Resolute

Patrick E. Flynn
Vice President, Governmental Affairs
303.534.4600 x 1145
pflynn@resoluteenergy.com

February 5, 2016

RECEIVED
By JKeyes at 2:21 pm, Feb 08, 2016

APPROVED
By JKeyes at 2:21 pm, Feb 08, 2016

Ms. Kellie Jones
Environmental Specialist
New Mexico Oil Conservation Division
1625 N. French Drive
Hobbs, New Mexico 88240

Re: Report of Site Assessment, Remedial Activities, and Closure Request
Shell Maxwell No.1 SWD Produced Water Release
Lea County, New Mexico

Dear Ms. Jones,

On September 8, 2015, Resolute Natural Resources Company, LLC (Resolute) experienced a release of 10-Bbl of produced water from the injection manifold at the Shell Maxwell No. 1 SWD tank battery in the Denton Field of Lea County, New Mexico. The cause of the release was corrosion of the steel manifold. This letter describes the spill response activities undertaken by Resolute, including excavation of affected soil and laboratory analysis of confirmation soil samples, as well as information concerning the depth to ground water and a request for closure.

Initial Spill Response

Upon discovering the release, the field operator shut in the field and isolated the corroded section of injection manifold, which was subsequently replaced. The released fluid was contained to the tank battery location by an earthen berm surrounding the facility. Materially all of the fluid was recovered using a vacuum truck and transported to the Gandy Marley, Inc. facility for disposal.

Soil Excavation

A total of 34 cubic yards of chloride-affected soil were removed from the tank battery pad during three excavation events and taken to Gandy Marley, Inc. for disposal. On September 30, 2015, the upper three inches (in) of soil were excavated from the area impacted by the spill as depicted on the site plan contained as Figure 1. Analytical results discussed below and field screening for chlorides in soil directed two further rounds of soil removal. On November 17, 2015,

an additional three-in of soil were removed from the spill path south of the injection manifold. On January 27, 2016, soil was removed to a depth of three feet (ft) from a 12-ft by 12-ft area surrounding the manifold itself and along the lease road access to the tank battery. A hard packed caliche layer present at three-ft below the ground surface (bgs) inhibited deeper excavation and also likely served as a barrier to downward migration of the produced water released (Figures 2 through 5).

Soil Analytical Results

Soil samples were collected for laboratory analysis at three points: 1) immediately adjacent to the source of the release at the injection manifold (SS-1); 2) approximately 25-ft south of the manifold, within the lease road entering the tank battery location (SS-2), and; 3) approximately 65-ft south of the manifold where the spill terminated along the southeast corner of the location berm (SS-3). The soil samples were submitted to TraceAnalysis, Inc. in Lubbock, Texas for analysis of benzene, toluene, ethylbenzene, xylenes (BTEX), total petroleum hydrocarbons (TPH), and chlorides. Analytical results following the first round of soil removal indicated BTEX and TPH were not present in any of the three samples collected. Chloride concentrations ranged from 3,220 milligrams per kilogram (mg/Kg) in SS-1 to 23,700 mg/Kg in SS-2. Chlorides were present at a concentration of 4,200 mg/Kg where the spill terminated inside the southeast corner of the location berm.

Soil samples collected following the November 17, 2015 excavation were analyzed for chlorides only. Chlorides in SS-2 were reduced from 23,700 mg/Kg to 957 mg/Kg; Chlorides in SS-3 were reduced from 4,200 mg/Kg to 287 mg/Kg. Following the third round of excavation around the injection manifold on January 27, 2016, laboratory analysis of SS-1 detected chloride at a concentration of 379 mg/Kg, down from over 3,200 mg/Kg detected in the first two rounds of sampling. Soil analytical and field test result are summarized in Table 1. Laboratory analytical reports and chain of custody forms are included as Attachment 1.

Depth to Ground Water

Resolute reviewed New Mexico Office of the State Engineer records for all water wells located within Section 27, Township 14S-Range 37E to determine the depth to ground water in the vicinity of the release. The records reviewed were associated with water wells drilled as early as 1951 and as recently as 2007. Wells drilled between 1951 and 1971 reported the depth to ground water as averaging approximately 55-ft bgs. However, the depth to water in wells drilled since the 1990's has exceeded 100-ft bgs in all but one case and averages approximately 103-ft bgs. Depth to ground water in the most recent well drilled in 2007 was measured to be 111-ft bgs. A plot of depth to ground water versus the year each water well was drilled depicts a steady decline in the ground water elevation, suggesting ground water withdrawal since the 1950's has lowered the water table significantly (Figure 6). State Engineer Point of Diversion Summaries for each water well present in Section 27 are contained in Attachment 2.

Resolute

Request for Closure

Previously you suggested Resolute determine the depth of a soil chloride limit of 250 mg/Kg. Field chloride tests and laboratory analytical results have determined chlorides are present at concentrations ranging from 287 mg/Kg to 379 mg/Kg at a depth one-half to three-ft, below which exists a hard soil and rock layer resistant to infiltration and excavation. Based on: a) the low residual chloride concentration at all three soil sample locations analyzed; b) the presence of the hard caliche layer at 3-ft bgs which limits downward migration of water; c) the depth to ground water in excess of 100-ft bgs; d) the relatively small volume of produced water released, and; e) the absence of hydrocarbons in soil analyzed, Resolute respectfully requests NMOCD grant closure for this site with no further action required. An updated NMOCD Form C-141 is included as Attachment 3.

Thank you for your time and consideration. Please call me with any questions or comments considering our assessment and remedial activities and this closure request.

Sincerely,

RESOLUTE NATURAL RESOURCES COMPANY, LLC

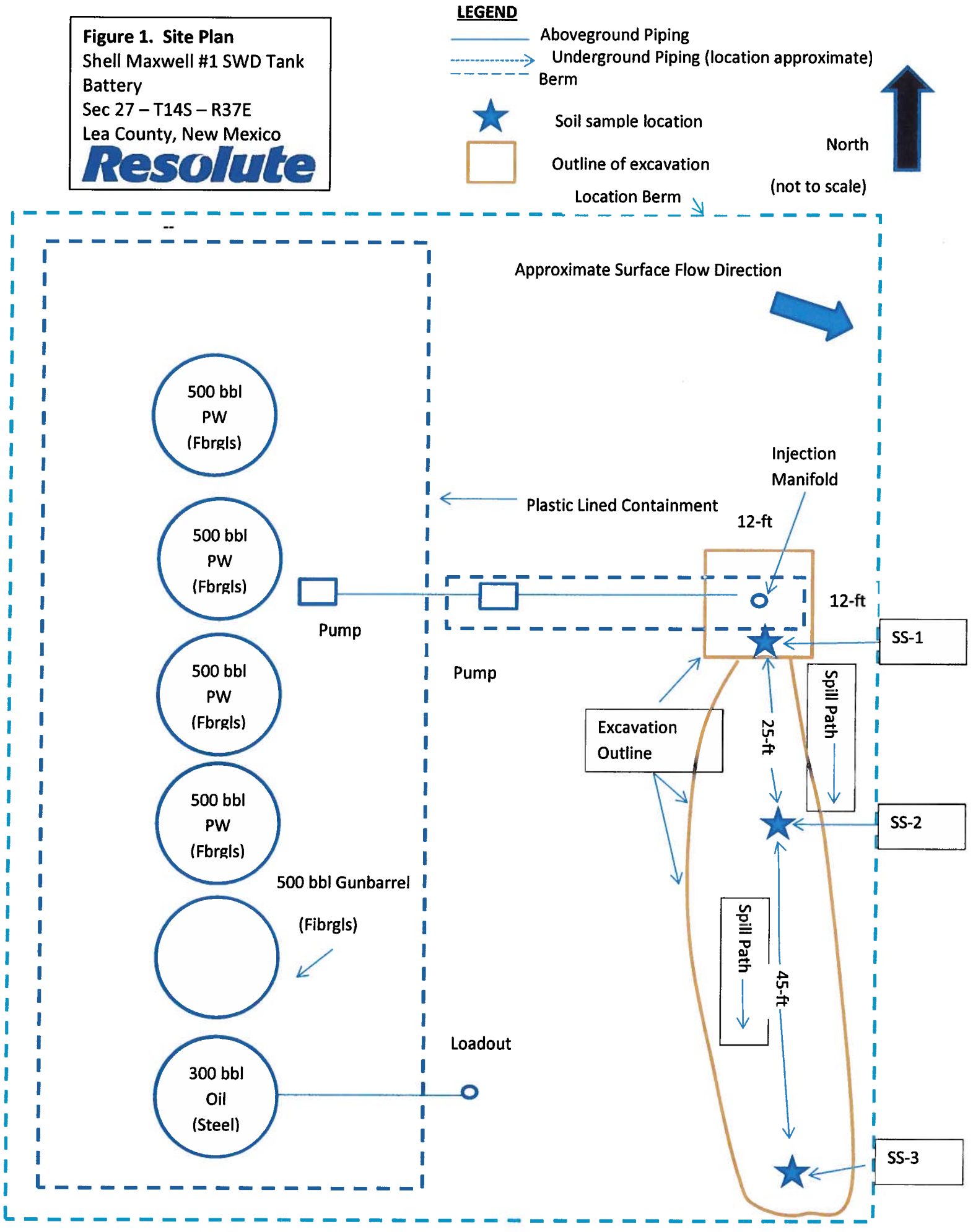
Patrick E. Flynn
Vice President, Governmental Affairs

Attachments

Resolute Natural Resources Company, LLC
1700 Lincoln Street, Suite 2800, Denver, CO 80203
Voice: 303.534.4600 Fax: 303.623.3628

Figure 1. Site Plan
Shell Maxwell #1 SWD Tank Battery
Sec 27 – T14S – R37E
Lea County, New Mexico

Resolute



Resolute

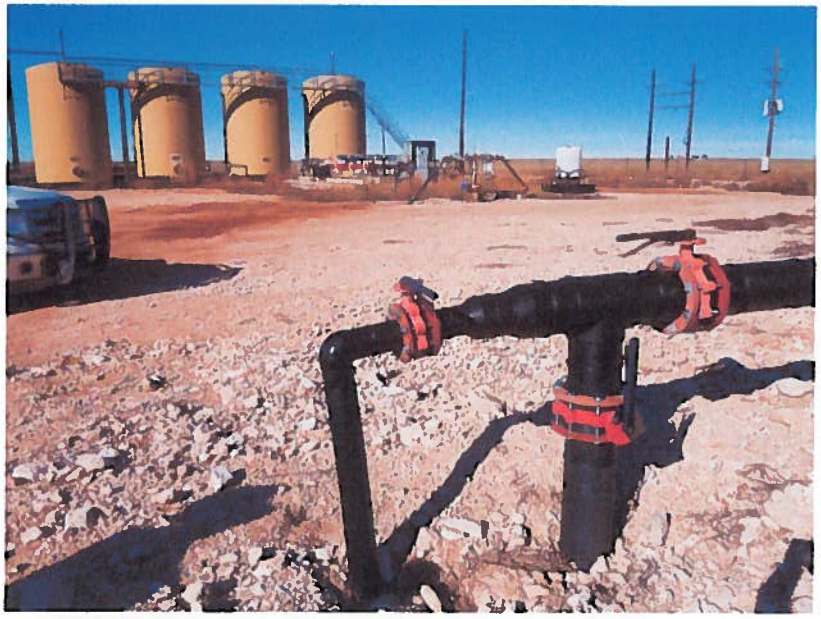


Figure 2. View of new injection header that replaced corroded pipe which was the source of the produced water spill. Soil sample SS-1 was collected near the base of the header.

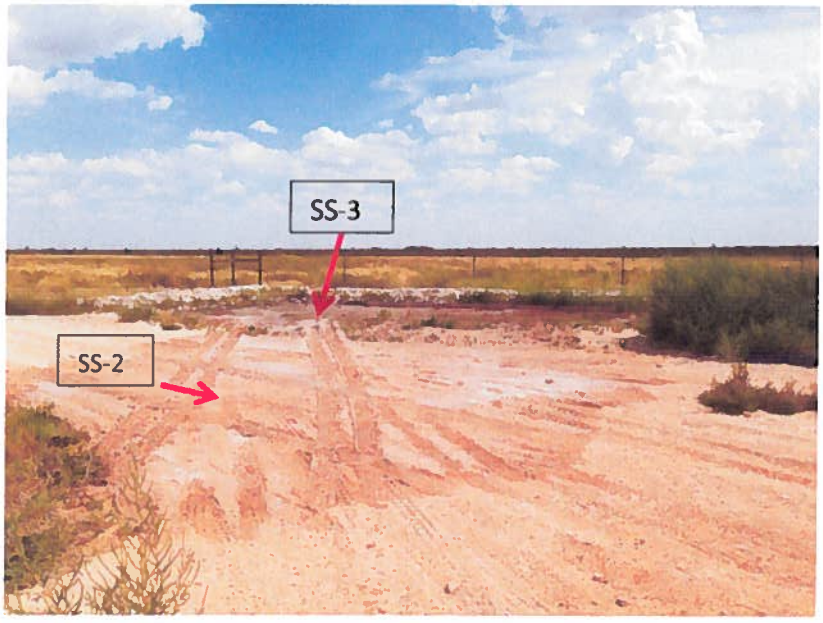


Figure 3. View looking south from the injection header along the spill's path showing the extent of produced water on the ground surface and soil sample locations SS-2 and SS-3.

Resolute Natural Resources Company, LLC
1700 Lincoln Street, Suite 2800, Denver, CO 80203
Voice: 303.534.4600 Fax: 303.623.3628

Figure 4. View of excavation at the base of the injection header.

Figure 5. View looking down on hard-packed caliche layer that underlies the tank battery location at a depth of approximately three-feet below the ground surface.

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1700 Lincoln Street, Suite 2800, Denver, CO 80203
Voice: 303.534.4600 Fax: 303.623.3628

Figure 6

Year Drilled	Depth to Water (Ft-bgs)
1951	-50
1952	-50
1953	-45
1953	-50
1953	-60
1954	-40
1954	-70
1965	-62
1971	-72
1994	-102
1995	-107
1998	-105
1999	-70
2001	-104
2004	-112
2006	-115
2007	-111

Depth to Ground Water from State Engineer Water Well Records
Sec 27-T14S-R37E
(1951 to 2007)

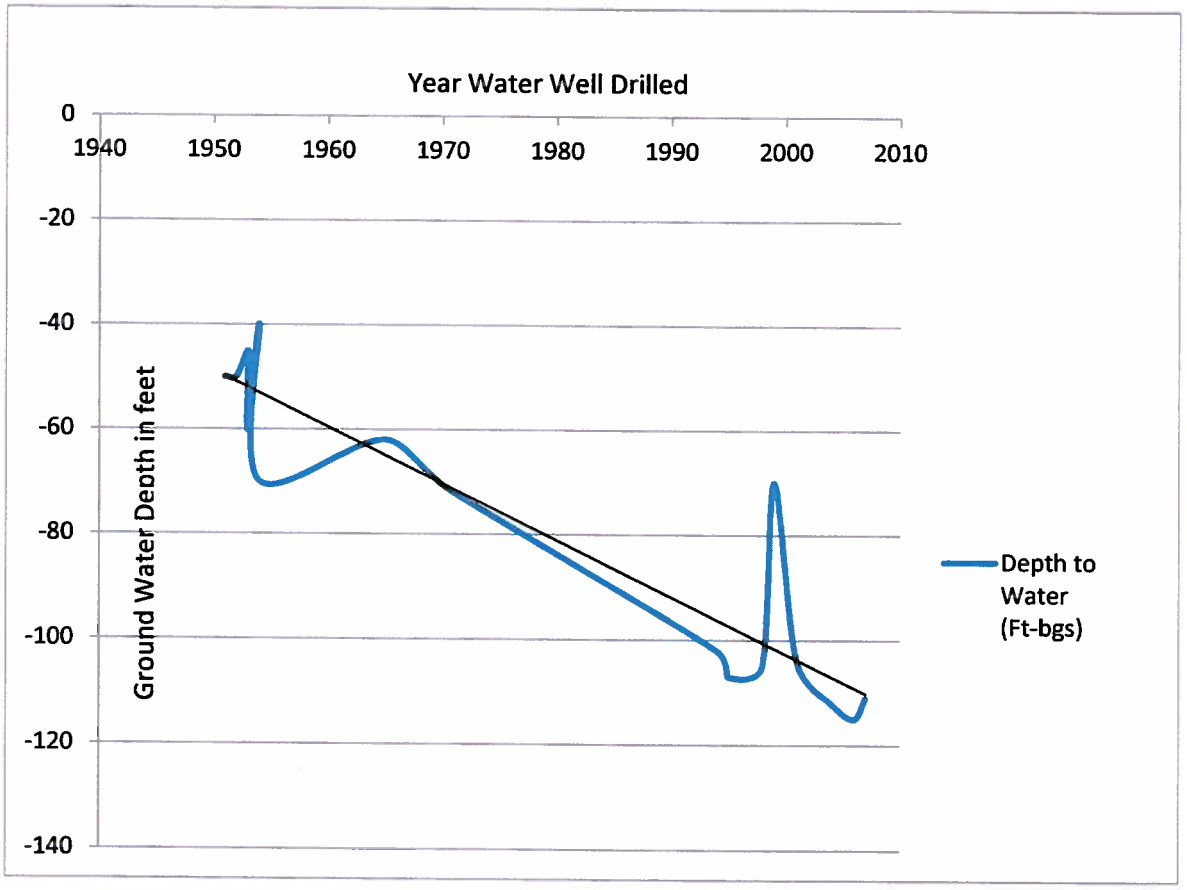

Table 1

Shell Maxwell No. 1 Tank Battery (Denton Field) - September 8, 2015 Spill

Soil Analytical and Field Test[1] Results

Date Sampled	Sample No.	Depth (ft)	Chloride Field Test (mg/L)	mg/Kg							Notes
				Benzene	Toluene	E-Benzene	Xylenes	TPHG	TPHD	Chlorides	
9.30.15	SS-1	0.25	NA	ND	ND	ND	ND	ND	ND	3220	Adjacent to injection manifold - source of release
9.30.15	SS-2	0.25	NA	ND	ND	ND	ND	ND	ND	23700	25-ft south of manifold in lease road access to location
9.30.15	SS-3	0.25	NA	ND	ND	ND	ND	ND	ND	4200	65-ft south of manifold inside SE corner of location berm
11.17.15	SS-1	0.5	NA	NA	NA	NA	NA	NA	NA	3250	Adjacent to injection manifold - source of release
11.17.15	SS-2	0.5	NA	NA	NA	NA	NA	NA	NA	957	25-ft south of manifold in lease road access to location
11.17.15	SS-3	0.5	NA	NA	NA	NA	NA	NA	NA	287	65-ft south of manifold inside SE corner of location berm
1.27.16	SS-1	3	136	NA	NA	NA	NA	NA	NA	379	Adjacent to injection manifold - source of release
1.27.16	SS-2	3	126	NA	NA	NA	NA	NA	NA	NA	25-ft south of manifold in lease road access to location

[1] Boyer, 2004, *Field Determinations of Chloride in Salt Impacted Soils - Just Add Water*; 11th Annual International Petroleum Environmental Conference

NA - Not Analyzed; ND - Not Detected

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Attachment 1

Laboratory Analytical Reports and Chain of Custody Forms

Resolute Natural Resources Company, LLC
1700 Lincoln Street, Suite 2800, Denver, CO 80203
Voice: 303.534.4600 Fax: 303.623.3628

Summary Report

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

Report Date: February 2, 2016

Work Order: 16012805

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
412938	SS-1	soil	2016-01-27	13:00	2016-01-28

Sample: 412938 - SS-1

Param	Flag	Result	Units	RL
Chloride		**379**	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: February 2, 2016

Work Order: 16012805

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
412938	SS-1	soil	2016-01-27	13:00	2016-01-28

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.

Report Contents

Case Narrative

Samples for project Shell Maxwell were received by TraceAnalysis, Inc. on 2016-01-28 and assigned to work order 16012805. Samples for work order 16012805 were received intact at a temperature of 5.3 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	108286	2016-01-29 at 10:05	127901	2016-02-02 at 10:39

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 16012805 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: 412938 - SS-1

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	127901	Date Analyzed:	2016-02-02	Analyzed By:	AM
Prep Batch:	108286	Sample Preparation:	2016-02-02	Prepared By:	AM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**379**	mg/Kg	5	50.0

Method Blanks

Method Blank (1) QC Batch: 127901

QC Batch:	127901	Date Analyzed:	2016-02-02	Analyzed By:	AM
Prep Batch:	108286	QC Preparation:	2016-01-29	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: 127901
Prep Batch: 108286

Date Analyzed: 2016-02-02
QC Preparation: 2016-01-29

Analyzed By: AM
Prepared By: AM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2370	mg/Kg	5	2500	<160	95	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			2370	mg/Kg	5	2500	<160	95	85 - 115	0	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: 412953

QC Batch: 127901
Prep Batch: 108286

Date Analyzed: 2016-02-02
QC Preparation: 2016-01-29

Analyzed By: AM
Prepared By: AM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2180	mg/Kg	5	2500	<160	87	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			2280	mg/Kg	5	2500	<160	91	78.9 - 121	4	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: 127901 Date Analyzed: 2016-02-02 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	2016-02-02

Standard (CCV-1)

QC Batch: 127901 Date Analyzed: 2016-02-02 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	2016-02-02

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	NELAP	T104704392-14-8	Midland

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 # 160012805

Page 1 of 1

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 Energy

Phone #: 432-813-8069

Address: (Street, City, Zip) 4000 N. Big Spring #500

Fax #:

Contact Person: Jay Allison

E-mail: jallison@resoluteenergy.com

Invoice to: (If different from above) Shell Maxwell

Project #:

Project Name:

Project Location (including state): Lea Co, NM

Sampler Signature:

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
41938	SS-1	✓			✓							✓		1/27	13:00

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	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
41938																		✓	✓						

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
Jay Allison	Resolute	1/28	09:55	[illegible]		1/28	TH	9:55
								INST ___ °C
								OBS 5.3 °C
								COR 5.3 °C
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
								INST ___ °C
								OBS ___ °C
								COR ___ °C
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

Carrier # [illegible]

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

ORIGINAL COPY

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

sample 405538 continued ...

Param	Flag	Result	Units	RL
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
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.

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 | Date Analyzed: 2015-11-19 | Analyzed By: AM
Prep Batch: 107013 | QC Preparation: 2015-11-19 | 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 #300 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 19 °C
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	OBS 4.1 °C
			09:45					COR 4.0 °C
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 ...

Shell Maxwell

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: 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.

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 Units	Dilution	RL
Benzene	U	S	<0.0200	mg/Kg	1	0.0200
Toluene	U	S	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	S	<0.0200	mg/Kg	1	0.0200
Xylene	U	S	<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 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 Units	Dilution	RL
C6-C12	U	S	<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	QNR	QNR	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 | Date Analyzed: 2015-10-05 | Analyzed By: AM
Prep Batch: 106013 | QC Preparation: 2015-10-05 | 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
Prep Batch: 105946

Date Analyzed: 2015-10-01
QC Preparation: 2015-09-30

Analyzed By: AK
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 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
Prep Batch: 105983

Date Analyzed: 2015-10-05
QC Preparation: 2015-10-02

Analyzed By: AK
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		s	1.89	mg/Kg	1	2.00	<0.00533	94	70 - 130	4	20
Toluene		s	1.84	mg/Kg	1	2.00	<0.00645	92	70 - 130	7	20
Ethylbenzene		s	1.79	mg/Kg	1	2.00	<0.0116	90	70 - 130	3	20
Xylene		s	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		6	mg/kg	0.100	0.114	114	80 - 120	2015-10-05
Toluene		6	mg/kg	0.100	0.0988	99	80 - 120	2015-10-05
Ethylbenzene		6	mg/kg	0.100	0.0904	90	80 - 120	2015-10-05
Xylene		6	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
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 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:

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
405536	SS-1				✓							✓		9/30	13:35
405537	SS-2				✓							✓		9/30	13:35
405538	SS-3				✓							✓		9/30	13:35

ANALYSIS REQUEST
(Circle or Specify Method No.)

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	9/30/15	15:35		TA	9-30-15	15:35	INST 1.3 °C, OBS 0.3 °C, COR 0.2 °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 # _____

ORIGINAL COPY

Resolute

Attachment 2

State Engineer Water Well Records

Resolute Natural Resources Company, LLC
1700 Lincoln Street, Suite 2800, Denver, CO 80203
Voice: 303.534.4600 Fax: 303.623.3628

New Mexico Office of the State Engineer
Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
L 00328 POD10	3	3	3	27	14S	37E	668336	3660474

Driller License: 854
Driller Name: KIDD, GARY

Drill Start Date:	03/20/2006	**Drill Finish Date:**	03/26/2006	**Plug Date:**	
Log File Date:	04/11/2006	**PCW Rcv Date:**	05/01/2008	**Source:**	Shallow
Pump Type:	SUBMER	**Pipe Discharge Size:**	4	**Estimated Yield:**	150 GPM
Casing Size:	10.00	**Depth Well:**	220 feet	**Depth Water:**	115 feet

Water Bearing Stratifications:	Top	Bottom	Description
	115	220	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	121	220

New Mexico Office of the State Engineer
Point of Diversion Summary

		(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest)						(NAD83 UTM in meters)	
	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
L	00328 POD11	4	2	3	27	14S	37E	669050	3660868

Driller License:	854				
Driller Name:	GARY KIDD				
Drill Start Date:	06/11/2007	**Drill Finish Date:**	06/29/2007	**Plug Date:**	
Log File Date:	07/24/2007	**PCW Rcv Date:**	03/10/2009	**Source:**	Shallow
Pump Type:	SUBMER	**Pipe Discharge Size:**	5	**Estimated Yield:**	450 GPM
Casing Size:	14.00	**Depth Well:**	235 feet	**Depth Water:**	111 feet

Water Bearing Stratifications:	Top	Bottom	Description
	111	234	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	135	235

New Mexico Office of the State Engineer
Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
L 00328 POD6		2	3	27	14S	37E	668920	3660906*

Driller License: 854
Driller Name: GARY KIDD

Drill Start Date:	04/01/1994	**Drill Finish Date:**	04/09/1994	**Plug Date:**	
Log File Date:	06/08/1994	**PCW Rcv Date:**	01/04/1995	**Source:**	Shallow
Pump Type:	TURBIN	**Pipe Discharge Size:**	8	**Estimated Yield:**	700 GPM
Casing Size:	14.00	**Depth Well:**	182 feet	**Depth Water:**	102 feet

Water Bearing Stratifications:	Top	Bottom	Description
	102	182	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	100	182

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

New Mexico Office of the State Engineer
Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

POD Number	Q64	Q16	Q4	Sec	Twp	Rng	X	Y
L 00328 POD7	1	3		27	14S	37E	668517	3660900*

Driller License:	854				
Driller Name:	GARY KIDD				
Drill Start Date:	04/20/1995	**Drill Finish Date:**	04/29/1995	**Plug Date:**	
Log File Date:	05/24/1995	**PCW Rcv Date:**	05/03/1995	**Source:**	Shallow
Pump Type:	TURBIN	**Pipe Discharge Size:**	8	**Estimated Yield:**	800 GPM
Casing Size:	14.00	**Depth Well:**	203 feet	**Depth Water:**	107 feet

Water Bearing Stratifications:	Top	Bottom	Description
	107	203	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	83	203

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

New Mexico Office of the State Engineer
Point of Diversion Summary

POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	(quarters are 1=NW 2=NE 3=SW 4=SE)			(quarters are smallest to largest)			(NAD83 UTM in meters)	
L 00328 POD9	3	3	3	27	14S	37E	668424	3660397*

Driller License: 854
Driller Name: GARY KIDD

Drill Start Date:	02/20/2001	**Drill Finish Date:**	02/27/2001	**Plug Date:**	
Log File Date:	04/17/2002	**PCW Rcv Date:**	04/17/2002	**Source:**	Shallow
Pump Type:	TURBIN	**Pipe Discharge Size:**	8	**Estimated Yield:**	600 GPM
Casing Size:	14.00	**Depth Well:**	194 feet	**Depth Water:**	104 feet

Water Bearing Stratifications:	Top	Bottom	Description
	104	194	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	104	194

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

New Mexico Office of the State Engineer
Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
L 00328 S3		3	3	27	14S	37E	668525	3660498*

Driller License: 124
Driller Name: M.L. FULLINGIM

Drill Start Date:	12/01/1965	**Drill Finish Date:**	12/04/1965	**Plug Date:**	
Log File Date:	12/10/1965	**PCW Rcv Date:**	10/13/1966	**Source:**	Shallow
Pump Type:	TURBIN	**Pipe Discharge Size:**		**Estimated Yield:**	800 GPM
Casing Size:		**Depth Well:**	135 feet	**Depth Water:**	62 feet

Water Bearing Stratifications:	Top	Bottom	Description
	62	102	Sandstone/Gravel/Conglomerate
	105	135	Sandstone/Gravel/Conglomerate

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

New Mexico Office of the State Engineer
Point of Diversion Summary

POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Twn	Rng	(NAD83 UTM in meters) X	Y
L 00695	1	1	2	27	14S	37E	669206	3661816*

Driller License:	322				
Driller Name:	GRADY BACKUS				
Drill Start Date:	03/15/1971	**Drill Finish Date:**	03/25/1971	**Plug Date:**	
Log File Date:	05/03/1971	**PCW Rcv Date:**	04/25/1949	**Source:**	Shallow
Pump Type:	TURBIN	**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:	10.00	**Depth Well:**	110 feet	**Depth Water:**	72 feet

Water Bearing Stratifications:	Top	Bottom	Description
	32	135	Sandstone/Gravel/Conglomerate

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

New Mexico Office of the State Engineer
Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
L 00695 S			2	27	14S	37E	669516	3661516*

Driller License: 854
Driller Name: GARY KIDD

Drill Start Date:	01/07/1998	**Drill Finish Date:**	01/12/1998	**Plug Date:**	
Log File Date:	02/26/1998	**PCW Rcv Date:**	08/16/2000	**Source:**	Shallow
Pump Type:	TURBIN	**Pipe Discharge Size:**	8	**Estimated Yield:**	650 GPM
Casing Size:	14.00	**Depth Well:**	238 feet	**Depth Water:**	105 feet

Water Bearing Stratifications:	Top	Bottom	Description
	134	187	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	128	238

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

New Mexico Office of the State Engineer
Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
L 00740 S	1	3	4	27	14S	37E	669230	3660609*

Driller License: 1498
Driller Name: ROBINSON, B.J.

Drill Start Date:	03/30/2004	**Drill Finish Date:**	04/05/2004	**Plug Date:**	
Log File Date:	04/13/2004	**PCW Rcv Date:**	11/14/1956	**Source:**	Shallow
Pump Type:	TURBIN	**Pipe Discharge Size:**		**Estimated Yield:**	800 GPM
Casing Size:	10.75	**Depth Well:**	246 feet	**Depth Water:**	112 feet

Water Bearing Stratifications:	Top	Bottom	Description
	147	160	Sandstone/Gravel/Conglomerate
	195	241	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	116	246

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

New Mexico Office of the State Engineer
Point of Diversion Summary

POD Number	Q64	Q16	Q4	Sec	Twn	Rng	X	Y
	(quarters are 1=NW 2=NE 3=SW 4=SE)						(NAD83 UTM in meters)	
	(quarters are smallest to largest)							
L 01334		4	4	27	14S	37E	669733	3660516*

Driller License: 46
Driller Name: ABBOTT, MURRELL

Drill Start Date:	12/22/1951	**Drill Finish Date:**	12/23/1951	**Plug Date:**	07/20/1952
Log File Date:	01/04/1952	**PCW Rcv Date:**	01/23/1953	**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:	6.63	**Depth Well:**	103 feet	**Depth Water:**	50 feet

Water Bearing Stratifications:	Top	Bottom	Description
	52	103	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	80	103

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

New Mexico Office of the State Engineer
Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
L 01686 POD1	4	4	27	14S	37E		669733	3660516*

Driller License: 46
Driller Name: MERRELL ABBOTT

Drill Start Date:	12/23/1952	**Drill Finish Date:**	12/24/1952	**Plug Date:**	03/14/1953
Log File Date:	01/02/1953	**PCW Rcv Date:**	01/02/1953	**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:		**Depth Well:**	115 feet	**Depth Water:**	50 feet

Water Bearing Stratifications:	Top	Bottom	Description
	50	115	Sandstone/Gravel/Conglomerate

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

New Mexico Office of the State Engineer
Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
L 01839 POD1	3	2	4	27	14S	37E	669624	3660818*

Driller License: 90
Driller Name: BETHEL, H.R.

Drill Start Date:	01/28/1953	**Drill Finish Date:**	01/29/1953	**Plug Date:**	07/01/1953
Log File Date:	11/09/1953	**PCW Rcv Date:**	02/18/1953	**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:	7.00	**Depth Well:**	83 feet	**Depth Water:**	45 feet

Water Bearing Stratifications:	Top	Bottom	Description
	45	83	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	45	83

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

New Mexico Office of the State Engineer
Point of Diversion Summary

POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64 Q16 Q4	Sec	Tws	Rng	(NAD83 UTM in meters) X	Y
L 02294		27	14S	37E	669128	3661101*

Driller License:	99				
Driller Name:	MUSSELWHITE, O.R.				
Drill Start Date:	08/06/1953	**Drill Finish Date:**	08/06/1953	**Plug Date:**	01/04/1954
Log File Date:	08/10/1953	**PCW Rcv Date:**	06/17/1954	**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:	6.63	**Depth Well:**	120 feet	**Depth Water:**	50 feet

Water Bearing Stratifications:	Top	Bottom	Description
	65	120	Sandstone/Gravel/Conglomerate

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

New Mexico Office of the State Engineer
Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

POD Number	Q64	Q16	Q4	Sec	Twp	Rng	X	Y
L 02305		3	1	27	14S	37E	668509	3661303*

Driller License: 144
Driller Name: QUARLES, J.R.

Drill Start Date:	07/24/1953	**Drill Finish Date:**	07/25/1953	**Plug Date:**	
Log File Date:	09/25/1953	**PCW Rcv Date:**	11/24/1954	**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:		**Depth Well:**	100 feet	**Depth Water:**	60 feet

Water Bearing Stratifications:	Top	Bottom	Description
	34	70	Sandstone/Gravel/Conglomerate

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

New Mexico Office of the State Engineer
Point of Diversion Summary

POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Tws	Rng	(NAD83 UTM in meters) X	Y
L 02627	4	4	4	27	14S	37E	669832	3660415*

Driller License: 33
Driller Name: TATUM, CLAUDE E.

Drill Start Date:	08/13/1954	**Drill Finish Date:**	08/13/1954	**Plug Date:**	10/25/1954
Log File Date:	09/27/1954	**PCW Rcv Date:**	12/20/1954	**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:		**Depth Well:**	110 feet	**Depth Water:**	40 feet

Water Bearing Stratifications:	Top	Bottom	Description
	40	110	Sandstone/Gravel/Conglomerate

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

New Mexico Office of the State Engineer
Point of Diversion Summary

POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Tws	Rng	(NAD83 UTM in meters) X	Y
L 02731	2	2		27	14S	37E	669710	3661723*

Driller License:	46				
Driller Name:	MURRELL ABBOTT				
Drill Start Date:	12/30/1954	**Drill Finish Date:**	12/30/1954	**Plug Date:**	05/10/1955
Log File Date:	01/19/1955	**PCW Rcv Date:**	01/19/1955	**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:	7.00	**Depth Well:**	115 feet	**Depth Water:**	70 feet

Water Bearing Stratifications:	Top	Bottom	Description
	70	115	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	70	115

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

New Mexico Office of the State Engineer
Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
L 10920	1	1	27	14S	37E		668501	3661705*

Driller License: 1332
Driller Name: ROOT, FRED D.

Drill Start Date:	01/23/1999	**Drill Finish Date:**	01/23/1999	**Plug Date:**	
Log File Date:	02/24/1999	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	35 GPM
Casing Size:	5.75	**Depth Well:**	158 feet	**Depth Water:**	70 feet

Water Bearing Stratifications:	Top	Bottom	Description
	70	158	Other/Unknown

Casing Perforations:	Top	Bottom
	118	158

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

Resolute

Attachment 3

NMOCD Form C-141

Resolute Natural Resources Company, LLC
1700 Lincoln Street, Suite 2800, Denver, CO 80203
Voice: 303.534.4600 Fax: 303.623.3628

Resolute

Attachment 3

NMOCD Form C-141

Resolute Natural Resources Company, LLC
1700 Lincoln Street, Suite 2800, Denver, CO 80203
Voice: 303.534.4600 Fax: 303.623.3628

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 and oil	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 injection manifold caused pinhole leak. The well was shut in, the line repaired, and a vac truck used to collect the fluids. Fluids were contained to the tank battery pad by the location berm. See attached report for additional details.

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. Approximately 34 cubic yards of affected pea gravel and soil was excavated for offsite disposal at the Gandy Marley landfarm. See attached report for additional information, including confirmation soil sample analytical 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:	OIL CONSERVATION DIVISION
Printed Name: Patrick Flynn	Approved by Environmental Specialist:
Title: Vice President	Approval Date: 02/08/2016 Expiration Date: ///
E-mail Address: pflynn@resoluteenergy.com	Conditions of Approval: /// Attached ☐ 1RP 3879
Date: 2/5/16 Phone: 303.534.4600 X1145	