

Drinking Water Survey Report Transmittal Form (Remediation Division, TCEQ)

Remediation Division Program:	Transmittal Date: January 2021		
Program ID No.: LPST No. 121036 Regulated Entity Reference No.: RN103008777 Customer Reference No.: CN600351456	Document Date: January 2021		
Facility Name: Woodson Shamrock	Submittal ☒ With Initial Release Documentation ☐ Expedited TCEQ Request ☐ Non-Expedited TCEQ Request		
Physical address of property where groundwater assessment was conducted. Street: 1200 Main Street / 117 S. US Highway 183 City: Woodson			
Have you contacted the applicable groundwater conservation district? (This is a required step—it must be completed. Choose NA only if there is no groundwater conservation district for the area.)	☐ Yes	☐ No	☒ NA
Has the extent of groundwater contamination been defined to residential health-based values for ingestion?	☐ Yes	☒ No	
If the extent of groundwater contamination has been defined to residential health-based values for ingestion, are any private drinking water wells located within the groundwater contaminant plume?	☐ Yes	☐ No	☒ NA
If the extent of groundwater contamination has not been defined to residential health-based values for ingestion, are any private drinking water wells located within a 0.25-mile radius of the known extent of groundwater contamination?	☐ Yes	☒ No	☐ NA

DRINKING WATER SURVEY REPORT

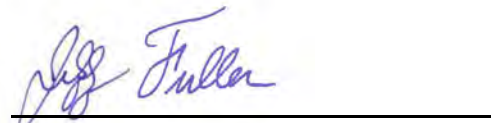
Woodson Shamrock
PST ID Address: 1200 Main Street
Legal Address: 117 S. US Highway 183
Woodson, Texas 76491
Rone Project No. 20-24665
TCEQ LPST No. 121036, Facility No. 24831

January 2021

Prepared for:
JT Horn
P. O. Box 922
Eastland, Texas 76448

Report prepared by:
RONE ENGINEERING SERVICES, LTD.
8908 Ambassador Row
Dallas, Texas 75247


Sonja Williams, PE, PG
Environmental Manager


Jeff Fuller, PG
Senior Geologist

1-29-2021



LPST CAS No. CS0000165
Texas PE Firm Registration No. 1572
Texas PG Firm Registration No. 50006

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DRINKING WATER SURVEY REPORT
Woodson Shamrock
PST ID Address: 1200 Main Street
Legal Address: 117 S. US Highway 183
Woodson, Throckmorton County, Texas 76491
Rone Project No. 20-24665
TCEQ LPST No. 121036, Facility No. 24831

EXECUTIVE SUMMARY

The Subject Property consists of approximately 1.1 acres of commercial land legally addressed at 117 S. US Highway 183 in Woodson, Throckmorton County, Texas. The Petroleum Storage Tank (PST) ID address associated with the Subject Property is 1200 Main Street. A vacant building with a canopy are located on the Subject Property. The UST system associated with this former fuel station was removed from the ground in October 2019. Confirmation soil sampling identified benzene in soil above the Texas Commission on Environmental Quality (TCEQ) Action Level of 0.12 milligrams per kilogram (mg/kg). Leaking PST (LPST) No. 121036 was subsequently assigned to the facility.

Benzene was discovered as a groundwater contaminant during the completion of a TCEQ PST Site Assessment Report for the Subject Property. The TCEQ requested this assessment in a letter to the responsible party dated September 15, 2020.

The vertical extent of the benzene groundwater contamination has been defined to bedrock, encountered at depths of 15 to 18 feet below surface grade (bsg). The impacted groundwater is perched above the bedrock and is contacted approximately 6 to 7 feet bsg. The lateral delineation requirements for this LPST are being evaluated as part of the Site Assessment Report, but currently the benzene impact appears limited to the Subject Property. No offsite properties appear to be impacted.

The research confirmed that all properties within at least a ½-mile radius have access to a public drinking water supply. The Stephens Regional Special Utility District provides drinking water to the City of Woodson and the surrounding areas. A Texas Groundwater Conservation District was not identified for Throckmorton County. No water wells were identified within a ½-mile radius (Table 1).

The contaminants in the groundwater present little concern to public health because all properties within at least a ½ mile radius of the Subject Property have access to drinking water from the Stephens Regional Special Utility District and there are no affected or potentially affected private drinking water wells within a ¼ mile radius of the Subject Property.

SECTION 1: GROUNDWATER CONTAMINATION

Benzene has been detected in the shallow, perched groundwater above the residential health-based value of 0.005 milligrams / liter (mg/l) for ingestion. Benzene is compound found in

petroleum fuels and is a known carcinogen. Benzene is a colorless, highly flammable liquid with a specific gravity of 0.878.

Benzene was discovered as a groundwater contaminant during the completion of a TCEQ PST Site Assessment Report for the Subject Property. The TCEQ requested this assessment in a letter to the responsible party dated September 15, 2020.

Tables 2 and 3 summarize all the groundwater analytical results collected at the Subject Property to date. The maximum benzene concentration detected in the shallow groundwater is 0.3080 mg/l.

The impacted groundwater is perched above bedrock and is vertically defined by cemented sandstone encountered in onsite soil borings at depths of 15 to 18 feet bsg. The sandstone is part of the Sedwick Formation. The Sedwick Formation consists mostly of mudstone with a few flaggy siltstone and sandstone beds. The Sedwick Formation ranges in thickness from 30 to 40 feet. The cemented rock and mudstone of the Sedwick Formation serve as a confining layer over deeper aquifers utilized as drinking water sources.

The lateral delineation requirements for this LPST are currently being evaluated as part of the Site Assessment Report. The source of the benzene release appears to be a former fuel pipe chase located in the area of MW-2. The reported benzene concentration at MW-2 is 0.3080 mg/l. Groundwater at MW-1, upgradient from MW-2, is not impacted with benzene (i.e. < 0.000214 mg/l). Groundwater at MW-3, downgradient, reported a benzene concentration of 0.000570 mg/l. The groundwater sampling shows declining benzene concentrations from sampling points located away from the suspect source area.

SECTION 2: PUBLIC WATER SUPPLY AVAILABILITY

The Stephens Regional Special Utility District provides drinking water to the Subject Property and all properties located within at least a ½ mile radius. This information was confirmed by contacting the Stephens Regional Special Utility District; the office manager, Ms. Leshia Brewster and general manager, Mr. Randy Cosgrove, were interviewed. In addition, occupants at businesses reported that the Stephens Regional Special Utility District provides drinking water to the area during a 500-foot walking survey conducted on October 15, 2020. No private or public water wells were found during the 500-foot walking survey. Fire hydrants and water meters along US Highway 183 provided additional evidence of the available public water supply.

According to the Texas Water Well Report completed by GeoSearch, no registered water wells were identified within a ½-mile radius of the Subject Property and the known extent of the benzene groundwater contamination (Attachment 3). A Texas Groundwater Conservation District was not identified for Throckmorton County according to information available on the Texas Water Development Board (TWDB) website. Table 1 documents that no water wells were found.

SECTION 3: GROUNDWATER PRODUCTION ZONES

No groundwater production zones were identified within a ½-mile radius. The impacted groundwater is perched above bedrock and is contacted approximately 6 to 7 feet bsg.

SECTION 4: AFFECTED OR POTENTIALLY AFFECTED WATER WELLS

No affected or potentially affected water wells have been identified within a ½ mile radius of the Subject Property and the known extent of the benzene groundwater contamination. For the purposes of this report, the known extent of the benzene groundwater contamination appears limited to the Subject Property. No offsite properties appear to be impacted.

TABLES

TABLE 1

Water Well Information

Woodson Shamrock

PST ID Address: 1200 Main Street

Legal Address: 117 S. US Highway 183

Woodson, Texas

Rone Project No. 20-24665

LPST ID No. 121036

Water Well ID	Location	Total Depth (feet)	Well Screen Interval (feet)
None Identified			

Table 2
Groundwater Analytical Results - BTEX, MTBE, TPH, and TDS
Woodson Shamrock
PST ID Address: 1200 Main Street
Legal Address: 117 S. US Highway 183
Woodson, Texas
LPST ID No. 121036
Rone Project No. 20-24665

Sample ID	Sample Date	BTEX and MTBE (mg/L)					TPH (mg/L)			TDS (mg/L)
		Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	C ₆ -C ₁₂	C ₁₂ -C ₂₈	C ₂₈ -C ₃₅	
MW-1	11/23/2020	<0.000214	<0.000500	<0.000146	<0.0001920	<0.000571	<0.838	<0.817	<0.817	NA
MW-2	11/23/2020	0.3080 D	0.00274	0.133	0.01799	0.0473	4.16 J	1.28 J	<0.800	NA
MW-3	11/23/2020	0.000570 J	<0.000500	0.00113	<0.0001920	0.00357	3.73 J	1.50 J	<0.801	3460
Action Levels - (Revised March 2019)		0.005	1	0.7	10	0.240	NA	NA	NA	NA
Plan A Target Concentrations (Revised March 2019) Beneficial Use Category II		0.0568	2.92	3.65	10.0	0.365	NA	NA	NA	NA

< = Below Detection Limit

Action Levels = Petroleum Storage Tank Program Action Levels

NA = Not applicable or Not analyzed

Bold = detected results; bold Red > Action Levels.

J = The target analyte was positively identified below the quantitation limit and above the detection limit.

D = The sample was diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference.

Table checked by: SW / MB

Date: 1-22-2021

Table 3
Groundwater Analytical Results - PAHs
Woodson Shamrock
PST ID Address: 1200 Main Street
Legal Address: 117 S. US Highway 183
Woodson, Texas
LPST ID No. 121036
Rone Project No. 20-24665

Sample ID	Sample Date	PAHs (mg/L)								
		Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)-anthracene	Benzo(a)-pyrene	Benzo(b)-fluoranthene	Benzo(g,h,i)-perylene	Benzo(k)-fluoranthene	Chrysene
MW-3	11/23/2020	<0.000116	<0.0000980	<0.000101	<0.000156	<0.0000664	<0.0000827	<0.000132	<0.000135	<0.000182
Action Levels - (Revised March 2019)		2.19	2.19	11	0.000852	0.0002	0.000852	1.10	0.00852	0.0852

Sample ID	Sample Date	PAHs (mg/L)							
		Dibenz(a,h)-anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)-pyrene	Naphthalene	Phen-anthrene	Pyrene
MW-3	11/23/2020	<0.0000885	NA	<0.000183	<0.000117	<0.000106	<0.000113	<0.0000990	<0.000152
Action Levels - (Revised March 2019)		0.0002	NA	1.46	1.46	0.000852	0.73	1.1	1.1

< = Below Detection Limit

Action Levels = Petroleum Storage Tank Program Action Levels

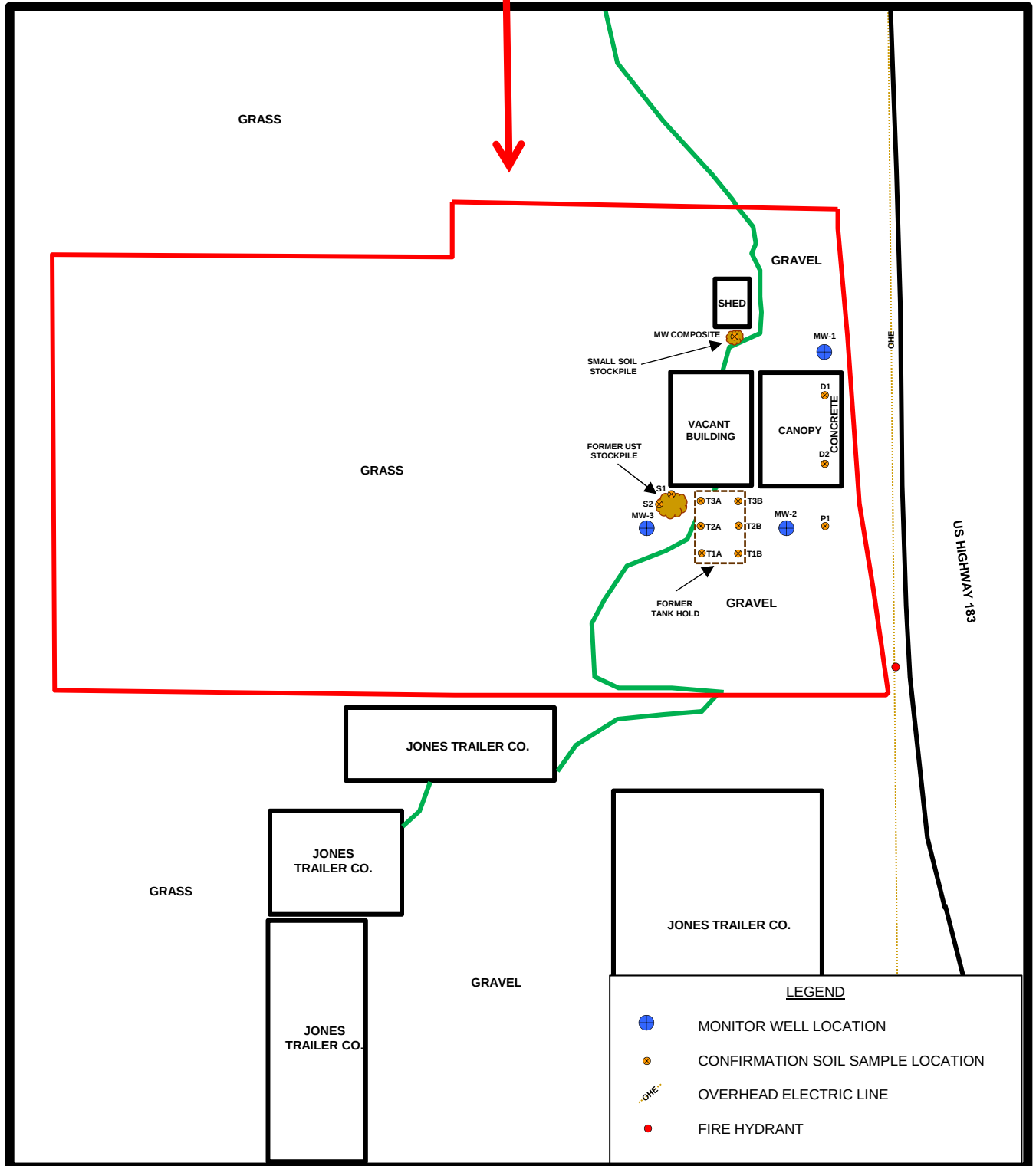
Bold = detected results; bold Red > Action Levels.

Table checked by: SW / MB

Date: 1-22-2021

FIGURES

**SUBJECT
PROPERTY**



RONE
ENGINEERING

DALLAS
FORT WORTH
HOUSTON
AUSTIN

**FIGURE 1
SITE MAP**

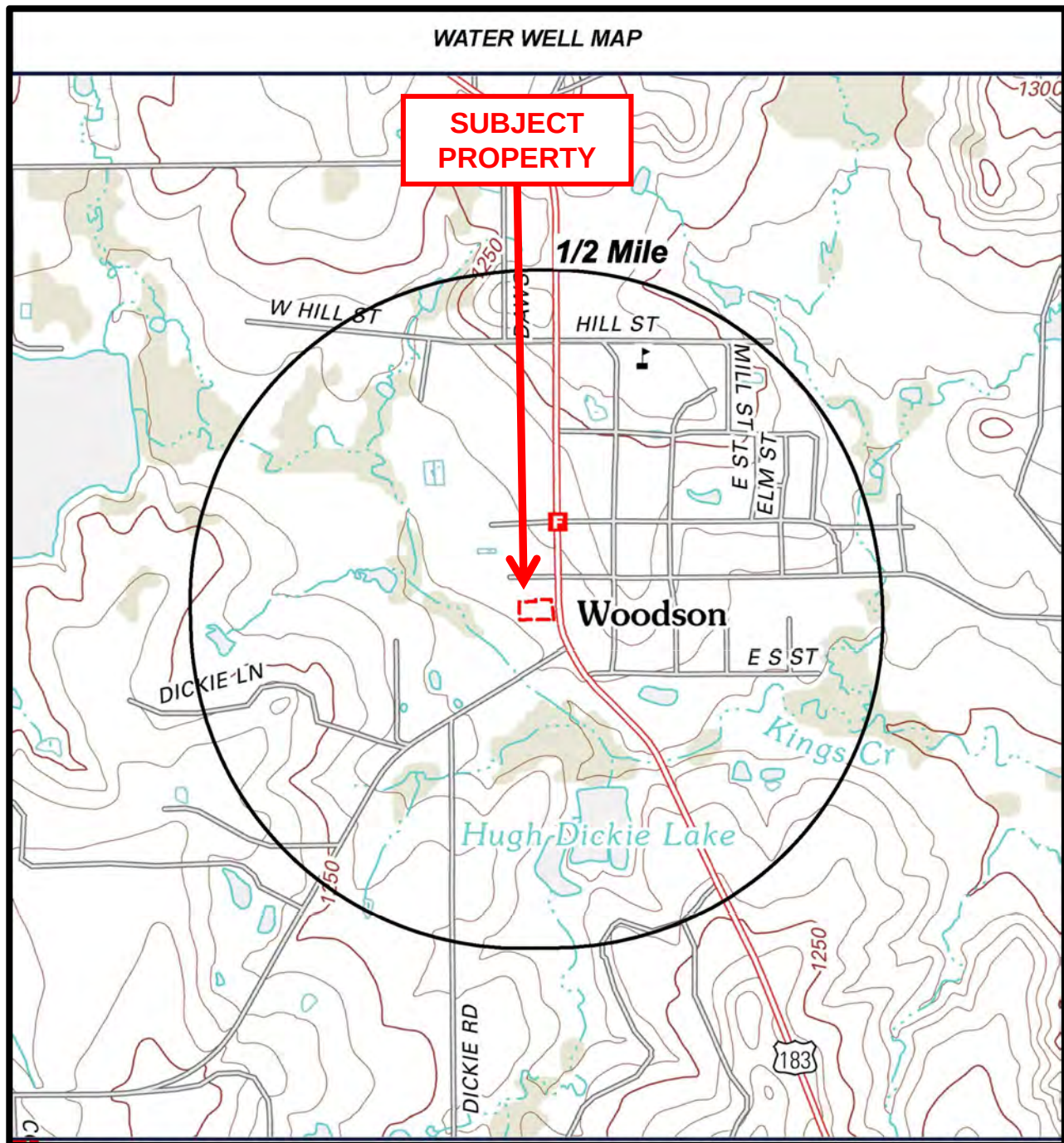
WOODSON SHAMROCK
PST ID ADDRESS: 1200 MAIN STREET
LEGAL ADDRESS: 117 S. US HIGHWAY 183
WOODSON, TEXAS
LPST NO. 121036

0 25 50 100
APPROXIMATE SCALE IN FEET

Project No.: 20-24665

SOURCE: GOOGLE EARTH
IMAGE DATED: 2016





DALLAS
FORT WORTH
HOUSTON
AUSTIN

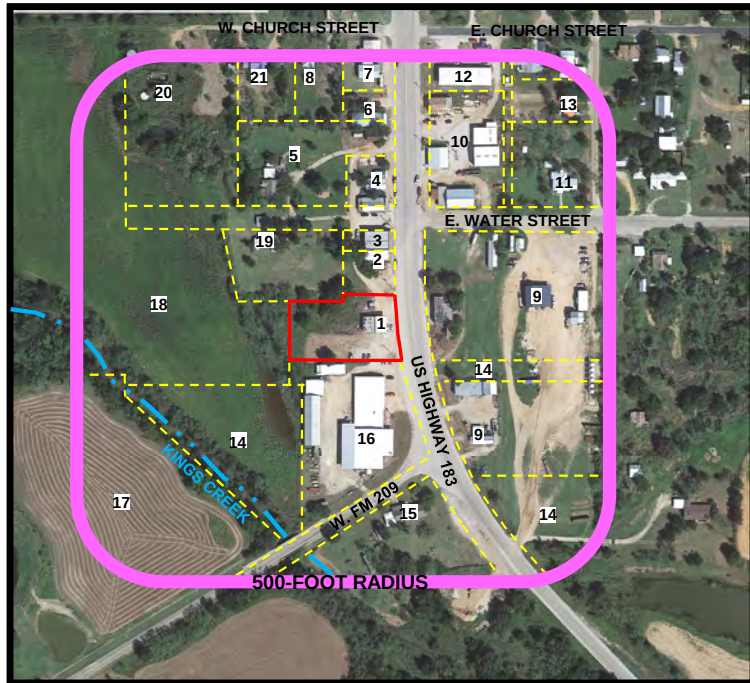
FIGURE 2
WATER WELL MAP
WOODSON SHAMROCK
PST ID ADDRESS: 1200 MAIN STREET
LEGAL ADDRESS: 117 S. US HIGHWAY 183
WOODSON, TEXAS
LPST NO. 121036

0 600 1,200 2,400
APPROXIMATE SCALE IN FEET

Project No.: 20-24665

USGS 7.5 Minute
Topographic Quadrangle
Woodson, Texas,
Contour Interval 10 Feet





ID. PROPERTY USES AND ADDRESSES

- 1 SUBJECT PROPERTY, 117 S. US HIGHWAY 183
- 2 HOME TOWN HARDWARE AND FEED STORE, 105 S. US HIGHWAY 183
- 3 BANK AND BUSINESS OFFICE, 101 S. US HIGHWAY 183
- 4 GROCERY STORE AND BUSINESS OFFICES, 105 N. US HIGHWAY 183
- 5 LAYLON PEACOCK HOMESTEAD, W. WATER STREET
- 6 RESTAURANT, 121 N. US HIGHWAY 183
- 7 RETAIL STORE, 135 N. US HIGHWAY 183
- 8 DILLON RANKIN HOMESTEAD, W. CHURCH
- 9 BJB TRANSPORT, 107 S. WOOD STREET
- 10 CITY OF WOODSON PROPERTY / VOLUNTEER FIRE DEPARTMENT, 122 N. US HIGHWAY 183
- 11 GILBERT ENTERPRISES, 103 N. WOOD STREET
- 12 WAREHOUSE, 105 E. CHURCH STREET
- 13 KAREN BOLAND HOMESTEAD, 109 WOOD STREET
- 14 CITY OF WOODSON PROPERTY
- 15 JARED AND ANGELA CROCKER HOMESTEAD, W. FM 209
- 16 JONES TRAILER CO., 201 S. US HIGHWAY 183
- 17 CROP LAND
- 18 VACANT LAND
- 19 MINDY STIMMLER HOMESTEAD, 111 W. WATER STREET
- 20 CITY OF WOODSON PROPERTY, 119 W. CHURCH STREET
- 21 LACY MALEY HOMESTEAD, 111 W. CHURCH STREET

RONE
ENGINEERING
DALLAS
FORT WORTH
HOUSTON
AUSTIN

FIGURE 3
500 FOOT RADIUS MAP
WOODSON SHAMROCK
PST ID ADDRESS: 1200 MAIN STREET
LEGAL ADDRESS: 117 S. US HIGHWAY 183
WOODSON, TEXAS
LPST NO. 121036

0 150 300 600
APPROXIMATE SCALE IN FEET

PROJECT No.: 20-24665

SOURCE: GOOGLE EARTH
IMAGE DATED 2016
AND THROCKMORTON CAD



ATTACHMENT 1
ANALYTICAL REPORT

Analytical Report 678868

for

Rone Engineering Services, Ltd.

Project Manager: Sonja Williams

Woodson Shamrock

20-24665

12.13.2020

Collected By: Client



**9701 Harry Hines Blvd
Dallas, TX 75220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)

12.13.2020

Project Manager: **Sonja Williams**
Rone Engineering Services, Ltd.
8908 Ambassador Row
Dallas, TX 75247

Reference: Eurofins Xenco, LLC Report No(s): **678868**
Woodson Shamrock
Project Address: 117 S. US Highway 183, Woodson, TX

Sonja Williams:

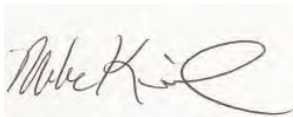
We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 678868. All results being reported under this Report Number apply to the samples analyzed and properly identified 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 Eurofins Xenco, LLC. 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. 678868 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,



Mike Kimmel
Client Services Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Sample Cross Reference 678868

Rone Engineering Services, Ltd., Dallas, TX

Woodson Shamrock

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-1	W	11.23.2020 10:42		678868-001
MW-2	W	11.23.2020 11:22		678868-002
MW-3	W	11.23.2020 11:50		678868-003
Trip Blank	W	11.23.2020 00:00		Not Analyzed

CASE NARRATIVE

Client Name: *Rone Engineering Services, Ltd.*

Project Name: *Woodson Shamrock*

Project ID: 20-24665
Work Order Number(s): 678868

Report Date: 12.13.2020
Date Received: 11.24.2020

This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

Sample receipt non conformances and comments:

12/01/20: PAH extraction process started on samples

12/07/20: Per Sonja Williams please add PAH's to MW-3.

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3143877 PAHs by SW846 8270D SIM

678868 added for SIM PAHs analysis outside of required holding time expiration.

Certificate of Analytical Results

678868

Rone Engineering Services, Ltd., Dallas, TX

Woodson Shamrock

Sample Id: MW-1

Matrix: Ground Water

Sample Depth:

Lab Sample Id: 678868-001

Date Collected: 11.23.2020 10:42

Date Received: 11.24.2020 08:25

Analytical Method: TPH by Texas1005

Prep Method: 1005

Analyst: ISU

% Moist:

Seq Number: 3143922

Date Prep: 12.01.2020 10:51

Tech: ISU

Subcontractor: SUB: T104704215-20-38

Prep seq: 7716155

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Gasoline Range Hydrocarbons	PHC612	<0.838	4.73	0.838	mg/L	12.04.2020 12:30	U	1
>C12-C28 Diesel Range Hydrocarbons	PHCG1228	<0.817	4.73	0.817	mg/L	12.04.2020 12:30	U	1
>C28-C35 Oil Range Hydrocarbons	PHCG2835	<0.817	4.73	0.817	mg/L	12.04.2020 12:30	U	1
Total TPH 1005	PHC635	<0.8170		0.8170	mg/L	12.04.2020 12:30	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	89	70 - 130	%		
1-Chlorooctane	105	70 - 130	%		

Analytical Method: BTEX-MTBE by SW 8260C

Prep Method: 5030B

Analyst: NAL

% Moist:

Seq Number: 3143509

Date Prep: 11.28.2020 17:00

Tech: NAL

Subcontractor: SUB: T104704215-20-38

Prep seq: 7716117

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
MTBE	1634-04-4	<0.000571	0.00500	0.000571	mg/L	11.28.2020 19:59	U	1
Benzene	71-43-2	<0.000214	0.00100	0.000214	mg/L	11.28.2020 19:59	U	1
Toluene	108-88-3	<0.000500	0.00100	0.000500	mg/L	11.28.2020 19:59	U	1
Ethylbenzene	100-41-4	<0.000146	0.00100	0.000146	mg/L	11.28.2020 19:59	U	1
m,p-Xylenes	179601-23-1	<0.000330	0.0100	0.000330	mg/L	11.28.2020 19:59	U	1
o-Xylene	95-47-6	<0.000192	0.00100	0.000192	mg/L	11.28.2020 19:59	U	1
Total Xylenes	1330-20-7	<0.0001920		0.0001920	mg/L	11.28.2020 19:59	U	
Total BTEX		<0.0001460		0.0001460	mg/L	11.28.2020 19:59	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	105	75 - 131	%		
1,2-Dichloroethane-D4	103	63 - 144	%		
Toluene-D8	103	80 - 117	%		

Certificate of Analytical Results

678868

Rone Engineering Services, Ltd., Dallas, TX

Woodson Shamrock

Sample Id: MW-2

Matrix: Ground Water

Sample Depth:

Lab Sample Id: 678868-002

Date Collected: 11.23.2020 11:22

Date Received: 11.24.2020 08:25

Analytical Method: TPH by Texas1005

Prep Method: 1005

Analyst: ISU

% Moist:

Seq Number: 3143922

Date Prep: 12.01.2020 10:54

Tech: ISU

Subcontractor: SUB: T104704215-20-38

Prep seq: 7716155

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Gasoline Range Hydrocarbons	PHC612	4.16	4.63	0.820	mg/L	12.04.2020 14:31	J	1
>C12-C28 Diesel Range Hydrocarbons	PHCG1228	1.28	4.63	0.800	mg/L	12.04.2020 14:31	J	1
>C28-C35 Oil Range Hydrocarbons	PHCG2835	<0.800	4.63	0.800	mg/L	12.04.2020 14:31	U	1
Total TPH 1005	PHC635	5.440		0.8000	mg/L	12.04.2020 14:31		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	112	70 - 130	%		
1-Chlorooctane	130	70 - 130	%		

Analytical Method: BTEX-MTBE by SW 8260C

Prep Method: 5030B

Analyst: NAL

% Moist:

Seq Number: 3143509

Date Prep: 11.28.2020 17:00

Tech: NAL

Subcontractor: SUB: T104704215-20-38

Prep seq: 7716117

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
MTBE	1634-04-4	0.0473	0.00500	0.000571	mg/L	11.28.2020 20:22		1
Benzene	71-43-2	0.3080	0.005000	0.001070	mg/L	11.30.2020 13:47	D	5
Toluene	108-88-3	0.00274	0.00100	0.000500	mg/L	11.28.2020 20:22		1
Ethylbenzene	100-41-4	0.133	0.00100	0.000146	mg/L	11.28.2020 20:22		1
m,p-Xylenes	179601-23-1	0.0174	0.0100	0.000330	mg/L	11.28.2020 20:22		1
o-Xylene	95-47-6	0.000590	0.00100	0.000192	mg/L	11.28.2020 20:22	J	1
Total Xylenes	1330-20-7	0.01799		0.0001920	mg/L	11.28.2020 20:22		
Total BTEX		0.4617		0.0001460	mg/L	11.30.2020 13:47		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	103	75 - 131	%		
1,2-Dichloroethane-D4	100	63 - 144	%		
Toluene-D8	101	80 - 117	%		

Certificate of Analytical Results

678868

Rone Engineering Services, Ltd., Dallas, TX
Woodson Shamrock

Sample Id: **MW-3** Matrix: Ground Water Sample Depth:
Lab Sample Id: 678868-003 Date Collected: 11.23.2020 11:50 Date Received: 11.24.2020 08:25
Analytical Method: TDS by SM2540C Prep Method:
Analyst: LET % Moist:
Seq Number: 3143445 Date Prep: Tech: LET
Subcontractor: SUB: T104704215-20-38 Prep seq:

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Total Dissolved Solids	1642222	3460	5.00	5.00	mg/L	11.30.2020 12:24		1

Analytical Method: PAHs by SW846 8270D SIM Prep Method: SW3511
Analyst: DNE % Moist:
Seq Number: 3143877 Date Prep: 12.01.2020 17:15 Tech: DNE
Subcontractor: SUB: T104704215-20-38 Prep seq: 7716206

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Acenaphthene	83-32-9	<0.000116	0.000212	0.000116	mg/L	12.09.2020 15:33	UK	1
Acenaphthylene	208-96-8	<0.0000980	0.000212	0.0000980	mg/L	12.09.2020 15:33	UK	1
Anthracene	120-12-7	<0.000101	0.000212	0.000101	mg/L	12.09.2020 15:33	UK	1
Benzo(a)anthracene	56-55-3	<0.000156	0.000212	0.000156	mg/L	12.09.2020 15:33	UK	1
Benzo(a)pyrene	50-32-8	<0.0000664	0.000212	0.0000664	mg/L	12.09.2020 15:33	UK	1
Benzo(b)fluoranthene	205-99-2	<0.0000827	0.000212	0.0000827	mg/L	12.09.2020 15:33	UK	1
Benzo(g,h,i)perylene	191-24-2	<0.000132	0.000212	0.000132	mg/L	12.09.2020 15:33	UK	1
Benzo(k)fluoranthene	207-08-9	<0.000135	0.000212	0.000135	mg/L	12.09.2020 15:33	UK	1
Chrysene	218-01-9	<0.000182	0.000212	0.000182	mg/L	12.09.2020 15:33	UK	1
Dibenz(a,h)anthracene	53-70-3	<0.0000885	0.000212	0.0000885	mg/L	12.09.2020 15:33	UK	1
Fluoranthene	206-44-0	<0.000183	0.000212	0.000183	mg/L	12.09.2020 15:33	UK	1
Fluorene	86-73-7	<0.000117	0.000212	0.000117	mg/L	12.09.2020 15:33	UK	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	<0.000106	0.000212	0.000106	mg/L	12.09.2020 15:33	UK	1
Naphthalene	91-20-3	<0.000113	0.000423	0.000113	mg/L	12.09.2020 15:33	UK	1
Phenanthrene	85-01-8	<0.0000990	0.000212	0.0000990	mg/L	12.09.2020 15:33	UK	1
Pyrene	129-00-0	<0.000152	0.000212	0.000152	mg/L	12.09.2020 15:33	UK	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
2-Fluorobiphenyl	138	54 - 146	%		
Nitrobenzene-d5	134	46 - 151	%		
Terphenyl-D14	128	51 - 139	%		

Certificate of Analytical Results

678868

Rone Engineering Services, Ltd., Dallas, TX
Woodson Shamrock

Sample Id: **MW-3** Matrix: Ground Water Sample Depth:
Lab Sample Id: 678868-003 Date Collected: 11.23.2020 11:50 Date Received: 11.24.2020 08:25
Analytical Method: TPH by Texas1005 Prep Method: 1005
Analyst: ISU % Moist:
Seq Number: 3143922 Date Prep: 12.01.2020 10:57 Tech: ISU
Subcontractor: SUB: T104704215-20-38 Prep seq: 7716155

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Gasoline Range Hydrocarbons	PHC612	3.73	4.64	0.821	mg/L	12.04.2020 14:51	J	1
>C12-C28 Diesel Range Hydrocarbons	PHCG1228	1.50	4.64	0.801	mg/L	12.04.2020 14:51	J	1
>C28-C35 Oil Range Hydrocarbons	PHCG2835	<0.801	4.64	0.801	mg/L	12.04.2020 14:51	U	1
Total TPH 1005	PHC635	5.230		0.8010	mg/L	12.04.2020 14:51		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	72	70 - 130	%		
1-Chlorooctane	88	70 - 130	%		

Analytical Method: BTEX-MTBE by SW 8260C Prep Method: 5030B
Analyst: NAL % Moist:
Seq Number: 3143572 Date Prep: 11.30.2020 10:50 Tech: NAL
Subcontractor: SUB: T104704215-20-38 Prep seq: 7716173

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
MTBE	1634-04-4	0.00357	0.00500	0.000571	mg/L	11.30.2020 13:24	J	1
Benzene	71-43-2	0.000570	0.00100	0.000214	mg/L	11.30.2020 13:24	J	1
Toluene	108-88-3	<0.000500	0.00100	0.000500	mg/L	11.30.2020 13:24	U	1
Ethylbenzene	100-41-4	0.00113	0.00100	0.000146	mg/L	11.30.2020 13:24		1
m,p-Xylenes	179601-23-1	<0.000330	0.0100	0.000330	mg/L	11.30.2020 13:24	U	1
o-Xylene	95-47-6	<0.000192	0.00100	0.000192	mg/L	11.30.2020 13:24	U	1
Total Xylenes	1330-20-7	<0.0001920		0.0001920	mg/L	11.30.2020 13:24	U	
Total BTEX		0.001700		0.0001460	mg/L	11.30.2020 13:24		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	102	75 - 131	%		
1,2-Dichloroethane-D4	101	63 - 144	%		
Toluene-D8	102	80 - 117	%		

Certificate of Analytical Results

678868

Rone Engineering Services, Ltd., Dallas, TX
Woodson Shamrock

Sample Id: **3143445-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3143445-1-BLK Date Collected: Date Received:
Analytical Method: TDS by SM2540C Prep Method:
Analyst: LET % Moist:
Seq Number: 3143445 Date Prep: Tech: LET
Subcontractor: SUB: T104704215-20-38 Prep seq:

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Total Dissolved Solids	1642222	<5.00	5.00	5.00	mg/L	11.30.2020 12:24	U	1

Sample Id: **7716117-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 7716117-1-BLK Date Collected: Date Received:
Analytical Method: BTEX-MTBE by SW 8260C Prep Method: 5030B
Analyst: NAL % Moist:
Seq Number: 3143509 Date Prep: 11.28.2020 17:00 Tech: NAL
Subcontractor: SUB: T104704215-20-38 Prep seq: 7716117

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
MTBE	1634-04-4	<0.000571	0.00500	0.000571	mg/L	11.28.2020 18:05	U	1
Benzene	71-43-2	<0.000214	0.00100	0.000214	mg/L	11.28.2020 18:05	U	1
Toluene	108-88-3	<0.000500	0.00100	0.000500	mg/L	11.28.2020 18:05	U	1
Ethylbenzene	100-41-4	<0.000146	0.00100	0.000146	mg/L	11.28.2020 18:05	U	1
m,p-Xylenes	179601-23-1	<0.000330	0.0100	0.000330	mg/L	11.28.2020 18:05	U	1
o-Xylene	95-47-6	<0.000192	0.00100	0.000192	mg/L	11.28.2020 18:05	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	100	75 - 131	%		
1,2-Dichloroethane-D4	100	63 - 144	%		
Toluene-D8	100	80 - 117	%		

Certificate of Analytical Results

678868

Rone Engineering Services, Ltd., Dallas, TX

Woodson Shamrock

Sample Id: 7716155-1-BLK Matrix: Water Sample Depth:
 Lab Sample Id: 7716155-1-BLK Date Collected: Date Received:
 Analytical Method: TPH by Texas1005 Prep Method: 1005
 Analyst: ISU % Moist:
 Seq Number: 3143922 Date Prep: 12.01.2020 10:03 Tech: ISU
 Subcontractor: SUB: T104704215-20-38 Prep seq: 7716155

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Gasoline Range Hydrocarbons	PHC612	<0.885	5.00	0.885	mg/L	12.02.2020 23:06	U	1
>C12-C28 Diesel Range Hydrocarbons	PHCG1228	<0.863	5.00	0.863	mg/L	12.02.2020 23:06	U	1
>C28-C35 Oil Range Hydrocarbons	PHCG2835	<0.863	5.00	0.863	mg/L	12.02.2020 23:06	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	80	70 - 130	%		
1-Chlorooctane	94	70 - 130	%		

Sample Id: 7716173-1-BLK Matrix: Water Sample Depth:
 Lab Sample Id: 7716173-1-BLK Date Collected: Date Received:
 Analytical Method: BTEX-MTBE by SW 8260C Prep Method: 5030B
 Analyst: NAL % Moist:
 Seq Number: 3143572 Date Prep: 11.30.2020 09:50 Tech: NAL
 Subcontractor: SUB: T104704215-20-38 Prep seq: 7716173

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
MTBE	1634-04-4	<0.000571	0.00500	0.000571	mg/L	11.30.2020 11:06	U	1
Benzene	71-43-2	<0.000214	0.00100	0.000214	mg/L	11.30.2020 11:06	U	1
Toluene	108-88-3	<0.000500	0.00100	0.000500	mg/L	11.30.2020 11:06	U	1
Ethylbenzene	100-41-4	<0.000146	0.00100	0.000146	mg/L	11.30.2020 11:06	U	1
m,p-Xylenes	179601-23-1	<0.000330	0.0100	0.000330	mg/L	11.30.2020 11:06	U	1
o-Xylene	95-47-6	<0.000192	0.00100	0.000192	mg/L	11.30.2020 11:06	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	102	75 - 131	%		
1,2-Dichloroethane-D4	100	63 - 144	%		
Toluene-D8	101	80 - 117	%		

Certificate of Analytical Results

678868

Rone Engineering Services, Ltd., Dallas, TX

Woodson Shamrock

Sample Id: 7716206-1-BLK

Matrix: Water

Sample Depth:

Lab Sample Id: 7716206-1-BLK

Date Collected:

Date Received:

Analytical Method: PAHs by SW846 8270D SIM

Prep Method: SW3511

Analyst: DNE

% Moist:

Seq Number: 3143877

Date Prep: 12.01.2020 17:00

Tech: DNE

Subcontractor: SUB: T104704215-20-38

Prep seq: 7716206

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Acenaphthene	83-32-9	<0.000100	0.000182	0.0001000	mg/L	12.02.2020 12:13	U	1
Acenaphthylene	208-96-8	<0.0000842	0.000182	0.0000842	mg/L	12.02.2020 12:13	U	1
Anthracene	120-12-7	<0.0000866	0.000182	0.0000866	mg/L	12.02.2020 12:13	U	1
Benzo(a)anthracene	56-55-3	<0.000134	0.000182	0.000134	mg/L	12.02.2020 12:13	U	1
Benzo(a)pyrene	50-32-8	<0.0000571	0.000182	0.0000571	mg/L	12.02.2020 12:13	U	1
Benzo(b)fluoranthene	205-99-2	<0.0000711	0.000182	0.0000711	mg/L	12.02.2020 12:13	U	1
Benzo(g,h,i)perylene	191-24-2	<0.000113	0.000182	0.000113	mg/L	12.02.2020 12:13	U	1
Benzo(k)fluoranthene	207-08-9	<0.000116	0.000182	0.000116	mg/L	12.02.2020 12:13	U	1
Chrysene	218-01-9	<0.000156	0.000182	0.000156	mg/L	12.02.2020 12:13	U	1
Dibenz(a,h)anthracene	53-70-3	<0.0000760	0.000182	0.0000760	mg/L	12.02.2020 12:13	U	1
Fluoranthene	206-44-0	<0.000157	0.000182	0.000157	mg/L	12.02.2020 12:13	U	1
Fluorene	86-73-7	<0.000101	0.000182	0.000101	mg/L	12.02.2020 12:13	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	<0.0000913	0.000182	0.0000913	mg/L	12.02.2020 12:13	U	1
Naphthalene	91-20-3	<0.0000972	0.000364	0.0000972	mg/L	12.02.2020 12:13	U	1
Phenanthrene	85-01-8	<0.0000850	0.000182	0.0000850	mg/L	12.02.2020 12:13	U	1
Pyrene	129-00-0	<0.000130	0.000182	0.000130	mg/L	12.02.2020 12:13	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
2-Fluorobiphenyl	135	54 - 146	%		
Nitrobenzene-d5	100	46 - 151	%		
Terphenyl-D14	107	51 - 139	%		

Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Form 2 - Surrogate Recoveries

Project Name: Woodson Shamrock

Report Date: 12132020

Work Orders : 678868

Project ID: 20-24665

Lab Batch #: 3143509

Sample: 7716117-1-BKS / BKS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11.28.2020 16:10

SURROGATE RECOVERY STUDY

BTEX-MTBE by SW 8260C	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.04812	0.05000	96	75-131	
1,2-Dichloroethane-D4	0.05003	0.05000	100	63-144	
Toluene-D8	0.05007	0.05000	100	80-117	

Lab Batch #: 3143509

Sample: 7716117-1-BSD / BSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11.28.2020 16:33

SURROGATE RECOVERY STUDY

BTEX-MTBE by SW 8260C	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.04832	0.05000	97	75-131	
1,2-Dichloroethane-D4	0.04964	0.05000	99	63-144	
Toluene-D8	0.04971	0.05000	99	80-117	

Lab Batch #: 3143509

Sample: 678370-001 S / MS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11.28.2020 16:56

SURROGATE RECOVERY STUDY

BTEX-MTBE by SW 8260C	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.05103	0.05000	102	75-131	
1,2-Dichloroethane-D4	0.04836	0.05000	97	63-144	
Toluene-D8	0.04986	0.05000	100	80-117	

Lab Batch #: 3143509

Sample: 7716117-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11.28.2020 18:05

SURROGATE RECOVERY STUDY

BTEX-MTBE by SW 8260C	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.04975	0.05000	100	75-131	
1,2-Dichloroethane-D4	0.04997	0.05000	100	63-144	
Toluene-D8	0.04994	0.05000	100	80-117	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Woodson Shamrock

Report Date: 12132020

Work Orders : 678868

Project ID: 20-24665

Lab Batch #: 3143572

Sample: 7716173-1-BKS / BKS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11.30.2020 09:13

SURROGATE RECOVERY STUDY

BTEX-MTBE by SW 8260C	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.04841	0.05000	97	75-131	
1,2-Dichloroethane-D4	0.04917	0.05000	98	63-144	
Toluene-D8	0.05025	0.05000	101	80-117	

Lab Batch #: 3143572

Sample: 7716173-1-BSD / BSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11.30.2020 09:35

SURROGATE RECOVERY STUDY

BTEX-MTBE by SW 8260C	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.04472	0.05000	89	75-131	
1,2-Dichloroethane-D4	0.04489	0.05000	90	63-144	
Toluene-D8	0.04910	0.05000	98	80-117	

Lab Batch #: 3143572

Sample: 678474-002 S / MS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11.30.2020 09:58

SURROGATE RECOVERY STUDY

BTEX-MTBE by SW 8260C	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.05105	0.05000	102	75-131	
1,2-Dichloroethane-D4	0.04829	0.05000	97	63-144	
Toluene-D8	0.05026	0.05000	101	80-117	

Lab Batch #: 3143572

Sample: 678474-002 SD / MSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11.30.2020 10:20

SURROGATE RECOVERY STUDY

BTEX-MTBE by SW 8260C	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.05004	0.05000	100	75-131	
1,2-Dichloroethane-D4	0.04913	0.05000	98	63-144	
Toluene-D8	0.04976	0.05000	100	80-117	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Woodson Shamrock

Report Date: 12132020

Work Orders : 678868

Project ID: 20-24665

Lab Batch #: 3143572

Sample: 7716173-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11.30.2020 11:06

SURROGATE RECOVERY STUDY

BTEX-MTBE by SW 8260C	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.05084	0.05000	102	75-131	
1,2-Dichloroethane-D4	0.04992	0.05000	100	63-144	
Toluene-D8	0.05051	0.05000	101	80-117	

Lab Batch #: 3143877

Sample: 7716206-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 12.02.2020 12:13

SURROGATE RECOVERY STUDY

PAHs by SW846 8270D SIM	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
2-Fluorobiphenyl	0.676	0.500	135	54-146	
Nitrobenzene-d5	0.499	0.500	100	46-151	
Terphenyl-D14	0.533	0.500	107	51-139	

Lab Batch #: 3143877

Sample: 7716206-1-BKS / BKS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 12.02.2020 12:30

SURROGATE RECOVERY STUDY

PAHs by SW846 8270D SIM	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
2-Fluorobiphenyl	0.649	0.500	130	54-146	
Nitrobenzene-d5	0.523	0.500	105	46-151	
Terphenyl-D14	0.589	0.500	118	51-139	

Lab Batch #: 3143877

Sample: 7716206-1-BSD / BSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 12.02.2020 12:47

SURROGATE RECOVERY STUDY

PAHs by SW846 8270D SIM	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
2-Fluorobiphenyl	0.691	0.500	138	54-146	
Nitrobenzene-d5	0.565	0.500	113	46-151	
Terphenyl-D14	0.678	0.500	136	51-139	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Woodson Shamrock

Report Date: 12132020

Work Orders : 678868

Project ID: 20-24665

Lab Batch #: 3143922

Sample: 7716155-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 12.02.2020 23:06

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	4.00	5.00	80	70-130	
1-Chlorooctane	9.40	10.0	94	70-130	

Lab Batch #: 3143922

Sample: 7716155-1-BKS / BKS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 12.02.2020 23:26

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	3.80	5.00	76	70-130	
1-Chlorooctane	9.13	10.0	91	70-130	

Lab Batch #: 3143922

Sample: 7716155-1-BSD / BSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 12.02.2020 23:45

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	3.77	5.00	75	70-130	
1-Chlorooctane	9.25	10.0	93	70-130	

Lab Batch #: 3143922

Sample: 679101-002 S / MS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 12.03.2020 00:25

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	3.67	4.75	77	70-130	
1-Chlorooctane	8.87	9.50	93	70-130	

Lab Batch #: 3143922

Sample: 679101-002 SD / MSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 12.03.2020 00:44

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	4.17	4.85	86	70-130	
1-Chlorooctane	10.2	9.70	105	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: Woodson Shamrock

Work Order #: 678868

Project ID: 20-24665

Analyst: NAL

Date Prepared: 11.28.2020

Date Analyzed: 11.28.2020

Lab Batch ID: 3143509

Sample: 7716117-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX-MTBE by SW 8260C	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
MTBE	<0.000571	0.0500	0.05240	105	0.0500	0.04740	95	10	65-135	25	
Benzene	<0.000214	0.0500	0.05300	106	0.0500	0.04730	95	11	66-142	25	
Toluene	<0.000500	0.0500	0.05240	105	0.0500	0.04690	94	11	59-139	25	
Ethylbenzene	<0.000146	0.0500	0.05240	105	0.0500	0.04680	94	11	75-125	25	
m,p-Xylenes	<0.000330	0.100	0.1060	106	0.100	0.09410	94	12	75-125	25	
o-Xylene	<0.000192	0.0500	0.05300	106	0.0500	0.04760	95	11	75-125	25	

Analyst: NAL

Date Prepared: 11.30.2020

Date Analyzed: 11.30.2020

Lab Batch ID: 3143572

Sample: 7716173-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX-MTBE by SW 8260C	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
MTBE	<0.000571	0.0500	0.04890	98	0.0500	0.04390	88	11	65-135	25	
Benzene	<0.000214	0.0500	0.04760	95	0.0500	0.04610	92	3	66-142	25	
Toluene	<0.000500	0.0500	0.04880	98	0.0500	0.04570	91	7	59-139	25	
Ethylbenzene	<0.000146	0.0500	0.04830	97	0.0500	0.04640	93	4	75-125	25	
m,p-Xylenes	<0.000330	0.100	0.09750	98	0.100	0.09450	95	3	75-125	25	
o-Xylene	<0.000192	0.0500	0.04910	98	0.0500	0.04820	96	2	75-125	25	

Relative Percent Difference RPD = $200 * |(C-F)/(C+F)|$

Blank Spike Recovery [D] = $100 * (C)/[B]$

Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes

BS / BSD Recoveries

Project Name: Woodson Shamrock

Work Order #: 678868

Analyst: DNE

Date Prepared: 12.01.2020

Project ID: 20-24665

Date Analyzed: 12.02.2020

Lab Batch ID: 3143877

Sample: 7716206-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

PAHs by SW846 8270D SIM	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Acenaphthene	<0.000100	0.0182	0.01980	109	0.0182	0.02110	116	6	75-127	30	
Acenaphthylene	<0.0000842	0.0182	0.01980	109	0.0182	0.02170	119	9	78-133	30	
Anthracene	<0.0000866	0.0182	0.01940	107	0.0182	0.02090	115	7	73-145	30	
Benzo(a)anthracene	<0.000134	0.0182	0.01670	92	0.0182	0.01930	106	14	77-131	30	
Benzo(a)pyrene	<0.0000571	0.0182	0.01680	92	0.0182	0.01860	102	10	56-163	30	
Benzo(b)fluoranthene	<0.0000711	0.0182	0.01610	88	0.0182	0.01850	102	14	74-138	30	
Benzo(g,h,i)perylene	<0.000113	0.0182	0.01700	93	0.0182	0.01850	102	8	77-127	30	
Benzo(k)fluoranthene	<0.000116	0.0182	0.01810	99	0.0182	0.01980	109	9	67-142	30	
Chrysene	<0.000156	0.0182	0.01770	97	0.0182	0.02020	111	13	66-126	30	
Dibenz(a,h)anthracene	<0.0000760	0.0182	0.01740	96	0.0182	0.01870	103	7	71-142	30	
Fluoranthene	<0.000157	0.0182	0.01940	107	0.0182	0.01960	108	1	78-138	30	
Fluorene	<0.000101	0.0182	0.01980	109	0.0182	0.02090	115	5	79-128	30	
Indeno(1,2,3-c,d)Pyrene	<0.0000913	0.0182	0.01750	96	0.0182	0.01890	104	8	76-140	30	
Naphthalene	<0.0000972	0.0182	0.01810	99	0.0182	0.01940	107	7	72-122	30	
Phenanthrene	<0.0000850	0.0182	0.01880	103	0.0182	0.02040	112	8	76-129	30	
Pyrene	<0.000130	0.0182	0.01870	103	0.0182	0.02070	114	10	74-138	30	

Relative Percent Difference RPD = $200 * |(C-F)/(C+F)|$

Blank Spike Recovery [D] = $100 * (C)/[B]$

Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes

BS / BSD Recoveries

Project Name: Woodson Shamrock

Work Order #: 678868

Project ID: 20-24665

Analyst: LET

Date Prepared: 11.30.2020

Date Analyzed: 11.30.2020

Lab Batch ID: 3143445

Sample: 3143445-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TDS by SM2540C	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Total Dissolved Solids	<5.00	1000	948.0	95	1000	1000	100	5	80-120	10	

Analyst: ISU

Date Prepared: 12.01.2020

Date Analyzed: 12.02.2020

Lab Batch ID: 3143922

Sample: 7716155-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
C6-C12 Gasoline Range Hydrocarbons	<0.885	100	96.00	96	100	98.80	99	3	75-125	20	
>C12-C28 Diesel Range Hydrocarbons	<0.863	100	89.30	89	100	91.90	92	3	75-125	20	

Relative Percent Difference RPD = $200 * |(C-F)/(C+F)|$

Blank Spike Recovery [D] = $100 * (C)/[B]$

Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes

Form 3 - MS Recoveries

Project Name: Woodson Shamrock

Work Order #: 678868
Lab Batch #: 3143509
Date Analyzed: 11.28.2020
QC- Sample ID: 678370-001 S
Reporting Units: mg/L

Report Date: 12132020
Project ID: 20-24665
Date Prepared: 11.28.2020
Batch #: 1
Analyst: NAL
Matrix: Water

MATRIX / MATRIX SPIKE RECOVERY STUDY

BTEX-MTBE by SW 8260C	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes						
MTBE	0.0487	0.0500	0.0975	98	65-135	
Benzene	0.164	0.0500	0.192	56	66-142	X
Toluene	0.0179	0.0500	0.0688	102	59-139	
Ethylbenzene	0.167	0.0500	0.194	54	75-125	X
m,p-Xylenes	0.0174	0.100	0.120	103	75-125	
o-Xylene	<0.000192	0.0500	0.0541	108	75-125	

Matrix Spike Percent Recovery [D] = $100 \times (C-A)/B$
Relative Percent Difference [E] = $200 \times (C-A)/(C+B)$
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

Form 3 - MS / MSD Recoveries

Project Name: Woodson Shamrock

Work Order # : 678868

Lab Batch ID: 3143572

Date Analyzed: 11.30.2020

Reporting Units: mg/L

QC- Sample ID: 678474-002 S

Date Prepared: 11.30.2020

Batch #: 1

Analyst: NAL

Report Date: 12132020

Project ID: 20-24665

Matrix: Water

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX-MTBE by SW 8260C	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
MTBE	<0.000571	0.0500	0.0494	99	0.0500	0.0510	102	3	65-135	25	
Benzene	0.00645	0.0500	0.0506	88	0.0500	0.0539	95	6	66-142	25	
Toluene	<0.000500	0.0500	0.0468	94	0.0500	0.0488	98	4	59-139	25	
Ethylbenzene	0.000420	0.0500	0.0465	92	0.0500	0.0495	98	6	75-125	25	
m,p-Xylenes	0.000480	0.100	0.0935	93	0.100	0.0991	99	6	75-125	25	
o-Xylene	<0.000192	0.0500	0.0475	95	0.0500	0.0511	102	7	75-125	25	

Lab Batch ID: 3143922

Date Analyzed: 12.03.2020

Reporting Units: mg/L

QC- Sample ID: 679101-002 S

Date Prepared: 12.01.2020

Batch #: 1

Analyst: ISU

Matrix: Water

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
C6-C12 Gasoline Range Hydrocarbons	<0.840	95.0	93.2	98	97.0	91.8	95	2	75-125	20	
>C12-C28 Diesel Range Hydrocarbons	<0.820	95.0	88.5	93	97.0	85.9	89	3	75-125	20	

Matrix Spike Percent Recovery $[D] = 100 * (C - A) / B$
Relative Percent Difference $RPD = 200 * |(C - F) / (C + F)|$

Matrix Spike Duplicate Percent Recovery $[G] = 100 * (F - A) / E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Method Duplicate

Project Name: Woodson Shamrock

Work Order #: 678868

Report Date: 12132020

Lab Batch #: 3143445

Project ID: 20-24665

Date Analyzed: 11.30.2020 12:24

Date Prepared: 11.30.2020

Analyst: LET

QC- Sample ID: 678760-001 D

Batch #: 1

Matrix: Drinking Water

Reporting Units: mg/L

SAMPLE / SAMPLE DUPLICATE RECOVERY

TDS by SM2540C	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Total Dissolved Solids	1130	1220	8	10	

Lab Batch #: 3143445

Date Analyzed: 11.30.2020 12:24

Date Prepared: 11.30.2020

Analyst: LET

QC- Sample ID: 679029-001 D

Batch #: 2

Matrix: Water

Reporting Units: mg/L

SAMPLE / SAMPLE DUPLICATE RECOVERY

TDS by SM2540C	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Total Dissolved Solids	2010	2020	0	10	

Spike Relative Difference RPD $200 * |(B-A)/(B+A)|$
 All Results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit



8

Final 1.001



Custody Seal / Shipping Record

Client Name: Rone Eng.

Lab Work Order #: 1078868

1210409

Custody Seal

DATE

SIGNATURE

11-23-2020

[Signature]



Environment Testing
TestAmerica

1210409

Inter-Office Shipment

IOS Number : **73843**

Date/Time: 11.24.2020 Created by: Whitney Capps
 Lab# From: **Dallas** Delivery Priority:
 Lab# To: **Houston** Air Bill No.: 772179371289

Please send report to: Mike Kimmel
 Address: 9701 Harry Hines Blvd
 E-Mail: mike.kimmel@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
678868-001	W	MW-1	11.23.2020 10:42	SW8270D_SIM_PAHTX PAHs by SW846 8270D SIM		HOLD	11.30.2020 10:42	MKI	ACNP ACNPY ANTH BZ	
678868-001	W	MW-1	11.23.2020 10:42	TX1005	TPH by Texas1005	12.02.2020	12.07.2020	MKI	PHCC12C28 PHCC28C3	
678868-001	W	MW-1	11.23.2020 10:42	SW8260CBTXM	BTEX-MTBE by SW 8260C	12.02.2020	12.07.2020	MKI	BZ BZME EBZ TBUTME	
678868-002	W	MW-2	11.23.2020 11:22	TX1005	TPH by Texas1005	12.02.2020	12.07.2020	MKI	PHCC12C28 PHCC28C3	
678868-002	W	MW-2	11.23.2020 11:22	SW8270D_SIM_PAHTX PAHs by SW846 8270D SIM		HOLD	11.30.2020 11:22	MKI	ACNP ACNPY ANTH BZ	
678868-002	W	MW-2	11.23.2020 11:22	SW8260CBTXM	BTEX-MTBE by SW 8260C	12.02.2020	12.07.2020	MKI	BZ BZME EBZ TBUTME	
678868-003	W	MW-3	11.23.2020 11:50	TX1005	TPH by Texas1005	12.02.2020	12.07.2020	MKI	PHCC12C28 PHCC28C3	
678868-003	W	MW-3	11.23.2020 11:50	SW8260CBTXM	BTEX-MTBE by SW 8260C	12.02.2020	12.07.2020	MKI	BZ BZME EBZ TBUTME	
678868-003	W	MW-3	11.23.2020 11:50	SW8270D_SIM_PAHTX PAHs by SW846 8270D SIM		HOLD	11.30.2020 11:50	MKI	ACNP ACNPY ANTH BZ	
678868-003	W	MW-3	11.23.2020 11:50	SM2540C	TDS by SM2540C	12.02.2020	11.30.2020 11:50	MKI	TDS	

Inter Office Shipment or Sample Comments:

Relinquished By:



Whitney Capps

Date Relinquished: 11.24.2020

Received By:



Hypatia Keys

Date Received: 11.25.2020

Cooler Temperature: 4.1

Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 73843

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : hou-188

Sent By: Whitney Capps

Date Sent: 11.24.2020 11.27 AM

Received By:

Date Received: 11.25.2020 09.30 AM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	4.1
#2 *Shipping container in good condition?	Yes
#3 *Samples received with appropriate temperature?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 *Custody Seals Signed and dated for Containers/coolers	N/A
#6 *IOS present?	Yes
#7 Any missing/extra samples?	No
#8 IOS agrees with sample label(s)/matrix?	Yes
#9 Sample matrix/ properties agree with IOS?	Yes
#10 Samples in proper container/ bottle?	Yes
#11 Samples properly preserved?	Yes
#12 Sample container(s) intact?	Yes
#13 Sufficient sample amount for indicated test(s)?	Yes
#14 All samples received within hold time?	Yes

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ Contacted by : _____ Date: _____

Checklist reviewed by:



Hypatia Keys

Date: 11.25.2020

Eurofins Xenco, LLC
Prelogin/Nonconformance Report- Sample Log-In

Client: Rone Engineering Services, Ltd.

Date/ Time Received: 11.24.2020 08.25.00 AM

Work Order #: 678868

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

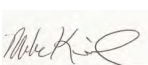
Temperature Measuring device used : IR2

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.5
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	No
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/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 Xenco Stafford
#18 Water VOC samples have zero headspace?	Yes

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

Analyst: WHI

PH Device/Lot#: 230018

Checklist completed by:	 _____ Whitney Capps	Date: <u>11.24.2020</u>
Checklist reviewed by:	 _____ Mike Kimmel	Date: <u>12.06.2020</u>

ATTACHMENT 2
SOIL BORING LOGS AND MONITOR WELL
CONSTRUCTION REPORTS

Drilling Methods

HSA - Hollow Stem Auger
CFA - Continuous Flight Auger
MD - Mud Drilling
AD - Air Drilling
DP - Direct Push

Sampling Methods

 CT - 5.0 Foot Continuous Split Barrel Sampler
 SS - Split Spoon Sampler
 ST - Pressed Shelby Tube
 RC - Rock Core
 NS - Not Sampled
 NR - No Recovery
 GR - Grab Sample From Auger
 PR - Probing Rig / Geoprobe / Maxiprobe
 HA - Hand Auger

Symbols

● - Water on Rods
▼ - Groundwater Level (Well)
▽ - Groundwater Level (During Drilling)
{1} - Soil Sample Submitted to Laboratory for Analysis

Notes

PID - Photo-ionization Detector (ppm)
FID - Flame-ionization Detector (ppm)
NT - Not Tested
NA - Not Applicable

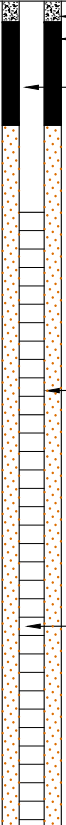
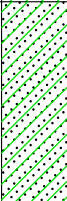
Blow Counts - The symbol 20/6 indicates 20 blows of a 140 lb. hammer falling 30 inches were required to drive the sampler 6 inches

BORING LOG

BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER 20-24665
PROJECT NAME WOODSON SHAMROCK
LOCATION 117 S. US HIGHWAY 183, WOODSON, TEXAS
DRILLING METHOD HSA
SAMPLING METHOD CT
GROUND ELEVATION 1224.35
TOP OF CASING ELEVATION 1223.80
LOGGED BY J. HOWELL /DRILLER J. ALCALA
REMARKS SUNNY, 75°F

BORING/WELL NUMBER MW-1
DATE DRILLED 11/19/2020
CASING TYPE/DIAMETER PVC / 2 INCH
SCREEN TYPE/SLOT PVC / 0.010 INCH
GRAVEL PACK TYPE SAND
GROUT TYPE HYDRATED BENTONITE
DEPTH TO WATER/DATE 6.30 / 11-23-2020
GROUND WATER ELEVATION/DATE 1217.50 / 11-23-2020
DRILLING CO. SUNBELT INDUSTRIAL SERVICES

PID (ppm)	LEL (%)	RECOVERY (%)	SAMPLING METHOD	SAMPLE DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
0.7		75	CT		CL		FILL - brown sand and gravel, loose	2	 Concrete Bentonite to 1' 5' of Casing Sand to 3' 15' of Screen
0.9				5			CLAY- dark gray and brown clay with sandy clay layers		
2.0		50							
{30.0}				10	SC		CLAYEY SAND - light brown loose, fine grained clayey sand wet at 12 ft	10	
{1.4}		30							
1.0				15	GC		CLAYEY GRAVEL - light brown gravel with clay and sand	15	
0.5		20							
0.3				20			Borehole terminated at 20 feet	20	

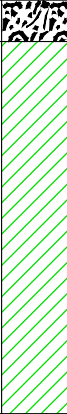
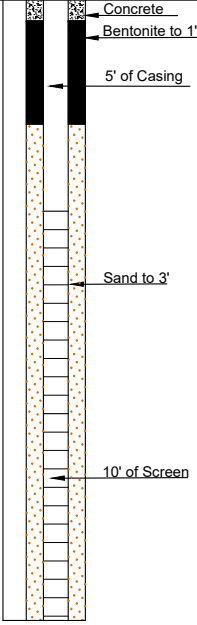
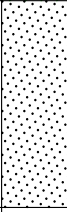
1-26-2021



BORING LOG

BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER 20-24665	BORING/WELL NUMBER MW-2
PROJECT NAME WOODSON SHAMROCK	DATE DRILLED 11/19/2020
LOCATION 117 S. US HIGHWAY 183, WOODSON, TEXAS	CASING TYPE/DIAMETER PVC / 2 INCH
DRILLING METHOD HSA	SCREEN TYPE/SLOT PVC / 0.010 INCH
SAMPLING METHOD CT	GRAVEL PACK TYPE SAND
GROUND ELEVATION 1224.27	GROUT TYPE HYDRATED BENTONITE
TOP OF CASING ELEVATION 1223.64	DEPTH TO WATER/DATE 6.79 / 11-23-2020
LOGGED BY J. HOWELL	DRILLER J. ALCALA
REMARKS SUNNY, 75°F	GROUND WATER ELEVATION/DATE 1216.85 / 11-23-2020
	DRILLING CO. SUNBELT INDUSTRIAL SERVICES

PID (ppm)	LEL (%)	RECOVERY (%)	SAMPLING METHOD	SAMPLE DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
{489}		80	CT		CL		FILL - brown sand and gravel, loose CLAY - dark gray with hydrocarbon odor	1.0	
142				5					
364		35					wet at 9 ft	10	
{117}				10	SP		SAND - light brown and tan fine sand, well compacted	15	
97.5		55							
13.9				15			Borehole terminated at auger refusal in cemented sandstone at 15 feet		

1-26-2021





BORING LOG

BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER 20-24665
PROJECT NAME WOODSON SHAMROCK
LOCATION 117 S. US HIGHWAY 183, WOODSON, TEXAS
DRILLING METHOD HSA
SAMPLING METHOD CT
GROUND ELEVATION 1223.30
TOP OF CASING ELEVATION 1222.78
LOGGED BY J. HOWELL
REMARKS SUNNY, 75°F

BORING/WELL NUMBER MW-3
DATE DRILLED 11/19/2020
CASING TYPE/DIAMETER PVC / 2 INCH
SCREEN TYPE/SLOT PVC / 0.010 INCH
GRAVEL PACK TYPE SAND
GROUT TYPE HYDRATED BENTONITE
DEPTH TO WATER/DATE 6.43 / 11-23-2020
GROUND WATER ELEVATION/DATE 1216.35 / 11-23-2020
DRILLING CO. SUNBELT INDUSTRIAL SERVICES

PID (ppm)	LEL (%)	RECOVERY (%)	SAMPLING METHOD	SAMPLE DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
1.1			CT				FILL - tan and brown sand and gravel, loose	1.0	Concrete Bentonite to 1' 8' of Casing Sand to 6' 10' of Screen
1.2		50			CL		CLAY - dark gray clay with silty layers		
{1.7}				5	SC		CLAYEY SAND - light brown fine grained sand, loose	5.0	
{2.3}		65							
1.2		40		10	GC		CLAYEY GRAVEL - light brown gravel with clay and sand	10	
2.0				15					18
		60		18					
							Borehole terminated at auger refusal in cemented sandstone at 18 feet		

1-26-2021

Sonja D. Williams

STATE OF TEXAS WELL REPORT for Tracking #560382

Owner:	JT Horn	Owner Well #:	MW-1
Address:	P.O. Box 922 Eastland, TX 76448	Grid #:	21-64-8
Well Location:	117 S US Highway 183 Woodson, TX 76491	Latitude:	33° 00' 51.76" N
Well County:	Throckmorton	Longitude:	099° 03' 18.31" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Monitor

Drilling Start Date: **11/19/2020** Drilling End Date: **11/19/2020**

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	7.25	0	20

Drilling Method: **Hollow Stem Auger**

Borehole Completion: **Sand Pack**

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	1	Concrete 1 Bags/Sacks
	1	3	Bentonite 2 Bags/Sacks
	3	20	Sand 12 Bags/Sacks

Seal Method: **Gravity**

Sealed By: **Driller**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Slab Installed**

Surface Completion by Driller

Water Level: **No Data**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Sunbelt Industrial Services**

**2415 Cullen St
Fort Worth, TX 76107**

Driller Name: **Juan R Alcala**

License Number: **59430**

Comments: **DE20344**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	2	Fill
2	10	Clay-Dark gray and brown
10	15	Clayey Sand
15	20	Clayey Gravel- Wet at 12ft

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
2	Riser	New Plastic (PVC)	SCH 40	0	5
2	Screen	New Plastic (PVC)	0.010	5	20

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #560383

Owner:	JT Horn	Owner Well #:	MW-2
Address:	P.O. Box 922 Eastland, TX 76448	Grid #:	21-64-8
Well Location:	117 S US Highway 183 Woodson, TX 76491	Latitude:	33° 00' 51.76" N
Well County:	Throckmorton	Longitude:	099° 03' 18.31" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Monitor

Drilling Start Date: **11/19/2020** Drilling End Date: **11/19/2020**

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	7.25	0	15

Drilling Method: **Hollow Stem Auger**

Borehole Completion: **Sand Pack**

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	1	Concrete 1 Bags/Sacks
	1	3	Bentonite 2 Bags/Sacks
	3	15	Sand 8 Bags/Sacks

Seal Method: **Gravity**

Sealed By: **Driller**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Slab Installed**

Surface Completion by Driller

Water Level: **No Data**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Sunbelt Industrial Services**

**2415 Cullen St
Fort Worth, TX 76107**

Driller Name: **Juan R Alcala**

License Number: **59430**

Comments: **DE20344**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	Fill
1	10	Clay-Dark Gray, Wet at 9 ft
10	15	Sand-light brown

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
2	Riser	New Plastic (PVC)	SCH 40	0	5
2	Screen	New Plastic (PVC)	0.010	5	15

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #560384

Owner:	JT Horn	Owner Well #:	MW-3
Address:	P.O. Box 922 Eastland, TX 76448	Grid #:	21-64-8
Well Location:	117 S US Highway 183 Woodson, TX 76491	Latitude:	33° 00' 51.76" N
Well County:	Throckmorton	Longitude:	099° 03' 18.31" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Monitor

Drilling Start Date: **11/19/2020** Drilling End Date: **11/19/2020**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	7.25	0	18

Drilling Method: **Hollow Stem Auger**

Borehole Completion: **Sand Pack**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	1	Concrete 1 Bags/Sacks
	1	6	Bentonite 3 Bags/Sacks
	6	18	Sand 6 Bags/Sacks

Seal Method: **Gravity**

Sealed By: **Driller**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Slab Installed**

Surface Completion by Driller

Water Level: **No Data**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Sunbelt Industrial Services**

**2415 Cullen St
Fort Worth, TX 76107**

Driller Name: **Juan R Alcala**

License Number: **59430**

Comments: **DE20344**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	Fill
1	5	Clay-Dark Gray
5	10	Clayey Sand-Light Brown
10	18	Gravely Clay-Light Brown

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
2	Riser	New Plastic (PVC)	SCH 40	0	8
2	Screen	New Plastic (PVC)	0.010	8	18

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

ATTACHMENT 3
WATER WELL DATABASE SEARCHES REPORT



Texas Water Well Report

Target Property:

Woodson Shamrock

117 S. US-183

Woodson, Throckmorton County, Texas 76491

Prepared For:

Rone Engineering Services LTD-Dallas

Order #: 154941

Job #: 375994

Project #: 20-24665

PO #: 35582

Date: 10/02/2020

TARGET PROPERTY SUMMARY

Woodson Shamrock

117 S. US-183

Woodson, Throckmorton County, Texas 76491

USGS Quadrangle: **Woodson, TX**

Target Property Geometry: **Area**

Target Property Longitude(s)/Latitude(s):

**(-99.054700, 33.014109), (-99.055142, 33.014108), (-99.055588, 33.014100), (-99.055604, 33.014498),
(-99.055170, 33.014501), (-99.055170, 33.014552), (-99.054967, 33.014549), (-99.054773, 33.014552),
(-99.054741, 33.014424), (-99.054716, 33.014262), (-99.054700, 33.014109)**

County/Parish Covered:

Throckmorton (TX)

Zipcode(s) Covered:

Woodson TX: 76491

State(s) Covered:

TX

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DATABASE FINDINGS SUMMARY

DATABASE	ACRONYM	LOCA- TABLE	UNLOCA- TABLE	SEARCH RADIUS (miles)
<u>FEDERAL</u>				
UNITED STATES GEOLOGICAL SURVEY NATIONAL WATER INFORMATION SYSTEM	NWIS	0	0	0.5000
SUB-TOTAL		0	0	
<u>STATE (TX)</u>				
SELECT SUBMITTED DRILLERS REPORT DATABASE WELLS	SSDRD	0	0	0.5000
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY WATER WELLS	TCEQ	0	0	0.5000
TEXAS WATER DEVELOPMENT BOARD GROUNDWATER DATABASE	TWDB	0	0	0.5000
WATER UTILITY DATABASE	WUD	0	0	0.5000
SUB-TOTAL		0	0	

TOTAL		0	0
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LOCATABLE DATABASE FINDINGS

ACRONYM	SEARCH RADIUS (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
<u>FEDERAL</u>								
NWIS	.5000	0	0	0	0	NS	NS	0
SUB-TOTAL		0	0	0	0	0	0	0
 <u>STATE (TX)</u>								
SSDRD	.5000	0	0	0	0	NS	NS	0
TCEQ	.5000	0	0	0	0	NS	NS	0
TWDB	.5000	0	0	0	0	NS	NS	0
WUD	.5000	0	0	0	0	NS	NS	0
SUB-TOTAL		0	0	0	0	0	0	0

TOTAL	0	0	0	0	0	0	0	0
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NOTES:

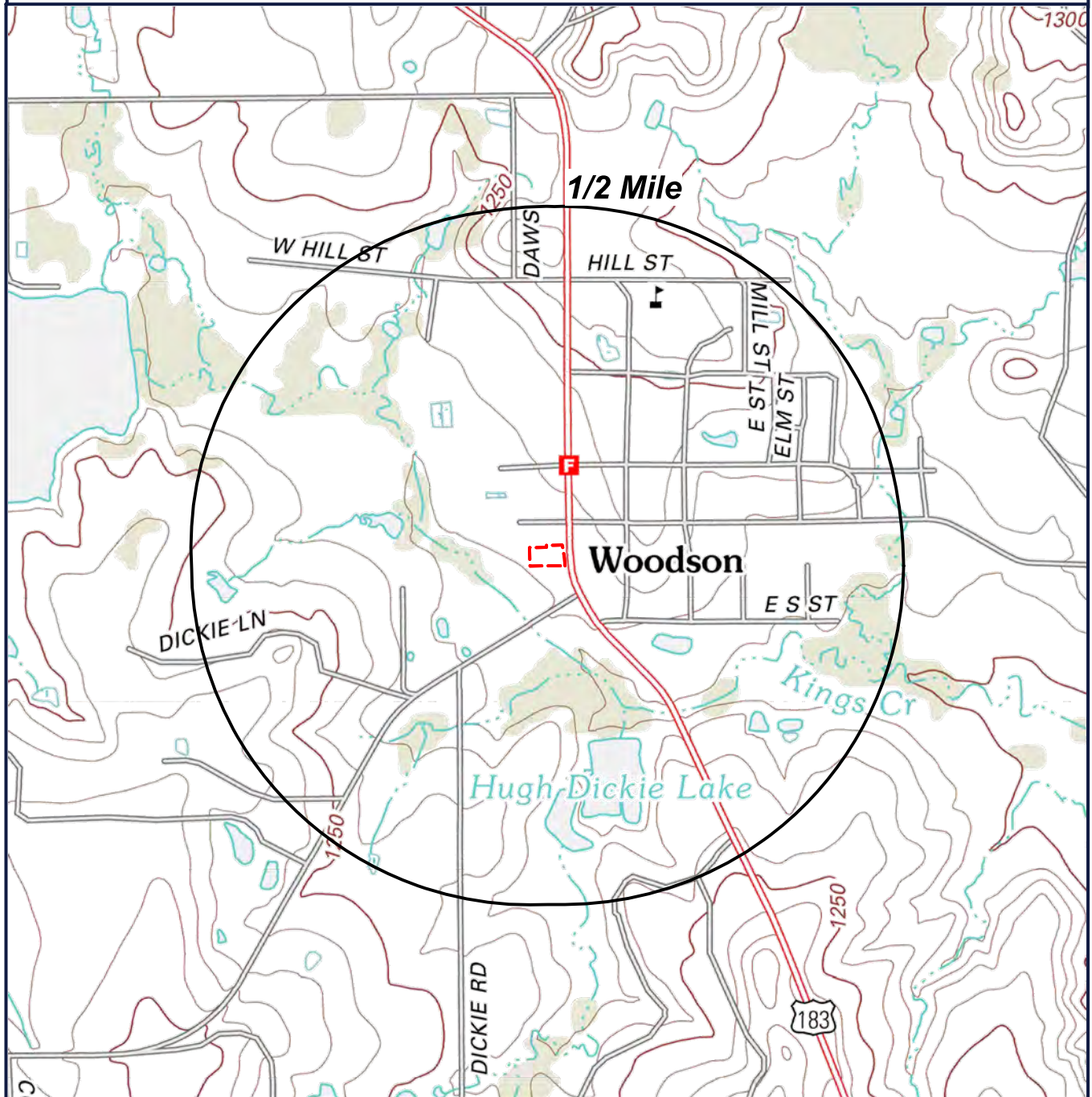
NS = NOT SEARCHED

TP/AP = TARGET PROPERTY/ADJACENT PROPERTY



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WATER WELL MAP



 Target Property (TP)

Woodson Shamrock
117 S. US-183
Woodson, Texas
76491



0' 600' 1200' 1800'
SCALE: 1" = 1200'

GeoSearch

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ENVIRONMENTAL RECORDS DEFINITIONS - FEDERAL

NWIS

United States Geological Survey National Water Information System

VERSION DATE: 1/2020

The U.S. Geological Survey (USGS) National Water Information System (NWIS) includes water inventory data originating from all 50 states, plus border and territorial sites, including data from as early as 1899. This database includes selected site types limited to Groundwater Sites and Spring Sites from the 1.5 million plus sites within NWIS. Surface-Water, Atmospheric, and Other Site types are excluded. Disclaimer: Water Data for the Nation is the USGS public web interface to much of the data stored and managed within NWIS. It is not, however, configured to present all NWIS data and users may need to contact local Water Science Centers to obtain some information. NWIS data is updated on a regularly scheduled basis, and current condition data is generally updated upon receipt at local Water Science Centers.



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ENVIRONMENTAL RECORDS DEFINITIONS - STATE (TX)

SSDRD

Select Submitted Drillers Report Database Wells

VERSION DATE: 8/2020

This Texas Water Development Board database was created from the online Texas Well Report Submission and Retrieval System (a cooperative TDLR, TWDB system) that registered water-well drillers use to submit their required reports. The system was started in February 2001 and is optional for the drillers to use. This data excludes the following well types: Monitor Wells, Environmental Soil Borings, Injections Wells, De-watering and Test Wells.

TCEQ

Texas Commission on Environmental Quality Water Wells

VERSION DATE: NR

The Texas Commission on Environmental Quality (TCEQ) maintains a filing system of plotted and unnumbered water wells. Plotted water wells are filed according to the County indicated by the driller and the state well number assigned by State of Texas personnel. Given the available location information provided by the driller, personnel identify where the approximate well location should be. After well placement a state well number is assigned indicating that the well lies within a specific 2.5' section of a 7.5' quadrangle. This method allows for quicker, more refined, reference when researching a specific area. Unnumbered water wells have not been assigned a state well number. This can occur for a variety of reasons; however it does not mean the well cannot be accurately spotted. Unnumbered water well records are filed according to County and are often broken up by year or by a span of years.

TWDB

Texas Water Development Board Groundwater Database

VERSION DATE: 5/2020

The Texas Water Development Board Groundwater Database contains information for more than 123,500 sites in Texas including data on water wells, springs, oil/gas tests, water levels, and water quality. The purpose of the Board's data collection effort over the years has been to gain representative information about aquifers in the state in order to do water planning. It is very important, however, to realize that the wells in the database represent only a small percentage of the wells that actually exist in Texas. A registered water well driller is required by law to send in a report to the State for every well that is drilled. This requirement began in 1965, and we estimate that approximately 500,000 wells have been drilled in Texas since then. Of the 1,000,000 plus water wells drilled in Texas over the past 100 years, more than 130,000 have been inventoried and placed into the TWDB groundwater database. State well numbers have been assigned to these based on their location within numbered 7 1/2 minute quadrangles formed by lines of latitude and longitude. This database contains well information including location, depth, well type, owner, driller, construction and completion data.

WUD

Water Utility Database

VERSION DATE: NR

The Water Utility Database is defined as a collection of data from Texas Water Districts, Public



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ENVIRONMENTAL RECORDS DEFINITIONS - STATE (TX)

Drinking Water Systems and Water and Sewer Utilities who submit information to the TCEQ. This database is an integrated database designed and developed to replace over 160 stand alone legacy systems representing over 5 million records of the former Texas Water Commission and the Texas Department of Health.



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**ATTACHMENT 4
WELL REPORTS**

NO WATER WELLS REPORTS WERE FOUND

ATTACHMENT 5
MAILING LABELS

**NO DRINKING WATER WELLS WERE IDENTIFIED
WITHIN $\frac{1}{4}$ MILE OF THE SUBJECT PROPERTY.
THEREFORE, MAILING LABELS ARE NOT REQUIRED**

ATTACHMENT 6
ELECTRONIC FILES

**NO DRINKING WATER WELLS WERE IDENTIFIED
WITHIN $\frac{1}{4}$ MILE OF THE SUBJECT PROPERTY.
THEREFORE, ELECTONIC FILES ARE NOT REQUIRED.**