	0.525		0.122	196	05/04/2017 01:05	WG975972		Cir
Toluene	10.7		1.22	196	05/04/2017 01:05	WG975972		5
Ethylbenzene	5.23		0.122	196	05/04/2017 01:05	WG975972		Sr
Total Xylene	55.0		0.366	196	05/04/2017 01:05	WG975972		
TPH (GC/FID) Low Fraction	1270		24.4	196	05/04/2017 01:05	WG975972		<sup>6</sup> Qc
(S) a,a,a-Trifluorotoluene(FID)	92.5		77.0-1.	20	05/04/2017 01:05	WG975972		ac
(S) a,a,a-Trifluorotoluene(PID)	91.3		75.0-1	28	05/04/2017 01:05	WG975972		<sup>7</sup> GI
Semi-Volatile Organic	Compounds	s (GC) by N	lethod	8015				G
	Result (dry)	Qualifier	RDL (d	dry) Dilution	Analysis	Batch		<sup>8</sup> AI
Analyte	mg/kg		mg/kg		date / time			
C10-C28 Diesel Range	286		4.97	1	05/02/2017 14:27	WG975037		<sup>9</sup> Sc
C28-C40 Oil Range	ND		4.97	1	05/02/2017 14:27	WG975037		50

05/02/2017 14:27

WG975037

18.0-148

(S) o-Terphenyl

72.9

BH-15 20-25' Collected date/time: 04/20/17 12:00			SAMPLE	RESU	ILTS - 19		ONE LAB. NATIONWIDE.	ie. 💥	
Total Solids by Method	2540 G-20	011						1	
	Result	Qualifier	Dilution Analy	/sis	Batch			Ср	
Analyte	%		date	/ time				2	
Total Solids	88.5		1 04/27	7/2017 15:28	WG974589			Tc	
Volatile Organic Comp	ounds (GC)	by Method	8015/8021					<sup>3</sup> Ss	
	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch			
Analyte	mg/kg		mg/kg		date / time			<sup>4</sup> Cn	
Benzene	0.117		0.112	198	05/04/2017 01:27	WG975972		Ci	
Toluene	10.2		1.12	198	05/04/2017 01:27	WG975972		5	
Ethylbenzene	4.63		0.112	198	05/04/2017 01:27	WG975972		Sr	
Total Xylene	53.1		0.335	198	05/04/2017 01:27	WG975972			
TPH (GC/FID) Low Fraction	1110		22.4	198	05/04/2017 01:27	WG975972		6QC	
(S) a,a,a-Trifluorotoluene(FID)	99.4		77.0-120		05/04/2017 01:27	WG975972		Ge	
(S) a,a,a-Trifluorotoluene(PID)	90.9		75.0-128		05/04/2017 01:27	WG975972		<sup>7</sup> GI	
Semi-Volatile Organic	Compounds	GC) by N	lethod 8015	5					
	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch		<sup>8</sup> Al	
Analyte	mg/kg		mg/kg		date / time				
C10-C28 Diesel Range	366		4.52	1	05/02/2017 14:41	WG975037		<sup>9</sup> Sc	
C28-C40 Oil Range	ND		4.52	1	05/02/2017 14:41	WG975037		SC	
(S) o-Terphenyl	82.4		18.0-148		05/02/2017 14:41	WG975037			

DATE/TIME: 05/05/17 14:28

Total Solids by Method	Result	Qualifier	Dilution	Analysis	Batch		
Analyte	%			date / time			
Total Solids	90.3		1	04/27/2017 15:28	WG974589		
Volatile Organic Comp	ounds (GC)	by Method	8015/8	021			
	Result (dry)	Qualifier	RDL (d	dry) Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg		date / time		
Benzene	0.812		0.027	1 49	05/04/2017 19:24	WG975972	
Toluene	3.53		0.271	49	05/04/2017 19:24	WG975972	
Ethylbenzene	1.16		0.027	1 49	05/04/2017 19:24	WG975972	
Total Xylene	12.5		0.0814	49	05/04/2017 19:24	WG975972	
TPH (GC/FID) Low Fraction	549		5.43	49	05/04/2017 19:24	WG975972	
(S) a,a,a-Trifluorotoluene(FID)	92.4		77.0-1	20	05/04/2017 19:24	WG975972	
(S) a,a,a-Trifluorotoluene(PID)	91.3		75.0-1	28	05/04/2017 19:24	WG975972	
Semi-Volatile Organic	Compounds	GC) by N	lethod	8015			
	Result (dry)	Qualifier	RDL (	dry) Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg		date / time		
C10-C28 Diesel Range	25.6		4.43	1	05/02/2017 14:55	WG975037	
C28-C40 Oil Range	ND		4.43	1,	05/02/2017 14:55	WG975037	
(S) o-Terphenyl	68.4		18.0-1	48	05/02/2017 14:55	WG975037	

ND

94.6

conected datertime. o	4/20/17 14:20			L905176		
Total Solids by Me	ethod 2540 G-20	D11				
	Result	Qualifier	Dilution	Analysis	Batch	
Analyte	%			date / time		
Total Solids	88.8		1	04/27/2017 15:05	WG974591	
Volatile Organic (	Compounds (GC)	by Method	8015/8	021		
Volatile Organic (	Compounds (GC) Result (dry)	by Method	8015/8 RDL (		Analysis	Batch
Volatile Organic C	in the second			dry) Dilution	Analysis date / time	Batch

C10-C28 Diesel Range	7.67		4.50	1	05/01/2017 13:39	WG975038
Analyte	mg/kg		mg/kg		date / time	
	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
Semi-Volatile Organic	Compounds	(GC) by M	ethod 8015	1.0		
(S) a,a,a-Trifluorotoluene(PID)	91.6		75.0-128		05/03/2017 03:38	WG975980
(S) a,a,a-Trifluorotoluene(FID)	101		77.0-120		05/03/2017 03:38	WG975980
TPH (GC/FID) Low Fraction	ND		0.110	.98	05/03/2017 03:38	WG975980
Total Xylene	0.00315	B	0.00165	.98	05/03/2017 03:38	WG975980
Ethylbenzene	ND		0.000552	.98	05/03/2017 03:38	WG975980
Toluene	ND		0.00552	.98	05/03/2017 03:38	WG975980

1

05/01/2017 13:39

05/01/2017 13:39

WG975038

WG975038

4.50

18.0-148

SAMPLE RESULTS - 21

### BH-16 0-10'

C28-C40 Oil Range

(S) o-Terphenyl

ONE LAB. NATIONWIDE.

<sup>4</sup>Cn <sup>5</sup>Sr <sup>6</sup>Qc <sup>7</sup>GI

AI

Sc

Тс

Ss

BH-16         10-15'         SAMPLE RESULTS - 22           Collected date/time:         04/20/17         14:30							ONE LAB. NATIONWIDE.	1
Total Solids by Method	d 2540 G-20	011						1
	Result	Qualifier	Dilution	Analysis	Batch			
Analyte	%			date / time				2
Total Solids	85.1		1	04/27/2017 15:05	WG974591			
Volatile Organic Comp	ounds (GC)	by Method	8015/8	021				3
	Result (dry)	Qualifier	RDL (	dry) Dilution	Analysis	Batch		L
Analyte	mg/kg		mg/kg	1	date / time			4
Benzene	ND		0.000	.95	05/03/2017 04:00	WG975980		
Toluene	0.00694		0.005	.95	05/03/2017 04:00	WG975980		5
Ethylbenzene	0.0352		0.000	.95	05/03/2017 04:00	WG975980		
Total Xylene	0.442		0.001	.95	05/03/2017 04:00	WG975980		
TPH (GC/FID) Low Fraction	11.5		0.112	.95	05/03/2017 04:00	WG975980		e
(S) a,a,a-Trifluorotoluene(FID)	88.9		77.0-1	20	05/03/2017 04:00	WG975980		
(S) a,a,a-Trifluorotoluene(PID)	91.0		75.0-1	128	05/03/2017 04:00	WG975980		7
Semi-Volatile Organic	Compounds	s (GC) by N	lethod	8015				
	Result (dry)	Qualifier	RDL (	dry) Dilution	Analysis	Batch		8
Analyte	mg/kg		mg/kg	]	date / time			L
C10-C28 Diesel Range	22.7		4.70	1	05/01/2017 13:53	WG975038		9
C28-C40 Oil Range	ND		4.70	1	05/01/2017 13:53	WG975038		
(S) o-Terphenyl	95.1		18.0-1	48	05/01/2017 13:53	WG975038		-



BH-16 15-20' Collected date/time: 04/20/1	7 14:40		DAIVIFLE	L905176	LTS - 23	ONE LAB. NATIONWIDE.	
Total Solids by Method	2540 G-20	011					1
	Result	Qualifier	Dilution Analysis		Batch		C
Analyte Total Solids	% 84.1		date / 1 04/27	time /2017 15:05	WG974591		2 
Volatile Organic Comp	ounds (GC)	by Method	8015/8021				35
	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	Ľ
Analyte	mg/kg		mg/kg		date / time		4
Benzene	0.143		0.0147	24.75	05/04/2017 02:33	WG975980	0
Toluene	7.02		0.147	24.75	05/04/2017 02:33	WG975980	5
Ethylbenzene	3.79		0.0147	24.75	05/04/2017 02:33	WG975980	<sup>°</sup> S
Total Xylene	60.2		0.883	495	05/04/2017 19:46	WG975980	
TPH (GC/FID) Low Fraction	1150		58.9	495	05/04/2017 19:46	WG975980	6
(S) a,a,a-Trifluorotoluene(FID)	99.6		77.0-120		05/04/2017 19:46	WG975980	
(S) a,a,a-Trifluorotoluene(PID)	91.5		75.0-128		05/04/2017 02:33	WG975980	7
(S) a,a,a-Trifluorotoluene(PID)	92.2		75.0-128		05/04/2017 19:46	WG975980	C
Semi-Volatile Organic	Compound	s (GC) by N	lethod 8015				8 A
1	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	L
Analyte	mg/kg		mg/kg		date / time		9
C10-C28 Diesel Range	97.8		4.76	1	05/01/2017 13:26	WG975038	2
C28-C40 Oil Range	ND		4.76	1	05/01/2017 13:26	WG975038	-
(S) o-Terphenyl	91.2		18.0-148		05/01/2017 13:26	WG975038	

BH-16 23-25' Collected date/time: 04/20/17 15:15	SAMPLE RESULTS - 24	ONE LAB. NATIONWIDE.	*
Total Solids by Method 2540 G-2011			1 CD
	Dilution Application Database		

	Result	Qualifier Dilution	Analysis	Batch	
Analyte	%		date / time		
Total Solids	87.1	1	04/27/2017 15:05	WG974591	

#### Volatile Organic Compounds (GC) by Method 8015/8021

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
Benzene	ND		0.115	200	05/03/2017 01:03	WG975980
Toluene	2.37		1.15	200	05/03/2017 01:03	WG975980
Ethylbenzene	1.36		0.115	200	05/03/2017 01:03	WG975980
Total Xylene	17.6		0.344	200	05/03/2017 01:03	WG975980
TPH (GC/FID) Low Fraction	399		23.0	200	05/03/2017 01:03	WG975980
(S) a,a,a-Trifluorotoluene(FID)	98.7		77.0-120		05/03/2017 01:03	WG975980
(S) a,a,a-Trifluorotoluene(PID)	91.0		75.0-128		05/03/2017 01:03	WG975980

#### Sample Narrative:

8015/8021 L905176-24 WG975980: Non-target compounds too high to run at a lower dilution.

#### Semi-Volatile Organic Compounds (GC) by Method 8015

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	169		4.59	1	05/01/2017 12:58	WG975038
C28-C40 Oil Range	ND		4.59	1	05/01/2017 12:58	WG975038
(S) o-Terphenyl	99.8		18.0-148		05/01/2017 12:58	WG975038

Тс

Ss

Cn

Qc

GI

AI

#### BH-16 25-27' Collected date/time: 04/20/17 15:30

### SAMPLE RESULTS - 25

### Total Solids by Method 2540 G-2011

	Result	Qualifier	Dilution	Analysis	Batch		Ср	
Analyte	%			date / time			2	
Total Solids	88.4		1	04/27/2017 15:05	WG974591		Tc	

#### Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.252		0.113	200	05/03/2017 04:44	WG975980
Toluene	11.5		1.13	200	05/03/2017 04:44	WG975980
Ethylbenzene	4.43		0.113	200	05/03/2017 04:44	WG975980
Total Xylene	47.5		0.339	200	05/03/2017 04:44	WG975980
TPH (GC/FID) Low Fraction	997		22.6	200	05/03/2017 04:44	WG975980
(S) a,a,a-Trifluorotoluene(FID)	94.1		77.0-120		05/03/2017 04:44	WG975980
(S) a,a,a-Trifluorotoluene(PID)	90.9		75.0-128		05/03/2017 04:44	WG975980

#### Semi-Volatile Organic Compounds (GC) by Method 8015

· · · · · · · · · · · · · · · · · · ·	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	Å
Analyte	mg/kg		mg/kg		date / time		
C10-C28 Diesel Range	217		4.53	1	05/01/2017 13:12	WG975038	9
C28-C40 Oil Range	ND		4.53	1	05/01/2017 13:12	WG975038	SC
(S) o-Terphenyl	99.7		18.0-148		05/01/2017 13:12	WG975038	

<sup>2</sup>Tc <sup>3</sup>Ss <sup>4</sup>Cn <sup>5</sup>Sr <sup>6</sup>Qc <sup>7</sup>Gl

#### BH-16 27-29' Collected date/time: 04/20/17 15:40

# SAMPLE RESULTS - 26

ONE LAB. NATIONWIDE.

Ss

Cn

Qc

GI

AI

#### Total Solids by Method 2540 G-2011

	Result	Qualifier	Dilution	Analysis	Batch	Ср
Analyte	%			date / time		2
Total Solids	88.6		1	04/27/2017 15:05	WG974591	Tc

#### Volatile Organic Compounds (GC) by Method 8015/8021

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
Benzene	0.107		0.0141	25	05/04/2017 02:55	WG975980
Toluene	5.72		0.141	25	05/04/2017 02:55	WG975980
Ethylbenzene	2.14		0.0141	25	05/04/2017 02:55	WG975980
Total Xylene	17.2		0.0423	25	05/04/2017 02:55	WG975980
TPH (GC/FID) Low Fraction	600		56.4	500	05/04/2017 20:08	WG975980
(S) a,a,a-Trifluorotoluene(FID)	93.1		77.0-120		05/04/2017 02:55	WG975980
(S) a,a,a-Trifluorotoluene(FID)	100		77.0-120		05/04/2017 20:08	WG975980
(S) a,a,a-Trifluorotoluene(PID)	90.5		75.0-128		05/04/2017 02:55	WG975980
(S) a,a,a-Trifluorotoluene(PID)	92.2		75.0-128		05/04/2017 20:08	WG975980

1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	1. S.	9
Analyte	mg/kg		mg/kg		date / time			SC
C10-C28 Diesel Range	51.0		4.51	1	05/01/2017 12:31	WG975038		
C28-C40 Oil Range	ND		4.51	1	05/01/2017 12:31	WG975038		
(S) o-Terphenyl	98.5		18.0-148		05/01/2017 12:31	WG975038		

BH-16 33-35' Collected date/time: 04/2	0/17 16:05	SA	AMPLE	RESU	LTS - 27		ONE LAB. NATIONWIDE.
Total Solids by Meth	od 2540 G-20	11					
	Result	Qualifier	Dilution Analy	/sis	Batch		
Analyte	%		date / time				
			1 04/27/2017 15:05		1110074504		
Total Solids	90.6	1	1 04/27	//201/ 15:05	WG974591		
Total Solids Volatile Organic Cor		by Method 8 <u>Qualifier</u>		Dilution	MG974591 Analysis	Batch	
	mpounds (GC) I	-	015/8021			Batch	
Volatile Organic Cor	mpounds (GC)   Result (dry)	-	8015/8021 RDL (dry)		Analysis	Batch WG975980	
Volatile Organic Cor Analyte	mpounds (GC)   Result (dry) mg/kg	-	8015/8021 RDL (dry) mg/kg	Dilution	Analysis date / time		
Volatile Organic Cor Analyte Benzene	mpounds (GC) I Result (dry) mg/kg 0.0252	-	RDL (dry) mg/kg 0.000535	Dilution	Analysis date / time 05/03/2017 05:28	WG975980	

.97

Dilution

1

1

05/03/2017 05:28

05/03/2017 05:28

05/03/2017 05:28

Analysis

date / time

05/01/2017 11:50

05/01/2017 11:50

05/01/2017 11:50

0.107

77.0-120

75.0-128

RDL (dry)

mg/kg

4.41

4.41

18.0-148

Qualifier

WG975980

WG975980

WG975980

Batch

WG975038

WG975038

WG975038

TPH (GC/FID) Low Fraction

Analyte

C10-C28 Diesel Range

C28-C40 Oil Range

(S) o-Terphenyl

(S) a,a,a-Trifluorotoluene(FID)

(S) a, a, a-Trifluorotoluene(PID)

5.34

88.3

93.5

Semi-Volatile Organic Compounds (GC) by Method 8015

mg/kg

32.9

ND

97.0

Result (dry)

SDG: L905176 Qc

GI

AI

#### BH-17 20-25' Collected date/time: 04/21/17 10:30

# SAMPLE RESULTS - 28

ONE LAB. NATIONWIDE.

Тс

Ss

Cn

Qc

GI

AI

Sc

#### Total Solids by Method 2540 G-2011

	Result	Qualifier	Dilution	Analysis	Batch
Analyte	%			date / time	
Total Solids	88.7		1	04/27/2017 15:05	WG974591

#### Volatile Organic Compounds (GC) by Method 8015/8021

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
Benzene	0.000588		0.000563	1	05/03/2017 05:50	WG975980
Toluene	0.00605		0.00563	1	05/03/2017 05:50	WG975980
Ethylbenzene	0.00778		0.000563	1	05/03/2017 05:50	WG975980
Total Xylene	0.150		0.00169	1	05/03/2017 05:50	WG975980
TPH (GC/FID) Low Fraction	5.52		0.113	1	05/03/2017 05:50	WG975980
(S) a,a,a-Trifluorotoluene(FID)	95.5		77.0-120		05/03/2017 05:50	WG975980
(S) a,a,a-Trifluorotoluene(PID)	90.8		75.0-128		05/03/2017 05:50	WG975980

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg		date / time		
C10-C28 Diesel Range	5.26		4.51	1	05/01/2017 12:45	WG975038	
C28-C40 Oil Range	ND		4.51	1	05/01/2017 12:45	WG975038	
(S) o-Terphenyl	72.5		18.0-148		05/01/2017 12:45	WG975038	

BH-18 30-32' Collected date/time: 04/24/1	7 09:00	9	SAMPLE RESULTS - 29			ONE LAB. NATIONWIDE.			
Total Solids by Method	2540 G-20	)11						1	
	Result	Qualifier	Dilution	Analysis	Batch				
Analyte	%			date / time				2	
Total Solids	93.9		1	04/27/2017 15:05	WG974591			Ĺ	
Volatile Organic Comp	ounds (GC)	by Method	8015/80	021				3	
ALC: NOT THE REAL	Result (dry)	Qualifier	RDL (d	ry) Dilution	Analysis	Batch		L	
Analyte	mg/kg		mg/kg		date / time			4	
Benzene	ND		0.0005	.98	05/04/2017 03:17	WG975980			
Toluene	ND		0.0052	.98	05/04/2017 03:17	WG975980			
Ethylbenzene	ND		0.0005	.98	05/04/2017 03:17	WG975980			
Total Xylene	0.00646		0.0015	7 .98	05/04/2017 03:17	WG975980			
TPH (GC/FID) Low Fraction	ND		0.104	.98	05/04/2017 03:17	WG975980		e	
(S) a,a,a-Trifluorotoluene(FID)	101		77.0-12	20	05/04/2017 03:17	WG975980			
(S) a,a,a-Trifluorotoluene(PID)	91.7		75.0-12	28	05/04/2017 03:17	WG975980		ſ	
Semi-Volatile Organic	Compounds	s (GC) by N	lethod 8	3015				L	
and the second	Result (dry)	Qualifier	RDL (d	ry) Dilution	Analysis	Batch	17.50	8	
Analyte	mg/kg		mg/kg		date / time			L	
C10-C28 Diesel Range	ND		4.26	1	05/01/2017 12:18	WG975038		9	
C28-C40 Oil Range	ND		4.26	1	05/01/2017 12:18	WG975038			
(S) o-Terphenyl	90.4		18.0-14	8	05/01/2017 12:18	WG975038			

BH-19 30-35'	SAM
Collected date/time: 04/24/17 10:25	

# SAMPLE RESULTS - 30

Tc

Ss

Cn

Qc

GI

#### Total Solids by Method 2540 G-2011

	Result	Qualifier	Dilution	Analysis	Batch
Analyte	%			date / time	
Total Solids	93.1		1	04/27/2017 15:05	WG974591

#### Volatile Organic Compounds (GC) by Method 8015/8021

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
Benzene	0.000866		0.000521	.97	05/04/2017 03:40	WG975980
Toluene	ND		0.00521	.97	05/04/2017 03:40	WG975980
Ethylbenzene	ND		0.000521	.97	05/04/2017 03:40	WG975980
Total Xylene	0.00464		0.00156	.97	05/04/2017 03:40	WG975980
TPH (GC/FID) Low Fraction	ND		0.104	.97	05/04/2017 03:40	WG975980
(S) a,a,a-Trifluorotoluene(FID)	101		77.0-120		05/04/2017 03:40	WG975980
(S) a,a,a-Trifluorotoluene(PID)	92.0		75.0-128		05/04/2017 03:40	WG975980

#### Semi-Volatile Organic Compounds (GC) by Method 8015

	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch	<sup>8</sup> Al
Analyte	mg/kg		mg/kg		date / time		
C10-C28 Diesel Range	ND		4.30	1	05/01/2017 12:04	WG975038	<sup>9</sup> Sc
C28-C40 Oil Range	ND		4.30	1	05/01/2017 12:04	WG975038	SC
(S) o-Terphenyl	98.4		18.0-148		05/01/2017 12:04	WG975038	

Total Solids by Method 2540 G-2011

#### QUALITY CONTROL SUMMARY 1905176-01,02,03,04,05,06,07,08,09,10

Method Blank (MB)

#### (MB) R3214456-1 04/28/17 09:54

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	%	1. 1. 1. 1. 1. 1.	%	%
Total Solids	0.000			

#### L905176-01 Original Sample (OS) • Duplicate (DUP)

(OS) L905176-01	04/28/17 09:54 • (DUP)	R3214456-3	04/28/17 0	9:54		and the second second	-
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits	
Analyte	%	%		%		%	
Total Solids	80.9	80.5	1	0.435		5	

#### Laboratory Control Sample (LCS)

(LCS) R3214456-2 04	28/17 09:54				
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	%	%	%	%	
Total Solids	50.0	50.0	99.9	85.0-115	

Tc Ss Cn Sr GI AI Sc

Total Solids by Method 2540 G-2011

#### QUALITY CONTROL SUMMARY L905176-11,12,13,14,15,16,17,18,19,20

#### Method Blank (MB)

MB) R3214213-1 04	4/27/17 15:28			
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	%		%	%
otal Solids	0.00140			

### L905176-11 Original Sample (OS) • Duplicate (DUP)

(OS) L905176-11 04/27/17	15:28 • (DUP) R	3214213-3 04	/27/17 15:2	8			
	<b>Original Result</b>	DUP Result	Dilution	DUP RPD	<b>DUP</b> Qualifier	DUP RPD Limits	
Analyte	%	%		%		%	
Total Solids	88.1	88.1	1	0.0446		5	

### Laboratory Control Sample (LCS)

(LCS) R3214213-2 04/27	7/17 15:28						
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier		
Analyte	%	%	%	%			
Total Solids	50.0	50.0	99.9	85.0-115			



Tc

SS

ACCOUNT:

Total Solids by Method 2540 G-2011

#### QUALITY CONTROL SUMMARY <u>1905176-21,22,23,24,25,26,27,28,29,30</u>

Method Blank (MB)

#### (MB) R3214212-1 04/27/17 15:05

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	%	The Street	%	%
Total Solids	0.000			

#### L905176-21 Original Sample (OS) • Duplicate (DUP)

(OS) L905176-21 04	1/27/17 15:05 • (DUP) R	3214212-3 0	4/27/17 15:0	05			
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits	
Analyte	%	%		%		%	
Total Solids	88.8	90.0	1	1.30		5	

#### Laboratory Control Sample (LCS)

(LCS) R3214212-2 04	4/27/17 15:05				
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	%	%	%	%	
Total Solids	50.0	50.0	100	85.0-115	

ACCOUNT:									
XTO Energy - San Juan	Division								

Volatile Organic Compounds (GC) by Method 8015/8021

# QUALITY CONTROL SUMMARY

Method Blank (MB)

(MB) R3215427-5 05/03/17	12:29	1. S. 1. S. 1.			
	MB Result	MB Qualifier	MB MDL	MB RDL	
Analyte	mg/kg		mg/kg	mg/kg	
Benzene	U		0.000120	0.000500	
Toluene	0.000402	<u>J</u>	0.000150	0.00500	
Ethylbenzene	U		0.000110	0.000500	
Total Xylene	U		0.000460	0.00150	
TPH (GC/FID) Low Fraction	U		0.0217	0.100	
(S) a,a,a-Trifluorotoluene(FID)	102			77.0-120	
(S) a,a,a-Trifluorotoluene(PID)	93.8			75.0-128	

#### Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits	
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%	
Benzene	0.0500	0.0535	0.0504	107	101	71.0-121			6.04	20	
Toluene	0.0500	0.0540	0.0500	108	99.9	72.0-120			7.69	20	
Ethylbenzene	0.0500	0.0555	0.0522	111	104	76.0-121			6.08	20	
otal Xylene	0.150	0.176	0.163	117	109	75.0-124			7.44	20	
(S) a,a,a-Trifluorotolu	ene(FID)			101	102	77.0-120					
(S) a,a,a-Trifluorotolu	ene(PID)			99.4	101	75.0-128					

#### Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3215427-3 05/03/1	7 11:23 • (LCSD	) R3215427-4	05/03/17 11:45								
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits	
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%	
TPH (GC/FID) Low Fraction	5.50	6.23	6.22	113	113	70.0-136			0.150	20	
(S) a,a,a-Trifluorotoluene(FID)	)			104	102	77.0-120					
(S) a,a,a-Trifluorotoluene(PID,	)			111	110	75.0-128					

#### L905176-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits	
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%	
Benzene	0.0549	ND	10.7	11.4	97.0	104	200	10.0-146			7.19	29	
oluene	0.0549	ND	10.6	11.4	95.4	103	200	10.0-143			7.45	30	
Ethylbenzene	0.0549	0.403	11.3	12.1	98.8	106	200	10.0-147			7.07	31	
Total Xylene	0.165	2.11	37.1	40.4	106	116	200	10.0-149			8.50	30	
	ACCOUNT:			PRC	DJECT:			SDG:		DATE	/TIME:		PAGE:
XTO	Energy - San Juan Divis	ion					1.00	905176		05/05/	17 14:28		43 of 54

<sup>2</sup>Tc <sup>3</sup>Ss <sup>4</sup>Cn <sup>5</sup>Sr <sup>6</sup>Qc <sup>7</sup>GI <sup>8</sup>AI <sup>9</sup>Sc

Volatile Organic Compounds (GC) by Method 8015/8021

#### QUALITY CONTROL SUMMARY 1905176-01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20

L905176-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits	
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%	
(S) a,a,a-Trifluorotoluene(FID)					103	102		77.0-120					
(S) a,a,a-Trifluorotoluene(PID)					99.8	98.6		75.0-128					

#### L905176-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L905176-03 05/03/17	13:29 • (MS) R	3215427-8 05/	03/17 15:44 • (N	1SD) R321542	7-9 05/03/17 1	6:06						
	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
TPH (GC/FID) Low Fraction	6.04	401	1620	1600	101	99.4	200	10.0-147			1.03	30
(S) a,a,a-Trifluorotoluene(FID,	1				104	104		77.0-120				
(S) a,a,a-Trifluorotoluene(PID,	)				111	111		75.0-128				

Ср
<sup>2</sup> Tc
<sup>3</sup> Ss
⁴Cn
<sup>5</sup> Sr
်ံဝင
<sup>7</sup> GI
<sup>8</sup> Al
<sup>9</sup> Sc

Volatile Organic Compounds (GC) by Method 8015/8021

#### Method Blank (MB)

(MB) R3215147-5 05/02/17	22:28				
Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg	
Benzene	U		0.000120	0.000500	
Toluene	0.000254	<u> </u>	0.000150	0.00500	
Ethylbenzene	U		0.000110	0.000500	
Total Xylene	U		0.000460	0.00150	
TPH (GC/FID) Low Fraction	U		0.0217	0.100	
(S) a,a,a-Trifluorotoluene(FID)	102			77.0-120	
(S) a,a,a-Trifluorotoluene(PID)	94.2			75.0-128	

#### Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

LC3) R3215147-1 05/	/02/17 20:38 · (LCSD	) R321314/-2	05/02/1/ 21.00	,						
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Benzene	0.0500	0.0470	0.0517	94.0	103	71.0-121			9.51	20
Toluene	0.0500	0.0465	0.0514	93.1	103	72.0-120			9.90	20
Ethylbenzene	0.0500	0.0483	0.0533	96.6	107	76.0-121			9.78	20
otal Xylene	0.150	0.151	0.166	101	110	75.0-124			9.29	20
(S) a,a,a-Trifluorotolue	ne(FID)			100	102	77.0-120				
(S) a,a,a-Trifluorotolue	ne(PID)			99.3	101	75.0-128				

QUALITY CONTROL SUMMARY

L905176-21,22,23,24,25,26,27,28,29,30

#### Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3215147-3 05/02/	17 21:22 • (LCSE	) R3215147-4	05/02/17 21:44							
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%
TPH (GC/FID) Low Fraction	5.50	6.35	6.28	115	114	70.0-136			1.17	20
(S) a,a,a-Trifluorotoluene(Fl	0)			102	103	77.0-120				
(S) a,a,a-Trifluorotoluene(Pl	)			110	111	75.0-128				

#### L905176-24 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits	
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%	
Benzene	0.0574	ND	11.0	11.9	95.1	103	200	10.0-146			8.28	29	
Toluene	0.0574	2.37	13.0	13.9	92.8	101	200	10.0-143			6.60	30	
Ethylbenzene	0.0574	1.36	12.7	13.6	98.6	107	200	10.0-147			7.18	31	
Total Xylene	0.172	17.6	46.1	48.3	83.0	89.4	200	10.0-149			4.62	30	
	ACCOUNT:			PRO	DJECT:			SDG:		DATE	TIME:		PAGE:
XTO Ene	rgy - San Juan Divisi	on					L	905176		05/05/	17 14:28		45 of 54

<sup>3</sup>Ss <sup>4</sup>Cn <sup>5</sup>Sr <sup>6</sup>Qc <sup>7</sup>Gl <sup>8</sup>Al

Sc

Tc

Volatile Organic Compounds (GC) by Method 8015/8021

#### QUALITY CONTROL SUMMARY L905176-21,22,23,24,25,26,27,28,29,30

L905176-24 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L905176-24 05/03/17	01:03 • (MS) R	3215147-6 05/0	02/17 23:12 • (M	ISD) R3215147	7-7 05/02/17 2	3:35						
	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
(S) a,a,a-Trifluorotoluene(FID)					98.9	100		77.0-120				
(S) a,a,a-Trifluorotoluene(PID,	1				98.5	101		75.0-128				

#### L905176-24 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
TPH (GC/FID) Low Fraction	6.31	399	1890	1870	118	117	200	10.0-147			0.870	30
(S) a,a,a-Trifluorotoluene(FID)					104	104		77.0-120				
(S) a,a,a-Trifluorotoluene(PID)					111	111		75.0-128				

Semi-Volatile Organic Compounds (GC) by Method 8015

#### QUALITY CONTROL SUMMARY L905176-01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20

Method Blank (MB)

(MB) R3214911-1 05/02/	17 08:44	Contraction of the second		14.00	and The second secon			
	MB Result	MB Qualifier	MB MDL	MB RDL				
Analyte	mg/kg		mg/kg	mg/kg				
C10-C28 Diesel Range	U		1.61	4.00				
C28-C40 Oil Range	U		0.274	4.00				
(S) o-Terphenyl	70.1			18.0-148				

#### Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3214911-2 05/02	2/17 08:58 • (LCSD	) R3214911-3	05/02/17 09:11								
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits	
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%	
C10-C28 Diesel Range	60.0	48.8	46.2	81.3	76.9	50.0-150			5.50	20	
(S) o-Terphenyl				77.1	64.3	18.0-148					

#### L905176-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L905176-01 05/02/17	7 09:26 • (MS) R	3214911-4 05/0	02/17 09:39 • (1	ASD) R3214911	-5 05/02/17 0	9:53						
	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
C10-C28 Diesel Range	74.2	ND	62.8	61.8	84.6	83.3	1	50.0-150			1.54	20
(S) o-Terphenyl					70.5	71.9		18.0-148				

Semi-Volatile Organic Compounds (GC) by Method 8015

#### QUALITY CONTROL SUMMARY 1905176-21,22,23,24,25,26,27,28,29,30

#### Method Blank (MB)

17 09:42																		
MB Result	MB Qualifier	MB MDL	MB RDL															
mg/kg		mg/kg	mg/kg															
U		1.61	4.00															
U		0.274	4.00															
102			18.0-148															
	mg/kg U U	MB Result <u>MB Qualifier</u> mg/kg U U	MB Result     MB Qualifier     MB MDL       mg/kg     mg/kg       U     1.61       U     0.274	MB Result         MB Qualifier         MB MDL         MB RDL           mg/kg         mg/kg         mg/kg           U         1.61         4.00           U         0.274         4.00	MB Result         MB Qualifier         MB MDL         MB RDL           mg/kg         mg/kg         mg/kg           U         1.61         4.00           U         0.274         4.00	MB Result         MB Qualifier         MB MDL         MB RDL           mg/kg         mg/kg         mg/kg           U         1.61         4.00           U         0.274         4.00	MB Result         MB Qualifier         MB MDL         MB RDL           mg/kg         mg/kg         mg/kg           U         1.61         4.00           U         0.274         4.00	MB Result         MB Qualifier         MB MDL         MB RDL           mg/kg         mg/kg         mg/kg           U         1.61         4.00           U         0.274         4.00	MB Result         MB Qualifier         MB MDL         MB RDL           mg/kg         mg/kg         mg/kg           U         1.61         4.00           U         0.274         4.00	MB Result         MB Qualifier         MB MDL         MB RDL           mg/kg         mg/kg         mg/kg           U         1.61         4.00           U         0.274         4.00	MB Result         MB Qualifier         MB MDL         MB RDL           mg/kg         mg/kg         mg/kg           U         1.61         4.00           U         0.274         4.00	MB Result         MB Qualifier         MB MDL         MB RDL           mg/kg         mg/kg         mg/kg           U         1.61         4.00           U         0.274         4.00	MB Result         MB Qualifier         MB MDL         MB RDL           mg/kg         mg/kg         mg/kg         mg/kg           U         1.61         4.00           U         0.274         4.00	MB Result         MB Qualifier         MB MDL         MB RDL           mg/kg         mg/kg         mg/kg           U         1.61         4.00           U         0.274         4.00	MB Result         MB Qualifier         MB MDL         MB RDL           mg/kg         mg/kg         mg/kg           U         1.61         4.00           U         0.274         4.00	MB Result         MB Qualifier         MB MDL         MB RDL           mg/kg         mg/kg         mg/kg         mg/kg           U         1.61         4.00           U         0.274         4.00	MB Result         MB Qualifier         MB MDL         MB RDL           mg/kg         mg/kg         mg/kg         mg/kg           U         1.61         4.00           U         0.274         4.00	MB ResultMB QualifierMB MDLMB RDLmg/kgmg/kgmg/kgU1.614.00U0.2744.00

#### Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3214627-2 05/0	01/17 09:56 • (LCSI	D) R3214627-	3 05/01/17 10:10	)							-
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits	
Analyte	mg/kg	mg/kg	mg/kg	%	%	%		- 1	%	%	
C10-C28 Diesel Range	60.0	48.2	48.2	80.3	80.4	50.0-150			0.110	20	
(S) o-Terphenyl				106	98.3	18.0-148					

#### L905386-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L905386-01 05/0	01/17 17:32 • (MS) R3	3214627-4 05/	01/17 17:45 • (M	SD) R3214627	-5 05/01/17 18:	00		19 - 19 - 19 - 19 - 19 - 19 - 19 - 19 -	11		100 C	142 T 14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
C10-C28 Diesel Range	67.3	480	512	499	47.6	27.0	1	50.0-150	EV	EV	2.74	20
(S) o-Terphenyl					115	119		18.0-148				

ACCOUNT:	
XTO Energy - San Juan Division	



# GLOSSARY OF TERMS

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL (dry)	Reported Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.
Qualifier	Description
В	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
V	The sample concentration is too high to evaluate accurate spike recoveries.

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# ACCREDITATIONS & LOCATIONS

3

Tc

Ss

Cn

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Qc

GI

AI

Sc

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**. \* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

#### State Accreditations

Alaska         UST-080           Arizona         AZ0612           Arkansas         88-0469           California         01157CA           Colorado         TN00003           Conneticut         PH-0197           Florida         E87487           Georgia         NELAP           Georgia <sup>1</sup> 923           Idaho         TN00003           Illinois         200008           Indiana         C-TN-01           Iowa         364           Kansas         E-10277	New Hampshire New Jersey-NELAP New Mexico New York North Carolina North Carolina <sup>1</sup> North Carolina <sup>2</sup> North Dakota Ohio-VAP Oklahoma Oregon	TN-03-2002-34 2975 TN002 TN00003 11742 Env375 DW21704 41 R-140 CL0069 9915
Arkansas     88-0469       California     01157CA       Colorado     TN00003       Conneticut     PH-0197       Florida     E87487       Georgia     NELAP       Georgia 1     923       Idaho     TN00003       Illinois     200008       Indiana     C-TN-01       Iowa     364	New Jersey-NELAP New Mexico New York North Carolina North Carolina <sup>1</sup> North Carolina <sup>2</sup> North Dakota Ohio-VAP Oklahoma	TN00003 11742 Env375 DW21704 41 R-140 CL0069
California         01157CA           Colorado         TN00003           Conneticut         PH-0197           Florida         E87487           Georgia         NELAP           Georgia 1         923           Idaho         TN00003           Illinois         200008           Indiana         C-TN-01           Iowa         364	New Mexico New York North Carolina North Carolina <sup>1</sup> North Carolina <sup>2</sup> North Dakota Ohio-VAP Oklahoma	11742 Env375 DW21704 41 R-140 CL0069
Colorado         TN00003           Conneticut         PH-0197           Florida         E87487           Georgia         NELAP           Georgia 1         923           Idaho         TN00003           Illinois         200008           Indiana         C-TN-01           Iowa         364	North Carolina North Carolina ' North Carolina <sup>2</sup> North Dakota Ohio-VAP Oklahoma	Env375 DW21704 41 R-140 CL0069
Conneticut         PH-0197           Florida         E87487           Georgia         NELAP           Georgia 1         923           Idaho         TN00003           Illinois         200008           Indiana         C-TN-01           Iowa         364	North Carolina <sup>1</sup> North Carolina <sup>2</sup> North Dakota Ohio–VAP Oklahoma	DW21704 41 R-140 CL0069
Florida         E87487           Georgia         NELAP           Georgia <sup>1</sup> 923           Idaho         TN00003           Illinois         200008           Indiana         C-TN-01           Iowa         364	North Carolina <sup>2</sup> North Dakota Ohio–VAP Oklahoma	41 R-140 CL0069
Georgia         NELAP           Georgia         923           Idaho         TN00003           Illinois         200008           Indiana         C-TN-01           Iowa         364	North Dakota Ohio-VAP Oklahoma	R-140 CL0069
Georgia 1         923           Idaho         TN00003           Illinois         200008           Indiana         C-TN-01           Iowa         364	Ohio-VAP Oklahoma	CL0069
Idaho TN00003 Illinois 200008 Indiana C-TN-01 Iowa 364	Oklahoma	
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Indiana C-TN-01 Iowa 364	Oregon	
lowa 364		TN200002
	Pennsylvania	68-02979
Kansas E-10277	Rhode Island	221
	South Carolina	84004
Kentucky 1 90010	South Dakota	n/a
Kentucky <sup>2</sup> 16	Tennessee 14	2006
Louisiana Al30792	Texas	T 104704245-07-TX
Maine TN0002	Texas <sup>5</sup>	LAB0152
Maryland 324	Utah	6157585858
Massachusetts M-TN003	Vermont	VT2006
Michigan 9958	Virginia	109
Minnesota 047-999-395	Washington	C1915
Mississippi TN00003	West Virginia	233
Missouri 340	Wisconsin	9980939910
Montana CERT0086	Wyoming	A2LA
Nebraska NE-OS-15-05		

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA - ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>44</sup> Accreditation not applicable

#### **Our Locations**

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



PROJECT:

SDG: L905176 DATE/TIME: 05/05/17 14:28

	Que	te Number		Page of _3					Analy	1	Lab Information		
XTO	XT	O Contact	-	XTO Contact Phone #						1			
	Paniel		(505)419-0915				sols		1 Bar Barris		Storm North		
ENERGY	BOMAS DOLL	james midaniel @ Xtoenergy .			to:	Inter Com					1	ffice Abbreviations	
Western Division	logan hix	extern	every co	d	burns @Henv.	(00	10	-	1			nington = FAR	
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ignature IB	Gray Area	for Lab Us	e Only!		. 5 Bus. Days (by	contract)	EX-	-				e per	
Sample ID S	ample Name	Media	Date	Time	Preservative	No. of Conts.	BT	Hat				Sample Number	
BH-11@ 20-25		Soil	4/11/17	1215	Cool	2	X	×				L905176-01	
H-12@ 0'-10'	-	1	19/19/17	1300		2	1					62	
H-12@ 10-15			4/19/17	1315		2						03	
H-12@ 15-20			4/19/17			2						04	
H-12@ 20-25		1.1	4/19/17			2			-			05	
H-12@ 25-30'				1400		2			-		6.3	06	
H-12-@ 30"-35"			4/19/11			2						07	
H-130 0'-10	Contraction of State and Links of State		4/19/17	and the same of the same of the same of the		2			_			OB	
H-13@ 10-15			4/19/11			2			_			09	
H-13@ 15-20	-		4/19/17	and design of the second second second	1	2						10	
H-13@ 20'-25'			4/19/17	and the second state of the local division o		2			_			11	
H-13@ 25-30	www.esendeaueren.en.en.en.en.en.en.en.en.en.en.en.en.e		4/19/17			2			_			13	
H-13 @ 30-35' Iedia : Filter = F Soil = S Wastewater =	WW Groundwo	ter a GW D	1/17/11 rinking V	and the second se	W Sludge = SG Si	2	V = SU		A Drill	Mud = DI	Other = O	13	
lelinguisher By: (Signature)		Date: 4-25		Time: 14:00	Received By: (Signature)					1000	of Bottles	Sample Condition	
telinquished By: (Signature)		Date:	17	Time:	Received By: (Signature)			Temperat			ature: P	College Half and Half	
Relinquished By: (Signature)		Date:		Time:	Received for Lab	by: (Signa	ture)			Date: 4-26-17	Time: 895	Other Information	
comments					prose	V						ast THON	

112	0	uote Number		2 . 2 . 2				Analysis					Lab Information		
VER				Page 2 of 3											
	James	JAMES Mc Daniel			XTO Contact Phone # (505) 419 - 0915						-	1	Č		
ENERGY Western Divisio	james_me	daniel Extor	energy,	I Results to: com [dhenomann@ltenv.com con ]dburns@ltenv.com				- 8015				Office Abbrevia	fice Abbreviations		
J Well Site/Location		PI Number	nergy . c		Test Reason			6				Dure	ingo = DUR		
H Rouble # 5 OH Rando	1#5		1.1.1.1	Confi	implion Soilse	imple		HRI					ten = BAK		
Collected By	30	mples on Ice		X Standard				-	-				Raton = RAT Piceance = PC		
Company	QA	QA/QC Requested			ext Day		N	DRO					evelt = RSV		
T Environmental					Two Day Three Day \$td. 5 Bus. Days (by contract)			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1			arge = LB 1geville = OV		
gnature 12	Conden Inden							GRO,		1 1		Uran	igeville = QV		
DAD	Gray Are	as for Lab Us	e Only!	Date No			1 à						E lies		
Sample ID	Sample Name	Media	Date	Time	Preservative	No. of Conts.	18	HUT					ample Number		
H-14 P 15-20'		Soil	4/20/17	0930	Cool	2	X	×					L905176-14		
1-14@ 20-25'		1	4/20/17	0945	1	1	1						15		
H-15@ 0'-10'			4/20/11	1130								Sec.	16		
H-15@ 10-15			4/20/17										17		
+-15@15-20'				1145									18		
H-15@ 20'-25			4/20/17	1200									19		
H-15@ 30-32			4/20/11										20		
H-16@ 0'-10'			4/20/17										21		
4-16@ 10-15'			4/20/11										22		
H-16@ 15-20'		and the		1440									23		
H-16@23'-25"			4/20/17										24		
H-16C 25-27		1.	4/20/17	and the second sec	1	1.							25		
H-16@27-29			And Advantage of the Andrews	1540	V	×	V	V					26		
edia : Filter = F Soll = S Waste	water = WW Groundw	ater = GW D	rinking V	Vaster = D	W Sludge = SG S	urface Wate	er = SV	/ Air =	A D	ill Mud	= DM Ot	her = 01			
elinquished By (Signature)		Date: 4-25-	Date: 4-25-17		Received By: (Sig	inature)				Num	Number of Bottles		Sample Condition		
telinquished By: (Signature)		Date:		Time:	Received By: (Signature)						perature	21%	Other Information		
alinquished By: (Signature)	Date:	1	Time:	Received for Lab by: (Signature) Date: Tim						Contraction of the local division of the loc					
omments					17 manour	1							USE TOU		
	and sampler-date-m				1222	2.95	-		-			Con	0190		

110	Que	Quote Number XTO Contact James McDaniel			Page <u>3</u> of <u>3</u> XTO Contact Phone # (505)4/9-0915				Analysis		Lab Information
ХТО	James M.										
E N E R G Y Western Division				I Results to:				HRO) - BOIS			ffice Abbreviations nington = FAR
CJ Well Site/Location Othe Randle # J Dit Randel #	5	API Number Samples on Ice			Confirmation Soil Sample Turnaround X Standard					Bak	ango = DUR ken = BAK
Collected By D. Burns	San									Pice	on = RAT ance = PC
LT Environmental	QA/Q	C Requeste	d	T	ext Day wo Day		1208 -	GRO, DEO		La B	evelt = RSV large = LB ngeville = OV
Signature DIR	Gray Areas	Gray Areas for Lab Use Only!			Three Day Std. 5 Bus. Days (by contract) Date Needed					- Oran	igeville = OV
Sample ID	Sample Name	Media	Date	Time	Preservative	No. of Conts.	BTEX	HAT			Sample Number
BH-16@33-35		Soil	4/20/17	1405	Cool	2	X	×			L905176-2
BH-17@ 20'-25'			4/21/17	1030	- 1		1			1.1	2:
8H-18@30-32'			4/24/17	0960		·	1				25
BH-19 @ 30-35"		V	4/24/17	1025	×	V.	Y	+			3
								_			
					-						
15.				-		-			-		
Media : Filter = F Soil = S Wastewater	r = WW Groundwa	ter = GW D	rinking V	/aster = D	DW Sludge = SG S	urface Wate	er = SW	Air = /	Drill Mud = D	M Other = O	T
Relinquished By: (Signature)		Date: 4-25-	17	Time: Received By: (Signature)		Number o			of Bottles	Sample Condition	
Relinquished By: (Signature)		Date:		Time:	Received By: (Sig	ceived By: (Signature)				ature: 0	Other Informatio
	Relinquished By: (Signature)			Time: Received for Lab by: (Signa			A.m.a.l	100000000	Pete:	Time	

Count: 60= 402

0191

ESC LA	AB SCIENCES	
Cooler	Receipt Form	
Client: XTOR	SDG# 1908	5176
Cooler Received/Opened On: 4/2/2/17	Temperature: 2.(	
Received By: Rickey Mosley		
Signature: Ninhump		
Receipt Check List	NP Yes	No
COC Seal Present / Intact?		
COC Signed / Accurate?	Robert Diversite Contractor	a estad
Bottles arrive intact?	/	
Correct bottles used?	A	生 小 小
Sufficient volume sent?		
If Applicable	and a free sector and and the sector	N 200 200
VOA Zero headspace?		and the second
Preservation Correct / Checked?		C DECEMBER