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P.O. Box 130
Carlsbad, New Mexico 88221

January 25, 2019
Company: WPX Energy Permian
Location: Santa Fe Federal 8 SWD
API: 30-015-27126
PLSS: Unit A Sec 35 T22S R28E
GPS: 32.35442, -104.05143
NMOCD: 2RP-5138

Background

Expert Environmental Services, hereinafter referred to as (EES) has prepared this remediation proposal on behalf of **WPX Energy Services** to access the release of produced water and oil at the **Santa Fe Federal 8 SWD (Site)** located in Unit A (NE/4,NE4), Section 35, Township 28 South and Range 28 East in Eddy County, New Mexico. The GPS coordinates are as follows: North 32.35453 and West -104.05143. Surface owner of the site is the Bureau of Land Management.

According to the C-141: A power outage caused the injection pump to fail, resulting in the overfilling of the tanks and releasing 615 barrels of produced water and 5 barrels of oil into the lined SPCC containment. Approximately 80 barrels of fluid overflowed the containment and impacted the west side of location. A total of 605 barrels of produced water 5 barrels of oil was recovered. Leaving a net loss of 10 barrels of fluid unrecovered. A dirt berm was present around the location, containing the release to location, therefore not impacting surface off location.

Surface & Ground Water

The New Mexico Office of the State Engineer records indicates no water wells within a two-mile radius of this site. Ground water for this area is difficult to gather an accurate average. The average depth of ground water for Township 22 South and Range 28 East is 34' bgs. (see attached figures)

The closest well listed via the USGS is located 2.25 miles southwest of the location on the west side of the Pecos River with a depth to ground water of 19.44' at last recorded measurement. (see attached figure)

Chevron Trend Map shows an estimated depth to ground water at 50'bgs. (see attached figure)

No playas, lakes, active or intermittent streams within a one-mile radius of this site. (see attached figure)

This site is located 1.6 miles northeast of the Pecos River with approximately 100' increase in elevation rise. (see attached figure)

Cave/Karst

According to data from the Bureau of Land Management, this site is located within medium karst potential. No surface indicator of karst at surface. (see attached figure)

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Target Remedial Levels

The target cleanup levels are determined using the NMOCD Closure Criteria (19.15.29.12.B(4) and Table 1 NMAC) including guidelines from the Bureau of Land Management. *Based on the fact there is no available ground water data within a one-half-mile radius of this site,* the applicable recommended Remediation Action Levels (RRAL) are 10 parts per million (ppm) Benzene, 50 ppm combined benzene, toluene, ethyl benzene, and total xylenes (BTEX) and, 100 ppm Total Petroleum Hydrocarbons (TPH), characterization of vertical and horizontal extent of chloride concentration to a level of 600 mg/kg (PPM) is also required.

Closure Criteria (19.15.29.12.B(4) and Table 1 NMAC)						
Depth to Groundwater		**Closure Criteria (units in mg/kg)**				
		Chloride *numerical limit or background, whichever is greater	**TPH**	**GRO + DRO**	**BTEX**	**Benzene**
< 50' BGS or no water data within ½ mile	X	**600**	**100**		**50**	**10**
51' to 100'		10000	2500	1000	50	10
>100'		20000	2500	1000	50	10
Surface Water	**yes or no**	**if yes, then**				
<300' from continuously flowing watercourse or other significant watercourse?	**n**	600	100		50	10
<200' from lakebed, sinkhole or playa lake?	**n**					
Water Well or Water Source						
<500 feet from spring or a private, domestic fresh water well used by less than 5 households for domestic or stock watering purposes?	**n**					
<1000' from fresh water well or spring?	**n**					
Human and Other Areas						
<300' from an occupied permanent residence, school, hospital, institution or church?	**n**					
within incorporated municipal boundaries or within a defined municipal fresh water well field?	**n**					
<100' from wetland?	**n**					
within area overlying a subsurface mine	**n**					
within an unstable area?	**n**					
within a 100-year floodplain?	**n**					

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Delineation Activities

On November 28, 2018, WPX personnel were onsite to determine surface impact of the release. Seven surface samples were obtained from the site. All soil samples were properly packaged, preserved and transported to ALS Environmental by chain of custody, and analyzed for TPH (total petroleum hydrocarbons) (Method 8015M), BTEX, and Chlorides (Method 4500-Cl E-11). The results are presented in the following table (official analytical data attached):

Soil Sample Results: ALS Environmental Laboratories 11.28.2018						
SAMPLE ID	Benzene	Total BTEX	TPH GRO	TPH DRO	TPH ORO	Chlorides
BH18-01 Surface	0.045	0.3208	10	880	1400	14000
BH18-02 Surface	0.42	62.82	900	4200	4100	19000
BH18-03 Surface	ND	ND	ND	1000	1700	9600
BH18-04 Surface	ND	0.614	24	560	940	14000
BH18-05 Surface	ND	ND	ND	430	730	21000
BH18-06 Surface	ND	ND	ND	570	640	5300
BH18-07 Surface	ND	ND	32	1600	1700	30000

On January 24, 2018, EES personnel were onsite to install test trenches to determine the vertical extent of BTEX, TPH & Chloride contamination. Thirteen test holes were installed, and field tested for Chlorides. All soil samples were properly packaged, preserved and transported to Hall Environmental Laboratories via currier by chain of custody, and analyzed for TPH (total petroleum hydrocarbons) (Method 8015M), BTEX, and Chlorides (Method 300). The results are presented in the following table (official analytical data attached):

Soil Sample Results: ALS Environmental Laboratories 01.24.2019									
SAMPLE ID	Sample Depth	Benzene	Toluene	Ethyl Benzene	Total Xylene	TPH GRO	TPH DRO	TPH ORO	Chlorides
SP1	2-0*	ND	ND	0.29	1.4	**77**	**2500**	**1100**	180
SP2	3-0*	ND	ND	ND	ND	ND	ND	ND	**1800**
SP3	1-8*	ND	ND	ND	ND	ND	88	**120**	**2900**
SP4	2-0*	ND	ND	ND	ND	ND	71	**130**	**2900**
SP4A	3-0	ND	ND	ND	ND	ND	ND	ND	120
SP5	1-9*	ND	ND	ND	ND	ND	**150**	**230**	**4200**
SP5A	2-10*	ND	ND	ND	ND	ND	**44**	**82**	**660**
SP6	3-0*	ND	ND	ND	ND	ND	35	63	**2100**
SP6A	2-6*	ND	ND	ND	ND	**9**	**1400**	ND	**1200**
SP7	2-6*	ND	0.088	0.12	2.5	**89**	**4000**	**2000**	**6500**
SP7A	2-6	ND	ND	ND	ND	ND	47	ND	230
SP8	2-6*	ND	ND	0.23	1.2	**57**	**1300**	**590**	280
SP8A	1-0	ND	0.13	0.36	1.9	**93**	**1400**	**630**	120

*Due to dense rock – was unable to delineate further
Bold: above RRAL's

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Proposed Remedial Action Plan

Based on the fact there is no available ground water data within a one-half-mile radius of this site, EES proposes to advance a temporary monitor well on site to determine the depth to groundwater, therein defining the appropriate level of remedial activities. A 48 hour notice will be given to the NMOCD prior to advancing this temporary monitor well.

EES also proposes to advance core holes in the areas of elevated concentrations of TPH and chlorides to demonstrate delineation of the aforementioned contaminants. Confirmation samples will be collected from the core holes and submitted to the laboratory for official analysis.

Once all additional data has been gathered, a revised remedial proposal will be submitted to the NMOCD for approval.

Upon approval of this plan, EES will proceed with the requested proposal.

Attachments

NM OSE Water Data
USGS Water Data
Topo map with water features
FEMA Flood Hazard Map
Chevron Trend Map (reference only)
Topo map with elevation markers
BLM Cave/Karst Map
Site Photos
Sampling diagram from November 28, 2018
Sampling diagram from January 24, 2019
Analytical Results

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New Mexico Office of the State Engineer - Average Depth to Water for Township 22 South and Range 28 East

New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
C 00035		CUB	ED	3	3	3	32	22S	28E	583127	3578762*	146		
C 00036		CUB	ED	3	3	2	32	22S	28E	583916	3579583*	106		
C 00052	O	CUB	ED	3	4	4	30	22S	28E	582707	3580371*	208	12	196
C 00212		CUB	ED	3	3	3	32	22S	28E	583127	3578762*	146	30	116
C 00212 CLW193874	O	CUB	ED	3	3	3	32	22S	28E	583127	3578762*			
C 00213		CUB	ED	1	4	1	32	22S	28E	583517	3579775*	200	35	165
C 00214		CUB	ED	2	3	3	32	22S	28E	583327	3578962*	200		
C 00236		C	ED	2	2	3	32	22S	28E	583723	3579372*	80	39	41
C 00642		C	ED				19	22S	28E	582220	3582687*	200		
C 01508		C	ED	1	1	4	18	22S	28E	582206	3584195*	180		
C 02840		CUB	ED	2	3	1	31	22S	28E	581721	3579758*	220		
C 03040		C	ED	4	3	1	31	22S	28E	582254	3579191	72	42	30
C 03094		C	ED	4	3	1	32	22S	28E	583317	3579567*	138	53	85
C 03184		C	ED	2	3	3	32	22S	28E	583327	3578962*	157	30	127
C 03533 POD1		CUB	ED	3	4	4	03	22S	28E	587377	3586934	55		
C 03533 POD2		CUB	ED	3	4	4	03	22S	28E	587358	3586935	55		
C 03533 POD3		CUB	ED	3	4	4	03	22S	28E	587370	3586911	55		
C 03533 POD4		CUB	ED	4	3	4	03	22S	28E	587331	3586892	55		
C 03534 POD1		CUB	ED	4	3	4	03	22S	28E	587240	3586950	150		

Average Depth to Water: **34 feet**
Minimum Depth: **12 feet**
Maximum Depth: **53 feet**

Record Count: 19

PLSS Search:

Township: 22S **Range:** 28E

***UTM location was derived from PLSS - see Help**

http://nmwrrs.ose.state.nm.us/ReportDispatcher?type=PODGHTML&name=PodGroundSummaryHTML.jrxml&basin=C&nbr=00035&suffix=

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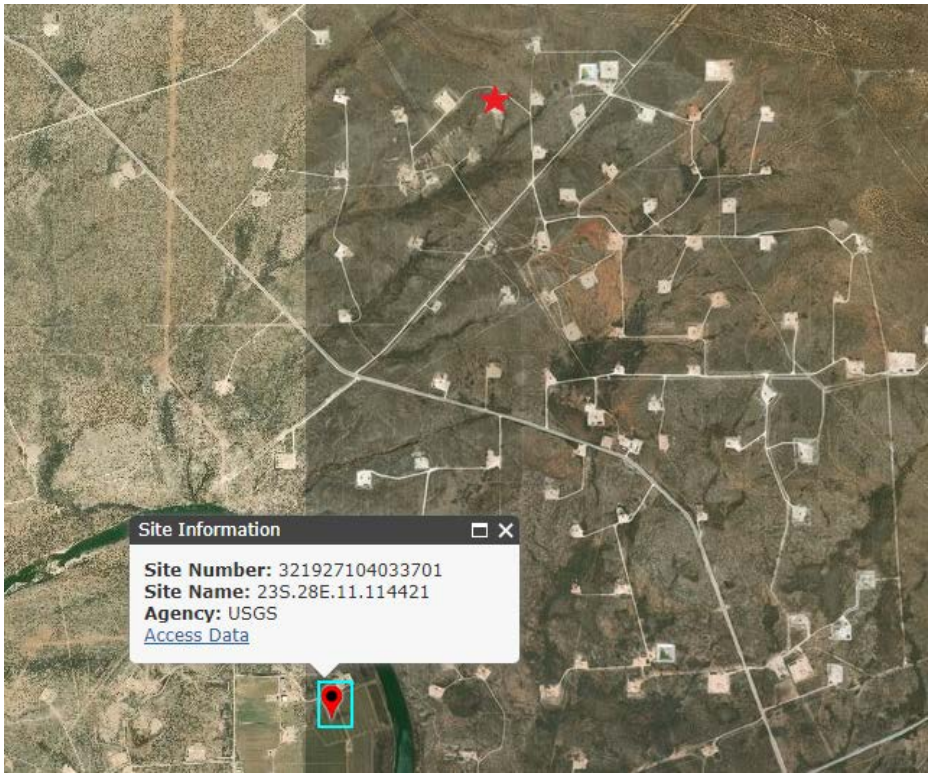
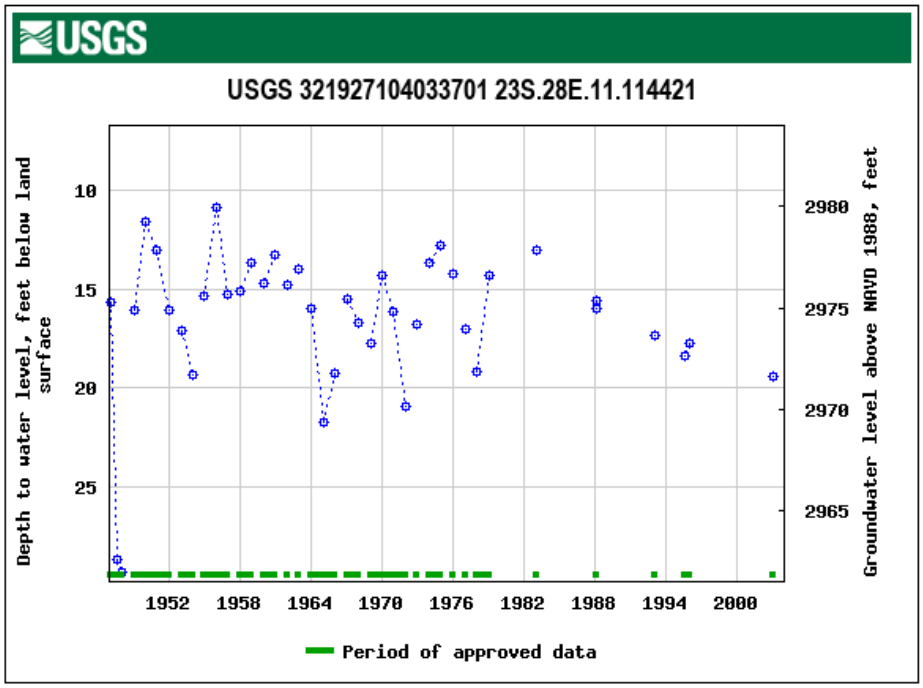
Nearest USGS well





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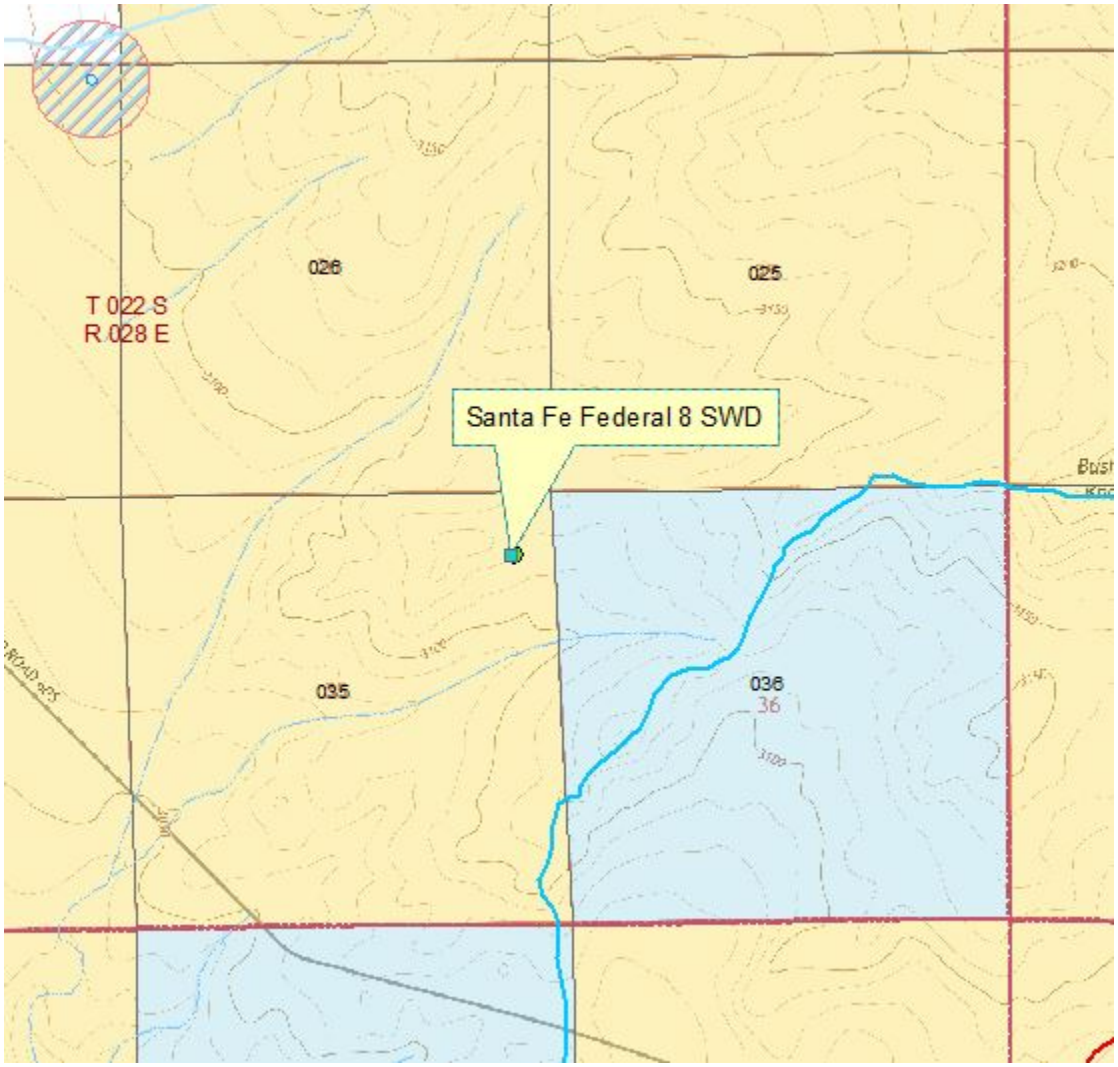
US Topographic Map with Water Features



National Flood Hazard Layer FIRMette

FEMA

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 — Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- 513 — Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/28/2019 at 1:47:25 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

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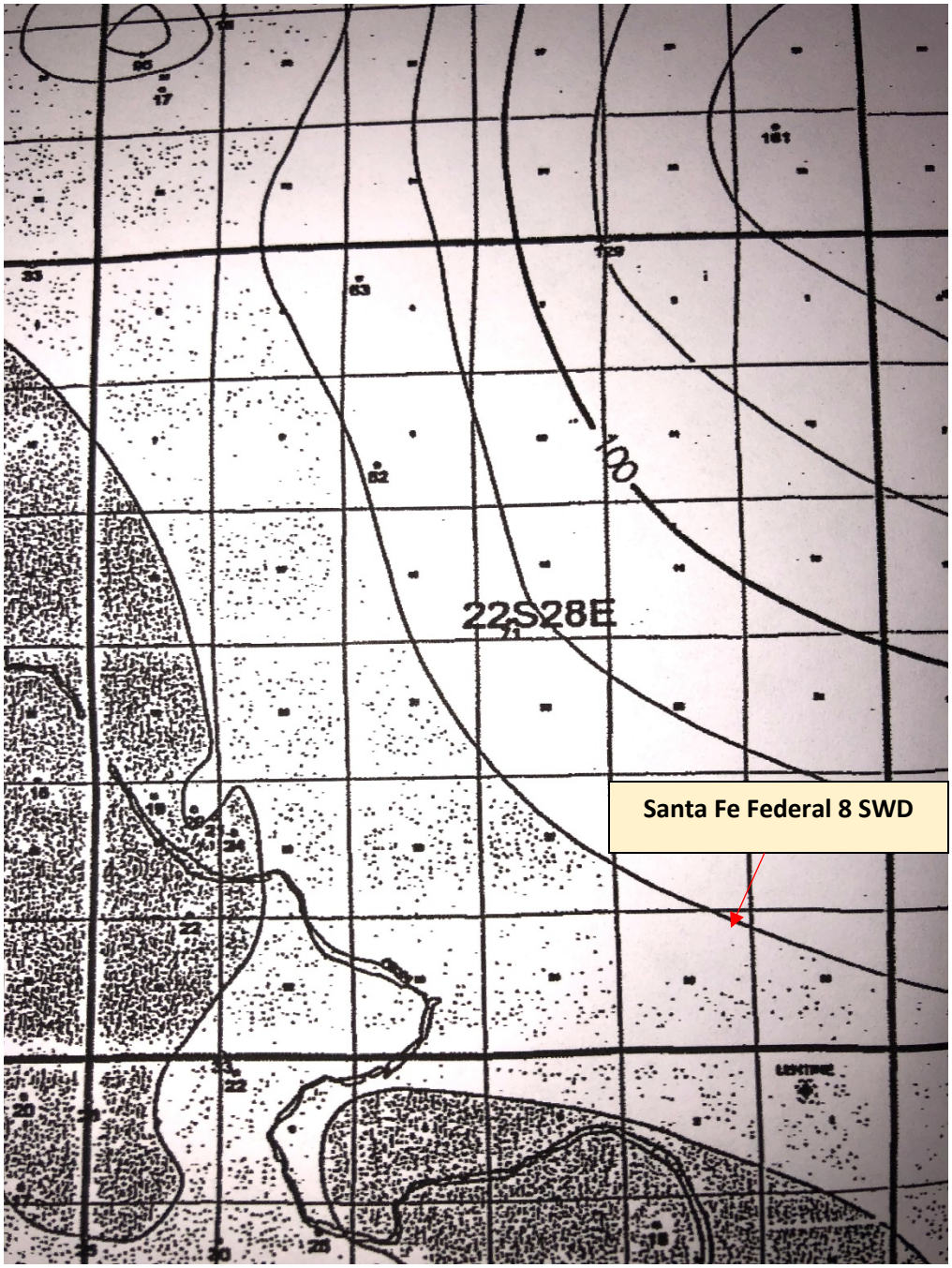
Chevron Trend Map (reference only)



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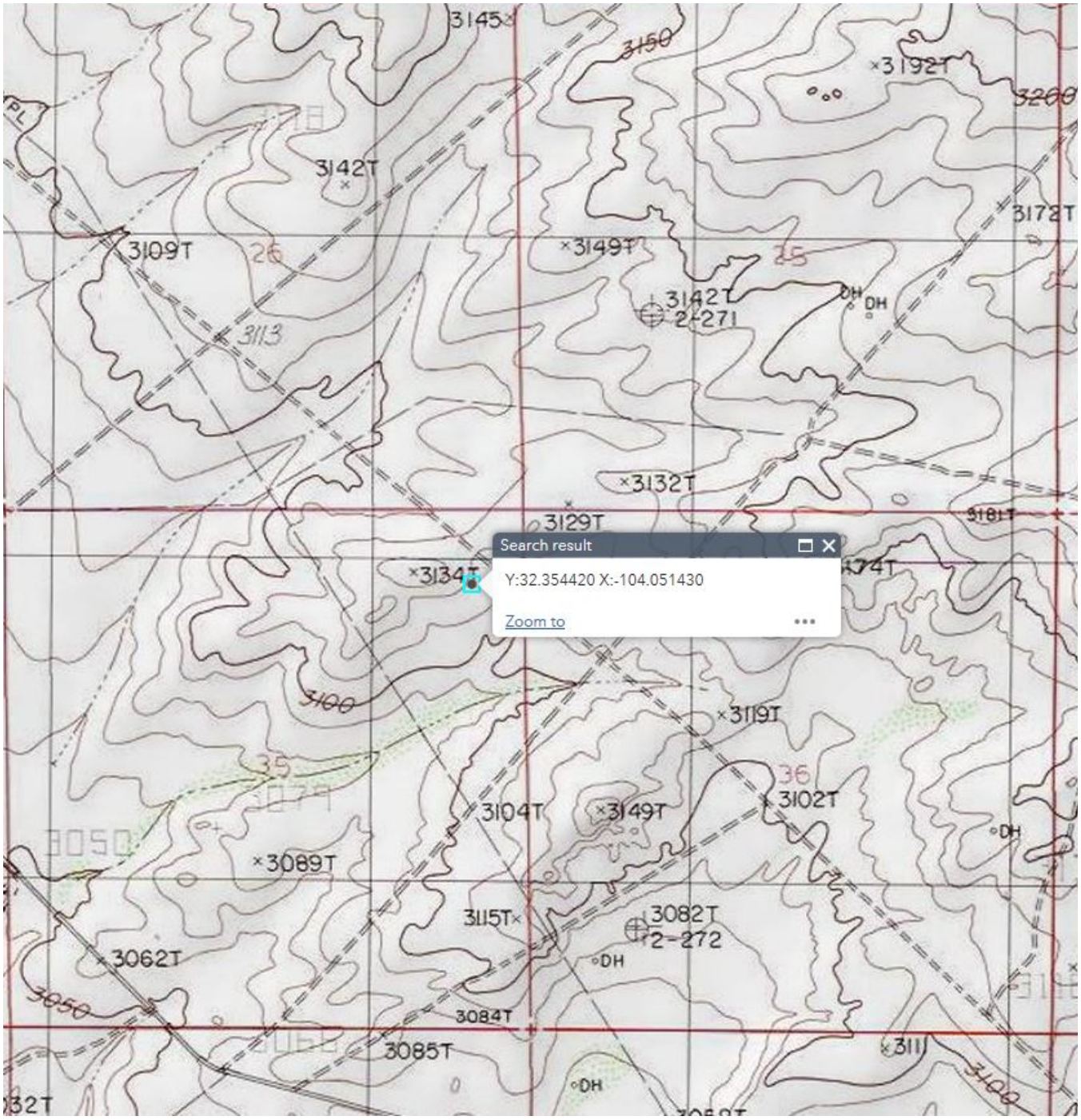
US Topographic map with elevation markers



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BLM CAVE/KARST MAP – medium karst potential

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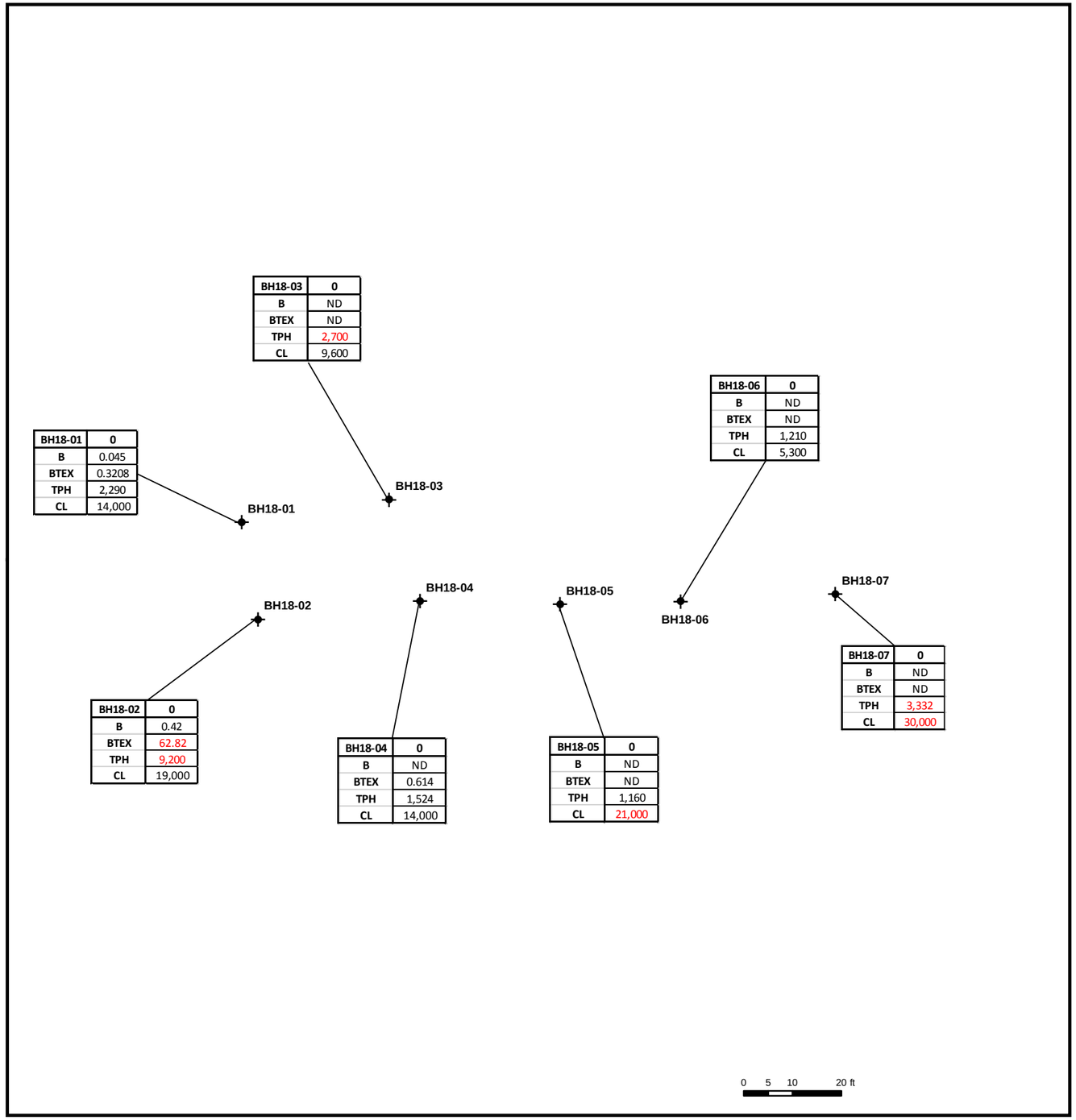
Site Pictures



Recommended Remediation Action Level (mg/kg)			
Benzene	BTEX	TPH	Chlorides
10 mg/kg	50 mg/kg	2,500 mg/kg	10,000 mg/kg

Legend

Borehole

NOTE: Image from Bing, 2017

WPXENERGY

Site Schematic
Santa Fe 8

VERTEX

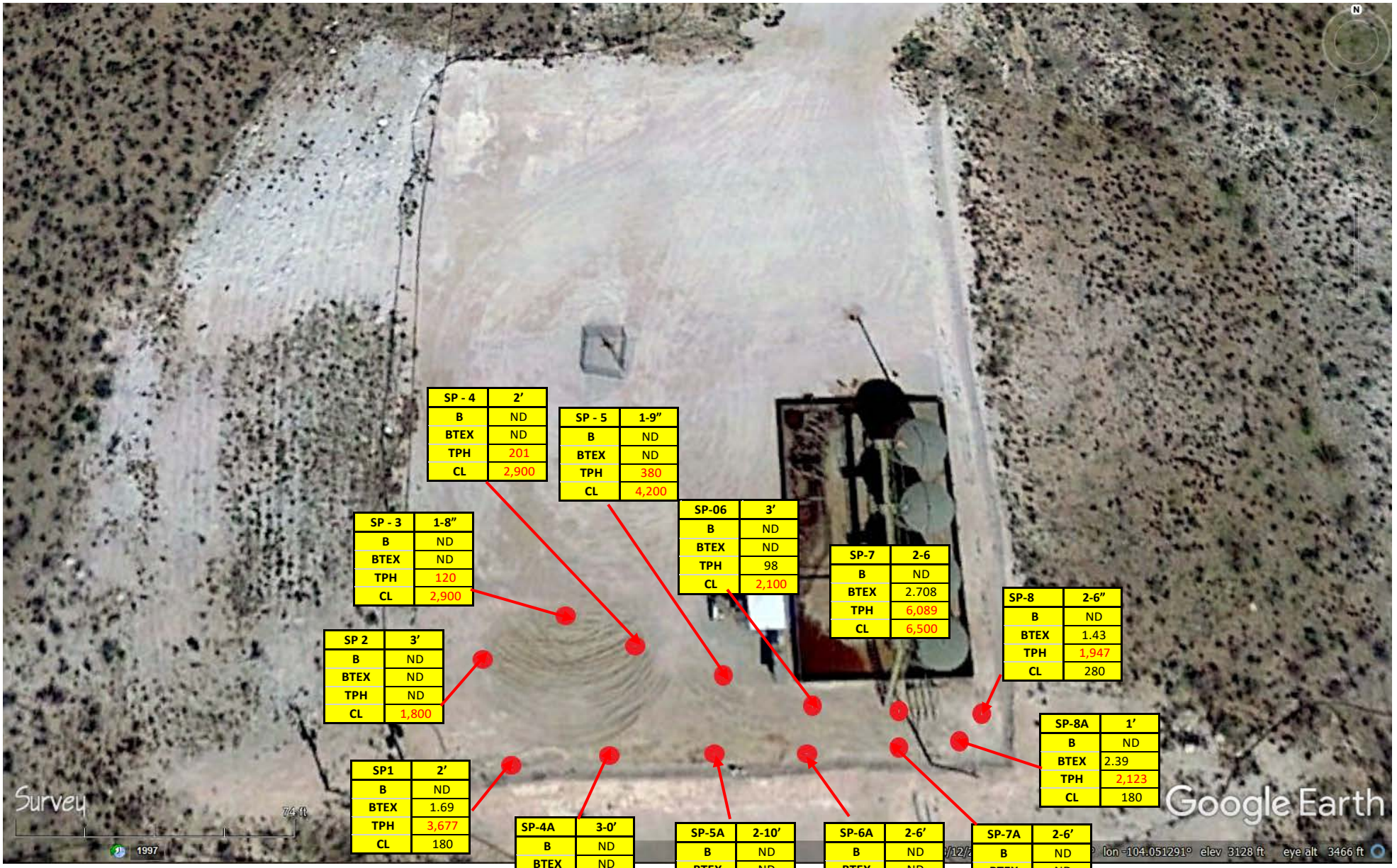
DRAWN: PS
APPROVED: KM
DATE: JAN 22/19

FIGURE: 1

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\WPX\17E-00043 Spill\Figure 1 Site Schematic Santa Fe 8 L (17E-00043).mxd

January 24, 2019 Sampling Activities of impacted area - Santa Fe Federal 8 SWD – WPX



SP - 4	2’
B	ND
BTEX	ND
TPH	201
CL	2,900

SP - 5	1-9”
B	ND
BTEX	ND
TPH	380
CL	4,200

SP - 3	1-8”
B	ND
BTEX	ND
TPH	120
CL	2,900

SP-06	3’
B	ND
BTEX	ND
TPH	98
CL	2,100

SP-7	2-6
B	ND
BTEX	2.708
TPH	6,089
CL	6,500

SP-8	2-6”
B	ND
BTEX	1.43
TPH	1,947
CL	280

SP 2	3’
B	ND
BTEX	ND
TPH	ND
CL	1,800

SP-8A	1’
B	ND
BTEX	2.39
TPH	2,123
CL	180

SP1	2’
B	ND
BTEX	1.69
TPH	3,677
CL	180

SP-4A	3-0’
B	ND
BTEX	ND
TPH	ND
CL	120

SP-5A	2-10’
B	ND
BTEX	ND
TPH	124
CL	660

SP-6A	2-6’
B	ND
BTEX	ND
TPH	1,409
CL	1,200

SP-7A	2-6’
B	ND
BTEX	ND
TPH	47
CL	230

10-Dec-2018

James Raley
WPX Energy
5315 Buena Vista Dr.
Carlsbad, NM 88220

Re: **Santa Fe 8** Work Order: **1812033**

Dear James,

ALS Environmental received 7 samples on 01-Dec-2018 11:15 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 21.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

Certificate No: MN 998501

ALS Group, USA

Date: 10-Dec-18

Client: WPX Energy
Project: Santa Fe 8
Work Order: **1812033**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1812033-01	BH18-01 (0 ft)	Soil		11/28/2018	12/1/2018 11:15	☐
1812033-02	BH18-02 (0 ft)	Soil		11/28/2018	12/1/2018 11:15	☐
1812033-03	BH18-03 (0 ft)	Soil		11/28/2018	12/1/2018 11:15	☐
1812033-04	BH18-04 (0 ft)	Soil		11/28/2018	12/1/2018 11:15	☐
1812033-05	BH18-05 (0 ft)	Soil		11/28/2018	12/1/2018 11:15	☐
1812033-06	BH18-06 (0 ft)	Soil		11/28/2018	12/1/2018 11:15	☐
1812033-07	BH18-07 (0 ft)	Soil		11/28/2018	12/1/2018 11:15	☐

ALS Group, USA

Date: 10-Dec-18

Client: WPX Energy
Project: Santa Fe 8
Work Order: 1812033

Case Narrative

Batch 128804, Method VOC_8260_S, Sample 1812033-07A: The VOC reporting limits are elevated due to dilution for high concentrations of non-target analytes.

Batch 128913, Method DRLVI_8015_S, Sample 1812033-03A MS/MSD: The MS/MSD recovery was outside of the control limit for ORO; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required.

Batch 128913, Method DRLVI_8015_S, Sample 1812033-03A MSD: The RPD between the MS and MSD was outside the control limit for DRO. The corresponding result in the parent sample should be considered estimated.

Batch 128913, Method DRLVI_8015_S, Sample 1812033-07A: DRO surrogate recovery high due to matrix interference.

ALS Group, USA

Date: 10-Dec-18

Client: WPX Energy
Project: Santa Fe 8
WorkOrder: **1812033**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
% of sample	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group, USA

Date: *10-Dec-18*

Client: WPX Energy
Project: Santa Fe 8
Sample ID: BH18-01 (0 ft)
Collection Date: 11/28/2018

Work Order: 1812033
Lab ID: 1812033-01
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015C**	Prep: SW3546 12/5/18 15:09		Analyst: **RP**
DRO (C10-C28)	**880**		**5.2**	**mg/Kg-dry**	1	12/6/2018 03:25 AM
ORO (C28-C40)	**1,400**		**5.2**	**mg/Kg-dry**	1	12/6/2018 03:25 AM
Surr: 4-Terphenyl-d14	*99.1*		*34-130*	*%REC*	1	12/6/2018 03:25 AM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**	Prep: SW5035 12/4/18 12:13		Analyst: **RP**
GRO (C6-C10)	**10**		**5.8**	**mg/Kg-dry**	1	12/7/2018 03:04 AM
Surr: Toluene-d8	*92.1*		*71-123*	*%REC*	1	12/7/2018 03:04 AM
VOLATILE ORGANIC COMPOUNDS			**SW8260C**	Prep: SW5035 12/3/18 15:01		Analyst: **WH**
Benzene	**0.045**		**0.035**	**mg/Kg-dry**	1	12/7/2018 08:52 PM
Ethylbenzene	ND		0.035	mg/Kg-dry	1	12/7/2018 08:52 PM
m,p-Xylene	**0.11**		**0.069**	**mg/Kg-dry**	1	12/7/2018 08:52 PM
o-Xylene	**0.053**		**0.035**	**mg/Kg-dry**	1	12/7/2018 08:52 PM
Toluene	**0.12**		**0.035**	**mg/Kg-dry**	1	12/7/2018 08:52 PM
Xylenes, Total	**0.16**		**0.10**	**mg/Kg-dry**	1	12/7/2018 08:52 PM
Surr: 1,2-Dichloroethane-d4	*108*		*70-130*	*%REC*	1	12/7/2018 08:52 PM
Surr: 4-Bromofluorobenzene	*106*		*70-130*	*%REC*	1	12/7/2018 08:52 PM
Surr: Dibromofluoromethane	*96.6*		*70-130*	*%REC*	1	12/7/2018 08:52 PM
Surr: Toluene-d8	*104*		*70-130*	*%REC*	1	12/7/2018 08:52 PM
CHLORIDE			**A4500-CL E-11**	Prep: EXTRACT 12/5/18 19:00		Analyst: **RLM**
Chloride	**14,000**		**320**	**mg/Kg-dry**	30	12/6/2018 12:00 PM
MOISTURE			**SW3550C**			Analyst: **KTP**
Moisture	**7.3**		**0.10**	**% of sample**	1	12/4/2018 01:45 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *10-Dec-18*

Client: WPX Energy
Project: Santa Fe 8
Sample ID: BH18-02 (0 ft)
Collection Date: 11/28/2018

Work Order: 1812033
Lab ID: 1812033-02
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015C**	Prep: SW3546 12/5/18 15:09		Analyst: **RP**
DRO (C10-C28)	**4,200**		**57**	**mg/Kg-dry**	10	12/7/2018 04:27 AM
ORO (C28-C40)	**4,100**		**57**	**mg/Kg-dry**	10	12/7/2018 04:27 AM
Surr: 4-Terphenyl-d14	*115*		*34-130*	*%REC*	10	12/7/2018 04:27 AM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**	Prep: SW5035 12/4/18 12:13		Analyst: **RP**
GRO (C6-C10)	**900**		**6.5**	**mg/Kg-dry**	1	12/7/2018 04:01 AM
Surr: Toluene-d8	*102*		*71-123*	*%REC*	1	12/7/2018 04:01 AM
VOLATILE ORGANIC COMPOUNDS			**SW8260C**	Prep: SW5035 12/3/18 15:01		Analyst: **WH**
Benzene	**0.42**		**0.39**	**mg/Kg-dry**	10	12/6/2018 07:09 PM
Ethylbenzene	**7.4**		**0.39**	**mg/Kg-dry**	10	12/6/2018 07:09 PM
m,p-Xylene	**30**		**0.78**	**mg/Kg-dry**	10	12/6/2018 07:09 PM
o-Xylene	**11**		**0.39**	**mg/Kg-dry**	10	12/6/2018 07:09 PM
Toluene	**14**		**0.39**	**mg/Kg-dry**	10	12/6/2018 07:09 PM
Xylenes, Total	**41**		**1.2**	**mg/Kg-dry**	10	12/6/2018 07:09 PM
Surr: 1,2-Dichloroethane-d4	*95.7*		*70-130*	*%REC*	10	12/6/2018 07:09 PM
Surr: 4-Bromofluorobenzene	*101*		*70-130*	*%REC*	10	12/6/2018 07:09 PM
Surr: Dibromofluoromethane	*91.4*		*70-130*	*%REC*	10	12/6/2018 07:09 PM
Surr: Toluene-d8	*108*		*70-130*	*%REC*	10	12/6/2018 07:09 PM
CHLORIDE			**A4500-CL E-11**	Prep: EXTRACT 12/5/18 19:00		Analyst: **RLM**
Chloride	**19,000**		**330**	**mg/Kg-dry**	30	12/6/2018 12:00 PM
MOISTURE			**SW3550C**			Analyst: **KTP**
Moisture	**13**		**0.10**	**% of sample**	1	12/4/2018 04:47 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *10-Dec-18*

Client: WPX Energy
Project: Santa Fe 8
Sample ID: BH18-03 (0 ft)
Collection Date: 11/28/2018

Work Order: 1812033
Lab ID: 1812033-03
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015C**	Prep: SW3546 12/5/18 15:09		Analyst: **RP**
DRO (C10-C28)	**1,000**		**5.1**	**mg/Kg-dry**	1	12/6/2018 02:56 AM
ORO (C28-C40)	**1,700**		**5.1**	**mg/Kg-dry**	1	12/6/2018 02:56 AM
Surr: 4-Terphenyl-d14	*101*		*34-130*	*%REC*	1	12/6/2018 02:56 AM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**	Prep: SW5035 12/4/18 12:13		Analyst: **RP**
GRO (C6-C10)	ND		5.5	mg/Kg-dry	1	12/7/2018 04:30 AM
Surr: Toluene-d8	*90.2*		*71-123*	*%REC*	1	12/7/2018 04:30 AM
VOLATILE ORGANIC COMPOUNDS			**SW8260C**	Prep: SW5035 12/3/18 15:01		Analyst: **PM**
Benzene	ND		0.033	mg/Kg-dry	1	12/10/2018 02:44 AM
Ethylbenzene	ND		0.033	mg/Kg-dry	1	12/10/2018 02:44 AM
m,p-Xylene	ND		0.066	mg/Kg-dry	1	12/10/2018 02:44 AM
o-Xylene	ND		0.033	mg/Kg-dry	1	12/10/2018 02:44 AM
Toluene	ND		0.033	mg/Kg-dry	1	12/10/2018 02:44 AM
Xylenes, Total	ND		0.10	mg/Kg-dry	1	12/10/2018 02:44 AM
Surr: 1,2-Dichloroethane-d4	*101*		*70-130*	*%REC*	1	12/10/2018 02:44 AM
Surr: 4-Bromofluorobenzene	*102*		*70-130*	*%REC*	1	12/10/2018 02:44 AM
Surr: Dibromofluoromethane	*96.4*		*70-130*	*%REC*	1	12/10/2018 02:44 AM
Surr: Toluene-d8	*105*		*70-130*	*%REC*	1	12/10/2018 02:44 AM
CHLORIDE			**A4500-CL E-11**	Prep: EXTRACT 12/5/18 19:00		Analyst: **RLM**
Chloride	**9,600**		**310**	**mg/Kg-dry**	30	12/6/2018 12:00 PM
MOISTURE			**SW3550C**			Analyst: **KTP**
Moisture	**5.1**		**0.10**	**% of sample**	1	12/4/2018 04:47 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *10-Dec-18*

Client: WPX Energy
Project: Santa Fe 8
Sample ID: BH18-04 (0 ft)
Collection Date: 11/28/2018

Work Order: 1812033
Lab ID: 1812033-04
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015C**	Prep: SW3546 12/5/18 15:09		Analyst: **RP**
DRO (C10-C28)	**560**		**5.4**	**mg/Kg-dry**	1	12/6/2018 04:52 AM
ORO (C28-C40)	**940**		**5.4**	**mg/Kg-dry**	1	12/6/2018 04:52 AM
Surr: 4-Terphenyl-d14	*73.1*		*34-130*	*%REC*	1	12/6/2018 04:52 AM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**	Prep: SW5035 12/4/18 12:13		Analyst: **RP**
GRO (C6-C10)	**24**		**5.8**	**mg/Kg-dry**	1	12/7/2018 04:59 AM
Surr: Toluene-d8	*93.8*		*71-123*	*%REC*	1	12/7/2018 04:59 AM
VOLATILE ORGANIC COMPOUNDS			**SW8260C**	Prep: SW5035 12/3/18 15:01		Analyst: **PM**
Benzene	ND		0.070	mg/Kg-dry	2	12/10/2018 02:11 AM
Ethylbenzene	**0.084**		**0.070**	**mg/Kg-dry**	2	12/10/2018 02:11 AM
m,p-Xylene	**0.37**		**0.14**	**mg/Kg-dry**	2	12/10/2018 02:11 AM
o-Xylene	**0.16**		**0.070**	**mg/Kg-dry**	2	12/10/2018 02:11 AM
Toluene	ND		0.070	mg/Kg-dry	2	12/10/2018 02:11 AM
Xylenes, Total	**0.53**		**0.21**	**mg/Kg-dry**	2	12/10/2018 02:11 AM
Surr: 1,2-Dichloroethane-d4	*92.8*		*70-130*	*%REC*	2	12/10/2018 02:11 AM
Surr: 4-Bromofluorobenzene	*107*		*70-130*	*%REC*	2	12/10/2018 02:11 AM
Surr: Dibromofluoromethane	*98.5*		*70-130*	*%REC*	2	12/10/2018 02:11 AM
Surr: Toluene-d8	*105*		*70-130*	*%REC*	2	12/10/2018 02:11 AM
CHLORIDE			**A4500-CL E-11**	Prep: EXTRACT 12/5/18 19:00		Analyst: **RLM**
Chloride	**14,000**		**320**	**mg/Kg-dry**	30	12/6/2018 12:00 PM
MOISTURE			**SW3550C**			Analyst: **KTP**
Moisture	**7.6**		**0.10**	**% of sample**	1	12/4/2018 04:47 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *10-Dec-18*

Client: WPX Energy
Project: Santa Fe 8
Sample ID: BH18-05 (0 ft)
Collection Date: 11/28/2018

Work Order: 1812033
Lab ID: 1812033-05
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015C**	Prep: SW3546 12/5/18 15:09		Analyst: **RP**
DRO (C10-C28)	**430**		**5.2**	**mg/Kg-dry**	1	12/6/2018 05:21 AM
ORO (C28-C40)	**730**		**5.2**	**mg/Kg-dry**	1	12/6/2018 05:21 AM
Surr: 4-Terphenyl-d14	*57.1*		*34-130*	*%REC*	1	12/6/2018 05:21 AM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**	Prep: SW5035 12/4/18 12:13		Analyst: **RP**
GRO (C6-C10)	ND		5.7	mg/Kg-dry	1	12/7/2018 05:28 AM
Surr: Toluene-d8	*92.6*		*71-123*	*%REC*	1	12/7/2018 05:28 AM
VOLATILE ORGANIC COMPOUNDS			**SW8260C**	Prep: SW5035 12/3/18 15:01		Analyst: **PM**
Benzene	ND		0.034	mg/Kg-dry	1	12/10/2018 02:27 AM
Ethylbenzene	ND		0.034	mg/Kg-dry	1	12/10/2018 02:27 AM
m,p-Xylene	ND		0.069	mg/Kg-dry	1	12/10/2018 02:27 AM
o-Xylene	ND		0.034	mg/Kg-dry	1	12/10/2018 02:27 AM
Toluene	ND		0.034	mg/Kg-dry	1	12/10/2018 02:27 AM
Xylenes, Total	ND		0.10	mg/Kg-dry	1	12/10/2018 02:27 AM
Surr: 1,2-Dichloroethane-d4	*103*		*70-130*	*%REC*	1	12/10/2018 02:27 AM
Surr: 4-Bromofluorobenzene	*93.4*		*70-130*	*%REC*	1	12/10/2018 02:27 AM
Surr: Dibromofluoromethane	*101*		*70-130*	*%REC*	1	12/10/2018 02:27 AM
Surr: Toluene-d8	*97.3*		*70-130*	*%REC*	1	12/10/2018 02:27 AM
CHLORIDE			**A4500-CL E-11**	Prep: EXTRACT 12/5/18 19:00		Analyst: **RLM**
Chloride	**21,000**		**320**	**mg/Kg-dry**	30	12/6/2018 12:00 PM
MOISTURE			**SW3550C**			Analyst: **KTP**
Moisture	**6.8**		**0.10**	**% of sample**	1	12/4/2018 04:47 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *10-Dec-18*

Client: WPX Energy
Project: Santa Fe 8
Sample ID: BH18-06 (0 ft)
Collection Date: 11/28/2018

Work Order: 1812033
Lab ID: 1812033-06
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015C**	Prep: SW3546 12/5/18 15:09		Analyst: **RP**
DRO (C10-C28)	**570**		**5.3**	**mg/Kg-dry**	1	12/6/2018 05:51 AM
ORO (C28-C40)	**640**		**5.3**	**mg/Kg-dry**	1	12/6/2018 05:51 AM
Surr: 4-Terphenyl-d14	*79.1*		*34-130*	*%REC*	1	12/6/2018 05:51 AM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**	Prep: SW5035 12/4/18 12:13		Analyst: **RP**
GRO (C6-C10)	ND		5.9	mg/Kg-dry	1	12/7/2018 05:57 AM
Surr: Toluene-d8	*84.3*		*71-123*	*%REC*	1	12/7/2018 05:57 AM
VOLATILE ORGANIC COMPOUNDS			**SW8260C**	Prep: SW5035 12/3/18 15:01		Analyst: **WH**
Benzene	ND		0.036	mg/Kg-dry	1	12/8/2018 01:16 AM
Ethylbenzene	ND		0.036	mg/Kg-dry	1	12/8/2018 01:16 AM
m,p-Xylene	ND		0.071	mg/Kg-dry	1	12/8/2018 01:16 AM
o-Xylene	ND		0.036	mg/Kg-dry	1	12/8/2018 01:16 AM
Toluene	ND		0.036	mg/Kg-dry	1	12/8/2018 01:16 AM
Xylenes, Total	ND		0.11	mg/Kg-dry	1	12/8/2018 01:16 AM
Surr: 1,2-Dichloroethane-d4	*105*		*70-130*	*%REC*	1	12/8/2018 01:16 AM
Surr: 4-Bromofluorobenzene	*105*		*70-130*	*%REC*	1	12/8/2018 01:16 AM
Surr: Dibromofluoromethane	*94.2*		*70-130*	*%REC*	1	12/8/2018 01:16 AM
Surr: Toluene-d8	*98.5*		*70-130*	*%REC*	1	12/8/2018 01:16 AM
CHLORIDE			**A4500-CL E-11**	Prep: EXTRACT 12/5/18 19:00		Analyst: **RLM**
Chloride	**5,300**		**110**	**mg/Kg-dry**	10	12/6/2018 12:00 PM
MOISTURE			**SW3550C**			Analyst: **KTP**
Moisture	**8.5**		**0.10**	**% of sample**	1	12/4/2018 04:47 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *10-Dec-18*

Client: WPX Energy
Project: Santa Fe 8
Sample ID: BH18-07 (0 ft)
Collection Date: 11/28/2018

Work Order: 1812033
Lab ID: 1812033-07
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015C**	Prep: SW3546 12/5/18 15:09		Analyst: **RP**
DRO (C10-C28)	**1,600**		**5.2**	**mg/Kg-dry**	1	12/6/2018 06:20 AM
ORO (C28-C40)	**1,700**		**5.2**	**mg/Kg-dry**	1	12/6/2018 06:20 AM
Surr: 4-Terphenyl-d14	*156*	S	*34-130*	*%REC*	1	12/6/2018 06:20 AM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**	Prep: SW5035 12/4/18 12:13		Analyst: **RP**
GRO (C6-C10)	**32**		**5.6**	**mg/Kg-dry**	1	12/7/2018 06:26 AM
Surr: Toluene-d8	*93.1*		*71-123*	*%REC*	1	12/7/2018 06:26 AM
VOLATILE ORGANIC COMPOUNDS			**SW8260C**	Prep: SW5035 12/3/18 15:01		Analyst: **WH**
Benzene	ND		0.33	mg/Kg-dry	10	12/8/2018 01:32 AM
Ethylbenzene	ND		0.33	mg/Kg-dry	10	12/8/2018 01:32 AM
m,p-Xylene	ND		0.67	mg/Kg-dry	10	12/8/2018 01:32 AM
o-Xylene	ND		0.33	mg/Kg-dry	10	12/8/2018 01:32 AM
Toluene	ND		0.33	mg/Kg-dry	10	12/8/2018 01:32 AM
Xylenes, Total	ND		1.0	mg/Kg-dry	10	12/8/2018 01:32 AM
Surr: 1,2-Dichloroethane-d4	*98.6*		*70-130*	*%REC*	10	12/8/2018 01:32 AM
Surr: 4-Bromofluorobenzene	*104*		*70-130*	*%REC*	10	12/8/2018 01:32 AM
Surr: Dibromofluoromethane	*95.2*		*70-130*	*%REC*	10	12/8/2018 01:32 AM
Surr: Toluene-d8	*101*		*70-130*	*%REC*	10	12/8/2018 01:32 AM
CHLORIDE			**A4500-CL E-11**	Prep: EXTRACT 12/3/18 19:00		Analyst: **RLM**
Chloride	**30,000**		**310**	**mg/Kg-dry**	30	12/4/2018 03:20 PM
MOISTURE			**SW3550C**			Analyst: **KTP**
Moisture	**5.4**		**0.10**	**% of sample**	1	12/4/2018 04:47 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 10-Dec-18

Client: WPX Energy

Work Order: 1812033

Project: Santa Fe 8

QC BATCH REPORT

Batch ID: **128913** Instrument ID **GC8** Method: **SW8015C**

MBLK Sample ID: **DBLKS1-128913-128913** Units: **mg/Kg** Analysis Date: **12/6/2018 12:59 PM**

Client ID: Run ID: **GC8_181205B** SeqNo: **5422247** Prep Date: **12/5/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	ND	5.0								
ORO (C28-C40)	ND	5.0								
Surr: 4-Terphenyl-d14	*2.617*	0	*3.33*	0	*78.6*	*34-130*	0			

LCS Sample ID: **DLCSS1-128913-128913** Units: **mg/Kg** Analysis Date: **12/6/2018 01:28 AM**

Client ID: Run ID: **GC8_181205B** SeqNo: **5422224** Prep Date: **12/5/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	333.6	5.0	333	0	100	65-122	0			
ORO (C28-C40)	315.6	5.0	333	0	94.8	81-116	0			
Surr: 4-Terphenyl-d14	*2.9*	0	*3.33*	0	*87.1*	*34-130*	0			

MS Sample ID: **1812033-03A MS** Units: **mg/Kg** Analysis Date: **12/6/2018 01:57 AM**

Client ID: **BH18-03 (0 ft)** Run ID: **GC8_181205B** SeqNo: **5422227** Prep Date: **12/5/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	1011	4.8	322.4	964.6	14.5	65-122	0			S
ORO (C28-C40)	2109	4.8	322.4	1581	164	81-116	0			SEO
Surr: 4-Terphenyl-d14	*2.146*	0	*3.224*	0	*66.6*	*34-130*	0			

MSD Sample ID: **1812033-03A MSD** Units: **mg/Kg** Analysis Date: **12/6/2018 02:27 AM**

Client ID: **BH18-03 (0 ft)** Run ID: **GC8_181205B** SeqNo: **5422228** Prep Date: **12/5/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	592.5	4.9	323.5	964.6	-115	65-122	1011	52.2	30	SR
ORO (C28-C40)	1295	4.9	323.5	1581	-88.4	81-116	2109	47.9	30	SRO
Surr: 4-Terphenyl-d14	*1.975*	0	*3.235*	0	*61.1*	*34-130*	2.146	*8.3*	*30*	

The following samples were analyzed in this batch:

1812033-01A	1812033-02A	1812033-03A
1812033-04A	1812033-05A	1812033-06A
1812033-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: WPX Energy
Work Order: 1812033
Project: Santa Fe 8

QC BATCH REPORT

Batch ID: **128849** Instrument ID **GC9** Method: **SW8015D**

MBLK Sample ID: **MBLK-128849-128849** Units: **µg/Kg-dry** Analysis Date: **12/6/2018 02:29 PM**
Client ID: Run ID: **GC9_181206A** SeqNo: **5424782** Prep Date: **12/4/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	ND	5,000								
Surr: Toluene-d8	*4346*	0	*5000*	0	*86.9*	*71-123*	0			

LCS Sample ID: **LCS-128849-128849** Units: **µg/Kg-dry** Analysis Date: **12/6/2018 12:05 PM**
Client ID: Run ID: **GC9_181206A** SeqNo: **5424778** Prep Date: **12/4/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	264200	5,000	250000	0	106	71-123	0			
Surr: Toluene-d8	*5062*	0	*5000*	0	*101*	*71-123*	0			

MS Sample ID: **1812013-01A MS** Units: **µg/Kg-dry** Analysis Date: **12/7/2018 07:53 AM**
Client ID: Run ID: **GC9_181206A** SeqNo: **5424813** Prep Date: **12/4/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	561700	5,600	563800	0	99.6	71-123	0			
Surr: Toluene-d8	*5831*	0	*5638*	0	*103*	*71-123*	0			

MSD Sample ID: **1812013-01A MSD** Units: **µg/Kg-dry** Analysis Date: **12/7/2018 08:22 AM**
Client ID: Run ID: **GC9_181206A** SeqNo: **5424814** Prep Date: **12/4/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	585000	5,600	563800	0	104	71-123	561700	4.07	30	
Surr: Toluene-d8	*6275*	0	*5638*	0	*111*	*71-123*	5831	*7.33*	*30*	

The following samples were analyzed in this batch:

1812033-01A	1812033-02A	1812033-03A
1812033-04A	1812033-05A	1812033-06A
1812033-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: WPX Energy
Work Order: 1812033
Project: Santa Fe 8

QC BATCH REPORT

Batch ID: **128804** Instrument ID **VMS9** Method: **SW8260C**

MBLK Sample ID: **MBLK-128804-128804** Units: **µg/Kg-dry** Analysis Date: **12/5/2018 12:24 PM**
Client ID: Run ID: **VMS9_181204B** SeqNo: **5419563** Prep Date: **12/3/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	ND	30	0	0	0	0-0	0			
Ethylbenzene	ND	30	0	0	0	0-0	0			
m,p-Xylene	21	60	0	0	0	0-0	0			J
o-Xylene	ND	30	0	0	0	0-0	0			
Toluene	ND	30	0	0	0	0-0	0			
Xylenes, Total	ND	90	0	0	0	0-0	0			
Surr: 1,2-Dichloroethane-d4	*1024*	0	*1000*	0	*102*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*921.5*	0	*1000*	0	*92.2*	*70-130*	0			
Surr: Dibromofluoromethane	*866*	0	*1000*	0	*86.6*	*70-130*	0			
Surr: Toluene-d8	*954*	0	*1000*	0	*95.4*	*70-130*	0			

LCS Sample ID: **LCS-128804-128804** Units: **µg/Kg-dry** Analysis Date: **12/4/2018 11:22 PM**
Client ID: Run ID: **VMS9_181204B** SeqNo: **5419532** Prep Date: **12/3/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1062	30	1000	0	106	75-125	0			
Ethylbenzene	1075	30	1000	0	108	75-125	0			
m,p-Xylene	2066	60	2000	0	103	80-125	0			
o-Xylene	1124	30	1000	0	112	75-125	0			
Toluene	1047	30	1000	0	105	70-125	0			
Xylenes, Total	3190	90	3000	0	106	75-125	0			
Surr: 1,2-Dichloroethane-d4	*986.5*	0	*1000*	0	*98.6*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*1001*	0	*1000*	0	*100*	*70-130*	0			
Surr: Dibromofluoromethane	*1012*	0	*1000*	0	*101*	*70-130*	0			
Surr: Toluene-d8	*989*	0	*1000*	0	*98.9*	*70-130*	0			

MS Sample ID: **1812013-01A MS** Units: **µg/Kg-dry** Analysis Date: **12/5/2018 06:50 PM**
Client ID: Run ID: **VMS9_181205A** SeqNo: **5421631** Prep Date: **12/3/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1057	34	1128	0	93.7	75-125	0			
Ethylbenzene	1114	34	1128	0	98.8	75-125	0			
m,p-Xylene	2095	68	2255	0	92.9	80-125	0			
o-Xylene	1132	34	1128	0	100	75-125	0			
Toluene	1156	34	1128	0	102	70-125	0			
Xylenes, Total	3227	100	3383	0	95.4	75-125	0			
Surr: 1,2-Dichloroethane-d4	*1145*	0	*1128*	0	*102*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*1151*	0	*1128*	0	*102*	*70-130*	0			
Surr: Dibromofluoromethane	*1021*	0	*1128*	0	*90.5*	*70-130*	0			
Surr: Toluene-d8	*1123*	0	*1128*	0	*99.6*	*70-130*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: WPX Energy
Work Order: 1812033
Project: Santa Fe 8

QC BATCH REPORT

Batch ID: **128804** Instrument ID **VMS9** Method: **SW8260C**

MSD Sample ID: **1812013-01A MSD** Units: **µg/Kg-dry** Analysis Date: **12/5/2018 07:06 PM**

Client ID: Run ID: **VMS9_181205A** SeqNo: **5421632** Prep Date: **12/3/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1071	34	1128	0	95	75-125	1057	1.38	30	
Ethylbenzene	1146	34	1128	0	102	75-125	1114	2.84	30	
m,p-Xylene	2140	68	2255	0	94.9	80-125	2095	2.13	30	
o-Xylene	1151	34	1128	0	102	75-125	1132	1.68	30	
Toluene	1132	34	1128	0	100	70-125	1156	2.12	30	
Xylenes, Total	3291	100	3383	0	97.3	75-125	3227	1.97	30	
Surr: 1,2-Dichloroethane-d4	*1110*	0	*1128*	0	*98.4*	*70-130*	1145	*3.05*	*30*	
Surr: 4-Bromofluorobenzene	*1152*	0	*1128*	0	*102*	*70-130*	1151	*0.0979*	*30*	
Surr: Dibromofluoromethane	*1009*	0	*1128*	0	*89.4*	*70-130*	1021	*1.17*	*30*	
Surr: Toluene-d8	*1113*	0	*1128*	0	*98.7*	*70-130*	1123	*0.908*	*30*	

The following samples were analyzed in this batch:

1812033-01A	1812033-02A	1812033-03A
1812033-04A	1812033-05A	1812033-06A
1812033-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: WPX Energy
Work Order: 1812033
Project: Santa Fe 8

QC BATCH REPORT

Batch ID: **128862** Instrument ID **GALLERY** Method: **A4500-Cl E-11**

MBLK Sample ID: **MBLK-128862-128862** Units: **mg/Kg** Analysis Date: **12/4/2018 03:20 PM**
Client ID: Run ID: **GALLERY_181204C** SeqNo: **5417176** Prep Date: **12/3/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	10								

MS Sample ID: **1812014-01AMS** Units: **mg/Kg** Analysis Date: **12/4/2018 03:20 PM**
Client ID: Run ID: **GALLERY_181204C** SeqNo: **5417235** Prep Date: **12/3/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	506.8	10	498	2.243	101	75-125	0			

MSD Sample ID: **1812014-01AMSD** Units: **mg/Kg** Analysis Date: **12/4/2018 03:20 PM**
Client ID: Run ID: **GALLERY_181204C** SeqNo: **5417236** Prep Date: **12/3/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	509.4	9.8	492.1	2.243	103	75-125	506.8	0.527	25	

LCS1 Sample ID: **LCS1-128862-128862** Units: **mg/Kg** Analysis Date: **12/4/2018 03:20 PM**
Client ID: Run ID: **GALLERY_181204C** SeqNo: **5417177** Prep Date: **12/3/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	99.51	10	100	0	99.5	80-120	0			

LCS2 Sample ID: **LCS2-128862-128862** Units: **mg/Kg** Analysis Date: **12/4/2018 03:20 PM**
Client ID: Run ID: **GALLERY_181204C** SeqNo: **5417239** Prep Date: **12/3/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	559.2	10	500	0	112	80-120	0			

The following samples were analyzed in this batch: 1812033-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: WPX Energy
Work Order: 1812033
Project: Santa Fe 8

QC BATCH REPORT

Batch ID: **129027** Instrument ID **GALLERY** Method: **A4500-Cl E-11**

MBLK Sample ID: **MBLK-129027-129027** Units: **mg/Kg** Analysis Date: **12/6/2018 12:00 PM**
Client ID: Run ID: **GALLERY_181206A** SeqNo: **5424325** Prep Date: **12/5/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	10								

MS Sample ID: **1812013-01AMS** Units: **mg/Kg** Analysis Date: **12/6/2018 12:00 PM**
Client ID: Run ID: **GALLERY_181206A** SeqNo: **5424387** Prep Date: **12/5/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	520.8	10	499	1.62	104	75-125	0			

MSD Sample ID: **1812013-01AMSD** Units: **mg/Kg** Analysis Date: **12/6/2018 12:00 PM**
Client ID: Run ID: **GALLERY_181206A** SeqNo: **5424388** Prep Date: **12/5/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	490.5	10	498	1.62	98.2	75-125	520.8	5.98	25	

LCS1 Sample ID: **LCS1-129027-129027** Units: **mg/Kg** Analysis Date: **12/6/2018 12:00 PM**
Client ID: Run ID: **GALLERY_181206A** SeqNo: **5424326** Prep Date: **12/5/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	94.17	10	100	0	94.2	80-120	0			

LCS2 Sample ID: **LCS2-129027-129027** Units: **mg/Kg** Analysis Date: **12/6/2018 12:00 PM**
Client ID: Run ID: **GALLERY_181206A** SeqNo: **5424372** Prep Date: **12/5/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	468.8	10	500	0	93.8	80-120	0			

The following samples were analyzed in this batch:

1812033-01A	1812033-02A	1812033-03A
1812033-04A	1812033-05A	1812033-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: WPX Energy
Work Order: 1812033
Project: Santa Fe 8

QC BATCH REPORT

Batch ID: **R250611** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R250611** Units: **% of sample** Analysis Date: **12/4/2018 04:47 PM**
Client ID: Run ID: **MOIST_181204D** SeqNo: **5418917** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.10								

LCS Sample ID: **LCS-R250611** Units: **% of sample** Analysis Date: **12/4/2018 04:47 PM**
Client ID: Run ID: **MOIST_181204D** SeqNo: **5418916** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	99.99	0.10	100	0	100	99.5-100.5	0			

DUP Sample ID: **1812033-03A DUP** Units: **% of sample** Analysis Date: **12/4/2018 04:47 PM**
Client ID: **BH18-03 (0 ft)** Run ID: **MOIST_181204D** SeqNo: **5418896** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	5.04	0.10	0	0	0	0-0	5.06	0.396	10	

DUP Sample ID: **1812033-04A DUP** Units: **% of sample** Analysis Date: **12/4/2018 04:47 PM**
Client ID: **BH18-04 (0 ft)** Run ID: **MOIST_181204D** SeqNo: **5418898** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	7.62	0.10	0	0	0	0-0	7.57	0.658	10	

The following samples were analyzed in this batch:

1812033-02A	1812033-03A	1812033-04A
1812033-05A	1812033-06A	1812033-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: WPX Energy
Work Order: 1812033
Project: Santa Fe 8

QC BATCH REPORT

Batch ID: **R250614** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **MB-R250614-R250614** Units: **% of sample** Analysis Date: **12/4/2018 01:45 PM**
Client ID: Run ID: **MOIST_181204C** SeqNo: **5418972** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.10								

LCS Sample ID: **LCS-R250614-R250614** Units: **% of sample** Analysis Date: **12/4/2018 01:45 PM**
Client ID: Run ID: **MOIST_181204C** SeqNo: **5418973** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.10	100	0	100	99.5-100.5	0			

DUP Sample ID: **1812013-04A DUP** Units: **% of sample** Analysis Date: **12/4/2018 01:45 PM**
Client ID: Run ID: **MOIST_181204C** SeqNo: **5418977** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	2.33	0.10	0	0	0	0-0	2.43	4.2	10	

DUP Sample ID: **1812014-01A DUP** Units: **% of sample** Analysis Date: **12/4/2018 01:45 PM**
Client ID: Run ID: **MOIST_181204C** SeqNo: **5418979** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	1.7	0.10	0	0	0	0-0	1.75	2.9	10	

The following samples were analyzed in this batch: 1812033-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

ALS Laboratory Group

HOLLAND, Michigan 49424

Chain-of-Custody

Form 202r8

WORKORDER #	1812033				
PAGE	1 of 1				
DISPOSAL	By Lab or Return to Client				

PROJECT NAME	Santa Fe 8	SAMPLER		DATE	29/11/2018
PROJECT No.	17E--00043	SITE ID	Santa Fe 8	TURNAROUND	5 days
		EDD FORMAT			
		PURCHASE ORDER			
COMPANY NAME	WPX Energy	BILL TO COMPANY	WPX Energy		
SEND REPORT TO	Raley	INVOICE ATTN TO	Jim Raley		
ADDRESS		ADDRESS	5315 Buena Vista Dr		
CITY / STATE / ZIP		CITY / STATE / ZIP	Carlsbad, NM 88220		
PHONE		PHONE	575-885-1313		
FAX		FAX	575-885-3509		
E-MAIL	Karolina.blaney@wpxenergy.com; james.raley@wpxenergy.com; dhanton@vertex.ca; kmeadows@vertex.ca; jcrabtree@vertex.ca	E-MAIL	karolina.blaney@wpxenergy.com; james.raley@wpxenergy.com; dhanton@vertex.ca; kmeadows@vertex.ca; jcrabtree@vertex.ca		

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC	DRO + GRO + ORO	BTEX	Chloride		Hold																		
	BH18-01 (0 ft)	S	28/11/2018		2			x	x	x																				
	BH18-02 (0 ft)	S	28/11/2018		2			x	x	x																				
	BH18-03 (0 ft)	S	28/11/2018		2			x	x	x																				
	BH18-04 (0 ft)	S	28/11/2018		2			x	x	x																				
	BH18-05 (0 ft)	S	28/11/2018		2			x	x	x																				
	BH18-06 (0 ft)	S	28/11/2018		2			x	x	x																				
	BH18-07 (0 ft)	S	28/11/2018		2			x	x	x																				

For metals or anions, please detail analytes below.

Comments:	QC PACKAGE (check below)	
4.9°C SRL	X	LEVEL II (Standard QC)
		LEVEL III (Std QC + forms)
		LEVEL IV (Std QC + forms + raw data)

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY	Karolina Blaney	Karolina Blaney	29/11/2018	8:00
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY		Jason Crabtree	11-29-2018	2:30
RELINQUISHED BY				
RECEIVED BY		Keith Wiseman	12/1/18	1115

ALS Group, USA

Sample Receipt Checklist

Client Name: **WPX - NM** Date/Time Received: **01-Dec-18 11:15**

Work Order: **1812033** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 03-Dec-18 (Date) Reviewed by: Chad Whelton (eSignature) 04-Dec-18 (Date)

Matrices: Soil

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.8/4.8 C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	12/3/2018 11:03:13 AM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	_		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

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

January 28, 2019

Shelly J Tucker

Expert Environmental Services
PO Box 130
Carlsbad, NM 88221
TEL:
FAX

RE: Santa Fe Federal 8 SWD (30.015.27126) OrderNo.: 1901A30

Dear Shelly J Tucker:

Hall Environmental Analysis Laboratory received 13 sample(s) on 1/26/2019 for the analyses presented in the following report.

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

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1901A30**
Date Reported: **1/28/2019**

CLIENT: Expert Environmental Services
Client Sample ID: SP 1-floor
Project: Santa Fe Federal 8 SWD (30.015.27126)
Collection Date: 1/24/2019 6:00:00 PM
Lab ID: 1901A30-001 **Matrix:** SOIL
Received Date: 1/26/2019 9:47:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	2500	91		mg/Kg	10	1/26/2019 12:02:16 PM
Motor Oil Range Organics (MRO)	1100	460		mg/Kg	10	1/26/2019 12:02:16 PM
Surr: DNOP	0	50.6-138	S	%Rec	10	1/26/2019 12:02:16 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	77	19		mg/Kg	5	1/26/2019 6:23:11 PM
Surr: BFB	257	73.8-119	S	%Rec	5	1/26/2019 6:23:11 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.097		mg/Kg	5	1/26/2019 6:23:11 PM
Toluene	ND	0.19		mg/Kg	5	1/26/2019 6:23:11 PM
Ethylbenzene	0.29	0.19		mg/Kg	5	1/26/2019 6:23:11 PM
Xylenes, Total	1.4	0.39		mg/Kg	5	1/26/2019 6:23:11 PM
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	5	1/26/2019 6:23:11 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	180	30		mg/Kg	20	1/26/2019 3:01:06 PM

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Expert Environmental Services
Client Sample ID: SP 2-floor
Project: Santa Fe Federal 8 SWD (30.015.27126)
Collection Date: 1/24/2019 5:45:00 PM
Lab ID: 1901A30-002 **Matrix:** SOIL
Received Date: 1/26/2019 9:47:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/26/2019 12:24:08 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/26/2019 12:24:08 PM
Surr: DNOP	98.2	50.6-138		%Rec	1	1/26/2019 12:24:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/26/2019 7:09:58 PM
Surr: BFB	92.6	73.8-119		%Rec	1	1/26/2019 7:09:58 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	1/26/2019 7:09:58 PM
Toluene	ND	0.048		mg/Kg	1	1/26/2019 7:09:58 PM
Ethylbenzene	ND	0.048		mg/Kg	1	1/26/2019 7:09:58 PM
Xylenes, Total	ND	0.096		mg/Kg	1	1/26/2019 7:09:58 PM
Surr: 4-Bromofluorobenzene	92.4	80-120		%Rec	1	1/26/2019 7:09:58 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	1800	75		mg/Kg	50	1/27/2019 11:35:23 AM

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Expert Environmental Services
Client Sample ID: SP 3-floor
Project: Santa Fe Federal 8 SWD (30.015.27126)
Collection Date: 1/24/2019 5:15:00 PM
Lab ID: 1901A30-003 **Matrix:** SOIL
Received Date: 1/26/2019 9:47:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	88	9.4		mg/Kg	1	1/26/2019 7:33:17 PM
Motor Oil Range Organics (MRO)	120	47		mg/Kg	1	1/26/2019 7:33:17 PM
Surr: DNOP	94.4	50.6-138		%Rec	1	1/26/2019 7:33:17 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.1		mg/Kg	1	1/26/2019 7:33:18 PM
Surr: BFB	90.2	73.8-119		%Rec	1	1/26/2019 7:33:18 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.021		mg/Kg	1	1/26/2019 7:33:18 PM
Toluene	ND	0.041		mg/Kg	1	1/26/2019 7:33:18 PM
Ethylbenzene	ND	0.041		mg/Kg	1	1/26/2019 7:33:18 PM
Xylenes, Total	ND	0.082		mg/Kg	1	1/26/2019 7:33:18 PM
Surr: 4-Bromofluorobenzene	90.4	80-120		%Rec	1	1/26/2019 7:33:18 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	2900	150		mg/Kg	100	1/27/2019 11:47:47 AM

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Expert Environmental Services
Client Sample ID: SP 4-floor
Project: Santa Fe Federal 8 SWD (30.015.27126)
Collection Date: 1/24/2019 4:40:00 PM
Lab ID: 1901A30-004 **Matrix:** SOIL
Received Date: 1/26/2019 9:47:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	71	9.5		mg/Kg	1	1/26/2019 8:21:25 PM
Motor Oil Range Organics (MRO)	130	48		mg/Kg	1	1/26/2019 8:21:25 PM
Surr: DNOP	93.6	50.6-138		%Rec	1	1/26/2019 8:21:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.2		mg/Kg	1	1/26/2019 9:29:41 PM
Surr: BFB	89.7	73.8-119		%Rec	1	1/26/2019 9:29:41 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.026		mg/Kg	1	1/26/2019 9:29:41 PM
Toluene	ND	0.052		mg/Kg	1	1/26/2019 9:29:41 PM
Ethylbenzene	ND	0.052		mg/Kg	1	1/26/2019 9:29:41 PM
Xylenes, Total	ND	0.10		mg/Kg	1	1/26/2019 9:29:41 PM
Surr: 4-Bromofluorobenzene	89.1	80-120		%Rec	1	1/26/2019 9:29:41 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	2900	150		mg/Kg	100	1/27/2019 12:00:12 PM

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Expert Environmental Services
Client Sample ID: SP 4A-floor
Project: Santa Fe Federal 8 SWD (30.015.27126)
Collection Date: 1/24/2019 4:30:00 PM
Lab ID: 1901A30-005 **Matrix:** SOIL
Received Date: 1/26/2019 9:47:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	1/26/2019 1:29:38 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/26/2019 1:29:38 PM
Surr: DNOP	99.1	50.6-138		%Rec	1	1/26/2019 1:29:38 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.5		mg/Kg	1	1/26/2019 9:52:51 PM
Surr: BFB	90.0	73.8-119		%Rec	1	1/26/2019 9:52:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	1/26/2019 9:52:51 PM
Toluene	ND	0.045		mg/Kg	1	1/26/2019 9:52:51 PM
Ethylbenzene	ND	0.045		mg/Kg	1	1/26/2019 9:52:51 PM
Xylenes, Total	ND	0.091		mg/Kg	1	1/26/2019 9:52:51 PM
Surr: 4-Bromofluorobenzene	90.5	80-120		%Rec	1	1/26/2019 9:52:51 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	120	30		mg/Kg	20	1/26/2019 3:50:45 PM

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Expert Environmental Services
Client Sample ID: SP 5-floor
Project: Santa Fe Federal 8 SWD (30.015.27126)
Collection Date: 1/24/2019 3:40:00 PM
Lab ID: 1901A30-006 **Matrix:** SOIL
Received Date: 1/26/2019 9:47:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	150	9.3		mg/Kg	1	1/28/2019 9:46:27 AM
Motor Oil Range Organics (MRO)	230	46		mg/Kg	1	1/28/2019 9:46:27 AM
Surr: DNOP	94.2	50.6-138		%Rec	1	1/28/2019 9:46:27 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.4		mg/Kg	1	1/26/2019 10:16:00 PM
Surr: BFB	85.9	73.8-119		%Rec	1	1/26/2019 10:16:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.022		mg/Kg	1	1/26/2019 10:16:00 PM
Toluene	ND	0.044		mg/Kg	1	1/26/2019 10:16:00 PM
Ethylbenzene	ND	0.044		mg/Kg	1	1/26/2019 10:16:00 PM
Xylenes, Total	ND	0.088		mg/Kg	1	1/26/2019 10:16:00 PM
Surr: 4-Bromofluorobenzene	87.1	80-120		%Rec	1	1/26/2019 10:16:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	4200	150		mg/Kg	100	1/27/2019 12:12:38 PM

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Expert Environmental Services
Client Sample ID: SP 5A-floor
Project: Santa Fe Federal 8 SWD (30.015.27126)
Collection Date: 1/24/2019 3:00:00 PM
Lab ID: 1901A30-007 **Matrix:** SOIL
Received Date: 1/26/2019 9:47:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	44	9.3		mg/Kg	1	1/26/2019 10:45:21 PM
Motor Oil Range Organics (MRO)	82	47		mg/Kg	1	1/26/2019 10:45:21 PM
Surr: DNOP	94.9	50.6-138		%Rec	1	1/26/2019 10:45:21 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.1		mg/Kg	1	1/26/2019 11:02:20 PM
Surr: BFB	87.7	73.8-119		%Rec	1	1/26/2019 11:02:20 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.020		mg/Kg	1	1/26/2019 11:02:20 PM
Toluene	ND	0.041		mg/Kg	1	1/26/2019 11:02:20 PM
Ethylbenzene	ND	0.041		mg/Kg	1	1/26/2019 11:02:20 PM
Xylenes, Total	ND	0.082		mg/Kg	1	1/26/2019 11:02:20 PM
Surr: 4-Bromofluorobenzene	88.7	80-120		%Rec	1	1/26/2019 11:02:20 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	660	30		mg/Kg	20	1/26/2019 4:15:34 PM

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Expert Environmental Services
Client Sample ID: SP 6-floor
Project: Santa Fe Federal 8 SWD (30.015.27126)
Collection Date: 1/24/2019 2:20:00 PM
Lab ID: 1901A30-008 **Matrix:** SOIL
Received Date: 1/26/2019 9:47:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	35	9.9		mg/Kg	1	1/26/2019 11:57:15 PM
Motor Oil Range Organics (MRO)	63	50		mg/Kg	1	1/26/2019 11:57:15 PM
Surr: DNOP	85.5	50.6-138		%Rec	1	1/26/2019 11:57:15 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.1		mg/Kg	1	1/26/2019 11:25:28 PM
Surr: BFB	89.7	73.8-119		%Rec	1	1/26/2019 11:25:28 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.020		mg/Kg	1	1/26/2019 11:25:28 PM
Toluene	ND	0.041		mg/Kg	1	1/26/2019 11:25:28 PM
Ethylbenzene	ND	0.041		mg/Kg	1	1/26/2019 11:25:28 PM
Xylenes, Total	ND	0.081		mg/Kg	1	1/26/2019 11:25:28 PM
Surr: 4-Bromofluorobenzene	90.4	80-120		%Rec	1	1/26/2019 11:25:28 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	2100	75		mg/Kg	50	1/27/2019 12:25:02 PM

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Expert Environmental Services
Client Sample ID: SP 6A-floor
Project: Santa Fe Federal 8 SWD (30.015.27126)
Collection Date: 1/24/2019 2:00:00 PM
Lab ID: 1901A30-009 **Matrix:** SOIL
Received Date: 1/26/2019 9:47:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	1400	19		mg/Kg	2	1/27/2019 1:09:06 AM
Motor Oil Range Organics (MRO)	ND	96		mg/Kg	2	1/27/2019 1:09:06 AM
Surr: DNOP	94.2	50.6-138		%Rec	2	1/27/2019 1:09:06 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	9.0	8.5		mg/Kg	2	1/26/2019 11:48:37 PM
Surr: BFB	132	73.8-119	S	%Rec	2	1/26/2019 11:48:37 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.042		mg/Kg	2	1/26/2019 11:48:37 PM
Toluene	ND	0.085		mg/Kg	2	1/26/2019 11:48:37 PM
Ethylbenzene	ND	0.085		mg/Kg	2	1/26/2019 11:48:37 PM
Xylenes, Total	ND	0.17		mg/Kg	2	1/26/2019 11:48:37 PM
Surr: 4-Bromofluorobenzene	92.4	80-120		%Rec	2	1/26/2019 11:48:37 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	1200	75		mg/Kg	50	1/27/2019 12:37:26 PM

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Expert Environmental Services
Client Sample ID: SP 7-floor
Project: Santa Fe Federal 8 SWD (30.015.27126)
Collection Date: 1/24/2019 1:50:00 PM
Lab ID: 1901A30-010 **Matrix:** SOIL
Received Date: 1/26/2019 9:47:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	4000	46		mg/Kg	5	1/27/2019 2:45:15 AM
Motor Oil Range Organics (MRO)	2000	230		mg/Kg	5	1/27/2019 2:45:15 AM
Surr: DNOP	146	50.6-138	S	%Rec	5	1/27/2019 2:45:15 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	89	3.9		mg/Kg	1	1/27/2019 12:34:49 AM
Surr: BFB	1010	73.8-119	S	%Rec	1	1/27/2019 12:34:49 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.019		mg/Kg	1	1/27/2019 12:34:49 AM
Toluene	0.088	0.039		mg/Kg	1	1/27/2019 12:34:49 AM
Ethylbenzene	0.12	0.039		mg/Kg	1	1/27/2019 12:34:49 AM
Xylenes, Total	2.5	0.077		mg/Kg	1	1/27/2019 12:34:49 AM
Surr: 4-Bromofluorobenzene	162	80-120	S	%Rec	1	1/27/2019 12:34:49 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	6500	300		mg/Kg	200	1/27/2019 12:49:51 PM

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Expert Environmental Services
Client Sample ID: SP 7A-floor
Project: Santa Fe Federal 8 SWD (30.015.27126)
Collection Date: 1/24/2019 1:40:00 PM
Lab ID: 1901A30-011 **Matrix:** SOIL
Received Date: 1/26/2019 9:47:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	47	10		mg/Kg	1	1/26/2019 3:41:09 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/26/2019 3:41:09 PM
Surr: DNOP	90.8	50.6-138		%Rec	1	1/26/2019 3:41:09 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	3.8		mg/Kg	1	1/27/2019 1:21:00 AM
Surr: BFB	96.9	73.8-119		%Rec	1	1/27/2019 1:21:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.019		mg/Kg	1	1/27/2019 1:21:00 AM
Toluene	ND	0.038		mg/Kg	1	1/27/2019 1:21:00 AM
Ethylbenzene	ND	0.038		mg/Kg	1	1/27/2019 1:21:00 AM
Xylenes, Total	ND	0.075		mg/Kg	1	1/27/2019 1:21:00 AM
Surr: 4-Bromofluorobenzene	92.3	80-120		%Rec	1	1/27/2019 1:21:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	230	30		mg/Kg	20	1/26/2019 5:30:02 PM

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Expert Environmental Services
Client Sample ID: SP 8-floor
Project: Santa Fe Federal 8 SWD (30.015.27126)
Collection Date: 1/24/2019 1:30:00 PM
Lab ID: 1901A30-012 **Matrix:** SOIL
Received Date: 1/26/2019 9:47:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	1300	48		mg/Kg	5	1/27/2019 3:57:22 AM
Motor Oil Range Organics (MRO)	590	240		mg/Kg	5	1/27/2019 3:57:22 AM
Surr: DNOP	114	50.6-138		%Rec	5	1/27/2019 3:57:22 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	57	17		mg/Kg	5	1/27/2019 1:44:06 AM
Surr: BFB	214	73.8-119	S	%Rec	5	1/27/2019 1:44:06 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.087		mg/Kg	5	1/27/2019 1:44:06 AM
Toluene	ND	0.17		mg/Kg	5	1/27/2019 1:44:06 AM
Ethylbenzene	0.23	0.17		mg/Kg	5	1/27/2019 1:44:06 AM
Xylenes, Total	1.2	0.35		mg/Kg	5	1/27/2019 1:44:06 AM
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	5	1/27/2019 1:44:06 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	280	30		mg/Kg	20	1/26/2019 5:42:26 PM

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Expert Environmental Services
Client Sample ID: SP 8A-floor
Project: Santa Fe Federal 8 SWD (30.015.27126)
Collection Date: 1/24/2019 1:45:00 PM
Lab ID: 1901A30-013 **Matrix:** SOIL
Received Date: 1/26/2019 9:47:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	1400	47		mg/Kg	5	1/27/2019 5:09:20 AM
Motor Oil Range Organics (MRO)	630	240		mg/Kg	5	1/27/2019 5:09:20 AM
Surr: DNOP	120	50.6-138		%Rec	5	1/27/2019 5:09:20 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	93	3.5		mg/Kg	1	1/27/2019 2:30:13 AM
Surr: BFB	891	73.8-119	S	%Rec	1	1/27/2019 2:30:13 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.017		mg/Kg	1	1/27/2019 2:30:13 AM
Toluene	0.13	0.035		mg/Kg	1	1/27/2019 2:30:13 AM
Ethylbenzene	0.36	0.035		mg/Kg	1	1/27/2019 2:30:13 AM
Xylenes, Total	1.9	0.069		mg/Kg	1	1/27/2019 2:30:13 AM
Surr: 4-Bromofluorobenzene	143	80-120	S	%Rec	1	1/27/2019 2:30:13 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	110	30		mg/Kg	20	1/26/2019 5:54:51 PM

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1901A30**
28-Jan-19

Client: Expert Environmental Services
Project: Santa Fe Federal 8 SWD (30.015.27126)

Sample ID	**MB-42826**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**42826**	RunNo:	**57281**					
Prep Date:	**1/26/2019**	Analysis Date:	**1/26/2019**	SeqNo:	**1915958**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-42826**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**42826**	RunNo:	**57281**					
Prep Date:	**1/26/2019**	Analysis Date:	**1/26/2019**	SeqNo:	**1915959**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.8	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901A30**

28-Jan-19

Client: Expert Environmental Services

Project: Santa Fe Federal 8 SWD (30.015.27126)

Sample ID **MB-42825**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **42825**	RunNo: **57277**
Prep Date: **1/26/2019**	Analysis Date: **1/26/2019**	SeqNo: **1915620** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.3		10.00		83.4	50.6	138			

Sample ID **LCS-42825**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **42825**	RunNo: **57277**
Prep Date: **1/26/2019**	Analysis Date: **1/26/2019**	SeqNo: **1915625** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	40	10	50.00	0	79.3	63.9	124			
Surr: DNOP	4.2		5.000		84.1	50.6	138			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901A30**

28-Jan-19

Client: Expert Environmental Services

Project: Santa Fe Federal 8 SWD (30.015.27126)

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **G57279**	RunNo: **57279**
Prep Date:	Analysis Date: **1/26/2019**	SeqNo: **1915775** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	980		1000		98.4	73.8	119			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **G57279**	RunNo: **57279**
Prep Date:	Analysis Date: **1/26/2019**	SeqNo: **1915776** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	107	80.1	123			
Surr: BFB	1100		1000		110	73.8	119			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901A30**

28-Jan-19

Client: Expert Environmental Services

Project: Santa Fe Federal 8 SWD (30.015.27126)

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **B57279**	RunNo: **57279**
Prep Date:	Analysis Date: **1/26/2019**	SeqNo: **1915802** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.97		1.000		97.0	80	120			

Sample ID **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **B57279**	RunNo: **57279**
Prep Date:	Analysis Date: **1/26/2019**	SeqNo: **1915803** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.025	1.000	0	84.7	80	120			
Toluene	0.88	0.050	1.000	0	88.2	80	120			
Ethylbenzene	0.89	0.050	1.000	0	89.2	80	120			
Xylenes, Total	2.7	0.10	3.000	0	90.0	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **EXPERT ENVIRONMEN** Work Order Number: **1901A30** RcptNo: **1**

Received By: **Desiree Dominguez** **1/26/2019 9:47:00 AM** DD

Completed By: **Leah Baca** **1/26/2019 10:15:26 AM** Leah Baca

Reviewed By: DAD 1/26/19

Labeled by LB 1/26/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

LB 1/26/19

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.5	Good	Yes			

Chain-of-Custody Record

Client: **Expert Environmental Services**

Mailing Address: PO Box 130
Carlsbad NM 88221

Phone #: **575-988-0698**

email or Fax#: shelly@expertenviroservices.com

QA/QC Package:
X Standard ☐ Level 4 (Full Validation)

Accreditation:
☐ NELAP ☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standard X **Rush: same day**

Project Name:
Santa Fe Federal 8 SWD (30.015.27126)

Project #:
WPX 2019-001

Project Manager:
Shelly J Tucker

Sampler: Shelly J Tucker
On Ice: ☒ Yes ☐ No
Sample Temperature: 5.1 + 0.6 = 4.5°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1901A30	Chlorides 300.0	BTEX 8021	TPH (GRO/DRO/MRO) 8015										Air Bubbles (Y or N)
01.24.19	1800	soil	SP 1 - floor	glass	ice	-001	x	x	x										
01.24.19	1745	soil	SP 2 - floor	glass	ice	-002	x	x	x										
01.24.19	1715	soil	SP 3 - floor	glass	ice	-003	x	x	x										
01.24.19	1640	soil	SP 4 - floor	glass	ice	-004	x	x	x										
01.24.19	1630	soil	SP 4A - floor	glass	ice	-005	x	x	x										
01.24.19	1540	soil	SP 5 - floor	glass	ice	-006	x	x	x										
01.24.19	1500	soil	SP 5A - floor	glass	ice	-007	x	x	x										
01.24.19	1420	soil	SP 6 - floor	glass	ice	-008	x	x	x										
01.24.19	1400	soil	SP 6A - floor	glass	ice	-009	x	x	x										
01.24.19	1350	soil	SP 7 - floor	glass	ice	-010	x	x	x										
01.24.19	1340	soil	SP 7A - floor	glass	ice	-011	x	x	x										
01.24.19	1330	soil	SP 8 - floor	glass	ice	-012	x	x	x										

Date:	Time:	Relinquished by:	Received by:	Date	Time
1-25-19	0915	for Shelly Tucker		1/25/19	0915
Date:	Time:	Relinquished by:	Received by:	Date	Time
1/25/19	1900		Courier	1/26/19	9:47

Remarks: Direct bill WPX, copy results to Deborah Watson (WPX) at deborah.watson@wpxenergy.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chain-of-Custody Record

Client: **Expert Environmental Services**

Mailing Address: PO Box 130
Carlsbad NM 88221

Phone #: **575-988-0698**

email or Fax#: shelly@expertenviroservices.com

QA/QC Package:
X Standard ☐ Level 4 (Full Validation)

Accreditation:
☐ NELAP ☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standard X **Rush: same day**

Project Name:
Santa Fe Federal 8 SWD (30.015.27126)

Project #:
WPX 2019-001

Project Manager:
Shelly J Tucker

Sampler: Shelly Tucker
On Ice: ☒ Yes ☐ No
Sample Temperature: 5.1°c - 0.6°c = 4.5°c

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1901A30	Analysis Request: Chlorides 300.0	BTEX 8021	TPH (GRO/DRO/MRO) 8015	Air Bubbles (Y or N)
✓ 01.24.19	1345	soil	SP 8A - Floor	glass	ice	-013	x	x	x	

Date:	Time:	Relinquished by:	Received by:	Date Time	Remarks:
1-25-19	0915	for Shelly Tucker		1/25/19 0915	Direct bill WPX, copy results to Deborah Watson (WPX) at deborah.watson@wpxenergy.com
1/25/19	1900		Courier	1/26/19 9:47	

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	NAB1836158635
District RP	2RP-5138
Facility ID	
Application ID	pAB1836158349

Release Notification

Responsible Party

Responsible Party: WPX Energy/RKI Exploration	OGRID: 246289
Contact Name: Karolina Blaney	Contact Telephone: 970-589-0743
Contact email: Karolina.blaney@wpxenergy.com	Incident # *(assigned by OCD)* NAB1836158635
Contact mailing address 5315 Buena Vista Dr.	

Location of Release Source

Latitude 32.35453 Longitude -103.04125
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Santa Fe #8	Site Type: Well Pad
Date Release Discovered: 10/31/18	API# *(if applicable)* 30-015-27126

Unit Letter	Section	Township	Range	County
A	35	22S	28E	Eddy

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☒ Crude Oil	Volume Released (bbls) 5	Volume Recovered (bbls) 5
☒ Produced Water	Volume Released (bbls) 615	Volume Recovered (bbls) 605
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release
Injection pump stopped working due to power outage which resulted in overfilling the tanks. Majority of the fluids were contained inside lined SPCC containment berm; the containment got overfilled and fluids impacted soil on the pad. 540 bbls were contained inside lined SPCC containment berm and ~80 bbls impacted the pad surface.

State of New Mexico
Oil Conservation Division

Incident ID	NAB1836158635
District RP	2RP-5138
Facility ID	
Application ID	pAB1836158349

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? The release exceeded 25 bbls.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? On 11-1-18, Karolina Blaney sent an email notification to Jim Griswold, Maria Pruett (OCD) and Shelly Tucker (BLM).	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☒ The source of the release has been stopped.

☒ The impacted area has been secured to protect human health and the environment.

☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: _Karolina Blaney_____ Title: _Environmental Specialist_____

Signature: __Karolina Blaney ___ Date: __11/12/18__

email: __karolina.blaney@wpxenergy.com_____ Telephone: __970-589-0743_____

OCD Only

Received by: _____ Date: 12/27/2018

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	34’ (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
☒ Field data
☒ Data table of soil contaminant concentration data
☒ Depth to water determination
☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
☒ Boring or excavation logs
☒ Photographs including date and GIS information
☒ Topographic/Aerial maps
☒ Laboratory data including chain of custody

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: _____Deborah Watson _____ Title: _____Environmental Specialist_____

Signature:____  _____ Date: ___01.29.2019_____

email: ____deborah.watson@wpxenergy.com_____ Telephone: _____575.885.7561 office_____

OCD Only

Received by: _____ Date**:** _____