### TANK CLOSURE ASSESSMENT REPORT-ADDENDUM II

**FOR** 

### ARSH OIL & GAS LLC 550 S CYRPRESS ROAD POMPANO BEACH, BROWARD COUNTY, FLORIDA FDEP FAC# 06/8502182

PREPARED FOR:

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### TANK CLOSURE ASSESSMENT REPORT-ADDENDUM II

### ARSH OIL & GAS LLC 550 S. CYPRESS ROAD POMPANO BEACH, FLORIDA 33060

FDEP FACILITY NO. 06/8502182

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### 1.0 INTRODUCTION

### 1.1 Purpose and Scope

BTEX Engineering, Inc. (BTEX) was contracted by Arsh Oil & Gas, LLC to perform tank closure assessment activities at the Arsh Oil and Gas LLC facility. These assessment activities were conducted in general accordance with guidelines established in the "Storage Tank System Closure Assessment Requirements" Florida Department of Environmental Protection (FDEP) publication of April 1998.

The scope of work included:

- Monitoring well sampling.
- Interpretation of data in order to develop appropriate recommendations for the site.

### 1.2 Site Location and Land Use

The subject site is located at 550 S. Cypress Road, Pompano Beach, Broward County, Florida. The subject site consists of an abandoned convenience store and retail gasoline station formerly consisting of four (4) underground storage tanks that were installed in 1965, out of service since May 30, 2008 and removed on November 6 & 7, 2018. The Site Map is included as **Figure 1**.

### 1.3 Historical Background

This site currently is currently an abandoned gasoline station and food mart. There are currently four underground storage tanks (USTs) at the site that have been out of service since May 30, 2008. These include three (3) 4,000-gallon USTs containing unleaded gasoline and one (1) 4,000-gallon UST formerly containing leaded gasoline, however it was converted to unleaded gasoline on April 11, 1991. There were previously two (2) waste oil USTs that were removed from the site. These include one (1) 275-gallon aboveground storage tank (AST) removed on July 28, 2011 and one (1) 550-gallon UST removed on September 23, 2004.

On April 9, 1987, monitoring well samples were collected from four existing monitoring wells (MW-1 through MW-4) and a strong hydrocarbon odor was noted in MW-1 and MW-2.

On April 20, 1987, an unknown amount of leaded and unleaded gasoline was discharged due to an unknown cause. Subsequently, a Discharge Reporting Form was submitted for the site. According to an Early Detection Incentive (EDI) Program Application, it was noted that no product was found in the monitoring wells and no inventory loss was recorded in the tanks.

On May 31, 2000, BBL Environmental Services, Inc. (BBL) completed a free product inspection at the site. Five compliance wells were located and petroleum odors were not detected.

On April 21, 2004, Envirospec, Inc. supervised the over-drilling of MW-NE to mitigate the free product that was discovered. Upon manual exposure of a remote fill line pipe adjacent to the monitoring well, it was noted that the pipe was the former 550-gallon waste oil's remote fill line, which was found to have an integrity breach. Envirospec, Inc. speculates the breach may have been the source of the oil product discovered in the well casing. It appeared an auger may have breached the remote fill line during the installation of the original monitoring wells prior to 1987.

On June 2, 2004, a Discharge Reporting Form was submitted for an unknown amount of waste oil product discovered floating on the groundwater in the northeast monitoring well, due to an unknown cause.

On September 23, 2004, Envirospec, Inc. supervised the removal of one 550-gallon UST containing waste oil. Pin sized holes were noted on the sides of the tank after scraping off the soil from the UST. The soil surrounding the waste oil UST was visually inspected for signs of staining. Some minor staining of soil around the fill port area was noted and the stained oil was excavated. A soil sample from the excavation was analyzed and found to exceed State Target Levels in BTEX and MTBE. A confirmation soil sample was recovered from the west wall of the tank pit. The analysis of the confirmation soil sample did not exceed any State Target Levels.

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On September 29, 2004, Envirospec, Inc. supervised the installation of one temporary monitoring well (TMW-1), located in the center of the former waste oil tank. Subsequent to the well installation, a groundwater sample was collected from TMW-1 and analyzed. The groundwater analytical data from TMW-1 reported BTEX and 1,2-Dichloroethane (EDC) in exceedance of the respective State Target Levels. Subsequently, a Tank Closure Assessment Report was submitted.

On December 14, 2004, four groundwater samples were collected from four temporary well points (GP-1 through GP-4) installed radially around MW-NE. The analytical data from the four groundwater samples did not exceed the State Target Levels. No free product was found during the sampling event; however, a slight odor was noted during purging of GP-1.

A source removal was performed to eliminate the source of discharge oil in the vicinity of MW-NE. Recovered soil between depths of five to ten feet below land surface were deemed contaminated by visual screening and strong oil odors noted in the soil. The contaminated soils were removed and placed in three 55-gallon drums.

A temporary screen was installed to determine if additional product could be recovered from the area. Upon inspection, no free product was noted in the temporary well screen. A second effort was initiated on May 5, 2005, to recover additional contaminated soils. The recovered soils were placed in six 55-gallon drums; however, this method could not extract all of the impacted soils. Three confirmation soil samples were also collected from the excavation sidewalls. The soil analytical results did not exceed their respective Cleanup Target Levels (CTLs).

On June 29, 2005, Envirospec, Inc. supervised the installation of one permanent monitoring well (MW-2) in replace of former MW-NE. Following the well installation, groundwater samples were obtained from TMW-1 (MW-8) and MW-2. The analytical results reported levels below the State CTLs. Subsequently, Evirospec, Inc. submitted a Site Assessment Report Addendum and Source Removal Report.

On August 24, 2005, Envirospec, Inc. supervised the installation of four shallow monitoring wells. Following the well installation, groundwater samples were collected from all existing monitoring wells (MW-1 through MW-10). The groundwater analytical results reported levels above CTLs in several of the monitoring wells (MW-1, MW-2, MW-3, MW-7, and MW-8). Subsequently, Envirospec, Inc. submitted a Site Assessment Report Addendum II.

Natural Attenuation Monitoring (NAM) was approved for the site on March 2, 2006. NAM sampling was initiated on May 4, 2006 to monitor MW-2, MW-3, MW-8, MW-9, and MW-10. Three quarters of NAM sampling was completed at the site. According to the Year 1 Quarter 3 NAM Report, dissolved volatile organic hydrocarbons were not present above State CTLs.

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On January 4, 2007, Envirospec supervised the abandonment of three monitoring wells (MW-7, MW-9, and MW-10). On April 13, 2007, a Site Rehabilitation Completion Order was granted for the May 7, 2004 discharge date.

On May 30, 2008, four (4) 4,000-gallon USTs containing unleaded gasoline were taken out of service.

On July 28, 2011, one (1) 275-gallon AST containing waste oil was removed from the site.

This site was determined eligible for state-administered cleanup under the EDI program and received a priority ranking score of 10.

BTEX completed soil and groundwater assessment activities from June 20 through October 22, 2018 under the Low Scored Site Initiative (LSSI).

BTEX oversaw the removal of the on-site USTs and completed closure activities from November 6 through November 11, 2018. In addition, BTEX completed additional soil and groundwater assessment from January 8 through January 21, 2019.

Based on a comment letter received from Broward County on February 8, 2019, the following is a description of the additional assessment activities completed.

### 2.0 GROUNDWATER EVALUATION

### 2.1 Evaluation of Groundwater Elevation

On February 14 and March 5, 2019, BTEX personnel collected Depth to Water (DTW) measurements from six (6) existing monitoring wells (MW-A, MW-B, MW-C, MW-D, MW-5 and MW-6).

Depth-to-water measurements were collected utilizing a Heron Dipper-T electronic water level meter capable of detecting measurements of up to 1/100 of a foot in accuracy

On February 14, 2019 the DTWs ranged from 2.88 to 3.06 feet bls. The DTWs ranged from 3.11 to 3.29 feet bls on March 5, 2019. The depth-to-water measurements, top-of-casing elevations and calculated water table elevations (WTEs) are summarized in **Table 1**. The WTEs are illustrated on **Figure 2 and Figure 2A**. Review of the WTEs within the shallow interval indicates an apparent easterly hydraulic gradient.

### 2.2 Groundwater Sampling

BTEX personnel collected groundwater samples from one (1) existing monitoring well (MW-5) and one (1) newly installed monitoring well (MW-D) on February 14 and March 5, 2019. Purging and sampling of the wells was conducted in general accordance with the FDEP Standard Operating Procedures for Field Procedures (DEP-SOP-001/01) as referenced in Chapter 62-160, F.A.C. Groundwater samples were collected for analyses for volatile organic hydrocarbons (VOHs) via EPA Method 8260, Lead via EPA 6010 and 1,2-Dibromoethane (EDC) via EPA Method 8011. Samples were placed on ice and transported to Xenco Laboratories (Xenco) for analytical testing.

### 2.3 Groundwater Analytical Results

Laboratory analysis of the samples collected on February 14 and March 5, 2019 reported levels below Groundwater Cleanup Target Levels (GCTLs) in both wells sampled (MW-D and MW-5).

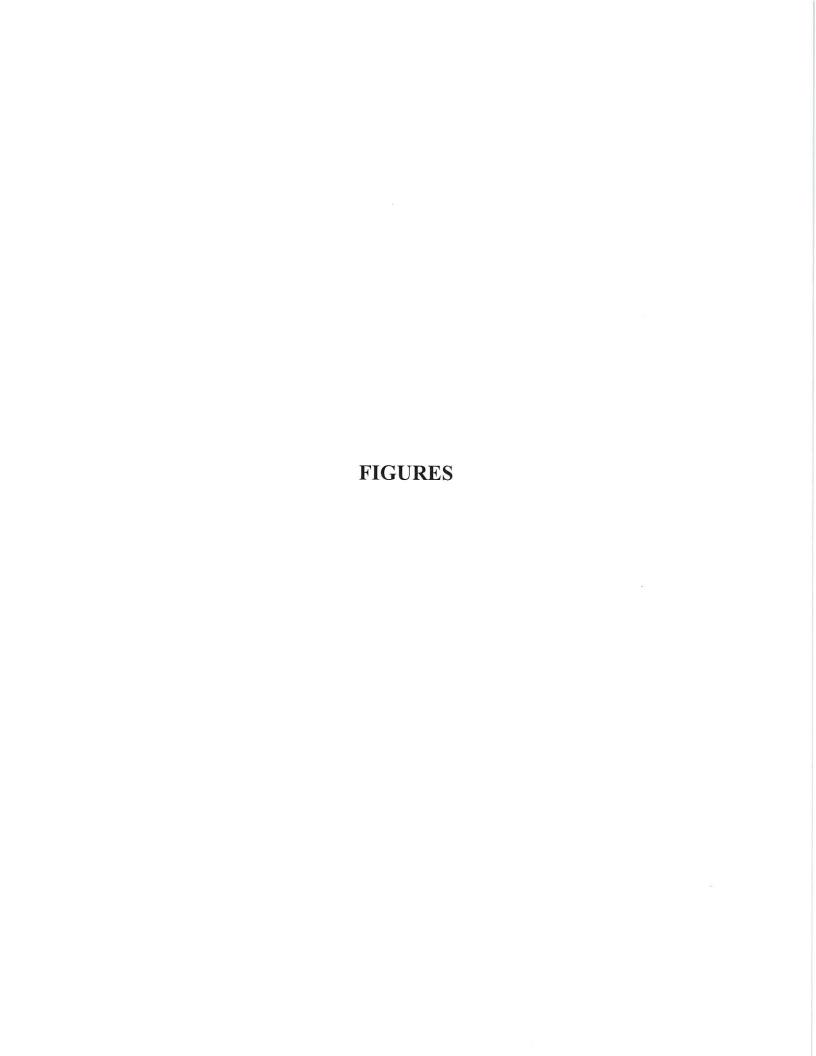
Groundwater analytical data are summarized in **Table 2** and illustrated on **Figure 3** and **Figure 4**. The laboratory analytical report and chain of custody documentation are included in **Appendix A**. The FDEP groundwater sampling logs are included in **Appendix B**. Equipment calibration logs and the field notes are included in **Appendix C**.

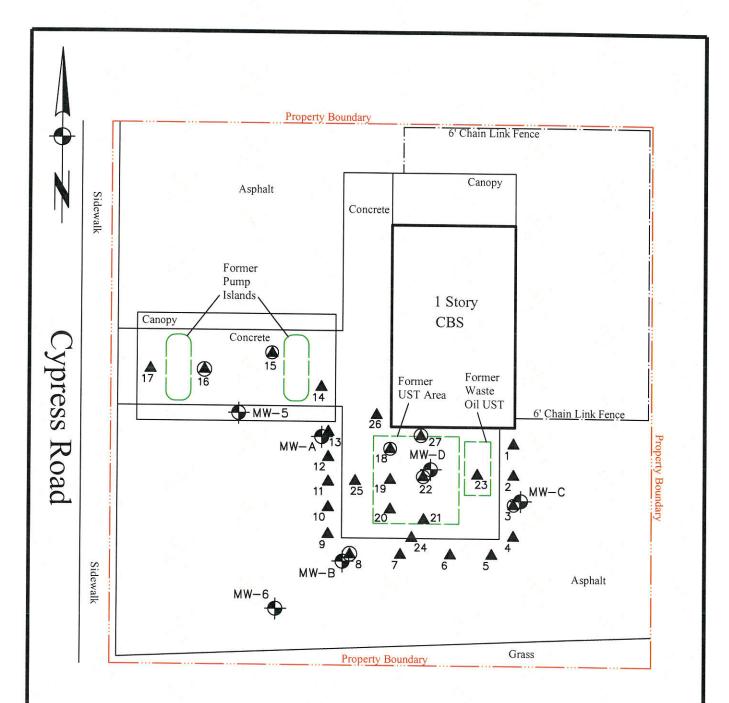
### 3.0 CONCLUSIONS

Laboratory analysis of the groundwater samples collected on both February 14 and March, 2019, reported levels below GCTLs in both monitoring wells sampled.

### 4.0 RECOMMENDATIONS

Based upon the previous soil and current groundwater analytical results, BTEX believes that the site begin Natural Attenuation Monitoring (NAM) in order to reach closure. These activities should be completed under LSSI funding.





### Legend:

- Shallow Monitoring Well
- ▲ Soil Boring Location
- Soil Sample Location

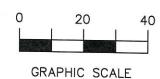
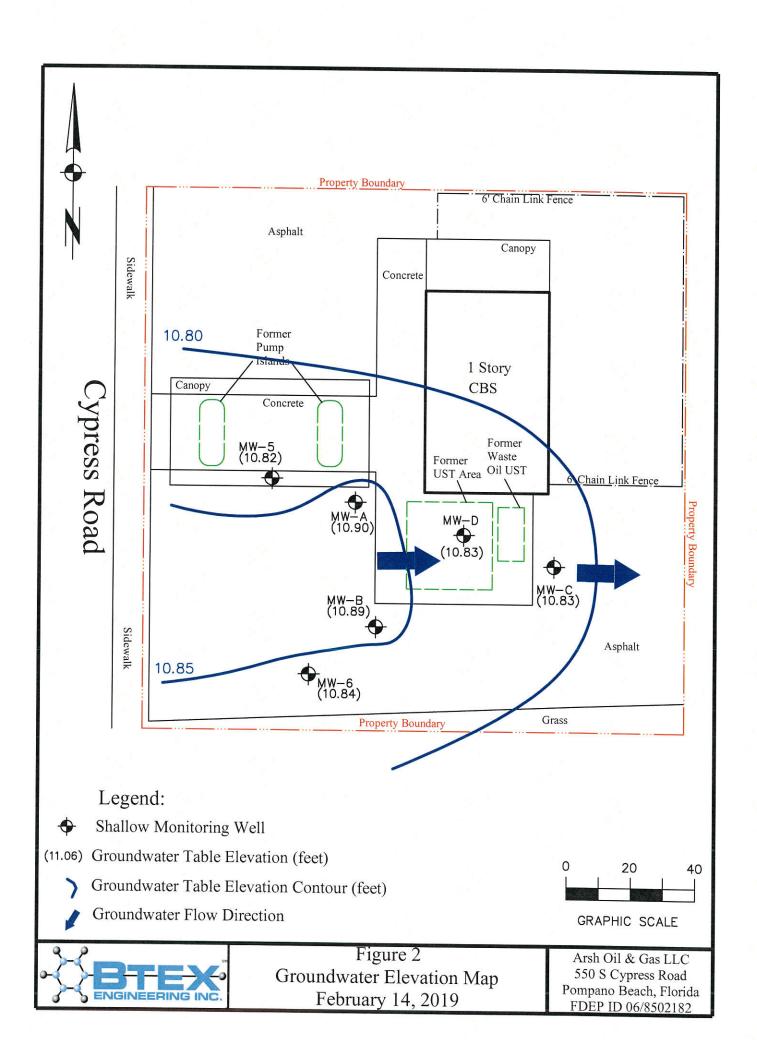
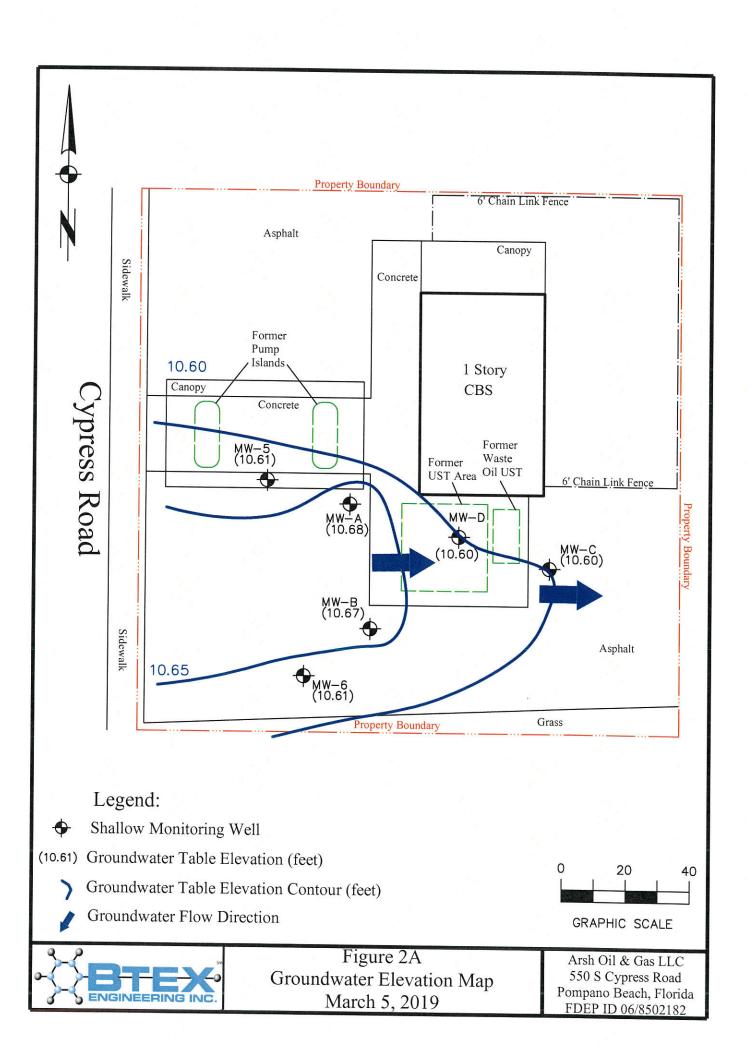
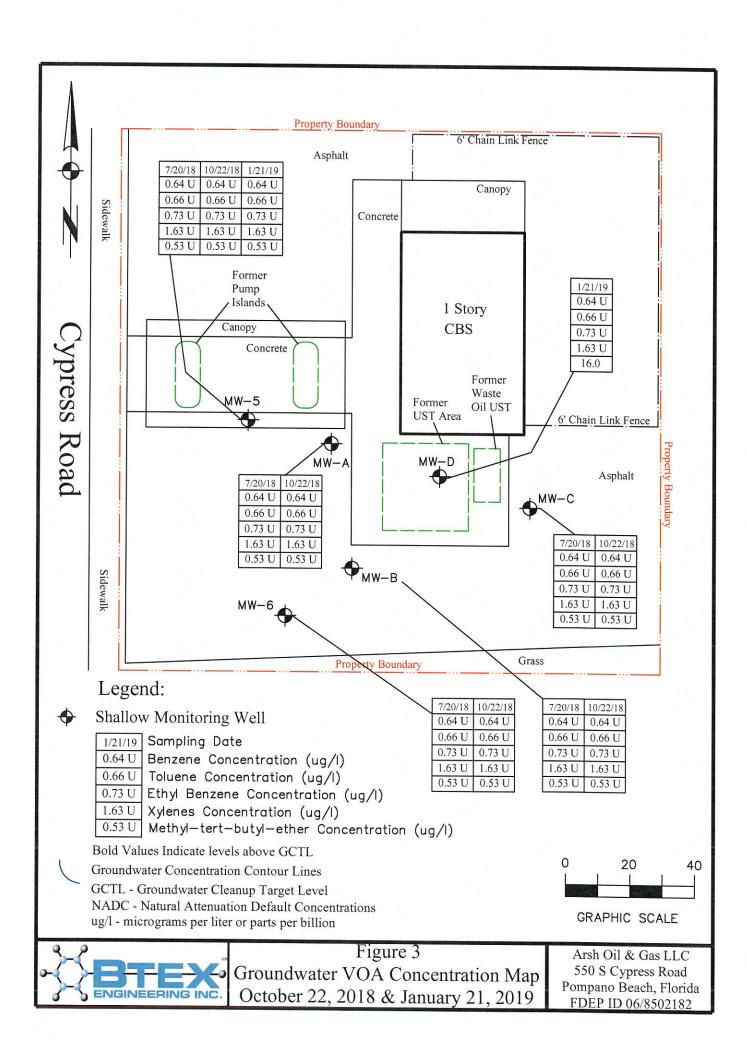


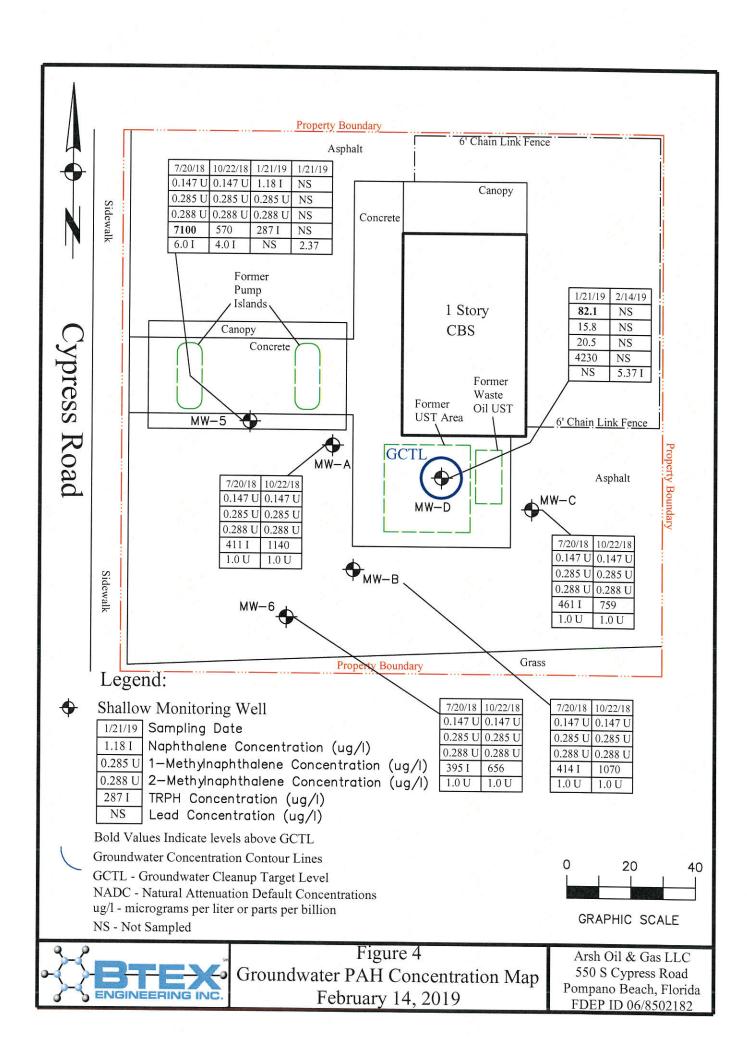


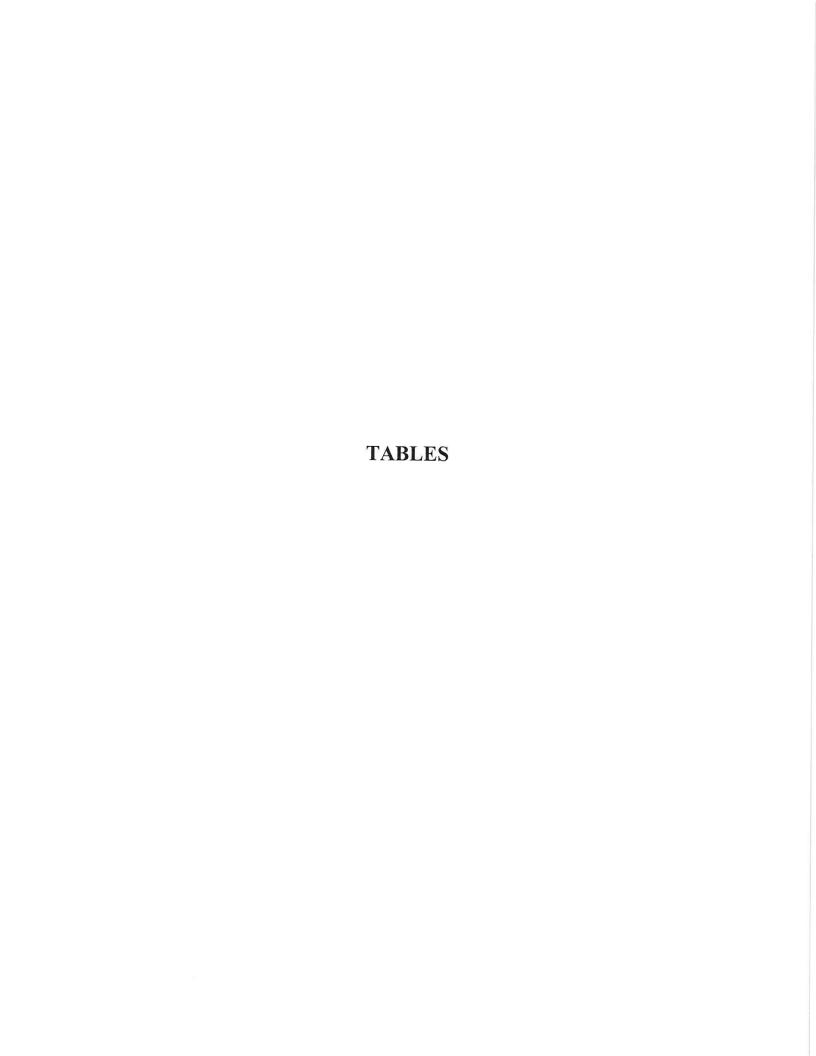
Figure 1 Site Map Arsh Oil & Gas LLC 550 S Cypress Road Pompano Beach, Florida FDEP ID 06/8502182











### **GROUNDWATER ELEVATION DATA**

### ARSH OIL & GAS LLC 550 S CYPRESS ROAD POMPANO BEACH, FLORIDA FDEP FAC ID # 06/8502182

WELL NO.	MW-A	MW-B	MW-C
DIAMETER	1"	1"	1"
WELL DEPTH	11.00	11.00	11.00
SCREEN INTERVAL	1'-11'	1'-11'	i'-11'
TOP OF CASING ELEV.	13.91	13.79	13.87

Date	DTW	GW ELEV.	DTW	GW ELEV.	DTW	GW ELEV.
7/20/18	3.52	10.39	3.40	10.39	3.51	10.36
10/22/18	3.24	10.67	3.09	10.70	3.23	10.64
1/21/19	NM	NM	NM	NM	NM	NM
2/5/19	2.80	11.11	2.69	11.10	2.83	11.04
2/14/19	3.01	10.90	2.90	10.89	3.04	10.83
3/5/19	3.23	10.68	3.12	10.67	3.27	10.60

WELL NO.	MW-D	MW-5	MW-6
DIAMETER	1"	2"	2"
WELL DEPTH	11.00	11.00	11.00
SCREEN INTERVAL	1'-11'	1'-11'	1'-11'
TOP OF CASING ELEV.	13.71	13.80	13.90

Date	DTW	GW ELEV.	DTW	GW ELEV.	DTW	GW ELEV.
7/20/18	NA	NA	3.20	10.60	3.54	10.36
10/22/18	NA	NA	3.08	10.72	3.28	10.62
1/21/19	3.40	10.31	3.55	10.25	NM	NM
2/5/19	2.68	11.03	2.74	11.06	2.84	11.06
2/14/19	2.88	10.83	2.98	10.82	3.06	10.84
3/5/19	3.11	10.60	3.19	10.61	3.29	10.61

DTW = Depth to Water

ELEV. = Elevation

All measurements in Feet

NM = Not Measured

### **GROUNDWATER ANALYTICAL DATA - VOAs**

### ARSH OIL & GAS LLC 550 S CYPRESS ROAD POMPANO BEACH, FLORIDA FDEP FAC ID # 06/8502182

Sample	Date	Benzene	Toluene	Ethyl	Xylenes	MTBE	TRPH	EDB	Lead
Location	ž.	2.4	91	Benzene			FL-PRO		.—
	×*	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
	I GCTLs	1	40	30	20	20	5000	0.02	15
THE RESERVE THE PERSON NAMED IN	V NADCs	100	400	300	200	200	50000	2	150
MW-A	7/20/2018	0.640 U	0.660 U	0.730 U	1.63 U	0.530 U	411	NS	1.0 U
	10/22/2018	0.640 U	0.660 U	0.730 U	1.63 U	0.530 U	1140	NS	1.0 U
	2/14/2019	NS	NS	NS	NS	NS	NS	NS	NS
MW-B	7/20/2018	0.640 U	0.660 U	0.730 U	1.63 U	0.530 U	414	NS	1.0 U
14	10/22/2018	0.640 U	0.660 U	0.730 U	1.63 U	0.530 U	1070	NS	1.0 U
2	2/14/2019	NS	NS	NS	NS	NS	NS	NS	NS
MW-C	7/20/2018	0.640 U	0.660 U	0.730 U	1.63 U	0.530 U	461 I	NS	1.0 U
10	10/22/2018	0.640 U	0.660 U	0.730 U	1.63 U	0.530 U	759	NS	1.0 U
S- 1	2/14/2019	NS	NS	NS	NS	NS	NS	NS	NS
MW-D	1/21/2019	0.640 U	0.660 U	0.730 U	1.63 U	16.0	4230	NS	NS
	2/14/2019	NS	NS	NS	NS	NS	NS	NS	5.37 [
". ".	3/5/2019	NS	NS	NS	NS	NS	NS	0.0109 U	NS
MW-5	7/20/2018	0.640 U	0.660 U	0.730 U	1.63 U	0.530 U	7100	NS	6.01
	10/22/2018	0.640 U	0.660 U	0.730 U	1.63 U	0.530 U	570	NS	4.0 1
	1/21/2019	0.640 U	0.660 U	0.730 U	1.63 U	0.530 U	287 I	NS	NS
**24	2/14/2019	NS	NS	NS	NS	NS	NS	NS	2.37 U
g =	3/5/2019	NS	NS	NS	NS	NS	NS	0.0109 U	NS
MW-6	7/20/2018	0.640 U	0.660 U	0.730 U	1.63 U	0.530 U	395 I	NS	1.0 U
×" 25	10/22/2018	0.640 U	0.660 U	0.730 U	1.63 U	0.530 U	656	NS	1.0 U

### NOTE:

GCTLs - Groundwater Cleanup Target Levels from Chapter 62-777, F.A.C. (effective August 5, 1999)

NADCs - Natural Attenuation Default Concentrations from Chapter 62-777, F.A.C. (effective August 5, 1999)

MTBE-Methyl-Tert-Butyl Ether.

TRPH - Total Recoverable Petroleum Hydrocarbons

1 - The reported value is between the laboratory Method Detection limit & the laboratory Practical Quantification Limit.

### Bold values indicate concentrations above GCTLs

U - Analyte included in the analysis, but not detected.

ug/l - micrograms per liter or parts per billion

E - The concetration indicated for this analyte is an estimated value above the calibration range of the instrument.

This value is only an estimate (CLP E-flag).

NS - Not Sampled

# **GROUNDWATER ANALYTICAL DATA - PAHS**

## POMPANO BEACH, FLORIDA FDEP FAC ID # 06/8502182 ARSH OIL & GAS LLC 550 S CYPRESS ROAD

Sal	Sample	Acenaph-	Acenaph-	Anthra-	Acenaph- Anthra- Benzo(a) Benzo(a)-		Benzo(b)-	Benzo(q,h,i)-	11	Chrysene	Benzo(k)-   Chrysene Dibenzo(a.h)-	Fluor-	Fluor- Ir	Fluor- Indeno(123-c d)	1-Methyl	2-Mothyl	Nanhth.	Dhon	Durono
Location	Date	thene	thylene	cene	Anthracene Pyrene	Pyrene	Fluoranthene	Perylene	ш		Anthracene		ene	Pyrene N	Naphthalene Naphthalene	Naphthalene	alene	anthrene	2 2
GCTL		20	210	2100	0.05	0.2	0.05	210	0.5	4.8	0.005	280	280	0.05	28	28		210	210
NADC		200	2100	21000	5	20	5	2100	20	480	0.5	2800	2800	5	280	280	140	2100	2100
MW-A	7/20/2018		0.393 U 0.0100 U 0.0500 U	0.0100 U		0.200 U	0.0500 U	0.341 U	0.500 U	0.169 U	0.0050 U	0.0100 U 0.217 U	0.217 U	0.0500 U	0.285 U	0.288 U	0.147 U	0.147 U 0.215 U 0.409 U	0.409 U
	10/22/2018		0.393 U	0.0100 U	0.188 U 0.393 U 0.0100 U 0.0500 U	0.200 U	0.0500 U	0.341 U	0.500 U	0.169 U	0.0050 U 0.0100 U 0.217 U	0.0100 U	0.217 U	0.0500 U	0.285 U		0.147 U	0.147 U 0.215 U 0.409 U	0.409 U
MW-B	7/20/2018	0.188 U	0.393 U	0.0100 U	0.393 U 0.0100 U 0.0500 U	0.200 U	0.0500 U	0.341 U	0.500 U	0.169 U	0.0050 11 0.0100 11 0.217 11	0.010011	117171	0.050011	0.28511	0.28811	0.14711 0.21511		110070
	10/22/2018	0.188 U	0.393 U	0.0100 U	0.393 U 0.0100 U 0.0500 U	0.200 U	0.0500 U	0.341 U	0.500 U	0.169 U	0.0050 U 0.0100 U 0.217 L	0.0100 U	0.217 U	0.0500 U	0.285 U		0.147 U 0.215 U		0.409 U
	0,000	_			$\rightarrow$	$\rightarrow$													
MW-C	7/20/2018		0.393 U 0.0100 U 0.0500 U	0.0100 U			0.0500 U	0.341 U	0.500 U	0.169 U	0.0050 U 0.0100 U 0.217 U	0.0100 U	J.217 U	0.0500 U	0.285 U	0.288 U	0.147 U 0.215 U		0.409 U
4	10/22/2018	0.188 U	0.393 U 0.0100 U 0.0500 U	0.0100 U		0.200 U	0.0500 U	0.341 U	0.500 U	0.169 U	0.0050 U 0.0100 U 0.217 U	0.0100 U	0.217 U	0.0500 U	0.285 U	0.288 U	0.147 U 0.215 U	0.215 U (	0.409 U
		$\neg$	-		· ·	7													
MW-D	1/21/2019	0.350	0.393 U 0.0100 U 0.0500 U	0.0100 U		0.200 U	0.0500 U	0.341 U	0.500 U	0.169 U	0.0050 U 0.0100 U 0.217 U	0.0100 U	J.217 U	0.050.0	15.8	20.5	82.1	0.215 U (	0.409 U
MW-5	7/20/2018	0.188 U	0.393 U 0.0100 U 0.0500 U	0.0100 U		0.200 U	0.0500 U	0.341 U	0.500 U	0.169 U	0.0050 U	0.0100 U 0.217 U	).217 U	0.0500 U	0.285 U	0.288 U	0.147 U	0.147 U 0.215 U 0.409 U	0.409 U
	10/22/2018	0.188 U	0.393 U 0.0100 U	0.0100 U	0.0500 U	0.200 U	0.0500 U	0.341 U	0.500 U	0.169 U	0.0050 U	0.0100 U 0.217 L	J.217 U	0.0500 U	0.285 U	0.288 U	0.147 U	0.147 U 0.215 U 0.409 U	0.409 U
	1/21/2019	0.188 U	0.393 U 0.0100 U	0.0100 U	0.0500 U	0.200 U	0.0500 U	0.341 U	0.500 U	0.169 U	0.0050 U	0.0100 U 0.217 L	).217 U	0.0500 U	0.285 U	0.288 U	1.181	0.215 U (	0.409 U
9-WM	7/20/2018	0.188 U	0.393 U 0.0100 U	J.0100 U	0.0500 U	0.200 U	0.0500 U	0.341 U	0.500 U	0.169 U	0.0050 U 0.0100 U 0.217 U	0.0100 U	1.217 U	0.0500 U	0.285 U	0.288 U	0 147 []	0 147 11 0 215 11 0 409 11	1 409 11
	10/22/2018	0.188 U	0.393 U 0.0100 U	0.0100 U	0.0500 U	0.200 U	0.0500 U	0.341 U	0.500 U	0.169 U	0.0050 U	0.0100 U 0.217 U	).217 U	0.0500 U	0.285 U		0.147 U	0.147 U 0.215 U 0.409 U	0.409 U

ug/l - micrograms per liter or parts per billion NS refers to Not Sampled NOTE:

PAHs - Polynuclear Aromatic Hydrocarbons.

GCTL refers to Groundwater and Surface Water Target Levels of FDEP Chapter 62-777 F.A.C. NADC refers to Natural Attenuation Default Concentrations of FDEP Chapter 62-777 F.A.C.

Bold values indicate concentrations above GCTLs

U - Analyte included in the analysis, but not detected.

I - The reported value is between the laboratory Method Detection limit & the laboratory Practical Quantification Limit.

E - The concertation indicated for this analyte is an estimated value above the calibration range of the instrument. This value is only an estimate (CLP E-flag).

# GROUNDWATER ANALYTICAL DATA - VOHs

# 550 S CYPRESS ROAD POMPANO BEACH, FLORIDA FDEP FAC ID # 06/8502182

	-7.	Dishlorph	DICTION	000	2000	2000	_		0.140 U	
	-4-	Dichloroh	Physone	8.4	00	0.0	0.170 U		0.170 U	
	-5.	Dichloroh	enzene	380	10		0.170 U		0.170 U	
		Bromofor		48	03		0.170 U		0.170 U	
4400	1,1,2,2-	Petrachlor	oethane	0.7	12	-	0.180 U		0.180 U	
		Chlorob	enzene	120	650		0.150 U		0.150 U	
Dibrowood	SOUNDER	lorometh	ane	1.5	23	2	0.150 U		0.150 U	
		Fetrachlor F	bethylene	88	18		0.160 U		0.160 U	
110	-7' '	richloroe	thane	14	2		0.250 U		0.250 U	
brane 12	Lalla,	Dichlorop	ropene	1.4	2.2		0.110 U		0.110 U	
cie.13. trane.12. 119.	011-010	hloroet Dichloroet Chlorofor I hlorometh Trichloroe Tetrachlor Trichloroe Dichlorop Dichlorop Trichloroe Tetrachlor Horometh Chlorofor Horometh Ch	ropene	1.4	290 180 0.6 2.2 3900 0.7 9.3 2.2 2.2 2.7 18 2.3 650 1.2 0.3		0.100 U		0.330 U 0.190 U 0.100 U 0.110 U 0.250 U 0.160 U 0.150 U 0.150 U 0.180 U 0.170 U 0.170 U 0.170 U 0.140 U	
200000000000000000000000000000000000000	0.000 0.000	Trichloroe	thylene	6.4	9.3		0.190 U		0.190 U	
Carbon	Carpo	Tetrachlor	ide	0.5	0.7		0.330 U		0.330 U	
111.		Trichloroe	thane	730	3900		0.160 U		0.160 U	
Bromodic 111- Carbon	O DO DO DO	hlorometh	ane	1.5	2.2		0.250 U		0.250 U	
	200 000000	Chlorofor	ε	0.4	9.0		0.160 U		0.160 U	
ns-12- cis-12-	1. 000	Dichloroet	hylene	20	180		0.210 U		0.210 U	
trans-12-		Dichloroet	hylene	53	290		0.210 U		0.210 U	
	Story Not also	Methylene	Chloride	17	26		0.420 U		0.420 U	
	120001/100000	Methyl	bromide	9.8	98		0.250 U		0.250 U	
		Dicholoro Dichlorop Ituor- Vinyi Chloroeth-uorometh Dichloroet Methyl Methylene Dichlo	hene bromide Chloride	95	NADC   300 500 14000 100 5.4 1500 510 98		0.110 0		MW-5 2/14/2019 0.180 U 0.180 U 0.220 U 0.190 U 0.250 U 0.250 U 0.110 U 0.250 U 0.420 U 0.210 U 0.160 U 0.160 U 0.160 U	
Trichloroff		norometh	ane	270	1500		0.530 0		0.530 U	
		Chloroeth	ane	3.9	5.4	110000	0.250 0		0.250 U	
		Viny	Chloride	-	100		0.081.0		0.190 U	
Dichlorodi		-long	omethane	1400	14000	110000	0.220		0.220 U	
1.2-		Dichlorop	ethane ropane omethane Chloride ane	2	200		0.061.0	1	0.150 U	
1,2-		Dicholoro	ethane	30	300	1000	0.180.0	1	0.180 U	
			Date			01410010	2/14/2018	000000000000000000000000000000000000000	2/14/2018	
Sample			Location	GCTL	NADC	CVVV	O-MM		G-WM	

NOTE: u.g/l - micrograms per liter or parts per billion

No refers to Not Amalyzed

NA refers to Not Amalyzed

NA refers to Not Amalyzed

NA refers to Not Amalyzed

PAHs: - Polymucha Aromatic Hydrocarbons.

GCTT refers to Groundwater and Surface Water Target Lewels of FDEP Chapter 62-777 F.A.C.

GCTT refers to Natural Attenuation Default Concentrations of FDEP Chapter 62-777 F.A.C.

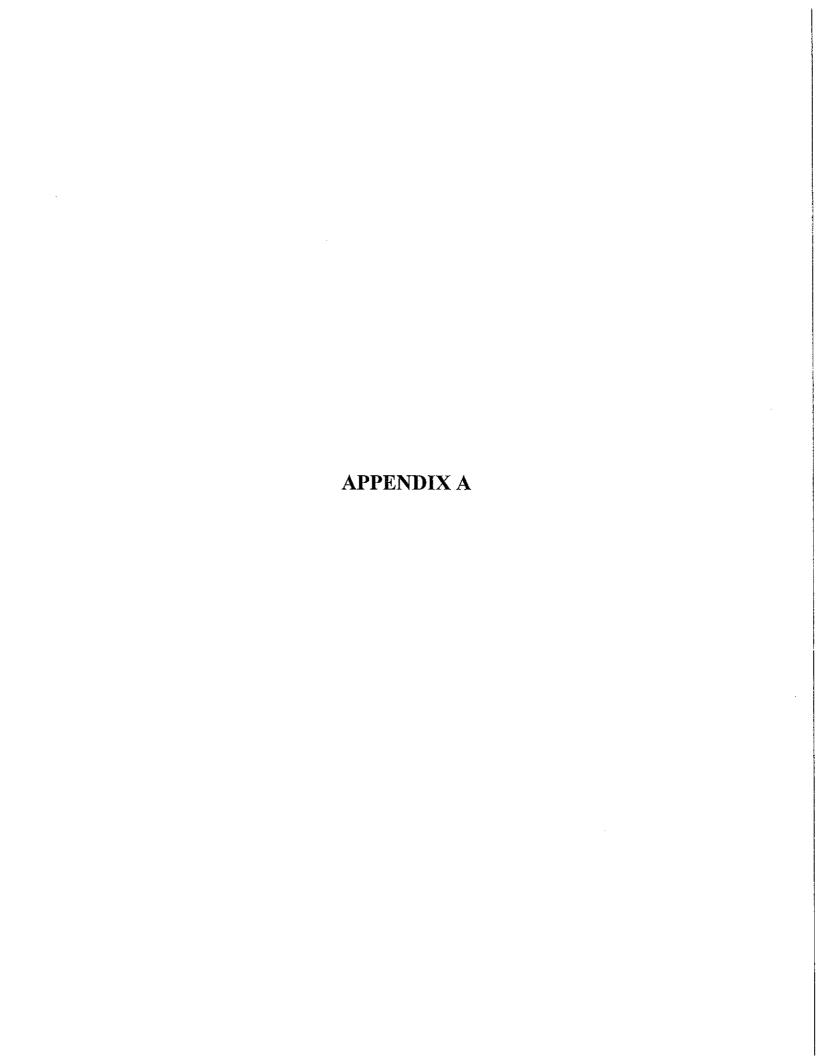
Bold values indicate concentrations above GCTLs

Underlined values on redicate concentrations above MADOs

E. Exceeds calibration curve, therefore results are estimated.

J. The reported value is the submarker than the laboratory Madou Detection limit & the laboratory Practical Quantification Limit.

T. Second column confirmation exceeded the SW-846 criteria of 40% RPD for this compound.



### **Analytical Report 614615**

for

BTEX Engineering, Inc.

**Project Manager: Dave Chuslo** 

Arsh Oil & Gas
MW-D+5, Tank pull

21-FEB-19

Xenco Laboratories 1550 Latham Rd Suite 2 West Palm Beach, FL 33409 Ph:(561) 689-6701

Xenco-Houston (EPA Lab Code: TX00122): Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054) Oklahoma (2017-142)

> Xenco-Dallas (EPA Lab Code: TX01468): Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco-Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)

Xenco-Tampa: Florida (E87429), North Carolina (483) Xenco-Lakeland: Florida (E84098) 21-FEB-19

Project Manager: Dave Chuslo BTEX Engineering, Inc. 601 N Congress Avenue, Suite 103 Delray Beach, FL 33445

Reference: XENCO Report No(s): 614615

Arsh Oil & Gas Project Address:

### Dave Chuslo:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 614615. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 614615 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Angela Harlan

Chrylen Heuleau

Senior Project Manager

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### **Sample Cross Reference 614615**

### BTEX Engineering, Inc., Delray Beach, FL

Arsh Oil & Gas

Sample Id	Matrix	<b>Date Collected</b>	Sample Depth	Lab Sample Id
MW-5	W	02-14-19 10:55		614615-001
MW-D	W	02-14-19 10:30		614615-002

### **CASE NARRATIVE**

Client Name: BTEX Engineering, Inc.

Project Name: Arsh Oil & Gas

Project ID:

Work Order Number(s): 614615

Report Date:

21-FEB-19

Date Received: 02/14/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

### Hits Summary 614615

### BTEX Engineering, Inc., Delray Beach, FL

Arsh Oil & Gas

Below is a summary of the analytes which were found to be present in the samples associated with this work order. This should only be used in conjunction with the included analytical results.

Sample ID: MW-D	Sample ID: 6146	615-002	Date/Tim	ie Sampled	: 02/14/20	19 10:30		Matrix: Water		
Analyte Name	Method	CAS No.	Dil.	Result	RL/PQ	QL MDL	Units	Qual		
Lead	SW6010C	7439-92-1	1	5.37	15.0	2.37	ug/L	I		

### BTEX Engineering, Inc., Delray Beach, FL

Arsh Oil & Gas

Sample Id:

MW-5

Matrix:

Ground Water

Date Received:02.14.19 14.10

Lab Sample Id: 614615-001

Date Collected: 02.14.19 10.55

Analytical Method: Field Parameters

Tech:

LAR

Analyst:

LAR

Seq Number: 3079268

% Moisture:

SUB: E84098

Parameter	Cas Number	Result	PQL	MDL	Flag	Units	Analysis Date	Dil
pН	12408-02-5	7.68				SU	02.14.19 10.55	1
Temperature	TEMP	27.68				Deg C	02.14.19 10.55	1
Specific conductance	COND	370				uS/cm	02.14.19 10.55	1
Dissolved Oxygen	7782-44-7	1.48				mg/L	02.14.19 10.55	1
Turbidity	TURBIDITY	3.25				NTU	02.14.19 10.55	1

Analytical Method: Lead, Total by SW846-6010C

Tech:

AHI

Analyst:

DEP

Seq Number: 3079806

Prep Method: SW3010A

% Moisture:

SUB: E871002

02.20.19 03.00

Date Prep:

Parameter	Cas Number	Result	PQL	MDL	Flag	Units	Analysis Date	Dil
Lead	7439-92-1	2.37 U	15.0	2.37	U	ug/L	02.20.19 13.07	1

### BTEX Engineering, Inc., Delray Beach, FL

Arsh Oil & Gas

Sample Id:

MW-5

Matrix:

Ground Water

Date Received:02.14.19 14.10

Lab Sample Id: 614615-001

Date Collected: 02.14.19 10.55

Prep Method: SW5030B

Analytical Method: VOH by SW-846 8260B

Tech:

JNL

% Moisture:

Analyst:

JNL

Date Prep:

02.15.19 10.36

Seq Number: 3079284

SUB: E84098

Parameter	Cas Numbe	r Result	PQL	MDL	Flag	Units	Analysis	Date	Dil
Bromodichloromethane	75-27-4	0.250 U	1.00	0.250	U	ug/L	02.15.19	15.19	1
Bromoform	75-25-2	0.170 U	1.00	0.170	U	ug/L	02.15.19	15.19	1
Methyl bromide	74-83-9	<b>0.250</b> U	1.00	0.250	U	ug/L	02.15.19	15.19	1
Carbon Tetrachloride	56-23-5	0.330 U	1.00	0.330	U	ug/L	02.15.19	15.19	1
Chlorobenzene	108-90-7	0.150 U	1.00	0.150	U	ug/L	02.15.19	15.19	1
Chloroethane	75-00-3	0.250 U	1.00	0.250	U	ug/L	02.15.19	15,19	1
Chloroform	67-66-3	0.160 U	1.00	0.160	U	ug/L	02.15.19	15.19	1
Methyl Chloride	74-87-3	0.250 U	1.00	0.250	U	ug/L	02.15.19	15.19	1
Dibromochloromethane	124-48-1	0.150 U	1.00	0.150	U	ug/L	02.15.19	15.19	1
1,2-Dichlorobenzene	95-50-1	0.140 U	1.00	0.140	U	ug/L	02.15.19	15.19	1
1,3-Dichlorobenzene	541-73-1	0.170 U	1.00	0.170	U	ug/L	02.15.19	15.19	1
1,4-Dichlorobenzene	106-46-7	0.170 U	1.00	0.170	U	ug/L	02.15,19	15.19	1
Dichlorodifluoromethane	75-71-8	0.220 U	1.00	0.220	U	ug/L	02.15.19	15.19	1
1,1-Dichloroethane	75-34-3	0.110 U	1.00	0.110	U	ug/L	02.15.19	15.19	1
1,2-Dichloroethane	107-06-2	0.180 U	1.00	0.180	U	ug/L	02.15.19	15.19	1
1,1-Dichloroethene	75-35-4	0.200 U	1.00	0.200	U	ug/L	02.15.19	15.19	1
cis-1,2-Dichloroethylene	156-59-2	0.210 U	1,00	0.210	U	ug/L	02,15,19	15.19	1
trans-1,2-dichloroethylene	156-60-5	0.210 U	1,00	0.210	U	ug/L	02,15,19	15.19	l
1,2-Dichloropropane	78-87-5	0.150 U	1,00	0.150	U	ug/L	02.15.19	15.19	1
cis-1,3-Dichloropropene	10061-01-5	0.100 U	1.00	0.100	U	ug/L	02.15.19	15.19	1
trans-1,3-dichloropropene	10061-02-6	0.110 U	1.00	0.110	U	ug/L	02.15.19	15.19	1
Methylene Chloride	75-09-2	0.420 U	1.00	0.420	U	ug/L	02.15.19	15.19	1
1,1,2,2-Tetrachloroethane	79-34-5	0.180 U	1.00	0.180	U	ug/L	02.15.19	15,19	1
Tetrachloroethylene	127-18-4	0.160 U	1.00	0.160	U	ug/L	02.15.19	15.19	1
1,1,1-Trichloroethane	71-55-6	0.160 U	1.00	0.160	U	ug/L	02.15.19	15.19	1
1,1,2-Trichloroethane	79-00-5	0.250 U	1.00	0.250	U	ug/L	02.15.19	15.19	1
Trichloroethylene	79-01-6	0.190 U	1.00	0.190	U	ug/L	02.15.19	15.19	1
Trichlorofluoromethane	75-69-4	0.530 U	1.00	0.530	U	ug/L	02.15.19	15.19	1
Vinyl Chloride	75-01-4	0.190 U	1.00	0.190	U	ug/L	02.15.19		1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysi	is Date	lag	
1,2-Dichloroethane-D4		17060-07-0	100	%	53-159	02.15.19			
Toluene-D8		2037-26-5	96	%	70-130	02.15.19			
4-Bromofluorobenzene		460-00-4	107	%	30-180	02.15.19			

### BTEX Engineering, Inc., Delray Beach, FL

Arsh Oil & Gas

Sample Id:

MW-D

Matrix:

Ground Water

Date Received:02.14.19 14.10

Lab Sample Id: 614615-002

Date Collected: 02.14.19 10.30

Analytical Method: Field Parameters

LAR

Tech: Analyst:

LAR

Seq Number: 3079268

% Moisture:

SUB: E84098

Parameter	Cas Number	Result	PQL	MDL	Flag	Units	Analysis Date	Dil
pH	12408-02-5	6.40		***		SU	02.14.19 10.30	1
Temperature	TEMP	24.81				Deg C	02.14.19 10.30	1
Specific conductance	COND	390				uS/cm	02.14,19 10.30	1
Dissolved Oxygen	, 7782-44-7	1.16				mg/L	02.14.19 10.30	1
Turbidity	TURBIDITY	13.8				NTU	02.14.19 10.30	1

Seq Number: 3079806

Analytical Method: Lead, Total by SW846-6010C

Prep Method: SW3010A

Tech: Analyst: AHI

DEP

Date Prep:

02.20.19 03.00

SUB: E871002

% Moisture:

Parameter	Cas Number	Result	PQL	MDL	Flag	Units	Analysis Date	Dil
Lead	7439-92-1	5.37	15,0	2.37	I	ug/L	02.20.19 13.11	1

### BTEX Engineering, Inc., Delray Beach, FL

Arsh Oil & Gas

Sample Id: MW-D Matrix:

Ground Water

Date Received:02.14.19 14.10

Lab Sample Id: 614615-002

Date Collected: 02.14.19 10.30

Analytical Method: VOH by SW-846 8260B

Prep Method: SW5030B

Tech:

JNL

% Moisture:

Analyst:

JNL

02.15.19 10.36 Date Prep:

Seq Number: 3079284

SUB: E84098

Parameter Cas Nu	ımber Result	PQL	MDL	Flag	Units	Analys	is Date	Dil
Bromodichloromethane 75-27-4	0.250 U	1.00	0.250	U	ug/L	02.15.19	15.37	1
Bromoform 75-25-2	0.170 U	1.00	0.170	U	ug/L	02.15.19	15.37	1
Methyl bromide 74-83-9	0.250 U	1.00	0.250	U	ug/L	02.15.19	15.37	1
Carbon Tetrachloride 56-23-5	0.330 U	1.00	0.330	U	ug/L	02.15.19	15.37	1
Chlorobenzene 108-90-7	0.150 U	1.00	0.150	U	ug/L	02.15.19	15.37	1
Chloroethane 75-00-3	0.250 U	1.00	0.250	U	ug/L	02,15.19		1
Chloroform 67-66-3	0.160 U	1.00	0.160	U	ug/L	02.15.19	15.37	1
Methyl Chloride 74-87-3	0.250 U	1.00	0.250	U	ug/L	02.15.19		1
Dibromochloromethane 124-48-1	0.150 U	1.00	0.150	U	ug/L	02.15.19	15,37	1
1,2-Dichlorobenzene 95-50-1	0.140 U	1.00	0.140	U	ug/L	02,15.19	15.37	1
1,3-Dichlorobenzene 541-73-1	0.170 U	1.00	0.170	U	ug/L	02.15.19	15.37	1
1,4-Dichlorobenzene 106-46-7	0.170 U	1,00	0.170	U	ug/L	02.15.19	15.37	1
Dichlorodifluoromethane 75-71-8	0.220 U	1.00	0.220	U	ug/L	02.15.19	15.37	1
1,1-Dichloroethane 75-34-3	0.110 U	1.00	0.110	U	ug/L	02.15.19	15.37	1
1,2-Dichloroethane 107-06-2	0.180 U	1.00	0.180	U	ug/L	02.15.19	15.37	1
1,1-Dichloroethene 75-35-4	0.200 U	1.00	0.200	U	u <b>g/</b> L	02.15.19	15,37	1
cis-1,2-Dichloroethylene 156-59-2	0.210 U	1.00	0.210	U	ug/L	02.15.19	15.37	1
trans-1,2-dichloroethylene 156-60-5	0.210 U	1.00	0.210	U	u <b>g/</b> L	02.15.19	15.37	ì
1,2-Dichloropropane 78-87-5	0.150 U	1.00	0.150	U	u <b>g/</b> L	02.15.19	15.37	1
cis-1,3-Dichloropropene 10061-01	l-5 0.100 U	1.00	0.100	U	ug/L	02.15.19	15.37	1
trans-1,3-dichloropropene 10061-02	2-6 0.110 U	1,00	0.110	U	ug/L	02.15.19	15.37	1
Methylene Chloride 75-09-2	0.420 U	1.00	0.420	U	ug/L	02.15.19	15.37	1
1,1,2,2-Tetrachloroethane 79-34-5	0.180 U	1.00	0.180	U	ug/L	02.15.19	15.37	1
Tetrachloroethylene 127-18-4	0.160 U	1,00	0.160	U	ug/L	02.15.19	15.37	1
1,1,1-Trichloroethane 71-55-6	0.160 U	1.00	0.160	U	ug/L	02.15.19	15.37	1
1,1,2-Trichloroethane 79-00-5	0.250 U	1.00	0.250	U	ug/L	02.15.19	15.37	1
Trichloroethylene 79-01-6	0.190 U	1.00	0.190	U	ug/L	02.15.19	15.37	1
Trichlorofluoromethane 75-69-4	0.530 U	1.00	0.530	U	ug/L	02.15.19	15.37	1
Vinyl Chloride 75-01-4	0.190 U	1.00	0.190	U	ug/L	02,15,19		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysi	is Date	Flag	
1,2-Dichloroethane-D4	17060-07-0	Recovery 97	%	53-159	02.15.19		- 10g	
Toluene-D8	2037-26-5	94	%	70-130	02.15.19			
4-Bromofluorobenzene	460-00-4	98	%	30-180	02.15.19			

### CHRONOLOGY OF HOLDING TIMES

Analytical Method: Lead, Total by SW846-6010C

Client:

BTEX Engineering, Inc.

Work Order #: Date Received:

614615 02/14/19

Project ID:

Field Sample ID	Lab Sample ID	Date Collected	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
MW-5	614615-001	02/14/19	02/20/19	180	6	02/20/19	180	0	P
MW-D	614615-002	02/14/19	02/20/19	180	6	02/20/19	180	0	P

### CHRONOLOGY OF HOLDING TIMES

Analytical Method: VOH by SW-846 8260B

Client:

BTEX Engineering, Inc.

Work Order #: Date Received:

614615

02/14/19

Project ID:

Field Sample ID	Lab Sample ID	Date Collected	Date Extracted	Max Holding Time Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
MW-5	614615-001	02/14/19			02/15/19	14	1	P
MW-D	614615-002	02/14/19			02/15/19	14	1	P

### CHRONOLOGY OF HOLDING TIMES

Analytical Method: Field Parameters

Client:

BTEX Engineering, Inc.

Work Order #:

614615

Project ID:

Date Received:

02/14/19

Field Sample ID	Lab Sample ID	Date Collected	Date Extracted	Max Holding Time Extracted (Hour)	Date Analyzed	Max Holding Time Analyzed (Hour)	-	Q
MW-5	614615-001	02/14/19			 02/14/19	1	0	P
MW-D	614615-002	02/14/19			02/14/19	1	0	P

F = These samples were analyzed outside the recommended holding time.

P = Samples analyzed within the recommended holding time.

### Flagging Criteria



### FLORIDA flagging criteria

Data were reviewed by the Department Supervisor and QA Director

- A Value reported is the mean (average) of two or more determinations.
- B Results based upon colony counts outside the acceptable range.
- J Estimated value; value not accurate. All results with a "J" qualifier require comment.
  - J1: Surrogate Recoveries exceed established QA/QC Limits
  - J2: No known QA/QC exists.
  - J3: Reported value failed to meet established QA/QC limits or the sample matrix interfered with the ability to make an accurate determination
  - J4: The data is questionable due to improper laboratory or field protocols
- Q Sample held beyond the accepted holding time
- T Value reported is less than the laboratory method detection limit. The value is reported for informational purposes, only and shall not be used in statistical analysis.
- U Compound was analyzed for but not detected at the MDL Level.
- V Analyte was detected in both the sample and the associated method blank.
- Y Laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- I The reported value is between the laboratory MDL and the laboratory PQL.
- R Significant rain in the past 48 hours.
- + NELAC certification not offered for this compound.
- \* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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9701 Harry Hines Blvd, Dallas, TX 75220	(214) 902 0300	(214) 351-9139
5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
2505 North Falkenburg Rd, Tampa, FL 33619	(813) 620-2000	(813) 620-2033
12600 West I-20 East, Odessa, TX 79765	(432) 563-1800	(432) 563-1713
6017 Financial Drive, Norcross, GA 30071	(770) 449-8800	(770) 449-5477
3725 E. Atlanta Ave, Phoenix, AZ 85040	(602) 437-0330	, , , , , ,

### QC Summary 614615

### BTEX Engineering, Inc.

Arsh Oil & Gas

Analytical Methorseq Number: MB Sample Id:	od: Lead, Total by SW 3079806 7672101-1-BLK	/846-6010C		Matrix: nple Id:	Water 7672101-	l-BKS			rep Metho Date Pre D Sample	p: 02,2	3010A 20.19 2101-1-BSD	
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limi	Units	Analysis Date	Flag
Lead	<2.37	1000	1060	106	1070	107	75-125	1	20	ug/L	02.20.19 12:12	

Seq Number: Parent Sample Id:	3079806 614801-001		Ground W 614801-00			Date Prep: 02.20.19  MSD Sample Id: 614801-001 SD						
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Lead	<2.37	1000	867	87	829	83	75-125	4	20	ug/L	02.20.19 12:25	

Analytical Method: Lead, Total by SW846-6010C

E = MSD/LCSD Result

Prep Method: SW3010A

#### **QC** Summary 614615

### BTEX Engineering, Inc.

Arsh Oil & Gas

Analytical Method: VOH by SW-846 8260B

Seq Number: 3079284

Matrix: Water

Prep Method: SW5030B

Date Prep: 02.15.19

MB Sample Id:	7671815-1-BLK		LCS Sample Id: 7671815-1-BKS				LCSD Sample Id: 7671815-1-BSD					
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RF	D RPD Limi	t Units	Analysis Date	Flag
Bromodichloromethane	< 0.250	50.0	45.4	91	46.4	93	75-120	2	20	ug/L	02.15.19 13:10	
Bromoform	< 0.170	50.0	46.7	93	46.6	93	70-130	0	20	ug/L	02.15.19 13:10	
Methyl bromide	< 0.250	50.0	42.7	85	43,8	88	30-145	3	20	ug/L	02.15.19 13:10	
Carbon Tetrachloride	< 0.330	50.0	47.7	95	47.1	94	65-140	1	20	ug/L	02.15.19 13:10	
Chlorobenzene	< 0.150	50.0	46.0	92	46.2	92	80-120	0	20	ug/L	02.15.19 13:10	
Chloroethane	< 0.250	50.0	42.6	85	40.3	81	60-135	6	20	ug/L	02.15.19 13:10	
Chloroform	< 0.160	50.0	46.8	94	46.5	93	65-135	1	20	ug/L	02.15.19 13:10	
Methyl Chloride	< 0.250	50.0	49.9	100	48.8	98	40-125	2	20	ug/L	02.15.19 13:10	
Dibromochloromethane	< 0.150	50.0	45.6	91	45.9	92	60-135	1	20	ug/L	02.15.19 13:10	
1,2-Dichlorobenzene	< 0.140	50.0	44.8	90	45.4	91	70-125	1	20	ug/L	02.15.19 13:10	
1,3-Dichlorobenzene	<0.170	50.0	44.9	90	45.2	90	75-125	1	20	ug/L	02.15.19 13:10	
1,4-Dichlorobenzene	< 0.170	50.0	44.8	90	44.9	90	75-125	0	20	ug/L	02.15.19 13:10	
Dichlorodifluoromethan	e <0.220	50.0	62.6	125	63.1	126	30-155	1	20	ug/L	02.15.19 13:10	
1,1-Dichloroethane	<0.110	50.0	48.0	96	49,0	98	70-150	2	20	ug/L	02.15.19 13;10	
1,2-Dichloroethane	< 0.180	50.0	45.6	91	45.3	91	70-130	1	20	ug/L	02.15.19 13:10	
1,1-Dichloroethene	< 0.200	50.0	51.3	103	50.7	101	70-130	1	20	ug/L	02.15.19 13:10	
cis-1,2-Dichloroethylen	e <0.210	50.0	49.6	99	50.1	100	70-125	1	20	ug/L	02.15.19 13:10	
trans-1,2-dichloroethyle	ne <0.210	50.0	50.4	101	50.4	101	60-140	0	20	ug/L	02.15.19 13:10	
1,2-Dichloropropane	< 0.150	50.0	44.2	88	45.1	90	75-125	2	20	ug/L	02.15,19 13:10	
cis-1,3-Dichloropropene		50.0	52.4	105	52.6	105	70-125	0	20	ug/L	02.15,19 13:10	
trans-1,3-dichloroproper		50.0	51.4	103	51.7	103	55-140	1	20	ug/L	02.15.19 13:10	
Methylene Chloride	< 0.420	50.0	48.6	97	48.9	98	55-140	1	20	ug/L	02.15.19 13:10	
1,1,2,2-Tetrachloroethar		50,0	44.2	88	44.2	88	65-148	0	20	ug/L	02.15.19 13:10	
Tetrachloroethylene	< 0.160	50,0	46.6	93	48.3	97	45-150	4	20	ug/L	02.15.19 13:10	
1,1,1-Trichloroethane	< 0.160	50.0	46.4	93	47.2	94	65-145	2	20	ug/L	02.15.19 13:10	
1,1,2-Trichloroethane	< 0.250	50.0	45.9	92	47.0	94	75-151	2	20	ug/L	02.15.19 13:10	
Trichloroethylene	< 0.190	50.0	48.1	96	46.9	94	70-125	3	20	ug/L	02.15.19 13:10	
Trichlorofluoromethane		50.0	53.6	107	54.3	109	60-145	1	20	ug/L	02,15,19 13:10	
Vinyl Chloride	<0.190	50.0	50.0	100	49.5	99	50-145	1	20	ug/L	02.15.19 13:10	
Surrogate	MB %Rec	MB Flag	%		LCS Flag	LCSI %Re			Limits	Units	Analysis Date	
1,2-Dichloroethane-D4	99		9	98		99			53-159	%	02.15.19 13:10	
Toluene-D8	94		!	95		95			70-130	%	02.15.19 13:10	
4-Bromofluorobenzene	106		9	95		94			30-180	%	02.15.19 13:10	



Falm Beach Environmental

Laboratories, Inc.

PO#: 6146 5

Quote #: FDEP: 20/4

CHAIN OF CUSTODY RECORD  Company Name: Brex ENGINERING THE  Address: 601 N. Congress Ave, Sre 103 ph  Address: 601 N. Congress ph  Address: 602 N. Section ph  Address: 603 ph  A	Matrix Codes  SD Solid Waste (if O))  GW (round Waster SI Studge LIT Billuent SO Soll Sodingent AFW Anable Free II(2) W Angewis WW Waste Water VA Coffeer SW Surface Water Codes A. None F. HCL O. Other B. HNO3 F. McOII C. H2SO4 (i. Na2S2O3 D. NaOII I. Ice  ###################################
tulloca Paramete	A. None H. HCL B. HNO3 F. McOH
Client ID)  Date Jime Filt Inter-Contact Topace  A Contact Topace  Top	- 19°
MW-D 21M/m 10:30 GW 7	
5   4	
QA/QC Report Level COC OK	Initials
(Y) 24 Hour Date Due: None 1 / 2 _ 3 _ Other _ (\vec{V}) N \ \vec{V}	
l by Affiliation	Date Lab Use Only
Lullocan REX Blillia 14:10 J. Y. Mrn 2	Sample (N1XCT upon arrught Yes No N/A Received on West tee? Tennal Lt. Turner Preservatives Indicated?
	Received within halding time? Citstody scals intact? Volatile rec'd without bend'space?  Proper Containers Cond?

Page \_\_



10S Number 122571

Date/Time: 02/14/19 14:16

Lab# From: South Florida

Lab# To: Tampa

Air Bill No.: Delivery Priority:

Created by: Jessica Magierowski

Please send report to: Angela Harlan

Page 1 of 1

Address: Xenco Laboratories

E-Mail: angela.harlan@xenco.com

Sample Id	Matrix	Matrix Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
14615-001	W Mw-5	MW-5	02/14/19 10:55	SW8260B_VOH	VOH by SW-846 8260B	02/20/19	02/28/19	HNY	BDCME BRME CEVETH	
14615-002	W Mw-D	MW-D	02/14/19 10:30	SW8260B_VOH	VOH by SW-846 8260B	02/20/19	02/28/19	ANH	ANH BDCME BRIME CEVETH	

Inter Office Shipment or Sample Comments:

Relinquished By: 04 2

Jessica Magierowski

Date Relinquished: 02/14/2019

Date Received:

Received By: Spurter Destal

Lourdes Arevalo

Cooler Temperature:



IOS Number 122573

Date/Time: 02/14/19 14:26

Lab# From: South Florida

Lab# To: Houston

Created by: Jessica Magierowski

Delivery Priority:

ery Priority: Air Bill No.: 774476703509

Please send report to: Angela Harlan

Page 1 of 1

Address: Xenco Laboratories

E-Mail: angela.harlan@xenco.com

Sign				
Analytes	PB	PB	PB	PB
PM	ANH PB	ANH PB	ANH PB	ANH PB
HT Due	08/13/19	08/13/19	08/13/19	08/13/19
Lab Due	61/07/70	02/20/19	02/20/19	02/20/19
Method Name	Lead, Total by SW846-6010C			
Method	SW6010C_Pb	SW6010C_Pb	SW6010C Pb	SW6010C_Pb
Matrix Client Sample Id Sample Collection	02/14/19 10:55 SW6010C_Pb	02/14/19 10:55 SW6010C_Pb	02/14/19 10:30 SW6010C_Pb	02/14/19 10:30 SW6010C_Pb
Client Sample Id	MW-5	MW-5	MW-D	MW-D
Matrix	W MW-5	W MW-5	W MW-D	W MW-D
Sample Id	614615-001	614615-001	614615-002	614615-002

Inter Office Shipment or Sample Comments:

Relinquished By: 04-2

Jessica Magierowski

Date Relinquished: 02/14/2019

Received By: Monica Shakhshir

Date Received: 02/15/2019 09:30

Cooler Temperature: 1.5



#### **XENCO Laboratories**

#### Inter Office Report- Sample Receipt Checklist

**Sent To:** Tampa **IOS #:** 122571

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Temperature Measuring device used:

Sent By:	Jessica Magierowski	Date Sent:	02/14/2019 02:16 PM		
Received By	:	Date Received	:		
		Sample Re	ceipt Checklist	Comments	
#1 *Temper	rature of cooler(s)?				
#2 *Shipping	g container in good conditi	on?			
#3 *Sample	s received with appropriate	temperature?		<u> </u>	
#4 *Custody	Seals intact on shipping o	container/ cooler?		<u> </u>	
#5 *Custody	Seals Signed and dated f	or Containers/cool	lers		
#6 *(OS pre:	sent?				
#7 Any miss	sing/extra samples?				
#8 IOS agre	es with sample label(s)/ma	atrix?			
#9 Sample ı	matrix/ properties agree wi	th IOS?			
#10 Sample	s in proper container/ bottl	e?			
#11 Sample	es properly preserved?			_	
#12 Sample	container(s) intact?			<u> </u>	
#13 Sufficie	nt sample amount for indic	ated test(s)?			
#14 All sam	ples received within hold ti	me?			
* Must be co	mpleted for after-hours o	elivery of sampl	es prior to placing in th	e refrigerator	
NonConforma	ance:				
Corrective Ac	tion Taken:				
		Nonconfo	rmance Documentatio	1	
A ( t .					
Contact:	.,,	Contacted by :		Date:	
	Checklist reviewed by:	Lauran Der			
	-	Upon and lighted	D. Aroyalo	ate:	



Checklist reviewed by:

#### **XENCO Laboratories**

#### Inter Office Report- Sample Receipt Checklist

Sent To: Houston IOS #: 122573

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Temperature Measuring device used: HOU-068

Date: 02/15/2019

Sent By: Received By:	Jessica Magierowski : Monica Shakhshir	Date Sent:	02/14/2019 02:26 PM 02/15/2019 09:30 AM		
•			ceipt Checklist		Comments
#1 *Temper	ature of cooler(s)?	,		1.5	
•	g container in good condition	nn?		Yes	
	s received with appropriate			Yes	
	Seals intact on shipping o	•		Yes	
	Seals Signed and dated for		ore	Yes	
#6 *IOS pres	<del>=</del>	or Containers/Cook	315	Yes	
•	sing/extra samples?			res No	
	es with sample label(s)/ma	itriv?		Yes	
_	es with sample label(s)/ma matrix/ properties agree wit			res Yes	
=	s in proper container/ bottle			Yes	
	s properly preserved?	21		Yes	
-	container(s) intact?			Yes	
	nt sample amount for indic	ated toet(e)2		Yes	
	nt sample amount for muc ples received within hold ti	• •			
# 14 All Salli	pies received within noid th	ille t		Yes	
* Must be cor	mpleted for after-hours d	elivery of sample	s prior to placing in th	e refrigerator	
NonConforma	nce:				
Corrective Act	tion Taken:				
		Nonconfo	mance Documentation	1 ,	
Contact:		Contacted by :		Da	ate:
	······································	-			

Monica Shakhshir

#### **XENCO Laboratories**

# Prelogin/Nonconformance Report- Sample Log-In

Client: BTEX Engineering, Inc.

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient

Date/ Time Received: 02.14.2019 02.10.00 PM Work Order #: 614615

Analyst:

Temperature Measuring device used :

S	ample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	2.	.4
#2 *Shipping container in good condition?	Ye	es
#3 *Samples received on ice?	Ye	es
#4 *Custody Seals intact on shipping contained	r/ cooler?	/A
#5 Custody Seals intact on sample bottles?	N/	/A
#6*Custody Seals Signed and dated?	N/	/A
#7 *Chain of Custody present?	Ye	es
#8 Any missing/extra samples?	N	lo
#9 Chain of Custody signed when relinquished	/ received? Ye	es
#10 Chain of Custody agrees with sample labe	els/matrix?	es
#11 Container label(s) legible and intact?	Ye	es
#12 Samples in proper container/ bottle?	Ye	es
#13 Samples properly preserved?	Ye	es
#14 Sample container(s) intact?	Ye	es
#15 Sufficient sample amount for indicated tes	t(s)?	es
#16 All samples received within hold time?	Ye	es
#17 Subcontract of sample(s)?	Ye	es Subbed to Tampa and Houston
#18 Water VOC samples have zero headspace	9? <b>N</b> /	/A

* Must be completed for after-hours delivery of samples prior to placing in the refrig	roterat
--	---------

Checklist completed by:	Jessica Magierowski	Date: <u>02.14.2019</u>
Checklist reviewed by:		Date: 02,14,2019

PH Device/Lot#: IR1

# **Analytical Report 616489**

for BTEX Engineering, Inc.

**Project Manager: Dave Chuslo** 

Arsh Oil & Gas FDB - GW

07-MAR-19

Xenco Laboratories 1550 Latham Rd Suite 2 West Palm Beach, FL 33409 Ph:(561) 689-6701

Xenco-Houston (EPA Lab Code: TX00122): Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054) Oklahoma (2017-142)

> Xenco-Dallas (EPA Lab Code: TX01468): Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco-Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)
Xenco-Lakeland: Florida (E84098)

07-MAR-19

Project Manager: **Dave Chuslo BTEX Engineering, Inc.**601 N Congress Avenue, Suite 103
Delray Beach, FL 33445

Reference: XENCO Report No(s): 616489

Arsh Oil & Gas Project Address:

#### Dave Chuslo:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 616489. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 616489 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Chad Bechtold

Cheel A. Boutetes

Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

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Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

# **Sample Cross Reference 616489**

#### BTEX Engineering, Inc., Delray Beach, FL

Arsh Oil & Gas

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-5	W	03-05-19 12:00		616489-001
MW-D	W	03-05-19 12:35		616489-002

#### **CASE NARRATIVE**

Client Name: BTEX Engineering, Inc.

Project Name: Arsh Oil & Gas

Project ID: Work Order Number(s): 616489

Report Date:

07-MAR-19

Date Received: 03/05/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

#### **Certificate of Analytical Results 616489**

#### BTEX Engineering, Inc., Delray Beach, FL

Arsh Oil & Gas

Sample Id:

MW-5

Matrix:

Ground Water

Date Received:03.05.19 15.55

Lab Sample Id: 616489-001

Date Collected; 03,05,19 12,00

Analytical Method: EDB by EPA 8011

Prep Method: SW8011P

Tech:

JAI

% Moisture:

Analyst:

KTK

Date Prep:

03.06.19 15.00

Seq Number: 3081336

SUB: E87429

Parameter	Cas Number	Result	PQL	MDL	Flag	Units	Analysis Date	Dil
1,2-Dibromoethane	106-93-4	0.0109 U	0.0199	0.0109	U	ug/L	03.06.19 23.27	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysi	s Date Flag	
4-Bromofluorobenzene		460-00-4	103	%	60-140	03.06.19	23.27	

#### **Certificate of Analytical Results 616489**

#### BTEX Engineering, Inc., Delray Beach, FL

Arsh Oil & Gas

Sample Id:

MW-D

Matrix:

Ground Water

Date Received:03.05.19 15.55

Lab Sample Id: 616489-002

Date Collected: 03.05.19 12.35

Analytical Method: EDB by EPA 8011

Tech:

JAI

Prep Method: SW8011P % Moisture:

Analyst:

KTK

Date Prep:

03.06.19 15.00

Seq Number: 3081336

SUB: E87429

Parameter	Cas Number	Result	PQL	MDL	Flag	Units	Analysis Date	Dil
1,2-Dibromoethane	106-93-4	0.0109 U	0.0198	0.0109	U	ug/L	03.06.19 23.54	1
Surrogate 4-Bromofluorobenzene		Cas Number 460-00-4	% Recovery 98	Units %	Limits 60-140	<b>Analysi</b> 03.06.19		

#### CHRONOLOGY OF HOLDING TIMES

Analytical Method: EDB by EPA 8011

Client:

BTEX Engineering, Inc.

Work Order #:

616489

Project ID:

Date Received:

03/05/19

Field Sample ID	Lab Sample ID	Date Collected	Date Extracted	Max Holding Time Extracted (Days)		Date Analyzed	Max Holding Time Analyzed (Days)	•	Q
MW-5	616489-001	03/05/19	03/06/19	14	1	03/06/19	14	0	P
MW-D	616489-002	03/05/19	03/06/19	14	1	03/06/19	14	0	P

F= These samples were analyzed outside the recommended holding time. P= Samples analyzed within the recommended holding time.

#### Flagging Criteria



#### FLORIDA flagging criteria

Data were reviewed by the Department Supervisor and QA Director

- A Value reported is the mean (average) of two or more determinations.
- B Results based upon colony counts outside the acceptable range.
- J Estimated value; value not accurate. All results with a "J" qualifier require comment.
  - J1: Surrogate Recoveries exceed established QA/QC Limits
  - J2: No known QA/QC exists.
  - J3: Reported value failed to meet established QA/QC limits or the sample matrix interfered with the ability to make an accurate determination
  - J4: The data is questionable due to improper laboratory or field protocols
- Q Sample held beyond the accepted holding time
- T Value reported is less than the laboratory method detection limit. The value is reported for informational purposes, only and shall not be used in statistical analysis.
- U Compound was analyzed for but not detected at the MDL Level.
- V Analyte was detected in both the sample and the associated method blank.
- Y Laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- I The reported value is between the laboratory MDL and the laboratory POL.
- R Significant rain in the past 48 hours.
- + NELAC certification not offered for this compound.
- \* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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	Phone	Fax
4143 Greenbrian Dr, Stafford, TX 77477	(281) 240-4200	(281) 240-4280
9701 Harry Hines Blvd, Dallas, TX 75220	(214) 902 0300	(214) 351-9139
5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
2505 North Falkenburg Rd, Tampa, FL 33619	(813) 620-2000	(813) 620-2033
12600 West I-20 East, Odessa, TX 79765	(432) 563-1800	(432) 563-1713
6017 Financial Drive, Norcross, GA 30071	(770) 449-8800	(770) 449-5477
3725 E. Atlanta Ave. Phoenix, AZ 85040	(602) 437-0330	

#### QC Summary 616489

#### BTEX Engineering, Inc.

Arsh Oil & Gas

Analytical Method: Seq Number: MB Sample Id:	<b>EDB by EPA 8011</b> 3081336 7673071-1-BLK			Matrix:	Water 7673071-	1-BKS			Prep Method Date Prep SD Sample I	: 03.0	8011P 06.19 3071-1-BSD	
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RP	D RPD Limit	Units	Analysis Date	Flag
1,2-Dibromoethane	< 0.0110	0,250	0.260	104	0.280	112	60-140	7	30	ug/L	03.06.19 22:05	
Surrogate	MB %Rec	MB Flag	%	CS Rec	LCS Flag	LCSI %Re	_	g		Units	Analysis Date	
4-Bromofluorobenzene	97		1	03		98			60-140	%	03.06.19 22:05	

Parameter	Parent Result	MD Result	%RPD RPD Limit Units Analysis
Seq Number: Parent Sample Id:	3081336 616489-002	Matrix: Ground Water MD Sample Id: 616489-002 D	Date Prep: 03.06.19

< 0.0109

Analytical Method: EDB by EPA 8011

< 0.0109

1,2-Dibromoethane

Prep Method: SW8011P

ug/L

30

Flag

U

03.07.19 00:21



# Palm Beach Environmental

Laboratories, Inc.

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O CONTROL OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TO THE PERSON NAME	RECORD	FDEP: 2012
REX ENGINEBRING, TNC	LAB ANALYSIS	Matrix Codes
1		Solid Waste OJ
City: DETRAY BOACH State: F Zip: 33445 CODE V		Caralind Water St.
Alli: DAVID Chus/b Phone#:		WW Waste Water NA Normagneous
COM Fand:		SW Surface Water O Cither (Please Specify)
ASK 01/ + CAS Proj#:		
ulmas		B HNO3 F MeOH
Collect Collect Mannix Educated Collect Mannix Educated Collect Collect Mannix Educated Collect Collect Mannix Educated Collect Collect Mannix Educated Collect Collec		444
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Y/N 48 Hour Date Due: None 1 2 3 Other	Z	
Time	Affiliation Date	Time Lab Use Only
Lullown Brex 3/5/19 11555 11/19/12 1		L W LNI skutus
		Purpur Preservative Indicated:
		Received within holding time? Custouly seals intact?
		Cidaile ree'd witness headspiece?
'age of 05   1550 Latham Road, Suite 2 • West Palm Beach, FL 33409 • Tel: (561) 689-6701	561) 689-6701 • Fax: (561) 689-6702	L.



# Inter-Office Shipment

Page 1 of 1

IOS Number: 123679

Date/Time: 03/05/19 14:28

Lab# From: South Florida

Lab# To: Houston

Created by: Jessica Magierowski

Delivery Priority:

Air Bill No.:

Please send report to: Chad Bechtold

Address: Xenco Laboratories

E-Mail: Chad. Bechtold@xenco.com

Matrix	Client Sample Id	Matrix Client Sample Id Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
_	W MW-5	03/05/19 12:00 SW8011	SW8011	EDB by EPA 8011	03/11/19	03/19/19	CBE	DBCP EDB TCPR123	
,	W MW-5	03/05/19 12:00 SW8011	SW8011	EDB by EPA 8011	03/11/19	03/19/19	CBE	DBCP EDB TCPR123	
Α.	W MW-D	03/05/19 12:35 SW8011	SW8011	EDB by EPA 8011	03/11/19	03/19/19	CBE	DBCP EDB TCPR123	
×	W Mw-d	03/05/19 12:35 SW8011	SW8011	EDB by EPA 8011	03/11/19	03/19/19	CBE	DBCP EDB TCPR123	

Inter Office Shipment or Sample Comments:

Relinquished By:

Jessica Magierowski

Date Relinquished: 03/05/2019

Cooler Temperature: Date Received:

Received By:

Page 11 of 14

Final 1,000

#### **XENCO Laboratories**

#### Inter Office Report- Sample Receipt Checklist

**Sent To:** Tampa **IOS #:** 123679

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Temperature Measuring device used: T-20

Sent By:	Jessica Magierowski	Date Sent:	03/05/2019 02:28 PM							
Received By	y: Lourdes Arevalo	Date Received:	: 03/06/2019 10:01 AM							
		Sample Re	ceipt Checklist		Comments					
#1 *Tempe	erature of cooler(s)?			3.7						
#2 *Shippir	ng container in good condition	on?		Yes						
#3 *Sample	es received with appropriate	temperature?		Yes						
#4 *Custod	ly Seals intact on shipping o	ontainer/ cooler?		Yes						
#5 *Custod	ly Seals Signed and dated fo	or Containers/cool	ers	Yes						
#6 *IOS pre	esent?			Yes						
#7 Any mis	sing/extra samples?			Yes						
#8 IOS agn	ees with sample label(s)/ma	atrix?		Yes						
#9 Sample	matrix/ properties agree wit	h IOS?		Yes						
#10 Sampl	es in proper container/ bottle	e?		Yes						
#11 Sampl	es properly preserved?			Yes						
#12 Sampl	e container(s) intact?			Yes						
#13 Sufficient sample amount for indicated test(s)?										
#14 All samples received within hold time? Yes										
* Must be co	ompleted for after-hours d	elivery of sample	es prior to placing in th	e refrigerator						
		J. 10. 3 C. Ca	o prior to praoring in the	o romigorator						
NonConform	ance:									
Corrective A	ction Taken:									
		Nonconfo	rmance Documentation	n						
Contact:		Contacted by :		Date:						
	Checklist reviewed by:	Lound	12							
	-	Lourdes	Arevalo Da	ate: 03/06/2019	<u></u>					

#### **XENCO Laboratories**

#### Prelogin/Nonconformance Report- Sample Log-In

Client: BTEX Engineering, Inc.

Acceptable Temperature Range: 0 - 6 degC

Date/ Time Received: 03.05.2019 03.55.00 PM

Air and Metal samples Acceptable Range: Ambient

Work Order #: 616489

Temperature Measuring device used:

	Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?		4.2	
#2 *Shipping container in good condition?		Yes	
#3 *Samples received on ice?		Yes	
#4 *Custody Seals intact on shipping contai	ner/ cooler?	N/A	
#5 Custody Seals intact on sample bottles?		N/A	
#6*Custody Seals Signed and dated?		N/A	
#7 *Chain of Custody present?		Yes	
#8 Any missing/extra samples?		Yes	
#9 Chain of Custody signed when relinquish	ned/ received?	Yes	
#10 Chain of Custody agrees with sample la	abels/matrix?	Yes	
#11 Container label(s) legible and intact?		Yes	
#12 Samples in proper container/ bottle?		Yes	
#13 Samples properly preserved?		Yes	
#14 Sample container(s) intact?		Yes	
#15 Sufficient sample amount for indicated	test(s)?	Yes	
#16 All samples received within hold time?		Yes	
#17 Subcontract of sample(s)?		Yes	
#18 Water VOC samples have zero headsp	ace?	Yes	

<sup>\*</sup> Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#: IR# 1

# XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In

Client: BTEX Engineering, Inc.

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient

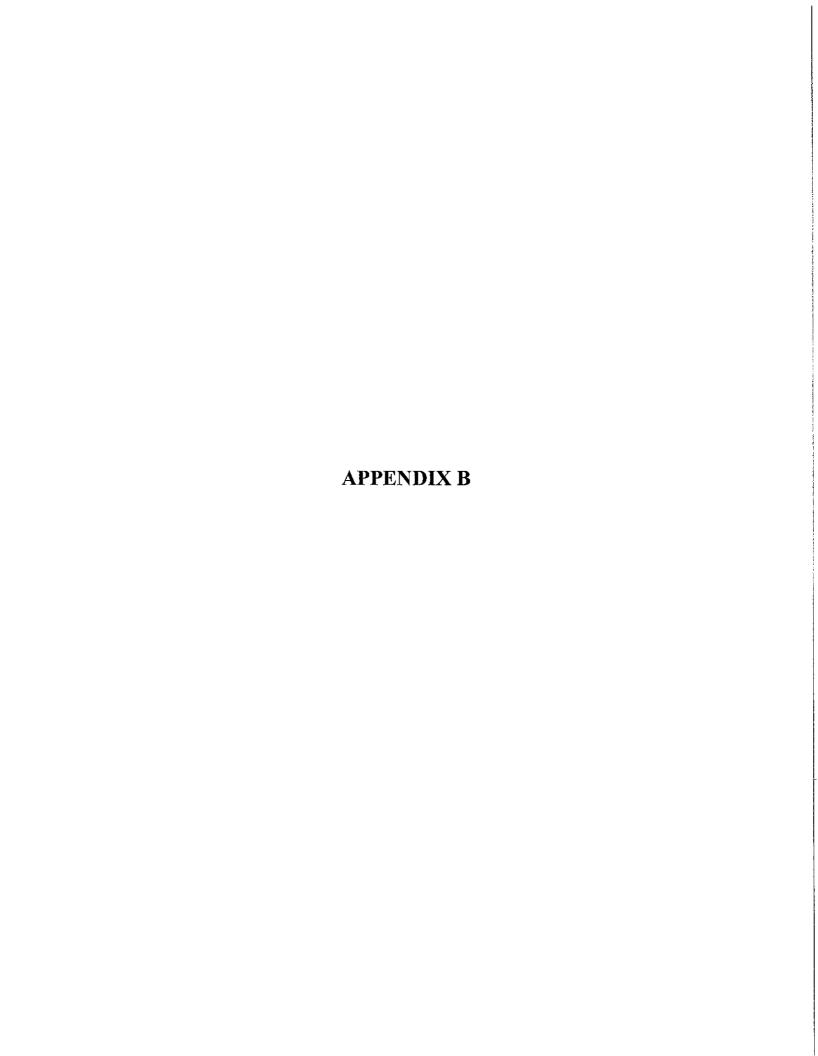
 $\textbf{Date/ Time Received:}\ \ 03.05.2019\ \ 03.55.00\ \ \text{PM}$ 

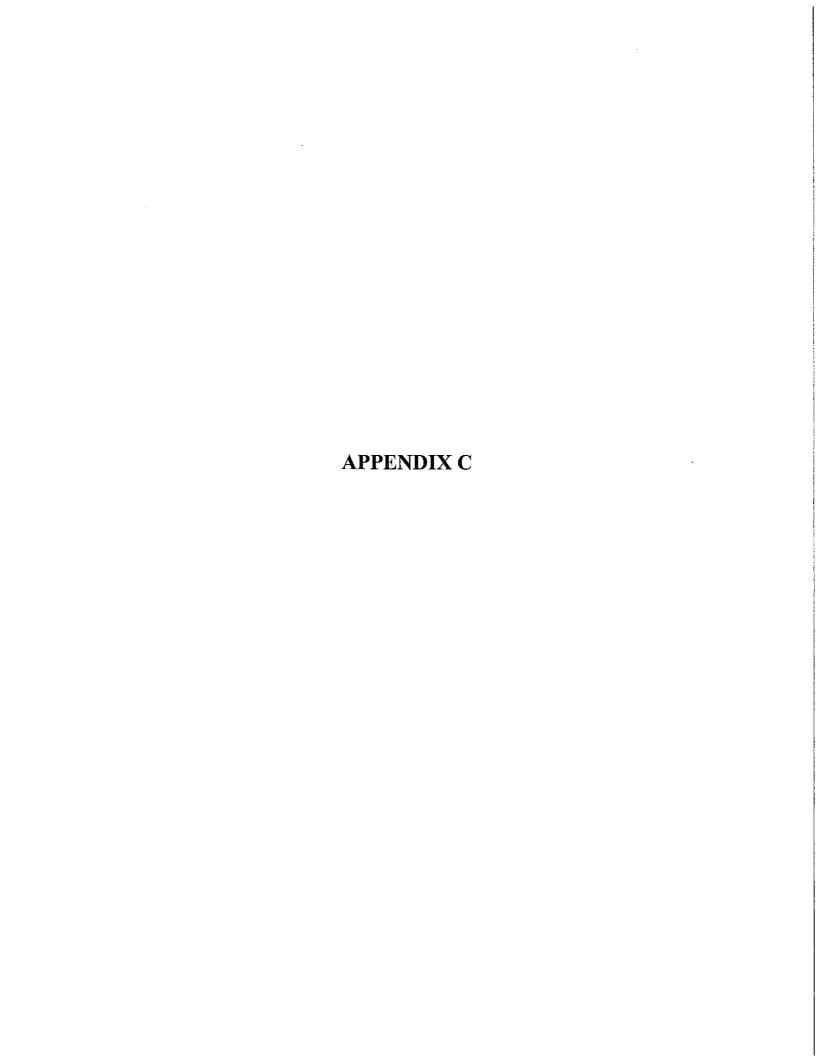
Work Order #: 616489

Sample Receipt Checklist

48 hour rush

Checklist completed by:	Jessica Magierowski	Date: 03.05,2019
Checklist reviewed by:		Date: 03.05.2019





SITE	And Oli 0 C 11 C											
NAME: A	rsh Oil &	<u>Gas, LL</u>	<u>.C</u>			LC	DCATION: 5	50 S. Cypr	ess Rd. Po	mpano	Beach, F	L
WELL NO	: MW-D		· · ·	S	AMPLE	ID: 06/85				DATE: 2/1		
<u> </u>					-		SING DA	TA		-		<del></del>
WELL	m /: 1	TUI	BING	. 4.14	WE	L SCREEN	INTERVAL	STATIC D	EPTH ~ ©	O PU	RGE PUMP T	YPE
WELL VO	LUME PURGE	: 1 WELL	VOLUME = (	s): 1/4 TOTAL WEI	J DEF	TH: Z fee	t to 12 fee	TO WATER) X	R (feet): 2.8	OR OR	BAILER: PP	
(only fill or	ut if applicable)		, , , , , , ,					OWNIER) X	WELL CAPACI	I Y	~	-
EQUIPME	NT VOLUME P	URGE: 1	= ( EQUIPMENT!	12 /OL. = PUN	feet P VOL	<u>~</u> UME + (TUE	), 89 BING CAPACI	feet) X TY X TU	0.04 ga JBING LENGTH)	llons/foot =		gallons
(Only III of	и п аррисавіе)			=	ga	illons + (	gallo	ns/foot X	feet)		gallons	
INITIAL P	JMP OR TUBIN	ig 4 1	FINAL	PUMP OR 1	UBING	u c	PURGIN	IG .	PURGING	·	TOTAL VOI	LIME
DEPTHIN	WELL (feet):	<del>-</del>		IN WELL (	ieet):	4.5	INITIATE	DAT: JO! SC	ENDED AT:	10:29	PURGED (	gallons): 0-9
TIME	VOLUME PURGED (gallons)	CUMU VOLUM PURGE (gallon	ME PURG ED RAT s) (gpr	GE T E WA 1) (fe	PTH O TER et)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/s or saturation	TURBIDI (NTUs)		
(9,52	0.5	0.5	0.	3.9	29	6.41	24.81	39	1.14	15.7	Non	e nong
10:27	0.2	0.7			2	6.40	24.81	392	1.16	14.3		1 1 1
10:29	6.2	0.9	<u> </u>	3.	02	6.40	24.81	390	1.16	13.8	-	71/
								-				
<del></del>										,		
									- H			
		<u></u>							<del></del>			
WELL CAPACITY (Called De Fach ANTIL AND												
WELL CAPACITY (Gailons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88												
TUBING INSIDE DIA. CAPACITY (Gal./Fl.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016												
	SAMPLING DATA  SAMPLING DATA											
SAMPLED Kim Chiore	BY (PRINT) / A	FFILIATIO	N: BTEX	SAMPL	FR(8):	SIONATURE	(S):		SAMPLING		SAMPLIN	
PUMP OR				9	M	an	ear		INITIATED AT	: (0:30	ENDED A	10, 25
	WELL (feet):	<u>4.5</u>		TUBING MATER		DE: HDPE			FILTERED: Y n Equipment Type	(N)	FILTER S	IZE: μm
FIELD DEC	CONTAMINATIO	ON: P	UMP Y			TUBING	Y (N (ce		DUPLICATE:	γ Υ	(N)	
SAMI	PLE CONTAINE	R SPECIF	ICATION	SA	MPLE	PRESERVA			INTEND			SAMPLE PUMP
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESE		/E T	TOTAL VOL FINAL ANALYSIS AND/OR EQUIPMENT				FLOW RATE (mL per minute)	
APP	9	CG	40 ml		one		<u>``</u>		VOH		APP	400
APP		HDPE	250 ml	N	one		1		Lead		APP	400
											<del></del>	
									-	<del></del>		
REMARKS	:		-						1			
	0000											
MATERIAL		AG = Amb	er Glass;		lass; ther (Sp	HDPE = H	igh Density P	olyethylene;	LDPE = Low De	nsity Polyet	hylene; PP	= Polypropylene;
SAMPLING	EQUIPMENT		APP = After	(Through) F	eristalt	ic Pump	B = Bailer;	BP = Bladd	or Dumm. 53	B = El	Out to	
			RFPP = Rev	erse Flow P	eristalti	ic Pump:	SM = Straw	Method (Tubing	Gravity Drain	or = ⊵lectric O = Othe	Submersible I r (Specify)	²ump;
IUIES: 1.	The above of	io not coi	ารtitute all d	f the info	rmatic	n require	by Chapte	er 62-160, F.A	C			

<sup>2.</sup> STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

SITE	- I all a line and a l												
NAME: AI	sh Oil & (	Gas, LLC			LC	LOCATION: 550 S. Cypress Rd. Pompano Beach, FL							
WELL NO:	MW-5			SAMPLE	ID: 06/850	02182			DATE: 2/14	4/19			
LACIMAL			~	<del></del>		ING DA		10			<del></del>		
WELL DIAMETER	R (inches):2	TUBING	; [ER (inches):		L SCREEN I	INTERVAL t to 11 fee	STATIC D	ER (feet): 29	PUR OR	RGE PUMP T' BAILER: PP	/PE		
WELL VOI	.UME PURGE: t if applicable)	1 WELL VOL	UME = (TO	TAL WELL DEP	TH - STA	TIC DEPTH T	OWATER) X	WELL CAPACIT	Y	DAILER; PP	<del>-</del>		
	, ,		= (	11 feet	- c	2.9B	feet) X	0.16 gall	ons/foot =	1.28	m = 11 =		
EQUIPMENT  (only fill out	NT VOLUME P	URGE: 1 EQU	IPMENT VOI	= PUMP VOL	JME + (TUB	ING CAPACIT	Y X TU	JBING LENGTH)	+ FLOW CE	LL VOLUME	gallons		
10.11					llons + (		ns/foot X	feet)	+	gallons	= gallons		
	MP OR TUBIN WELL (feet):	<sup>G</sup> ዒ S	DEPTH IN	MP OR TUBING WELL (feet):	4.5	PURGING INITIATE	э <sup>D АТ:</sup> <b>Ю: Ч</b> S		10.54	TOTAL VOL PURGED (g	UME (allons): 2.7		
TIME	VOLUME PURGED (gallons)	CUMUL, VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or (uS/cm)	DISSOLVED OXYGEN (circle units) mg/Lor % saturation	TURBIDIT (NTUs)		R ODOR		
10:50	1.5	1.5	0.3	3.15	7.70	27.67	370	1.48	4.20	NIM	e very		
10:52	<u> </u>	2.]	0.3	3.15	7.68			1.47	3.80				
10:54	0.le	2.7	0.3	3.15	7.68	27.68	370	1.48	3. <u>a.</u>	5 <i>r</i>			
			-										
	-						···	:			<u> </u>		
				÷,				-					
					Te:		····						
									· · · · · ·				
		-	ļ		·								
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88  TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016													
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)													
SAMPLED	BY (PRINT) / A	FFILIATION: B	TEX	SAMPLER(S)	SAMPI SIGNATURE	LING DA	TA	- <del> </del>					
Kim Chiore		,	/	Kin (	1	SAMPLING SAMPLING INITIATED AT: 10:55 SAMPLING ENDED AT: 10:58					G 2017		
PUMP OR TOPE	TUBING WELL (feet):	4.5		TUBING MATERIAL CO		FIELD-FILTERED: Y (N ) FILTER SIZE:							
·	ONTAMINATIO	N: PUMI	, A (		TUBING	Y (re		DUPLICATE:	e: Y		<del></del>		
	LE CONTAINE	R SPECIFICA	TION	SAMPLE	PRESERVA	TION (includir		INTENDE	D S	SAMPLING	SAMPLE PUMP		
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATI USED		OTAL VOL D IN FIELD (n	FINAL pH		ANALYSIS AND/OR EQU METHOD (		FLOW RATE (mL per minute)		
APP APP	4	CG HDPE	40 ml	None				VOH		APP	400		
ALL	\	NUFE	250 [11]	None		-		Lead		APP	400		
						<del></del>					<del></del>		
								<del>                                     </del>					
REMARKS:							<u> </u>	I <u>-</u> -	L				
MATERIAL		AG = Amber G S = Silicone;	T = Teflon;	O = Other (S	pecify)	ligh Density P	olyethylene;	LDPE = Low Der	nslty Polyeth	ylene; PP	= Polypropylene;		
	The above of	RF	PP = Revers	hrough) Peristal se Flow Peristalt the information	lc Pump;	B = Baller; SM = Straw I d by Chapte	BP = Bladd Method (Tubing er 62-160, F.A	Gravity Drain):	P = Electric O = Other	Submersible I (Specify)	Pump;		

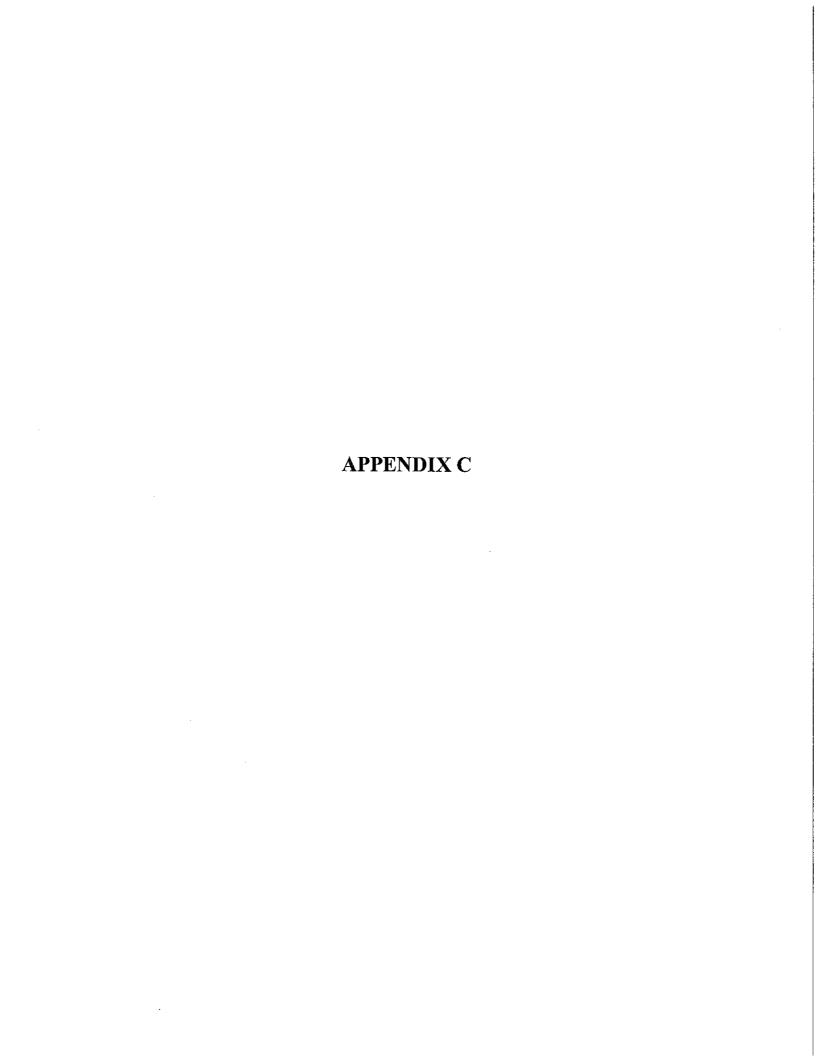
<sup>2.</sup> STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

SITE	1 0110			164		TE				<del>-</del>	
	sh Oil & (	Gas, LLC			LC	OCATION: 5	50 S. Cypre	ess Rd. Po	mpano	Beach, Fl	_
WELL NO:	MW-D			SAMPLE	ID: 06/85	02182		[	DATE: 3/5	/19	
					PURC	SING DA	TA		<u></u>		
WELL	R (inches): 1	TUBING	-		L SCREEN		STATIC DE	EPTH 😙	PU	RGE PUMP TY	PΕ
WELL VOL	UME PURGE:	1 WELL VO	TER (Inches): ´ LUME = (TOT	AL WELL DEP	TH: ∠ fee TH – STA	t to 12 fee	OWATER) X	R (feet): 3.1	OR	BAILER: PP	
(only fill out	t if applicable)		= (	12 feet		.11				A 2/	_
EQUIPMEN	NT VOLUME P	URGE: 1 EQU	IPMENT VOL	. = PUMP VOL	UME + (TUE	ING CAPACI	feet) X TY X TU	0.04 gal BING LENGTH)	lons/foot = + FLOW CI	ELL VOLUME	<b>Q</b> gailons
				= ga	llions + (	gallo	ns/foot X	feet)	+	gallons :	= gallons
DEPTH IN	MP OR TUBIN WELL (feet):	<sup>G</sup> 5.0	FINAL PUN DEPTH IN	IP OR TUBING WELL (feet):	5,0	PURGIN INITIATE	G :D AT: <b>[<u>る</u>: 25</b>	PURGING ENDED AT:	12:34	TOTAL VOL PURGED (9	UME
TIME	VOLUME PURGED (gallons)	CUMUL, VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND, (circle units) µmhos/cm or uS/cm	DISSOLVED OXYGEN (circle units) fig/L or % saturation	TURBIDI (NTUs)	TY COLOF	R ODOR
13:30	0.5	0.5	$\downarrow$ 0.L	3.21	6.8	26.85	580	1.23	17.9	None	None
15:35	0.9	0.7	0.1	3.21	6.80	26.85	579	1.22	16.2		100,4
<u>אציבו</u>	0.2	0.9	0.1	3.21	6.79	26.86	579	1.22	15.6	, $L$	
· <del></del>				-							
			<del></del>					<del></del>			
					<del></del> -		-			<del></del>	
											<del></del>
		<del></del>						···			
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88											
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): $1/8" = 0.0006$ ; $3/16" = 0.0014$ ; $1/4" = 0.0026$ ; $5/16" = 0.004$ ; $3/8" = 0.006$ ; $1/2" = 0.010$ ; $5/8" = 0.016$											
PURGING EQUIPMENT CODES: B = Baller; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)											
	SAMPLED BY (PRINT) / AFFILIATION: BTEX SAMPLER (S) SIGNATURE(S):										
Kim Chlores PUMP OR 1		- Cart		MMC C TUBING	-00	-	<u>-</u>	INITIATED AT		S ENDED A	ℸઃ イ⋧:겫ሄ
DEPTH IN V	WELL (feet):	5.0		MATERIAL CO	DDE: HDPE			FILTERED: Y n Equipment Typ	pe:	FILTER S	IZE: μm
	ONTAMINATIO				TUBING	Y entre		DUPLICATE:	Υ		
SAMPLE	LE CONTAINE #	MATERIAL		SAMPLE PRESERVATI		ATION (includi					SAMPLE PUMP FLOW RATE
ID CODE APP	CONTAINERS	CODE CG	VOLUME 40 ml	USED None		D IN FIELD (	mL) pH	METHO	D	CODE	(mL per minute)
	>		40 11.1	140116		<del>-</del>		EDB		APP	400
		<u> </u>		<del></del>		·					
				,			-				•
DEMA DIZO:										<del></del>	
REMARKS:											<u> </u>
MATERIAL		AG = Amber 0 S = Silicone;		Clear Glass; O = Other (S	HDPE =   pecify)	ligh Density F	Polyethylene;	LDPE = Low De	nsity Polye	thylene; PP	= Polypropylene;
	EQUIPMENT	R	FPP = Reverse	rough) Peristal e Flow Peristalt	lic Pump;	B = Baller SM = Straw	BP = Bladd Method (Tubing	Gravity Drain);	SP = Electri O = Oth	c Submersible I er (Specify)	Pump;

<sup>2.</sup> STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

SITE				<del></del>	s	TE						
NAME: AT	sh Oil & (	Gas, LLC			L	DCATION: 5	50 S. Cypr	ess Rd. P	ompar	o Beach, F	·L	
WELL NO:	MW-5			SAMPLE	: ID: 06/85				DATE: (			
					PURC	SING DA	TA	-	L		<del></del>	
WELL	_	TUBING		WEI	L SCREEN	INTERVAL	STATIC	 EPTH		PURGE PUMP T		
DIAMETER	R (Inches): 2	DIAME:	TER (inches):	1/4 DEF	TH: 1 fee	et to 11 fee	t TO WATE	R (feet): 3	19	OR BAILER: PP	176	
(only fill out	.UME PURGE: t if applicable)	: 1 WELL VOI	LUME = (TOT	'AL WELL DEP			O WATER) X	WELL CAPA	CITY			
'	•		= (	11 feet	_ 3.	.19	feet) X	0.16	gallons/foo	t = 1.2	5	
EQUIPMEN	NT VOLUME P if applicable)	URGE: 1 EQU	IPMENT VOL	= PUMP VOL	UME + (TUE	SING CAPACI	TY X TU	JBING LENGT	H) + FLOW	V CELL VOLUME	gallons	
				= ga	allons + (	gallo	ns/foot X	fee	et) +	gallons	= gallons	
INITIAL PU	MP OR TUBIN WELL (feet):	o.2		AP OR TUBING	5,0	PURGIN	G5	PURGING		<del></del>	LIME -	
DEI III IIV	WELL (1861).	CUMUL.	DEPTHIN	WELL (feet):	ے, ر	INITIATE	DAT: 11:50	DISSOLVED		PURGED (	gallons); 22S	
TIME	VOLUME	VOLUME	PURGE	DEPTH	pΗ	TEMP.	COND. (circle units)	OXYGEN		BIDITY COLO	. <u> </u>	
I IIVIL	PURGED (gallons)	PURGED	RATE	WATER	(standard units)	(°C)	μmhos/cm	(circle units)	. ANT	BIDITY   COLC 'Us)   (descri		
11		(gallons)	(gpm)	(feet)		200	or freque	mg/b or % saturation	`		(ddscribe)	
11:55 11:57	1.25	1.25	0.25	3.38		29.81	388	1.13	3.1	4 Non	e wong	
	0.5	1.75	0.25		7.23	29.82	388	1.12	2.5	78 1	1 /	
11:59	0.5	2.25	<u>  0. V&gt;</u>	3.38	7.23	29.80	387	1.12		94 /	7 1	
					-		-	·	1"	<del></del>		
	j				*			·	<del></del>		<del></del>	
						· · · · · · · · · · · · · · · · · · ·			-	<del></del>		
		-							-			
									<del></del>	<del></del>		
WELL CAP	ACITY (Gallon	s Per Foot): 0	.75" = 0.02;	1" = 0.04;	<b>1.25"</b> = 0.00	3; <b>2"</b> = 0.10	3" = 0.37;	4" = 0.65;	5" = 1.02	2; <b>6"</b> = 1.47;	<b>12"</b> = 5.88	
PUBGING IN	SIDE DIA. CAI EQUIPMENT C	ACITY (Gal./F		0006; 3/16"				004; 3/8" =	0.006;	1/2" = 0.010;	5/8" = 0.016	
7 OKORO I	-GOT MENT	ODES, B	= Bailer; I	BP = Bladder P		SP = Electric	Submersible Pur	mp; PP =	Peristaltic I	Pump; 0 = 0	Other (Specify)	
SAMPLED 8	BY (PRINT) / A	FFILIATION: B	TEX	SAMPLER(S)	SIGNATURE	LING DA	II A					
Kim Chiorea	ın		1.	Kuil"	1000	ω(O).		SAMPLING INITIATED	AT: JAL	SAMPLII SAMPLII		
PUMP OR T		5.5		TUBING	<u> </u>	<u> </u>	FIELD-	FILTERED:		FILTER S		
DEPTH IN V	VELL (feet): ONTAM!NATIO			MATERIAL CO			Filtratio	on Equipment 1		1127210	SIZE:μm	
····					TUBING		placed)	DUPLICATI	<u> </u>			
SAMPLE	LE CONTAINE	R SPECIFICA MATERIAL				TION (includi		INTEN		SAMPLING	SAMPLE PUMP	
ID CODE	CONTAINERS	CODE	VOLUME	PRESERVATI USED		OTAL VÖL D IN FIELD (r	FINAL nL) pH	ANALYSIS METH		EQUIPMENT CODE	FLOW RATE (mL per minute)	
APP	3	CG	40 ml	None		/==== ()		ED	В	APP	400	
							<del></del>	<del> </del>		<del> </del>	700	
-										<del> </del>		
								<del> </del>		+	<del> </del>	
						······································				<del> </del>		
						·	<del></del>	<del>                                     </del>		<del> </del>	<u> </u>	
REMARKS:											<u></u>	
MATERIAL	MATERIAL CODES:  AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Sillcone; T = Teflon; O = Other (Specify)											
SAMPLING	CAMPI NO FOUNDATIVE CODES											
_		Rf	PP = Reverse	Flow Peristalt	lc Pump;	B = Bailer; SM = Straw	BP = Bladd Method (Tubing	Gravity Drain):	SP = Elec C = C	ctric Submersible Other (Specify)	Pump;	
OTES: 1.	The above of	lo not consti	tute all of th	ne informatio	n require	d by Chante	r 62-160. F.A	<u>C</u>		(opoony/		

<sup>2.</sup> STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)



2/5/19 ARSH OIL & CAS LLC ADDICES: 550 S. CYPRESS RD. PARC. DE/185021182 Resoure: 1. KC	18 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
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1/25/19 Wester Sandle I.D. Sandle I.D. 58-8 (4-6)		

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Form FD 9000-8: FIELD INSTRUMENT INSTRUMENT YSI 556 MPS PARAMETER: pH	CALIBRATION RECORDS INSTRUMENT # &
STANDARDS: [Specify the type(s) of standards used for calibrates, and the date the standards were prepared or purchased]	ation, the origin of the standards, the standard
Standard A 4.0 pH	
Standard B 7.0 pH	
Standard C 10.0 pH	

DATE (TIME STD (NATION) (A.B.C) VALUE RESPONSE % DEV CRES. NO) (INIT. CONT) NATIONAL RESPONSE NATIONAL RESPONSE % DEV CRES. NO) (INIT. CONT) NATIONAL RESPONSE NATION	Star	ndard C _	Ha 0.01		<del></del>		<del></del>		
214 19 8:30 A 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	DATE (yy/mm/do	TIME	STD	STD	INSTRUMENT		CALIDDATIO		
	1 A		<u> </u>		RESPONSE	% DEV	(YES, NO)	TYPE (INIT, CONT)	SAMPLER
8:53 C   10.0   10.01   See whit   KC     214   19 2:30   A   4.0   4.0   4.0   4.0     3:40 C   10.0   10.0   4.0   4.0     315   19 8:45   A   4.0   4.0   4.0   4.0     8:58 C   10.0   10.0   4.0   4.0     8:58 C   10.0   10.0   4.0   4.0     3:00   A   4.0   3.99   4.0   4.0     3:11   C   10.0   10.0   4.0     3:11   10.0   10.0   4.0     3:11   10.0   10.0   4.0     3:11   10.0   10.0   4.0     3:11   10.0   10.0   4.0     3:11   10.0   10.0   4.0     3:11   10.0   10.0   4.0     3:11   10.0   10.0   4.0     3:11   10.0   10.0   4.0     3:11   10.0   10.0   4.0     3:11   10.0   10.0   4.0     3:11   10.0   10.0   4.0     3:11   10.0   10.0   4.0     3:11   10.0   10.0   4.0     3:11   10.0   10.0   4.0     3:11   10.0   10.0   4.0     3:11   10.0   10.0     3:11   10.0   10.0     3:11   10.0   10.0     3:11   10.0   1		- P. 20		T		ļ	45		
214 19 2:30 A 4.0 4.0 Ar Cont KC  2:35 B 7.0 7.0 Ar Cont KC  3:40 C 10.0 10.0 Ar Cont KC  3:51 B 7.0 7.0 Ar Cont KC  8:51 B 7.0 7.0 Ar Cont KC  8:58 C 10.0 10.0 Ar Cont KC  3 5 19 3:00 A 4.0 3.99 Ar Cont KC  3:01 B 7.02 Ar Cont KC  3:11 C 10.0 10.0 Ar Cont KC  Cont KC  Cont KC  Cont KC  Cont KC  Cont KC  Cont KC  Cont KC  Cont KC  Cont KC  Cont KC  Cont KC  Cont KC  Cont KC  Cont KC  Cont KC			<del> </del>	1	6.98		45		
2:35 B 7.0 7.0	2)14)19				10.01		Jen .	shit	
3:40 C 10.0 10.0	.   <del>                                   </del>	12.00			4.0		Us.		
3 5 19 8:45 A 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0					7.0		ys		
8:51 B 7.0 7.0 Cent KC 8:58 C 10.0 10.0 Cent KC 3/5/19 3:00 A 4.0 3.99 Gent KC 3:01 C 10.0 10.0 Us Cent KC 3:11 C 10.0 10.0 Us Cent KC	210110				10.0		yes !		
8:58 C 10.0 10.0	2/3/11				4.0		7		
3/5/19 3:00 A 4.00 3.99 Gent KC 3:06 B 7.02 48 Cent KC 3:11 C 10.0 10.0 48 Cent KC				7.0	7.0		<i>Y</i>		
3:04 B 7.02	2/1/10			10.0	10.0		X ***		
3:11 C 10.0 10.0 Ys Cent KC	9011			4.0	3.99		0		
3:11 C 10.0 10.0 ys Cent ICC				7.0	7.02				
		3:11	C	10.0			3		
								CONC	100
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## Form FD 9008-8: FIELD INSSTRUMENT CALIBRATION RECRORDS

Instrument	YSI 556 MPS	INSTRUMENT #	2
<b>PARAMETER</b>	Specific conductance		
STANDARDS:	[Specify the type(s) of standard the date the standards were pr		e origin of the standards, the standars values and
Standard A	1000 mS/cm		
Standard B		•	•
Standard C		•	

DATE (yy/mm/dd)	TIME (hr:min)	STD (A,B,C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES,NO)	TYPE (INIT, CONT)	SAMPLER INTIALS
2/14/19	9:00	A	1000	999		<b>y</b> S	cont	KC
2/14/19	2:50	A	1000	1000		US	Cent	KC
3/5/19	9:06	_A	1000	1000		yes	Cent	kc
3/5/19	3:18	A	1000	1000		ys.	cent	kc
						0		
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Revision Date: Febuary 1, 2004

INSTRU	Fo.	rm FD 900	0-8: FIE	LD INSTRUM	ENT CA	LIBRATION	RECORDS	
PARAM	١.	(check only	U-LT)	YSI S	Sle MP.	S INSTRU	MENT#	_ 2
	EMPERATI	CHOCK OHI)	/ onej					
	JRBIDITY		] RESIDUA		SALINITY	′ □ pH	ORP	
STANDA	ARDS: 1	Specification to		_	DO	□от	HER	
values, an	d the date	the standard	s were prep	andards used for opered or purchase	calibration (d)	, the origin of the	e standards, the	standard
Stan	dard A _	100	) <u>//                                   </u>					
Stand	dard B					<del></del> -		
otari(	Jara C _							
DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	0	CALIBRATED	TYPE	SAMPLER
2/14/19	9:08	A	100%	1007.	% DEV	(YES, NO)	(INIT, CONT)	INITIALS
2/14/19	2:59	A	100%		<del> </del>	yes	Cent	<u>k</u> C
3/5/19	9:13	À	100%	<u>1907.</u> 99.97.	ļ	ys	Cont	KC
3/5/19	3:25	A	100%		<del> </del>	198	Cent	kc
			7007.	1007.		1/2	Cent	KC
						-		
					<u> </u>			
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Revision Date: February 1, 2004

Form FD 9000-8: FIELD INSTRUMENT CALIBRATION RECORDS INSTRUMENT (MAKE/MODEL#)  VILLAMOTE INSTRUMENT # 2													
INSTRUM	IENT (M	AKE/MOD	EL#)	YSTE LA	MOTTE	INSTRUM	ENT #	2					
PARAME	TER: [c	heck only	one]	9	<i>ు</i> ఇం E			· · · · · · · · · · · · · · · · · · ·					
☐ TEM	1PERATU	RE 🗆	CONDUCT	TIVITY □ S	ALINITY	□ pH	☐ ORP						
<b>∑</b> (TUR	RBIDITY		RESIDUAL	.cı 🗀 D	0		ER	_					
STANDAI values, and	RDS: [S <sub>i</sub>	pecify the typ ne standards	oe(s) of star were prepa	ndards used for ca ared or purchased	ılibration, i ]	he origin of the	standards, the	standard					
Standa	ard A		NTU										
Standa	ard B	10	NTU		.,								
Standa	ard C	10	D NT	U									
DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER					
2/14/19		A	1	0.97	70 02.7	1.43	clut	INITIALS					
7	10:08	В	10	10.0		100	Sut	KC					
, , <u>, , , , , , , , , , , , , , , , , </u>	10:11	C	100	100			Shut	KC					
2/14/19	3:0%	A	1	1.01			Cent	NC					
1 1	3:11	B	10	10.02			Cont	KC					
	3: 25	<u> </u>	100	100		()(	Cont	KC					
3/5/19	9:29	Ă	(	1.0		JAR.	cent	KC					
' /	9:34	B	10	10.0		, ne	cont	KC					
	9:41	C	100	100	·	( We	Cent	KC					
3/5/19	3:31	A	)	0.99		WS	cent	KC					
, ,	3:37	13	10	9.98		W.	cont	KC					
	3:42	$\mathcal{L}$	100	100		UL	Cont	KC					
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Revision Date: February 1, 2004