



Olivia Yu
Environmental Specialist
NMOCD District I

August 31, 2017

Re: Toro 22-1 workplan for the characterization of impacts – Case # 4763

Dear Ms. Yu,

The purpose of this letter is to propose a workplan for the characterization of impacts associated with the Toro 22-1 crude oil spill which occurred on July 9, 2017. See attached C-141 for details.

Immediately after the spill discovery, the impacted area was mapped with a Trimble to delineate the horizontal extent of the impacts. As soon as the line locating serviced were completed, the affected area was scraped off to prevent from vertical migration of the spilled fluids. After this initial response, two surface baseline samples were collected to determine if any remedial activities are needed. S1 was collected from the impacted area outside the SPCC containment and S2 was collected from the area inside the containment. The results are summarized in the table below. The raw laboratory report and the map are included as an attachment.

Location	DRO (mg/kg)	GRO (mg/kg)	ORO (mg/kg)	Benzene (mg/kg)	Ethylbenzene (mg/kg)	Toluene (mg/kg)	Xylenes (mg/kg)	Chlorides (mg/kg)
Toro 22-1S1 6"	2300	ND	920	ND	0.081	ND	0.59	2900
Toro 22-1S2 6"	120	ND	150	ND	ND	ND	ND	2200

Based on the information obtained from the NMOSE web site, the closest surface water feature is located 3457' west of the spill site defined by OSE as "intermittent". Based on the OSE ground water data, the Trend Map and the site elevation, depth do groundwater is less than 50'. There are no private domestic water sources within 1000' of the site. Therefore, the ranking for this site is 20. See attached OSE reports for wells located within 2000 m and 5000m from the pad site and surface water map.

WPX would like to excavate the hydrocarbon impacts as soon as possible to prevent from a potential vertical migration. The chloride concentrations will be delineated by excavating a pothole near sampling point S1 to the depth of the maximum extent of the back-hoe reach expecting to delineate chloride concentrations to 250 mg/kg. WPX will collect samples from the excavated area, the pothole and from the surface to confirm that the spill impacts did not migrate beyond the perimeter of the mapped spill. The results and the sampling map will be submitted to OCD. Further action will be based on the laboratory results.

Please do not hesitate to call me if you have any questions.

Sincerely,

Karolina Blaney
WPX Energy
Environmental Specialist
(970) 589-0743
karolina.blaney@wpxenergy.com

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	Contact	Karolina Blaney
Address	5315 Buena Vista Dr.	Telephone No.	970 589 0743
Facility Name:	Toro 22-1	Facility Type:	Well Pad

Surface Owner: Private	Mineral Owner: Private	API No.	30-025-34710
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E	22	19S	35E	2310	FNL	660	FWL	Lea

Latitude: 32.64695219 N Longitude: -103.45157232W

NATURE OF RELEASE

Type of Release: Oil	Volume of Release: 12 Bbls	Volume Recovered: 10 Bbls
Source of Release Heater Treater	Date and Hour of Occurrence 7/9/2016	Date and Hour of Discovery 7/9/2017 - 7:50 hrs MT
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? NMOCD Olivia Yu	
By Whom? Karolina Blaney	Date and Hour: 7/10/17- 7:25 hrs MT	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

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

RECEIVED
By Olivia Yu at 11:49 am, Jul 27, 2017

Describe Cause of Problem and Remedial Action Taken.*

The cause of this spill is equipment failure; the back-pressure valve failed to relieve pressure on the heater treater causing the PRV to pop off. All fluids stayed on location. Approximately 12 bbls of oil was spilled. Vacuum trucks were dispatched to the location and 10 bbls of oil was recovered.

Describe Area Affected and Cleanup Action Taken.*

The impacted area was mapped with a Trimble. The affected area was excavated and sampled for BTEX, TPH, and chlorides in accordance with NM OCD Guidelines for Remediation of Leaks, Spills, and Releases. Further remediation will be based on the sampling results.

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: <i>Karolina Blaney</i>	OIL CONSERVATION DIVISION	
Printed Name: Karolina Blaney	Approved by Environmental Specialist: <i>[Signature]</i>	
Title: Environmental Specialist	Approval Date: 7/27/2017	Expiration Date:
E-mail Address: Karolina.blaney@wpxenergy.com	Conditions of Approval: see attached directive	Attached ☒
Date: 7/24/2017	Phone: 970-589-0743	

* Attach Additional Sheets If Necessary

1RP-4763

nOY1720842760

pOY1720843059



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD		Q Q Q							X	Y	Distance	Depth Well	Depth Water	Water Column
	Sub-Code	basin	County	64	16	4	Sec	Tws	Rng						
L 04290	L	LE	3	4	1	22	19S	35E	645528	3613198*		299	45	18	27
L 03844	L	LE		1	3	22	19S	35E	645232	3612891*		316	71	27	44
L 02250	L	LE	1	3	3	22	19S	35E	645137	3612586*		628	50	20	30
L 03843	L	LE		3	3	22	19S	35E	645238	3612487*		720	73	27	46
L 04101	L	LE		3	3	22	19S	35E	645238	3612487*		720	50	35	15
L 09468	L	LE		3	3	15	19S	35E	645214	3614102*		894	52	28	24
L 04583	L	LE		4	3	15	19S	35E	645617	3614107*		979	55	18	37
L 12473 POD1	L	LE	2	1	2	27	19S	38E	643913	3612109		1714	105	60	45
L 12746 POD1	L	LE	4	2	4	27	19S	38E	643913	3612109		1714	128	58	70
L 04763	L	LE	4	1	1	15	19S	35E	645295	3615211*		2004	75	20	55
L 06801	L	LE			3	14	19S	35E	647027	3614322*		2115	92		
L 08793	L	LE		1	2	15	19S	35E	646002	3615322*		2251	50	40	10
L 04808	L	LE	3	3	4	10	19S	35E	645895	3615624*		2506	80	53	27
L 09700	L	LE		1	1	14	19S	35E	646808	3615332*		2647	140	27	113
L 09569	L	LE		4	3	17	19S	35E	642394	3614063*		2960	80	30	50
L 08234	L	LE	2	2	3	17	19S	35E	642487	3614566*		3059	120	90	30
L 08234 S2	L	LE			3	17	19S	35E	642192	3614259*		3213	126	80	46
L 04276	L	LE		2	4	08	19S	35E	643168	3616092*		3544	57	18	39
L 14182 POD1	L	LE	3	3	1	09	19S	35E	643392	3616347		3636	78	25	53
L 01756	L	LE	1	3	4	13	19S	35E	649145	3614253*		4053	56	28	28
L 05339	L	LE		3	4	04	19S	35E	644358	3617317*		4200	128	83	45
L 09103	L	LE		3	4	04	19S	35E	644358	3617317*		4200	140	70	70
L 14208 POD1	L	LE	2	2	2	18	19S	35E	641685	3615464		4201	78		
L 09294	L	LE	1	4	4	04	19S	35E	644661	3617420*		4250	150		
L 09077	L	LE	2	3	4	04	19S	35E	644457	3617416*		4278	144	95	49
L 08973	L	LE	1	3	4	04	19S	35E	644257	3617416*		4318	140	95	45

*UTM location was derived from PLSS - see Help

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD																
Sub-		Q Q Q								Depth Depth Water						
POD Number	Code	basin	County	64	16	4	Sec	Tws	Rng	X	Y	Distance	Well	Water	Column	
L 04596	L	LE		2	4	24	19S	35E		649667	3612949*		4446	56	26	30
L 11560	L	LE		4	4	13	19S	35E		649650	3614160*		4522	39	27	12
L 01755	R	L	LE	2	2	4	24	19S	35E	649766	3613048*		4540	56	20	36
L 04604	L	LE		2	2	4	24	19S	35E	649766	3613048*		4540	55	22	33
L 04604 S	L	LE		2	2	4	24	19S	35E	649766	3613048*		4540	56	22	34
L 04604 S2	L	LE		2	2	4	24	19S	35E	649766	3613048*		4540	56	22	34
L 04604 S6	L	LE		2	2	4	24	19S	35E	649766	3613048*		4540	57	22	35
L 01755 POD2	L	LE		4	2	4	24	19S	35E	649766	3612848*		4551	55	20	35
L 04604 S3	L	LE		4	2	4	24	19S	35E	649766	3612848*		4551	56	22	34
L 04604 S4	L	LE		4	2	4	24	19S	35E	649766	3612848*		4551	57	22	35
L 04604 S5	L	LE		2	4	4	24	19S	35E	649772	3612645*		4578	55	22	33
L 08234 S	L	LE		4	4	1	18	19S	35E	640871	3614751*		4622	106	60	46
L 04563	L	LE		2	2	4	13	19S	35E	649743	3614662*		4742	56	24	32
L 01879	L	LE		3	1	1	19	19S	36E	649958	3613660*		4751	58		
L 08941	L	LE		2	3	3	19	19S	35E	640510	3612523		4768	600	286	314
L 11281	L	LE		4	2	4	05	19S	35E	643304	3617707		4893	102		
L 10613	L	LE		2	4	05	19S	35E	643143	3617705*		4957	100	100	0	
L 04116 S	L	LE		1	2	02	20S	35E	647710	3608881*		4988	55	50	5	

Average Depth to Water: **46 feet**

Minimum Depth: **18 feet**

Maximum Depth: **286 feet**

Record Count: 44

UTMNA83 Radius Search (in meters):

Easting (X): 645228.4

Northing (Y): 3613207.9

Radius: 5000

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
L 04290	L	LE		3	4	1	22	19S	35E	645528	3613198*	299	45	18	27
L 03844	L	LE			1	3	22	19S	35E	645232	3612891*	316	71	27	44
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L 09468	L	LE			3	3	15	19S	35E	645214	3614102*	894	52	28	24
L 04583	L	LE			4	3	15	19S	35E	645617	3614107*	979	55	18	37
L 12473 POD1	L	LE		2	1	2	27	19S	38E	643913	3612109	1714	105	60	45
L 12746 POD1	L	LE		4	2	4	27	19S	38E	643913	3612109	1714	128	58	70

Average Depth to Water: **32 feet**

Minimum Depth: **18 feet**

Maximum Depth: **60 feet**

Record Count: 9

UTM NAD83 Radius Search (in meters):

Easting (X): 645228.4

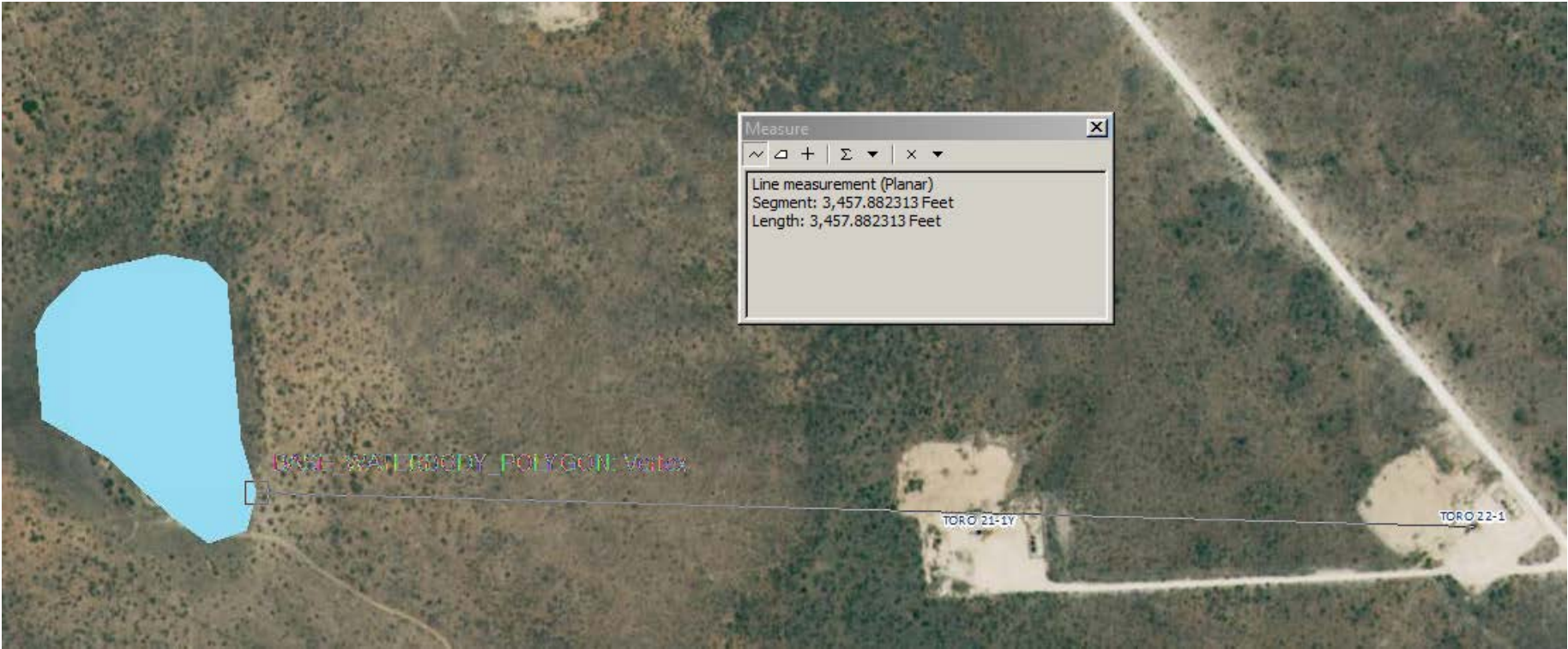
Northing (Y): 3613207.9

Radius: 2000

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

Distance to the closest surface water features





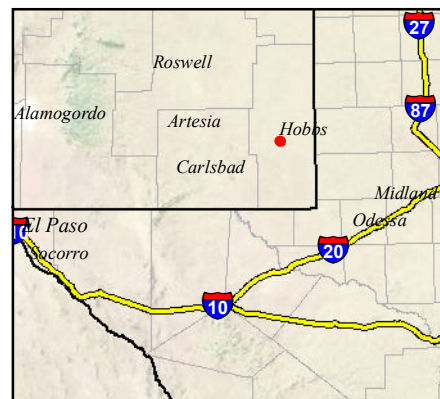
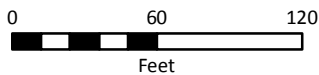
TORO 22-1
Permian Basin



Date: 8/25/2017
Map Scale (at 8.5" x 11"): 1:953
Projection: NAD 1927 UTM Zone 13N
Created By: Jeremy Andarakes
Facilities Engineering Dept - GIS
3500 One Williams Center
Tulsa, OK 74172

Map Symbolology

- Point of Interest
- ▭ Area of Interest





25-Jul-2017

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

Re: **Torro 22-1 (Post Excavation)**

Work Order: **1707852**

Dear Karolina,

ALS Environmental received 2 samples on 18-Jul-2017 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 industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 15.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Chad Whelton".

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Certificate No: MN 998501

Report of Laboratory Analysis

ADDRESS 3352 128th Ave 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

Environmental 

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: WPX Energy
Project: Torro 22-1 (Post Excavation)
Work Order: 1707852

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1707852-01	Torro 22-1 (S1) 6" BGS-CS	Soil		7/17/2017 11:00	7/18/2017 09:30	☐
1707852-02	Torro 22-1 (S2) 6" BGS-CS	Soil		7/17/2017 11:05	7/18/2017 09:30	☐

Client: WPX Energy
Project: Torro 22-1 (Post Excavation)
Work Order: 1707852

Case Narrative

Batch 104728, Method CL_4500E_DISC_S, Sample 1707852-01A MS: The MS recovery was outside of the control limit for Chloride; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required.

Batch 104751, Method DRLVI_8015_S, Sample 1707852-02A: Low DRO surrogate recovery due to sample matrix effects confirmed by re-extraction.

Client: WPX Energy
Project: Torro 22-1 (Post Excavation)
WorkOrder: 1707852

QUALIFIERS, ACRONYMS, UNITS

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

<u>Acronym</u>	<u>Description</u>
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

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

ALS Group, USA

Date: 25-Jul-17

Client: WPX Energy
Project: Torro 22-1 (Post Excavation)
Sample ID: Torro 22-1 (S1) 6" BGS-CS
Collection Date: 7/17/2017 11:00 AM

Work Order: 1707852
Lab ID: 1707852-01
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015C		Prep: SW3546 7/19/17 08:33	Analyst: KB
DRO (C10-C28)	2,300		29	mg/Kg-dry	5	7/20/2017 10:14 AM
ORO (C28-C40)	920		29	mg/Kg-dry	5	7/20/2017 10:14 AM
Surr: 4-Terphenyl-d14	52.6		47-137	%REC	5	7/20/2017 10:14 AM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015D		Prep: SW5035 7/19/17 15:02	Analyst: KB
GRO (C6-C10)	ND		3.2	mg/Kg-dry	1	7/21/2017 06:18 PM
Surr: Toluene-d8	102		50-150	%REC	1	7/21/2017 06:18 PM
VOLATILE ORGANIC COMPOUNDS						
			SW8260B		Prep: SW5035 7/19/17 14:52	Analyst: LSY
Benzene	ND		0.039	mg/Kg-dry	1	7/22/2017 11:49 PM
Ethylbenzene	0.081		0.039	mg/Kg-dry	1	7/22/2017 11:49 PM
m,p-Xylene	0.32		0.078	mg/Kg-dry	1	7/22/2017 11:49 PM
o-Xylene	0.27		0.039	mg/Kg-dry	1	7/22/2017 11:49 PM
Toluene	ND		0.039	mg/Kg-dry	1	7/22/2017 11:49 PM
Xylenes, Total	0.59		0.12	mg/Kg-dry	1	7/22/2017 11:49 PM
Surr: 1,2-Dichloroethane-d4	100		70-130	%REC	1	7/22/2017 11:49 PM
Surr: 4-Bromofluorobenzene	97.2		70-130	%REC	1	7/22/2017 11:49 PM
Surr: Dibromofluoromethane	93.3		70-130	%REC	1	7/22/2017 11:49 PM
Surr: Toluene-d8	101		70-130	%REC	1	7/22/2017 11:49 PM
CHLORIDE						
			A4500-CL E-97		Prep: EXTRACT 7/20/17 13:15	Analyst: LW
Chloride	2,900		46	mg/Kg-dry	4	7/20/2017 03:52 PM
MOISTURE						
			SW3550C			Analyst: SBR
Moisture	13		0.050	% of sample	1	7/19/2017 02:55 PM

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

ALS Group, USA

Date: 25-Jul-17

Client: WPX Energy
Project: Torro 22-1 (Post Excavation)
Sample ID: Torro 22-1 (S2) 6" BGS-CS
Collection Date: 7/17/2017 11:05 AM

Work Order: 1707852
Lab ID: 1707852-02
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015C		Prep: SW3546 7/21/17 10:47	Analyst: KB
DRO (C10-C28)	120		6.0	mg/Kg-dry	1	7/22/2017 10:21 AM
ORO (C28-C40)	150		6.0	mg/Kg-dry	1	7/22/2017 10:21 AM
Surr: 4-Terphenyl-d14	19.5	S	47-137	%REC	1	7/22/2017 10:21 AM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015D		Prep: SW5035 7/19/17 15:02	Analyst: KB
GRO (C6-C10)	ND		3.5	mg/Kg-dry	1	7/21/2017 06:45 PM
Surr: Toluene-d8	102		50-150	%REC	1	7/21/2017 06:45 PM
VOLATILE ORGANIC COMPOUNDS						
			SW8260B		Prep: SW5035 7/19/17 14:52	Analyst: LSY
Benzene	ND		0.042	mg/Kg-dry	1	7/23/2017 12:05 PM
Ethylbenzene	ND		0.042	mg/Kg-dry	1	7/23/2017 12:05 PM
m,p-Xylene	ND		0.085	mg/Kg-dry	1	7/23/2017 12:05 PM
o-Xylene	ND		0.042	mg/Kg-dry	1	7/23/2017 12:05 PM
Toluene	ND		0.042	mg/Kg-dry	1	7/23/2017 12:05 PM
Xylenes, Total	ND		0.13	mg/Kg-dry	1	7/23/2017 12:05 PM
Surr: 1,2-Dichloroethane-d4	97.4		70-130	%REC	1	7/23/2017 12:05 PM
Surr: 4-Bromofluorobenzene	91.0		70-130	%REC	1	7/23/2017 12:05 PM
Surr: Dibromofluoromethane	91.0		70-130	%REC	1	7/23/2017 12:05 PM
Surr: Toluene-d8	93.5		70-130	%REC	1	7/23/2017 12:05 PM
CHLORIDE						
			A4500-CL E-97		Prep: EXTRACT 7/20/17 13:15	Analyst: LW
Chloride	2,200		48	mg/Kg-dry	4	7/20/2017 03:52 PM
MOISTURE						
			SW3550C			Analyst: SBR
Moisture	17		0.050	% of sample	1	7/19/2017 02:55 PM

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

Client: WPX Energy

Work Order: 1707852

Project: Torro 22-1 (Post Excavation)

QC BATCH REPORT

Batch ID: 104606

Instrument ID GC8

Method: SW8015C

MBLK		Sample ID: DBLKS1-104606-104606				Units: mg/Kg		Analysis Date: 7/19/2017 10:47 AM		
Client ID:		Run ID: GC8_170719B				SeqNo: 4539778		Prep Date: 7/19/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)

ND

5.0

ORO (C28-C40)

ND

5.0

Surr: 4-Terphenyl-d14

2.15

0

3.33

0

64.6

47-137

0

LCS		Sample ID: DLCSS1-104606-104606				Units: mg/Kg		Analysis Date: 7/19/2017 11:16 AM		
Client ID:		Run ID: GC8_170719B				SeqNo: 4539779		Prep Date: 7/19/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)

235.5

5.0

333

0

70.7

65-122

0

ORO (C28-C40)

279.5

5.0

333

0

83.9

81-116

0

Surr: 4-Terphenyl-d14

2.217

0

3.33

0

66.6

47-137

0

MS		Sample ID: 1707755-02B MS				Units: mg/Kg		Analysis Date: 7/19/2017 11:45 AM		
Client ID:		Run ID: GC8_170719B				SeqNo: 4539780		Prep Date: 7/19/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)

317.5

4.9

328.1

29.89

87.7

65-122

0

ORO (C28-C40)

464.5

4.9

328.1

166.2

90.9

81-116

0

Surr: 4-Terphenyl-d14

2.348

0

3.281

0

71.6

47-137

0

MSD		Sample ID: 1707755-02B MSD				Units: mg/Kg		Analysis Date: 7/19/2017 12:14 PM		
Client ID:		Run ID: GC8_170719B				SeqNo: 4539781		Prep Date: 7/19/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)

310.2

4.9

323.2

29.89

86.7

65-122

317.5

2.33

30

ORO (C28-C40)

479.4

4.9

323.2

166.2

96.9

81-116

464.5

3.16

30

Surr: 4-Terphenyl-d14

2.361

0

3.232

0

73.1

47-137

2.348

0.57

30

The following samples were analyzed in this batch:

1707852-01A

1707852-02A

Client: WPX Energy
 Work Order: 1707852
 Project: Torro 22-1 (Post Excavation)

QC BATCH REPORT

Batch ID: **104751** Instrument ID **GC8** Method: **SW8015C**

MBLK		Sample ID: DBLKS1-104751-104751				Units: mg/Kg		Analysis Date: 7/21/2017 12:04 PM		
Client ID:		Run ID: GC8_170721A				SeqNo: 4542543		Prep Date: 7/21/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	ND	5.0								
ORO (C28-C40)	ND	5.0								
<i>Surr: 4-Terphenyl-d14</i>	2.167	0	3.33	0	65.1	47-137	0			

LCS		Sample ID: DLCSS1-104751-104751				Units: mg/Kg		Analysis Date: 7/21/2017 12:33 PM		
Client ID:		Run ID: GC8_170721A				SeqNo: 4542544		Prep Date: 7/21/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	238.7	5.0	333	0	71.7	65-122	0			
ORO (C28-C40)	279.1	5.0	333	0	83.8	81-116	0			
<i>Surr: 4-Terphenyl-d14</i>	2.05	0	3.33	0	61.6	47-137	0			

MS		Sample ID: 1707853-03A MS				Units: mg/Kg		Analysis Date: 7/22/2017 08:54 AM		
Client ID:		Run ID: GC8_170721A				SeqNo: 4544330		Prep Date: 7/21/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	115	5.0	332.6	0	34.6	65-122	0			S
ORO (C28-C40)	130.1	5.0	332.6	1.438	38.7	81-116	0			S
<i>Surr: 4-Terphenyl-d14</i>	0.9989	0	3.326	0	30	47-137	0			S

MSD		Sample ID: 1707853-03A MSD				Units: mg/Kg		Analysis Date: 7/22/2017 09:23 AM		
Client ID:		Run ID: GC8_170721A				SeqNo: 4544331		Prep Date: 7/21/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	77.66	4.9	326.3	0	23.8	65-122	115	38.8	30	SR
ORO (C28-C40)	104.3	4.9	326.3	1.438	31.5	81-116	130.1	22	30	S
<i>Surr: 4-Terphenyl-d14</i>	0.8329	0	3.263	0	25.5	47-137	0.9989	18.1	30	S

The following samples were analyzed in this batch:

1707852-02A

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

Client: WPX Energy
 Work Order: 1707852
 Project: Torro 22-1 (Post Excavation)

QC BATCH REPORT

Batch ID: **104669** Instrument ID **GC9** Method: **SW8015D**

MBLK		Sample ID: MBLK-104669-104669				Units: µg/Kg-dry		Analysis Date: 7/21/2017 05:00 PM		
Client ID:		Run ID: GC9_170721B				SeqNo: 4544469		Prep Date: 7/19/2017		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	5025	0	5000	0	100	50-150	0			

LCS		Sample ID: LCS-104669-104669				Units: µg/Kg-dry		Analysis Date: 7/21/2017 04:07 PM		
Client ID:		Run ID: GC9_170721B				SeqNo: 4544468		Prep Date: 7/19/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	459900	2,500	500000	0	92	70-130	0			
Surr: Toluene-d8	5364	0	5000	0	107	50-150	0			

MS		Sample ID: 1707861-06A MS				Units: µg/Kg-dry		Analysis Date: 7/21/2017 05:26 PM		
Client ID:		Run ID: GC9_170721B				SeqNo: 4544470		Prep Date: 7/19/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	568600	3,000	590500	0	96.3	70-130	0			
Surr: Toluene-d8	6820	0	5905	0	115	50-150	0			

MSD		Sample ID: 1707861-06A MSD				Units: µg/Kg-dry		Analysis Date: 7/21/2017 05:52 PM		
Client ID:		Run ID: GC9_170721B				SeqNo: 4544471		Prep Date: 7/19/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	592800	3,000	590500	0	100	70-130	568600	4.15	30	
Surr: Toluene-d8	6777	0	5905	0	115	50-150	6820	0.634	30	

The following samples were analyzed in this batch:

1707852-01A	1707852-02A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: WPX Energy
 Work Order: 1707852
 Project: Torro 22-1 (Post Excavation)

QC BATCH REPORT

Batch ID: **104667** Instrument ID **VMS9** Method: **SW8260B**

MBLK		Sample ID: MBLK-104667-104667				Units: µg/Kg-dry		Analysis Date: 7/22/2017 07:29 PM		
Client ID:		Run ID: VMS9_170722A				SeqNo: 4545116		Prep Date: 7/19/2017		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	954	0	1000	0	95.4	70-130	0			
Surr: 4-Bromofluorobenzene	1008	0	1000	0	101	70-130	0			
Surr: Dibromofluoromethane	892.5	0	1000	0	89.2	70-130	0			
Surr: Toluene-d8	981	0	1000	0	98.1	70-130	0			

LCS		Sample ID: LCS-104667-104667				Units: µg/Kg-dry		Analysis Date: 7/22/2017 06:22 PM		
Client ID:		Run ID: VMS9_170722A				SeqNo: 4545115		Prep Date: 7/19/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1002	30	1000	0	100	75-125	0			
Ethylbenzene	997	30	1000	0	99.7	75-125	0			
m,p-Xylene	1974	60	2000	0	98.7	80-125	0			
o-Xylene	1040	30	1000	0	104	75-125	0			
Toluene	986.5	30	1000	0	98.6	70-125	0			
Xylenes, Total	3014	90	3000	0	100	75-125	0			
Surr: 1,2-Dichloroethane-d4	967	0	1000	0	96.7	70-130	0			
Surr: 4-Bromofluorobenzene	992	0	1000	0	99.2	70-130	0			
Surr: Dibromofluoromethane	1038	0	1000	0	104	70-130	0			
Surr: Toluene-d8	1002	0	1000	0	100	70-130	0			

MS		Sample ID: 1707861-06A MS				Units: µg/Kg-dry		Analysis Date: 7/23/2017 03:16 AM		
Client ID:		Run ID: VMS9_170722A				SeqNo: 4545135		Prep Date: 7/19/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1042	35	1181	0	88.2	75-125	0			
Ethylbenzene	1053	35	1181	0	89.2	75-125	0			
m,p-Xylene	2118	71	2362	0	89.7	80-125	0			
o-Xylene	1128	35	1181	0	95.5	75-125	0			
Toluene	1015	35	1181	0	85.9	70-125	0			
Xylenes, Total	3246	110	3543	0	91.6	75-125	0			
Surr: 1,2-Dichloroethane-d4	1112	0	1181	0	94.2	70-130	0			
Surr: 4-Bromofluorobenzene	1205	0	1181	0	102	70-130	0			
Surr: Dibromofluoromethane	1154	0	1181	0	97.8	70-130	0			
Surr: Toluene-d8	1138	0	1181	0	96.4	70-130	0			

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

Client: WPX Energy
Work Order: 1707852
Project: Torro 22-1 (Post Excavation)

QC BATCH REPORT

Batch ID: **104667** Instrument ID **VMS9** Method: **SW8260B**

MSD				Sample ID: 1707861-06A MSD				Units: µg/Kg-dry		Analysis Date: 7/23/2017 03:39 AM	
Client ID:			Run ID: VMS9_170722A			SeqNo: 4545136		Prep Date: 7/19/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1088	35	1181	0	92.1	75-125	1042	4.33	30		
Ethylbenzene	1083	35	1181	0	91.7	75-125	1053	2.76	30		
m,p-Xylene	2161	71	2362	0	91.5	80-125	2118	1.99	30		
o-Xylene	1120	35	1181	0	94.8	75-125	1128	0.736	30		
Toluene	1032	35	1181	0	87.4	70-125	1015	1.67	30		
Xylenes, Total	3280	110	3543	0	92.6	75-125	3246	1.05	30		
Surr: 1,2-Dichloroethane-d4	1132	0	1181	0	95.8	70-130	1112	1.79	30		
Surr: 4-Bromofluorobenzene	1202	0	1181	0	102	70-130	1205	0.294	30		
Surr: Dibromofluoromethane	1157	0	1181	0	98	70-130	1154	0.204	30		
Surr: Toluene-d8	1139	0	1181	0	96.4	70-130	1138	0.104	30		

The following samples were analyzed in this batch:

1707852-01A 1707852-02A

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

Client: WPX Energy
 Work Order: 1707852
 Project: Torro 22-1 (Post Excavation)

QC BATCH REPORT

Batch ID: **104728** Instrument ID **GALLERY** Method: **A4500-CI E-97**

MBLK		Sample ID: MBLK-104728-104728				Units: mg/Kg		Analysis Date: 7/20/2017 03:52 PM		
Client ID:		Run ID: GALLERY_170720A		SeqNo: 4541364		Prep Date: 7/20/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chloride ND 10

MS		Sample ID: 1707852-01A MS				Units: mg/Kg		Analysis Date: 7/20/2017 03:52 PM		
Client ID: Torro 22-1 (S1) 6" BGS-CS		Run ID: GALLERY_170720A		SeqNo: 4541366		Prep Date: 7/20/2017		DF: 4		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chloride 2823 40 501 2483 67.9 75-125 0 SO

MSD		Sample ID: 1707852-01A MSD				Units: mg/Kg		Analysis Date: 7/20/2017 03:52 PM		
Client ID: Torro 22-1 (S1) 6" BGS-CS		Run ID: GALLERY_170720A		SeqNo: 4541367		Prep Date: 7/20/2017		DF: 4		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chloride 2894 40 501 2483 82.1 75-125 2823 2.49 25 O

LCS1		Sample ID: LCS1-104728-104728				Units: mg/Kg		Analysis Date: 7/20/2017 03:52 PM		
Client ID:		Run ID: GALLERY_170720A		SeqNo: 4541387		Prep Date: 7/20/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chloride 107.8 10 100 0 108 80-120 0

LCS2		Sample ID: LCS2-104728-104728				Units: mg/Kg		Analysis Date: 7/20/2017 03:52 PM		
Client ID:		Run ID: GALLERY_170720A		SeqNo: 4541388		Prep Date: 7/20/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chloride 534.4 10 500 0 107 80-120 0

The following samples were analyzed in this batch:

1707852-01A 1707852-02A

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

Client: WPX Energy
 Work Order: 1707852
 Project: Torro 22-1 (Post Excavation)

QC BATCH REPORT

Batch ID: **R216142** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R216142				Units: % of sample		Analysis Date: 7/19/2017 02:55 PM		
Client ID:		Run ID: MOIST_170719B				SeqNo: 4539538		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-R216142				Units: % of sample		Analysis Date: 7/19/2017 02:55 PM		
Client ID:		Run ID: MOIST_170719B				SeqNo: 4539537		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 99.99 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 1707852-01A DUP				Units: % of sample		Analysis Date: 7/19/2017 02:55 PM		
Client ID: Torro 22-1 (S1) 6" BGS-CS		Run ID: MOIST_170719B				SeqNo: 4539529		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 13.15 0.050 0 0 0 0-0 13.16 0.076 5

DUP		Sample ID: 1707853-04A DUP				Units: % of sample		Analysis Date: 7/19/2017 02:55 PM		
Client ID:		Run ID: MOIST_170719B				SeqNo: 4539535		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 10.14 0.050 0 0 0 0-0 9.92 2.19 5

The following samples were analyzed in this batch:

1707852-01A 1707852-02A

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

Chain-of-Custody

Form 202r1

WORKORDER

1707852

PAGE

1 of 1

DISPOSAL

By Lab or Return to Client

[illegible]

*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: <i>502 2.8%</i> 	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	<i>Karolina Blaney</i>	Karolina Blaney	7/17/2017	18:00
RECEIVED BY	<i>[Signature]</i>	<i>Kevin Wizenant</i>	7/18/17	0930
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

Sample Receipt Checklist

Client Name: **WPX - NM**

Date/Time Received: **18-Jul-17 09:30**

Work Order: **1707852**

Received by: **KRW**

Checklist completed by Keith Wurenga
eSignature

18-Jul-17
Date

Reviewed by: Chad Whelton
eSignature

19-Jul-17
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):	<u>2.8/2.8 C</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>7/18/2017 1:33:05 PM</u>		
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:	<u>-</u>		

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction: