August 16, 20168

RE: Characterization Summary and Deferral Request
2RP – 3734, 2RP-3700.
Brushy Pipeline ROW
Eddy County, NM
32.004200° N, 103.956930° W

The purpose of this letter is to summarize characterization activities completed at the Brushy Pipeline ROW site for the produced water spills which occurred on May 15 and June 9, 2016. Immediately after the spills discovery, WPX Energy, Inc. (WPX) contracted Enviro Clean Services (ECS) to perform delineation of the above-mentioned spills. Copies of C-141 are included in Appendix A.

Site Information

The Site is located on a United State Bureau of Land Management (BLM) lease approximately 12 miles northeast of Orla, Texas in Eddy County, New Mexico. The legal description is: Unit C, Section 35, Township 26S, Range 29E, with the GPS coordinates of 32.004200°N, -103.956930°W. A Site Map is provided in Appendix B.
Groundwater depth is estimated to be close to 100' deep. There is one well located northeast of the site (POD #C 02038). The well is 200' deep with casing perforations from 100-140'; there is no information on depth to water. Using a boring located southeast of the spill location, drilled by SMA on September 13, 2017 no water was found at 70' bgs; the coordinates of that dry borehole are 32.00265; -103.9385. Therefore, the depth to groundwater is estimated to be slightly less than 100' deep. The release is not located within any areas identified in 19.15.29.12C.(4).

Incident Description

The initial incident occurred on May 15, 2016. A water line ruptured releasing an estimated 55 barrels (bbls) of produced water. The runoff path of the spill impacted an area approximately 20 feet by 300 feet along the pipeline right of way. A second release occurred due to similar causes on June 9, 2016. Approximately 15 bbls of produced water were released affecting the same area. No fluids were recovered during either incident.

Soil Investigation

On May 25, 2016 and June 3, 2016, ECS personnel visited the location to assess the release. ECS mapped the Site and estimated the impacted area. Initial soil samples were taken in 10 locations (001 through 010) at depths between 0.5 to 3 feet bgs. All samples were collected in 4-ounce glass jars and

select samples (001, 003, 006, 008, and 010) were transferred to a certified laboratory. Copies of the laboratory report and chain of custody documentation are provided in Appendix D.

Table 1 Soil Analytical Data Summary

Sample ID	Date	Depth (ft)	Benzene (mg/kg)	BTEX (mg/kg)	TPH C6 – C35 (mg/kg)	Chlorides (mg/kg)
RRAL			10	50	1000	10,000
001	05/25/16	0	<0.00149	<0.00149	<15.0	53,500
001A	05/25/16	1	--	--	--	202
001B	05/25/16	2	--	--	--	650
003	05/25/16	0	<0.0015	<0.0015	329	6,760
003A	05/25/16	1	--	--	--	10,600
003B	05/25/16	2	--	--	--	406
006B	05/25/16	2	--	--	--	20,400
006C	06/03/16	3	<0.00149	<0.00149	<15.0	10,800
006D	06/03/16	4	--	--	--	182
008	05/25/16	0	<0.0015	<0.0015	329	252
008A	05/25/16	1	--	--	--	<10.0
008B	05/25/16	2	--	--	--	<40.0
010B	05/16/16	2	--	--	--	9,160
010C	06/03/16	3	<0.0015	<0.0015	<15.0	830
010D	06/03/16	4	--	--	--	769

On November 4, 2016, additional samples were collected to confirm the initial sampling completed by ESC. Samples were collected utilizing hand auger from the five sampling locations within the impacted area (001, 003, 006, 008 and 010) and analyzed for GRO, DRO, BTEX and chlorides. An additional background sample (BG) was collected outside the impacted area and analyzed for chlorides. The sampling results are summarized in Table 2.

Table 2 Soil Analytical Data Summary

Date	Sample Point	Depth	DRO mg/kg	GRO mg/kg	Benzene mg/kg	Ethylbenzene mg/kg	Toluene mg/kg	Xylenes mg/kg	Chlorides mg/kg
11/4/2016	Brushy 1	0'	19	ND	ND	ND	ND	ND	3,400
11/4/2016	Brushy 1	2'	8.2	ND	ND	ND	ND	ND	610
11/4/2016	Brushy 1	3'	7.2	ND	ND	ND	ND	ND	620
11/4/2016	Brushy 3	0'	240	ND	ND	ND	ND	ND	27
11/4/2016	Brushy 3	2'	24	ND	ND	ND	ND	ND	1500
11/4/2016	Brushy 3	4'	9.7	ND	ND	ND	ND	ND	9100
11/4/2016	Brushy 6	0'	340	ND	ND	ND	ND	ND	650
11/4/2016	Brushy 6	2'	16	ND	ND	ND	ND	ND	4300
11/4/2016	Brushy 6	4'	8.2	ND	ND	ND	ND	ND	5200
11/4/2016	Brushy 8	0'	7	ND	ND	ND	ND	ND	15
11/4/2016	Brushy 8	2'	8.6	ND	ND	ND	ND	ND	770
11/4/2016	Brushy 8	3'	ND	ND	ND	ND	ND	ND	2300
11/4/2016	Brushy 10	0'	31	ND	ND	ND	ND	ND	480
11/4/2016	Brushy 10	2'	10	ND	ND	ND	ND	ND	100
11/4/2016	Brushy 10	3'	9.6	ND	ND	ND	ND	ND	71
11/4/2016	Brushy BG	0'							ND

The spill occurred on a pipeline ROW located directly by a main lease road utilized by several operators. There are multiple buried and surface lines in the ROW making delineation and cleanup activities challenging and unsafe to conduct. Because of the access constraints, WPX retained Vertex Resource Services (Vertex) to conduct electromagnetic (EM) and electrical resistivity tomography (ERT) surveys at the site. The survey was conducted on January 24 and 25, 2017. Based on the EM and ERT surveys, soils with chloride concentrations exceeding 1,000 mg/kg are localized at the surface and confirm the sampling results. The survey results are included in Appendix C.

Deferral Request

The sampling events confirm that hydrocarbons are minimal. The chloride concentrations are elevated but the second sampling event indicates that the concentrations are below the cleanup standards of 10,000 mg/kg applicable to this area. The excavation activities necessary to revegetate the area are currently not possible due to accessibility constraints and existing infrastructure. WPX energy respectfully asks for permission to defer the revegetation activities until the surface lines are no longer needed. At that point, WPX will have to evaluate the depth of the buried lines and, if safe to do so, remove and replace top soil for reseeding.

Sincerely,

Karolina Blaney

Karolina Blaney
Environmental Specialist

Attachments: Appendix A: C-141
Appendix B: Site Map
Appendix C: EM and ERT Survey Report
Appendix D: Laboratory Analytical Report

Appendix A

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

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

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company WPX Energy Inc/ RKI E&P, LLC	Contact Lucas Smith
Address 3500 One Williams Center Tulsa, OK 74172	Telephone No. 817-727-9716
Facility Name: East Pecos 22-3 Produced water Gathering Line	Facility Type : PW Gathering System

Surface Owner: Federal	Mineral Owner: Federal	API No. N/A

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	35	26S	29E	330	FNL	1750	FWL	Eddy

Latitude: 32.004234 N **Longitude**: -103.955950 W

NATURE OF RELEASE

Type of Release. Produced Water	Volume of Release: 55 Bbls	Volume Recovered: 0 Bbls
Source of Release ESD at central water gathering shut in putting back pressure on line	Date and Hour of Occurrence 04/15/16	Date and Hour of Discovery 04/15/16 – 1500hrs MT
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? Spoke to Heather Patterson NMOCD and Jim Amos BLM	
By Whom? Lucas Smith	Date and Hour: 05/16/16– 1208hrs MT	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.* N/A

Describe Cause of Problem and Remedial Action Taken.*

ESD at central water gathering shut in putting back pressure on line. Line ruptured releasing produced water onto BLM right-of-way.

Describe Area Affected and Cleanup Action Taken.*

Produced water traveled approximately 150yds down pipeline right-of-way. Water crossed lease road onto the additional pipeline right-of-way on the southside of the lease road.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Lucas Smith	Approved by Environmental Specialist:	
Title: EHS Manager	Approval Date:	Expiration Date:
E-mail Address: Lucas.smith@wpxenergy.com	Conditions of Approval:	Attached ☐
Date: 04/18/16 Phone: 817-727-9716		

* Attach Additional Sheets If Necessary

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

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

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company WPX Energy Inc/ RKI E&P, LLC	Contact Lucas Smith
Address 3500 One Williams Center Tulsa, OK 74172	Telephone No. 817-727-9716
Facility Name: East Pecos 22-3 Produced water Gathering Line	Facility Type : PW Gathering System

Surface Owner: Federal	Mineral Owner: Federal	API No. N/A

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	35	26S	29E	330	FNL	1750	FWL	Eddy

Latitude: 32.004234 N **Longitude**: -103.955950 W

NATURE OF RELEASE

Type of Release. Produced Water	Volume of Release: 15 Bbls	Volume Recovered: 0 Bbls
Source of Release ESD at central water gathering shut in putting back pressure on line	Date and Hour of Occurrence 06/09/16	Date and Hour of Discovery 06/09/16 – 1400hrs MT
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? Spoke to Heather Patterson NMOCD and Jim Amos BLM	
By Whom? Lucas Smith	Date and Hour: 06/09/16– 1400hrs MT	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.* N/A

Describe Cause of Problem and Remedial Action Taken.*

Line ruptured releasing produced water onto BLM right-of-way.

Describe Area Affected and Cleanup Action Taken.*

Produced water followed the path of the previous spill and stayed within the BLM pipeline right-of-way. NMOCD Incident #nAB1614039576. Developing workplan to address both releases.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.

Signature: *Lucas J. Smith*	OIL CONSERVATION DIVISION	
Printed Name: Lucas Smith	Approved by Environmental Specialist:	
Title: EHS Manager	Approval Date:	Expiration Date:
E-mail Address: Lucas.smith@wpxenergy.com	Conditions of Approval:	Attached ☐
Date: 06/13/16 Phone: 817-727-9716		

* Attach Additional Sheets If Necessary

Appendix B

Brushy Pipeline ROW
Permian Basin

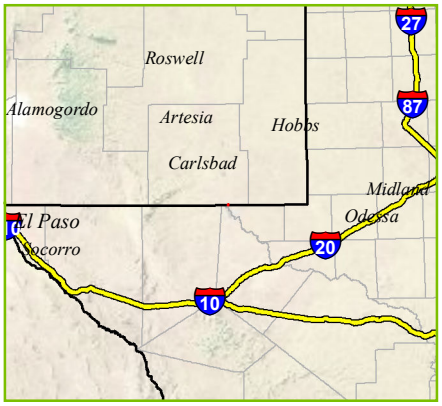
WPXENERGY

Date: 11/16/2016
Map Scale (at 8.5" x 11"): 1:1,000
Projection: NAD 1927 UTM Zone 13N
Created By: Jeremy Andarakes
Planning Project Specialist II
3500 One Williams Center
Tulsa, OK 74172

0 60 120
Feet

Map Symbology

Point of Interest
Area of Interest



X:\PERMIAN\MAPS\EHS\Spill - Brushy Pipeline ROW - Permian - 8x11 P - KBlaney - 20161116.mxd

Appendix C

July 5, 2017

WPX Energy
5315 Buena Vista Drive
Carlsbad, New Mexico 88220

Attention: Karolina Blaney

Re: Geophysical Survey Results and Interpretation for Brushy Pipeline Right-of-Way (Row)

Ms. Blaney,

WPX Energy (WPX) retained Vertex Resource Services Inc. (Vertex) to conduct electromagnetic (EM) and electrical resistivity tomography (ERT) surveys at a produced water release along the Brushy Pipeline Row (hereafter referred to as "site"). The site is located along State Line Road near Brushy Draw in New Mexico. Vertex personnel conducted the EM and ERT surveys on January 24 and 25, 2017. This letter reviews the results of the geophysical surveys at the site and discusses the possible origins of any anomalous subsurface electrical conductivity (EC) as it relates to chloride concentrations.

The origin of any geophysical anomaly is usually a combination of several factors. A discussion of factors affecting subsurface EC, such as soil saturation, salinity, soil type, etc., is included in Attachment 1. In an arid environment with alluvium cover, soil saturation and salinity will likely determine EC. A produced water spill will elevate both soil saturation and salinity above background conditions and ultimately increase subsurface EC above background as well. EM and ERT surveys measure subsurface EC and will be used to delineate the aerial and depth extent of elevated subsurface EC. Furthermore, the chloride concentration from several soil samples within the release area was obtained to link the chloride concentration to EC measured during the geophysical surveys.

Electromagnetic Survey

The subsurface conductivity measured with the EM31 instrument is presented on Figure 1 (Attachment 2). In general, EC is elevated within the release area; four areas of elevated EC (orange/red areas) were identified:

1. Anomaly 1 – Main area of elevated EC that is located within the release area. Elevated EC appears to extend southwest following the natural drainage direction. The depth of the measured EC within the anomaly ranges from 4 to 10 ft. bgs

Electrical Resistivity Tomography Survey

An ERT survey was proposed to determine the depth to which produced water has impacted the subsurface. The subsurface EC measured with the ERT system is presented as a cross section. Cross section A-A' is presented on Figure 2 (Attachment 2). The horizontal axis is the linear distance along the cross section line from A to A' measured

in linear feet along line (ft. al). The vertical axis is relative elevation in ft. The vertical axis is exaggerated by a factor of three over the horizontal axis to clearly show subsurface variations in EC.

- Cross section A-A' – Elevated EC was observed from 184 to 335 ft. al (light green, yellow to red shaded area) between 0 and 10 ft. bgs. These results correlate with the EM Anomaly 1 (transition from orange to yellow). Greater than 10 ft. bgs, there is a zone of elevated EC from 214 to 384 ft. al that is 36 ft. thick. Elevated EC is observed in this zone from 217 to 288 ft. al, and east of 288 ft., the EC decreases. The upper and lower zones of elevated EC are separated by zones of low or background EC. This layer could be caliche or another impervious material limiting vertical seepage of produced water. Elevated EC is not observed below 53 ft., suggesting that there is another impervious layer below the deeper zone of elevated EC. Lastly, two areas with extremely elevated EC, at 137 ft. al and near 450 ft. al, are likely due to interference from of metal objects in the subsurface. Metal interferes with the electrical current flow and can cause false anomalies to occur.

Soil Sample Analysis

Two testholes were advanced with a hand auger, and soil samples from 6 ft. bgs were submitted to Cardinal Laboratories in Hobbs, New Mexico. The soil samples were analyzed for texture, EC and chloride concentration. The soil samples were ordered to show a correlation between the geophysical results (EC) and chloride concentration, which is diagnostic of impacts from a produced water release. The soil sample analysis is presented in Attachment 3, and the laboratory results are presented in Attachment 4 (TH17-01 is Brushy Pipeline North and TH17-02 is Brushy Pipeline South). Both testholes were advanced in background locations, and the color scales for Figures 1 and 2 were adjusted accordingly.

Correlation between Electrical Conductivity and Chloride Concentration

Previous soil sampling completed by WPX shows a correlation between EC and chloride concentration. The correlation is not linear in nature. Elevated chloride concentration increases the EC measured by the EM and ERT surveys from background to elevated levels over short distances. Two examples of this non-linear relationship are shown in the sharp boundaries between background and elevated EC in the ERT cross section (Figure 2) and the quick transition from background to elevated EC in the EM survey (Figure 1) at the margins of Anomaly 1. To quantify the relationship, Attachment 3 presents a table with chloride concentration and EC for all soil samples on-site. Attachment 3 also presents two graphs detailing the non-linear relationship between chloride concentration and EC measured in both the ERT and EM surveys. Since there were three measurements for each WPX sample location, the average and maximum chloride concentrations were compared to estimate the EC at different chloride concentrations. Both graphs show that EC at low chloride concentration is at or near background levels, and then with increasing chloride concentration, EC increases quickly to the maximum level and remains at this level with ever increasing chloride concentration.

At this site, The NMOCD has set the preferred cleanup concentration for chlorides to be 1,000 mg/kg (personal communication, Karolina Blaney, 2016), corresponding to values of 160 mS/m (transition from yellow to orange in Figure 1) for the EM Survey and 222 mS/m (transition from light blue to dark green in Figure 2). There is some discrepancy between the width of the elevated near-surface EC and where 160 mS/m crosses the ERT line. To adjust

for this discrepancy, a zone of elevated chloride concentration has been identified at a contour level of 170 mS/m which crosses A-A' closer to the extents of elevated EC from the ERT cross section. The zone of elevated chloride concentration in Figure 1 appears to extend southwest past station 184 likely because salt was transported downhill with surface water runoff.

Conclusions and Recommendations

The EM and ERT surveys identified and delineated a zone of elevated chloride concentration. Based on the results of the ERT and EM surveys, the pink outlined area in Figure 3 is the near-surface (0 to 12 ft. bgs) zone of elevated chloride concentration and encompasses an area of 5,856 $ft.^2$; therefore, the volume of soil impacted by the release is approximately 2,603 yd^3 at 12 ft. thick as identified along the pipeline ROW from A-A'.

There is a deeper zone of elevated EC (orange and red shaded area in Figure 2). Caliche or several clay lenses likely separate the two zones of elevated EC. The deep zone of elevated EC appears to be sediments with elevated saturation along the pipeline ROW as identified from A-A'. Elevated EC is further confined to the upper 53 ft. suggesting that there is a second impervious layer such as competent bedrock below the saturated sediments.

Sincerely,

Dhugal Hanton, B.Sc., P.Ag., P.Biol
VP ENVIRONMENT – ENVIRONMENT

Attachments

Attachment 1. Additional Information
Attachment 2. Figures
Attachment 3. Soil Sample Analysis
Attachment 4. Soil Sample Laboratory Report

References

Texas Water Development Board. (2014). *State of Texas Well Report for Tracking #381144.* Austin, Texas: Texas Water Development Board. http://www2.twdb.texas.gov.

ATTACHMENT 1

ADDITIONAL INFORMATION ON EC, EM and ERT

Factors Affecting Subsurface Electrical Conductivity

Subsurface electrical conductivity (EC) may increase due to a few factors, some natural and others man-made. Subsurface EC will naturally increase where there is increased water saturation, increased clay content, a combination of both, or saturated soils with a higher salt content. Man-made causes of increased EC usually involve the discharge of chemicals or water (salty or brackish water) that will increase saturation and/or the total dissolved solids in the subsurface. Buried metal objects also have high electrical conductivities and will produce anomalies. Some of the anomalies from metal objects are bipolar or tripolar because the magnetic fields generated from a buried metal object can be opposing (cancelling) the primary field from the instrument or enhancing it (adding).

Description of Electromagnetic Instrument and Measurements

An electromagnetic (EM) conductivity survey utilizes Faraday's law of induction to measure soil and subsoil conductivity. A magnetic field is generated at a source coil which induces eddy currents in the earth. These eddy currents will flow through the subsurface and generate their own magnetic fields by Ampere's law. These secondary magnetic fields are measured at another coil separated some distance away from the transmitter. The ratio of the secondary magnetic field received to primary magnetic field is proportional to the subsurface conductivity. Depth of investigation for an EM survey is based on the separation between coils. Typical depths of investigation are 6 to 20 ft. for the EM31 instrument. The following website provides a description of the EM31 and how subsurface electrical conductivity is measured:

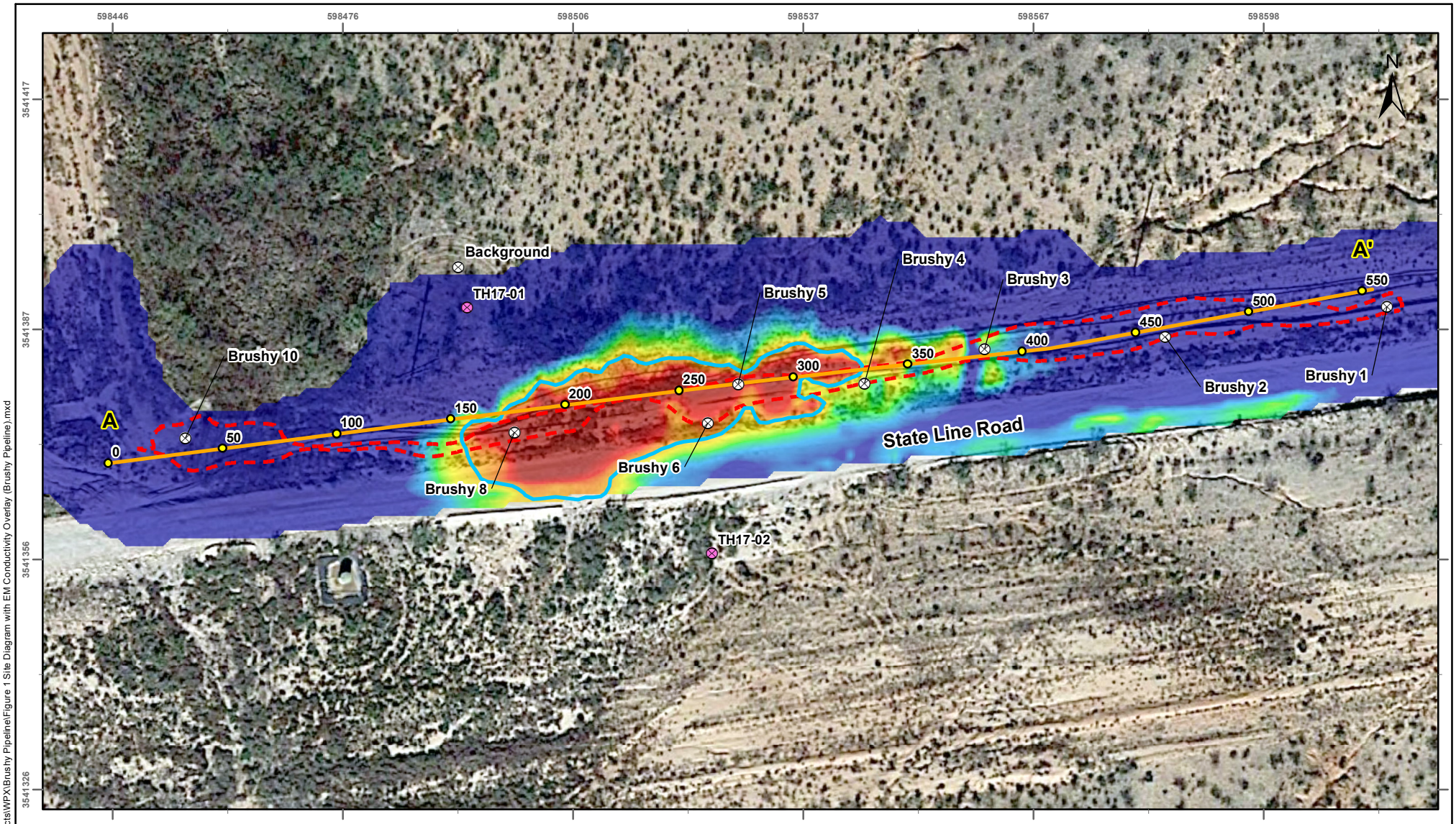
http://www.eos.ubc.ca/ubcgif/iag/foundations/method-summ_files/em31-notes.htm

Description of Electrical Resistivity Tomography

Electrical resistivity tomography (ERT) is a subsurface imaging technique that utilizes direct current and Ohm's Law to measure EC along a 2D plane (cross section) or within a 3D volume. Direct current is injected into the subsurface through two electrodes called the current dipole. Voltage is measured somewhere else on the earth with another dipole. Ohm's Law and the electrode positions are used to calculate the apparent EC. The apparent EC refers to what the EC would be under homogeneous conditions and not accounting for surrounding variation in EC that affects electrical current flow. Typically, a survey is setup along a surveyed line with electrodes (metal stakes pounded into the ground), cables, car battery, and control/measurement unit. The control unit is preprogrammed to energize two electrodes (current dipole) and measure the voltage between another two electrodes (voltage dipole). By switching the electrodes used, the EC is measured along the line at different depths. Typically, hundreds or even thousands of measurements are made to sample EC in the subsurface at high density. After measurements are collected, a modelling methodology called inversion is used to refine the estimate of depth and EC by using the physical equations that describe electrical current flow. After inversion modelling, ERT data is typically presented as a contoured cross section or set of cross sections. Visit the website below for more detail about ERT:

https://archiv.ub.uniheidelberg.de/propylaeumdok/488/1/02_05_ullrich_et_al_resistivity.pdf.

ATTACHMENT 2



Legend

- ERT Station
- Vertex Sample Location
- WPX Sample Location
- ERT Survey Line
- Zone of Elevated Chloride Concentration
- Release Area

120 130 140 150 160 170 180 190 200

Apparent Electrical Conductivity (mS/m)

0 15 30 60 ft

SCALE 1:720

Notes:
1. Aerial Image from Google, 2015
2. TH17-01 is named Brushy Pipeline North in Attachment 4
3. TH17-02 is named Brushy Pipeline South in Attachment 4

WPXENERGY

Site Diagram with EM Conductivity Overlay Brushy Pipeline Right-of-Way

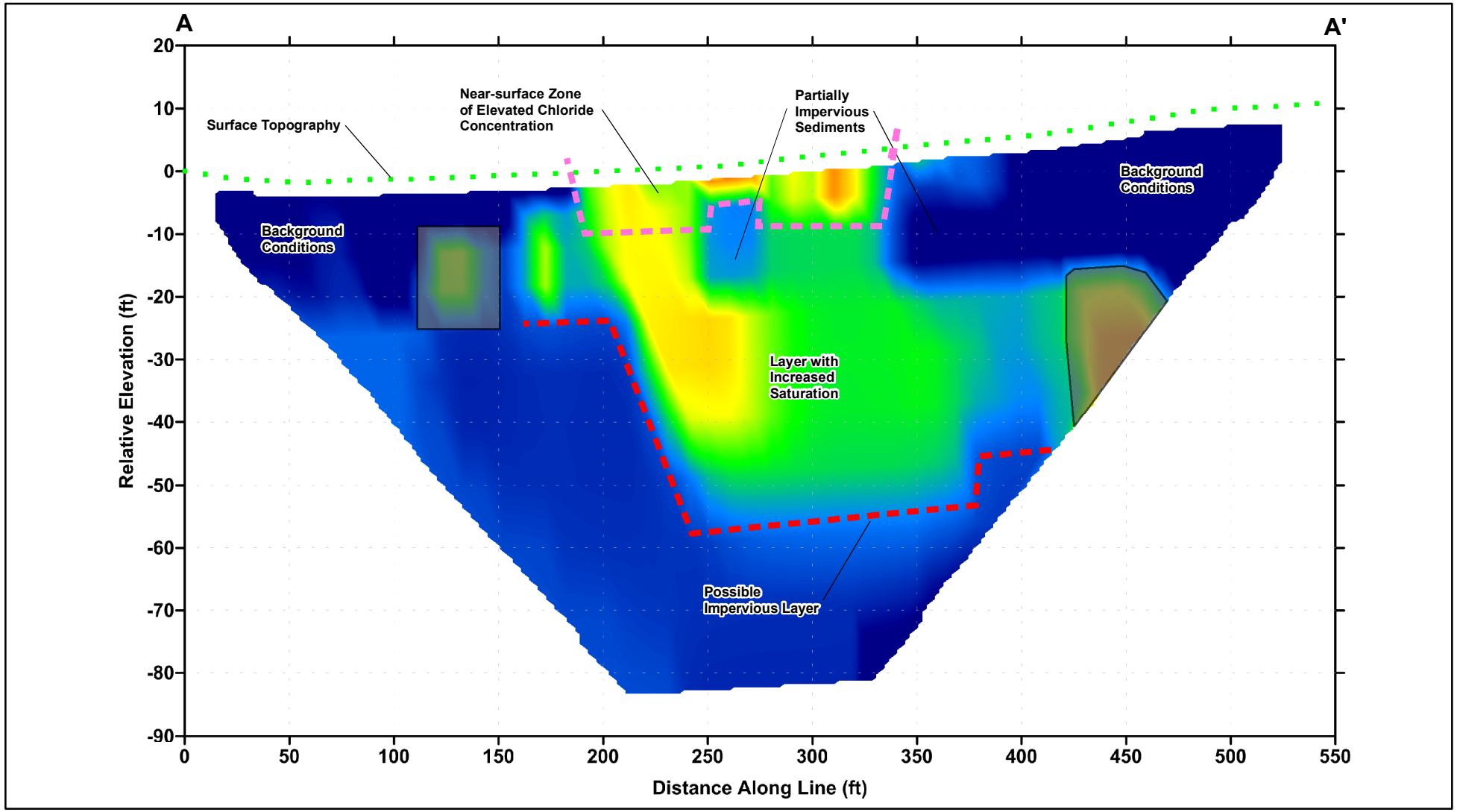
VERTEX

DRAWN:	MW
APPROVED:	DH
DATE:	FEB 22/17

FIGURE: 1

VERSATILITY. EXPERTISE.

Document Path: C:\Users\mwallace\Desktop\01_projects\WPX\Brushy Pipeline\Figure 1 Site Diagram with EM Conductivity Overlay (Brushy Pipeline).mxd



Legend

Interference from Metal

100 150 200 250 300 350 400 450 500 550 600

Electrical Conductivity (mS/m)

Notes: Vertical Exaggeration = 3

WPXENERGY

EC Cross Section A-A'
Brushy Pipeline
Right-of-Way

VERTEX

DRAWN:	MW
APPROVED:	DH
DATE:	FEB 14/17

FIGURE: 2

VERSATILITY. EXPERTISE.

Document Path: C:\Users\mwallace\Desktop\01_projects\WPX\Brushy Pipeline\Figure 2 Cross Section A-A' (Brushy Pipeline Row)_v3.mxd

Legend

- ERT Station
- Vertex Sample Location
- WPX Sample Location
- ERT Survey Line
- Zone of Elevated Chloride Concentration
- Release Area

0 15 30 60 ft

SCALE 1:720

Notes:
1. Zone of Elevated Chloride Concentration encompasses an area of 5,856 ft.^{2}
2. Aerial Image from Google, 2015
3. TH17-01 is named Brushy Pipeline North in Attachment 4
4. TH17-02 is named Brushy Pipeline South in Attachment 4

WPXENERGY

Area of Chloride Impacts Brushy Pipeline Right-of-Way

VERTEX

DRAWN:	MW
APPROVED:	DH
DATE:	MAR 10/17

FIGURE: 3

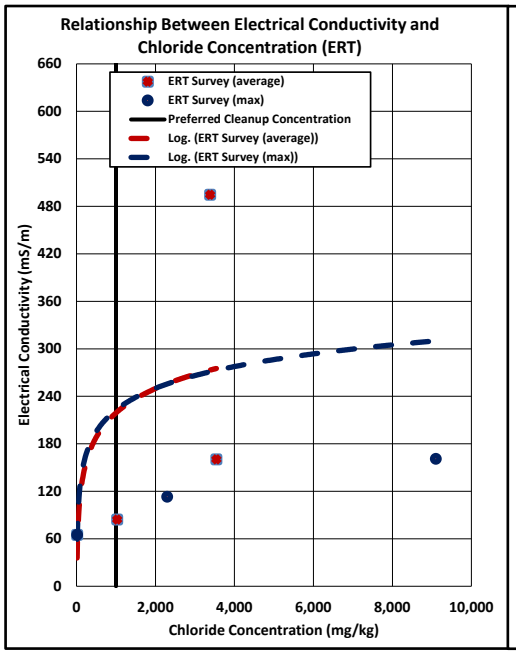
VERSATILITY. EXPERTISE.

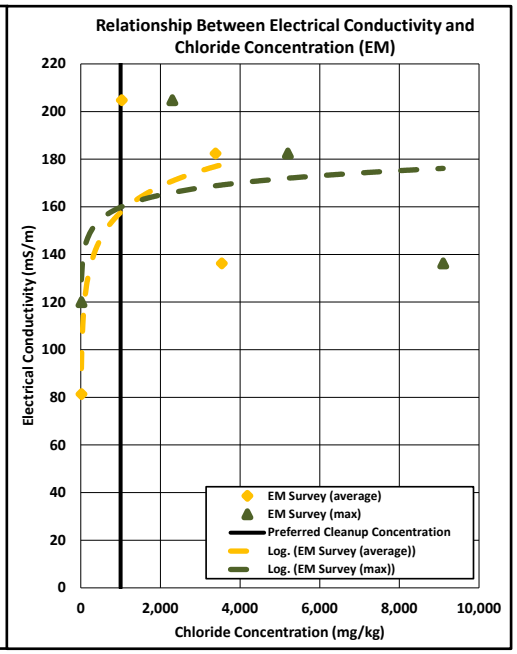
Document Path: C:\Users\mwallace\Desktop\01_projects\WPX\Brushy Pipeline\Figure 2 Area of Chloride Impacts (Brushy Pipeline).mxd

ATTACHMENT 3

Soil Sample Analysis to Correlate Electrical Conductivity and Chloride Concentration
WPX Energy
Brushy Pipeline Right-of-Way
Project #: 17E-00097

Sample Description			Salinity		Soil Properties			Geophysical	
Location	Depth (ft)	Date	Chloride	Electrical Conductivity	Soil Moisture Content	Percent Sand Content	Percent Silt and Clay Content	Electrical Conductivity from Electromagnetic Survey	Electrical Conductivity from Electrical Resistivity Tomography Survey
			(mg/kg)	(mS/m)	(%)	(%)	(%)	(ms/m)	(mS/m)
NMOCD Preferred Cleanup Concentration			1,000	-	-	-	-	-	-
Background									
TH17-01	6.0	January 26, 2017	ND	237	-	48.8	51.2	64	-
TH17-02	6.0	January 26, 2017	ND	230	-	43.8	56.2	120	-
BACKGROUND	0.5	January 26, 2017	ND	-	28	-	-	60	-
WPX Samples									
Brushy 1	0.0	November 14, 2016	3,400	-	21	-	-	46	65
	2.0	November 14, 2016	610	-	18	-	-	46	65
	3.0	November 14, 2016	630	-	24	-	-	46	65
Brushy 3	0.0	November 14, 2016	27	-	20	-	-	136	161
	2.0	November 14, 2016	1,500	-	21	-	-	136	161
	4.0	November 14, 2016	9,100	-	25	-	-	136	159
Brushy 6	0.0	November 14, 2016	650	-	25	-	-	182	574
	2.0	November 14, 2016	4,300	-	24	-	-	182	533
	4.0	November 14, 2016	5,200	-	28	-	-	182	377
Brushy 8	0.0	November 14, 2016	15	-	25	-	-	205	70
	2.0	November 14, 2016	770	-	35	-	-	205	70
	3.0	November 14, 2016	2,300	-	31	-	-	205	113
Brushy 10	0.0	November 14, 2016	480	-	22	-	-	58	66
	2.0	November 14, 2016	100	-	21	-	-	58	66
	3.0	November 14, 2016	71	-	20	-	-	58	66





NMOCD Preferred Cleanup Concentration - Personal communication, Karolina Blaney, 2016
ND - Not Detected
Average refers to the average chloride concentration at a location
Max refers to the maximum recorded Chloride Concentration at a location
" - " - No standard/not analyzed
Shading indicates values (excluding those in background samples) exceeding comparative guidelines

VERTEX

ATTACHMENT 4

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

February 08, 2017

NATHAN CHANCLER

VERTEX RESOURCE GROUP

420 SOUTH MAIN, SUITE 202

TULSA, OK 74103

RE: SOIL SAMPLES

Enclosed are the results of analyses for samples received by the laboratory on 01/27/17 5:56.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP 420 SOUTH MAIN, SUITE 202 TULSA OK, 74103	Project: SOIL SAMPLES Project Number: NONE GIVEN Project Manager: NATHAN CHANCLER Fax To: NA	Reported: 08-Feb-17 13:54

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BRUSHY PIPELINE - SOUTH	H700206-01	Soil	25-Jan-17 13:00	27-Jan-17 05:56
BRUSHY PIPELINE - NORTH	H700206-02	Soil	25-Jan-17 13:30	27-Jan-17 05:56
BRUSHY BOOSTER - SOUTH	H700206-03	Soil	26-Jan-17 09:30	27-Jan-17 05:56
BRUSHY BOOSTER - NW	H700206-04	Soil	26-Jan-17 10:00	27-Jan-17 05:56

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP 420 SOUTH MAIN, SUITE 202 TULSA OK, 74103	Project: SOIL SAMPLES Project Number: NONE GIVEN Project Manager: NATHAN CHANCLER Fax To: NA	Reported: 08-Feb-17 13:54

BRUSHY PIPELINE - SOUTH

H700206-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	<16.0		16.0	mg/kg	4	7013110	HM	01-Feb-17	4500-Cl-B	
Conductivity*	**2300**		1.00	uS/cm	1	7013102	AC	31-Jan-17	120.1	
Green Analytical Laboratories										
Texture Classification 6Hr										
Textural Class	L			%	1	B702044	BDV	07-Feb-17	Hydrometer, Modified Bouyoucos	
Sand, Percent	**43.8**			%	1	B702044	BDV	07-Feb-17	Hydrometer, Modified Bouyoucos	
Clay, Percent	**12.5**			%	1	B702044	BDV	07-Feb-17	Hydrometer, Modified Bouyoucos	
Silt, Percent	**43.8**			%	1	B702044	BDV	07-Feb-17	Hydrometer, Modified Bouyoucos	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP 420 SOUTH MAIN, SUITE 202 TULSA OK, 74103	Project: SOIL SAMPLES Project Number: NONE GIVEN Project Manager: NATHAN CHANCLER Fax To: NA	Reported: 08-Feb-17 13:54

BRUSHY PIPELINE - NORTH

H700206-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	<16.0		16.0	mg/kg	4	7013110	HM	01-Feb-17	4500-Cl-B	
Conductivity*	**2370**		1.00	uS/cm	1	7013102	AC	31-Jan-17	120.1	
Green Analytical Laboratories										
Texture Classification 6Hr										
Textural Class	L			%	1	B702044	BDV	07-Feb-17	Hydrometer, Modified Bouyoucos	
Sand, Percent	**48.8**			%	1	B702044	BDV	07-Feb-17	Hydrometer, Modified Bouyoucos	
Clay, Percent	**8.80**			%	1	B702044	BDV	07-Feb-17	Hydrometer, Modified Bouyoucos	
Silt, Percent	**42.5**			%	1	B702044	BDV	07-Feb-17	Hydrometer, Modified Bouyoucos	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP 420 SOUTH MAIN, SUITE 202 TULSA OK, 74103	Project: SOIL SAMPLES Project Number: NONE GIVEN Project Manager: NATHAN CHANCLER Fax To: NA	Reported: 08-Feb-17 13:54

BRUSHY BOOSTER - SOUTH

H700206-03 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	**6240**		16.0	mg/kg	4	7013110	HM	01-Feb-17	4500-Cl-B	
Conductivity*	**22400**		1.00	uS/cm	1	7013102	AC	31-Jan-17	120.1	
Green Analytical Laboratories										
Texture Classification 6Hr										
Textural Class	L			%	1	B702044	BDV	07-Feb-17	Hydrometer, Modified Bouyoucos	
Sand, Percent	**41.3**			%	1	B702044	BDV	07-Feb-17	Hydrometer, Modified Bouyoucos	
Clay, Percent	**18.8**			%	1	B702044	BDV	07-Feb-17	Hydrometer, Modified Bouyoucos	
Silt, Percent	**40.0**			%	1	B702044	BDV	07-Feb-17	Hydrometer, Modified Bouyoucos	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP 420 SOUTH MAIN, SUITE 202 TULSA OK, 74103	Project: SOIL SAMPLES Project Number: NONE GIVEN Project Manager: NATHAN CHANCLER Fax To: NA	Reported: 08-Feb-17 13:54

BRUSHY BOOSTER - NW

H700206-04 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	**32.0**		16.0	mg/kg	4	7013110	HM	01-Feb-17	4500-Cl-B	
Conductivity*	**273**		1.00	uS/cm	1	7013102	AC	31-Jan-17	120.1	
Green Analytical Laboratories										
Texture Classification 6Hr										
Textural Class	LS			%	1	B702044	BDV	07-Feb-17	Hydrometer, Modified Bouyoucos	
Sand, Percent	**88.8**			%	1	B702044	BDV	07-Feb-17	Hydrometer, Modified Bouyoucos	
Clay, Percent	**10.0**			%	1	B702044	BDV	07-Feb-17	Hydrometer, Modified Bouyoucos	
Silt, Percent	**1.30**			%	1	B702044	BDV	07-Feb-17	Hydrometer, Modified Bouyoucos	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP 420 SOUTH MAIN, SUITE 202 TULSA OK, 74103	Project: SOIL SAMPLES Project Number: NONE GIVEN Project Manager: NATHAN CHANCLER Fax To: NA	Reported: 08-Feb-17 13:54

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7013102 - General Prep - Wet Chem										
LCS (7013102-BS1)				Prepared & Analyzed: 31-Jan-17						
Conductivity	488		uS/cm	500		97.6	80-120			
Duplicate (7013102-DUP1)	**Source: H700206-01**			Prepared & Analyzed: 31-Jan-17						
Conductivity	2270	1.00	uS/cm		2300			0.963	20	
Batch 7013110 - 1:4 DI Water										
Blank (7013110-BLK1)				Prepared: 31-Jan-17 Analyzed: 01-Feb-17						
Chloride	ND	16.0	mg/kg							
LCS (7013110-BS1)				Prepared: 31-Jan-17 Analyzed: 01-Feb-17						
Chloride	432	16.0	mg/kg	400		108	80-120			
LCS Dup (7013110-BSD1)				Prepared: 31-Jan-17 Analyzed: 01-Feb-17						
Chloride	432	16.0	mg/kg	400		108	80-120	0.00	20	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP 420 SOUTH MAIN, SUITE 202 TULSA OK, 74103	Project: SOIL SAMPLES Project Number: NONE GIVEN Project Manager: NATHAN CHANCLER Fax To: NA	Reported: 08-Feb-17 13:54

Texture Classification 6Hr - Quality Control

Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B702044 - General Prep - Wet Chem										
Duplicate (B702044-DUP1)		**Source: H700206-02**		Prepared & Analyzed: 07-Feb-17						
Sand, Percent	48.8		%		48.8			0.00	20	
Clay, Percent	8.80		%		8.80			0.00	20	
Silt, Percent	42.5		%		42.5			0.00	20	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

Texta	LS
Text	L
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	Vortex Resource Services	**BILL TO** P.O. #:	
Project Manager:	Nathan Chandler	Company:	
Address:		Attn:	
City:	State: Zip:	Address:	
Phone #:	Fax #:	City:	
Project #:	Project Owner:	State: Zip:	
Project Name:		Phone #:	
Project Location:		Fax #:	
Sampler Name:			

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	BTEX	Chloride	Texture
H700206																	
1	Brushy Pipeline-S	G	1			1							1/25	1300	X	X	X
2	Brushy Pipeline-N	G	1			1							1/25	1330	X	X	X
3	Brushy Booster-S	G	1			1							1/26	0930	X	X	X
4	Brushy Booster-NW	G	1			1							1/26	1000	X	X	X

Relinquished By:	Date: 1/27/17	Received By:	
	Time: 5:56		
Relinquished By:	Date:	Received By:	
	Time:		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 1.1°C

Sample Condition: Cool: ☑ Yes ☐ No; Intact: ☑ Yes ☐ No

CHECKED BY: (Initials) CH #75

Phone Result:	☐ Yes	☐ No	Add'l Phone #:
Fax Result:	☐ Yes	☐ No	Add'l Fax #:
REMARKS:			

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

Appendix D

15-Nov-2016

Karolina Blaney
WPX Energy
5315 Buena Vista Dr.
Carlsbad, NM 88220

Re: **Brushy Pipeline ROW** Work Order: **1611456**

Dear Karolina,

ALS Environmental received 9 samples on 05-Nov-2016 09:30 AM for the analyses presented in the following report.

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

Sample results are compliant with NELAP standard requirements and QC 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.

Sincerely,

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Certificate No: MN 998501

ADDRESS 3352 128th Ave, Holland, MI 49424 Holland, Michigan 49424 | PHONE (616) 399-6070 | FAX (616) 399-6185
ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

ALS Group, USA

Date: 15-Nov-16

Client: WPX Energy
Project: Brushy Pipeline ROW
Work Order: **1611456**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1611456-01	Brushy 1 0'	Soil		11/4/2016 08:50	11/5/2016 09:30	☐
1611456-02	Brushy 1 2'	Soil		11/4/2016 08:55	11/5/2016 09:30	☐
1611456-03	Brushy 1 3'	Soil		11/4/2016 09:00	11/5/2016 09:30	☐
1611456-04	Brushy 3 0'	Soil		11/4/2016 08:35	11/5/2016 09:30	☐
1611456-05	Brushy 3 2'	Soil		11/4/2016 08:40	11/5/2016 09:30	☐
1611456-06	Brushy 3 4'	Soil		11/4/2016 08:45	11/5/2016 09:30	☐
1611456-07	Brushy 6 0'	Soil		11/4/2016 08:20	11/5/2016 09:30	☐
1611456-08	Brushy 6 2'	Soil		11/4/2016 08:25	11/5/2016 09:30	☐
1611456-09	Brushy 6 4'	Soil		11/4/2016 08:30	11/5/2016 09:30	☐

ALS Group, USA

Date: 15-Nov-16

Client: WPX Energy
Project: Brushy Pipeline ROW
WorkOrder: **1611456**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
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: *15-Nov-16*

Client: WPX Energy
Project: Brushy Pipeline ROW
Work Order: 1611456
Sample ID: Brushy 1 0'
Lab ID: 1611456-01
Collection Date: 11/4/2016 08:50 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep: SW3546 / 11/10/16	Analyst: **IT**
DRO (C10-C28)	**19**		**6.2**	**mg/Kg-dry**	1	11/10/2016 10:51 PM
Surr: 4-Terphenyl-d14	*56.4*		*39-133*	*%REC*	1	11/10/2016 10:51 PM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**		Prep: SW5035 / 11/9/16	Analyst: **IT**
GRO (C6-C10)	ND		3.8	mg/Kg-dry	1	11/9/2016 08:22 PM
Surr: Toluene-d8	*102*		*50-150*	*%REC*	1	11/9/2016 08:22 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 11/9/16	Analyst: **LSY**
Benzene	ND		0.046	mg/Kg-dry	1	11/11/2016 07:41 PM
Ethylbenzene	ND		0.046	mg/Kg-dry	1	11/11/2016 07:41 PM
m,p-Xylene	ND		0.092	mg/Kg-dry	1	11/11/2016 07:41 PM
o-Xylene	ND		0.046	mg/Kg-dry	1	11/11/2016 07:41 PM
Toluene	ND		0.046	mg/Kg-dry	1	11/11/2016 07:41 PM
Xylenes, Total	ND		0.14	mg/Kg-dry	1	11/11/2016 07:41 PM
Surr: 1,2-Dichloroethane-d4	*94.5*		*70-130*	*%REC*	1	11/11/2016 07:41 PM
Surr: 4-Bromofluorobenzene	*95.4*		*70-130*	*%REC*	1	11/11/2016 07:41 PM
Surr: Dibromofluoromethane	*90.2*		*70-130*	*%REC*	1	11/11/2016 07:41 PM
Surr: Toluene-d8	*100*		*70-130*	*%REC*	1	11/11/2016 07:41 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**		Prep: EXTRACT / 11/10/16	Analyst: **EE**
Chloride	**3,400**		**610**	**mg/Kg-dry**	50	11/11/2016 03:31 PM
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**21**		**0.050**	**% of sample**	1	11/8/2016 06:03 PM

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

ALS Group, USA

Date: *15-Nov-16*

Client: WPX Energy
Project: Brushy Pipeline ROW
Work Order: 1611456
Sample ID: Brushy 1 2'
Lab ID: 1611456-02
Collection Date: 11/4/2016 08:55 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep: SW3546 / 11/10/16	Analyst: **IT**
DRO (C10-C28)	**8.2**		**5.8**	**mg/Kg-dry**	1	11/10/2016 11:21 PM
Surr: 4-Terphenyl-d14	*64.9*		*39-133*	*%REC*	1	11/10/2016 11:21 PM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**		Prep: SW5035 / 11/9/16	Analyst: **IT**
GRO (C6-C10)	ND		3.6	mg/Kg-dry	1	11/9/2016 08:47 PM
Surr: Toluene-d8	*98.8*		*50-150*	*%REC*	1	11/9/2016 08:47 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 11/9/16	Analyst: **LSY**
Benzene	ND		0.043	mg/Kg-dry	1	11/11/2016 08:05 PM
Ethylbenzene	ND		0.043	mg/Kg-dry	1	11/11/2016 08:05 PM
m,p-Xylene	ND		0.086	mg/Kg-dry	1	11/11/2016 08:05 PM
o-Xylene	ND		0.043	mg/Kg-dry	1	11/11/2016 08:05 PM
Toluene	ND		0.043	mg/Kg-dry	1	11/11/2016 08:05 PM
Xylenes, Total	ND		0.13	mg/Kg-dry	1	11/11/2016 08:05 PM
Surr: 1,2-Dichloroethane-d4	*104*		*70-130*	*%REC*	1	11/11/2016 08:05 PM
Surr: 4-Bromofluorobenzene	*97.0*		*70-130*	*%REC*	1	11/11/2016 08:05 PM
Surr: Dibromofluoromethane	*84.6*		*70-130*	*%REC*	1	11/11/2016 08:05 PM
Surr: Toluene-d8	*102*		*70-130*	*%REC*	1	11/11/2016 08:05 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**		Prep: EXTRACT / 11/10/16	Analyst: **EE**
Chloride	**610**		**59**	**mg/Kg-dry**	5	11/11/2016 03:51 PM
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**18**		**0.050**	**% of sample**	1	11/8/2016 06:03 PM

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

ALS Group, USA

Date: *15-Nov-16*

Client: WPX Energy
Project: Brushy Pipeline ROW
Work Order: 1611456
Sample ID: Brushy 1 3'
Lab ID: 1611456-03
Collection Date: 11/4/2016 09:00 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep: SW3546 / 11/10/16	Analyst: **IT**
DRO (C10-C28)	**7.5**		**6.3**	**mg/Kg-dry**	1	11/10/2016 11:50 PM
Surr: 4-Terphenyl-d14	*64.8*		*39-133*	*%REC*	1	11/10/2016 11:50 PM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**		Prep: SW5035 / 11/9/16	Analyst: **IT**
GRO (C6-C10)	ND		4.1	mg/Kg-dry	1	11/9/2016 09:12 PM
Surr: Toluene-d8	*98.1*		*50-150*	*%REC*	1	11/9/2016 09:12 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 11/9/16	Analyst: **LSY**
Benzene	ND		0.049	mg/Kg-dry	1	11/11/2016 08:29 PM
Ethylbenzene	ND		0.049	mg/Kg-dry	1	11/11/2016 08:29 PM
m,p-Xylene	ND		0.098	mg/Kg-dry	1	11/11/2016 08:29 PM
o-Xylene	ND		0.049	mg/Kg-dry	1	11/11/2016 08:29 PM
Toluene	ND		0.049	mg/Kg-dry	1	11/11/2016 08:29 PM
Xylenes, Total	ND		0.15	mg/Kg-dry	1	11/11/2016 08:29 PM
Surr: 1,2-Dichloroethane-d4	*95.0*		*70-130*	*%REC*	1	11/11/2016 08:29 PM
Surr: 4-Bromofluorobenzene	*96.4*		*70-130*	*%REC*	1	11/11/2016 08:29 PM
Surr: Dibromofluoromethane	*88.0*		*70-130*	*%REC*	1	11/11/2016 08:29 PM
Surr: Toluene-d8	*98.5*		*70-130*	*%REC*	1	11/11/2016 08:29 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**		Prep: EXTRACT / 11/10/16	Analyst: **EE**
Chloride	**620**		**62**	**mg/Kg-dry**	5	11/11/2016 04:11 PM
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**24**		**0.050**	**% of sample**	1	11/8/2016 06:03 PM

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

ALS Group, USA

Date: *15-Nov-16*

Client: WPX Energy
Project: Brushy Pipeline ROW
Work Order: 1611456
Sample ID: Brushy 3 0'
Lab ID: 1611456-04
Collection Date: 11/4/2016 08:35 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep: SW3546 / 11/10/16	Analyst: **IT**
DRO (C10-C28)	**240**		**6.3**	**mg/Kg-dry**	1	11/11/2016 12:20 PM
Surr: 4-Terphenyl-d14	*64.5*		*39-133*	*%REC*	1	11/11/2016 12:20 PM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**		Prep: SW5035 / 11/9/16	Analyst: **IT**
GRO (C6-C10)	ND		3.8	mg/Kg-dry	1	11/9/2016 09:37 PM
Surr: Toluene-d8	*96.6*		*50-150*	*%REC*	1	11/9/2016 09:37 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 11/9/16	Analyst: **LSY**
Benzene	ND		0.045	mg/Kg-dry	1	11/11/2016 08:54 PM
Ethylbenzene	ND		0.045	mg/Kg-dry	1	11/11/2016 08:54 PM
m,p-Xylene	ND		0.090	mg/Kg-dry	1	11/11/2016 08:54 PM
o-Xylene	ND		0.045	mg/Kg-dry	1	11/11/2016 08:54 PM
Toluene	ND		0.045	mg/Kg-dry	1	11/11/2016 08:54 PM
Xylenes, Total	ND		0.14	mg/Kg-dry	1	11/11/2016 08:54 PM
Surr: 1,2-Dichloroethane-d4	*94.4*		*70-130*	*%REC*	1	11/11/2016 08:54 PM
Surr: 4-Bromofluorobenzene	*97.6*		*70-130*	*%REC*	1	11/11/2016 08:54 PM
Surr: Dibromofluoromethane	*88.8*		*70-130*	*%REC*	1	11/11/2016 08:54 PM
Surr: Toluene-d8	*99.6*		*70-130*	*%REC*	1	11/11/2016 08:54 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**		Prep: EXTRACT / 11/10/16	Analyst: **EE**
Chloride	**27**		**25**	**mg/Kg-dry**	2	11/11/2016 05:12 PM
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**20**		**0.050**	**% of sample**	1	11/8/2016 06:03 PM

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

ALS Group, USA

Date: *15-Nov-16*

Client: WPX Energy
Project: Brushy Pipeline ROW
Work Order: 1611456
Sample ID: Brushy 3 2'
Lab ID: 1611456-05
Collection Date: 11/4/2016 08:40 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep: SW3546 / 11/10/16	Analyst: **IT**
DRO (C10-C28)	**24**		**6.3**	**mg/Kg-dry**	1	11/11/2016 12:49 PM
Surr: 4-Terphenyl-d14	*64.8*		*39-133*	*%REC*	1	11/11/2016 12:49 PM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**		Prep: SW5035 / 11/9/16	Analyst: **IT**
GRO (C6-C10)	ND		3.8	mg/Kg-dry	1	11/10/2016 05:21 PM
Surr: Toluene-d8	*102*		*50-150*	*%REC*	1	11/10/2016 05:21 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 11/9/16	Analyst: **LSY**
Benzene	ND		0.046	mg/Kg-dry	1	11/11/2016 09:18 PM
Ethylbenzene	ND		0.046	mg/Kg-dry	1	11/11/2016 09:18 PM
m,p-Xylene	ND		0.092	mg/Kg-dry	1	11/11/2016 09:18 PM
o-Xylene	ND		0.046	mg/Kg-dry	1	11/11/2016 09:18 PM
Toluene	ND		0.046	mg/Kg-dry	1	11/11/2016 09:18 PM
Xylenes, Total	ND		0.14	mg/Kg-dry	1	11/11/2016 09:18 PM
Surr: 1,2-Dichloroethane-d4	*94.6*		*70-130*	*%REC*	1	11/11/2016 09:18 PM
Surr: 4-Bromofluorobenzene	*94.4*		*70-130*	*%REC*	1	11/11/2016 09:18 PM
Surr: Dibromofluoromethane	*86.3*		*70-130*	*%REC*	1	11/11/2016 09:18 PM
Surr: Toluene-d8	*97.4*		*70-130*	*%REC*	1	11/11/2016 09:18 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**		Prep: EXTRACT / 11/10/16	Analyst: **EE**
Chloride	**1,500**		**130**	**mg/Kg-dry**	10	11/11/2016 05:32 PM
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**21**		**0.050**	**% of sample**	1	11/8/2016 06:03 PM

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

ALS Group, USA

Date: *15-Nov-16*

Client: WPX Energy
Project: Brushy Pipeline ROW
Work Order: 1611456
Sample ID: Brushy 3 4'
Lab ID: 1611456-06
Collection Date: 11/4/2016 08:45 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep: SW3546 / 11/10/16	Analyst: **IT**
DRO (C10-C28)	**9.7**		**8.2**	**mg/Kg-dry**	1	11/11/2016 01:19 AM
Surr: 4-Terphenyl-d14	*65.9*		*39-133*	*%REC*	1	11/11/2016 01:19 AM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**		Prep: SW5035 / 11/9/16	Analyst: **IT**
GRO (C6-C10)	ND		4.2	mg/Kg-dry	1	11/10/2016 05:46 PM
Surr: Toluene-d8	*97.9*		*50-150*	*%REC*	1	11/10/2016 05:46 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 11/9/16	Analyst: **LSY**
Benzene	ND		0.050	mg/Kg-dry	1	11/11/2016 09:43 PM
Ethylbenzene	ND		0.050	mg/Kg-dry	1	11/11/2016 09:43 PM
m,p-Xylene	ND		0.10	mg/Kg-dry	1	11/11/2016 09:43 PM
o-Xylene	ND		0.050	mg/Kg-dry	1	11/11/2016 09:43 PM
Toluene	ND		0.050	mg/Kg-dry	1	11/11/2016 09:43 PM
Xylenes, Total	ND		0.15	mg/Kg-dry	1	11/11/2016 09:43 PM
Surr: 1,2-Dichloroethane-d4	*95.3*		*70-130*	*%REC*	1	11/11/2016 09:43 PM
Surr: 4-Bromofluorobenzene	*99.7*		*70-130*	*%REC*	1	11/11/2016 09:43 PM
Surr: Dibromofluoromethane	*90.8*		*70-130*	*%REC*	1	11/11/2016 09:43 PM
Surr: Toluene-d8	*96.7*		*70-130*	*%REC*	1	11/11/2016 09:43 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**		Prep: EXTRACT / 11/10/16	Analyst: **EE**
Chloride	**9,100**		**1,300**	**mg/Kg-dry**	100	11/11/2016 05:52 PM
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**25**		**0.050**	**% of sample**	1	11/8/2016 06:03 PM

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

ALS Group, USA

Date: *15-Nov-16*

Client: WPX Energy
Project: Brushy Pipeline ROW
Work Order: 1611456
Sample ID: Brushy 6 0'
Lab ID: 1611456-07
Collection Date: 11/4/2016 08:20 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep: SW3546 / 11/10/16	Analyst: **IT**
DRO (C10-C28)	**340**		**6.4**	**mg/Kg-dry**	1	11/11/2016 01:48 AM
Surr: 4-Terphenyl-d14	*60.6*		*39-133*	*%REC*	1	11/11/2016 01:48 AM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**		Prep: SW5035 / 11/9/16	Analyst: **IT**
GRO (C6-C10)	ND		4.2	mg/Kg-dry	1	11/10/2016 06:11 PM
Surr: Toluene-d8	*104*		*50-150*	*%REC*	1	11/10/2016 06:11 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 11/9/16	Analyst: **LSY**
Benzene	ND		0.050	mg/Kg-dry	1	11/11/2016 10:07 PM
Ethylbenzene	ND		0.050	mg/Kg-dry	1	11/11/2016 10:07 PM
m,p-Xylene	ND		0.10	mg/Kg-dry	1	11/11/2016 10:07 PM
o-Xylene	ND		0.050	mg/Kg-dry	1	11/11/2016 10:07 PM
Toluene	ND		0.050	mg/Kg-dry	1	11/11/2016 10:07 PM
Xylenes, Total	ND		0.15	mg/Kg-dry	1	11/11/2016 10:07 PM
Surr: 1,2-Dichloroethane-d4	*94.8*		*70-130*	*%REC*	1	11/11/2016 10:07 PM
Surr: 4-Bromofluorobenzene	*96.6*		*70-130*	*%REC*	1	11/11/2016 10:07 PM
Surr: Dibromofluoromethane	*91.8*		*70-130*	*%REC*	1	11/11/2016 10:07 PM
Surr: Toluene-d8	*98.5*		*70-130*	*%REC*	1	11/11/2016 10:07 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**		Prep: EXTRACT / 11/10/16	Analyst: **EE**
Chloride	**650**		**64**	**mg/Kg-dry**	5	11/11/2016 06:13 PM
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**25**		**0.050**	**% of sample**	1	11/8/2016 06:03 PM

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

ALS Group, USA

Date: *15-Nov-16*

Client: WPX Energy
Project: Brushy Pipeline ROW
Work Order: 1611456
Sample ID: Brushy 6 2'
Lab ID: 1611456-08
Collection Date: 11/4/2016 08:25 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep: SW3546 / 11/10/16	Analyst: **IT**
DRO (C10-C28)	**16**		**7.7**	**mg/Kg-dry**	1	11/11/2016 02:18 AM
Surr: 4-Terphenyl-d14	*56.3*		*39-133*	*%REC*	1	11/11/2016 02:18 AM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**		Prep: SW5035 / 11/9/16	Analyst: **IT**
GRO (C6-C10)	ND		4.1	mg/Kg-dry	1	11/10/2016 06:36 PM
Surr: Toluene-d8	*92.5*		*50-150*	*%REC*	1	11/10/2016 06:36 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 11/9/16	Analyst: **LSY**
Benzene	ND		0.049	mg/Kg-dry	1	11/11/2016 10:32 PM
Ethylbenzene	ND		0.049	mg/Kg-dry	1	11/11/2016 10:32 PM
m,p-Xylene	ND		0.098	mg/Kg-dry	1	11/11/2016 10:32 PM
o-Xylene	ND		0.049	mg/Kg-dry	1	11/11/2016 10:32 PM
Toluene	ND		0.049	mg/Kg-dry	1	11/11/2016 10:32 PM
Xylenes, Total	ND		0.15	mg/Kg-dry	1	11/11/2016 10:32 PM
Surr: 1,2-Dichloroethane-d4	*96.4*		*70-130*	*%REC*	1	11/11/2016 10:32 PM
Surr: 4-Bromofluorobenzene	*97.0*		*70-130*	*%REC*	1	11/11/2016 10:32 PM
Surr: Dibromofluoromethane	*91.4*		*70-130*	*%REC*	1	11/11/2016 10:32 PM
Surr: Toluene-d8	*98.2*		*70-130*	*%REC*	1	11/11/2016 10:32 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**		Prep: EXTRACT / 11/10/16	Analyst: **EE**
Chloride	**4,300**		**660**	**mg/Kg-dry**	50	11/11/2016 06:33 PM
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**24**		**0.050**	**% of sample**	1	11/8/2016 06:03 PM

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

ALS Group, USA

Date: *15-Nov-16*

Client: WPX Energy
Project: Brushy Pipeline ROW
Work Order: 1611456
Sample ID: Brushy 6 4'
Lab ID: 1611456-09
Collection Date: 11/4/2016 08:30 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep: SW3546 / 11/10/16	Analyst: **IT**
DRO (C10-C28)	**8.2**		**7.7**	**mg/Kg-dry**	1	11/11/2016 02:47 AM
Surr: 4-Terphenyl-d14	*59.4*		*39-133*	*%REC*	1	11/11/2016 02:47 AM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**		Prep: SW5035 / 11/9/16	Analyst: **IT**
GRO (C6-C10)	ND		4.4	mg/Kg-dry	1	11/10/2016 07:01 PM
Surr: Toluene-d8	*100*		*50-150*	*%REC*	1	11/10/2016 07:01 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 11/9/16	Analyst: **LSY**
Benzene	ND		0.053	mg/Kg-dry	1	11/12/2016 03:51 AM
Ethylbenzene	ND		0.053	mg/Kg-dry	1	11/12/2016 03:51 AM
m,p-Xylene	ND		0.11	mg/Kg-dry	1	11/12/2016 03:51 AM
o-Xylene	ND		0.053	mg/Kg-dry	1	11/12/2016 03:51 AM
Toluene	ND		0.053	mg/Kg-dry	1	11/12/2016 03:51 AM
Xylenes, Total	ND		0.16	mg/Kg-dry	1	11/12/2016 03:51 AM
Surr: 1,2-Dichloroethane-d4	*98.4*		*70-130*	*%REC*	1	11/12/2016 03:51 AM
Surr: 4-Bromofluorobenzene	*98.6*		*70-130*	*%REC*	1	11/12/2016 03:51 AM
Surr: Dibromofluoromethane	*98.0*		*70-130*	*%REC*	1	11/12/2016 03:51 AM
Surr: Toluene-d8	*100*		*70-130*	*%REC*	1	11/12/2016 03:51 AM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**		Prep: EXTRACT / 11/10/16	Analyst: **EE**
Chloride	**5,200**		**680**	**mg/Kg-dry**	50	11/11/2016 06:53 PM
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**28**		**0.050**	**% of sample**	1	11/8/2016 06:03 PM

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

ALS Group, USA

Date: 15-Nov-16

Client: WPX Energy

QC BATCH REPORT

Work Order: 1611456

Project: Brushy Pipeline ROW

Batch ID: **94335** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-94335-94335** Units: **mg/Kg** Analysis Date: **11/10/2016 05:27 PM**

Client ID: Run ID: **GC8_161110A** SeqNo: **4147485** Prep Date: **11/10/2016** 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								
Surr: 4-Terphenyl-d14	*2.225*	0	*3.33*	0	*66.8*	*39-133*	0			

LCS Sample ID: **DLCSS1-94335-94335** Units: **mg/Kg** Analysis Date: **11/10/2016 05:57 PM**

Client ID: Run ID: **GC8_161110A** SeqNo: **4147486** Prep Date: **11/10/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	308.7	5.0	333	0	92.7	61-109	0			
Surr: 4-Terphenyl-d14	*2.081*	0	*3.33*	0	*62.5*	*39-133*	0			

MS Sample ID: **1611449-01A MS** Units: **mg/Kg** Analysis Date: **11/10/2016 06:26 PM**

Client ID: Run ID: **GC8_161110A** SeqNo: **4147487** Prep Date: **11/10/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	295.1	4.9	326.6	5.255	88.7	48-110	0			
Surr: 4-Terphenyl-d14	*2.156*	0	*3.266*	0	*66*	*39-133*	0			

MSD Sample ID: **1611449-01A MSD** Units: **mg/Kg** Analysis Date: **11/10/2016 06:56 PM**

Client ID: Run ID: **GC8_161110A** SeqNo: **4147488** Prep Date: **11/10/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	298.8	4.8	319	5.255	92	48-110	295.1	1.24	30	
Surr: 4-Terphenyl-d14	*2.169*	0	*3.19*	0	*68*	*39-133*	2.156	*0.613*	*30*	

The following samples were analyzed in this batch:

1611456-01A	1611456-02A	1611456-03A
1611456-04A	1611456-05A	1611456-06A
1611456-07A	1611456-08A	1611456-09A

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

Client: WPX Energy
Work Order: 1611456
Project: Brushy Pipeline ROW

QC BATCH REPORT

Batch ID: **94279** Instrument ID **GC9** Method: **SW8015D**

MBLK Sample ID: **MBLK-94279-94279** Units: **µg/Kg-dry** Analysis Date: **11/9/2016 01:42 PM**
Client ID: Run ID: **GC9_161109A** SeqNo: **4145068** Prep Date: **11/9/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	ND	2,500	0	0	0		0			
Surr: Toluene-d8	*4466*	0	*5000*	0	*89.3*	*50-150*	0			

LCS Sample ID: **LCS-94279-94279** Units: **µg/Kg-dry** Analysis Date: **11/9/2016 01:17 PM**
Client ID: Run ID: **GC9_161109A** SeqNo: **4145067** Prep Date: **11/9/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	441000	2,500	500000	0	88.2	70-130	0			
Surr: Toluene-d8	*4994*	0	*5000*	0	*99.9*	*50-150*	0			

MS Sample ID: **1611387-01A MS** Units: **µg/Kg-dry** Analysis Date: **11/9/2016 04:36 PM**
Client ID: Run ID: **GC9_161109A** SeqNo: **4145075** Prep Date: **11/9/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	672900	3,100	611100	0	110	70-130	0			
Surr: Toluene-d8	*6622*	0	*6111*	0	*108*	*50-150*	0			

MSD Sample ID: **1611387-01A MSD** Units: **µg/Kg-dry** Analysis Date: **11/9/2016 05:01 PM**
Client ID: Run ID: **GC9_161109A** SeqNo: **4145076** Prep Date: **11/9/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	692800	3,100	611100	0	113	70-130	672900	2.92	30	
Surr: Toluene-d8	*6831*	0	*6111*	0	*112*	*50-150*	6622	*3.11*	*30*	

The following samples were analyzed in this batch:

1611456-01A	1611456-02A	1611456-03A
1611456-04A	1611456-05A	1611456-06A
1611456-07A	1611456-08A	1611456-09A

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

Client: WPX Energy
Work Order: 1611456
Project: Brushy Pipeline ROW

QC BATCH REPORT

Batch ID: **94278** Instrument ID **VMS5** Method: **SW8260B**

MBLK Sample ID: **MBLK-94278-94278** Units: **µg/Kg-dry** Analysis Date: **11/9/2016 02:14 PM**
Client ID: Run ID: **VMS5_161109A** SeqNo: **4144637** Prep Date: **11/9/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	ND	30								
Ethylbenzene	ND	30								
m,p-Xylene	ND	60								
o-Xylene	ND	30								
Toluene	ND	30								
Xylenes, Total	ND	90								
Surr: 1,2-Dichloroethane-d4	*1020*	0	*1000*	0	*102*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*965*	0	*1000*	0	*96.5*	*70-130*	0			
Surr: Dibromofluoromethane	*983.5*	0	*1000*	0	*98.4*	*70-130*	0			
Surr: Toluene-d8	*973*	0	*1000*	0	*97.3*	*70-130*	0			

LCS Sample ID: **LCS-94278-94278** Units: **µg/Kg-dry** Analysis Date: **11/9/2016 12:55 PM**
Client ID: Run ID: **VMS5_161109A** SeqNo: **4144636** Prep Date: **11/9/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1122	30	1000	0	112	75-125	0			
Ethylbenzene	1148	30	1000	0	115	75-125	0			
m,p-Xylene	2332	60	2000	0	117	80-125	0			
o-Xylene	1146	30	1000	0	115	75-125	0			
Toluene	1122	30	1000	0	112	70-125	0			
Xylenes, Total	3478	90	3000	0	116	75-125	0			
Surr: 1,2-Dichloroethane-d4	*980.5*	0	*1000*	0	*98*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*1019*	0	*1000*	0	*102*	*70-130*	0			
Surr: Dibromofluoromethane	*1004*	0	*1000*	0	*100*	*70-130*	0			
Surr: Toluene-d8	*992*	0	*1000*	0	*99.2*	*70-130*	0			

MS Sample ID: **1611387-01A MS** Units: **µg/Kg-dry** Analysis Date: **11/11/2016 10:39 A**
Client ID: Run ID: **VMS9_161110B** SeqNo: **4147574** Prep Date: **11/9/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1204	37	1222	0	98.5	75-125	0			
Ethylbenzene	1278	37	1222	0	105	75-125	0			
m,p-Xylene	2627	73	2444	0	107	80-125	0			
o-Xylene	1278	37	1222	0	105	75-125	0			
Toluene	1228	37	1222	0	100	70-125	0			
Xylenes, Total	3905	110	3667	0	106	75-125	0			
Surr: 1,2-Dichloroethane-d4	*1186*	0	*1222*	0	*97*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*1330*	0	*1222*	0	*109*	*70-130*	0			
Surr: Dibromofluoromethane	*1190*	0	*1222*	0	*97.4*	*70-130*	0			
Surr: Toluene-d8	*1197*	0	*1222*	0	*98*	*70-130*	0			

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

Client: WPX Energy
Work Order: 1611456
Project: Brushy Pipeline ROW

QC BATCH REPORT

Batch ID: **94278** Instrument ID **VMS5** Method: **SW8260B**

MSD Sample ID: **1611387-01A MSD** Units: **µg/Kg-dry** Analysis Date: **11/11/2016 11:04 A**

Client ID: Run ID: **VMS9_161110B** SeqNo: **4147575** Prep Date: **11/9/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1230	37	1222	0	101	75-125	1204	2.11	30	
Ethylbenzene	1276	37	1222	0	104	75-125	1278	0.144	30	
m,p-Xylene	2646	73	2444	0	108	80-125	2627	0.719	30	
o-Xylene	1302	37	1222	0	106	75-125	1278	1.8	30	
Toluene	1270	37	1222	0	104	70-125	1228	3.38	30	
Xylenes, Total	3947	110	3667	0	108	75-125	3905	1.07	30	
Surr: 1,2-Dichloroethane-d4	*1134*	0	*1222*	0	*92.8*	*70-130*	1186	*4.43*	*30*	
Surr: 4-Bromofluorobenzene	*1283*	0	*1222*	0	*105*	*70-130*	1330	*3.65*	*30*	
Surr: Dibromofluoromethane	*1214*	0	*1222*	0	*99.3*	*70-130*	1190	*1.93*	*30*	
Surr: Toluene-d8	*1194*	0	*1222*	0	*97.7*	*70-130*	1197	*0.256*	*30*	

The following samples were analyzed in this batch:

1611456-01A	1611456-02A	1611456-03A
1611456-04A	1611456-05A	1611456-06A
1611456-07A	1611456-08A	1611456-09A

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

Client: WPX Energy
Work Order: 1611456
Project: Brushy Pipeline ROW

QC BATCH REPORT

Batch ID: **94373** Instrument ID **IC4** Method: **SW9056A**

MBLK Sample ID: **MBLK-94373-94373** Units: **mg/Kg** Analysis Date: **11/11/2016 09:47 A**
Client ID: Run ID: **IC4_161111A** SeqNo: **4149864** Prep Date: **11/10/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2.698	10								J

LCS Sample ID: **LCS-94373-94373** Units: **mg/Kg** Analysis Date: **11/11/2016 10:07 A**
Client ID: Run ID: **IC4_161111A** SeqNo: **4149865** Prep Date: **11/10/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	102.7	10	100	0	103	80-120	0			

MS Sample ID: **1611561-01A MS** Units: **mg/Kg** Analysis Date: **11/11/2016 10:48 A**
Client ID: Run ID: **IC4_161111A** SeqNo: **4149867** Prep Date: **11/10/2016** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	6467	940	943.4	5465	106	75-125	0			OH

MSD Sample ID: **1611561-01A MSD** Units: **mg/Kg** Analysis Date: **11/11/2016 11:08 A**
Client ID: Run ID: **IC4_161111A** SeqNo: **4149868** Prep Date: **11/10/2016** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	6344	930	925.9	5465	94.9	75-125	6467	1.93	20	OH

The following samples were analyzed in this batch:

1611456-01A	1611456-02A	1611456-03A
1611456-04A	1611456-05A	1611456-06A
1611456-07A	1611456-08A	1611456-09A

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

Client: WPX Energy
Work Order: 1611456
Project: Brushy Pipeline ROW

QC BATCH REPORT

Batch ID: **R200194** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R200194** Units: **% of sample** Analysis Date: **11/8/2016 06:03 PM**
Client ID: Run ID: **MOIST_161108E** SeqNo: **4142258** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R200194** Units: **% of sample** Analysis Date: **11/8/2016 06:03 PM**
Client ID: Run ID: **MOIST_161108E** SeqNo: **4142257** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1611467-02B DUP** Units: **% of sample** Analysis Date: **11/8/2016 06:03 PM**
Client ID: Run ID: **MOIST_161108E** SeqNo: **4142254** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	11.89	0.050	0	0	0		11.97	0.671	20	

DUP Sample ID: **1611467-03B DUP** Units: **% of sample** Analysis Date: **11/8/2016 06:03 PM**
Client ID: Run ID: **MOIST_161108E** SeqNo: **4142256** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	19.71	0.050	0	0	0		19.85	0.708	20	

The following samples were analyzed in this batch:

1611456-01A	1611456-02A	1611456-03A
1611456-04A	1611456-05A	1611456-06A
1611456-07A	1611456-08A	1611456-09A

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

ALS Laboratory Group

HOLLAND, Michigan 49424

Chain-of-Custody

Form 202r8

		SAMPLER		DATE	11/4/2016
PROJECT NAME	Brushy Pipeline ROW	SITE ID	Brushy Pipeline ROW	TURNAROUND	5 day
PROJECT No.		EDD FORMAT			
		PURCHASE ORDER			
COMPANY NAME	WPX Energy	BILL TO COMPANY	WPX Energy		
SEND REPORT TO	Blaney	INVOICE ATTN TO	Karolina Blaney		
ADDRESS		ADDRESS	5315 Buena Vista Dr		
CITY / STATE / ZIP		CITY / STATE / ZIP	Carlsbad, NM 88220		
PHONE		PHONE	970 589 0743		
FAX		FAX			
E-MAIL	Karolina.blaney@wpxenergy.com;	E-MAIL	Karolina.blaney@wpxenergy.com		

WORKORDER #	1611456
PAGE	1 of 1
DISPOSAL	By Lab or Return to Client

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC	TPH (DRO + GRO)	BTEX	Chloride
1	Brushy 1 0'	S	11/4/2016	8:50	1	8	x	x	x	x
2	Brushy 1 2'	S	11/4/2016	8:55	1	8	x	x	x	x
3	Brushy 1 3'	S	11/4/2016	9:00	1	8	x	x	x	x
4	Brushy 3 0'	S	11/4/2016	8:35	1	8	x	x	x	x
5	Brushy 3 2'	S	11/4/2016	8:40	1	8	x	x	x	x
6	Brushy 3 4'	S	11/4/2016	8:45	1	8	x	x	x	x
7	Brushy 6 0'	S	11/4/2016	8:20	1	8	x	x	x	x
8	Brushy 6 2'	S	11/4/2016	8:25	1	8	x	x	x	x
9	Brushy 6 4'	S	11/4/2016	8:30	1	8	x	x	x	x

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

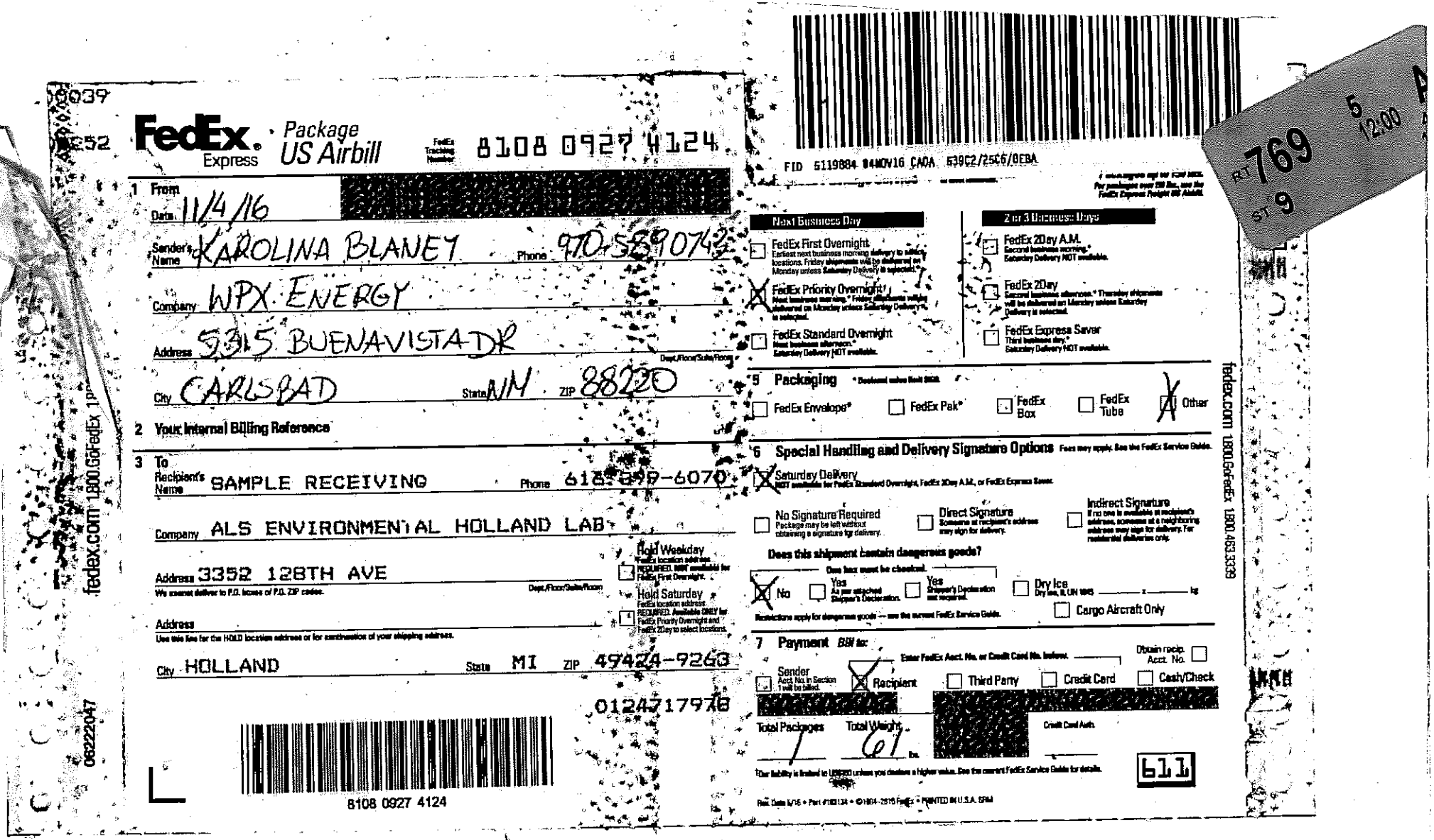
For metals or anions, please detail analytes below.

Comments:

QC PACKAGE (check below)	
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	11/4/2016	15:00
RECEIVED BY		Keith Wherenca	11/5/16	0930
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				



FedEx Express Package US Airbill

FedEx Tracking Number 8108 0927 4124

1 From
Date 11/4/16
Sender's Name KAROLINA BLANEY Phone 970-589-0742
Company WPX ENERGY
Address 5315 BUENAVISTA DR Dept./Floor/Suite/Room
City CARLSBAD State NM ZIP 88220

2 Your Internal Billing Reference

3 To
Recipient's Name SAMPLE RECEIVING Phone 616-399-6070
Company ALS ENVIRONMENTAL HOLLAND LAB
Address 3352 128TH AVE Dept./Floor/Suite/Room
We cannot deliver to P.O. boxes or P.O. ZIP codes.
Address
Use this line for the HOLD location address or for continuation of your shipping address.
City HOLLAND State MI ZIP 49424-9263

Hold Weekday
FedEx location address REQUIRED. NOT available for FedEx First Overnight.
Hold Saturday
FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

0124717978

8108 0927 4124

FID 5119884 04NOV16 CADA 539C2/25C6/0EBA

Next Business Day
- FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- [X] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days
- [X] FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.
- FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.
- FedEx Envelope*
- FedEx Pak*
- [X] FedEx Box
- FedEx Tube
- [X] Other

6 Special Handling and Delivery Signature Options Fees may apply. See the FedEx Service Guide.
- [X] Saturday Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

Signature Options
- No Signature Required — Package may be left without obtaining a signature for delivery.
- Direct Signature — Someone at recipient's address may sign for delivery.
- Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only.

Does this shipment contain dangerous goods?
One box must be checked.
- [X] No
- Yes — As per attached Shipper's Declaration.
- Yes — Shipper's Declaration not required.
- Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg
- Cargo Aircraft Only

Restrictions apply for dangerous goods — see the current FedEx Service Guide.

7 Payment Bill to:
Enter FedEx Acct. No. or Credit Card No. below.
Obtain recip. Acct. No.
- Sender — Acct. No. in Section 1 will be billed.
- [X] Recipient
- Third Party
- Credit Card
- Cash/Check

Total Packages 1 Total Weight 61 lbs. Credit Card Auth.

Our liability is limited to $100 unless you declare a higher value. See the current FedEx Service Guide for details.

611

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RT 769 5 12.00 A
ST 9

ALS Group, USA

Sample Receipt Checklist

Client Name: **WPX - NM** Date/Time Received: **05-Nov-16 09:30**

Work Order: **1611456** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 07-Nov-16 (Date) Reviewed by: Chad Whelton (eSignature) 07-Nov-16 (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):	4.6/4.6 C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	11/7/2016 11:03:12 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:

15-Nov-2016

Karolina Blaney
WPX Energy
5315 Buena Vista Dr.
Carlsbad, NM 88220

Re: **Brushy Pipeline ROW** Work Order: **1611449**

Dear Karolina,

ALS Environmental received 7 samples on 05-Nov-2016 09:30 AM for the analyses presented in the following report.

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

Sample results are compliant with NELAP standard requirements and QC 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 20.

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

Sincerely,

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Certificate No: MN 998501

ADDRESS 3352 128th Ave, Holland, MI 49424 Holland, Michigan 49424 | PHONE (616) 399-6070 | FAX (616) 399-6185
ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

ALS Group, USA

Date: 15-Nov-16

Client: WPX Energy
Project: Brushy Pipeline ROW
Work Order: **1611449**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1611449-01	Brushy 8 0'	Soil		11/4/2016 08:05	11/5/2016 09:30	☐
1611449-02	Brushy 8 2'	Soil		11/4/2016 08:10	11/5/2016 09:30	☐
1611449-03	Brushy 8 3'	Soil		11/4/2016 08:15	11/5/2016 09:30	☐
1611449-04	Brushy 10 0'	Soil		11/4/2016 07:50	11/5/2016 09:30	☐
1611449-05	Brushy 10 2'	Soil		11/4/2016 07:55	11/5/2016 09:30	☐
1611449-06	Brushy 10 3'	Soil		11/4/2016 08:00	11/5/2016 09:30	☐
1611449-07	Brushy BG	Soil		11/4/2016 09:05	11/5/2016 09:30	☐

ALS Group, USA

Date: 15-Nov-16

Client: WPX Energy
Project: Brushy Pipeline ROW
Work Order: 1611449

Case Narrative

Batch 94373, Method IC_9056_S, Sample 1611449-07A: The reporting limit for Chloride is elevated due to dilution for high concentrations of non-target analytes.

ALS Group, USA

Date: 15-Nov-16

Client: WPX Energy
Project: Brushy Pipeline ROW
WorkOrder: **1611449**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
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: *15-Nov-16*

Client: WPX Energy
Project: Brushy Pipeline ROW
Work Order: 1611449
Sample ID: Brushy 8 0'
Lab ID: 1611449-01
Collection Date: 11/4/2016 08:05 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep: SW3546 / 11/10/16	Analyst: **IT**
DRO (C10-C28)	**7.0**		**6.6**	**mg/Kg-dry**	1	11/10/2016 07:25 PM
Surr: 4-Terphenyl-d14	*64.9*		*39-133*	*%REC*	1	11/10/2016 07:25 PM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**		Prep: SW5035 / 11/10/16	Analyst: **IT**
GRO (C6-C10)	ND		4.2	mg/Kg-dry	1	11/10/2016 01:13 PM
Surr: Toluene-d8	*102*		*50-150*	*%REC*	1	11/10/2016 01:13 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 11/10/16	Analyst: **LSY**
Benzene	ND		0.050	mg/Kg-dry	1	11/11/2016 05:14 PM
Ethylbenzene	ND		0.050	mg/Kg-dry	1	11/11/2016 05:14 PM
m,p-Xylene	ND		0.10	mg/Kg-dry	1	11/11/2016 05:14 PM
o-Xylene	ND		0.050	mg/Kg-dry	1	11/11/2016 05:14 PM
Toluene	ND		0.050	mg/Kg-dry	1	11/11/2016 05:14 PM
Xylenes, Total	ND		0.15	mg/Kg-dry	1	11/11/2016 05:14 PM
Surr: 1,2-Dichloroethane-d4	*107*		*70-130*	*%REC*	1	11/11/2016 05:14 PM
Surr: 4-Bromofluorobenzene	*96.2*		*70-130*	*%REC*	1	11/11/2016 05:14 PM
Surr: Dibromofluoromethane	*90.7*		*70-130*	*%REC*	1	11/11/2016 05:14 PM
Surr: Toluene-d8	*97.8*		*70-130*	*%REC*	1	11/11/2016 05:14 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**		Prep: EXTRACT / 11/10/16	Analyst: **EE**
Chloride	**15**		**13**	**mg/Kg-dry**	1	11/11/2016 01:09 PM
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**25**		**0.050**	**% of sample**	1	11/8/2016 06:03 PM

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

ALS Group, USA

Date: *15-Nov-16*

Client: WPX Energy
Project: Brushy Pipeline ROW
Work Order: 1611449
Sample ID: Brushy 8 2'
Lab ID: 1611449-02
Collection Date: 11/4/2016 08:10 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep: SW3546 / 11/10/16	Analyst: **IT**
DRO (C10-C28)	**8.6**	J	**8.6**	**mg/Kg-dry**	1	11/10/2016 07:55 PM
Surr: 4-Terphenyl-d14	*70.4*		*39-133*	*%REC*	1	11/10/2016 07:55 PM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**		Prep: SW5035 / 11/10/16	Analyst: **IT**
GRO (C6-C10)	ND		5.2	mg/Kg-dry	1	11/10/2016 01:38 PM
Surr: Toluene-d8	*102*		*50-150*	*%REC*	1	11/10/2016 01:38 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 11/10/16	Analyst: **LSY**
Benzene	ND		0.062	mg/Kg-dry	1	11/11/2016 05:38 PM
Ethylbenzene	ND		0.062	mg/Kg-dry	1	11/11/2016 05:38 PM
m,p-Xylene	ND		0.12	mg/Kg-dry	1	11/11/2016 05:38 PM
o-Xylene	ND		0.062	mg/Kg-dry	1	11/11/2016 05:38 PM
Toluene	ND		0.062	mg/Kg-dry	1	11/11/2016 05:38 PM
Xylenes, Total	ND		0.19	mg/Kg-dry	1	11/11/2016 05:38 PM
Surr: 1,2-Dichloroethane-d4	*95.2*		*70-130*	*%REC*	1	11/11/2016 05:38 PM
Surr: 4-Bromofluorobenzene	*97.0*		*70-130*	*%REC*	1	11/11/2016 05:38 PM
Surr: Dibromofluoromethane	*90.0*		*70-130*	*%REC*	1	11/11/2016 05:38 PM
Surr: Toluene-d8	*101*		*70-130*	*%REC*	1	11/11/2016 05:38 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**		Prep: EXTRACT / 11/10/16	Analyst: **EE**
Chloride	**770**		**76**	**mg/Kg-dry**	5	11/11/2016 01:29 PM
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**35**		**0.050**	**% of sample**	1	11/8/2016 06:03 PM

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

ALS Group, USA

Date: *15-Nov-16*

Client: WPX Energy
Project: Brushy Pipeline ROW
Work Order: 1611449
Sample ID: Brushy 8 3'
Lab ID: 1611449-03
Collection Date: 11/4/2016 08:15 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep: SW3546 / 11/10/16	Analyst: **IT**
DRO (C10-C28)	ND		7.0	mg/Kg-dry	1	11/10/2016 08:24 PM
Surr: 4-Terphenyl-d14	*65.9*		*39-133*	*%REC*	1	11/10/2016 08:24 PM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**		Prep: SW5035 / 11/10/16	Analyst: **IT**
GRO (C6-C10)	ND		4.7	mg/Kg-dry	1	11/10/2016 02:03 PM
Surr: Toluene-d8	*103*		*50-150*	*%REC*	1	11/10/2016 02:03 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 11/10/16	Analyst: **LSY**
Benzene	ND		0.057	mg/Kg-dry	1	11/11/2016 06:03 PM
Ethylbenzene	ND		0.057	mg/Kg-dry	1	11/11/2016 06:03 PM
m,p-Xylene	ND		0.11	mg/Kg-dry	1	11/11/2016 06:03 PM
o-Xylene	ND		0.057	mg/Kg-dry	1	11/11/2016 06:03 PM
Toluene	ND		0.057	mg/Kg-dry	1	11/11/2016 06:03 PM
Xylenes, Total	ND		0.17	mg/Kg-dry	1	11/11/2016 06:03 PM
Surr: 1,2-Dichloroethane-d4	*95.0*		*70-130*	*%REC*	1	11/11/2016 06:03 PM
Surr: 4-Bromofluorobenzene	*96.7*		*70-130*	*%REC*	1	11/11/2016 06:03 PM
Surr: Dibromofluoromethane	*86.9*		*70-130*	*%REC*	1	11/11/2016 06:03 PM
Surr: Toluene-d8	*101*		*70-130*	*%REC*	1	11/11/2016 06:03 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**		Prep: EXTRACT / 11/10/16	Analyst: **EE**
Chloride	**2,300**		**290**	**mg/Kg-dry**	20	11/11/2016 01:50 PM
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**31**		**0.050**	**% of sample**	1	11/8/2016 06:03 PM

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

ALS Group, USA

Date: *15-Nov-16*

Client: WPX Energy
Project: Brushy Pipeline ROW
Work Order: 1611449
Sample ID: Brushy 10 0'
Lab ID: 1611449-04
Collection Date: 11/4/2016 07:50 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep: SW3546 / 11/10/16	Analyst: **IT**
DRO (C10-C28)	**31**		**6.1**	**mg/Kg-dry**	1	11/10/2016 08:53 PM
Surr: 4-Terphenyl-d14	*54.6*		*39-133*	*%REC*	1	11/10/2016 08:53 PM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**		Prep: SW5035 / 11/10/16	Analyst: **IT**
GRO (C6-C10)	ND		3.9	mg/Kg-dry	1	11/10/2016 02:27 PM
Surr: Toluene-d8	*103*		*50-150*	*%REC*	1	11/10/2016 02:27 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 11/10/16	Analyst: **LSY**
Benzene	ND		0.047	mg/Kg-dry	1	11/11/2016 06:27 PM
Ethylbenzene	ND		0.047	mg/Kg-dry	1	11/11/2016 06:27 PM
m,p-Xylene	ND		0.094	mg/Kg-dry	1	11/11/2016 06:27 PM
o-Xylene	ND		0.047	mg/Kg-dry	1	11/11/2016 06:27 PM
Toluene	ND		0.047	mg/Kg-dry	1	11/11/2016 06:27 PM
Xylenes, Total	ND		0.14	mg/Kg-dry	1	11/11/2016 06:27 PM
Surr: 1,2-Dichloroethane-d4	*94.9*		*70-130*	*%REC*	1	11/11/2016 06:27 PM
Surr: 4-Bromofluorobenzene	*96.0*		*70-130*	*%REC*	1	11/11/2016 06:27 PM
Surr: Dibromofluoromethane	*90.4*		*70-130*	*%REC*	1	11/11/2016 06:27 PM
Surr: Toluene-d8	*98.0*		*70-130*	*%REC*	1	11/11/2016 06:27 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**		Prep: EXTRACT / 11/10/16	Analyst: **EE**
Chloride	**480**		**63**	**mg/Kg-dry**	5	11/11/2016 02:10 PM
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**22**		**0.050**	**% of sample**	1	11/8/2016 06:03 PM

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

ALS Group, USA

Date: *15-Nov-16*

Client: WPX Energy
Project: Brushy Pipeline ROW
Work Order: 1611449
Sample ID: Brushy 10 2'
Lab ID: 1611449-05
Collection Date: 11/4/2016 07:55 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep: SW3546 / 11/10/16	Analyst: **IT**
DRO (C10-C28)	**10**		**6.7**	**mg/Kg-dry**	1	11/10/2016 09:23 PM
Surr: 4-Terphenyl-d14	*59.9*		*39-133*	*%REC*	1	11/10/2016 09:23 PM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**		Prep: SW5035 / 11/10/16	Analyst: **IT**
GRO (C6-C10)	ND		3.8	mg/Kg-dry	1	11/10/2016 02:52 PM
Surr: Toluene-d8	*104*		*50-150*	*%REC*	1	11/10/2016 02:52 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 11/10/16	Analyst: **LSY**
Benzene	ND		0.046	mg/Kg-dry	1	11/11/2016 06:52 PM
Ethylbenzene	ND		0.046	mg/Kg-dry	1	11/11/2016 06:52 PM
m,p-Xylene	ND		0.092	mg/Kg-dry	1	11/11/2016 06:52 PM
o-Xylene	ND		0.046	mg/Kg-dry	1	11/11/2016 06:52 PM
Toluene	ND		0.046	mg/Kg-dry	1	11/11/2016 06:52 PM
Xylenes, Total	ND		0.14	mg/Kg-dry	1	11/11/2016 06:52 PM
Surr: 1,2-Dichloroethane-d4	*104*		*70-130*	*%REC*	1	11/11/2016 06:52 PM
Surr: 4-Bromofluorobenzene	*98.6*		*70-130*	*%REC*	1	11/11/2016 06:52 PM
Surr: Dibromofluoromethane	*91.4*		*70-130*	*%REC*	1	11/11/2016 06:52 PM
Surr: Toluene-d8	*101*		*70-130*	*%REC*	1	11/11/2016 06:52 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**		Prep: EXTRACT / 11/10/16	Analyst: **EE**
Chloride	**100**		**12**	**mg/Kg-dry**	1	11/11/2016 02:30 PM
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**21**		**0.050**	**% of sample**	1	11/8/2016 06:03 PM

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

ALS Group, USA

Date: *15-Nov-16*

Client: WPX Energy
Project: Brushy Pipeline ROW
Work Order: 1611449
Sample ID: Brushy 10 3'
Lab ID: 1611449-06
Collection Date: 11/4/2016 08:00 AM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015M**		Prep: SW3546 / 11/10/16	Analyst: **IT**
DRO (C10-C28)	**9.6**		**6.0**	**mg/Kg-dry**	1	11/10/2016 09:52 PM
Surr: 4-Terphenyl-d14	*61.0*		*39-133*	*%REC*	1	11/10/2016 09:52 PM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**		Prep: SW5035 / 11/10/16	Analyst: **IT**
GRO (C6-C10)	ND		3.8	mg/Kg-dry	1	11/10/2016 03:17 PM
Surr: Toluene-d8	*91.5*		*50-150*	*%REC*	1	11/10/2016 03:17 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 11/10/16	Analyst: **LSY**
Benzene	ND		0.045	mg/Kg-dry	1	11/11/2016 07:16 PM
Ethylbenzene	ND		0.045	mg/Kg-dry	1	11/11/2016 07:16 PM
m,p-Xylene	ND		0.090	mg/Kg-dry	1	11/11/2016 07:16 PM
o-Xylene	ND		0.045	mg/Kg-dry	1	11/11/2016 07:16 PM
Toluene	ND		0.045	mg/Kg-dry	1	11/11/2016 07:16 PM
Xylenes, Total	ND		0.14	mg/Kg-dry	1	11/11/2016 07:16 PM
Surr: 1,2-Dichloroethane-d4	*91.8*		*70-130*	*%REC*	1	11/11/2016 07:16 PM
Surr: 4-Bromofluorobenzene	*100*		*70-130*	*%REC*	1	11/11/2016 07:16 PM
Surr: Dibromofluoromethane	*86.6*		*70-130*	*%REC*	1	11/11/2016 07:16 PM
Surr: Toluene-d8	*102*		*70-130*	*%REC*	1	11/11/2016 07:16 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**		Prep: EXTRACT / 11/10/16	Analyst: **EE**
Chloride	**71**		**12**	**mg/Kg-dry**	1	11/11/2016 02:50 PM
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**20**		**0.050**	**% of sample**	1	11/8/2016 06:03 PM

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

ALS Group, USA

Date: *15-Nov-16*

Client: WPX Energy
Project: Brushy Pipeline ROW
Sample ID: Brushy BG
Collection Date: 11/4/2016 09:05 AM

Work Order: 1611449
Lab ID: 1611449-07
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**		Prep: EXTRACT / 11/10/16	Analyst: **EE**
Chloride	ND		130	mg/Kg-dry	10	11/11/2016 03:11 PM
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**28**		**0.050**	**% of sample**	1	11/8/2016 06:03 PM

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

ALS Group, USA

Date: 15-Nov-16

Client: WPX Energy

QC BATCH REPORT

Work Order: 1611449

Project: Brushy Pipeline ROW

Batch ID: **94335** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-94335-94335** Units: **mg/Kg** Analysis Date: **11/10/2016 05:27 PM**

Client ID: Run ID: **GC8_161110A** SeqNo: **4147485** Prep Date: **11/10/2016** 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								
Surr: 4-Terphenyl-d14	*2.225*	0	*3.33*	0	*66.8*	*39-133*	0			

LCS Sample ID: **DLCSS1-94335-94335** Units: **mg/Kg** Analysis Date: **11/10/2016 05:57 PM**

Client ID: Run ID: **GC8_161110A** SeqNo: **4147486** Prep Date: **11/10/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	308.7	5.0	333	0	92.7	61-109	0			
Surr: 4-Terphenyl-d14	*2.081*	0	*3.33*	0	*62.5*	*39-133*	0			

MS Sample ID: **1611449-01A MS** Units: **mg/Kg** Analysis Date: **11/10/2016 06:26 PM**

Client ID: **Brushy 8 0'** Run ID: **GC8_161110A** SeqNo: **4147487** Prep Date: **11/10/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	295.1	4.9	326.6	5.255	88.7	48-110	0			
Surr: 4-Terphenyl-d14	*2.156*	0	*3.266*	0	*66*	*39-133*	0			

MSD Sample ID: **1611449-01A MSD** Units: **mg/Kg** Analysis Date: **11/10/2016 06:56 PM**

Client ID: **Brushy 8 0'** Run ID: **GC8_161110A** SeqNo: **4147488** Prep Date: **11/10/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	298.8	4.8	319	5.255	92	48-110	295.1	1.24	30	
Surr: 4-Terphenyl-d14	*2.169*	0	*3.19*	0	*68*	*39-133*	2.156	*0.613*	*30*	

The following samples were analyzed in this batch:

1611449-01A	1611449-02A	1611449-03A
1611449-04A	1611449-05A	1611449-06A

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

Client: WPX Energy
Work Order: 1611449
Project: Brushy Pipeline ROW

QC BATCH REPORT

Batch ID: **94344** Instrument ID **GC9** Method: **SW8015D**

MBLK Sample ID: **MBLK-94344-94344** Units: **µg/Kg-dry** Analysis Date: **11/10/2016 12:48 PM**
Client ID: Run ID: **GC9_161110A** SeqNo: **4147106** Prep Date: **11/10/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	ND	2,500								
Surr: Toluene-d8	*4330*	0	*5000*	0	*86.6*	*50-150*	0			

LCS Sample ID: **LCS-94344-94344** Units: **µg/Kg-dry** Analysis Date: **11/10/2016 12:23 PM**
Client ID: Run ID: **GC9_161110A** SeqNo: **4147105** Prep Date: **11/10/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	450100	2,500	500000	0	90	70-130	0			
Surr: Toluene-d8	*5025*	0	*5000*	0	*100*	*50-150*	0			

MS Sample ID: **1611449-04A MS** Units: **µg/Kg-dry** Analysis Date: **11/10/2016 03:42 PM**
Client ID: **Brushy 10 0'** Run ID: **GC9_161110A** SeqNo: **4147113** Prep Date: **11/10/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	799800	3,900	782100	0	102	70-130	0			
Surr: Toluene-d8	*8648*	0	*7821*	0	*111*	*50-150*	0			

MSD Sample ID: **1611449-04A MSD** Units: **µg/Kg-dry** Analysis Date: **11/10/2016 04:07 PM**
Client ID: **Brushy 10 0'** Run ID: **GC9_161110A** SeqNo: **4147114** Prep Date: **11/10/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	830000	3,900	782100	0	106	70-130	799800	3.7	30	
Surr: Toluene-d8	*8728*	0	*7821*	0	*112*	*50-150*	8648	*0.927*	*30*	

The following samples were analyzed in this batch:

1611449-01A	1611449-02A	1611449-03A
1611449-04A	1611449-05A	1611449-06A

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

Client: WPX Energy
Work Order: 1611449
Project: Brushy Pipeline ROW

QC BATCH REPORT

Batch ID: **94342** Instrument ID **VMS6** Method: **SW8260B**

MBLK Sample ID: **MBLK-94342-94342** Units: **µg/Kg-dry** Analysis Date: **11/10/2016 03:01 PM**
Client ID: Run ID: **VMS6_161110A** SeqNo: **4147003** Prep Date: **11/10/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	ND	30								
Ethylbenzene	ND	30								
m,p-Xylene	ND	60								
o-Xylene	ND	30								
Toluene	ND	30								
Xylenes, Total	ND	90								
Surr: 1,2-Dichloroethane-d4	*1018*	0	*1000*	0	*102*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*992.5*	0	*1000*	0	*99.2*	*70-130*	0			
Surr: Dibromofluoromethane	*907.5*	0	*1000*	0	*90.8*	*70-130*	0			
Surr: Toluene-d8	*972.5*	0	*1000*	0	*97.2*	*70-130*	0			

LCS Sample ID: **LCS-94342-94342** Units: **µg/Kg-dry** Analysis Date: **11/10/2016 01:41 PM**
Client ID: Run ID: **VMS6_161110A** SeqNo: **4147002** Prep Date: **11/10/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1078	30	1000	0	108	75-125	0			
Ethylbenzene	1065	30	1000	0	106	75-125	0			
m,p-Xylene	2144	60	2000	0	107	80-125	0			
o-Xylene	1064	30	1000	0	106	75-125	0			
Toluene	1054	30	1000	0	105	70-125	0			
Xylenes, Total	3207	90	3000	0	107	75-125	0			
Surr: 1,2-Dichloroethane-d4	*1020*	0	*1000*	0	*102*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*997.5*	0	*1000*	0	*99.8*	*70-130*	0			
Surr: Dibromofluoromethane	*1016*	0	*1000*	0	*102*	*70-130*	0			
Surr: Toluene-d8	*986.5*	0	*1000*	0	*98.6*	*70-130*	0			

MS Sample ID: **1611449-04A MS** Units: **µg/Kg-dry** Analysis Date: **11/11/2016 11:46 PM**
Client ID: **Brushy 10 0'** Run ID: **VMS9_161111A** SeqNo: **4148709** Prep Date: **11/10/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1645	47	1564	0	105	75-125	0			
Ethylbenzene	1642	47	1564	0	105	75-125	0			
m,p-Xylene	3342	94	3128	0	107	80-125	0			
o-Xylene	1643	47	1564	0	105	75-125	0			
Toluene	1621	47	1564	0	104	70-125	0			
Xylenes, Total	4986	140	4692	0	106	75-125	0			
Surr: 1,2-Dichloroethane-d4	*1557*	0	*1564*	0	*99.6*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*1645*	0	*1564*	0	*105*	*70-130*	0			
Surr: Dibromofluoromethane	*1566*	0	*1564*	0	*100*	*70-130*	0			
Surr: Toluene-d8	*1563*	0	*1564*	0	*100*	*70-130*	0			

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

Client: WPX Energy
Work Order: 1611449
Project: Brushy Pipeline ROW

QC BATCH REPORT

Batch ID: **94342** Instrument ID **VMS6** Method: **SW8260B**

MSD Sample ID: **1611449-04A MSD** Units: **µg/Kg-dry** Analysis Date: **11/12/2016 12:10 PM**

Client ID: **Brushy 10 0'** Run ID: **VMS9_161111A** SeqNo: **4148710** Prep Date: **11/10/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1599	47	1564	0	102	75-125	1645	2.84	30	
Ethylbenzene	1683	47	1564	0	108	75-125	1642	2.45	30	
m,p-Xylene	3414	94	3128	0	109	80-125	3342	2.13	30	
o-Xylene	1692	47	1564	0	108	75-125	1643	2.91	30	
Toluene	1643	47	1564	0	105	70-125	1621	1.34	30	
Xylenes, Total	5106	140	4692	0	109	75-125	4986	2.39	30	
Surr: 1,2-Dichloroethane-d4	*1509*	0	*1564*	0	*96.4*	*70-130*	1557	*3.16*	*30*	
Surr: 4-Bromofluorobenzene	*1682*	0	*1564*	0	*108*	*70-130*	1645	*2.21*	*30*	
Surr: Dibromofluoromethane	*1497*	0	*1564*	0	*95.7*	*70-130*	1566	*4.54*	*30*	
Surr: Toluene-d8	*1563*	0	*1564*	0	*99.9*	*70-130*	1563	*0.05*	*30*	

The following samples were analyzed in this batch:

1611449-01A	1611449-02A	1611449-03A
1611449-04A	1611449-05A	1611449-06A

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

Client: WPX Energy
Work Order: 1611449
Project: Brushy Pipeline ROW

QC BATCH REPORT

Batch ID: **94373** Instrument ID **IC4** Method: **SW9056A**

MBLK	Sample ID: **MBLK-94373-94373**			Units: **mg/Kg**			Analysis Date: **11/11/2016 09:47 A**			
Client ID:	Run ID: **IC4_161111A**			SeqNo: **4149864**			Prep Date: **11/10/2016**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2.698	10								J

LCS	Sample ID: **LCS-94373-94373**			Units: **mg/Kg**			Analysis Date: **11/11/2016 10:07 A**			
Client ID:	Run ID: **IC4_161111A**			SeqNo: **4149865**			Prep Date: **11/10/2016**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	102.7	10	100	0	103	80-120	0			

MS	Sample ID: **1611561-01A MS**			Units: **mg/Kg**			Analysis Date: **11/11/2016 10:48 A**			
Client ID:	Run ID: **IC4_161111A**			SeqNo: **4149867**			Prep Date: **11/10/2016**		DF: **10**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	6467	940	943.4	5465	106	75-125	0			OH

MSD	Sample ID: **1611561-01A MSD**			Units: **mg/Kg**			Analysis Date: **11/11/2016 11:08 A**			
Client ID:	Run ID: **IC4_161111A**			SeqNo: **4149868**			Prep Date: **11/10/2016**		DF: **10**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	6344	930	925.9	5465	94.9	75-125	6467	1.93	20	OH

The following samples were analyzed in this batch:

1611449-01A	1611449-02A	1611449-03A
1611449-04A	1611449-05A	1611449-06A
1611449-07A		

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

Client: WPX Energy
Work Order: 1611449
Project: Brushy Pipeline ROW

QC BATCH REPORT

Batch ID: **R200194** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R200194** Units: **% of sample** Analysis Date: **11/8/2016 06:03 PM**
Client ID: Run ID: **MOIST_161108E** SeqNo: **4142258** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R200194** Units: **% of sample** Analysis Date: **11/8/2016 06:03 PM**
Client ID: Run ID: **MOIST_161108E** SeqNo: **4142257** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1611467-02B DUP** Units: **% of sample** Analysis Date: **11/8/2016 06:03 PM**
Client ID: Run ID: **MOIST_161108E** SeqNo: **4142254** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	11.89	0.050	0	0	0		11.97	0.671	20	

DUP Sample ID: **1611467-03B DUP** Units: **% of sample** Analysis Date: **11/8/2016 06:03 PM**
Client ID: Run ID: **MOIST_161108E** SeqNo: **4142256** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	19.71	0.050	0	0	0		19.85	0.708	20	

The following samples were analyzed in this batch:

1611449-01A	1611449-02A	1611449-03A
1611449-04A	1611449-05A	1611449-06A
1611449-07A		

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

ALS Laboratory Group

HOLLAND, Michigan 49424

Chain-of-Custody

Form 202r8

WORKORDER #: 1611449

SAMPLER		DATE	11/4/2016	PAGE	1 of 1
PROJECT NAME	Brushy Pipeline ROW	SITE ID	Brushy Pipeline ROW	TURNAROUND	5 day
PROJECT No.		EDD FORMAT		DISPOSAL	By Lab or Return to Client
		PURCHASE ORDER			
COMPANY NAME	WPX Energy	BILL TO COMPANY	WPX Energy		
SEND REPORT TO	Blaney	INVOICE ATTN TO	Karolina Blaney		
ADDRESS		ADDRESS	5315 Buena Vista Dr		
CITY / STATE / ZIP		CITY / STATE / ZIP	Carlsbad, NM 88220		
PHONE		PHONE	970 589 0743		
FAX		FAX			
E-MAIL	Karolina.blaney@wpxenergy.com;	E-MAIL	Karolina.blaney@wpxenergy.com		

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC	TPH (DRO + GRO)	BTEX	Chloride
1	Brushy 8 0'	S	11/4/2016	8:05	1	8	x	x	x	x
2	Brushy 8 2'	S	11/4/2016	8:10	1	8	x	x	x	x
3	Brushy 8 3'	S	11/4/2016	8:15	1	8	x	x	x	x
4	Brushy 10 0'	S	11/4/2016	7:50	1	8	x	x	x	x
5	Brushy 10 2'	S	11/4/2016	7:55	1	8	x	x	x	x
6	Brushy 10 3'	S	11/4/2016	8:00	1	8	x	x	x	x
7	Brushy BG	S	11/4/2016	9:05	1	8	x			x

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

Comments:

4.8°c

QC PACKAGE (check below)	
X	LEVEL II (Standard QC)
	LEVEL III (Std QC + forms)
	LEVEL IV (Std QC + forms + raw data)

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY	Karolina Blaney	Karolina Blaney	11/4/2016	16:00
RECEIVED BY	[signature]	Keith Wierenga	11/5/16	0930
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

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

Package
US Airbill

8108 0927 4113

FID 5119884 04NOV16 CADA 639C2/25CG/8EBA

Recipient's Copy

Date 11/4/16

Sender's Name KAROLINA BLANEY Phone 970 [redacted]

Company WPX ENERGY

Address 5315 BUENA VISTA DR

City CARLSBAD State NM ZIP 88220

2 Your Internal Billing Reference

3 To

Recipient's Name SAMPLE RECEIVING Phone 616 399-6070

Company ALS ENVIRONMENTAL HOLLAND LAB

Address 3352 128TH AVE

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City HOLLAND State MI ZIP 49424-9263

0124717978

8108 0927 4113

4 Express Package Service

Next Business Day

- FedEx First Overnight
- FedEx Priority Overnight
- FedEx Standard Overnight

2 or 3 Business Days

- FedEx 2Day A.M.
- FedEx 2Day
- FedEx Express Saver

5 Packaging

FedEx Envelope* FedEx Pak* FedEx Box FedEx Tube Other

6 Special Handling and Delivery Signature Options

Saturday Delivery

No Signature Required Direct Signature Indirect Signature

Does this shipment contain dangerous goods?

No Yes Yes Dry Ice Cargo Aircraft Only

7 Payment Bill to:

Sender Recipient Third Party Credit Card Cash/Check

Total Packages 1 Total Weight 51 lbs.

611

fedex.com 1.800.GoFedEx 1.800.463.3339

FedEx Saturday Delivery

151986 10/04 MWI

ALS Group, USA

Sample Receipt Checklist

Client Name: **WPX - NM** Date/Time Received: **05-Nov-16 09:30**

Work Order: **1611449** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 07-Nov-16 (Date) Reviewed by: Chad Whelton (eSignature) 07-Nov-16 (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:	11/7/2016 10:42:41 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:

Analytical Report 530758

for

Enviroclean- Midland

Project Manager: Brittany Neal

WPX East Pecos 22-3

WPXRTX0005

27-MAY-16

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-15-19), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)
Xenco-San Antonio: Texas (T104704534-15-1)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)

27-MAY-16

Project Manager: **Brittany Neal**
Enviroclean- Midland
2405 ECR 123
Midland, TX 79706

Reference: XENCO Report No(s): **530758**
WPX East Pecos 22-3
Project Address: New Mexico

Brittany Neal:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 530758. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 530758 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 530758

Enviroclean- Midland, Midland, TX

WPX East Pecos 22-3

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
001-B	S	05-25-16 12:45	- 2 ft	530758-001
003-B	S	05-25-16 13:25	- 2 ft	530758-002
006-B	S	05-25-16 14:30	- 2 ft	530758-003
008-B	S	05-25-16 15:10	- 2 ft	530758-004
010-B	S	05-25-16 16:00	- 2 ft	530758-005

Sample receipt non conformances and comments:

Client marked 3 day but might need to switch to 2 day

Sample receipt non conformances and comments per sample:

None

CASE NARRATIVE

Client Name: Enviroclean- Midland

Project Name: WPX East Pecos 22-3

Project ID: *WPXRTX0005*
Work Order Number(s): *530758*

Report Date: *27-MAY-16*
Date Received: *05/26/2016*

Certificate of Analysis Summary 530758

Enviroclean- Midland, Midland, TX

Project Name: WPX East Pecos 22-3

Project Id: WPXRTX0005
Contact: Brittany Neal
Project Location: New Mexico

Date Received in Lab: Thu May-26-16 09:35 am
Report Date: 27-MAY-16
Project Manager: Kelsey Brooks

Analysis Requested												
	Lab Id:	530758-001		530758-002		530758-003		530758-004		530758-005		
	Field Id:	001-B		003-B		006-B		008-B		010-B		
	Depth:	2 ft		2 ft		2 ft		2 ft		2 ft		
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		
	Sampled:	May-25-16 12:45		May-25-16 13:25		May-25-16 14:30		May-25-16 15:10		May-25-16 16:00		
Inorganic Anions by EPA 300	*Extracted:*	May-26-16 17:00		May-26-16 17:00		May-26-16 17:00		May-26-16 17:00		May-26-16 17:00		
	Analyzed:	May-26-16 22:15		May-26-16 22:27		May-26-16 22:39		May-26-16 22:51		May-26-16 23:03		
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	
Chloride		650	100	406	100	20400	1000	ND	40.0	9160	400	

Kelsey Brooks
Project Manager

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

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

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

\+ NELAC certification not offered for this compound.

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

BS / BSD Recoveries

Project Name: WPX East Pecos 22-3

Work Order #: 530758 **Project ID:** WPXRTX0005

Analyst: MNR **Date Prepared:** 05/26/2016 **Date Analyzed:** 05/26/2016

Lab Batch ID: 995207 **Sample:** 709355-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<2.00	50.0	53.6	107	50.0	54.6	109	2	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS Recoveries

Project Name: WPX East Pecos 22-3

Work Order #: 530758

Lab Batch #: 995207

Project ID: WPXRTX0005

Date Analyzed: 05/26/2016

Date Prepared: 05/26/2016

Analyst: MNR

QC- Sample ID: 530442-002 S

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	3160	5000	7580	88	80-120	

Lab Batch #: 995207

Date Analyzed: 05/26/2016

Date Prepared: 05/26/2016

Analyst: MNR

QC- Sample ID: 530521-001 S

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	490	500	1010	104	80-120	

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

BRL - Below Reporting Limit

Sample Duplicate Recovery

Project Name: WPX East Pecos 22-3

Work Order #: 530758

Lab Batch #: 995207 **Project ID:** WPXRTX0005

Date Analyzed: 05/26/2016 20:38 **Date Prepared:** 05/26/2016 **Analyst:** MNR

QC- Sample ID: 530442-002 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	3160	3370	6	20	

Lab Batch #: 995207

Date Analyzed: 05/26/2016 23:27 **Date Prepared:** 05/26/2016 **Analyst:** MNR

QC- Sample ID: 530521-001 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	490	496	1	20	

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

BRL - Below Reporting Limit

CHAIN OF CUSTODY

ENVIRO CLEAN SERVICES, L.L.C.

530758

Enviro Clean / Midland Texas	Project Name/Number: WPX East Pecos 22-3 / WPXRTX0005
2405 E. County Rd. 123 Midland, TX 79706	Project Location: New Mexico
Email: khuckaba@eccgrp.com wendy.north@eccgrp.com brittany.neal@eccgrp.com Phone No: 432.301.0209	Invoice To: ap@envirocleanps.com Enviro Clean 11717 N. Morgan Rd. Yukon, OK 73099
Project Contact: Brittany Neal	PO Number: WPXRTX0005
Samplers's Name: Walter Petruzzi	

Analytical Information

Matrix Codes: S = Soil/Sed/Solid; GW = Ground Water; DW = Drinking Water; WW = Waste Water; P = Product/Oil; SW = Surface water; SL = Sludge; OW = Ocean Water; W = Wipe; O = Other; A = Air

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Preservative Used: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	ICE	Texas TPH - TX 1005	New Mexico TPH - 8015M	BTEX - 8021B	Chlorides - 300 Series	Field Comments
1	001-B	2FT	5-25	1245	S	1								X		X	X	X	hold TPH and BTEX on all Samples until client receives results from Chlorides
2	003-B	↓	↓	1325	↓	↓								↓		X	X	X	
3	006-B			1430												X	X	X	
4	008-B			1510												X	X	X	
5	010-B	↓	↓	1600	↓	↓								↓		X	X	X	
6																			
7																			
8																			
9																			
10																			
11																			
12																			

Turnaround Time (Business days) | Data Deliverable Information | Notes:

- ☐ Same Day TAT
- ☐ 5 Day TAT
- ☐ Next Day EMERGENCY
- ☐ 7 Day TAT
- ☒ 2 Day EMERGENCY
- ☐ Contract TAT
- ☐ 3 Day EMERGENCY
- TAT Starts Day received by Lab, if received by 3:00 pm

- ☒ Level II Std QC
- ☐ Level IV (Full Data Pkg /raw data)
- ☐ Level III Std QC+ Forms
- ☐ TRRP Level IV
- ☐ Level 3 (CLP Forms)
- ☐ UST / RG -411
- ☐ TRRP Checklist

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

Relinquished by Sampler: 1 Walter Petruzzi	Date Time: 5-25	Received By: 1 K Huckaba	Relinquished By: 2 K Huckaba	Date Time: 5-26-16 935	Received By: 2 M Azm
Relinquished by: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable ☐	On Ice ☒ Cooler Temp. Thermo. Corr. Factor

Temp: 2.4° IR ID:R-8
C/F:0
Corrected Temp: 2.4° C

Final 1.000

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: Enviroclean- Midland

Date/ Time Received: 05/26/2016 09:35:00 AM

Work Order #: 530758

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

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	2.4
#2 *Shipping container in good condition?	N/A
#3 *Samples received on ice?	Yes
#4 *Custody Seal present on shipping container/ cooler?	N/A
#5 *Custody Seals intact on shipping container/ cooler?	N/A
#6 Custody Seals intact on sample bottles?	N/A
#7 *Custody Seals Signed and dated?	N/A
#8 *Chain of Custody present?	Yes
#9 Sample instructions complete on Chain of Custody?	Yes
#10 Any missing/extra samples?	No
#11 Chain of Custody signed when relinquished/ received?	Yes
#12 Chain of Custody agrees with sample label(s)?	Yes
#13 Container label(s) legible and intact?	Yes
#14 Sample matrix/ properties agree with Chain of Custody?	Yes
#15 Samples in proper container/ bottle?	Yes
#16 Samples properly preserved?	Yes
#17 Sample container(s) intact?	Yes
#18 Sufficient sample amount for indicated test(s)?	Yes
#19 All samples received within hold time?	Yes
#20 Subcontract of sample(s)?	No
#21 VOC samples have zero headspace (less than 1/4 inch bubble)?	N/A
#22 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	N/A
#23 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by: Mary Alexis Negron
Mary Negron
Date: 05/26/2016

Checklist reviewed by: Kelsey Brooks
Kelsey Brooks
Date: 05/26/2016

Analytical Report 530989

for

Enviroclean- Midland

Project Manager: Brittany Neal

WPX East Pecos 22-3

03-JUN-16

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-15-19), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)
Xenco-San Antonio: Texas (T104704534-15-1)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)

03-JUN-16

Project Manager: **Brittany Neal**
Enviroclean- Midland
2405 ECR 123
Midland, TX 79706

Reference: XENCO Report No(s): **530989**
WPX East Pecos 22-3
Project Address: TX

Brittany Neal:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 530989. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 530989 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 530989

Enviroclean- Midland, Midland, TX

WPX East Pecos 22-3

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
001	S	05-25-16 12:35	- 0 ft	530989-001
001-A	S	05-25-16 12:40	- 1 ft	530989-002
003	S	05-25-16 13:15	- 0 ft	530989-003
003-A	S	05-25-16 13:20	- 1 ft	530989-004
008	S	05-25-16 15:00	- 0 ft	530989-005
008-A	S	05-25-16 15:05	- 1 ft	530989-006

Sample receipt non conformances and comments:

Client marked 3 day but might need to switch to 2 day

CASE NARRATIVE

Client Name: Enviroclean- Midland
Project Name: WPX East Pecos 22-3

Project ID:
Work Order Number(s): *530989*

Report Date: *03-JUN-16*
Date Received: *06/01/2016*

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 530989

Enviroclean- Midland, Midland, TX

Project Name: WPX East Pecos 22-3

Project Id:
Contact: Brittany Neal
Project Location: TX

Date Received in Lab: Wed Jun-01-16 11:30 am
Report Date: 03-JUN-16
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	530989-001		530989-002		530989-003		530989-004		530989-005		530989-006	
	Field Id:	001		001-A		003		003-A		008		008-A	
	Depth:	0 ft		1 ft		0 ft		1 ft		0 ft		1 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	May-25-16 12:35		May-25-16 12:40		May-25-16 13:15		May-25-16 13:20		May-25-16 15:00		May-25-16 15:05	
BTEX by EPA 8021B	*Extracted:*	Jun-01-16 12:00				Jun-01-16 12:00				Jun-01-16 12:00			
	Analyzed:	Jun-01-16 17:49				Jun-01-16 18:05				Jun-01-16 18:22			
	Units/RL:	mg/kg	RL			mg/kg	RL			mg/kg	RL		
Benzene		ND	0.00149			ND	0.00150			ND	0.00150		
Toluene		ND	0.00199			ND	0.00200			ND	0.00200		
Ethylbenzene		ND	0.00199			ND	0.00200			ND	0.00200		
m,p-Xylenes		ND	0.00199			ND	0.00200			ND	0.00200		
o-Xylene		ND	0.00298			ND	0.00299			ND	0.00299		
Total Xylenes		ND	0.00199			ND	0.00200			ND	0.00200		
Total BTEX		ND	0.00149			ND	0.00150			ND	0.00150		
Inorganic Anions by EPA 300	*Extracted:*	Jun-02-16 12:00		Jun-02-16 12:00		Jun-02-16 12:00		Jun-02-16 12:00		Jun-02-16 12:00		Jun-02-16 12:00	
	Analyzed:	Jun-02-16 15:04		Jun-02-16 15:12		Jun-02-16 15:20		Jun-02-16 15:43		Jun-02-16 16:06		Jun-02-16 21:18	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		53500	2000	202	100	6760	500	10600	1000	252	50.0	ND	10.0
TPH by SW8015 Mod	*Extracted:*	Jun-01-16 15:00				Jun-01-16 15:00				Jun-01-16 15:00			
	Analyzed:	Jun-01-16 21:24				Jun-01-16 21:51				Jun-01-16 22:19			
	Units/RL:	mg/kg	RL			mg/kg	RL			mg/kg	RL		
C6-C10 Gasoline Range Hydrocarbons		ND	15.0			ND	15.0			ND	15.0		
C10-C28 Diesel Range Hydrocarbons		ND	15.0			304	15.0			ND	15.0		
C28-C35 Oil Range Hydrocarbons		ND	15.0			24.9	15.0			ND	15.0		
Total TPH		ND	15.0			329	15.0			ND	15.0		

Kelsey Brooks
Project Manager

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

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

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

\+ NELAC certification not offered for this compound.

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

	Phone	Fax
4147 Greenbriar Dr, Stafford, TX 77477	(281) 240-4200	(281) 240-4280
9701 Harry Hines Blvd , Dallas, TX 75220	(214) 902 0300	(214) 351-9139
5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
1211 W Florida Ave, Midland, TX 79701	(432) 563-1800	(432) 563-1713
2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282	(602) 437-0330	

Form 2 - Surrogate Recoveries

Project Name: WPX East Pecos 22-3

Work Orders : 530989,

Project ID:

Lab Batch #: 995467 **Sample:** 530989-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/01/16 17:49

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0303	0.0300	101	80-120	
4-Bromofluorobenzene	0.0321	0.0300	107	80-120	

Lab Batch #: 995467 **Sample:** 530989-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/01/16 18:05

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0303	0.0300	101	80-120	
4-Bromofluorobenzene	0.0302	0.0300	101	80-120	

Lab Batch #: 995467 **Sample:** 530989-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/01/16 18:22

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0309	0.0300	103	80-120	
4-Bromofluorobenzene	0.0324	0.0300	108	80-120	

Lab Batch #: 995437 **Sample:** 530989-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/01/16 21:24

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.9	99.9	95	70-135	
o-Terphenyl	47.7	50.0	95	70-135	

Lab Batch #: 995437 **Sample:** 530989-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/01/16 21:51

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	77.7	99.7	78	70-135	
o-Terphenyl	37.2	49.9	75	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: WPX East Pecos 22-3

Work Orders : 530989,

Project ID:

Lab Batch #: 995437 **Sample:** 530989-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/01/16 22:19

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	75.5	99.8	76	70-135	
o-Terphenyl	36.0	49.9	72	70-135	

Lab Batch #: 995467 **Sample:** 709467-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 05/31/16 18:20

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0278	0.0300	93	80-120	
4-Bromofluorobenzene	0.0295	0.0300	98	80-120	

Lab Batch #: 995437 **Sample:** 709484-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/01/16 16:12

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.8	100	93	70-135	
o-Terphenyl	46.5	50.0	93	70-135	

Lab Batch #: 995467 **Sample:** 709467-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 05/31/16 19:42

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0297	0.0300	99	80-120	
4-Bromofluorobenzene	0.0308	0.0300	103	80-120	

Lab Batch #: 995437 **Sample:** 709484-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/01/16 16:40

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	115	100	115	70-135	
o-Terphenyl	53.2	50.0	106	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: WPX East Pecos 22-3

Work Orders : 530989,

Project ID:

Lab Batch #: 995467 **Sample:** 709467-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 05/31/16 17:14

BTEX by EPA 8021B	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0298	0.0300	99	80-120	
4-Bromofluorobenzene	0.0325	0.0300	108	80-120	

Lab Batch #: 995437 **Sample:** 709484-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/01/16 17:09

TPH by SW8015 Mod	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	108	100	108	70-135	
o-Terphenyl	49.0	50.0	98	70-135	

Lab Batch #: 995467 **Sample:** 530895-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/31/16 17:30

BTEX by EPA 8021B	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0265	0.0300	88	80-120	
4-Bromofluorobenzene	0.0349	0.0300	116	80-120	

Lab Batch #: 995437 **Sample:** 530967-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/02/16 06:12

TPH by SW8015 Mod	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	115	99.7	115	70-135	
o-Terphenyl	51.5	49.9	103	70-135	

Lab Batch #: 995467 **Sample:** 530895-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/31/16 17:47

BTEX by EPA 8021B	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0308	0.0300	103	80-120	
4-Bromofluorobenzene	0.0325	0.0300	108	80-120	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: WPX East Pecos 22-3

Work Orders : 530989,
Lab Batch #: 995437 **Sample:** 530967-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Project ID:

Units: mg/kg **Date Analyzed:** 06/01/16 18:35

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	106	99.7	106	70-135	
o-Terphenyl	48.5	49.9	97	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: WPX East Pecos 22-3

Work Order #: 530989

Project ID:

Analyst: PJB **Date Prepared:** 05/31/2016 **Date Analyzed:** 05/31/2016

Lab Batch ID: 995467 **Sample:** 709467-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00150	0.100	0.0866	87	0.100	0.0943	94	9	70-130	35	
Toluene	<0.00200	0.100	0.0880	88	0.100	0.0994	99	12	70-130	35	
Ethylbenzene	<0.00200	0.100	0.0927	93	0.100	0.0998	100	7	71-129	35	
m,p-Xylenes	<0.00200	0.200	0.192	96	0.200	0.209	105	8	70-135	35	
o-Xylene	<0.00300	0.100	0.0936	94	0.100	0.102	102	9	71-133	35	

Analyst: MNR **Date Prepared:** 06/02/2016 **Date Analyzed:** 06/02/2016

Lab Batch ID: 995496 **Sample:** 709497-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<10.0	250	249	100	250	252	101	1	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

BS / BSD Recoveries

Project Name: WPX East Pecos 22-3

Work Order #: 530989 **Project ID:**

Analyst: ARM **Date Prepared:** 06/01/2016 **Date Analyzed:** 06/01/2016

Lab Batch ID: 995437 **Sample:** 709484-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	875	88	1000	862	86	1	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	954	95	1000	885	89	8	70-135	35	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS Recoveries

Project Name: WPX East Pecos 22-3

Work Order #: 530989

Lab Batch #: 995496

Date Analyzed: 06/02/2016

QC- Sample ID: 530903-001 S

Reporting Units: mg/kg

Date Prepared: 06/02/2016

Batch #: 1

Project ID:

Analyst: MNR

Matrix: Soil

Inorganic Anions by EPA 300	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	1710	2500	4350	106	80-120	

Lab Batch #: 995496

Date Analyzed: 06/02/2016

QC- Sample ID: 530989-003 S

Reporting Units: mg/kg

Date Prepared: 06/02/2016

Batch #: 1

Analyst: MNR

Matrix: Soil

Inorganic Anions by EPA 300	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	6760	12500	20100	107	80-120	

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

BRL - Below Reporting Limit

Form 3 - MS / MSD Recoveries

Project Name: WPX East Pecos 22-3

Work Order # : 530989 **Project ID:**

Lab Batch ID: 995467 **QC- Sample ID:** 530895-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 05/31/2016 **Date Prepared:** 05/31/2016 **Analyst:** PJB

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00149	0.0992	0.0709	71	0.0994	0.0729	73	3	70-130	35	
Toluene	<0.00198	0.0992	0.0768	77	0.0994	0.0748	75	3	70-130	35	
Ethylbenzene	<0.00198	0.0992	0.0794	80	0.0994	0.0767	77	3	71-129	35	
m,p-Xylenes	<0.00198	0.198	0.169	85	0.199	0.159	80	6	70-135	35	
o-Xylene	<0.00298	0.0992	0.0876	88	0.0994	0.0778	78	12	71-133	35	

Lab Batch ID: 995437 **QC- Sample ID:** 530967-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 06/02/2016 **Date Prepared:** 06/01/2016 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	997	858	86	997	938	94	9	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.0	997	948	95	997	896	90	6	70-135	35	

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

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

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

Sample Duplicate Recovery

Project Name: WPX East Pecos 22-3

Work Order #: 530989

Lab Batch #: 995496 **Project ID:**

Date Analyzed: 06/02/2016 13:30 **Date Prepared:** 06/02/2016 **Analyst:** MNR

QC- Sample ID: 530903-001 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	1710	1740	2	20	

Lab Batch #: 995496

Date Analyzed: 06/02/2016 15:27 **Date Prepared:** 06/02/2016 **Analyst:** MNR

QC- Sample ID: 530989-003 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	6760	7160	6	20	

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

BRL - Below Reporting Limit

ENVIRO CLEAN SERVICES, L.L.C.

CHAIN OF CUSTODY

Page 1 Of 1

530989

Enviro Clean / Midland Texas	Project Name/Number: WPX East Pecos 22-3
2405 E. County Rd. 123 Midland, TX 79706	Project Location: WPXR TX0005
Email: khuckaba@eccgrp.com wendy.north@eccgrp.com brittany.neal@eccgrp.com	Phone No: 432.301.0209
Project Contact: Brittany Neal	Invoice To: ap@envirocleanps.com Enviro Clean 11717 N. Morgan Rd. Yukon, OK 73099
Samplers's Name: Walter Petruzzi	PO Number:

Analytical Information

Matrix Codes
S = Soil/Sed/Solid
GW = Ground Water
DW = Drinking Water
WW = Waste Water
P = Product/Oil
SW = Surface water
SL = Sludge
OW = Ocean Water
W = Wipe
O = Other
A = Air

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Preservative Used: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	ICE	Texas TPH - TX 1005	New Mexico TPH - 8015M	BTEX - 8021B	Chlorides - 300 Series	Field Comments
1	001	0'	5-25	1235	S	1								X		X	X	X	
2	001-A	1'	5-25	1240															hold TPH/BTEX
3	003	0'		1315															
4	003-A	1'		1320															hold TPH/BTEX
5	008	0'		1500															
6	008-A	1'		1505															hold TPH/BTEX
7																			
8																			
9																			
10																			
11																			
12																			

Turnaround Time (Business days)

- [ ] Same Day TAT
- [ ] 5 Day TAT
- [ ] Next Day EMERGENCY
- [x] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [ ] Contract TAT
- [ ] 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 3:00 pm

Data Deliverable Information

- [x] Level II Std QC
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] Level III Std QC+ Forms
- [ ] TRRP Level IV
- [ ] Level 3 (CLP Forms)
- [ ] UST / RG -411
- [ ] TRRP Checklist

Notes:

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	W. Petruzzi	5-25 8am	K Huckaba	K Huckaba	5-26-16 1130	
2						
3	Relinquished By:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
4						
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice: X

Cooler Temp. 1.1°C

Thermo. Corr. Factor 0°C

Final 1.000

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XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: Enviroclean- Midland

Date/ Time Received: 06/01/2016 11:30:00 AM

Work Order #: 530989

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

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	1.1
#2 *Shipping container in good condition?	N/A
#3 *Samples received on ice?	Yes
#4 *Custody Seal present on shipping container/ cooler?	N/A
#5 *Custody Seals intact on shipping container/ cooler?	N/A
#6 Custody Seals intact on sample bottles?	N/A
#7 *Custody Seals Signed and dated?	N/A
#8 *Chain of Custody present?	Yes
#9 Sample instructions complete on Chain of Custody?	Yes
#10 Any missing/extra samples?	No
#11 Chain of Custody signed when relinquished/ received?	Yes
#12 Chain of Custody agrees with sample label(s)?	Yes
#13 Container label(s) legible and intact?	Yes
#14 Sample matrix/ properties agree with Chain of Custody?	Yes
#15 Samples in proper container/ bottle?	Yes
#16 Samples properly preserved?	Yes
#17 Sample container(s) intact?	Yes
#18 Sufficient sample amount for indicated test(s)?	Yes
#19 All samples received within hold time?	Yes
#20 Subcontract of sample(s)?	No
#21 VOC samples have zero headspace (less than 1/4 inch bubble)?	N/A
#22 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	N/A
#23 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by: Mary Alexis Negron
Mary Negron
Date: 06/01/2016

Checklist reviewed by: Kelsey Brooks
Kelsey Brooks
Date: 06/01/2016

Analytical Report 531212

for

Enviroclean- Midland

Project Manager: Brittany Neal

WPX East Pecos

WPXRTX0005

21-JUN-16

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-15-19), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)
Xenco-San Antonio: Texas (T104704534-15-1)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)

21-JUN-16

Project Manager: **Brittany Neal**
Enviroclean- Midland
2405 ECR 123
Midland, TX 79706

Reference: XENCO Report No(s): **531212**
WPX East Pecos
Project Address: New Mexico

Brittany Neal:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 531212. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 531212 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 531212

Enviroclean- Midland, Midland, TX

WPX East Pecos

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
006-C	S	06-03-16 09:00	- 3 ft	531212-001
006-D	S	06-03-16 09:10	- 4 ft	531212-002
010-C	S	06-03-16 09:20	- 3 ft	531212-003
010-D	S	06-03-16 09:30	- 4 ft	531212-004

Sample receipt non conformances and comments:

Client marked 3 day but might need to switch to 2 day

CASE NARRATIVE

Client Name: Enviroclean- Midland

Project Name: WPX East Pecos

Project ID: *WPXRTX0005*
Work Order Number(s): *531212*

Report Date: *21-JUN-16*
Date Received: *06/06/2016*

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 531212

Enviroclean- Midland, Midland, TX

Project Name: WPX East Pecos

Project Id: WPXRTX0005
Contact: Brittany Neal
Project Location: New Mexico

Date Received in Lab: Mon Jun-06-16 08:30 am
Report Date: 21-JUN-16
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	531212-001		531212-002		531212-003		531212-004					
	Field Id:	006-C		006-D		010-C		010-D					
	Depth:	3 ft		4 ft		3 ft		4 ft					
	Matrix:	SOIL		SOIL		SOIL		SOIL					
	Sampled:	Jun-03-16 09:00		Jun-03-16 09:10		Jun-03-16 09:20		Jun-03-16 09:30					
BTEX by EPA 8021B	*Extracted:*	Jun-18-16 19:00				Jun-18-16 19:00							
	Analyzed:	Jun-19-16 02:25				Jun-19-16 02:42							
	Units/RL:	mg/kg	RL			mg/kg	RL						
Benzene		ND	0.00149			ND	0.00150						
Toluene		ND	0.00199			ND	0.00200						
Ethylbenzene		ND	0.00199			ND	0.00200						
m,p-Xylenes		ND	0.00199			ND	0.00200						
o-Xylene		ND	0.00298			ND	0.00299						
Total Xylenes		ND	0.00199			ND	0.00200						
Total BTEX		ND	0.00149			ND	0.00150						
Inorganic Anions by EPA 300	*Extracted:*	Jun-07-16 12:00		Jun-07-16 12:00		Jun-07-16 12:00		Jun-07-16 12:00					
	Analyzed:	Jun-07-16 15:38		Jun-07-16 15:46		Jun-07-16 16:10		Jun-07-16 16:17					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		10800	500	182	10.0	830	50.0	769	50.0				
TPH by SW 8015B	*Extracted:*	Jun-17-16 15:00				Jun-17-16 15:00							
	Analyzed:	Jun-20-16 11:28				Jun-17-16 19:28							
	Units/RL:	mg/kg	RL			mg/kg	RL						
C6-C10 Gasoline Range Hydrocarbons		ND	15.0			ND	15.0						
C10-C28 Diesel Range Organics		ND	15.0			ND	15.0						
Total TPH		ND	15.0			ND	15.0						

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Version: 1.%

Kelsey Brooks
Project Manager

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

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

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

\+ NELAC certification not offered for this compound.

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

Form 2 - Surrogate Recoveries

Project Name: WPX East Pecos

Work Orders : 531212,

Project ID: WPXRTX0005

Lab Batch #: 996506 **Sample:** 531212-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/17/16 19:28

TPH by SW 8015B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.0	99.9	97	70-135	
o-Terphenyl	50.6	50.0	101	70-135	

Lab Batch #: 996517 **Sample:** 531212-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/19/16 02:25

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0315	0.0300	105	80-120	
4-Bromofluorobenzene	0.0323	0.0300	108	80-120	

Lab Batch #: 996517 **Sample:** 531212-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/19/16 02:42

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0314	0.0300	105	80-120	
4-Bromofluorobenzene	0.0314	0.0300	105	80-120	

Lab Batch #: 996506 **Sample:** 531212-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/20/16 11:28

TPH by SW 8015B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	98.5	99.9	99	70-135	
o-Terphenyl	51.2	50.0	102	70-135	

Lab Batch #: 996506 **Sample:** 710089-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/17/16 16:34

TPH by SW 8015B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	100	101	70-135	
o-Terphenyl	51.2	50.0	102	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: WPX East Pecos

Work Orders : 531212, **Project ID:** WPXRTX0005

Lab Batch #: 996517 **Sample:** 710102-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/19/16 01:53

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0284	0.0300	95	80-120	
4-Bromofluorobenzene	0.0285	0.0300	95	80-120	

Lab Batch #: 996506 **Sample:** 710089-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/17/16 17:04

TPH by SW 8015B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	117	100	117	70-135	
o-Terphenyl	50.8	50.0	102	70-135	

Lab Batch #: 996517 **Sample:** 710102-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/19/16 00:33

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0307	0.0300	102	80-120	
4-Bromofluorobenzene	0.0335	0.0300	112	80-120	

Lab Batch #: 996506 **Sample:** 710089-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/17/16 17:31

TPH by SW 8015B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	117	100	117	70-135	
o-Terphenyl	53.3	50.0	107	70-135	

Lab Batch #: 996517 **Sample:** 710102-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/19/16 00:49

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0303	0.0300	101	80-120	
4-Bromofluorobenzene	0.0341	0.0300	114	80-120	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: WPX East Pecos

Work Orders : 531212,

Project ID: WPXRTX0005

Lab Batch #: 996506 **Sample:** 531212-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/17/16 18:33

TPH by SW 8015B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	129	99.9	129	70-135	
o-Terphenyl	62.2	50.0	124	70-135	

Lab Batch #: 996517 **Sample:** 531940-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/19/16 01:05

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0325	0.0300	108	80-120	
4-Bromofluorobenzene	0.0347	0.0300	116	80-120	

Lab Batch #: 996506 **Sample:** 531212-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/17/16 19:01

TPH by SW 8015B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	115	100	115	70-135	
o-Terphenyl	53.1	50.0	106	70-135	

Lab Batch #: 996517 **Sample:** 531940-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/19/16 01:21

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0322	0.0300	107	80-120	
4-Bromofluorobenzene	0.0346	0.0300	115	80-120	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Version: 1.%

BS / BSD Recoveries

Project Name: WPX East Pecos

Work Order #: 531212 **Project ID:** WPXRTX0005

Analyst: PJB **Date Prepared:** 06/18/2016 **Date Analyzed:** 06/19/2016

Lab Batch ID: 996517 **Sample:** 710102-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00150	0.100	0.0904	90	0.100	0.0916	92	1	70-130	35	
Toluene	<0.00200	0.100	0.0878	88	0.100	0.0892	89	2	70-130	35	
Ethylbenzene	<0.00200	0.100	0.0939	94	0.100	0.0942	94	0	71-129	35	
m,p-Xylenes	<0.00200	0.200	0.194	97	0.200	0.194	97	0	70-135	35	
o-Xylene	<0.00300	0.100	0.0944	94	0.100	0.0948	95	0	71-133	35	

Analyst: MNR **Date Prepared:** 06/07/2016 **Date Analyzed:** 06/07/2016

Lab Batch ID: 995805 **Sample:** 709682-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<10.0	250	276	110	250	256	102	8	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Version: 1.%

BS / BSD Recoveries

Project Name: WPX East Pecos

Work Order #: 531212 **Project ID:** WPXRTX0005

Analyst: ARM **Date Prepared:** 06/17/2016 **Date Analyzed:** 06/17/2016

Lab Batch ID: 996506 **Sample:** 710089-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW 8015B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	853	85	1000	857	86	0	70-135	35	
C10-C28 Diesel Range Organics	<15.0	1000	986	99	1000	987	99	0	70-135	35	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Version: 1.%

Form 3 - MS Recoveries

Project Name: WPX East Pecos

Work Order #: 531212

Lab Batch #: 995805

Project ID: WPXRTX0005

Date Analyzed: 06/07/2016

Date Prepared: 06/07/2016

Analyst: MNR

QC- Sample ID: 531133-003 S

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	14900	25000	41900	108	80-120	

Lab Batch #: 995805

Date Analyzed: 06/07/2016

Date Prepared: 06/07/2016

Analyst: MNR

QC- Sample ID: 531211-001 S

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	<10.0	250	262	105	80-120	

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

BRL - Below Reporting Limit

Version: 1.%

Form 3 - MS / MSD Recoveries

Project Name: WPX East Pecos

Work Order # : 531212 **Project ID:** WPXRTX0005

Lab Batch ID: 996517 **QC- Sample ID:** 531940-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 06/19/2016 **Date Prepared:** 06/18/2016 **Analyst:** PJB

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00149	0.0992	0.0799	81	0.0998	0.0798	80	0	70-130	35	
Toluene	<0.00198	0.0992	0.0783	79	0.0998	0.0756	76	4	70-130	35	
Ethylbenzene	<0.00198	0.0992	0.0793	80	0.0998	0.0772	77	3	71-129	35	
m,p-Xylenes	<0.00198	0.198	0.169	85	0.200	0.169	85	0	70-135	35	
o-Xylene	<0.00298	0.0992	0.0832	84	0.0998	0.0832	83	0	71-133	35	

Lab Batch ID: 996506 **QC- Sample ID:** 531212-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 06/17/2016 **Date Prepared:** 06/17/2016 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW 8015B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	999	1030	103	1000	919	92	11	70-135	35	
C10-C28 Diesel Range Organics	<15.0	999	1140	114	1000	1050	105	8	70-135	35	

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

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

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

Sample Duplicate Recovery

Project Name: WPX East Pecos

Work Order #: 531212

Lab Batch #: 995805 **Project ID:** WPXRTX0005

Date Analyzed: 06/07/2016 17:04 **Date Prepared:** 06/07/2016 **Analyst:** MNR

QC- Sample ID: 531133-003 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	14900	16200	8	20	

Lab Batch #: 995805

Date Analyzed: 06/07/2016 15:15 **Date Prepared:** 06/07/2016 **Analyst:** MNR

QC- Sample ID: 531211-001 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	<10.0	<10.0	0	20	U

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

Version: 1.%

ENVIRO CLEAN SERVICES, L.L.C.

CHAIN OF CUSTODY

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531212

Enviro Clean / Midland Texas	Project Name/Number: WPX E. Pecos
2405 E. County Rd. 123 Midland, TX 79706	Project Location: New Mexico
Email: khuckaba@eccgrp.com wendy.north@eccgrp.com brittany.neal@eccgrp.com Phone No: 432.301.0209	Invoice To: ap@envirocleanps.com Enviro Clean 11717 N. Morgan Rd. Yukon, OK 73099
Project Contact: Brittany Neal	PO Number: WPXRTX0005
Samplers's Name: Walther Retuya	

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Preservative Used: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	ICE	Texas TPH - TX 1005	New Mexico TPH - 8015M	BTEX - 8021B	Chlorides - 300 Series	Field Comments
1	006-C	3'	6-3	0900	S	1								X					
2	006-D	4'	↓	0910	↓	↓								↓					
3	010-C	3'		0920															
4	010-D	4'	↓	0930	↓	↓								↓				↓	
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

Analytical Information

Matrix Codes
S = Soil/Sed/Solid
GW = Ground Water
DW = Drinking Water
WW = Waste Water
P = Product/Oil
SW = Surface water
SL = Sludge
OW = Ocean Water
W = Wipe
O = Other
A = Air

Turnaround Time (Business days)

- [ ] Same Day TAT
- [ ] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [x] 2 Day EMERGENCY
- [ ] Contract TAT
- [ ] 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 3:00 pm

Data Deliverable Information

- [x] Level II Std QC
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] Level III Std QC+ Forms
- [ ] TRRP Level IV
- [ ] Level 3 (CLP Forms)
- [ ] UST / RG -411
- [ ] TRRP Checklist

Notes:

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	[signature]	06 Feb 8:30	1 [signature]	2		2
3			3	4		4
5			5	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor

Temp: 7°C IR ID:R-8
C/F:0
Corrected Temp: 7°

Final 1.001

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XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: Enviroclean- Midland

Date/ Time Received: 06/06/2016 08:30:00 AM

Work Order #: 531212

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

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.7
#2 *Shipping container in good condition?	N/A
#3 *Samples received on ice?	Yes
#4 *Custody Seal present on shipping container/ cooler?	N/A
#5 *Custody Seals intact on shipping container/ cooler?	N/A
#6 Custody Seals intact on sample bottles?	N/A
#7 *Custody Seals Signed and dated?	N/A
#8 *Chain of Custody present?	Yes
#9 Sample instructions complete on Chain of Custody?	Yes
#10 Any missing/extra samples?	No
#11 Chain of Custody signed when relinquished/ received?	Yes
#12 Chain of Custody agrees with sample label(s)?	Yes
#13 Container label(s) legible and intact?	Yes
#14 Sample matrix/ properties agree with Chain of Custody?	Yes
#15 Samples in proper container/ bottle?	Yes
#16 Samples properly preserved?	Yes
#17 Sample container(s) intact?	Yes
#18 Sufficient sample amount for indicated test(s)?	Yes
#19 All samples received within hold time?	Yes
#20 Subcontract of sample(s)?	No
#21 VOC samples have zero headspace (less than 1/4 inch bubble)?	N/A
#22 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	N/A
#23 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	N/A

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

Analyst: PH Device/Lot#:

Checklist completed by: Mary Alexis Negron Date: 06/06/2016
Mary Negron

Checklist reviewed by: Kelsey Brooks Date: 06/17/2016
Kelsey Brooks