HOBBS OCD

DEC 1 4 2015

RECEIVED

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: Resolute Natural Resources Co, LLC	Contact: Patrick Flynn
Address: 1700 Lincoln Street Suite 2800, Denver, CO 80203	Telephone No. 303.534.4600 X1145
Facility Name: Shell Maxwell No. 1 Tank Battery	Facility Type: Tank Battery

Surface Owner	Mineral Owner	API No.: 30-025-05164

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	27	14S	37E					Lea

Latitude: 33.07354N **Longitude:** 103.18503W

NATURE OF RELEASE

Type of Release: Produced water	Volume of Release: 10 Bbl	Volume Recovered: 10 Bbl water
Source of Release: Corroded steel water line	Date and Hour of Occurrence:	Date and Hour of Discovery: 9.8.15 @ 3:27 PM
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
Corrosion of steel water line connected to SWD well caused pinhole leak. The well was shut in, the line repaired, and a vac truck used to collect the fluids. Fluids were contained by location berm.

REVIEWED
By Kellie Jones at 2:31 pm, Dec 14, 2015

Describe Area Affected and Cleanup Action Taken.*

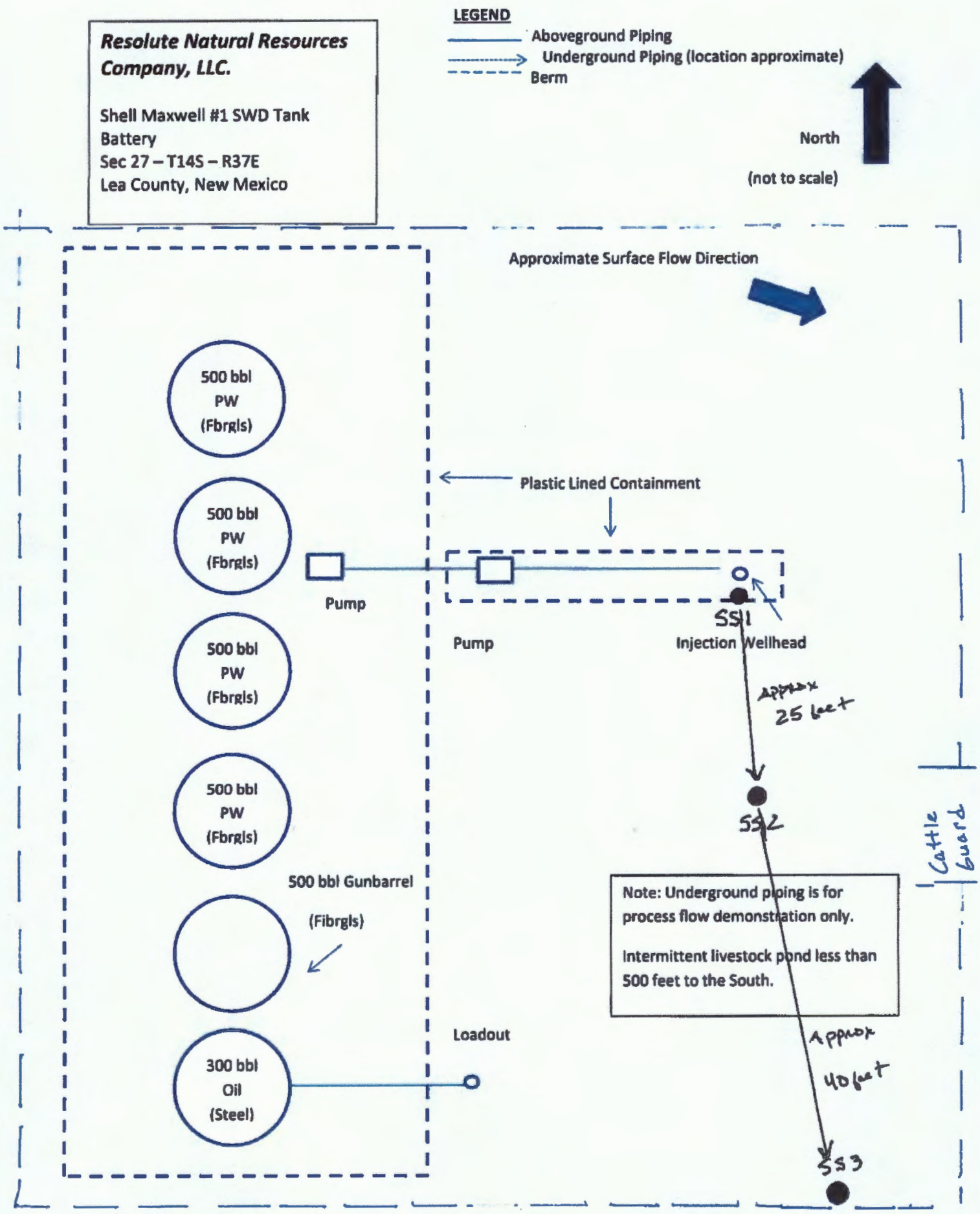
All released fluids were contained within the berm. A vacuum truck was used to recover most of the fluid released. The recovered water was taken to the Gandy Marley facility for disposal and oil was returned to the production tank. Approximately six cubic yards of affected pea gravel and soil was excavated for offsite disposal at the Gandy Marley landfarm. Confirmation soil samples were collected and the laboratory analysis and site plan are attached. Residual high chloride concentration remains at the well head and the area will be flushed with fresh water. No further action is planned.

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: Patrick Flynn	Approved by Environmental Specialist:	
Title: Vice President	Approval Date:	Expiration Date:
E-mail Address: pflynn@resoluteenergy.com	Conditions of Approval:	Attached ☐
Date: 12/9/15 Phone: 303.534.4600 X1145		

INFORMATION ONLY

* Attach Additional Sheets If Necessary


Resolute Natural Resources Company, LLC.
Shell Maxwell #1 SWD Tank Battery
Sec 27 – T14S – R37E
Lea County, New Mexico
LEGEND
Aboveground Piping
Underground Piping (location approximate)
Berm
North
(not to scale)
Approximate Surface Flow Direction
500 bbl PW (Fbrgls)
500 bbl PW (Fbrgls)
500 bbl PW (Fbrgls)
500 bbl PW (Fbrgls)
500 bbl Gunbarrel
(Fibrgls)
300 bbl Oil (Steel)
Plastic Lined Containment
Pump
Pump
SS1
Injection Wellhead
approx 25 feet
SS2
Cattle Guard
Note: Underground piping is for process flow demonstration only.
Intermittent livestock pond less than 500 feet to the South.
Loadout
approx 40 feet
SS3

Summary Report

James Allison
Resolute Energy
4000 N. Big Spring
#500
Midland, TX 79705

Report Date: November 19, 2015

Work Order: 15111817

Project Location: Lea Co, NM
Project Name: Shell Maxwell

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
408549	SS 1	soil	2015-11-17	13:15	2015-11-18
408550	SS 2	soil	2015-11-17	13:15	2015-11-18
408551	SS 3	soil	2015-11-17	13:15	2015-11-18

Sample: 408549 - SS 1

Param	Flag	Result	Units	RL
Chloride		**3250**	mg/Kg	50

Sample: 408550 - SS 2

Param	Flag	Result	Units	RL
Chloride		**957**	mg/Kg	50

Sample: 408551 - SS 3

Param	Flag	Result	Units	RL
Chloride		**287**	mg/Kg	50

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800-378-1296 806-794-1296 FAX 806-794-1298
200 East Sunset Road, Suite E El Paso, Texas 79922 915-585-3443 FAX 915-585-4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432-689-6301 FAX 432-689-6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972-242-7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

James Allison
Resolute Energy
4000 N. Big Spring
#500
Midland, TX, 79705

Report Date: November 19, 2015

Work Order: 15111817

Project Location: Lea Co, NM
Project Name: Shell Maxwell
Project Number: Shell Maxwell

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
408549	SS 1	soil	2015-11-17	13:15	2015-11-18
408550	SS 2	soil	2015-11-17	13:15	2015-11-18
408551	SS 3	soil	2015-11-17	13:15	2015-11-18

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TraceAnalysis, Inc. uses the attached chain of custody (COC) as the laboratory check-in documentation which includes sample receipt, temperature, sample preservation method and condition, collection date and time, testing requested, company, sampler, contacts and any special remarks.

This report consists of a total of 11 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director
James Taylor, Assistant Director
Brian Pellam, Operations Manager

Report Contents

Case Narrative

Samples for project Shell Maxwell were received by TraceAnalysis, Inc. on 2015-11-18 and assigned to work order 15111817. Samples for work order 15111817 were received intact at a temperature of 4.1 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (Titration)	SM 4500-Cl B	107013	2015-11-19 at 09:40	126453	2015-11-19 at 10:46

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 15111817 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 408549 - SS 1

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	126453	Date Analyzed:	2015-11-19	Analyzed By:	AM
Prep Batch:	107013	Sample Preparation:	2015-11-19	Prepared By:	AM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**3250**	mg/Kg	5	50.0

Sample: 408550 - SS 2

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	126453	Date Analyzed:	2015-11-19	Analyzed By:	AM
Prep Batch:	107013	Sample Preparation:	2015-11-19	Prepared By:	AM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**957**	mg/Kg	5	50.0

Sample: 408551 - SS 3

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	126453	Date Analyzed:	2015-11-19	Analyzed By:	AM
Prep Batch:	107013	Sample Preparation:	2015-11-19	Prepared By:	AM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**287**	mg/Kg	5	50.0

Method Blanks

Method Blank (1) QC Batch: 126453

QC Batch:	126453	Date Analyzed:	2015-11-19	Analyzed By:	AM
Prep Batch:	107013	QC Preparation:	2015-11-19	Prepared By:	AM

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<31.9	mg/Kg	50

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 126453
Prep Batch: 107013

Date Analyzed: 2015-11-19
QC Preparation: 2015-11-19

Analyzed By: AM
Prepared By: AM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2490	mg/Kg	5	2500	<160	100	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2200	mg/Kg	5	2500	<160	88	85 - 115	12	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 408580

QC Batch: 126453
Prep Batch: 107013

Date Analyzed: 2015-11-19
QC Preparation: 2015-11-19

Analyzed By: AM
Prepared By: AM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			59400	mg/Kg	5	2500	57300	84	78.9 - 121

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			59300	mg/Kg	5	2500	57300	80	78.9 - 121	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Calibration Standards

Standard (ICV-1)

QC Batch: 126453 Date Analyzed: 2015-11-19 Analyzed By: AM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2015-11-19

Standard (CCV-1)

QC Batch: 126453 Date Analyzed: 2015-11-19 Analyzed By: AM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2015-11-19

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

LAB Order ID # 511817

Page _____ of _____

TraceAnalysis, Inc.

email: lab@traceanalysis.com

6701 Aberdeen Avenue, Suite 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

5002 Basin Street, Suite A1
Midland, Texas 79703
Tel (432) 689-6301
Fax (432) 689-6313

200 East Sunset Rd., Suite E
El Paso, Texas 79922
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

BioAquatic Testing
2501 Mayes Rd., Ste 100
Carrollton, Texas 75006
Tel (972) 242-7750

Brandon & Clark
3403 Industrial Blvd.
Hobbs, NM 88240
Tel (575) 392-7561
Fax (575) 392-4508

Company Name: Resolute **Phone #:** 432-813-8069

Address: (Street, City, Zip) 4000 N Big Spring #500 Midland **Fax #:**

Contact Person: Jay Allison **E-mail:** jallison@resoluteenergy.com

Invoice to:
(If different from above)

Project #: Shell Maxwell **Project Name:**

Project Location (including state): Lea Co. NM **Sampler Signature:**

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
408549	SS 1	1			✓							✓		11/17	13:15
408550	SS 2	1			✓							✓		"	"
408551	SS 3	1			✓							✓		"	"

MTBE 8021 / 602 / 8260 / 624	BTEX 8021 / 602 / 8260 / 624	TPH 418.1 / TX1005 / TX1005 Ext(C35)	TPH 8015 GRO / DRO / TVHC	PAH 8270 / 625	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260 / 624	GC/MS Semi. Vol. 8270 / 625	PCB's 8082 / 608	Pesticides 8081 / 608	BOD, TSS, pH	Moisture Content	Cl, F, SO_4, NO_3-N, NO_2-N, PO_4-P, Alkalinity	Na, Ca, Mg, K, TDS, EC							Turn Around Time if different from standard	Hold
																	✓	✓								
																	✓	✓								
																	✓	✓								

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
	Resolute	11/18	~~09:45~~		TA	11-18-15	9:45	INST 3.9 °C OBS 4.1 °C COR 4.0 °C
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST ____ °C OBS ____ °C COR ____ °C
			09:45					
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST ____ °C OBS ____ °C COR ____ °C

LAB USE ONLY
Intact Y / N
Headspace Y / N / NA
Log-in-Review

REMARKS:

- ☐ Dry Weight Basis Required
- ☐ TRRP Report Required
- ☐ Check If Special Reporting Limits Are Needed

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C. O. C.

Carrier # carry in

Summary Report

James Allison
Resolute Energy
4000 N. Big Spring
#500
Midland, TX 79705

Report Date: October 5, 2015

Work Order: 15093033

Project Location: Lea Co, NM
Project Name: Shell Maxwell

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
405536	SS-1	soil	2015-09-30	13:35	2015-09-30
405537	SS-2	soil	2015-09-30	13:35	2015-09-30
405538	SS-3	soil	2015-09-30	13:35	2015-09-30

	BTEX				TX1005 Extended	
Sample - Field Code	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	C6-C12 (mg/Kg)	>C12-C35 (mg/Kg)
405536 - SS-1	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<50.0
405537 - SS-2	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<50.0
405538 - SS-3	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<50.0

Sample: 405536 - SS-1

Param	Flag	Result	Units	RL
Chloride		**3220**	mg/Kg	4

Sample: 405537 - SS-2

Param	Flag	Result	Units	RL
Chloride		**23700**	mg/Kg	4

Sample: 405538 - SS-3

continued ...

sample 405538 continued ...

Param	Flag	Result	Units	RL
Chloride		**4200**	mg/Kg	4

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800-378-1296 806-794-1296 FAX 806-794-1298
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5002 Basin Street, Suite A1 Midland, Texas 79703 432-689-6301 FAX 432-689-6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972-242-7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

James Allison
Resolute Energy
4000 N. Big Spring
#500
Midland, TX, 79705

Report Date: October 5, 2015

Work Order: 15093033

Project Location: Lea Co, NM
Project Name: Shell Maxwell
Project Number: Shell Maxwell

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
405536	SS-1	soil	2015-09-30	13:35	2015-09-30
405537	SS-2	soil	2015-09-30	13:35	2015-09-30
405538	SS-3	soil	2015-09-30	13:35	2015-09-30

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TraceAnalysis, Inc. uses the attached chain of custody (COC) as the laboratory check-in documentation which includes sample receipt, temperature, sample preservation method and condition, collection date and time, testing requested, company, sampler, contacts and any special remarks.

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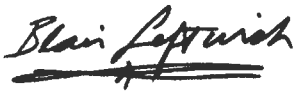

Dr. Blair Leftwich, Director
James Taylor, Assistant Director
Brian Pellam, Operations Manager

Report Contents

Case Narrative

Samples for project Shell Maxwell were received by TraceAnalysis, Inc. on 2015-09-30 and assigned to work order 15093033. Samples for work order 15093033 were received intact at a temperature of 6.3 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	105983	2015-10-02 at 07:03	125316	2015-10-05 at 08:56
Chloride (Titration)	SM 4500-Cl B	106013	2015-10-05 at 11:35	125322	2015-10-05 at 09:10
TX1005 Extended	TX1005	105946	2015-09-30 at 14:47	125260	2015-10-01 at 09:36

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 15093033 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 405536 - SS-1

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	125316	Date Analyzed:	2015-10-05	Analyzed By:	AK
Prep Batch:	105983	Sample Preparation:	2015-10-02	Prepared By:	AK

Parameter	Flag	Cert	Result	RL Result	Units	Dilution	RL
Benzene	U	5	<0.0200		mg/Kg	1	0.0200
Toluene	U	5	<0.0200		mg/Kg	1	0.0200
Ethylbenzene	U	5	<0.0200		mg/Kg	1	0.0200
Xylene	U	5	<0.0200		mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.90	mg/Kg	1	2.00	95	70 - 130
4-Bromofluorobenzene (4-BFB)			1.93	mg/Kg	1	2.00	96	70 - 130

Sample: 405536 - SS-1

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	125322	Date Analyzed:	2015-10-05	Analyzed By:	AM
Prep Batch:	106013	Sample Preparation:	2015-10-05	Prepared By:	AM

Parameter	Flag	Cert	Result	RL Result	Units	Dilution	RL
Chloride			**3220**		mg/Kg	5	4.00

Sample: 405536 - SS-1

Laboratory:	Midland				
Analysis:	TX1005 Extended	Analytical Method:	TX1005	Prep Method:	N/A
QC Batch:	125260	Date Analyzed:	2015-10-01	Analyzed By:	AK
Prep Batch:	105946	Sample Preparation:	2015-09-30	Prepared By:	AK

Parameter	Flag	Cert	Result	RL Result	Units	Dilution	RL
C6-C12	U	5	<50.0		mg/Kg	1	50.0

continued ...

sample 405536 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
>C12-C35	U	5	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			61.9	mg/Kg	1	50.0	124	70 - 130
n-Octane	Qsr	Qsr	70.7	mg/Kg	1	50.0	141	70 - 130
n-Tricosane			63.1	mg/Kg	1	50.0	126	70 - 130

Sample: 405537 - SS-2

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	125316	Date Analyzed:	2015-10-05	Analyzed By:	AK
Prep Batch:	105983	Sample Preparation:	2015-10-02	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	5	<0.0200	mg/Kg	1	0.0200
Toluene	U	5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	5	<0.0200	mg/Kg	1	0.0200
Xylene	U	5	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.74	mg/Kg	1	2.00	87	70 - 130
4-Bromofluorobenzene (4-BFB)			1.70	mg/Kg	1	2.00	85	70 - 130

Sample: 405537 - SS-2

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	125322	Date Analyzed:	2015-10-05	Analyzed By:	AM
Prep Batch:	106013	Sample Preparation:	2015-10-05	Prepared By:	AM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**23700**	mg/Kg	5	4.00

Sample: 405537 - SS-2

Laboratory:	Midland				
Analysis:	TX1005 Extended	Analytical Method:	TX1005	Prep Method:	N/A
QC Batch:	125260	Date Analyzed:	2015-10-01	Analyzed By:	AK
Prep Batch:	105946	Sample Preparation:	2015-09-30	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	U	5	<50.0	mg/Kg	1	50.0
>C12-C35		5	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			62.8	mg/Kg	1	50.0	126	70 - 130
n-Octane	Qsr	Qsr	70.7	mg/Kg	1	50.0	141	70 - 130
n-Tricosane			61.0	mg/Kg	1	50.0	122	70 - 130

Sample: 405538 - SS-3

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	125316	Date Analyzed:	2015-10-05	Analyzed By:	AK
Prep Batch:	105983	Sample Preparation:	2015-10-02	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	5	<0.0200	mg/Kg	1	0.0200
Toluene	U	5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	5	<0.0200	mg/Kg	1	0.0200
Xylene	U	5	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.04	mg/Kg	1	2.00	102	70 - 130
4-Bromofluorobenzene (4-BFB)			1.91	mg/Kg	1	2.00	96	70 - 130

Sample: 405538 - SS-3

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	125322	Date Analyzed:	2015-10-05	Analyzed By:	AM
Prep Batch:	106013	Sample Preparation:	2015-10-05	Prepared By:	AM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4200**	mg/Kg	5	4.00

Sample: 405538 - SS-3

Laboratory:	Midland				
Analysis:	TX1005 Extended	Analytical Method:	TX1005	Prep Method:	N/A
QC Batch:	125260	Date Analyzed:	2015-10-01	Analyzed By:	AK
Prep Batch:	105946	Sample Preparation:	2015-09-30	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
C6-C12	U	5	<50.0	mg/Kg	1	50.0
>C12-C35	U	5	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			59.4	mg/Kg	1	50.0	119	70 - 130
n-Octane	QSR	QSR	72.0	mg/Kg	1	50.0	144	70 - 130
n-Tricosane			59.0	mg/Kg	1	50.0	118	70 - 130

Method Blanks

Method Blank (1) QC Batch: 125260

QC Batch:	125260	Date Analyzed:	2015-10-01	Analyzed By:	AK
Prep Batch:	105946	QC Preparation:	2015-09-30	Prepared By:	AK

Parameter	Flag	Cert	MDL Result	Units	RL
C6-C12		5	<5.66	mg/Kg	50
>C12-C35		5	<7.50	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			52.7	mg/Kg	1	50.0	105	70 - 130
n-Octane			62.4	mg/Kg	1	50.0	125	70 - 130
n-Tricosane			53.4	mg/Kg	1	50.0	107	70 - 130

Method Blank (1) QC Batch: 125316

QC Batch:	125316	Date Analyzed:	2015-10-05	Analyzed By:	AK
Prep Batch:	105983	QC Preparation:	2015-10-02	Prepared By:	AK

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		5	<0.00533	mg/Kg	0.02
Toluene		5	<0.00645	mg/Kg	0.02
Ethylbenzene		5	<0.0116	mg/Kg	0.02
Xylene		5	<0.00874	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.95	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			1.83	mg/Kg	1	2.00	92	70 - 130

Method Blank (1) QC Batch: 125322

QC Batch:	125322	Date Analyzed:	2015-10-05	Analyzed By:	AM
Prep Batch:	106013	QC Preparation:	2015-10-05	Prepared By:	AM

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 125260 | Date Analyzed: 2015-10-01 | Analyzed By: AK
Prep Batch: 105946 | QC Preparation: 2015-09-30 | Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
C6-C12		5	243	mg/Kg	1	250	<5.66	97	75 - 125
>C12-C35		5	256	mg/Kg	1	250	<7.50	102	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
C6-C12		5	277	mg/Kg	1	250	<5.66	111	75 - 125	13	20
>C12-C35		5	242	mg/Kg	1	250	<7.50	97	75 - 125	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Triacontane	57.2	50.7	mg/Kg	1	50.0	114	101	70 - 130
n-Octane	46.4	45.7	mg/Kg	1	50.0	93	91	70 - 130
n-Tricosane	60.2	56.6	mg/Kg	1	50.0	120	113	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 125316 | Date Analyzed: 2015-10-05 | Analyzed By: AK
Prep Batch: 105983 | QC Preparation: 2015-10-02 | Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		5	2.39	mg/Kg	1	2.00	<0.00533	120	70 - 130
Toluene		5	2.04	mg/Kg	1	2.00	<0.00645	102	70 - 130
Ethylbenzene		5	1.84	mg/Kg	1	2.00	<0.0116	92	70 - 130
Xylene		5	5.52	mg/Kg	1	6.00	<0.00874	92	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

continued ...

control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		5	2.37	mg/Kg	1	2.00	<0.00533	118	70 - 130	1	20
Toluene		5	2.03	mg/Kg	1	2.00	<0.00645	102	70 - 130	0	20
Ethylbenzene		5	1.89	mg/Kg	1	2.00	<0.0116	94	70 - 130	3	20
Xylene		5	5.57	mg/Kg	1	6.00	<0.00874	93	70 - 130	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.96	1.90	mg/Kg	1	2.00	98	95	70 - 130
4-Bromofluorobenzene (4-BFB)	1.93	1.98	mg/Kg	1	2.00	96	99	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 125322
Prep Batch: 106013

Date Analyzed: 2015-10-05
QC Preparation: 2015-10-05

Analyzed By: AM
Prepared By: AM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2730	mg/Kg	5	2500	<19.2	109	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2630	mg/Kg	5	2500	<19.2	105	85 - 115	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

Matrix Spike (xMS-1) Spiked Sample:

QC Batch: 125260 | Date Analyzed: 2015-10-01 | Analyzed By: AK
Prep Batch: 105946 | QC Preparation: 2015-09-30 | Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
C6-C12		5	293	mg/Kg	1	250	<5.66	117	75 - 125
>C12-C35		5	252	mg/Kg	1	250	<7.50	101	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
C6-C12	Qs	5	335	mg/Kg	1	250	<5.66	134	75 - 125	13	20
>C12-C35		5	258	mg/Kg	1	250	<7.50	103	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Triacontane	52.6	55.7	mg/Kg	1	50	105	111	70 - 130
n-Octane	44.5	45.6	mg/Kg	1	50	89	91	70 - 130
n-Tricosane	55.4	59.8	mg/Kg	1	50	111	120	70 - 130

Matrix Spike (MS-1) Spiked Sample: 405449

QC Batch: 125316 | Date Analyzed: 2015-10-05 | Analyzed By: AK
Prep Batch: 105983 | QC Preparation: 2015-10-02 | Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		5	1.82	mg/Kg	1	2.00	<0.00533	91	70 - 130
Toluene		5	1.72	mg/Kg	1	2.00	<0.00645	86	70 - 130
Ethylbenzene		5	1.74	mg/Kg	1	2.00	<0.0116	87	70 - 130
Xylene		5	5.08	mg/Kg	1	6.00	<0.00874	85	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

continued ...

matrix spikes continued ...

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		5	1.89	mg/Kg	1	2.00	<0.00533	94	70 - 130	4	20
Toluene		5	1.84	mg/Kg	1	2.00	<0.00645	92	70 - 130	7	20
Ethylbenzene		5	1.79	mg/Kg	1	2.00	<0.0116	90	70 - 130	3	20
Xylene		5	5.43	mg/Kg	1	6.00	<0.00874	90	70 - 130	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.81	1.76	mg/Kg	1	2	90	88	70 - 130
4-Bromofluorobenzene (4-BFB)	1.98	1.86	mg/Kg	1	2	99	93	70 - 130

Matrix Spike (MS-1) Spiked Sample: 405607

QC Batch: 125322 | Date Analyzed: 2015-10-05 | Analyzed By: AM
Prep Batch: 106013 | QC Preparation: 2015-10-05 | Prepared By: AM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3320	mg/Kg	5	2500	683	105	78.9 - 121

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			3420	mg/Kg	5	2500	683	109	78.9 - 121	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Calibration Standards

Standard (CCV-2)

QC Batch: 125260 Date Analyzed: 2015-10-01 Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
C6-C12		5	mg/Kg	250	285	114	75 - 125	2015-10-01
>C12-C35		5	mg/Kg	250	234	94	75 - 125	2015-10-01

Standard (CCV-3)

QC Batch: 125260 Date Analyzed: 2015-10-01 Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
C6-C12		5	mg/Kg	250	298	119	75 - 125	2015-10-01
>C12-C35		5	mg/Kg	250	244	98	75 - 125	2015-10-01

Standard (CCV-2)

QC Batch: 125316 Date Analyzed: 2015-10-05 Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		5	mg/kg	0.100	0.114	114	80 - 120	2015-10-05
Toluene		5	mg/kg	0.100	0.0975	98	80 - 120	2015-10-05
Ethylbenzene		5	mg/kg	0.100	0.0919	92	80 - 120	2015-10-05
Xylene		5	mg/kg	0.300	0.267	89	80 - 120	2015-10-05

Standard (CCV-3)

QC Batch: 125316 Date Analyzed: 2015-10-05 Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		5	mg/kg	0.100	0.114	114	80 - 120	2015-10-05
Toluene		5	mg/kg	0.100	0.0988	99	80 - 120	2015-10-05
Ethylbenzene		5	mg/kg	0.100	0.0904	90	80 - 120	2015-10-05
Xylene		5	mg/kg	0.300	0.266	89	80 - 120	2015-10-05

Standard (ICV-1)

QC Batch: 125322 Date Analyzed: 2015-10-05 Analyzed By: AM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	98.0	98	85 - 115	2015-10-05

Standard (CCV-1)

QC Batch: 125322 Date Analyzed: 2015-10-05 Analyzed By: AM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	102	102	85 - 115	2015-10-05

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	L-A-B	L2418	Lubbock
2	Kansas	Kansas E-10317	Lubbock
3	LELAP	LELAP-02003	Lubbock
4	NELAP	T104704219-15-11	Lubbock
5	NELAP	T104704392-14-8	Midland
6		2014-018	Lubbock

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.

F	Description
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

LAB Order ID # 15093033

Page _____ of _____

TraceAnalysis, Inc.

email: lab@traceanalysis.com

6701 Aberdeen Avenue, Suite 9
Lubbock, Texas 79424
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Fax (806) 794-1298
1 (800) 378-1296

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Fax (432) 689-6313

200 East Sunset Rd., Suite E
El Paso, Texas 79922
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

BioAquatic Testing
2501 Mayes Rd., Ste 100
Carrollton, Texas 75006
Tel (972) 242-7750

Brandon & Clark
3403 Industrial Blvd.
Hobbs, NM 88240
Tel (575) 392-7561
Fax (575) 392-4508

Company Name: Resolute Energy
Phone #: 432-813-8069
Address: (Street, City, Zip) 4000 N Big Spring
Fax #:
Contact Person: Jay Allison
E-mail: jallison@resoluteenergy.com
Invoice to: (If different from above)
Project #:
Project Name: Shell Maxwell
Project Location (including state): Lea County, NM
Sampler Signature:

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX: WATER	MATRIX: SOIL	MATRIX: AIR	MATRIX: SLUDGE	PRESERVATIVE METHOD: HCl	PRESERVATIVE METHOD: HNO_3	PRESERVATIVE METHOD: H_2SO_4	PRESERVATIVE METHOD: NaOH	PRESERVATIVE METHOD: ICE	PRESERVATIVE METHOD: NONE	SAMPLING: DATE	SAMPLING: TIME	MTBE 8021 / 602 / 8260 / 624	BTEX 8021 / 602 / 8260 / 624	TPH 418.1 / TX1005 / TX1005 Ext(C35)	TPH 8015 GRO / DRO / TVHC	PAH 8270 / 625	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260 / 624	GC/MS Semi. Vol. 8270 / 625	PCB's 8082 / 608	Pesticides 8081 / 608	BOD, TSS, pH	Moisture Content	Cl, F, SO_4, NO_3-N, NO_2-N, PO_4-P, Alkalinity	Na, Ca, Mg, K, TDS, EC							Turn Around Time if different from standard	Hold
405536	SS-1				✓							✓		9/30	13:35		✓		✓													✓	✓								
405537	SS-2				✓							✓		9/30	13:35		✓															✓									
405538	SS-3				✓							✓		9/30	13:35		✓															✓									

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
	Resolute	9/30/15	15:35	Nancy	TA	9-30-15	15:35	INST 1.2 °C OBS 6.3 °C COR 6.2 °C
								INST ____ °C OBS ____ °C COR ____ °C
								INST ____ °C OBS ____ °C COR ____ °C

LAB USE ONLY

Intact Y / N

Headspace Y / N / NA

Log-in-Review

REMARKS:

- ☐ Dry Weight Basis Required
- ☐ TRRP Report Required
- ☐ Check If Special Reporting Limits Are Needed

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C. O. C.

Carrier # Courier

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