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LEAKING UNDERGROUND STORAGE TANK (LUST) ASSESSMENT MONITORING WELL INSTALLATION and GROUNDWATER MONITORING REPORT

Sac & Fox Truck Stop
1346 US 75 Highway
Powhatten, Kansas

NW ¼ NW ¼ SW ¼
Section 15, Township 4 South, Range 15 East,
Brown County

Terranext Project Number: 17102679

February 21, 2016

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SECTION 1.0

1.1 Introduction

Terranext has developed this Monitoring Well Installation and Groundwater Monitoring Report to present a description of the activities and the data collected by Terranext at the Sac & Fox Truck Stop located at 1346 US 75 Highway in Powhatten, Kansas (Figure 1).

Terranext was contracted by Total Petroleum Services (TPS) to install six permanent monitoring wells and collect groundwater samples to determine current groundwater impacts at the Sac & Fox Truck Stop site. The data was collected during field activities completed during January 23rd -25th and February 1, 2017.

The objective of the installation of the six additional monitoring wells and associated groundwater sampling is to better characterize the northern, eastern and up-gradient portions of the existing groundwater plume at the site, provide additional data points for groundwater monitoring and subsurface geologic characterization and evaluate plume stability.

Previous groundwater investigation activities at the site include:

- Terranext was contracted by TPS to install seven permanent monitoring wells, collect soil and groundwater samples to determine current soil and groundwater impacts at the Sac & Fox Truck Stop site. The data was collected during field activities completed during September 6th -20th, 2016 and presented in an October 27, 2016 report to TPS. Based on the groundwater sampling, groundwater has been impacted above KDHE's Tier 2 non-residential RSK

values at the MW1, MW3, MW4 and MW6 locations. Based on the groundwater gauging, groundwater flow near the Sac & Fox Truck Stop facility is generally towards the east, towards the surface pond located approximately 600 feet east-southeast of the facility.

1.2 Monitoring Well Installation Activities

Terranext installed six monitoring wells (MW8, MW9, MW10, MW11, MW12, and MW13). Terranext utilized Razek Environmental located in Louisburg, Kansas to install the monitoring wells. Terranext requested the utility locate with Kansas One-Call prior to initiating field activities, as well as, contracting a separate utility locator Baker Peterson to better identify on-site utilities. Terranext also conducted a tailgate health and safety meeting with on-site personnel prior to initiating field activities.

Monitoring well MW8 was installed to a total depth of 20 feet below ground surface (bgs) were refusal was met; MW9 was installed to a depth of 16.5 feet bgs were refusal was met and MW10, MW11, MW12 and MW13 were installed to a depth of 18 feet bgs were refusal was met. The monitoring wells were installed using hollow stem auger (HSA) techniques. Each well was constructed with 2-inch diameter, schedule 40 PVC, #10 (0.010-inch) factory slotted screen from 5 feet bgs to total depth and a threaded end cap at the base. Additional 2-inch diameter, schedule 40 PVC casing was installed from the top of the screen to the surface. A clean sand filter pack was placed in the annular space around each well screen from the top of the native soil to approximately 2 feet above the top of the screen. The remaining annular space around each well was filled with hydrated bentonite chips to approximately 1 foot bgs. A lockable, watertight well cap was used to seal off the well casing. MW11, MW12 and MW13 were completed at grade with a well vault set flush to the ground surface in a concrete pad and MW8, MW9 and MW10 were completed with above grade surface completions.

Drill cuttings generated during the field investigation were thin spread on-site and monitoring well purge water was discharge on-site.

Drilling logs are included in Section 4.0. Also shown on the drilling logs are the PID field screening values of the soil and the subsurface geology log. Based on the drilling logs, Terranext has prepared a north-south geological cross section and an east-west geologic cross section (Section 6.0). In general, the subsurface geology consists of primarily of an upper clay unit underlain by a slit layer underlain by a silty sand layer. Beneath the silty sand layer appears to be interbedded clay and silt layers. Generally, the layer of orange silty sand appears 11- 20 feet bgs, appears to more substantial to the southeast and is likely the primary water bearing zone.

Table 2.1 shows a summary of the work completed at the Sac & Fox Truck Stop site. Terranext was unable to access monitoring well MW6 for sampling due to parked vehicle. Laboratory reports, field notes, WWC-5 forms and survey data are included in Section 7.0.

1.3 Groundwater Analytical Results

Terranext compared the groundwater analytical results to the Kansas Department of Health & Environment's (KDHE's) Tier 2 non-residential Risk-Based Standard for Kansas (RSK) values. Free Product was not encountered during the January 2017 groundwater sampling event. Groundwater level depths ranged from artesian conditions in MW10 to 11.59 feet below ground surface (bgs) in MW9. Compared to the September 2016 groundwater sampling event, groundwater depths have increased 1.75 feet (MW3) to 5.12 feet (MW2) and the groundwater flow direction remains to the east.

Groundwater samples were unable to be collected from MW6 do to a parked vehicle and MW12 and MW13 due to a lack of ground water in the wells. Measurements of MW12 and MW13 February 20, 2017 show groundwater

depths in MW12 and MW13 13.54 feet bgs and 12.77 feet bgs respectively and these wells will be sampled during the next groundwater sampling event.

The following groundwater analytical results are presented in Table 2.2

TPH GRO - GROUNDWATER

Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO) was detected in the groundwater samples collected from monitoring wells MW1 (5,300 ug/l) and MW4 (5,800 ug/l). The TPH GRO concentrations detected exceed the Tier 2 non-residential RSK value of 500 ug/l. A TPH GRO groundwater contour map is presented as Figure 3. TPH GRO concentrations have increased since the September 2016 groundwater sampling event.

Benzene and Total BTEX - GROUNDWATER

Benzene was detected in the groundwater samples collected from monitoring wells MW1 (718 micrograms per liter (ug/l)), MW3 (6.6 ug/l), MW4 (3,880 ug/l) and MW5 (20.4 ug/l). The benzene concentrations during the January 2017 groundwater sampling event exceed the Tier 2 non-residential RSK value of 5 ug/l and have increased since the September 2016 sampling event.

Total BTEX was detected in the groundwater samples collected ranging from 14.4 ug/l in MW3 to 4,706 ug/l in MW4. A Total BTEX groundwater contour map is presented as Figure 4.

MtBE - GROUNDWATER

MtBE was detected in the groundwater samples collected from monitoring well MW4 (1.6 ug/l). The MtBE concentration detected does not exceed the Tier 2 non-residential RSK value of 262 ug/l.

Naphthalene - GROUNDWATER

Naphthalene was detected in the groundwater sample collected from monitoring wells MW1 (18.1 ug/l) and MW4 (64.4 ug/l). The naphthalene concentrations detected exceeds the Tier 2 non-residential RSK value of 2.11 ug/l.

1,2-DCA - GROUNDWATER

1,2-DCA was not detected in any of the groundwater samples submitted during the January 2017 sampling event.

1.4 Conclusions / Recommendations

Conclusions from the monitoring well installation activities and groundwater sampling are as follows:

- Based on the groundwater sampling, groundwater has been impacted above KDHE's Tier 2 non-residential RSK values at the MW1, MW3, MW4 and MW5 locations.
- Based on the groundwater gauging, groundwater flow near the Sac & Fox Truck Stop facility is generally towards the east.
- Based on the monitoring well installation activities, there appears to be an orange silty sand and sand unit encountered approximately 11-20 feet bgs. This unit appears to become more prevalent to the southeast and is likely the primary water bearing unit.

Terranext recommends additional quarterly groundwater monitoring of the Sac & Fox Truck Stop facility to help determine the stability of the contaminated groundwater plume.

SECTION 2.0

TABLES

This section includes the following tables:

Table 2.1 Summary of Work Completed
Table 2.2 Groundwater Analytical Results
Table 2.3 Monitoring Well Completion and Groundwater Depth Information

TABLE 2.1 - SUMMARY OF WORK COMPLETED

Sac and Fox Truck Stop
1346 US 75 Highway
Powhatten, Kansas

Description of Activity	Completion
Total Number of Monitoring Wells Completed	6
Total Footage Drilled	108.5
Total Monitoring Well Footage	108.5
Total Number of Ground Water Samples Analyzed By Laboratory	8
Total Number of Soil Samples Analyzed By Labratory	0
Total Number of Product Samples Analyzed By Laboratory	0

TABLE 2.2 - GROUND WATER ANALYTICAL RESULTS

Sac and Fox Truck Stop
1346 US 75 Highway
Powhattan, Kansas

Well ID	Date Purged & Sampled	Purge / Development Volume (gallons)	Benzene (µg/l)	Toluene (µg/l)	Ethyl benzene (µg/l)	Xylenes (µg/l)	Total BTEX (µg/l)	1,2-DCA (µg/l)	MtBE (µg/l)	Naphthalene (µg/l)	TPH GRO (µg/l)	Analytical Method
Tier 2 RSK - Non-Residential			5	1,000	700	10,000	-	5	262	2.11	500	-
MW1	09/20/16	16.75	**84.4**	6.5	1.8	56.3	149.0	ND(1.0)	ND(1.0)	ND(10)	**1,400**	8260/OA1
	01/25/17	9.25	**718**	7.6	23.3	15.5	764	ND(1.0)	ND(1.0)	**18.1**	**5,300**	8260/OA1
MW2	09/20/16	21.00	ND(1.0)	ND(1.0)	ND(1.0)	ND(3.0)	ND	ND(1.0)	ND(1.0)	ND(10)	ND(500)	8260/OA1
	01/25/17	10.00	ND(1.0)	ND(1.0)	ND(1.0)	ND(3.0)	ND	ND(1.0)	ND(1.0)	ND(10)	ND(500)	8260/OA1
MW3	09/20/16	18.00	**5.9**	ND(1.0)	ND(1.0)	39.8	45.7	ND(1.0)	ND(1.0)	ND(10)	ND(500)	8260/OA1
	01/25/17	9.75	**6.6**	ND(1.0)	ND(1.0)	7.8	14.4	ND(1.0)	ND(1.0)	ND(10)	ND(500)	8260/OA1
MW4	09/20/16	20.00	**172**	121	12.7	52.3	358	ND(1.0)	1.6	ND(10)	**1,100**	8260/OA1
	01/25/17	10.25	**3,880**	343	147	336	4706	ND(1.0)	1.6	**64.4**	**5,800**	8260/OA1
MW5	09/20/16	19.00	2.6	ND(1.0)	ND(1.0)	3.2	5.8	ND(1.0)	ND(1.0)	ND(10)	ND(500)	8260/OA1
	01/25/17	10.00	**20.4**	ND(1.0)	ND(1.0)	ND(3.0)	20.4	ND(1.0)	ND(1.0)	ND(10)	ND(500)	8260/OA1
MW6	09/20/16	20.00	**6,870**	**6,010**	**1,180**	5,230	19,290	ND(1.0)	5.4	**178**	**53,200**	8260/OA1
	01/25/17						UTA					
MW7	09/20/16	13.00	ND(1.0)	ND(1.0)	ND(1.0)	ND(3.0)	ND	ND(1.0)	ND(1.0)	ND(10)	ND(500)	8260/OA1
	01/25/17	5.25	ND(1.0)	ND(1.0)	ND(1.0)	ND(3.0)	ND	ND(1.0)	ND(1.0)	ND(10)	ND(500)	8260/OA1
MW8	01/25/17	16.00	ND(1.0)	ND(1.0)	ND(1.0)	ND(3.0)	ND	ND(1.0)	ND(1.0)	ND(10)	ND(500)	8260/OA1
MW9	01/25/17	8.00	ND(1.0)	ND(1.0)	ND(1.0)	ND(3.0)	ND	ND(1.0)	ND(1.0)	ND(10)	ND(500)	8260/OA1
MW10	01/25/17	15.00	ND(1.0)	ND(1.0)	ND(1.0)	ND(3.0)	ND	ND(1.0)	ND(1.0)	ND(10)	ND(500)	8260/OA1
MW11	01/25/17	10.00	ND(1.0)	ND(1.0)	ND(1.0)	ND(3.0)	ND	ND(1.0)	ND(1.0)	ND(10)	ND(500)	8260/OA1
MW12	01/25/17						DRY					
MW13	01/25/17						DRY					

Values in bold exceed non-residential Tier 2 RSKs
RSK - Risk-Based Standard for Kansas (RSK) Value, October 2010

TABLE 2.3 - MONITORING WELL COMPLETION and GROUNDWATER DEPTH INFORMATION

Sac and Fox Truck Stop
1346 US 75 Highway
Powhatten, Kansas

Well ID	Datum Type & Location	Datum Elevation (feet)	Top of Casing Elevation (feet)	Date Measured	Ground Water Depth (feet below TOC)	Ground Water Elevation (feet)	Product Thickness (feet)
MW1	Flushmount	1,154.43	1,154.04	09/20/16 01/25/17	6.62 11.05	1,147.42 1,142.99	N/A N/A
MW2	Flushmount	1,150.70	1,150.38	09/20/16 01/25/17	3.88 9.00	1,146.50 1,141.38	N/A N/A
MW3	Flushmount	1,144.55	1,144.16	09/20/16 01/25/17	6.90 8.65	1,137.26 1,135.51	N/A N/A
MW4	Flushmount	1,152.36	1,152.04	09/20/16 01/25/17	6.13 8.68	1,145.91 1,143.36	N/A N/A
MW5	Flushmount	1,145.90	1,145.55	09/20/16 01/25/17	5.03 7.48	1,140.52 1,138.07	N/A N/A
MW6	Flushmount	1,151.13	1,150.88	09/20/16 01/25/17	4.51 UTA	1,146.37 UTA	N/A
MW7	Flushmount	1,145.23	1,144.93	09/20/16 01/25/17	4.17 8.52	1,140.76 1,136.41	N/A N/A
MW8	Stick Up	1,133.70	1,136.38	01/25/17	4.44	1,131.94	N/A
MW9	Stick Up	1,132.40	1,135.68	01/25/17	11.59	1,124.09	N/A
MW10	Stick Up	1,135.53	1,138.63	01/25/17	3.00	1,135.63	N/A
MW11	Flushmount	1,148.55	1,148.32	01/25/17	6.01	1,142.31	N/A
MW12	Flushmount	1,155.59	1,155.29	01/25/17	Dry	Dry	N/A
MW13	Flushmount	1,154.55	11.54.30	01/25/17	Dry	Dry	N/A

NOTES: N/A - Not Applicable UTA- Unable to Access
TOC - Top of casing

SECTION 3.0

MAPS

This section includes the following figures:

Figure 1 - Site Map
Figure 2 – 1/25/17 Monitoring Well Results TPH GRO
Figure 3 - 1/25/17 Monitoring Well Results BTEX
Figure 4 – Groundwater Flow Map

Monitoring Well Location
Soil Vapor Sampling Location

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FIGURE 1
SITE MAP

SAC & FOX TRUCK STOP
1346 US 75 HIGHWAY
POWHATTEN, KANSAS

Monitoring Well Location
1,000 TPH-GRO Concentrations in ug/l
ND Non-Detect
NS Not Sampled

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FIGURE 2
GROUNDWATER TPH-GRO RESULTS
JANUARY 25, 2017
SAC & FOX TRUCK STOP
1346 US 75 HIGHWAY
POWHATTEN, KANSAS

Monitoring Well Location
1,000 BTEX Concentrations in ug/l
ND Non-Detect
NS Not Sampled

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FIGURE 3
GROUNDWATER BTEX RESULTS
JANUARY 25, 2017
SAC & FOX TRUCK STOP
1346 US 75 HIGHWAY
POWHATTEN, KANSAS

Monitoring Well Location

Groundwater Flow Direction

1,140.00 Groundwater Elevation in feet above MSL

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FIGURE 4
GROUNDWATER FLOW MAP
JANUARY 25, 2017
SAC & FOX TRUCK STOP
1346 US 75 HIGHWAY
POWHATTEN, KANSAS

SECTION 4.0

DRILLING LOGS

This section includes the drilling logs for monitoring wells MW8 through MW13.

TERRANEXT, LLC		LOG OF BORING NO:	MW-8	SHEET NUMBER 1 OF 1
PROJECT NAME	Sac & Fox Truck Stop	DRILLING/PROBING CONTRACTOR	Razek Environmental	**Water Level Data**
PROJECT LOCATION	1348 US 75 Highway, Powhattan, Kansas	DRILLING METHOD / BORE DIAMETER	HSA, 8 1/4"	Date / Time / Depth: 1/25/2017 0832 4.44
PROJECT NUMBER	17102579	SAMPLING METHOD	Macro Core	**Survey Data**
GEOLOGIST	M. Watson	TOTAL DEPTH (feet)	20	Ground Surface: 1133.70
DRILLER	T. Poulter	START DATE	01/23/17	Top Of Casing: 1136.38
		COMPLETION DATE	01/23/17	Ground Water: 1131.94

SAMPLE DEPTH AND TIME	PID (PPMV)	RECOVERY (FEET)	DEPTH (FEET)	WELL CONSTRUCTION	GEOLOGIC DESCRIPTION (NAME, color, particle size, characteristics)	NOTES
						Above-Ground Vault
0956	0	5/5	1, 2, 3	concrete; Hydrated Bentonite; 2 in PVC Riser	Grass Surface	0-1' no odor
					CH: medium stiff, moist, dark brown, CLAY, plastic	
					CH: medium stiff, moist, mottled grey-brown, CLAY, high plastic	
	0		4, 5	Sand Filter Pack		3-4' no odor
1000	0	5/5	6, 7, 8, 9, 10	2 in PVC Riser	stiff	6-7' no odor
					CL: stiff, moist, mottled orange-grey silty CLAY, low plastic	
1004	0	5/5	11, 12, 13, 14, 15	2 in PVC Screen	ML: stiff, moist, mottled orange-grey SILT with clay, with f. sand Trace nodules	13-14' no odor
1011	N/A	N/A	16, 17, 18, 19, 20		SM: loose, wet, orange silty, (m-c) SAND	saturated samples not field screened below saturated zone
					ML: v. stiff, wet, mottled orange-grey SILT, Trace sand Total Depth = 20 feet	
1023			21, 22, 23, 24, 25			

LEGEND:
SS - Split Spoon
PID - Photoionization Detector
NR - No Recovery

- Concrete
- Flush Mount Vault
- Grout
- Bentonite Chip Seal
- Filter Pack
- Well Screen

ST - Shelby Tube
HSA - Hollow Stem Augers
PPMV - Parts Per Million by Volume

TERRANEXT, LLC	LOG OF BORING NO: MW-9	SHEET NUMBER 1 OF 1
PROJECT NAME: Sac & Fox Truck Stop	DRILLING/PROBING CONTRACTOR: Razek Envronmental	**Water Level Data**
PROJECT LOCATION: 1346 US 75 Highway, Powhattan, Kansas	DRILLING METHOD / BORE DIAMETER: HSA, 8 1/4"	Date / Time / Depth: 1/25/2017 0854 11.59
PROJECT NUMBER: 17102679	SAMPLING METHOD: Macro Core	**Survey Data**
GEOLOGIST: M. Watson	TOTAL DEPTH (feet): 16.5	Ground Surface: 1132.40
DRILLER: T. Poulter	START DATE: 01/23/17	Top Of Casing: 1135.68
	COMPLETION DATE: 01/23/17	Ground Water: 1124.09

SAMPLE DEPTH AND ID	PID (PPMV)	RECOVERY (FEET)	DEPTH (FEET)	WELL CONSTRUCTION	GEOLOGIC DESCRIPTION (NAME, color, particle size, characteristics)	NOTES
						Above-Ground Vault
1230	0	5/5	1, 2, 3, 4, 5	concrete; Hydrated Bentonite; 2 in PVC Riser	Grass Surface	0-1' no odor
					CH: medium stiff, wet, dark brown, CLAY, high plastic	
					CH: stiff, moist, mottled orange-grey, CLAY, plastic	3-4' no odor
1234	0	5/5	6, 7, 8, 9, 10	Sand Filter Pack		6-7' no odor
1238	0	5/5	11, 12, 13, 14, 15	2 in PVC Screen	ML: v. stiff, moist, mottled orange-grey SILT , Trace nodules	13-14' no odor
					SM: loose, wet, orange silty, (m-c) SAND	Sand zone ~4 inches thick
					ML: v. stiff, moist, mottled orange-grey, sandy SILT, Trace nodules	
1243	0	1.5/1.5	16			
1255			17, 18, 19, 20		Refusal at 16.5 feet	
			21, 22, 23, 24, 25			

LEGEND:

SS - Split Spoon
PID - Photoionization Detector
NR - No Recovery

- Concrete
- Flush Mount Vault
- Grout
- Bentonite Chip Seal
- Filter Pack
- Well Screen

ST - Shelby Tube
HSA - Hollow Stem Augers
PPMV - Parts Per Million by Volume

TERRANEXT, LLC		LOG OF BORING NO:	MW-10	SHEET NUMBER 1 OF 1
PROJECT NAME:	Sac & Fox Truck Stop	DRILLING/PROBING CONTRACTOR:	Razek Environmental	**Water Level Data**
PROJECT LOCATION:	1346 US 75 Highway Powhattan, Kansas	DRILLING METHOD / BORE DIAMETER:	HSA, 8 1/4"	Date / Time / Depth: 1/25/2017 0936 3.00
PROJECT NUMBER:	17102679	SAMPLING METHOD:	Macro Core	**Survey Data**
GEOLOGIST:	M. Watson	TOTAL DEPTH (feet):	18	Ground Surface: 1135.53
DRILLER:	T. Poulter	START DATE:	01/23/17	Top Of Casing: 1138.63
		COMPLETION DATE:	01/23/17	Ground Water: 1135.63

SAMPLE DEPTH AND TIME	PID (PPMV)	RECOVERY (FEET)	DEPTH (FEET)	WELL CONSTRUCTION	GEOLOGIC DESCRIPTION (NAME, color, particle size, characteristics)	NOTES:
						Above-Ground Vault
1425	0	5/5	1, 2, 3, 4, 5	concrete; Hydrated Bentonite; 2 in PVC Riser	Grass Surface CH: soft, wet, grey CLAY, high plastic	0-1' no odor saturated
	0				CH: medium stiff, wet, mottled orange-grey, CLAY, high plastic	3-4' no odor
1429	0	5/5	6, 7, 8, 9, 10	Sand Filter Pack	ML: soft, wet, mottled orange-grey, clayey SILT, with f. sand, Trace nodules	7-8' no odor
1432	0	5/5	11, 12, 13, 14, 15	2 in PVC Screen	SM: loose, wet, orange-clear, silty, f. SAND	11-12' no odor
					ML: v. stiff, moist, mottled orange-grey SILT	
1436	0	3/3	16, 17, 18		ML: v. stiff, moist, mottled orange-grey SILT, with f. sand, Trace nodules	15-16' no odor
			19, 20, 21, 22, 23, 24, 25		Refusal at 18 feet	

LEGEND:

SS - Split Spoon
PID - Photoionization Detector
NR - No Recovery

- Concrete
- Flush Mount Vault
- Grout
- Bentonite Chip Seal
- Filter Pack
- Well Screen

ST - Shelby Tube
HSA - Hollow Stem Augers
PPMV - Parts Per Million by Volume

TERRANEXT, LLC	LOG OF BORING NO: MW-11	SHEET NUMBER 1 OF 1
PROJECT NAME: Sac & Fox Truck Stop	DRILLING/PROBING CONTRACTOR: Razek Environmental	**Water Level Data**
PROJECT LOCATION: 1346 US 75 Highway, Powhattan, Kansas	DRILLING METHOD / BORE DIAMETER: HSA, 8 1/4"	Date / Time / Depth: 1/25/2017 1025 6.01
PROJECT NUMBER: 17102679	SAMPLING METHOD: Macro Core	**Survey Data**
GEOLOGIST: M. Watson	TOTAL DEPTH (feet): 18	Ground Surface: 1148.55
DRILLER: T. Poulter	START DATE: 01/23/17	Top Of Casing: 1148.32
	COMPLETION DATE: 01/23/17	Ground Water: 1142.31

SAMPLE DEPTH AND TIME	PID (PPMV)	RECOVERY (FEET)	DEPTH (FEET)	WELL CONSTRUCTION	GEOLOGIC DESCRIPTION (NAME, color, particle size, characteristics)	NOTES
1615	0	5/5	1, 2, 3	concrete; Hydrated Bentonite; 2 in PVC Riser	Grass Surface CH: stiff, moist, dark brown, CLAY, high plastic	0-1' no odor saturated
	0		4, 5	Sand Filter Pack	CH: stiff, moist, mottled grey-brown, CLAY, plastic	4-5' no odor
1618	0	5/5	6, 7, 8, 9, 10	2 in PVC Screen	MH: stiff, moist, mottled orange-grey, clayey SILT, plastic MH: a.a., Trace nodules	9-10' no odor
1621	0	5/5	11, 12, 13, 14, 15			12-13' no odor
1627	0	3/3	16, 17, 18		ML: stiff, moist, mottled orange-grey, sandy SILT, with nodules	16-17' no odor
1639			19, 20, 21, 22, 23, 24, 25		Refusal at 18 feet	

LEGEND:
SS - Split Spoon
PID - Photoionization Detector
NR - No Recovery

- Concrete
- Flush Mount Vault
- Grout
- Bentonite Chip Seal
- Filter Pack
- Well Screen

ST - Shelby Tube
HSA - Hollow Stem Augers
PPMV - Parts Per Million by Volume

TERRANEXT, LLC		LOG OF BORING NO:	MW-12	SHEET NUMBER 1 OF 1
PROJECT NAME	Sac & Fox Truck Stop	DRILLING/PROBING CONTRACTOR	Razek Environmental	**Water Level Data**
PROJECT LOCATION	1346 US 75 Highway	DRILLING METHOD / BORE DIAMETER	HSA, 8 1/4"	Date / Time / Depth
	Powhattan, Kansas	SAMPLING METHOD	Macro Core	1/25/2017 NA Dry
PROJECT NUMBER	17102679	TOTAL DEPTH (feet)	18	**Survey Data**
GEOLOGIST	M. Watson	START DATE	01/24/17	Ground Surface: 1155.59
DRILLER	T. Poulter	COMPLETION DATE	01/24/17	Top Of Casing: 1155.29
				Ground Water: Dry

SAMPLE DEPTH AND TIME	PID (PPMV)	RECOVERY (FEET)	DEPTH (FEET)	WELL CONSTRUCTION	GEOLOGIC DESCRIPTION (NAME, color, particle size, characteristics)	NOTES:
0800	0	5/5	1, 2, 3	concrete; Hydrated Bentonite; 2 in PVC Riser	Grass Surface	0-1' no odor
					CL: medium stiff, moist, dark brown, silty CLAY	saturated ↓
	0		4, 5	Sand Filter Pack	CH: medium stiff, moist, mottled grey-brown CLAY, plastic	4-5' no odor
0804	0	5/5	6, 7, 8, 9, 10	2 in PVC Riser		7-8' no odor
0810	0	5/5	11, 12, 13, 14, 15	2 in PVC Screen	CH: a.a., Trace nodules	11-12' no odor
					ML: stiff, moist, mottled orange-grey, SILT, with f.-m. SAND	
0815	0	3/3	16, 17, 18			16-17' no odor
			19, 20, 21, 22, 23, 24, 25		Refusal at 18 feet	

LEGEND:

SS - Split Spoon
PID - Photoionization Detector
NR - No Recovery

- Concrete
- Flush Mount Vault
- Grout
- Bentonite Chip Seal
- Filter Pack
- Well Screen

ST - Shelby Tube
HSA - Hollow Stem Augers
PPMV - Parts Per Million by Volume

TERRANEXT, LLC

LOG OF BORING NO: **MW-13**

SHEET NUMBER 1 OF 1

PROJECT NAME:	Sac & Fox Truck Stop
PROJECT LOCATION:	1346 US 75 Highway
	Powhattan, Kansas
PROJECT NUMBER:	17102679
GEOLOGIST:	M. Watson
DRILLER:	T. Poulter

DRILLING/PROBING CONTRACTOR:	Razek Environmental
DRILLING METHOD / BORE DIAMETER:	HSA, 8 1/4"
SAMPLING METHOD:	Macro Core
TOTAL DEPTH (feet):	18
START DATE:	01/24/17
COMPLETION DATE:	01/24/17

Water Level Data

Date	Time	Depth
1/25/2017	NA	Dry

Survey Data

Ground Surface: 1154.55
Top Of Casing: 1154.30
Ground Water: Dry

SAMPLE DEPTH AND TIME	PID (PPMV)	RECOVERY (FEET)	DEPTH (FEET)	WELL CONSTRUCTION	GEOLOGIC DESCRIPTION (NAME, color, particle size, characteristics)	NOTES:
1000	0	5/5	1, 2, 3, 4, 5	Concrete; Hydrated Bentonite; 2 in PVC Riser	Grass Surface	
					CL: medium stiff, moist, dark brown CLAY	0-1' no odor
					CH: medium stiff, moist, mottled grey-brown CLAY, plastic	saturated
	0					3-4' no odor
1003	9.2	5/5	6, 7, 8, 9, 10	Sand Filter Pack		7-8' no odor
1011	3.4	5/5	11, 12, 13, 14, 15	2 in PVC Screen	ML: stiff, moist, mottled orange-grey SILT, Trace plastic	11-12' no odor
1020	0	3/3	16, 17, 18		SM: loose, moist, grey, silty, f. SAND	16-17' no odor
					ML: v. stiff, moist, mottled orange-grey SILT, with sand	
1030			19, 20, 21, 22, 23, 24, 25		Refusal at 18 feet	

LEGEND:

SS - Split Spoon
PID - Photoionization Detector
NR - No Recovery

- Concrete
- Flush Mount Vault
- Grout

- Bentonite Chip Seal
- Filter Pack
- Well Screen

ST - Shelby Tube
HSA - Hollow Stem Augers
PPMV - Parts Per Million by Volume

SECTION 5.0

PHOTOGRAPHS

This section includes photographs of monitoring well installation activities.

Project Name: Sac & Fox Truck Stop

Project Number: 17102679

Photograph Number: 11

Photographer: Meredith Watson

Date: 1/25/17

Direction: West

Description: Well MW-8 located east of MW-7.

Project Name: Sac & Fox Truck Stop

Project Number: 17102679

Photograph Number: 12

Photographer: Meredith Watson

Date: 1/25/17

Direction: Northeast

Description: Well MW-9 located east of the property building and adjacent to creek.

Project Name: Sac & Fox Truck Stop

Project Number: 17102679

Photograph Number: 13

Photographer: Meredith Watson

Date: 1/31/17

Direction: Northeast

Description: Well MW-10 located northeast of MW-5 along north property boundary.

Project Name: Sac & Fox Truck Stop

Project Number: 17102679

Photograph Number: 14

Photographer: Meredith Watson

Date: 1/25/17

Direction: South

Description: Well MW-11 located north of the site building.

Project Name: Sac & Fox Truck Stop

Project Number: 17102679

Photograph Number: 15

Photographer: Meredith Watson

Date: 1/25/17

Direction: West

Description: Well MW-12 located west of the gasoline dispensers along west property boundary.

Project Name: Sac & Fox Truck Stop

Project Number: 17102679

Photograph Number: 16

Photographer: Meredith Watson

Date: 1/25/17

Direction: North

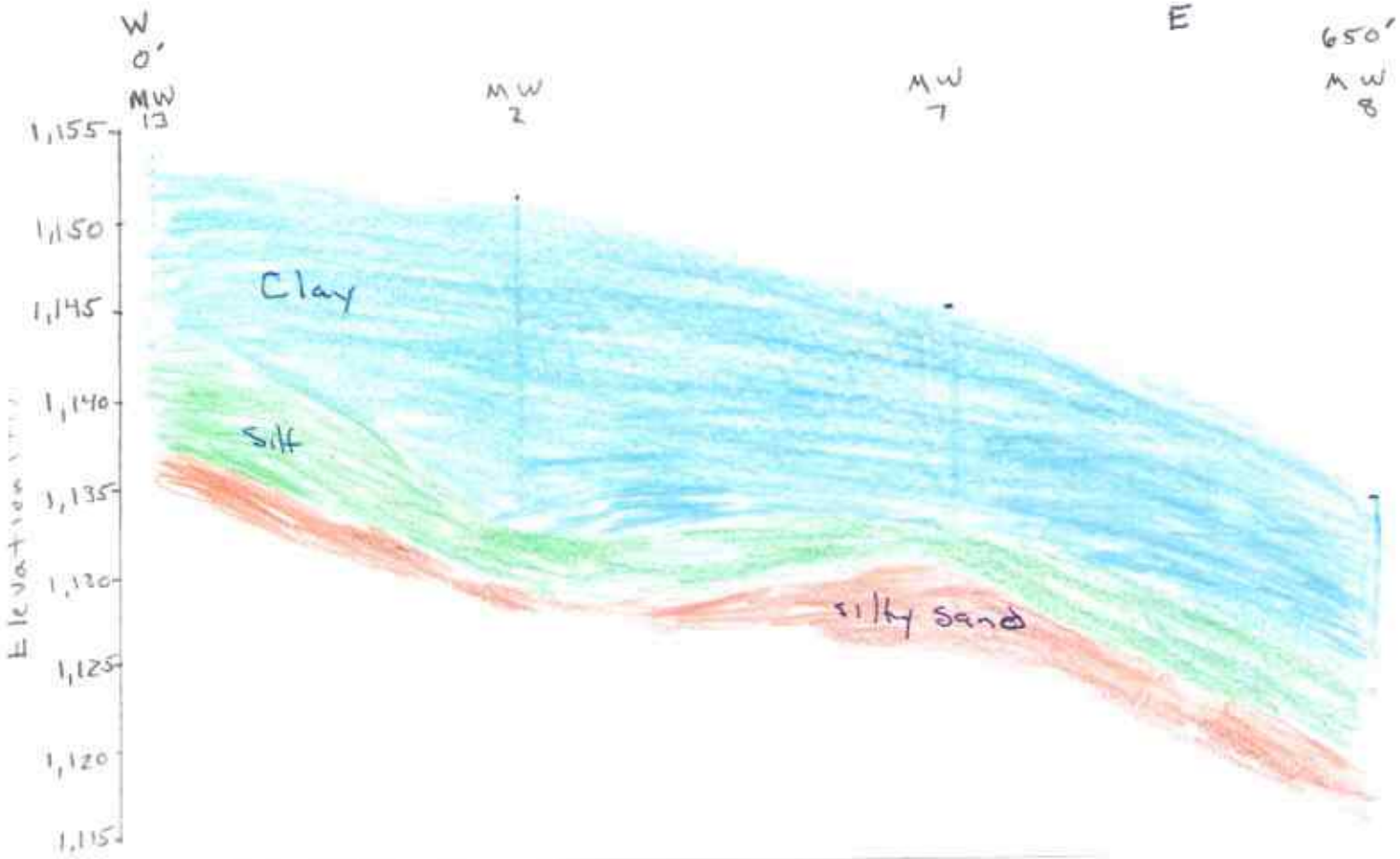
Description: Well MW-13 located southwest of UST basin.

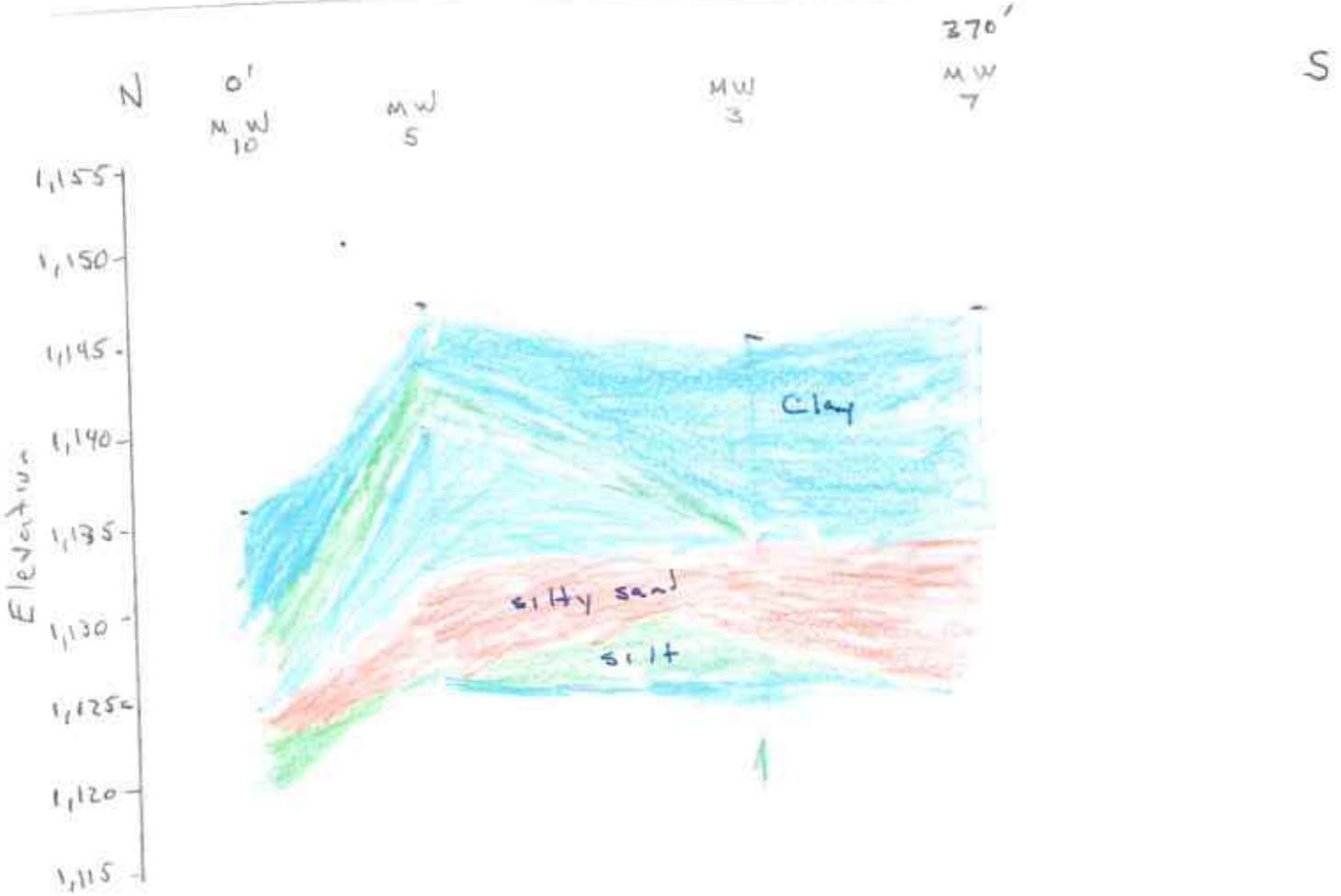
SECTION 6.0

GEOLOGIC CROSS SECTIONS

This section includes two-dimensional geologic cross sections based on monitoring well boring logs

Geologic Cross-Sections





SECTION 7.0

DOCUMENTATION

This section includes the following appendices:

Appendix 1 – Laboratory Data
Appendix 2 – Field Notes
Appendix 3 – Survey data, WWC-5 forms

APPENDIX 1

Laboratory Data

Pace Analytical Services, LLC
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Lenexa, KS 66219
(913)599-5665

February 14, 2017

Meredith Watson
TERRANEXT
11904 Grandview Road
Grandview, MO 64030

RE: Project: Sac & Fox
Pace Project No.: 60236707

Dear Meredith Watson:
Enclosed are the analytical results for sample(s) received by the laboratory on January 25, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

REVISED to include 1,2-DCA results from original run.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Alice Spiller

Alice Spiller
alice.spiller@pacelabs.com
Project Manager

Enclosures

cc: Mr. Christopher Kinn, TERRANEXT

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Sac & Fox
Pace Project No.: 60236707

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

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SAMPLE SUMMARY

Project: Sac & Fox
Pace Project No.: 60236707

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60236707001	MW-01	Water	01/25/17 13:07	01/25/17 16:32
60236707002	MW-02	Water	01/25/17 11:11	01/25/17 16:32
60236707003	MW-03	Water	01/25/17 11:48	01/25/17 16:32
60236707004	MW-04	Water	01/25/17 13:27	01/25/17 16:32
60236707005	MW-05	Water	01/25/17 10:00	01/25/17 16:32
60236707006	MW-07	Water	01/25/17 11:31	01/25/17 16:32
60236707007	MW-08	Water	01/25/17 08:32	01/25/17 16:32
60236707008	MW-09	Water	01/25/17 08:54	01/25/17 16:32
60236707009	MW-10	Water	01/25/17 09:36	01/25/17 16:32
60236707010	MW-11	Water	01/25/17 10:25	01/25/17 16:32
60236707011	TRIP BLANK	Water	01/25/17 08:00	01/25/17 16:32

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SAMPLE ANALYTE COUNT

Project: Sac & Fox
Pace Project No.: 60236707

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60236707001	MW-01	EPA 8260/OA1	JTK, PGH	12
60236707002	MW-02	EPA 8260/OA1	JTK	12
60236707003	MW-03	EPA 8260/OA1	JTK	12
60236707004	MW-04	EPA 8260/OA1	JTK, PGH	12
60236707005	MW-05	EPA 8260/OA1	PGH	12
60236707006	MW-07	EPA 8260/OA1	JTK, PGH	12
60236707007	MW-08	EPA 8260/OA1	JTK, PGH	12
60236707008	MW-09	EPA 8260/OA1	JTK	12
60236707009	MW-10	EPA 8260/OA1	JTK	12
60236707010	MW-11	EPA 8260/OA1	JTK	12
60236707011	TRIP BLANK	EPA 8260/OA1	JTK	12

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ANALYTICAL RESULTS

Project: Sac & Fox
Pace Project No.: 60236707

Sample: MW-01 **Lab ID: 60236707001** Collected: 01/25/17 13:07 Received: 01/25/17 16:32 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/OA1 UST, Water	Analytical Method: EPA 8260/OA1							
Gasoline Range Organics	**5.3**	mg/L	0.50	1		01/27/17 13:24		
Benzene	**718**	ug/L	10.0	10		02/01/17 13:59	71-43-2	
Toluene	**7.6**	ug/L	1.0	1		01/27/17 13:24	108-88-3	
Ethylbenzene	**23.3**	ug/L	1.0	1		01/27/17 13:24	100-41-4	
Xylene (Total)	**15.5**	ug/L	3.0	1		01/27/17 13:24	1330-20-7	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		01/27/17 13:24	1634-04-4	
Naphthalene	**18.1**	ug/L	10.0	1		01/27/17 13:24	91-20-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		01/27/17 13:24	107-06-2	
Surrogates								
Toluene-d8 (S)	97	%	80-108	1		01/27/17 13:24	2037-26-5	
4-Bromofluorobenzene (S)	102	%	80-113	1		01/27/17 13:24	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	80-114	1		01/27/17 13:24	17060-07-0	
Preservation pH	**1.0**		0.10	1		01/27/17 13:24		

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ANALYTICAL RESULTS

Project: Sac & Fox
Pace Project No.: 60236707

Sample: MW-02 **Lab ID: 60236707002** Collected: 01/25/17 11:11 Received: 01/25/17 16:32 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/OA1 UST, Water	Analytical Method: EPA 8260/OA1							
Gasoline Range Organics	ND	mg/L	0.50	1		01/27/17 13:38		
Benzene	ND	ug/L	1.0	1		01/27/17 13:38	71-43-2	
Toluene	ND	ug/L	1.0	1		01/27/17 13:38	108-88-3	
Ethylbenzene	ND	ug/L	1.0	1		01/27/17 13:38	100-41-4	
Xylene (Total)	ND	ug/L	3.0	1		01/27/17 13:38	1330-20-7	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		01/27/17 13:38	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		01/27/17 13:38	91-20-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		01/27/17 13:38	107-06-2	
Surrogates								
Toluene-d8 (S)	98	%	80-108	1		01/27/17 13:38	2037-26-5	
4-Bromofluorobenzene (S)	104	%	80-113	1		01/27/17 13:38	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	80-114	1		01/27/17 13:38	17060-07-0	
Preservation pH	**1.0**		0.10	1		01/27/17 13:38		

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ANALYTICAL RESULTS

Project: Sac & Fox
Pace Project No.: 60236707

Sample: MW-03 **Lab ID: 60236707003** Collected: 01/25/17 11:48 Received: 01/25/17 16:32 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/OA1 UST, Water	Analytical Method: EPA 8260/OA1							
Gasoline Range Organics	ND	mg/L	0.50	1		01/27/17 13:54		
Benzene	**6.6**	ug/L	1.0	1		01/27/17 13:54	71-43-2	
Toluene	ND	ug/L	1.0	1		01/27/17 13:54	108-88-3	
Ethylbenzene	ND	ug/L	1.0	1		01/27/17 13:54	100-41-4	
Xylene (Total)	**7.8**	ug/L	3.0	1		01/27/17 13:54	1330-20-7	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		01/27/17 13:54	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		01/27/17 13:54	91-20-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		01/27/17 13:54	107-06-2	
Surrogates								
Toluene-d8 (S)	98	%	80-108	1		01/27/17 13:54	2037-26-5	
4-Bromofluorobenzene (S)	104	%	80-113	1		01/27/17 13:54	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-114	1		01/27/17 13:54	17060-07-0	
Preservation pH	**1.0**		0.10	1		01/27/17 13:54		

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ANALYTICAL RESULTS

Project: Sac & Fox
Pace Project No.: 60236707

Sample: MW-04 **Lab ID: 60236707004** Collected: 01/25/17 13:27 Received: 01/25/17 16:32 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/OA1 UST, Water	Analytical Method: EPA 8260/OA1							
Gasoline Range Organics	**5.8**	mg/L	0.50	1		01/27/17 14:09		
Benzene	**3880**	ug/L	50.0	50		02/01/17 14:14	71-43-2	
Toluene	**343**	ug/L	50.0	50		02/01/17 14:14	108-88-3	
Ethylbenzene	**147**	ug/L	1.0	1		01/27/17 14:09	100-41-4	
Xylene (Total)	**336**	ug/L	3.0	1		01/27/17 14:09	1330-20-7	
Methyl-tert-butyl ether	**1.6**	ug/L	1.0	1		01/27/17 14:09	1634-04-4	
Naphthalene	**64.4**	ug/L	10.0	1		01/27/17 14:09	91-20-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		01/27/17 14:09	107-06-2	M1
Surrogates								
Toluene-d8 (S)	98	%	80-108	1		01/27/17 14:09	2037-26-5	
4-Bromofluorobenzene (S)	104	%	80-113	1		01/27/17 14:09	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-114	1		01/27/17 14:09	17060-07-0	
Preservation pH	**1.0**		0.10	1		01/27/17 14:09		

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ANALYTICAL RESULTS

Project: Sac & Fox
Pace Project No.: 60236707

Sample: MW-05 **Lab ID: 60236707005** Collected: 01/25/17 10:00 Received: 01/25/17 16:32 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/OA1 UST, Water	Analytical Method: EPA 8260/OA1							
Gasoline Range Organics	ND	mg/L	0.50	1		02/01/17 13:16		
Benzene	**20.4**	ug/L	1.0	1		02/01/17 13:16	71-43-2	
Toluene	ND	ug/L	1.0	1		02/01/17 13:16	108-88-3	
Ethylbenzene	ND	ug/L	1.0	1		02/01/17 13:16	100-41-4	
Xylene (Total)	ND	ug/L	3.0	1		02/01/17 13:16	1330-20-7	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		02/01/17 13:16	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		02/01/17 13:16	91-20-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		02/01/17 13:16	107-06-2	
Surrogates								
Toluene-d8 (S)	105	%	80-108	1		02/01/17 13:16	2037-26-5	
4-Bromofluorobenzene (S)	96	%	80-113	1		02/01/17 13:16	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-114	1		02/01/17 13:16	17060-07-0	
Preservation pH	**1.0**		0.10	1		02/01/17 13:16		

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ANALYTICAL RESULTS

Project: Sac & Fox
Pace Project No.: 60236707

Sample: MW-07 **Lab ID: 60236707006** Collected: 01/25/17 11:31 Received: 01/25/17 16:32 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/OA1 UST, Water	Analytical Method: EPA 8260/OA1							
Gasoline Range Organics	ND	mg/L	0.50	1		01/27/17 15:09		
Benzene	ND	ug/L	1.0	1		02/01/17 13:31	71-43-2	
Toluene	ND	ug/L	1.0	1		01/27/17 15:09	108-88-3	
Ethylbenzene	ND	ug/L	1.0	1		01/27/17 15:09	100-41-4	
Xylene (Total)	ND	ug/L	3.0	1		01/27/17 15:09	1330-20-7	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		01/27/17 15:09	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		01/27/17 15:09	91-20-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		01/27/17 15:09	107-06-2	
Surrogates								
Toluene-d8 (S)	98	%	80-108	1		01/27/17 15:09	2037-26-5	
4-Bromofluorobenzene (S)	103	%	80-113	1		01/27/17 15:09	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-114	1		01/27/17 15:09	17060-07-0	
Preservation pH	**1.0**		0.10	1		01/27/17 15:09		

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ANALYTICAL RESULTS

Project: Sac & Fox
Pace Project No.: 60236707

Sample: MW-08 **Lab ID: 60236707007** Collected: 01/25/17 08:32 Received: 01/25/17 16:32 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/OA1 UST, Water	Analytical Method: EPA 8260/OA1							
Gasoline Range Organics	ND	mg/L	0.50	1		01/27/17 15:23		
Benzene	ND	ug/L	1.0	1		02/01/17 13:45	71-43-2	
Toluene	ND	ug/L	1.0	1		01/27/17 15:23	108-88-3	
Ethylbenzene	ND	ug/L	1.0	1		01/27/17 15:23	100-41-4	
Xylene (Total)	ND	ug/L	3.0	1		01/27/17 15:23	1330-20-7	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		01/27/17 15:23	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		01/27/17 15:23	91-20-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		01/27/17 15:23	107-06-2	
Surrogates								
Toluene-d8 (S)	98	%	80-108	1		01/27/17 15:23	2037-26-5	
4-Bromofluorobenzene (S)	102	%	80-113	1		01/27/17 15:23	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	80-114	1		01/27/17 15:23	17060-07-0	
Preservation pH	**1.0**		0.10	1		01/27/17 15:23		

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ANALYTICAL RESULTS

Project: Sac & Fox
Pace Project No.: 60236707

Sample: MW-09 **Lab ID: 60236707008** Collected: 01/25/17 08:54 Received: 01/25/17 16:32 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/OA1 UST, Water	Analytical Method: EPA 8260/OA1							
Gasoline Range Organics	ND	mg/L	0.50	1		01/27/17 15:38		
Benzene	ND	ug/L	1.0	1		01/27/17 15:38	71-43-2	
Toluene	ND	ug/L	1.0	1		01/27/17 15:38	108-88-3	
Ethylbenzene	ND	ug/L	1.0	1		01/27/17 15:38	100-41-4	
Xylene (Total)	ND	ug/L	3.0	1		01/27/17 15:38	1330-20-7	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		01/27/17 15:38	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		01/27/17 15:38	91-20-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		01/27/17 15:38	107-06-2	
Surrogates								
Toluene-d8 (S)	98	%	80-108	1		01/27/17 15:38	2037-26-5	
4-Bromofluorobenzene (S)	102	%	80-113	1		01/27/17 15:38	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-114	1		01/27/17 15:38	17060-07-0	
Preservation pH	**1.0**		0.10	1		01/27/17 15:38		

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ANALYTICAL RESULTS

Project: Sac & Fox
Pace Project No.: 60236707

Sample: MW-10 **Lab ID: 60236707009** Collected: 01/25/17 09:36 Received: 01/25/17 16:32 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/OA1 UST, Water	Analytical Method: EPA 8260/OA1							
Gasoline Range Organics	ND	mg/L	0.50	1		01/27/17 15:53		
Benzene	ND	ug/L	1.0	1		01/27/17 15:53	71-43-2	
Toluene	ND	ug/L	1.0	1		01/27/17 15:53	108-88-3	
Ethylbenzene	ND	ug/L	1.0	1		01/27/17 15:53	100-41-4	
Xylene (Total)	ND	ug/L	3.0	1		01/27/17 15:53	1330-20-7	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		01/27/17 15:53	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		01/27/17 15:53	91-20-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		01/27/17 15:53	107-06-2	
Surrogates								
Toluene-d8 (S)	97	%	80-108	1		01/27/17 15:53	2037-26-5	
4-Bromofluorobenzene (S)	102	%	80-113	1		01/27/17 15:53	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-114	1		01/27/17 15:53	17060-07-0	
Preservation pH	**1.0**		0.10	1		01/27/17 15:53		

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ANALYTICAL RESULTS

Project: Sac & Fox
Pace Project No.: 60236707

Sample: MW-11 **Lab ID: 60236707010** Collected: 01/25/17 10:25 Received: 01/25/17 16:32 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/OA1 UST, Water	Analytical Method: EPA 8260/OA1							
Gasoline Range Organics	ND	mg/L	0.50	1		01/27/17 16:09		
Benzene	ND	ug/L	1.0	1		01/27/17 16:09	71-43-2	
Toluene	ND	ug/L	1.0	1		01/27/17 16:09	108-88-3	
Ethylbenzene	ND	ug/L	1.0	1		01/27/17 16:09	100-41-4	
Xylene (Total)	ND	ug/L	3.0	1		01/27/17 16:09	1330-20-7	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		01/27/17 16:09	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		01/27/17 16:09	91-20-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		01/27/17 16:09	107-06-2	
Surrogates								
Toluene-d8 (S)	98	%	80-108	1		01/27/17 16:09	2037-26-5	
4-Bromofluorobenzene (S)	103	%	80-113	1		01/27/17 16:09	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-114	1		01/27/17 16:09	17060-07-0	
Preservation pH	**1.0**		0.10	1		01/27/17 16:09		

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ANALYTICAL RESULTS

Project: Sac & Fox
Pace Project No.: 60236707

Sample: TRIP BLANK **Lab ID: 60236707011** Collected: 01/25/17 08:00 Received: 01/25/17 16:32 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/OA1 UST, Water	Analytical Method: EPA 8260/OA1							
Gasoline Range Organics	ND	mg/L	0.50	1		01/27/17 16:23		
Benzene	ND	ug/L	1.0	1		01/27/17 16:23	71-43-2	
Toluene	ND	ug/L	1.0	1		01/27/17 16:23	108-88-3	
Ethylbenzene	ND	ug/L	1.0	1		01/27/17 16:23	100-41-4	
Xylene (Total)	ND	ug/L	3.0	1		01/27/17 16:23	1330-20-7	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		01/27/17 16:23	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		01/27/17 16:23	91-20-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		01/27/17 16:23	107-06-2	
Surrogates								
Toluene-d8 (S)	98	%	80-108	1		01/27/17 16:23	2037-26-5	
4-Bromofluorobenzene (S)	103	%	80-113	1		01/27/17 16:23	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-114	1		01/27/17 16:23	17060-07-0	
Preservation pH	**1.0**		0.10	1		01/27/17 16:23		

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QUALITY CONTROL DATA

Project: Sac & Fox
Pace Project No.: 60236707

QC Batch: 463525 | Analysis Method: EPA 8260/OA1
QC Batch Method: EPA 8260/OA1 | Analysis Description: 8260/OA1 UST-WATER
Associated Lab Samples: 60236707001, 60236707002, 60236707003, 60236707004, 60236707006, 60236707007, 60236707008, 60236707009, 60236707010, 60236707011

METHOD BLANK: 1897618 | Matrix: Water
Associated Lab Samples: 60236707001, 60236707002, 60236707003, 60236707004, 60236707006, 60236707007, 60236707008, 60236707009, 60236707010, 60236707011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	1.0	01/27/17 13:09	
Benzene	ug/L	ND	1.0	01/27/17 13:09	
Ethylbenzene	ug/L	ND	1.0	01/27/17 13:09	
Gasoline Range Organics	mg/L	ND	0.50	01/27/17 13:09	
Methyl-tert-butyl ether	ug/L	ND	1.0	01/27/17 13:09	
Naphthalene	ug/L	ND	10.0	01/27/17 13:09	
Toluene	ug/L	ND	1.0	01/27/17 13:09	
Xylene (Total)	ug/L	ND	3.0	01/27/17 13:09	
1,2-Dichloroethane-d4 (S)	%	101	80-114	01/27/17 13:09	
4-Bromofluorobenzene (S)	%	102	80-113	01/27/17 13:09	
Toluene-d8 (S)	%	98	80-108	01/27/17 13:09	

LABORATORY CONTROL SAMPLE: 1897619

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	20	19.0	95	78-117	
Benzene	ug/L	20	20.0	100	82-115	
Ethylbenzene	ug/L	20	19.8	99	83-112	
Gasoline Range Organics	mg/L	4	4.4	111	75-134	
Methyl-tert-butyl ether	ug/L	20	20.2	101	73-118	
Naphthalene	ug/L	20	19.5	98	67-118	
Toluene	ug/L	20	18.8	94	78-113	
Xylene (Total)	ug/L	60	59.7	100	83-114	
1,2-Dichloroethane-d4 (S)	%			99	80-114	
4-Bromofluorobenzene (S)	%			103	80-113	
Toluene-d8 (S)	%			100	80-108	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1897620 1897621

Parameter	Units	60236707004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2-Dichloroethane	ug/L	ND	20	20	71.2	71.2	356	356	58-133	0	14	M1
Benzene	ug/L	3880	20	20	1670	1620	120	-104	55-145	3	18	M1
Ethylbenzene	ug/L	147	20	20	168	165	105	92	45-152	2	11	
Methyl-tert-butyl ether	ug/L	1.6	20	20	19.9	23.7	91	110	40-141	17	21	
Naphthalene	ug/L	64.4	20	20	88.5	95.3	120	154	27-155	7	41	
Toluene	ug/L	343	20	20	309	298	112	56	52-144	4	12	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Sac & Fox
Pace Project No.: 60236707

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1897620 1897621

Parameter	Units	60236707004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Xylene (Total)	ug/L	336	60	60	394	388	97	86	54-146	2	12	
1,2-Dichloroethane-d4 (S)	%						100	102	80-114			
4-Bromofluorobenzene (S)	%						105	106	80-113			
Toluene-d8 (S)	%						98	98	80-108			
Preservation pH		1.0			1.0	1.0				0		

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QUALITY CONTROL DATA

Project: Sac & Fox
Pace Project No.: 60236707

QC Batch: 463998 Analysis Method: EPA 8260/OA1
QC Batch Method: EPA 8260/OA1 Analysis Description: 8260/OA1 UST-WATER
Associated Lab Samples: 60236707001, 60236707004, 60236707005, 60236707006, 60236707007

METHOD BLANK: 1899192 Matrix: Water
Associated Lab Samples: 60236707001, 60236707004, 60236707005, 60236707006, 60236707007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	1.0	02/01/17 10:52	
Benzene	ug/L	ND	1.0	02/01/17 10:52	
Ethylbenzene	ug/L	ND	1.0	02/01/17 10:52	
Gasoline Range Organics	mg/L	ND	0.50	02/01/17 10:52	
Methyl-tert-butyl ether	ug/L	ND	1.0	02/01/17 10:52	
Naphthalene	ug/L	ND	10.0	02/01/17 10:52	
Toluene	ug/L	ND	1.0	02/01/17 10:52	
Xylene (Total)	ug/L	ND	3.0	02/01/17 10:52	
1,2-Dichloroethane-d4 (S)	%	99	80-114	02/01/17 10:52	
4-Bromofluorobenzene (S)	%	98	80-113	02/01/17 10:52	
Toluene-d8 (S)	%	104	80-108	02/01/17 10:52	

LABORATORY CONTROL SAMPLE: 1899193

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	20	20.2	101	78-117	
Benzene	ug/L	20	20.5	102	82-115	
Ethylbenzene	ug/L	20	21.3	106	83-112	
Gasoline Range Organics	mg/L	4	4.4	109	75-134	
Methyl-tert-butyl ether	ug/L	20	19.8	99	73-118	
Naphthalene	ug/L	20	21.7	108	67-118	
Toluene	ug/L	20	20.7	104	78-113	
Xylene (Total)	ug/L	60	64.2	107	83-114	
1,2-Dichloroethane-d4 (S)	%			102	80-114	
4-Bromofluorobenzene (S)	%			99	80-113	
Toluene-d8 (S)	%			104	80-108	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: Sac & Fox
Pace Project No.: 60236707

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: 463998

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Sac & Fox
Pace Project No.: 60236707

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60236707001	MW-01	EPA 8260/OA1	463525		
60236707001	MW-01	EPA 8260/OA1	463998		
60236707002	MW-02	EPA 8260/OA1	463525		
60236707003	MW-03	EPA 8260/OA1	463525		
60236707004	MW-04	EPA 8260/OA1	463525		
60236707004	MW-04	EPA 8260/OA1	463998		
60236707005	MW-05	EPA 8260/OA1	463998		
60236707006	MW-07	EPA 8260/OA1	463525		
60236707006	MW-07	EPA 8260/OA1	463998		
60236707007	MW-08	EPA 8260/OA1	463525		
60236707007	MW-08	EPA 8260/OA1	463998		
60236707008	MW-09	EPA 8260/OA1	463525		
60236707009	MW-10	EPA 8260/OA1	463525		
60236707010	MW-11	EPA 8260/OA1	463525		
60236707011	TRIP BLANK	EPA 8260/OA1	463525		

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Pace Analytical

Sample Condition Upon Receipt

WO#: 60236707

60236707

Client Name: Tetranext

Courier: FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☒ Other ☐

Tracking #: _____ Pace Shipping Label Used? Yes ☐ No ☒

Custody Seal on Cooler/Box Present: Yes ☐ No ☒ Seals intact: Yes ☐ No ☒

Packing Material: Bubble Wrap ☒ Bubble Bags ☒ Foam ☐ None ☐ Other ☐

Thermometer Used: (T-266 CF +1.5) / T-239 CF +0.0 Type of Ice: (Wet) Blue None

Cooler Temperature (°C): As-read 1.5 Corr. Factor CF +1.5 CF +0.0 Corrected 3.0

Date and initials of person examining contents: 1/25/17 JS 1655

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☒No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: water	☐Yes ☐No ☒N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☒Yes ☐No ☐N/A	
Cyanide water sample checks: ☒N/A Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☒Yes ☐No ☐N/A	
Headspace in VOA vials (>6mm):	☐Yes ☒No ☐N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Alice Date: 01/26/17

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

2011618

Section A Required Client Information:

Company:	Terranext
Address:	
Email To:	
Phone:	Fax:
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	
Copy To:	
Purchase Order No.:	
Project Name:	Sac & Fox
Project Number:	

Section C Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Alice Spiller
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☒ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: KS

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	BTex	Naph	MtBE	TPH-GRO	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 60236707	
1	MW-01	WT	G			1/25/17	1307		3				X						X	X	X	X		3(D(9H)	001
2	MW-02						1111																		002
3	MW-03						1148																		003
4	MW-04						1327		6															6(D(9H)	004
5	MW-05						1000		3															3(D(9H)	005
6	MW-07						1131																		006
7	MW-08						0832																		007
8	MW-09						0854																		008
9	MW-10						0936																		009
10	MW-11						1025																		010
11	TRIP BLANK						0800		2										X					2(D(9H)	011
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS		
	MPW/Terranext	1/25/17	1632	[signature]	1/25/17	1632	3.0	Y	N	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Meredith Watson

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 01/25/17

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

APPENDIX 2

Field Notes

1/10/17 Sac & Fox MPW

1100 Saw cut further north.

1155 Collect North wall sample at ~ 9 ft depth.
PID Reading 2,751 ppm.

1300 Excavation continuing east.

1340 Field screen of east wall (E1)
Reading = 3,769 ppm
MAC arranging for transport to Rolling Meadows landfill

1415 Collect soil sample Bottom-2 from below east end of failed north tank.
PID Reading = 3,657 ppm.

1425 TPS offsite.

1500 Terranext offsite. Containers on ice. Excavation halted until transportation to landfill.

MPW

MPW 17102679 1/23/17

0800 M. Watson on-site to continue excavation and to install six additional monitoring wells. Robert Trump, TPS, and MAC construction on-site.

0930 RAZEK on-site. Discuss SOW and conduct tailgate H&S meeting
PID calibrated (0: 100 ppm)
Set up at MW-8 ~E & MW-7.

1040 Refusal at 20 ft bgs

1045 Collect soil sample from south wall of excavation. PID reading = 2,542 ppm. Depth of ex. ~ 12 ft to water.

1150 Well MW-8 completed with above-ground vault. 15 feet of screen. Razek decontaminating equipment.

1230 Set up at MW-9 location ~ E of MW-5.

1255 Refusal at ~ 16.5 ft at MW-9.

1425 Set up at MW-10 location NE of MW-5.

1500 Refusal at 18 ft at MW-10. completing flush mount with 13 ft of screen. Last transport truck being loaded for the day.

MPW

1/23/17 Sac & Fox MPW

1600 South wall sample will not be submitted. Excavation will continue farther south.

1615 Set up at MW-11 location N of building and MW-4:

1720 Refusal at 18 ft at MW-11. Completing flush-mount with 13 ft of screen.

1730 Terranext offsite

MPW

MPW 17102679 1/24/17

0730 M. Watson on-site. Excavators and transport trucks on-site.

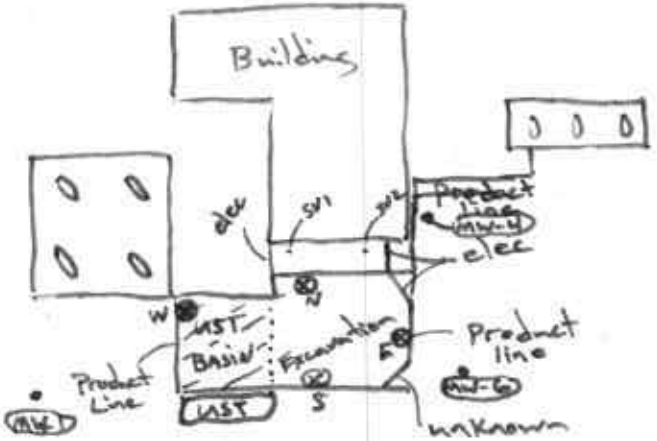
0745 RAZEK onsite

0800 Set up at MW-12 location W of pump islands.
Refusal at 18 ft at MW-12

1000 Set up at MW-13 location S of MW-12 and W of MW-2.

1030 Refusal at 18 ft at MW-13
Both MW-12 and MW-13 completed with 13 ft of screen, flush.

1245 Excavation complete.



MPW

1/24/17 Sac & Fox MPW

1255 Collect South Wall sample (PID = 2,598)

1300 Collect East Wall sample (485 ppm)

1345 Temporary soil vapor sampling points installed at 3ft and 6ft at locations SV1 and SV2 south of site building (~4.5 ft from wall). RAZEK offsite. Terranext offsite for additional parts.

1440 Start setting up to collect soil vapor samples using Summa canisters equipped with flow controller (200 mL/min) and an in-line particulate filter.

1630 Soil vapor sampling complete. Offsite. Collected duplicate of SV2-6ft labled SV3-3ft.

MPW

Soil Vapor Sample	"Hg to "Hg		6-L Can #	Time sample End
SV1-3'	28.2	8.2	1575	1512
SV1-6'	29.2	8.3	0224	1600
SV2-3'	27.1	7.1	0081	1521
SV2-6'	28.1	6.2	1525	1546
SV2-6' (dup)	28.0	8.3	0093	1618

MPW

1/25/17 Sac & Fox MPW

0800 M. Watson on-site to develope new wells and sample all wells.

1445 Sampling complete. Containers on ice. Torranext offsite.

Well ID	SWL	SWL Time	TD	P.Amt	Amt P.
MW-1	11.05	1234	29.83	9.18	9.25
MW-2	9.00	1100	29.47	10.00	10.00
MW-3	8.65	1135	28.26	9.57	9.75
MW-4	8.68	1313	29.46	10.16	10.25
MW-5	7.48	0945	27.91	9.99	10.00
MW-6	UTA	—	29.64	—	—
MW-7	8.52	1123	19.03	5.13	5.25
MW-8	4.44	0815	23.11	—	—
MW-9	11.59	0841	20.30	—	—
MW-10	< 0	0916	17.72	—	—
MW-11	6.01	1006	18.22	—	—
MW-12	Dry	1050	17.64	—	—
MW-13	Dry	1054	17.79	—	—

MPW

MPW 17102679 1/25/17

Unable to Access MW-6. Vehicle parked over well. Owner/operator is not on-site to move it.

Wells are in satisfactory condition except well MW-10 which needs to be converted from flush-mount to above-ground.

Dev. V.	Dev Amt	PSWL	Time PSWL	sample Time
	—	18.57	1306	1307
	—	16.99	1110	1111
—	—	12.19	1147	1148
—	—	17.43	1326	1327
—	—	12.50	0959	1000
—	—	—	—	NS (UTA)
—	—	9.89	1130	1131
15.21	16.00	13.88	0831	0832
7.09	~~+8.11~~ 8.00	18.11	0853	0854
14.44	15.00	**8.03**	**0935**	**0936**
9.95	10.00	13.64	1024	1025
—	—	—	—	NS (Dry)
—	—	—	—	NS (Dry)

MPW

2/1/17 Sac & Fox MPW

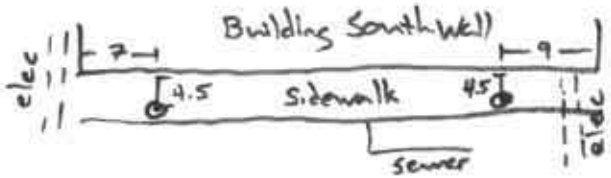
0700 Mob to Sac + Fox from Kansas City. Stop to pick up well repair supplies.

0900 M. Watson onsite to convert well MW-10 from flush-mount to an above-ground vault. Remove vault and pad using hand tools. Add more riser using rubber pipe connector. Installed new vault and poured new concrete pad.

1045 Well repair complete. M.A.C. crew is currently backfilling the excavation using soil from adjacent property.

1130 Collect Backfill sample for analysis

SV Locations



1145 Offsite. Soil containers on ice.

MPW

APPENDIX 3

Survey data, WWC-5 forms

DENNIS L HANDKE

1820 NW 59th Terrace
TOPEKA, KANSAS 66618
785-286-4047 Home
785-286-1990 Fax

Meredith Watson
TerraNext LLC
11904 Grandview Avenue
Grandview, Missouri 64030

February 10, 2017

RE: Monitor Well Elevation Survey
1346 US 75 Hwy., Powhattan, Kansas

Proj. 17-00C
Sac & Fox Truck Stop

Bench Mark: Chisled Square on the Southeast corner of the concrete sidewalk at the Southeast corner of building.
Elev: 1153.13 North 2415 West 4367 (from SE Cor. Sec. 15-4-15E)

MW-8	base	1133.70	North 2268	SE1/4,NE1/4,NW1/4,SW1/4
	top pipe	1136.38	West 3869	Lat = 39.70282 Long = 95.72754
MW-9	base	1132.40	North 2487	NE1/4,NE1/4,NW1/4,SW1/4
	top pipe	1135.68	West 3936	Lat = 39.70342 Long = 95.72778
MW-10	base	1135.53	North 2609	NE1/4,NE1/4,NW1/4,SW1/4
	top pipe	1138.63	West 4117	Lat = 39.70376 Long = 95.72842
MW11	rim	1148.55	North 2570	NW1/4,NE1/4,NW1/4,SW1/4
	top pipe	1148.32	West 4367	Lat = 39.70365 Long = 95.72931
MW-12	rim	1155.59	North 2410	NW1/4,NE1/4,NW1/4,SW1/4
	top pipe	1155.29	West 4535	Lat = 39.70321 Long = 95.72991
MW-13	rim	1154.55	North 2268	SW1/4,NE1/4,NW1/4,SW1/4
	top pipe	1154.30	West 4520	Lat = 39.70282 Long = 95.72985

Elevation derived from existing project.

Lat & Long derived from Horton West 7.5 Quad Map WGS84.

If you have any questions, please feel free to call me. Thank you for the opportunity to be of service to you.

February 10, 2017
Dennis L Handke RS

DENNIS L HANDKE
LICENSED
LS-786
KANSAS
LAND SURVEYOR

WATER WELL RECORD Form WWC-5

■ Original Record ☐ Correction ☐ Change in Well Use

Division of Water Resources App. No. _____ Well ID MW-8

1 LOCATION OF WATER WELL: County: Brown | Fraction: ¼ NW ¼ NW ¼ SW ¼ | Section Number: 15 | Township Number: T 4 S | Range Number: R 15 ■ E ☐ W

2 WELL OWNER: Last Name: First:
Business: Sac n Fox
Address: 1346 US 75 Highway
Address:
City: Powhattan State: KS ZIP: 66527

Street or Rural Address where well is located (if unknown, distance and direction from nearest town or intersection): If at owner's address, check here: ☐
Sac n Fox Fuel Station Facility
1346 US 75 Highway, Powhattan, KS 66527

3 LOCATE WELL WITH "X" IN SECTION BOX:

N
-- NW -- -- NE --
W E
-- SW -- -- SE --
S
|---------1 mile---------|

4 DEPTH OF COMPLETED WELL: 20 ft.
Depth(s) Groundwater Encountered: 1) 5 ft. 2) N/A ft. 3) N/A ft., or 4) ☐ Dry Well
WELL'S STATIC WATER LEVEL: 4.44 ft.
■ below land surface, measured on (mo-day-yr) 1/25/17
☐ above land surface, measured on (mo-day-yr) .....
Pump test data: Well water was N/A ft. after N/A hours pumping N/A gpm
Well water was N/A ft. after N/A hours pumping N/A gpm
Estimated Yield: N/A gpm
Bore Hole Diameter: 8.25 in. to 20 ft. and N/A in. to N/A ft.

5 Latitude: 39.70282 (decimal degrees)
Longitude: 95.72754 (decimal degrees)
Horizontal Datum: ■ WGS 84 ☐ NAD 83 ☐ NAD 27
Source for Latitude/Longitude:
☐ GPS (unit make/model: .....)
(WAAS enabled? ☐ Yes ☐ No)
☐ Land Survey ■ Topographic Map
☐ Online Mapper: .....

6 Elevation: 1136.38 ft. ☐ Ground Level ■ TOC
Source: ■ Land Survey ☐ GPS ☐ Topographic Map
☐ Other .....

7 WELL WATER TO BE USED AS:
1. Domestic: ☐ Household ☐ Lawn & Garden ☐ Livestock
2. ☐ Irrigation
3. ☐ Feedlot
4. ☐ Industrial
5. ☐ Public Water Supply: well ID .....
6. ☐ Dewatering: how many wells? .....
7. ☐ Aquifer Recharge: well ID .....
8. ■ Monitoring: well ID MW-8
9. Environmental Remediation: well ID .....
☐ Air Sparge ☐ Soil Vapor Extraction
☐ Recovery ☐ Injection
10. ☐ Oil Field Water Supply: lease .....
11. Test Hole: well ID .....
☐ Cased ☐ Uncased ☐ Geotechnical
12. Geothermal: how many bores? .....
a) Closed Loop ☐ Horizontal ☐ Vertical
b) Open Loop ☐ Surface Discharge ☐ Inj. of Water
13. ☐ Other (specify): .....

Was a chemical/bacteriological sample submitted to KDHE? ☐ Yes ■ No If yes, date sample was submitted: .....
Water well disinfected? ☐ Yes ■ No

8 TYPE OF CASING USED: ☐ Steel ■ PVC ☐ Other ..... CASING JOINTS: ☐ Glued ☐ Clamped ☐ Welded ■ Threaded
Casing diameter 2 in. to 5 ft., Diameter N/A in. to N/A ft., Diameter N/A in. to N/A ft.
Casing height above land surface 30 in. Weight N/A lbs./ft. Wall thickness or gauge No. Sch. 40
TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☐ Fiberglass ■ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ Concrete tile ☐ None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous Slot ■ Mill Slot ☐ Gauze Wrapped ☐ Torch Cut ☐ Drilled Holes ☐ Other (Specify) .....
☐ Louvered Shutter ☐ Key Punched ☐ Wire Wrapped ☐ Saw Cut ☐ None (Open Hole)
SCREEN-PERFORATED INTERVALS: From 5 ft. to 20 ft., From N/A ft. to N/A ft., From N/A ft. to N/A ft.
GRAVEL PACK INTERVALS: From 3 ft. to 20 ft., From N/A ft. to N/A ft., From N/A ft. to N/A ft.

9 GROUT MATERIAL: ☐ Neat cement ☐ Cement grout ■ Bentonite ■ Other Concrete 0-1 feet
Grout Intervals: From 1 ft. to 3 ft., From N/A ft. to N/A ft., From N/A ft. to N/A ft.
Nearest source of possible contamination:
☐ Septic Tank ☐ Lateral Lines ☐ Pit Privy ☐ Livestock Pens ☐ Insecticide Storage
☐ Sewer Lines ☐ Cess Pool ☐ Sewage Lagoon ■ Fuel Storage ☐ Abandoned Water Well
☐ Watertight Sewer Lines ☐ Seepage Pit ☐ Feedyard ☐ Fertilizer Storage ☐ Oil Well/Gas Well
☐ Other (Specify) .....
Direction from well? West Distance from well? 500 ft.

10 FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	9.5	CH: med stiff, moist, brn to gy-brn CLAY			
9.5	10.5	CL: stiff, moist, ong-gr, silty CLAY			
10.5	15.5	ML: stiff, moist, ong-gy SILT with clay			
15.5	19.5	SM: loose, wet, ong silty (m-c) SAND			
19.5	20	ML: v. stiff, ong-gy SILT, TR sand			
			Notes:		

11 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ■ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo-day-year) 1-23-2017 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 759 This Water Well Record was completed on (mo-day-year) 1-29-2017 under the business name of RAZEK Environmental, LLC Signature .....

Mail 1 white copy along with a fee of $5.00 for each constructed well to: Kansas Department of Health and Environment, Bureau of Water, GWTS Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Mail one to Water Well Owner and retain one for your records. Telephone 785-296-5524.

Visit us at http://www.kdheks.gov/waterwell/index.html KSA 82a-1212 **Revised 7/10/2015**

WATER WELL RECORD Form WWC-5

■ Original Record ☐ Correction ☐ Change in Well Use

Division of Water Resources App. No. _____ Well ID MW-9

1 LOCATION OF WATER WELL: County: Brown | Fraction: ¼ NW ¼ NW ¼ SW ¼ | Section Number: 15 | Township Number: T 4 S | Range Number: R 15 ■ E ☐ W

2 WELL OWNER: Last Name: First:
Business: Sac n Fox
Address: 1346 US 75 Highway
Address:
City: Powhattan State: KS ZIP: 66527

Street or Rural Address where well is located (if unknown, distance and direction from nearest town or intersection): If at owner's address, check here: ☐
Sac n Fox Fuel Station Facility
1346 US 75 Highway, Powhattan, KS 66527

3 LOCATE WELL WITH "X" IN SECTION BOX:

N
-- NW -- -- NE --
W E
-- SW -- -- SE --
S
|---------1 mile---------|

4 DEPTH OF COMPLETED WELL: 16.5 ft.
Depth(s) Groundwater Encountered: 1) 5 ft. 2) N/A ft. 3) N/A ft., or 4) ☐ Dry Well
WELL'S STATIC WATER LEVEL: 11.59 ft.
■ below land surface, measured on (mo-day-yr) 1/25/17
☐ above land surface, measured on (mo-day-yr) .....
Pump test data: Well water was N/A ft. after N/A hours pumping N/A gpm
Well water was N/A ft. after N/A hours pumping N/A gpm
Estimated Yield: N/A gpm
Bore Hole Diameter: 8.25 in. to 16.5 ft. and N/A in. to N/A ft.

5 Latitude: 39.70342 (decimal degrees)
Longitude: 95.72778 (decimal degrees)
Horizontal Datum: ■ WGS 84 ☐ NAD 83 ☐ NAD 27
Source for Latitude/Longitude:
☐ GPS (unit make/model: .....) (WAAS enabled? ☐ Yes ☐ No)
☐ Land Survey ■ Topographic Map
☐ Online Mapper: .....

6 Elevation: 1135.68 ft. ☐ Ground Level ■ TOC
Source: ■ Land Survey ☐ GPS ☐ Topographic Map ☐ Other .....

7 WELL WATER TO BE USED AS:
1. Domestic: ☐ Household ☐ Lawn & Garden ☐ Livestock
2. ☐ Irrigation
3. ☐ Feedlot
4. ☐ Industrial
5. ☐ Public Water Supply: well ID .....
6. ☐ Dewatering: how many wells? .....
7. ☐ Aquifer Recharge: well ID .....
8. ■ Monitoring: well ID MW-9
9. Environmental Remediation: well ID ..... ☐ Air Sparge ☐ Soil Vapor Extraction ☐ Recovery ☐ Injection
10. ☐ Oil Field Water Supply: lease .....
11. Test Hole: well ID ..... ☐ Cased ☐ Uncased ☐ Geotechnical
12. Geothermal: how many bores? ..... a) Closed Loop ☐ Horizontal ☐ Vertical b) Open Loop ☐ Surface Discharge ☐ Inj. of Water
13. ☐ Other (specify): .....

Was a chemical/bacteriological sample submitted to KDHE? ☐ Yes ■ No If yes, date sample was submitted: .....
Water well disinfected? ☐ Yes ■ No

8 TYPE OF CASING USED: ☐ Steel ■ PVC ☐ Other ..... CASING JOINTS: ☐ Glued ☐ Clamped ☐ Welded ■ Threaded
Casing diameter 2 in. to 5 ft., Diameter N/A in. to N/A ft., Diameter N/A in. to N/A ft.
Casing height above land surface 30 in. Weight N/A lbs./ft. Wall thickness or gauge No. Sch. 40
TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☐ Fiberglass ■ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ Concrete tile ☐ None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous Slot ■ Mill Slot ☐ Gauze Wrapped ☐ Torch Cut ☐ Drilled Holes ☐ Other (Specify) .....
☐ Louvered Shutter ☐ Key Punched ☐ Wire Wrapped ☐ Saw Cut ☐ None (Open Hole)
SCREEN-PERFORATED INTERVALS: From 5 ft. to 16.5 ft., From N/A ft. to N/A ft., From N/A ft. to N/A ft.
GRAVEL PACK INTERVALS: From 3 ft. to 16.5 ft., From N/A ft. to N/A ft., From N/A ft. to N/A ft.

9 GROUT MATERIAL: ☐ Neat cement ☐ Cement grout ■ Bentonite ■ Other Concrete 0-1 feet
Grout Intervals: From 1 ft. to 3 ft., From N/A ft. to N/A ft., From N/A ft. to N/A ft.
Nearest source of possible contamination:
☐ Septic Tank ☐ Lateral Lines ☐ Pit Privy ☐ Livestock Pens ☐ Insecticide Storage
☐ Sewer Lines ☐ Cess Pool ☐ Sewage Lagoon ■ Fuel Storage ☐ Abandoned Water Well
☐ Watertight Sewer Lines ☐ Seepage Pit ☐ Feedyard ☐ Fertilizer Storage ☐ Oil Well/Gas Well
☐ Other (Specify) .....
Direction from well? Southwest Distance from well? 500 ft.

10 FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	2	CH: med stiff, wet, dk brn CLAY			
2	10.5	CH: stiff, moist, ong-gv. CLAY			
10.5	14	ML: v stiff, moist, ong-gv SILT			
14	14.5	SM: loose, wet, ong siltv (m-c) SAND			
14.5	16.5	ML: v stiff, ong-gv, sandv SILT			
			Notes:		

11 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ■ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo-day-year) 1-23-2017 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 759 This Water Well Record was completed on (mo-day-year) 1-29-2017 under the business name of RAZEK Environmental, LLC Signature .....

Mail 1 white copy along with a fee of $5.00 for each constructed well to: Kansas Department of Health and Environment, Bureau of Water, GWTS Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Mail one to Water Well Owner and retain one for your records. Telephone 785-296-5524.

Visit us at http://www.kdheks.gov/waterwell/index.html KSA 82a-1212 **Revised 7/10/2015**

WATER WELL RECORD Form WWC-5

■ Original Record ☐ Correction ☐ Change in Well Use

Division of Water Resources App. No. _____ Well ID MW-10

1 LOCATION OF WATER WELL: County: Brown | Fraction: ¼ NW ¼ NW ¼ SW ¼ | Section Number: 15 | Township Number: T 4 S | Range Number: R 15 ■ E ☐ W

2 WELL OWNER: Last Name: First:
Business: Sac n Fox
Address: 1346 US 75 Highway
Address:
City: Powhattan State: KS ZIP: 66527

Street or Rural Address where well is located (if unknown, distance and direction from nearest town or intersection): If at owner's address, check here: ☐
Sac n Fox Fuel Station Facility
1346 US 75 Highway, Powhattan, KS 66527

3 LOCATE WELL WITH "X" IN SECTION BOX:

N
NW | NE
W | E
SW | SE
S
|---------1 mile---------|

4 DEPTH OF COMPLETED WELL: 18 ft.
Depth(s) Groundwater Encountered: 1) 5 ft. 2) N/A ft. 3) N/A ft., or 4) ☐ Dry Well
WELL'S STATIC WATER LEVEL: 0 ft.
■ below land surface, measured on (mo-day-yr) 1/25/17
☐ above land surface, measured on (mo-day-yr).....
Pump test data: Well water was N/A ft. after N/A hours pumping N/A gpm
Well water was N/A ft. after N/A hours pumping N/A gpm
Estimated Yield: N/A gpm
Bore Hole Diameter: 8.25 in. to 18 ft. and N/A in. to N/A ft.

5 Latitude: 39.70376 (decimal degrees)
Longitude: 95.72842 (decimal degrees)
Horizontal Datum: ■ WGS 84 ☐ NAD 83 ☐ NAD 27
Source for Latitude/Longitude:
☐ GPS (unit make/model: .....) (WAAS enabled? ☐ Yes ☐ No)
☐ Land Survey ■ Topographic Map
☐ Online Mapper: .....

6 Elevation: 1138.63 ft. ☐ Ground Level ■ TOC
Source: ■ Land Survey ☐ GPS ☐ Topographic Map ☐ Other .....

7 WELL WATER TO BE USED AS:
1. Domestic: ☐ Household ☐ Lawn & Garden ☐ Livestock
2. ☐ Irrigation
3. ☐ Feedlot
4. ☐ Industrial
5. ☐ Public Water Supply: well ID .....
6. ☐ Dewatering: how many wells? .....
7. ☐ Aquifer Recharge: well ID .....
8. ■ Monitoring: well ID MW-10
9. Environmental Remediation: well ID ..... ☐ Air Sparge ☐ Soil Vapor Extraction ☐ Recovery ☐ Injection
10. ☐ Oil Field Water Supply: lease .....
11. Test Hole: well ID ..... ☐ Cased ☐ Uncased ☐ Geotechnical
12. Geothermal: how many bores? ..... a) Closed Loop ☐ Horizontal ☐ Vertical b) Open Loop ☐ Surface Discharge ☐ Inj. of Water
13. ☐ Other (specify): .....

Was a chemical/bacteriological sample submitted to KDHE? ☐ Yes ■ No If yes, date sample was submitted: .....
Water well disinfected? ☐ Yes ■ No

8 TYPE OF CASING USED: ☐ Steel ■ PVC ☐ Other ..... CASING JOINTS: ☐ Glued ☐ Clamped ☐ Welded ■ Threaded
Casing diameter 2 in. to 5 ft., Diameter N/A in. to N/A ft., Diameter N/A in. to N/A ft.
Casing height above land surface 30 in. Weight N/A lbs./ft. Wall thickness or gauge No. Sch. 40
TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☐ Fiberglass ■ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ Concrete tile ☐ None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous Slot ■ Mill Slot ☐ Gauze Wrapped ☐ Torch Cut ☐ Drilled Holes ☐ Other (Specify) .....
☐ Louvered Shutter ☐ Key Punched ☐ Wire Wrapped ☐ Saw Cut ☐ None (Open Hole)
SCREEN-PERFORATED INTERVALS: From 5 ft. to 18 ft., From N/A ft. to N/A ft., From N/A ft. to N/A ft.
GRAVEL PACK INTERVALS: From 3 ft. to 18 ft., From N/A ft. to N/A ft., From N/A ft. to N/A ft.

9 GROUT MATERIAL: ☐ Neat cement ☐ Cement grout ■ Bentonite ■ Other Concrete 0-1 feet
Grout Intervals: From 1 ft. to 3 ft., From N/A ft. to N/A ft., From N/A ft. to N/A ft.
Nearest source of possible contamination:
☐ Septic Tank ☐ Lateral Lines ☐ Pit Privy ☐ Livestock Pens ☐ Insecticide Storage
☐ Sewer Lines ☐ Cess Pool ☐ Sewage Lagoon ■ Fuel Storage ☐ Abandoned Water Well
☐ Watertight Sewer Lines ☐ Seepage Pit ☐ Feedyard ☐ Fertilizer Storage ☐ Oil Well/Gas Well
☐ Other (Specify) .....
Direction from well? Southwest Distance from well? 335 ft.

10 FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	2	CH: soft, wet, av CLAY			
2	7	CH: med stiff, wet, ong-av CLAY			
7	11	ML: soft, wet, ong-av clayev SILT w/sand			
11	12.5	SM: loose, wet, ong-clr (f) SAND			
12.5	18	ML: v stiff, moist, ong-av SILT			
			Notes:		

11 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ■ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo-day-year) 1-23-2017 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 759 This Water Well Record was completed on (mo-day-year) 1-29-2017 under the business name of RAZEK Environmental, LLC Signature .....

Mail 1 white copy along with a fee of $5.00 for each constructed well to: Kansas Department of Health and Environment, Bureau of Water, GWTS Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Mail one to Water Well Owner and retain one for your records. Telephone 785-296-5524.

Visit us at http://www.kdheks.gov/waterwell/index.html KSA 82a-1212 **Revised 7/10/2015**

WATER WELL RECORD Form WWC-5

■ Original Record ☐ Correction ☐ Change in Well Use

Division of Water Resources App. No. _____ Well ID MW-11

1 LOCATION OF WATER WELL: County: Brown | Fraction: ¼ NW ¼ NW ¼ SW ¼ | Section Number: 15 | Township Number: T 4 S | Range Number: R 15 ■ E ☐ W

2 WELL OWNER: Last Name: First:
Business: Sac n Fox
Address: 1346 US 75 Highway
Address:
City: Powhattan State: KS ZIP: 66527

Street or Rural Address where well is located (if unknown, distance and direction from nearest town or intersection): If at owner's address, check here: ☐
Sac n Fox Fuel Station Facility
1346 US 75 Highway, Powhattan, KS 66527

3 LOCATE WELL WITH "X" IN SECTION BOX:

N
NW | NE
W E
SW | SE
S
|---------1 mile---------|

4 DEPTH OF COMPLETED WELL: 18 ft.
Depth(s) Groundwater Encountered: 1) 5 ft. 2) N/A ft. 3) N/A ft., or 4) ☐ Dry Well
WELL'S STATIC WATER LEVEL: 6.01 ft.
■ below land surface, measured on (mo-day-yr) 1/25/17
☐ above land surface, measured on (mo-day-yr) .....
Pump test data: Well water was N/A ft. after N/A hours pumping N/A gpm
Well water was N/A ft. after N/A hours pumping N/A gpm
Estimated Yield: N/A gpm
Bore Hole Diameter: 8.25 in. to 18 ft. and N/A in. to N/A ft.

5 Latitude: 39.703.65 (decimal degrees)
Longitude: 95.729.31 (decimal degrees)
Horizontal Datum: ■ WGS 84 ☐ NAD 83 ☐ NAD 27
Source for Latitude/Longitude:
☐ GPS (unit make/model: .....)
(WAAS enabled? ☐ Yes ☐ No)
☐ Land Survey ■ Topographic Map
☐ Online Mapper: .....

6 Elevation: 1148.32 ft. ☐ Ground Level ■ TOC
Source: ■ Land Survey ☐ GPS ☐ Topographic Map
☐ Other .....

7 WELL WATER TO BE USED AS:
1. Domestic: ☐ Household ☐ Lawn & Garden ☐ Livestock
2. ☐ Irrigation
3. ☐ Feedlot
4. ☐ Industrial
5. ☐ Public Water Supply: well ID .....
6. ☐ Dewatering: how many wells? .....
7. ☐ Aquifer Recharge: well ID .....
8. ■ Monitoring: well ID MW-11
9. Environmental Remediation: well ID ..... ☐ Air Sparge ☐ Soil Vapor Extraction ☐ Recovery ☐ Injection
10. ☐ Oil Field Water Supply: lease .....
11. Test Hole: well ID ..... ☐ Cased ☐ Uncased ☐ Geotechnical
12. Geothermal: how many bores? ..... a) Closed Loop ☐ Horizontal ☐ Vertical b) Open Loop ☐ Surface Discharge ☐ Inj. of Water
13. ☐ Other (specify): .....

Was a chemical/bacteriological sample submitted to KDHE? ☐ Yes ■ No If yes, date sample was submitted: .....
Water well disinfected? ☐ Yes ■ No

8 TYPE OF CASING USED: ☐ Steel ■ PVC ☐ Other ..... CASING JOINTS: ☐ Glued ☐ Clamped ☐ Welded ■ Threaded
Casing diameter 2 in. to 5 ft., Diameter N/A in. to N/A ft., Diameter N/A in. to N/A ft.
Casing height above land surface 30 in. Weight N/A lbs./ft. Wall thickness or gauge No. Sch. 40
TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☐ Fiberglass ■ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ Concrete tile ☐ None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous Slot ■ Mill Slot ☐ Gauze Wrapped ☐ Torch Cut ☐ Drilled Holes ☐ Other (Specify) .....
☐ Louvered Shutter ☐ Key Punched ☐ Wire Wrapped ☐ Saw Cut ☐ None (Open Hole)
SCREEN-PERFORATED INTERVALS: From 5 ft. to 18 ft., From N/A ft. to N/A ft., From N/A ft. to N/A ft.
GRAVEL PACK INTERVALS: From 3 ft. to 18 ft., From N/A ft. to N/A ft., From N/A ft. to N/A ft.

9 GROUT MATERIAL: ☐ Neat cement ☐ Cement grout ■ Bentonite ■ Other Concrete 0-1 feet
Grout Intervals: From 1 ft. to 3 ft., From N/A ft. to N/A ft., From N/A ft. to N/A ft.
Nearest source of possible contamination:
☐ Septic Tank ☐ Lateral Lines ☐ Pit Privy ☐ Livestock Pens ☐ Insecticide Storage
☐ Sewer Lines ☐ Cess Pool ☐ Sewage Lagoon ■ Fuel Storage ☐ Abandoned Water Well
☐ Watertight Sewer Lines ☐ Seepage Pit ☐ Feedyard ☐ Fertilizer Storage ☐ Oil Well/Gas Well
☐ Other (Specify) .....
Direction from well? South Distance from well? 210 ft.

10 FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	6	CH: stiff, moist, dk brn to gy-brv CLAY			
6	16	MH: stiff, moist, ong-gy clayey SILT			
16	18	ML: stiff, moist, ong-gy sandy SILY			
			Notes:		

11 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ■ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo-day-year) 1-23-2017 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 759 This Water Well Record was completed on (mo-day-year) 1-29-2017 under the business name of RAZEK Environmental, LLC Signature .....

Mail 1 white copy along with a fee of $5.00 for each constructed well to: Kansas Department of Health and Environment, Bureau of Water, GWTS Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Mail one to Water Well Owner and retain one for your records. Telephone 785-296-5524.

Visit us at http://www.kdheks.gov/waterwell/index.html KSA 82a-1212 **Revised 7/10/2015**

WATER WELL RECORD Form WWC-5

■ Original Record ☐ Correction ☐ Change in Well Use

Division of Water Resources App. No. _____ Well ID MW-12

1 LOCATION OF WATER WELL: County: Brown | Fraction: ¼ NW ¼ NW ¼ SW ¼ | Section Number: 15 | Township Number: T 4 S | Range Number: R 15 ■ E ☐ W

2 WELL OWNER: Last Name: First:
Business: Sac n Fox
Address: 1346 US 75 Highway
Address:
City: Powhattan State: KS ZIP: 66527

Street or Rural Address where well is located (if unknown, distance and direction from nearest town or intersection): If at owner's address, check here: ☐
Sac n Fox Fuel Station Facility
1346 US 75 Highway, Powhattan, KS 66527

3 LOCATE WELL WITH "X" IN SECTION BOX:

N
NW | NE
W E
SW | SE
S
|---1 mile---|

4 DEPTH OF COMPLETED WELL: 18 ft.
Depth(s) Groundwater Encountered: 1) 5 ft. 2) N/A ft. 3) N/A ft., or 4) ☐ Dry Well
WELL'S STATIC WATER LEVEL: DRY ft.
■ below land surface, measured on (mo-day-yr) 1/25/17
☐ above land surface, measured on (mo-day-yr)
Pump test data: Well water was N/A ft. after N/A hours pumping N/A gpm
Well water was N/A ft. after N/A hours pumping N/A gpm
Estimated Yield: N/A gpm
Bore Hole Diameter: 8.25 in. to 18 ft. and N/A in. to N/A ft.

5 Latitude: 39.70321 (decimal degrees)
Longitude: 95.72991 (decimal degrees)
Horizontal Datum: ■ WGS 84 ☐ NAD 83 ☐ NAD 27
Source for Latitude/Longitude:
☐ GPS (unit make/model:) (WAAS enabled? ☐ Yes ☐ No)
☐ Land Survey ■ Topographic Map
☐ Online Mapper:

6 Elevation: 1155.29 ft. ☐ Ground Level ■ TOC
Source: ■ Land Survey ☐ GPS ☐ Topographic Map ☐ Other

7 WELL WATER TO BE USED AS:
1. Domestic: ☐ Household ☐ Lawn & Garden ☐ Livestock
2. ☐ Irrigation
3. ☐ Feedlot
4. ☐ Industrial
5. ☐ Public Water Supply: well ID
6. ☐ Dewatering: how many wells?
7. ☐ Aquifer Recharge: well ID
8. ■ Monitoring: well ID MW-12
9. Environmental Remediation: well ID ☐ Air Sparge ☐ Soil Vapor Extraction ☐ Recovery ☐ Injection
10. ☐ Oil Field Water Supply: lease
11. Test Hole: well ID ☐ Cased ☐ Uncased ☐ Geotechnical
12. Geothermal: how many bores? a) Closed Loop ☐ Horizontal ☐ Vertical b) Open Loop ☐ Surface Discharge ☐ Inj. of Water
13. ☐ Other (specify):

Was a chemical/bacteriological sample submitted to KDHE? ☐ Yes ■ No If yes, date sample was submitted:
Water well disinfected? ☐ Yes ■ No

8 TYPE OF CASING USED: ☐ Steel ■ PVC ☐ Other CASING JOINTS: ☐ Glued ☐ Clamped ☐ Welded ■ Threaded
Casing diameter 2 in. to 5 ft., Diameter N/A in. to N/A ft., Diameter N/A in. to N/A ft.
Casing height above land surface 30 in. Weight N/A lbs./ft. Wall thickness or gauge No. Sch. 40
TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☐ Fiberglass ■ PVC ☐ Other (Specify)
☐ Brass ☐ Galvanized Steel ☐ Concrete tile ☐ None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous Slot ■ Mill Slot ☐ Gauze Wrapped ☐ Torch Cut ☐ Drilled Holes ☐ Other (Specify)
☐ Louvered Shutter ☐ Key Punched ☐ Wire Wrapped ☐ Saw Cut ☐ None (Open Hole)
SCREEN-PERFORATED INTERVALS: From 5 ft. to 18 ft., From N/A ft. to N/A ft., From N/A ft. to N/A ft.
GRAVEL PACK INTERVALS: From 3 ft. to 18 ft., From N/A ft. to N/A ft., From N/A ft. to N/A ft.

9 GROUT MATERIAL: ☐ Neat cement ☐ Cement grout ■ Bentonite ■ Other Concrete 0-1 feet
Grout Intervals: From 1 ft. to 3 ft., From N/A ft. to N/A ft., From N/A ft. to N/A ft.

Nearest source of possible contamination:
☐ Septic Tank ☐ Lateral Lines ☐ Pit Privy ☐ Livestock Pens ☐ Insecticide Storage
☐ Sewer Lines ☐ Cess Pool ☐ Sewage Lagoon ■ Fuel Storage ☐ Abandoned Water Well
☐ Watertight Sewer Lines ☐ Seepage Pit ☐ Feedyard ☐ Fertilizer Storage ☐ Oil Well/Gas Well
☐ Other (Specify)
Direction from well? Southeast Distance from well? 150 ft.

10 FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	3	CL: med stiff, moist, dk brn, silty CLAY			
3	14	CH: med stiff, moist, gy-brn CLAY			
14	18	ML: stiff, moist, ong-gy SILT w/sand			
			Notes:		

11 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ■ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo-day-year) 1-24-2017 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 759 This Water Well Record was completed on (mo-day-year) 1-29-2017 under the business name of RAZEK Environmental, LLC Signature

Mail 1 white copy along with a fee of $5.00 for each constructed well to: Kansas Department of Health and Environment, Bureau of Water, GWTS Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Mail one to Water Well Owner and retain one for your records. Telephone 785-296-5524.

Visit us at http://www.kdheks.gov/waterwell/index.html KSA 82a-1212 **Revised 7/10/2015**

WATER WELL RECORD Form WWC-5

■ Original Record ☐ Correction ☐ Change in Well Use

Division of Water Resources App. No. _____ Well ID MW-13

1 LOCATION OF WATER WELL: County: Brown | Fraction: ¼ NW ¼ NW ¼ SW ¼ | Section Number: 15 | Township Number: T 4 S | Range Number: R 15 ■ E ☐ W

2 WELL OWNER: Last Name: First:
Business: Sac n Fox
Address: 1346 US 75 Highway
Address:
City: Powhattan State: KS ZIP: 66527

Street or Rural Address where well is located (if unknown, distance and direction from nearest town or intersection): If at owner's address, check here: ☐
Sac n Fox Fuel Station Facility
1346 US 75 Highway, Powhattan, KS 66527

3 LOCATE WELL WITH "X" IN SECTION BOX:

N
-- NW -- -- NE --
W E
-- SW -- -- SE --
S
|---------1 mile---------|

4 DEPTH OF COMPLETED WELL: 18 ft.
Depth(s) Groundwater Encountered: 1) 5 ft. 2) N/A ft. 3) N/A ft., or 4) ☐ Dry Well
WELL'S STATIC WATER LEVEL: DRY ft.
■ below land surface, measured on (mo-day-yr) 1/25/17
☐ above land surface, measured on (mo-day-yr) .....
Pump test data: Well water was N/A ft. after N/A hours pumping N/A gpm
Well water was N/A ft. after N/A hours pumping N/A gpm
Estimated Yield: N/A gpm
Bore Hole Diameter: 8.25 in. to 18 ft. and N/A in. to N/A ft.

5 Latitude: 39.70282 (decimal degrees)
Longitude: 95.72985 (decimal degrees)
Horizontal Datum: ■ WGS 84 ☐ NAD 83 ☐ NAD 27
Source for Latitude/Longitude:
☐ GPS (unit make/model: .....)
(WAAS enabled? ☐ Yes ☐ No)
☐ Land Survey ■ Topographic Map
☐ Online Mapper: .....

6 Elevation: 1154.30 ft. ☐ Ground Level ■ TOC
Source: ■ Land Survey ☐ GPS ☐ Topographic Map
☐ Other .....

7 WELL WATER TO BE USED AS:
1. Domestic: ☐ Household ☐ Lawn & Garden ☐ Livestock
2. ☐ Irrigation
3. ☐ Feedlot
4. ☐ Industrial
5. ☐ Public Water Supply: well ID .....
6. ☐ Dewatering: how many wells? .....
7. ☐ Aquifer Recharge: well ID .....
8. ■ Monitoring: well ID MW-13
9. Environmental Remediation: well ID .....
☐ Air Sparge ☐ Soil Vapor Extraction
☐ Recovery ☐ Injection
10. ☐ Oil Field Water Supply: lease .....
11. Test Hole: well ID .....
☐ Cased ☐ Uncased ☐ Geotechnical
12. Geothermal: how many bores? .....
a) Closed Loop ☐ Horizontal ☐ Vertical
b) Open Loop ☐ Surface Discharge ☐ Inj. of Water
13. ☐ Other (specify): .....

Was a chemical/bacteriological sample submitted to KDHE? ☐ Yes ■ No If yes, date sample was submitted: .....
Water well disinfected? ☐ Yes ■ No

8 TYPE OF CASING USED: ☐ Steel ■ PVC ☐ Other ..... CASING JOINTS: ☐ Glued ☐ Clamped ☐ Welded ■ Threaded
Casing diameter 2 in. to 5 ft., Diameter N/A in. to N/A ft., Diameter N/A in. to N/A ft.
Casing height above land surface 30 in. Weight N/A lbs./ft. Wall thickness or gauge No. Sch. 40
TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☐ Fiberglass ■ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ Concrete tile ☐ None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous Slot ■ Mill Slot ☐ Gauze Wrapped ☐ Torch Cut ☐ Drilled Holes ☐ Other (Specify) .....
☐ Louvered Shutter ☐ Key Punched ☐ Wire Wrapped ☐ Saw Cut ☐ None (Open Hole)
SCREEN-PERFORATED INTERVALS: From 5 ft. to 18 ft., From N/A ft. to N/A ft., From N/A ft. to N/A ft.
GRAVEL PACK INTERVALS: From 3 ft. to 18 ft., From N/A ft. to N/A ft., From N/A ft. to N/A ft.

9 GROUT MATERIAL: ☐ Neat cement ☐ Cement grout ■ Bentonite ■ Other Concrete 0-1 feet
Grout Intervals: From 1 ft. to 3 ft., From N/A ft. to N/A ft., From N/A ft. to N/A ft.
Nearest source of possible contamination:
☐ Septic Tank ☐ Lateral Lines ☐ Pit Privy ☐ Livestock Pens ☐ Insecticide Storage
☐ Sewer Lines ☐ Cess Pool ☐ Sewage Lagoon ■ Fuel Storage ☐ Abandoned Water Well
☐ Watertight Sewer Lines ☐ Seepage Pit ☐ Feedyard ☐ Fertilizer Storage ☐ Oil Well/Gas Well
☐ Other (Specify) .....
Direction from well? Northeast Distance from well? 135 ft.

10 FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	1	CL: med stiff, moist, dr brn CLAY			
1	11.5	CH: med stiff, moist, gv-brn CLAY			
11.5	16.5	ML: stiff, moist, ong-gv SILT			
16.5	17	SM: loose, moist, gv, silty (f) SAND			
17	18	ML: v stiff, moist, ong-gv SILT w/sand			
			Notes:		

11 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ■ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo-day-year) 1-24-2017 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 759 This Water Well Record was completed on (mo-day-year) 1-29-2017 under the business name of RAZEK Environmental, LLC Signature .....

Mail 1 white copy along with a fee of $5.00 for each constructed well to: Kansas Department of Health and Environment, Bureau of Water, GWTS Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Mail one to Water Well Owner and retain one for your records. Telephone 785-296-5524.

Visit us at http://www.kdheks.gov/waterwell/index.html KSA 82a-1212 **Revised 7/10/2015**