Total Petroleum Services LLC

January 21, 2016

Ms. Theresa Armbruster
Sac & Fox Truck Stop
1346 US 75 Highway
Powhatten, KS

Dear Ms. Armbruster:

Per our conversation this week I have attached the invoice for work performed, the cost estimate for this invoice, and a complete Site Investigation Report prepared by our Geologist Mr. Christopher Kinn of Terra Next.

It is the opinion of Terra Next and Total Petroleum Services LLC that the level of contaminates above KDHE risk based levels do pose a risk and the source of the contamination, the tank, should be removed from the ground and any subsequent contaminated soil from within and surrounding the tank pit.

We recommend installing 5 ground water monitoring wells for the specific purpose of monitoring natural attenuation of contaminates remaining on this site.

It is recommended that sampling and analysis of the well which supplies water to the Tower adjacent to and North of the site be completed as a precautionary measure.

It is recommended that the original tank installer, MAC Corporation, be contacted and request a proposal to remove the tank in question along with any contaminated soils. Due to the close proximity of the tank in question to additional UST(s) it is recommended MAC Corporation bring in an expert in shoring to prevent any movement of existing UST(s) during excavation and back fill.

Total Petroleum Service LLC and its Geological firm will be on site during the tank removal and provide sampling of soils within the tank pit per KDHE recommended practice.

We are in the process of putting together our proposal to provide the necessary services as outlined above excluding the actual tank removal and soil disposal to be provided by MAC Corporation or others as Sac & Fox sees fit.

Thank you for your business and we look forward to working with you to complete this project.

Sincerely,

Robert L. Trump - President

Total Petroleum Services LLC
16601 W 132nd Circle
Olathe, KS 66062

Invoice

Date	Invoice #
1/21/2016	1466

Phone #	Fax #	Web	E-mail
913-461-5985	913-948-9532	www.totalpetroleumservices.com	rtrump@totalpetroleumservices.com

Bill To	Ship To
Sac & Fox Theresa Armbruster 1346 US 75 Powhattan, KS 66527	Sac & Fox Theresa Armbruster 1346 US 75 Powhattan, KS 66527

P.O. No.	Terms	Project
Theresa A.	Due on receipt	15110

Quantity	Description	Rate	Amount
1	Site Characterization per Cost Estimate dated 9/18/2015 attached	6,605.00	6,605.00

We appreciate your prompt payment.

Payments/Credits	$0.00
Balance Due	$6,605.00

Total Petroleum Services LLC

SITE CHARACTERIZATION COST ESTIMATE

Total Petroleum Services LLC - Project Team Leader
Date: 9/18/2015
Terranext , LLC - Project Geologist
Project Name - Sac & Fox
Project Location - Powhattan, KS

	Rate	Unit	Quantity	Cost
Site Characterization - Field Work				
Geologist	$75.00	Hour	14	$1,050.00
Pick-Up	$60.00	Day	1	$60.00
Water Level Meter	$20.00	Day	1	$20.00
Subsurface Drilling **4 Temporary Piezometers**				
Drilling and Site Utility Locates	$3,300.00	Day	1	$3,300.00
Laboratory Analytical Testing				
Ground Water				
BTEX, Naph, Oxygenates	$125	Sample	5	$625.00
& TPH GRO (Method 8260B) Standard Turnaround				
Subsurface Investigation				
SUB TOTAL				$5,055.00
Site Characterization - Report/Project Management				
Project Manager	$250.00	Lump Sum	1	$250.00
Project Geologist	$1,300.00	Lump Sum	1	$1,300.00
Report Preparation				$1,550.00

Sac & Fox Acceptance
Authorized Signature: _____
Date: _____

Subsurface Investigation	$5,055.00
Report Preparation	$1,550.00
Total Cost Estimate	**$6,605.00**

11904 Grandview Road Grandview, Missouri 64030
Telephone: 913 894-4000

January 6, 2016

Mr. Robert Trump
Total Petroleum Services
16601 W. 132nd Circle
Olathe, Kansas 66062

RE: Site Investigation Report
Sac & Fox Truck Stop
1346 US 75 Highway
Powhatten, Kansas

Dear Mr. Trump:

Terranext is pleased to provide this Site Investigation Report for the Sac & Fox Truck Stop site in Powhatten, Kansas.

Objectives

The objective of this investigation was to determine general soil characteristics of the subsurface and initial impacts to the soil and groundwater due to a failing gasoline underground storage tanks (UST) located on the property.

Site Investigation Activities

Site characterization activities included the advancement of four borings near the failed UST. Figure 1 (Attachment C) illustrates the site and the locations of the four probes, existing monitoring well and UST basin. Activities also included geologic logging and field screening of the subsurface at three of the probe locations and collection of ground water samples from three of the four probes (the probe, P1, was dry) and the existing monitoring well for laboratory analysis.

Terranext, along with drilling subcontractor PSA Environmental and Total Petroleum Services, LLC were on-site November 19, 2015. After review of the site, discussion of probing locations, calibration of the Photo Ionization Detector (PID) and a health and safety meeting, activities to investigate the site began.

General Subsurface Soil Conditions

Attachment A contains the geologic logs of the Probe locations P1-P4.

Probe P1 encountered fill gravel from the current UST basin down to 7 feet below ground surface (bgs); underlain by primarily clay to depth of 22.5 feet bgs. The clay did contain some silt and sand in the interval of 10- 12.5 feet bgs. A thin layer of silty sand was encountered from 22.5 feet bgs to refusal at 23 feet bgs.

Probe P2 encountered refusal at 20 feet bgs. No geologic logging or field screening was performed at the P2 location.

Probe P3 encountered primarily clay to depth of 17.5 feet bgs. The clay again contains some silt in the interval of 10.5 0-12 feet bgs. A thin layer of sand with silt was again encountered (17.5 – 19.5 feet bgs) just above refusal at 20 feet bgs.

Probe P4 encountered primarily clay to depth of 18.5 feet bgs. Beneath the clay was silt with some clay and sand from 18.5 feet bgs to the total depth of 24 feet bgs.

Based on the four probes, it appears the general geology is primarily clay with silty sand at depths below approximately 18 feet bgs. This lower silty sand zone is a preferential pathway from groundwater migration.

Soil Impacts

Terranext screened the soil at with a calibrated PID in the field. Table 1 (Attachment B) illustrates the results of the VOCs detected and the sample intervals and indicates the subsurface has been impacted at the P1, P3 and most likely P2 locations. Based on the PID readings, the subsurface does not appear to have been impacted at the P4 location.

Groundwater Impacts

Terranext collected groundwater samples for analysis from Probe locations P2, P3, P4 and the existing monitoring well on-site. P1 was dry and unable to be sampled. Table 2 (Attachment B) illustrates the analytical results. Samples from the existing monitoring well, P2 and P3 all show petroleum impact above Kansas Department of Health and Environment (KDHE) Risk-Based Standards (RSK) limits. Specific chemical of concerns TPH-GRO, benzene, toluene, ethylbenzene, xylenes, naphthalene, and tert-butyl-alcohol (TBA) are all above the respective RSK values. It appears the impact has not yet reached the P4 location. Figure 2 (Attachment C) illustrates the concentrations of TPH-GRO detected and the lab report is included as Attachment D.

Conclusions

Based on the advancement of 4 probes at the subject site and the analysis on groundwater samples collected from the probes, the soil and groundwater near and to the east (downslope) of the failed UST has been impacted by petroleum hydrocarbons. It appears the impacts have not yet reached the P4 location near the eastern property boundary.

Recommendations

Based on the results of this initial site investigation, Terranext recommends the following actions

- Remove the primary contamination source (the failed UST and surrounding impacted soils).
- Address groundwater impacts by natural attenuation and install 5 monitoring wells to monitor this natural degradation. Figure 3 (Attachment C) illustrates the location of the proposed monitoring well locations.
- During the site investigation, Terranext noticed a water tower adjacent to the north of the site. Terranext recommends laboratory testing for chemical of concerns from the well that provides water to the water tower.

Terranext appreciates the opportunity to work with TPS on this project and if you have any questions or require additional information, please call me at (913) 894-4000.

Sincerely,

TERRANEXT, LLC

Christopher Kinn, PG
Director, Midwest Operations

ATTACHMENT A

Geologic Logs

TerraNext

LOG OF BORING NO: P1

SHEET NUMBER 1 OF 1

PROJECT NAME	Sac & Fox Truck Stop	DRILLING / PROBING CONTRACTOR	PSA / Geoprobe 5400
PROJECT LOCATION	1346 US 75 Highway, Powhattan, Kansas	DRILLING METHOD / BORE DIAMETER	Direct Push
		SAMPLING METHOD	Macro core
PROJECT NUMBER	17102679	TOTAL DEPTH (feet)	23
GEOLOGIST	Meredith Watson	START DATE 11/19/15	COMPLETION DATE 11/19/15
DRILLER	Robert Tieman	GPS COORDINATES	

Water Level Data

Date	Time	Depth
11/19/15	Dry @ 1245	

Survey Data

Ground Surface:

Ground Water:

SAMPLE DEPTH AND TIME	PID (PPMV)	RECOVERY (FEET)	DEPTH (FEET)	WELL CONSTRUCTION	GEOLOGIC DESCRIPTION (NAME, color, particle size, characteristics)	NOTES:
1038					Concrete Surface	
			1		Fill Gravel	
		3/4	2			
			3			
	52.1		4			3-4' slight odor
1041			5			
		4/4	6			
			7			
	1507		8		CH: medium, moist, mottled brn and gy, medium plastic CLAY, black staining	7-8' strong odor
1044			9			
		4/4	10	Bentonite Seal		
	1621		11		ML: medium, moist, mottled orange and grey, non-plastic, sandy (f) SILT	10-11' strong odor
			12		ML: stiff, moist, grey, non-plastic, SILT, some sand (f)	
1051			13		CH: stiff, moist, brown, high plastic CLAY, TR limestone nodules	
		4/4	14			
	264		15			14-15' strong odor
			16			
1058			17			
		4/4	18			
	211		19		CH: stiff, moist, grey, high plastic CLAY with some gravel and interbedded white clay	18-19' mod. odor
			20		CH: v. stiff, moist, grey, high plastic CLAY	
1107			21			
		4/4	22			
	697		23		SM: dense, moist, orange, silty m-f SAND	22-23' strong odor
1116			24		Refusal @ 23ft	
			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

MW

TerraNext

LOG OF BORING NO: P2

SHEET NUMBER 1 OF 1

PROJECT NAME	Sac & Fox Truck Stop
PROJECT LOCATION	1346 US 75 Highway, Powhattan, Kansas
PROJECT NUMBER	17102679
GEOLOGIST	Meredith Watson
DRILLER	Robert Tieman
DRILLING / PROBING CONTRACTOR	PSA / Geoprobe 5400
DRILLING METHOD / BORE DIAMETER	Direct Push
SAMPLING METHOD	Macro core
TOTAL DEPTH (feet)	20
START DATE	11/19/15
COMPLETION DATE	11/19/15
GPS COORDINATES	

Water Level Data

Date	Time	Depth
11/19/15	1556	19.2'

Survey Data

Ground Surface:

Ground Water:

SAMPLE DEPTH AND TIME	PID (PPMV)	RECOVERY (FEET)	DEPTH (FEET)	WELL CONSTRUCTION	GEOLOGIC DESCRIPTION (NAME, color, particle size, characteristics)	NOTES:
1300					Concrete Surface	
			1			Soils not logged
			2			Boring for only groundwater sample
			3			
			4			
			5			
			6			
			7	Bentonite Seal		
			8			
			9			
			10			
			11			
			12			
			13			
			14			
			15			
			16			
			17			
			18			
			19			
			20			
1350			21		Refusal @ 20 ft	
			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

MPL

TerraNext

LOG OF BORING NO: P3

SHEET NUMBER 1 OF 1

PROJECT NAME	Sac & Fox Truck Stop
PROJECT LOCATION	1346 US 75 Highway, Powhattan, Kansas
PROJECT NUMBER	17102679
GEOLOGIST	Meredith Watson
DRILLER	Robert Tieman
DRILLING / PROBING CONTRACTOR	PSA / Geoprobe 5400
DRILLING METHOD / BORE DIAMETER	Direct Push
SAMPLING METHOD	Macro core
TOTAL DEPTH (feet)	20
START DATE	11/19/15
COMPLETION DATE	11/19/15
GPS COORDINATES	

Water Level Data

Date	Time	Depth
11/19/15	1554	9.4'

Survey Data

Ground Surface:

Ground Water:

SAMPLE DEPTH AND TIME	PID (PPMV)	RECOVERY (FEET)	DEPTH (FEET)	WELL CONSTRUCTION	GEOLOGIC DESCRIPTION (NAME, color, particle size, characteristics)	NOTES
					Concrete Surface	
1412		4/4	1, 2, 3, 4		CL: medium stiff, moist, mottled brown and grey, low plastic, silty CLAY	
	0.0					3-4' no odor
1415		4/4	5, 6, 7, 8			
	35.4					6-7' no odor
1419		4/4	9, 10, 11, 12	Bentonite Seal		
	1351				ML: soft, moist to wet, orange, med. plastic, clayey SILT	11-12' strong odor
1424		4/4	13, 14, 15, 16		CH: stiff, moist, mottled brown and grey, high plastic CLAY	13-14' strong odor
	417				CH: soft, wet, mottled brown and grey, high plastic CLAY	
1431		4/4	17, 18, 19, 20			17-18' mod odor
	295				SM: medium dense, wet, orange, SAND, (m-f), with silt	
					CH: stiff, moist, brown, high plastic CLAY	
1440			21, 22, 23, 24, 25		Refusal @ 20ft	

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

APW

TerraNext

LOG OF BORING NO: P4

SHEET NUMBER 1 OF 1

PROJECT NAME	Sac & Fox Truck Stop
PROJECT LOCATION	1346 US 75 Highway, Powhattan, Kansas
PROJECT NUMBER	17102679
GEOLOGIST	Meredith Watson
DRILLER	Robert Tieman
DRILLING / PROBING CONTRACTOR	PSA / Geoprobe 5400
DRILLING METHOD / BORE DIAMETER	Direct Push
SAMPLING METHOD	Macro core
TOTAL DEPTH (feet)	24
START DATE	11/19/15
COMPLETION DATE	11/20/15
GPS COORDINATES	

Water Level Data

Date	Time	Depth
11/20/15	1028	11.2'

Survey Data

Ground Surface:

Ground Water:

SAMPLE DEPTH AND TIME	PID (PPMV)	RECOVERY (FEET)	DEPTH (FEET)	WELL CONSTRUCTION	GEOLOGIC DESCRIPTION (NAME, color, particle size, characteristics)	NOTES:
1453	0.0	4/4	1, 2, 3, 4	Bentonite Seal	Grass ~~Concrete~~ Surface	0-1' no odor
					CL: stiff, moist, dark brown, low plastic CLAY	
	0.0					2-3' no odor
					CL: stiff, moist, brown, low plastic, CLAY	
1457	0.0	4/4	5, 6, 7, 8		CL: stiff, moist, grey, low plastic CLAY	6-7' no odor
1501	0.0	4/4	9, 10, 11, 12		CH: stiff, moist, mottled brown and grey, high plastic, CLAY, Trace gravel, layers of white clay	11-12' no odor
1506	0.0	4/4	13, 14, 15, 16			14-15' no odor
1512	0.0	4/4	17, 18, 19, 20		ML: v. stiff, moist, brown, non-plastic, clayey SILT, some f. sand	18-19' no odor
1521	0.0	4/4	21, 22, 23, 24		ML: v. stiff, wet, brown, non-plastic, sandy SILT, some clay	21-22' no odor
1530			25		TD @ 24ft	

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

MPW

ATTACHMENT B

Tables

TABLE 1
SOIL FIELD SCREENING RESULTS

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

PROBE ID	DATE MEASURED	SAMPLE INTERVAL (feet bgs)	FIELD SCREENING RESULT (ppmv)
P1	11/19/15	3-4	82.1
		7-8	1,507
		10-11	1,621
		14-15	264
		18-19	211
		22-23	697
P3	11/19/15	3-4	0.0
		6-7	35.4
		11-12	1,351
		13-14	417
		17-18	295
P4	11/20/15	0-1	0.0
		2-3	0.0
		6-7	0.00
		11-12	0.00
		14-15	0.00
		18-19	0.00
		21-22	0.00

NOTE:

Soil samples were collected from probes utilizing Geoprobe™ technology.

bgs - below ground surface
ppmv - parts per million by volume

TABLE 2- GROUND WATER ANALYTICAL RESULTS

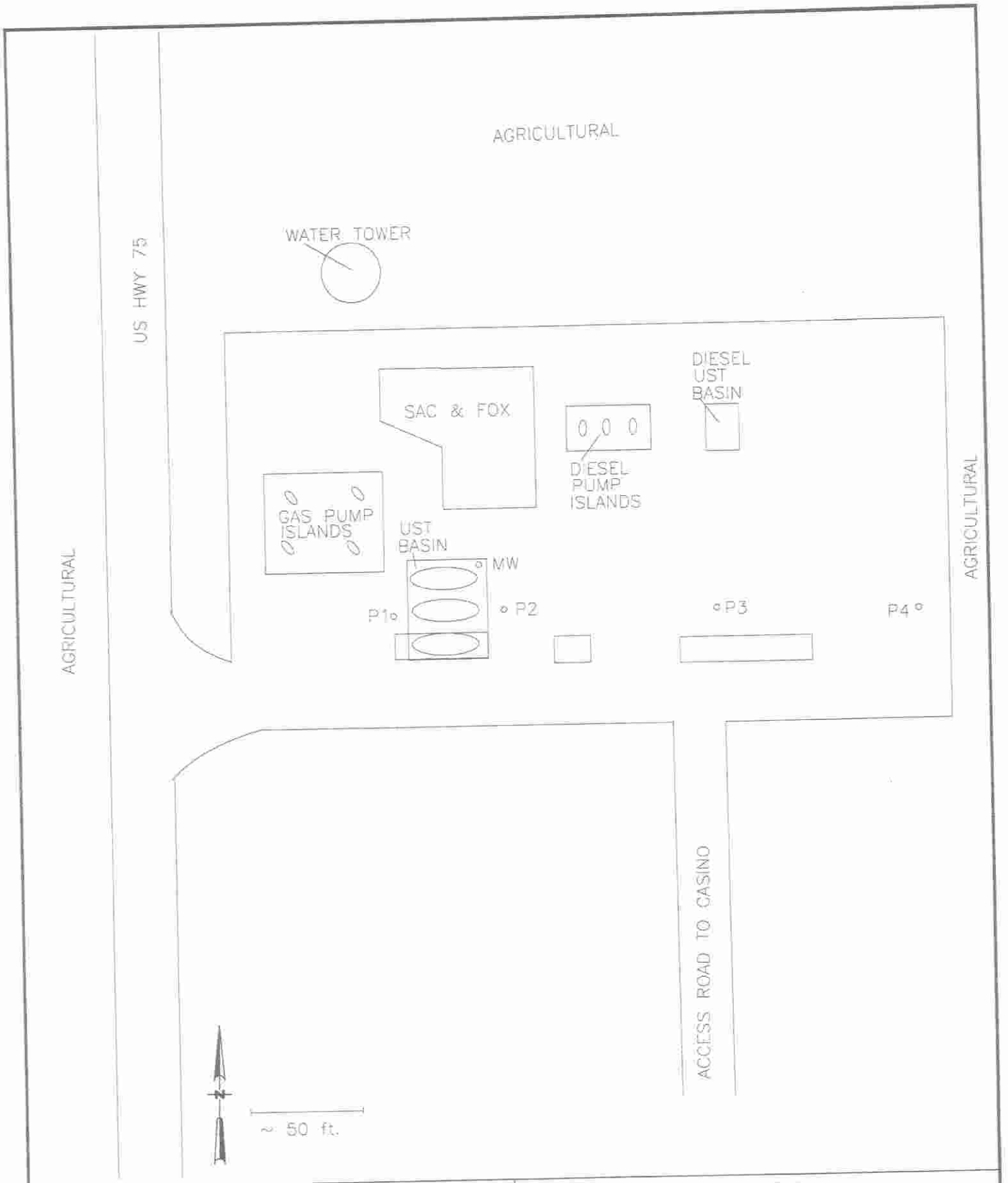
Sac & Fox Truck Stop
1346 US 75 Highway
Powhatten, Kansas

Well ID	Date Sampled	Static Water Level (ft bgs)	TPH GRO (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl benzene (µg/l)	Xylenes (µg/l)	Total BTEX (µg/l)	Naphthalene (µg/l)	MtBE (ug/l)	TERT-BUTYL ALCOHOL (TBA)	TERT-AMYLMETHYL ETHER (TAME)	DIISOPROPYL ETHER (DIPE)	ETHYL-TERT-BUTYL ETHER (ETBE)	Analytical Method
Tier 2 RSK Non-Residential			**500**	**5**	**1,000**	**700**	**10,000**	-	**2.11**	**262**	**859**	-	-	-	**EPA 8260**
GW-MW	11/19/2015	5.92	**115,000**	**4,580**	**11,300**	**2,550**	**13,400**	**31,830**	**ND(1000)**	ND(100)	**2,750**	ND(100)	ND(100)	ND(100)	
GW-P2	11/19/15	19.2	**42,800**	**6,940**	**2,830**	**906**	2,810	13,486	**ND(500)**	ND(50)	**2,570**	ND(50)	ND(50)	N(50)	
GW-P3	11/19/15	9.4	**22,500**	**958**	**2,380**	429	2,220	5,997	**68.9**	ND(1)	ND(10)	ND(1)	ND(1)	ND(1)	
GW-P4	11/20/15	11.2	ND(500)	ND(1)	ND(1)	ND(1)	ND(3)	ND	ND(10)	ND(1)	ND(10)	ND(1)	ND(1)	ND(1)	

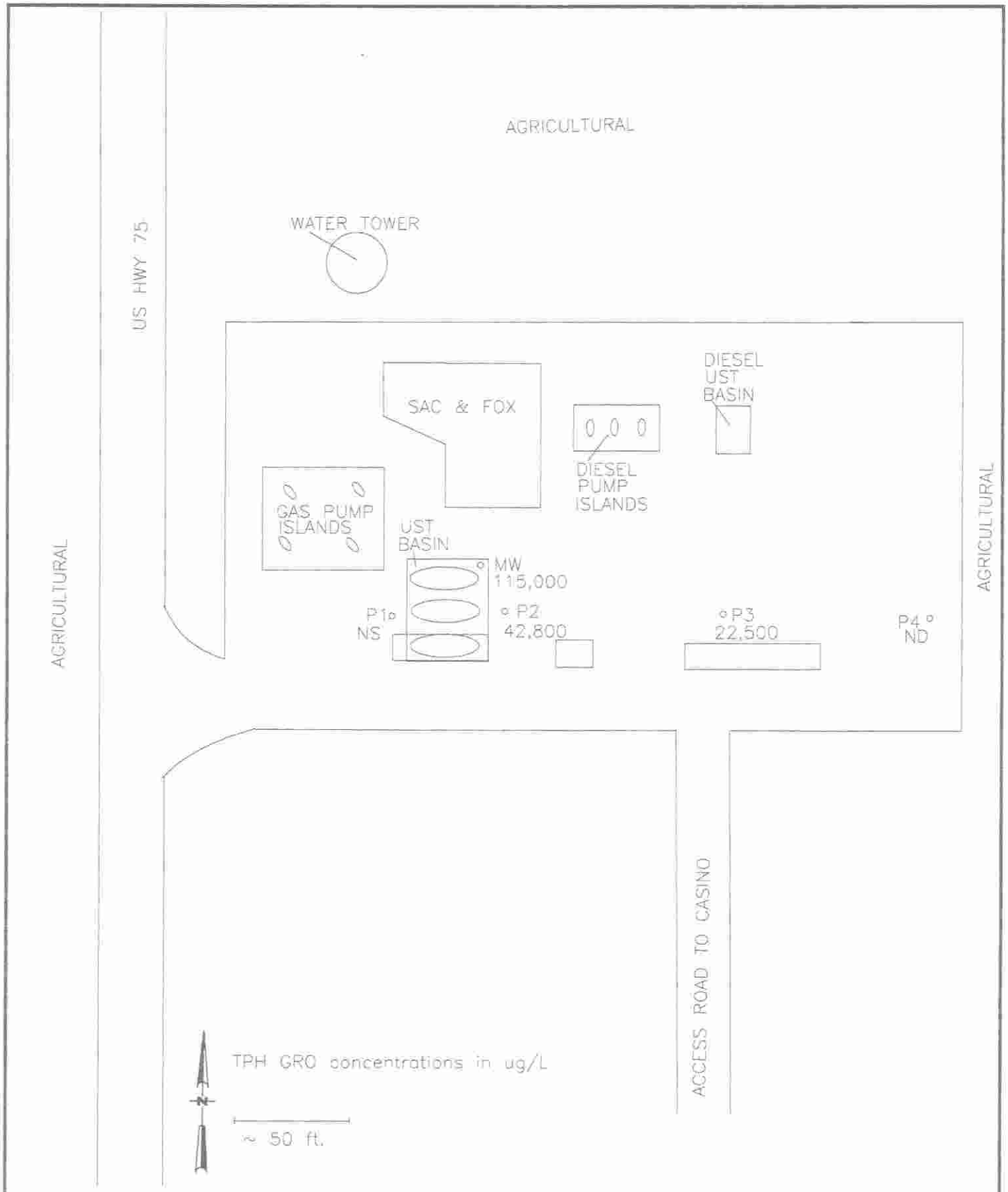
Values in bold exceed non-residential Tier 2 RSKs
RSK - Risk-Based Standard for Kansas (RSK) Value, August 2010

ATTACHMENT C

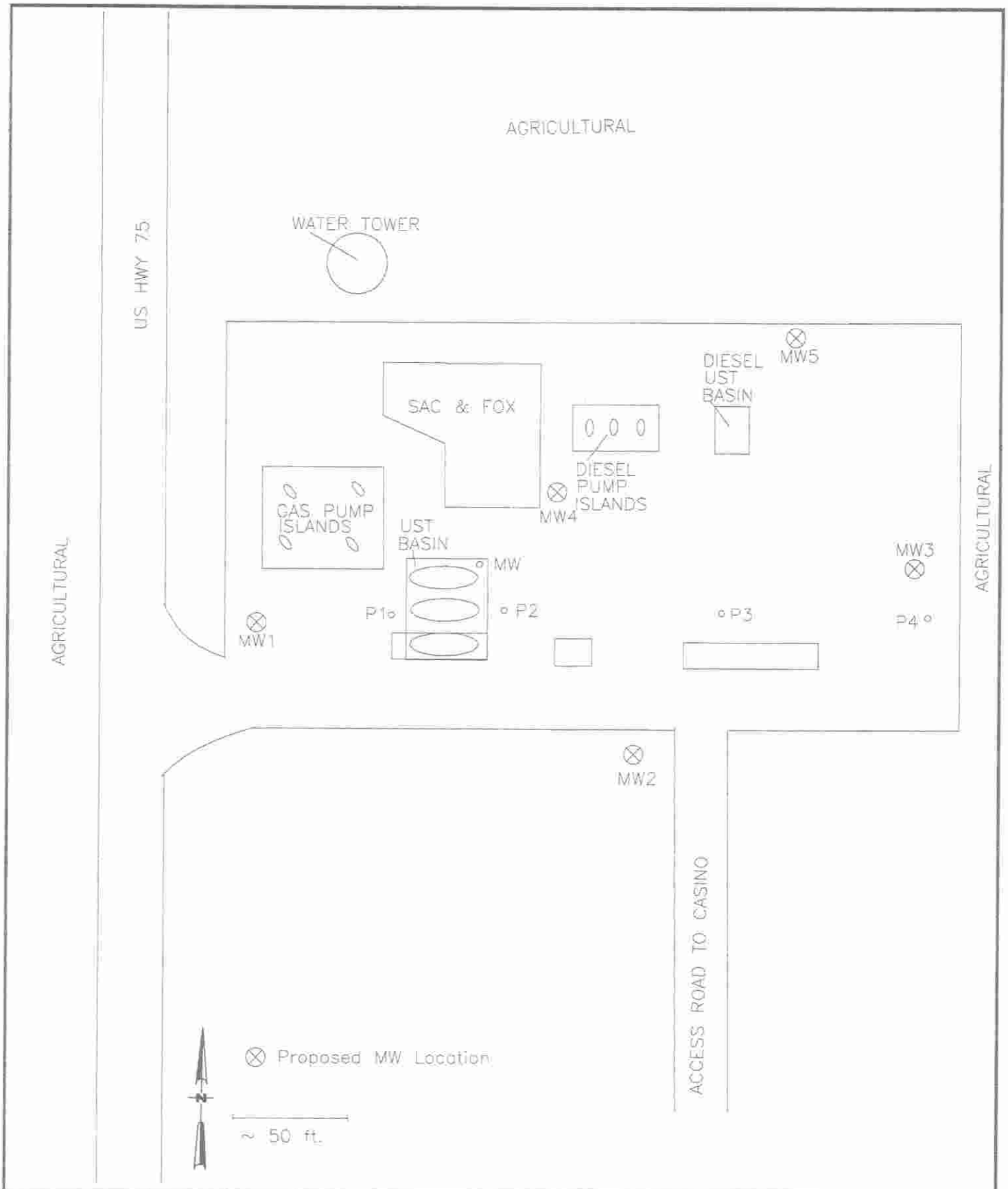
Figures



PROJ.# 17102679	PAGE#		FIGURE 1 SITE MAP
SCALE: AS SHOWN	DRAWN BY:		SAC & FOX TRUCK STOP 1346 US 75 HIGHWAY POWHATTEN, KANSAS
FILE NO.	DESIGNED BY:		
DATE:	APPROVED BY:		



PROJ.# 17102679	PAGE#		FIGURE 2 TPH GRO
SCALE: AS SHOWN	DRAWN BY:		SAC & FOX TRUCK STOP 1346 US 75 HIGHWAY POWHATTEN, KANSAS
FILE NO.	DESIGNED BY:		
DATE:	APPROVED BY:		



PROJ.# 17102679	PAGE#		FIGURE 3 PROPOSED MONITROING WELL LOCATIONS SAC & FOX TRUCK STOP 1346 US 75 HIGHWAY POWHATTEN, KANSAS
SCALE: AS SHOWN	DRAWN BY:		
FILE NO:	DESIGNED BY:		
DATE:	APPROVED BY:		

ATTACHMENT D

Lab Data

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

December 03, 2015

Meredith Watson
TERRANEXT
11904 Grandview Road
Grandview, MO 64030

RE: Project: SAC & FOX
Pace Project No.: 60207920

Dear Meredith Watson:
Enclosed are the analytical results for sample(s) received by the laboratory on November 20, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Emily Webb for
Alice Flanagan
alice.flanagan@pacelabs.com
Project Manager

Enclosures

cc: Mr. Christopher Kinn, TERRANEXT

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without the written consent of Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: SAC & FOX
Pace Project No.: 60207920

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

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Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: SAC & FOX
Pace Project No.: 60207920

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60207920001	GW-MW	Water	11/19/15 12:32	11/20/15 12:35
60207920002	GW-P2	Water	11/19/15 16:26	11/20/15 12:35
60207920003	GW-P3	Water	11/19/15 16:04	11/20/15 12:35
60207920004	GW-P4	Water	11/20/15 10:33	11/20/15 12:35
60207920005	TRIP BLANK	Water	11/19/15 12:00	11/20/15 12:35

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Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: SAC & FOX
Pace Project No.: 60207920

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60207920001	GW-MW	EPA 8260	EAG	15
60207920002	GW-P2	EPA 8260	EAG	15
60207920003	GW-P3	EPA 8260	EAG, JDH	15
60207920004	GW-P4	EPA 8260	EAG, JDH	15
60207920005	TRIP BLANK	EPA 8260	EAG	15

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Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: SAC & FOX
Pace Project No.: 60207920

Sample: GW-MW **Lab ID: 60207920001** Collected: 11/19/15 12:32 Received: 11/20/15 12:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
tert-Amylmethyl ether	ND	ug/L	100	100		12/02/15 17:47	994-05-8	
Benzene	**4580**	ug/L	100	100		12/02/15 17:47	71-43-2	
tert-Butyl Alcohol	**2750**	ug/L	1000	100		12/02/15 17:47	75-65-0	
Diisopropyl ether	ND	ug/L	100	100		12/02/15 17:47	108-20-3	
Ethylbenzene	**2550**	ug/L	100	100		12/02/15 17:47	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	100	100		12/02/15 17:47	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	100	100		12/02/15 17:47	1634-04-4	
Naphthalene	ND	ug/L	1000	100		12/02/15 17:47	91-20-3	
Toluene	**11300**	ug/L	100	100		12/02/15 17:47	108-88-3	
TPH-GRO	**115000**	ug/L	50000	100		12/02/15 17:47		
Xylene (Total)	**13400**	ug/L	300	100		12/02/15 17:47	1330-20-7	
Surrogates								
Toluene-d8 (S)	95	%	80-120	100		12/02/15 17:47	2037-26-5	
4-Bromofluorobenzene (S)	99	%	80-120	100		12/02/15 17:47	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	82-119	100		12/02/15 17:47	17060-07-0	
Preservation pH	**1.0**		0.10	100		12/02/15 17:47		

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ANALYTICAL RESULTS

Project: SAC & FOX
Pace Project No.: 60207920

Sample: GW-P2 **Lab ID: 60207920002** Collected: 11/19/15 16:26 Received: 11/20/15 12:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
tert-Amylmethyl ether	ND	ug/L	50.0	50		12/02/15 18:01	994-05-8	
Benzene	**6940**	ug/L	50.0	50		12/02/15 18:01	71-43-2	
tert-Butyl Alcohol	**2570**	ug/L	500	50		12/02/15 18:01	75-65-0	
Diisopropyl ether	ND	ug/L	50.0	50		12/02/15 18:01	108-20-3	
Ethylbenzene	**906**	ug/L	50.0	50		12/02/15 18:01	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	50.0	50		12/02/15 18:01	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	50.0	50		12/02/15 18:01	1634-04-4	
Naphthalene	ND	ug/L	500	50		12/02/15 18:01	91-20-3	
Toluene	**2830**	ug/L	50.0	50		12/02/15 18:01	108-88-3	
TPH-GRO	**42800**	ug/L	25000	50		12/02/15 18:01		
Xylene (Total)	**2810**	ug/L	150	50		12/02/15 18:01	1330-20-7	
Surrogates								
Toluene-d8 (S)	99	%	80-120	50		12/02/15 18:01	2037-26-5	
4-Bromofluorobenzene (S)	101	%	80-120	50		12/02/15 18:01	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	82-119	50		12/02/15 18:01	17060-07-0	
Preservation pH	**5.0**		0.10	50		12/02/15 18:01		pH

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ANALYTICAL RESULTS

Project: SAC & FOX
Pace Project No.: 60207920

Sample: GW-P3 **Lab ID: 60207920003** Collected: 11/19/15 16:04 Received: 11/20/15 12:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
tert-Amylmethyl ether	ND	ug/L	1.0	1		12/03/15 06:01	994-05-8	
Benzene	**968**	ug/L	20.0	20		12/03/15 13:56	71-43-2	
tert-Butyl Alcohol	ND	ug/L	10.0	1		12/03/15 06:01	75-65-0	
Diisopropyl ether	ND	ug/L	1.0	1		12/03/15 06:01	108-20-3	
Ethylbenzene	**429**	ug/L	20.0	20		12/03/15 13:56	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	1.0	1		12/03/15 06:01	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		12/03/15 06:01	1634-04-4	
Naphthalene	**68.9**	ug/L	10.0	1		12/03/15 06:01	91-20-3	
Toluene	**2380**	ug/L	20.0	20		12/03/15 13:56	108-88-3	
TPH-GRO	**22500**	ug/L	10000	20		12/03/15 13:56		
Xylene (Total)	**2220**	ug/L	60.0	20		12/03/15 13:56	1330-20-7	
Surrogates								
Toluene-d8 (S)	98	%	80-120	1		12/03/15 06:01	2037-26-5	
4-Bromofluorobenzene (S)	97	%	80-120	1		12/03/15 06:01	460-00-4	
1,2-Dichloroethane-d4 (S)	91	%	82-119	1		12/03/15 06:01	17060-07-0	
Preservation pH	**5.0**		0.10	1		12/03/15 06:01		pH

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ANALYTICAL RESULTS

Project: SAC & FOX
Pace Project No.: 60207920

Sample: GW-P4 **Lab ID: 60207920004** Collected: 11/20/15 10:33 Received: 11/20/15 12:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
tert-Amylmethyl ether	ND	ug/L	1.0	1		12/03/15 06:16	994-05-8	
Benzene	ND	ug/L	1.0	1		12/03/15 14:10	71-43-2	
tert-Butyl Alcohol	ND	ug/L	10.0	1		12/03/15 06:16	75-65-0	
Diisopropyl ether	ND	ug/L	1.0	1		12/03/15 06:16	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		12/03/15 14:10	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	1.0	1		12/03/15 06:16	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		12/03/15 06:16	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		12/03/15 06:16	91-20-3	
Toluene	ND	ug/L	1.0	1		12/03/15 14:10	108-88-3	
TPH-GRO	ND	ug/L	500	1		12/03/15 14:10		
Xylene (Total)	ND	ug/L	3.0	1		12/03/15 14:10	1330-20-7	
Surrogates								
Toluene-d8 (S)	101	%	80-120	1		12/03/15 06:16	2037-26-5	
4-Bromofluorobenzene (S)	101	%	80-120	1		12/03/15 06:16	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	82-119	1		12/03/15 06:16	17060-07-0	
Preservation pH	**1.0**		0.10	1		12/03/15 06:16		

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ANALYTICAL RESULTS

Project: SAC & FOX
Pace Project No.: 60207920

Sample: TRIP BLANK **Lab ID: 60207920005** Collected: 11/19/15 12:00 Received: 11/20/15 12:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
tert-Amylmethyl ether	ND	ug/L	1.0	1		12/03/15 06:30	994-05-8	
Benzene	ND	ug/L	1.0	1		12/03/15 06:30	71-43-2	
tert-Butyl Alcohol	ND	ug/L	10.0	1		12/03/15 06:30	75-65-0	
Diisopropyl ether	ND	ug/L	1.0	1		12/03/15 06:30	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		12/03/15 06:30	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	1.0	1		12/03/15 06:30	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		12/03/15 06:30	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		12/03/15 06:30	91-20-3	
Toluene	ND	ug/L	1.0	1		12/03/15 06:30	108-88-3	
TPH-GRO	ND	ug/L	500	1		12/03/15 06:30		CU
Xylene (Total)	ND	ug/L	3.0	1		12/03/15 06:30	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		12/03/15 06:30	2037-26-5	
4-Bromofluorobenzene (S)	100	%	80-120	1		12/03/15 06:30	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	82-119	1		12/03/15 06:30	17060-07-0	
Preservation pH	**1.0**		0.10	1		12/03/15 06:30		

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QUALITY CONTROL DATA

Project: SAC & FOX
Pace Project No.: 60207920

QC Batch: MSV/73115
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV MO GRO Oxygenates
Associated Lab Samples: 60207920001, 60207920002

METHOD BLANK: 1677401
Matrix: Water
Associated Lab Samples: 60207920001, 60207920002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	12/02/15 12:39	
Diisopropyl ether	ug/L	ND	1.0	12/02/15 12:39	
Ethyl-tert-butyl ether	ug/L	ND	1.0	12/02/15 12:39	
Ethylbenzene	ug/L	ND	1.0	12/02/15 12:39	
Methyl-tert-butyl ether	ug/L	ND	1.0	12/02/15 12:39	
Naphthalene	ug/L	ND	10.0	12/02/15 12:39	
tert-Amylmethyl ether	ug/L	ND	1.0	12/02/15 12:39	
tert-Butyl Alcohol	ug/L	ND	10.0	12/02/15 12:39	
Toluene	ug/L	ND	1.0	12/02/15 12:39	
TPH-GRO	ug/L	ND	500	12/02/15 12:39	
Xylene (Total)	ug/L	ND	3.0	12/02/15 12:39	
1,2-Dichloroethane-d4 (S)	%	99	82-119	12/02/15 12:39	
4-Bromofluorobenzene (S)	%	100	80-120	12/02/15 12:39	
Toluene-d8 (S)	%	103	80-120	12/02/15 12:39	

LABORATORY CONTROL SAMPLE: 1677402

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	18.4	92	80-120	
Diisopropyl ether	ug/L	20	18.1	90	71-126	
Ethyl-tert-butyl ether	ug/L	20	19.1	95	79-121	
Ethylbenzene	ug/L	20	18.2	91	80-120	
Methyl-tert-butyl ether	ug/L	20	20.1	101	74-120	
Naphthalene	ug/L	20	19.1	95	73-128	
tert-Amylmethyl ether	ug/L	20	18.9	94	80-120	
tert-Butyl Alcohol	ug/L	100	107	107	65-131	
Toluene	ug/L	20	18.0	90	80-120	
TPH-GRO	ug/L	4000	3720	93	53-122	
Xylene (Total)	ug/L	60	55.0	92	80-120	
1,2-Dichloroethane-d4 (S)	%			103	82-119	
4-Bromofluorobenzene (S)	%			97	80-120	
Toluene-d8 (S)	%			101	80-120	

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QUALITY CONTROL DATA

Project: SAC & FOX
Pace Project No.: 60207920

QC Batch: MSV/73126 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV MO GRO Oxygenates
Associated Lab Samples: 60207920003, 60207920004, 60207920005

METHOD BLANK: 1677605 Matrix: Water
Associated Lab Samples: 60207920003, 60207920004, 60207920005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	12/03/15 05:47	
Diisopropyl ether	ug/L	ND	1.0	12/03/15 05:47	
Ethyl-tert-butyl ether	ug/L	ND	1.0	12/03/15 05:47	
Ethylbenzene	ug/L	ND	1.0	12/03/15 05:47	
Methyl-tert-butyl ether	ug/L	ND	1.0	12/03/15 05:47	
Naphthalene	ug/L	ND	10.0	12/03/15 05:47	
tert-Amylmethyl ether	ug/L	ND	1.0	12/03/15 05:47	
tert-Butyl Alcohol	ug/L	ND	10.0	12/03/15 05:47	
Toluene	ug/L	ND	1.0	12/03/15 05:47	
TPH-GRO	ug/L	ND	500	12/03/15 05:47	
Xylene (Total)	ug/L	ND	3.0	12/03/15 05:47	
1,2-Dichloroethane-d4 (S)	%	100	82-119	12/03/15 05:47	
4-Bromofluorobenzene (S)	%	99	80-120	12/03/15 05:47	
Toluene-d8 (S)	%	98	80-120	12/03/15 05:47	

LABORATORY CONTROL SAMPLE: 1677606

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	18.4	92	80-120	
Diisopropyl ether	ug/L	20	18.4	92	71-126	
Ethyl-tert-butyl ether	ug/L	20	18.9	95	79-121	
Ethylbenzene	ug/L	20	18.9	94	80-120	
Methyl-tert-butyl ether	ug/L	20	20.1	100	74-120	
Naphthalene	ug/L	20	18.5	93	73-128	
tert-Amylmethyl ether	ug/L	20	18.6	93	80-120	
tert-Butyl Alcohol	ug/L	100	103	103	65-131	
Toluene	ug/L	20	19.3	97	80-120	
TPH-GRO	ug/L	4000	3220	80	53-122	
Xylene (Total)	ug/L	60	59.0	98	80-120	
1,2-Dichloroethane-d4 (S)	%			98	82-119	
4-Bromofluorobenzene (S)	%			99	80-120	
Toluene-d8 (S)	%			102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1677607 1677608

Parameter	Units	60207823007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	0.35J	20	20	17.9	18.3	88	90	46-155	2	13	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: SAC & FOX
Pace Project No.: 60207920

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1677607 1677608

Parameter	Units	60207823007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diisopropyl ether	ug/L	ND	20	20	16.0	17.6	80	88	61-136	9	44	
Ethyl-tert-butyl ether	ug/L	ND	20	20	16.2	18.0	81	90	60-142	11	45	
Ethylbenzene	ug/L	ND	20	20	17.5	17.3	87	87	51-148	1	14	
Methyl-tert-butyl ether	ug/L	74.7	20	20	112	116	184	205	41-156	4	17	M1
Naphthalene	ug/L	ND	20	20	17.9	18.8	89	94	41-148	5	33	
tert-Amylmethyl ether	ug/L	0.69J	20	20	17.2	18.7	83	90	66-136	8	22	
tert-Butyl Alcohol	ug/L	10.9	100	100	103	110	93	99	47-141	6	38	
Toluene	ug/L	ND	20	20	18.1	18.1	90	90	47-149	0	16	
Xylene (Total)	ug/L	ND	60	60	53.1	53.7	88	90	39-158	1	15	
1,2-Dichloroethane-d4 (S)	%						103	104	82-119			
4-Bromofluorobenzene (S)	%						99	98	80-120			
Toluene-d8 (S)	%						101	98	80-120			
Preservation pH		1.0			1.0	1.0				0		

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QUALITY CONTROL DATA

Project: SAC & FOX
Pace Project No.: 60207920

QC Batch: MSV/73139
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV MO GRO Oxygenates
Associated Lab Samples: 60207920003, 60207920004

METHOD BLANK: 1678123
Matrix: Water
Associated Lab Samples: 60207920003, 60207920004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	12/03/15 12:12	
Ethylbenzene	ug/L	ND	1.0	12/03/15 12:12	
Toluene	ug/L	ND	1.0	12/03/15 12:12	
TPH-GRO	ug/L	ND	500	12/03/15 12:12	
Xylene (Total)	ug/L	ND	3.0	12/03/15 12:12	
1,2-Dichloroethane-d4 (S)	%	98	82-119	12/03/15 12:12	
4-Bromofluorobenzene (S)	%	98	80-120	12/03/15 12:12	
Toluene-d8 (S)	%	101	80-120	12/03/15 12:12	

LABORATORY CONTROL SAMPLE: 1678124

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	17.8	89	80-120	
Ethylbenzene	ug/L	20	17.7	89	80-120	
Toluene	ug/L	20	18.8	94	80-120	
TPH-GRO	ug/L	4000	4360	109	53-122	
Xylene (Total)	ug/L	60	54.5	91	80-120	
1,2-Dichloroethane-d4 (S)	%			97	82-119	
4-Bromofluorobenzene (S)	%			99	80-120	
Toluene-d8 (S)	%			103	80-120	

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QUALIFIERS

Project: SAC & FOX
Pace Project No.: 60207920

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.

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TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: MSV/73115

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

ANALYTE QUALIFIERS

CU The continuing calibration for this compound is outside of Pace Analytical acceptance limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias

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

pH Post-analysis pH measurement indicates insufficient VOA sample preservation.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: SAC & FOX
Pace Project No.: 60207920

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60207920001	GW-MW	EPA 8260	MSV/73115		
60207920002	GW-P2	EPA 8260	MSV/73115		
60207920003	GW-P3	EPA 8260	MSV/73126		
60207920003	GW-P3	EPA 8260	MSV/73139		
60207920004	GW-P4	EPA 8260	MSV/73126		
60207920004	GW-P4	EPA 8260	MSV/73139		
60207920005	TRIP BLANK	EPA 8260	MSV/73126		

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Sample Condition Upon Receipt

WO#: 60207920

60207920

Client Name: Terracon

Optional
Proj Due Date:
Proj Name:

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

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-239 (CF +0.6) / T-262 (CF +0.6) **Type of Ice:** Wet Blue None (circle one) ☐ Samples received on ice, cooling process has begun.

Cooler Temperature: 2.8

Temperature should be above freezing to 6°C

Date and Initials of person examining contents: 11/20

Chain of Custody present:	☒Yes	☐No	☐N/A	1.
Chain of Custody filled out:	☒Yes	☐No	☐N/A	2.
Chain of Custody relinquished:	☒Yes	☐No	☐N/A	3.
Sampler name & signature on COC:	☒Yes	☐No	☐N/A	4.
Samples arrived within holding time:	☒Yes	☐No	☐N/A	5.
Short Hold Time analyses (<72hr):	☐Yes	☒No	☐N/A	6.
Rush Turn Around Time requested:	☐Yes	☒No	☐N/A	7.
Sufficient volume:	☒Yes	☐No	☐N/A	8.
Correct containers used:	☒Yes	☐No	☐N/A	
Pace containers used:	☒Yes	☐No	☐N/A	9.
Containers intact:	☒Yes	☐No	☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes	☐No	☒N/A	11.
Filtered volume received for dissolved tests?	☐Yes	☐No	☒N/A	12.
Sample labels match COC:	☒Yes	☐No	☐N/A	
Includes date/time/ID/analyses Matrix: WT				13.
All containers needing preservation have been checked.	☐Yes	☐No	☒N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes	☐No	☒N/A	14.
Exceptions: VOA, Coliform, O&G, WI-DRO (water)	☒Yes	☐No		Initial when completed / Lot # of added preservative
Trip Blank present:	☒Yes	☐No	☐N/A	
Pace Trip Blank lot # (if purchased): Covered				15.
Headspace in VOA vials (>6mm):	☐Yes	☒No	☐N/A	16.
Project sampled in USDA Regulated Area:	☐Yes	☐No	☒N/A	17. List State:
Additional labels attached to 5035A vials in the field?	☐Yes	☐No	☒N/A	18.

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: AAF Date: 11/20/15

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:

Company	Terranext
Address	11904 Grandview Road
Grandview, MO 64030	
Email	mwatson@terranext.net
Phone	816-289-6648 Fax
Requested Due Date	

Section B Required Project Information:

Report To	Meredith Watson
Copy To	
Purchase Order #	
Project Name	Sac&Fox
Project #.	

Section C Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote	
Pace Project Manager	alice flanagan@pacelabs.com
Pace Profile #:	

Regulatory Agency
State / Location
KS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	B260 VOCs	BTEX	Naph	Oxygenates	TPH GRO	Residual Chlorine (Y/N)	60207920
1	GW-MW	WT	G			11/19/15	1232		3				X							X	X	X	X		(3) DGAH GW1
2	GW-P2	↓	↓			11/19/15	1626		2				↓							↓	↓	↓	↓		(2) DGAH GW2
3	GW-P3	↓	↓			11/19/15	1604		3				↓							↓	↓	↓	↓		(3) DGAH GW3
4	GW-P4	↓	↓			11/20/15	1033		3				↓							↓	↓	↓	↓		↓ GW4
5	TRIP BLANK	↓	↓			11/19/15	1200		2				↓							X	~~X~~	~~X~~	~~X~~		(2) DGAH 10 GW5
6																									
7																									
8																									
9																									
10																									
11																									
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	MPW / Terranext	11/20/15	1235	[signature]	11/20/15	1235	2-8	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Meredith P. Watson

SIGNATURE of SAMPLER: [signature] DATE Signed: 11/20/15

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

ATTACHMENT E

Field Notes

11/19/15 Sac & Fox Truck Stop MPW

1000 M. Watson and Robert Tieman (PSA) On-site for groundwater investigation. Set up PID. Meet with station manager about activities and possible locations of unmarked utility lines product lines.

1013 Conduct tailgate H+S meeting. Set up to probe location west of USTs.

1017 PID calibration 0/100

1030 P1 location was within tank basin. Backing west 5ft. Mark Junker, Sac + Fox environmental management on-site

1050 Theresa Almoruster (Sac + Fox) and Robert Trump (TPS) on-site.

1120 Refusal at 23'. Installing temporary casing.

1150 Unable to set screen. Changing to screen point sampling.

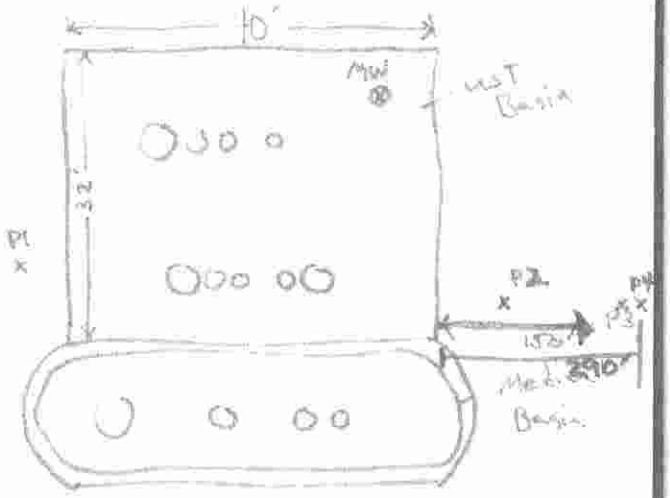
215 Gauge tank pit monitoring well.
SWL = 5.92 ft bTOC, TD = 12.31 ft
casing = 4 inch Purge Vol. = 13 gal

232 Sample time for GW-MW after purging 15 gallons. Strong odor sheen.

1245 screen point sampler dry. Moving to P2 location east of USTs.

MPW

MPW 17102679 11/19



1300 P2 for groundwater only (P2). Not field screened.

1350 Refusal at 20' bgs. Installed temporary casing. Unlikely to produce groundwater

1400 Confer with property representatives to recommend installation of permanent monitoring wells.

1410 set up to field screen near wet well located between USTs and reservoir.

1445 P3 location still impacted. Moving 140 ft farther east from P3 (P4) which is 150 ft east of UST basin

MPW

11/19/15 Sac & Fox Truck Stop MPW

1530 Installed temporary casing at P4. (E of P3)

1545 Robert Trump offsite.

1554 SWL at P3 = 9.4 ft bgs.

1556 SWL at P2 = 19.2 ft bgs.

1604 collect sample using check valve and tubing.

1626 Collect P2 sample.

1645 Samples on ice. P4 location was dry. Leaving temporary casing. Locations P1, P2, and P3 were plugged with bentonite chips after removing casing and capped with concrete to match surrounding surface. PSA and Terranext offsite.

MPW

MPW 17102679 11/20/15

1025 M. Watson on-site to collect ground water from P4 location.

1028 SWL @ P4 = 11.2' bgs

1033 Sample time for GW-P4 collected using check valve and tubing.

1045 P4 plugged with bentonite chips after removing casing. Samples on ice. Terranext offsite.

1235 Four samples + trip blank submitted to Pace Analytical.

MPW

SITE HEALTH AND SAFETY PLAN

PROJECT NAME: Sac & Fox Truck Stop **PROJECT NUMBER:** 17102679

A. Site Description

Dates: November 2015 **Location:** 1346 US 75 Hwy Powhattten, Kansas

Site Hazards: automotive traffic, slips, trips, falls, and exposure to BTEX

Area Affected: Retail gasoline station

Surrounding Population: Commercial

Weather Conditions: Mild to severe winter weather

B. Safety Considerations - The safety concerns and objectives of the initial and following entries to the impacted area are to:

Be aware of traffic at the gasoline station and exposure to contaminated ground water.

C. On Site Coordination - The following personnel are designated to carry out the stated job functions during the field investigation activities:

Project Manager: Christopher Kinn
Site Safety Officer: Meredith Watson
Field Team Leader: Meredith Watson
Field Team Members: Meredith Watson

State Agency Representatives: Mark Junker, Sac & Fox Nation Env. Dept.

Client Representatives: Robert Trump, TPS

Contractors: PSA

D. On Site Control - The Field Team Leader has been designated to coordinate access control and security on site. At a minimum, an exclusion zone of 25 horizontal feet will be enforced for all unauthorized personnel during drilling activities.

SITE HEALTH AND SAFETY PLAN (Continued)

E. **Hazard Evaluation - The following substance(s) are known or suspected to be on the site. The primary hazards of each are identified.**

Substance Involved	Concentration	Primary Hazards
Benzene	unknown	human carcinogen

F. **Personal Protective Equipment - Based on the evaluation of potential hazards, the following levels of personal protection have been designated for the applicable scope of work:**

Level D - Includes site protective clothing, steel-toe boots, protective gloves, hard hat when necessary.
Level C - Includes air purifying cartridge respirator and protective clothing - the level of protection will be determined by the on site Field Team Leader.

G. **Personal Monitoring - The following personal monitoring will be in effect on site:**

A PID will not be utilized on-site. Visual and olfactory observation will be utilized.

H. **Emergency Medical Care - The following first aid equipment is available on site at the following locations:**

First Aid Kit On BE&K/Terranext vehicle
Eye Wash On BE&K/Terranext vehicle

_is the designated facility for emergency medical care.

List of Emergency Phone Numbers:

Agency	Phone Number	Contact
EMS	911	
Horton Community Hospital	785-486-2642	ER

Horton Community Hospital is located at 240 W 18th St in Horton, KS 66439

Google Maps

Sac & Fox Truck Stop to Horton Community Hospital 240 W 18th St. Horton

Drive 13.6 miles, 19 min

Sac & Fox Truck Stop

1348 U.S. 75, Powhattan, KS 66527

Continue to US-75 S

1 min (0.3 mi)

1. Head east

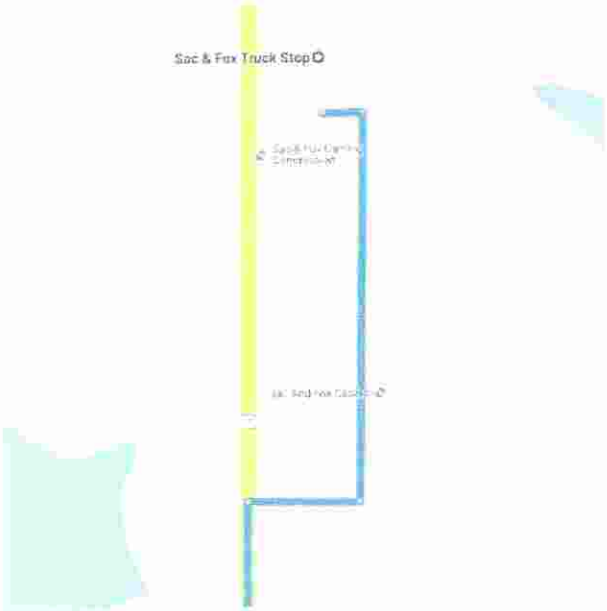
121 ft

2. Turn right toward US-75 S

0.2 mi

3. Turn right toward US-75 S

335 ft



Take KS-20 E/110th St to 2nd Ave W in Horton

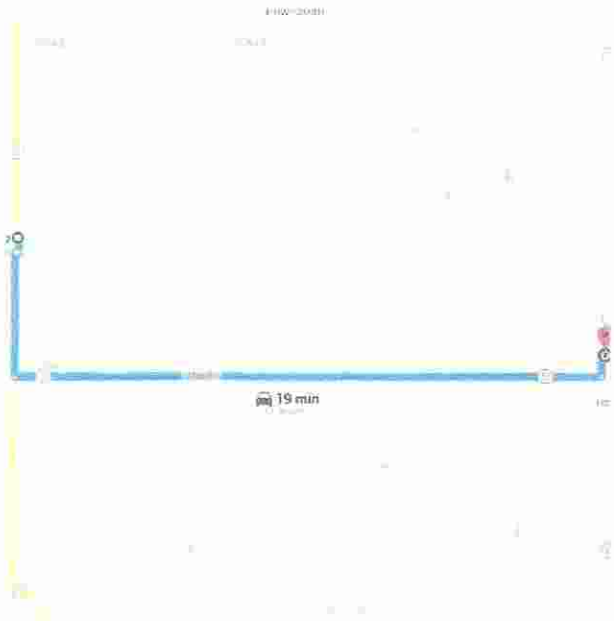
15 min (12.9 mi)

4. Turn left onto US-75 S

2.2 mi

5. Turn left onto KS-20 E/110th St

10.6 mi



Continue on 2nd Ave W to your destination

2 min (0.4 mi)

6. Turn left onto 2nd Ave W

0.4 mi

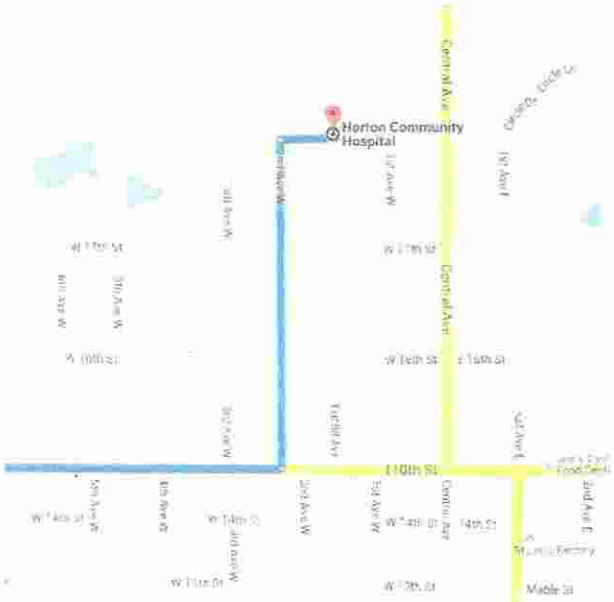
7. Turn right onto W 18th St

328 ft

8. Turn left

Destination will be on the left

26 ft



Horton Community Hospital

Horton, KS 66439

240 W. 18th Street

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

I. **All site personnel have read the above plan and are familiar with its provisions:**

Name	Signature	Date
Robert Tieman	[illegible]	11-19-15
[illegible] Watson	[illegible]	11-19-15
Mark Junk	[illegible]	11-19-15
Robert L. Trump	[illegible]	11-19-15
Theresa Armbruster	Theresa Armbruster	11-19-15