<u>District I</u> 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

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

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

Release Notification and Corrective Action

Form C-141 Revised August 8, 2011

							OPERATOR Initial Report X Final Report					l Report	
Name of Co						Contact: Johnny Titsworth							
				dland, TX 7970	1		No.: (432)250-20						
Facility Nan	ne: Quail	State 11 #1 7	ГВ			Facility Type: Tank Battery							
Surface Ow	ner: State			Mineral O	wner:	r: API No.: 30-025-40841							
				LOCA	TIO	N OF RE	LEASE						
Unit Letter	Section	Township	Range	Feet from the		/South Line	Feet from the	East/West	Line	County			
P	11	19S	34E	210	FSL		660	FEL		Lea			
													<u> </u>
				Latitude: 32	2.6682	21 Longitude	e: <u>-103.58040</u>						
		B10 2400		NAT	URE	OF REL							
Type of Relea			er				Release: 220/50			Recovered: 2			
Source of Rel	Source of Release: Heater Treater					1/22/14	Iour of Occurrenc		te and 2/14	Hour of Dis	covery		
Was Immedia	Was Immediate Notice Given?					If YES, To	Whom? Johnny	y Titsworth					
	X Yes No Not Required												
By Whom? Mas a Watero	Mark Bisho	p phod2					Iour 1/22/14 Dlume Impacting t	he Watercou	irce				
was a water	ourse Reac		Yes X	No		II ILB, VC	nume impacting t	ne watereou	1130.				
If a Watercou	rse was Im	nacted Descr	ihe Fully ?	ķ									
The Watercoa		paetea, Deser	ioo i anij.										
Describe Cau					M20 -	ar Atomican	28 28 22 20	5%	44.7	986 PR TR		2000	
during the nig	ght, the mar	way cover ga	asket faile	d and 220 barrels o ed containment. Tl	of cruc	le and 50 barre	els of produced wa	ater were rele	eased t	from the hear	ter trea	ter. Th	ne ne also
some overspr			ide the im	ed contamment. 11	ilere w	as some poom	ng on the pati as w	ven as some	overs	nay on the p	au. The	orc wa	15 4150
1	,												
Describe Area	a Affected	and Cleanup A	Action Tal	cen.*									
The crude and	d produced	water were pi	cked up fi	om the containmen	nt, and	I the overspray	area on the pad v	vas back-dra	gged.	Talon/LPE	personi	nel col	llected
analytical san NMOCD thre		the impacted of	overspray	and pooling area o	of the p	pasture and pac	d. Confirmation so	oil samples c	ontirn	ned samples	were be	elow	
WWOCD till	siioius.												
					50 YO 0					>D #	o op	•	~ •
				is true and completed is true and completed is true and complete is true									
public health	or the envi	ronment. The	acceptano	e of a C-141 repor	rt by th	ne NMOCD m	arked as "Final Re	eport" does r	not reli	ieve the oper	ator of	liabili	ity
should their o	perations h	ave failed to a	dequately	investigate and re	media	te contaminati	on that pose a three	eat to ground	l water	, surface wa	ter, hur	nan he	ealth
federal, state,				tance of a C-141 r	eport o	does not reliev	e the operator of r	esponsibility	y for c	ompliance w	ith any	other	
Tederar, State,	or rocar ray	vis unaror regu	ilutions.				OIL CONS	SERVAT	ION	DIVISIO	N		
G!	NOVOL	Deal	en.				312 9 01 13						
Signature: V	um	1/001				x 11	P ' .10	1.11.4					
Printed Name	: Melissa I	Decker on beha	alf of Cim	arex Energy		Approved by	Environmental Sp	becialist:					
Title: Design	Mongaan					Approval Dat	a *	Parish dia Data					
Title: Project	iviaiiager					Approvai Dai	ate: Exp		piration Date:				
E-mail Addre	ss: mdecke	r@talonlpe.co	om			Conditions of	Approval:			Attached	П		
Date: 08/1/	2014		Phone	: (831)345-2422							_		
Attach Addit		ets If Necess		. (031)373-2744									



Prepared for:

Prepared by:











SOIL CLOSURE REPORT

CIMAREX ENERGY QUAIL STATE 11 #1 TANK BATTERY

CIMAREX ENERGY 600 N. MARIENFIELD SUITE 600 MIDLAND, TEXAS 79701

TALON/LPE PROJECT NO. 701162.054.01

Prepared by:

Melissa Decker Environmental Scientist

> Chris Spore District Manager

Shane Currie, PG Professional Geologist

Talon/LPE 2901 State Highway 349 Midland, Texas 79706

May 20, 2014



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1.0 INTRODUCTION

1.1 Objectives and Site Background

Talon/LPE (Talon) was retained by Cimarex Energy (Cimarex) to provide environmental consulting services at the Quail State 11 #1 Tank Battery crude oil release site in Lea County, New Mexico. The purpose of this report is to document remediation and site restoration activities undertaken regarding the release of crude oil at the subject site.

The site is located approximately 23 miles west of Hobbs, New Mexico. The GPS coordinates for the site are 32.66821° north latitude and 103.52462° west longitude. The release occurred from a failed man-way cover gasket of the heater treater. The land surrounding the site is a mixture of native vegetation utilized as ranchland and oil and gas operations. A Topographic Map is provided as Figure 1. An Aerial Photograph is provided in Figure 2. Site Details, including sample locations, is provided as Figure 3.

A crude oil release occurred at the site on January 22, 2014. Cimarex personnel estimated that 220 barrels (bbl) of crude oil were released and 210 bbl were recovered, resulting in a net loss of 10 bbl of crude oil. The majority of the release was confined to the containment with minimal overspray. The release was verbally reported to the New Mexico Oil Conservation Division (NMOCD) on January 22, 2013, and a Release Notification and Corrective Action (Form C-141) was submitted to the NMOCD on January 22, 2014. The surface expression of the release measured approximately 40 feet wide by 150 feet in length. The vertical impacts of the release were less than one (1) inch below ground surface (bgs).

1.2 NMOCD Site Classification

The NMOCD has regulatory jurisdiction over oil and gas production operations including crude oil spills in the State of New Mexico. A search of the New Mexico Water Rights (NMWRRS) database maintained by the New Mexico Office of the State Engineer (NMOSE), provided information for Section 11 Township 19S Range 34E, indicating that groundwater should be encountered at approximately 120 feet below ground surface (bgs). A search of the NMWRRS database indicated there are no water wells within 1000 feet of the release. There are no surface water bodies within 5000 feet of the release. Based on depth to groundwater and proximity to surface water, guidelines for this release site is listed below:

Compound	NMOCD Cleanup Standard (mg/Kg)
ТРН	1,000
BTEX	50
Benzene	10

2.0 INITIAL SITE ACTIVITIES

On January 27, 2014, Cimarex contracted Talon to respond to and initiate remediation activities and provide environmental oversight. On February 6, 2014, Talon personnel observed the source to be a failed man-way gasket cover from a heater treater. The impacted pad area was back-dragged and all free liquids within the containment had been recovered prior to arrival of Talon personnel. Based on olfactory and visual observations, surface impacts included an area of overspray measuring 40 feet wide by 150 feet in length. The vertical impacts of the release were less than one (1) inch below ground surface (bgs). Cimarex personnel delayed initial remediation activities which allowed for a period of natural attenuation.

3.0 SITE VISIT ACTIVITIES

Following a period of natural attenuation, Talon personnel attempted to conduct site remediation on April 9, 2014. During the site visit, Talon personnel observed new vegetation growth in the overspray area of the flowpath and minimal visual and olfactory evidence of soil impacts. In order to preserve native vegetation, no excavation activities were conducted for this site. Soil samples were collected from the impacted pad and overspray areas, described in Section 4.0, to ensure NMOCD remediation thresholds were reached through natural attenuation. Photographic documentation of the release is presented in Appendix C.

4.0 SOIL SAMPLING ACTIVITIES

4.1 Confirmation Soil Sampling

4.1.1 <u>Sample Collection</u>

On April 9, 2014, two (2) confirmation soil samples were collected to ensure NMOCD remediation levels had been reached through natural attenuation. The samples were designated as Pad and Overspray. On April 30, 2014, one (1) additional sample was collected and designated as Pad-B. All soil samples were collected by Talon using industry accepted standard operating procedures. These procedures include wearing new, clean nitrile gloves, and collecting laboratory samples using decontaminated or disposable hand tools (when applicable) to prevent cross-contamination. Confirmation soil sampling locations are depicted on Figures 3.

Confirmation soil samples were collected in laboratory provided sample containers, immediately placed on ice, and transported to TraceAnalysis in Midland, Texas for Total Petroleum Hydrocarbons (TPH) analysis using DRO/GRO Method 8015 and benzene, toluene, ethyl-benzene, and total xylenes concentration (BTEX) using method BTEX 8021. Analytical testing was performed on a standard turn around basis.

4.1.2 Analytical Results

Confirmation laboratory analytical results indicated that the TPH concentration of the sample designated as Overspray did not exceed the NMOCD soil remediation level of 1,000mg/kg. The laboratory analytical results indicated a TPH concentration of 139 mg/Kg. Laboratory analysis for the sample designated as Pad, collected on April 9, 2014, indicated a TPH concentration of 1,180 mg/Kg. The sample designated as Pad-B, collected on April 30, 2014, indicated a TPH concentration of 212 mg/Kg, which is below the remediation threshold.

Laboratory analysis for the three (3) samples collected at the site indicated BTEX concentrations below laboratory limits of 0.0200 mg/Kg. Copies of the laboratory analytical results and proper chain of custody documentation are presented in Appendix D. A summary of the confirmation soil sample analytical results is presented on Table I.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

- A crude oil release was reported by Cimarex at the Quail 11 #1 Tank Battery on January 22, 2014, as a result of a failed man-way gasket cover. Cimarex personnel estimated that 220 bbl of crude oil were released and 210 bbl were recovered, resulting in a net loss of 10 bbl of crude oil overspray.
- Following a site visit on April 9, 2014, Talon personnel determined excavation not necessary in order to preserve the native vegetation. Visual and olfactory indicators indicated NMOCD remediation levels had been reached through natural attenuation.
- Confirmation soil samples were collected on April 9, 2014, and April 30, 2014, and submitted for laboratory analysis at TraceAnalysis in Midland, Texas. Final confirmation samples did not exceed the applicable NMOCD Soil Remediation Limits.

5.2 Recommendations

Based on laboratory analytical results of soil samples collected from the excavation limits, the horizontal and vertical extent of the release area is delineated so that TPH and BTEX concentrations are below the NMOCD soil cleanup level. This report will be the final documentation regarding the release and based on the remediation activities and data presented in this report, no further action is proposed for this site.

APPENDIX A

FIGURES





Scale: Not to Scale

Drawn By: MMD

Quail 11 State #1 23 miles West of Hobbs, New Prepared for: Cimarex





Scale: Not to Scale

Drawn By: MMD

FIGURE 3 SITE DETAILS Quail 11 State #1 23 miles West of Hobbs, New 1 Prepared for: Cimares

SHANE B. CUMH GEOLOGY 1801 CENSEO

APPENDIX B

TABLE



TABLE 1

CONCENTRATIONS OF TPH & BTEX IN SOIL

QUIAL 11 STATE #1 TANK BATTERY CIMAREX OPERATING 23.0 MILES WEST OF HOBBS, NEW MEXICO LEA COUNTY, NEW MEXICO

TALON/LPE PROJECT NUMBER: 701162.054.01

		N	/IETHOD: 8015	М	METHOD: 8021				
SAMPLE LOCATION	SAMPLE DATE	DRO (mg/Kg)	GRO (mg/Kg)	TOTAL TPH (mg/Kg)	Benzene (mg/Kg)	Toulene (mg/Kg)	Ethyl- benzene (mg/Kg)	Total Xylenes (mg/Kg)	
OVERSPRAY	4/9/2014	139	<4.0	143	<0.0200	<0.0200	<0.0200	<0.0200	
PAD	4/9/2014	1,180	<4.0	1,184	< 0.0200	< 0.0200	<0.0200	< 0.0200	
PAD-B	4/30/2014	212	<4.0	216	< 0.0200	< 0.0200	<0.0200	< 0.0200	
NMOCD Remedial Threshold				1,000	10				

^{*} Bolded values are in excess of the NMOCD Remediation Thresholds

APPENDIX C

PHOTOGRAPHIC DOCUMENTATION



Project Number: 701162.054.01 Cimarex- Quail 11 23.0 miles west of Hobbs, New Mexico Lea County, Texas

Photograph No. 1

Direction:Southeast

Description:

All free-standing liquids were removed from within the containment by Cimarex personnel.



Photograph No. 2

Direction:Southwest

Description:

Areas of the pad were impacted by the release.





Project Number: 701162.054.01 Cimarex- Quail 11 23.0 miles west of Hobbs, New Mexico Lea County, Texas

Photograph No. 3

Direction: Southeast

Description:

The overspray area was initially back-dragged by Cimarex personnel.



Photograph No. 4

Direction: Southeast

Description:

View of the vegetation impacted by overspray.





Project Number: 701162.054.01
Cimarex- Quail 11
23.0 miles west of Hobbs, New Mexico
Lea County, Texas

Photograph No. 5

Direction: East

Description:

Following natural attenuation, the surface impacts were minimal.



Photograph No. 6

Direction:North

Description:

View of impacted pad area following a period of natural attenuation.





Project Number: 701162.054.01 Cimarex- Quail 11 23.0 miles west of Hobbs, New Mexico Lea County, Texas

Photograph No. 7

Direction:Southeast

Description:

The overspray area displayed new growth. In order to protect native vegetation, Talon personnel did not scrape or back-drag this area.



Photograph No. 8

Direction:Southeast

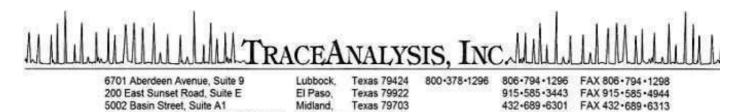
Description:

In order to protect native vegetation, Talon personnel did not scrape or back-drag this area.



APPENDIX D

LABORATORY ANALYTICAL DATA REPORTS AND CHAIN OF CUSTODY DOCUMENTATION



(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

Melissa Decker Talon LPE-Midland 2901 State Highway 349 Midland, TX, 79706

Project Location: Hobbs,NM

Project Name: Cimarex/Quail 11 Project Number: 701162.054.01

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

			Date	$_{ m 1ime}$	Date
Sample	Description	Matrix	Taken	Taken	Received
360217	Overspray	soil	2014-04-09	13:48	2014-04-11
360218	Pad	soil	2014-04-09	13:58	2014-04-11

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.

This report consists of a total of 17 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director Dr. Michael Abel, Project Manager

Report Date: April 16, 2014

14041122

Work Order:

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Case Narrative

Samples for project Cimarex/Quail 11 were received by TraceAnalysis, Inc. on 2014-04-11 and assigned to work order 14041122. Samples for work order 14041122 were received intact at a temperature of 3.7 C.

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

		Prep	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	93954	2014-04-14 at 11:00	111164	2014-04-15 at 08:29
TPH DRO - NEW	S 8015 D	93963	2014-04-14 at 11:00	111142	2014-04-14 at 14:17
TPH GRO	S 8015 D	93954	2014-04-14 at 11:00	111165	2014-04-15 at $08:35$

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 14041122 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.

Report Date: April 16, 2014 Work Order: 14041122 Page Number: 4 of 17 701162.054.01 Cimarex/Quail 11 Hobbs,NM

Analytical Report

Sample: 360217 - Overspray

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035 QC Batch: 111164 Date Analyzed: 2014-04-15 Analyzed By: AK Prep Batch: 93954 Sample Preparation: 2014-04-14 Prepared By: AK

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	1	< 0.0200	m mg/Kg	1	0.0200
Toluene	U	1	< 0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1	< 0.0200	mg/Kg	1	0.0200
Xylene	Qr,Qs,U	1	< 0.0200	$\mathrm{mg/Kg}$	1	0.0200

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.13	mg/Kg	1	2.00	106	70 - 130
4-Bromofluorobenzene (4-BFB)			1.76	mg/Kg	1	2.00	88	70 - 130

Sample: 360217 - Overspray

Laboratory: Midland

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO	Os	1	139	mø/Kø	1	50.0

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			125	mg/Kg	1	100	125	70 - 130

Sample: 360217 - Overspray

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 111165 Date Analyzed: 2014-04-15 Analyzed By: AK Prep Batch: 93954 Sample Preparation: 2014-04-14 Prepared By: AK

701162.054.01

Work Order: 14041122 Cimarex/Quail 11

					RL				
Parameter	Flag		Cert		Result	Uni	ts	Dilution	RL
GRO	U		1		< 4.00	mg/K	g	1	4.00
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)				2.09	mg/Kg	1	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)				1.78	mg/Kg	1	2.00	89	70 - 130

Sample: 360218 - Pad

Laboratory: Midland

Analysis: BTEX QC Batch: 111164 Prep Batch: 93954 Analytical Method: S 8021B
Date Analyzed: 2014-04-15
Sample Preparation: 2014-04-14

Prep Method: S 5035 Analyzed By: AK Prepared By: AK

Page Number: 5 of 17

Hobbs,NM

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	1	< 0.0200	m mg/Kg	1	0.0200
Toluene	U	1	< 0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1	< 0.0200	mg/Kg	1	0.0200
Xylene	$_{\rm Qr,Qs,U}$	1	< 0.0200	mg/Kg	1	0.0200

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.31	mg/Kg	1	2.00	116	70 - 130
4-Bromofluorobenzene (4-BFB)			1.74	mg/Kg	1	2.00	87	70 - 130

Sample: 360218 - Pad

Laboratory: Midland

Analysis: TPH DRO - NEW QC Batch: 111142 Prep Batch: 93963

Analytical Method: S 8015 D
Date Analyzed: 2014-04-14
Sample Preparation: 2014-04-14

Prep Method: N/A
Analyzed By: RG
Prepared By: RG

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO	Qs	1	1180	mg/Kg	1	50.0

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		176	mg/Kg	1	100	176	70 - 130

Report Date: April 16, 2014 Work Order: 14041122 Page Number: 6 of 17 701162.054.01 Cimarex/Quail 11 Hobbs,NM

Sample: 360218 - Pad

Laboratory: Midland

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.12	mg/Kg	1	2.00	106	70 - 130
4-Bromofluorobenzene (4-BFB)			2.01	$\mathrm{mg/Kg}$	1	2.00	100	70 - 130

Report Date: April 16, 2014 Work Order: 14041122 Page Number: 7 of 17 701162.054.01 Cimarex/Quail 11 Hobbs,NM

Method Blanks

Method Blank (1) QC Batch: 111142

QC Batch: 111142 Date Analyzed: 2014-04-14 Analyzed By: RG Prep Batch: 93963 QC Preparation: 2014-04-14 Prepared By: RG

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			97.3	mg/Kg	1	100	97	70 - 130

Method Blank (1) QC Batch: 111164

QC Batch: 111164 Date Analyzed: 2014-04-15 Analyzed By: AK
Prep Batch: 93954 QC Preparation: 2014-04-14 Prepared By: AK

MDL Parameter Cert Result Units RLFlag Benzene mg/Kg 0.02 < 0.00533 1 Toluene < 0.00645 mg/Kg 0.02Ethylbenzene mg/Kg0.02 < 0.0116 1 Xylene mg/Kg< 0.00874 0.02

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.20	mg/Kg	1	2.00	110	70 - 130
4-Bromofluorobenzene (4-BFB)			1.80	mg/Kg	1	2.00	90	70 - 130

Method Blank (1) QC Batch: 111165

QC Batch: 111165 Date Analyzed: 2014-04-15 Analyzed By: AK Prep Batch: 93954 QC Preparation: 2014-04-14 Prepared By: AK

Report Date: April 16, 2014 701162.054.01

Work Order: 14041122 Cimarex/Quail 11

Page Number: 8 of 17Hobbs,NM

Parameter	Flag		Cert		MDL Result		Units	RL
GRO	Flag		1		<2.32	:	mg/Kg	4
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			2.09	mg/Kg	1	2.00	104 88	70 - 130 70 - 130

Report Date: April 16, 2014 Work Order: 14041122 Page Number: 9 of 17 701162.054.01 Cimarex/Quail 11 Hobbs,NM

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 111142 Date Analyzed: 2014-04-14 Analyzed By: RG Prep Batch: 93963 QC Preparation: 2014-04-14 Prepared By: RG

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		1	200	mg/Kg	1	250	< 7.41	80	70 - 130

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO		1	207	mg/Kg	1	250	< 7.41	83	70 - 130	3	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	110	114	mg/Kg	1	100	110	114	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 111164 Date Analyzed: 2014-04-15 Analyzed By: AK Prep Batch: 93954 QC Preparation: 2014-04-14 Prepared By: AK

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	1.54	mg/Kg	1	2.00	< 0.00533	77	70 - 130
Toluene		1	1.55	mg/Kg	1	2.00	< 0.00645	78	70 - 130
Ethylbenzene		1	1.64	mg/Kg	1	2.00	< 0.0116	82	70 - 130
Xylene		1	4.96	mg/Kg	1	6.00	< 0.00874	83	70 - 130

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	1.63	mg/Kg	1	2.00	< 0.00533	82	70 - 130	6	20
Toluene		1	1.66	mg/Kg	1	2.00	< 0.00645	83	70 - 130	7	20
Ethylbenzene		1	1.75	mg/Kg	1	2.00	< 0.0116	88	70 - 130	6	20
Xylene		1	5.26	mg/Kg	1	6.00	< 0.00874	88	70 - 130	6	20

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

Report Date: April 16, 2014	Work Order: 14041122	Page Number: 10 of 17
701162.054.01	Cimarex/Quail 11	Hobbs,NM

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.89	2.02	mg/Kg	1	2.00	94	101	70 - 130
4-Bromofluorobenzene (4-BFB)	1.60	1.63	mg/Kg	1	2.00	80	82	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 111165Date Analyzed: 2014 - 04 - 15Analyzed By: AK Prep Batch: 93954 QC Preparation: 2014-04-14 Prepared By: AK

			LCS			Spike	Matrix		Rec.
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	16.2	mg/Kg	1	20.0	< 2.32	81	70 - 130

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		1	16.9	mg/Kg	1	20.0	< 2.32	84	70 - 130	4	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.97	2.02	mg/Kg	1	2.00	98	101	70 - 130
4-Bromofluorobenzene (4-BFB)	1.91	1.87	mg/Kg	1	2.00	96	93	70 - 130

Matrix Spike (MS-1) Spiked Sample: 360217

QC Batch: 111142 Date Analyzed: 2014 - 04 - 14Analyzed By: RG Prep Batch: 93963 QC Preparation: 2014-04-14 Prepared By: RG

				MS			Spike	Matrix		Rec.
Param		\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO	Qs	Qs	1	312	mg/Kg	1	250	139	69	70 - 130

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

				MSD			$_{\mathrm{Spike}}$	Matrix		Rec.		RPD
Param		\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	Qs	Qs	1	273	mg/Kg	1	250	139	54	70 - 130	13	20

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

701162.054.01

Work Order: 14041122 Cimarex/Quail 11 Page Number: 11 of 17

Hobbs,NM

MSMSD MSMSD Spike Rec. Surrogate Result Result Units Dil. Amount Rec. ${\rm Rec.}$ Limit n-Tricosane 122 110 mg/Kg 100 122 110 70 - 130

Matrix Spike (MS-1) Spiked Sample: 360217

QC Batch: 111164 Date Analyzed: 2014-04-15 Analyzed By: AK Prep Batch: 93954 QC Preparation: 2014-04-14 Prepared By: AK

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	1.63	mg/Kg	1	2.00	< 0.00533	82	70 - 130
Toluene		1	1.69	mg/Kg	1	2.00	< 0.00645	84	70 - 130
Ethylbenzene		1	1.80	mg/Kg	1	2.00	< 0.0116	90	70 - 130
Xylene		1	5.41	mg/Kg	1	6.00	< 0.00874	90	70 - 130

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

				MSD			$_{\rm Spike}$	Matrix		Rec.		RPD
Param		\mathbf{F}	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene			1	1.71	mg/Kg	1	2.00	< 0.00533	86	70 - 130	5	20
Toluene			1	1.75	mg/Kg	1	2.00	< 0.00645	88	70 - 130	4	20
Ethylbenzene			1	1.88	mg/Kg	1	2.00	< 0.0116	94	70 - 130	4	20
Xylene	$_{\rm Qr,Qs}$	$_{\rm Qr,Qs}$	1	4.04	mg/Kg	1	6.00	< 0.00874	67	70 - 130	29	20

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

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.02	2.06	mg/Kg	1	2	101	103	70 - 130
4-Bromofluorobenzene (4-BFB)	1.70	1.76	mg/Kg	1	2	85	88	70 - 130

Matrix Spike (MS-1) Spiked Sample: 360217

QC Batch: 111165 Date Analyzed: 2014-04-15 Analyzed By: AK Prep Batch: 93954 QC Preparation: 2014-04-14 Prepared By: AK

			MS			$_{ m Spike}$	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	18.2	mg/Kg	1	20.0	< 2.32	91	70 - 130

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

 $\overline{\text{GRO}}$

Work Order: 14041122701162.054.01 ${\rm Cimarex/Quail}~11$

			MSD			Spike	Matrix		Rec.		RPD
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit

mg/Kg

20.0

Page Number: 12 of 17

70 - 130

 $_{\rm Hobbs,NM}$

20

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

18.3

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.91	1.88	mg/Kg	1	2	96	94	70 - 130
4-Bromofluorobenzene (4-BFB)	1.97	1.86	$\mathrm{mg/Kg}$	1	2	98	93	70 - 130

Report Date: April 16, 2014 Work Order: 14041122 Page Number: 13 of 17 701162.054.01 Cimarex/Quail 11 Hobbs,NM

Calibration Standards

Standard (CCV-1)

QC Batch: 111142 Date Analyzed: 2014-04-14 Analyzed By: RG

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	200	80	80 - 120	2014-04-14

Standard (CCV-2)

QC Batch: 111142 Date Analyzed: 2014-04-14 Analyzed By: RG

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	201	80	80 - 120	2014-04-14

Standard (CCV-3)

QC Batch: 111142 Date Analyzed: 2014-04-14 Analyzed By: RG

				CCVs	CCVs	CCVs	Percent	D-4-
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	209	84	80 - 120	2014-04-14

Standard (CCV-1)

QC Batch: 111164 Date Analyzed: 2014-04-15 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.0910	91	80 - 120	2014-04-15
Toluene		1	mg/kg	0.100	0.0912	91	80 - 120	2014-04-15

 $continued \dots$

Report Date: April 16, 2014 Work Order: 14041122 Page Number: 14 of 17 701162.054.01 Cimarex/Quail 11 Hobbs,NM

standard continued								
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Ethylbenzene		1	mg/kg	0.100	0.0928	93	80 - 120	2014-04-15
Xylene		1	$\mathrm{mg/kg}$	0.300	0.278	93	80 - 120	2014-04-15

Standard (CCV-2)

QC Batch: 111164 Date Analyzed: 2014-04-15 Analyzed By: AK

				$\begin{array}{c} { m CCVs} \\ { m True} \end{array}$	$\begin{array}{c} \text{CCVs} \\ \text{Found} \end{array}$	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.0940	94	80 - 120	2014-04-15
Toluene		1	mg/kg	0.100	0.0941	94	80 - 120	2014-04-15
Ethylbenzene		1	mg/kg	0.100	0.0949	95	80 - 120	2014-04-15
Xylene		1	$\mathrm{mg/kg}$	0.300	0.282	94	80 - 120	2014-04-15

Standard (CCV-3)

QC Batch: 111164 Date Analyzed: 2014-04-15 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.0898	90	80 - 120	2014-04-15
Toluene		1	mg/kg	0.100	0.0893	89	80 - 120	2014-04-15
Ethylbenzene		1	mg/kg	0.100	0.0899	90	80 - 120	2014-04-15
Xylene		1	mg/kg	0.300	0.268	89	80 - 120	2014-04-15

Standard (CCV-1)

QC Batch: 111165 Date Analyzed: 2014-04-15 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	0.995	100	80 - 120	2014-04-15

Report Date: April 16, 2014 Work Order: 14041122 Page Number: 15 of 17

701162.054.01 Cimarex/Quail 11 Hobbs,NM

Standard (CCV-2)

QC Batch: 111165 Date Analyzed: 2014-04-15 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	0.904	90	80 - 120	2014-04-15

Standard (CCV-3)

QC Batch: 111165 Date Analyzed: 2014-04-15 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	0.901	90	80 - 120	2014-04-15

Report Date: April 16, 2014 Work Order: 14041122 Page Number: 16 of 17 701162.054.01 Cimarex/Quail 11 Hobbs,NM

Appendix

Report Definitions

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

Laboratory Certifications

	Certifying	Certification	Laboratory
\mathbf{C}	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-13-7	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

Report Date: April 16, 2014 Work Order: 14041122 Page Number: 17 of 17 701162.054.01 Cimarex/Quail 11 Hobbs,NM

The scanned attachments will follow this page.

Please note, each attachment may consist of more than one page.

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FraceAnalysis, Inc.

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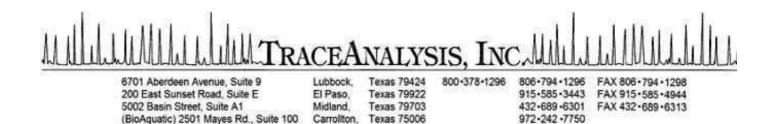
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Brandon & Clark 3403 Industrial Blvd. **Hobbs, NM 88240** Tel (575) 392-7561 Fax (575) 392-4508 Na, Ca, Mg, K, TDS, EC or Specify Method CI, F, SO_4 , MO_3 -N, MO_2 -N, PO_4 -P, Alkalinity **ANALYSIS REQUEST** BioAquatic Testing 2501 Mayes Rd., Ste 100 **Carrollton, Texas 75006** Tel (972) 242-7750 Moisture Content Dry Weight Basis Required Check If Special Reporting Limits Are Needed BOD, TSS, pH TRRP Report Required Pesticides 8081 / 608 PCB's 8082 / 608 3C/MS Semi. Vol. 8270 / 625 GC/MS Aol: 8560 / 624 3 **BCI** TCLP Pesticides TCLP Semi Volatiles Circle Headspace Y / N / (NA) Calery TCLP Volatiles LAB USE 200 East Sunset Rd., Suite El Paso, Texas 79922 Tel (915) 585-3443 Fax (915) 585-4944 1 (888) 588-3443 TCLP Metals Ag As Ba Cd Cr Pb Se Hg ONLY Log-in-Review Intact N Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7 PAH 8270 / 625 TPH 8015 GRO / DRO / TVHC ्ठ TPH 418.1 / TX1005 / TX1005 Ext(C35) ਹ Carrier # BLEX 805 \ 605 \ 8560 \ 654 OBS 3.7 8021 / 602 / 8260 / 624 **BATM** INST OBS SOR OBS INST INST COR 1358 黑 SAMPLING 3MIT 13.18 5002 Basin Street, Suite A1 Midland, Texas 79703 Tel (432) 689-6301 Fax (432) 689-6313 Time: <u>0</u> E-mail: **3TA** csporce talon lpc.com J Date: Date: PRESERVATIVE NONE 0 METHOD ICE > Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C. O. Sample Signal HOBN ANTION I Company: Company: Company Open # 142 *OS^zH 6701 Aberdeen Avenue, Suite 9 **Lubbock, Texas 79424**Tel (806) 794-1296
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1 (800) 378-1296 ^EONH HCI Allison Received by: Received by: SUDDE Received by: MATRIX 7970 ЯIA SOIF **A**3TAW 1313 six.影49, Midland Volume \ Amount Time: Fime: # CONTAINERS ⋺ Date: email: lab@traceanalysis.com J-Sworth Imarex の元の FIELD CODE KCZE Company: Company: Company ODDS / WWw. Project #: 7011 (02. Invoice to: Johnny (If different from above Company Name: Relinquished by Relinquished by Relinquished by AB USE 1202 1202 1203 1203 LAB# ONLY

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Certifications

E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Melissa Decker Talon LPE-Midland 2901 State Highway 349 Midland, TX, 79706

Project Location: Hobbs,NM

Project Name: Cimarex/Quail 11 Project Number: 701162.054.01

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

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
361947	Pad-B	soil	2014-04-30	10:51	2014-05-01

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.

This report consists of a total of 15 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director Dr. Michael Abel, Project Manager

Report Date: May 6, 2014

14050131

Work Order:

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Case Narrative

Samples for project Cimarex/Quail 11 were received by TraceAnalysis, Inc. on 2014-05-01 and assigned to work order 14050131. Samples for work order 14050131 were received intact at a temperature of 5.4 C.

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

		Prep	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	94417	2014-05-02 at 07:37	111678	2014-05-04 at 07:38
TPH DRO - NEW	S 8015 D	94450	2014-05-05 at 11:30	111675	2014-05-04 at $12:30$
TPH GRO	S $8015 D$	94442	2014-05-05 at 09:15	111714	2014-05-05 at $15:30$

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 14050131 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.

Report Date: May 6, 2014 Work Order: 14050131 Page Number: 4 of 15 701162.054.01 Cimarex/Quail 11 Hobbs,NM

Analytical Report

Sample: 361947 - Pad-B

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035 QC Batch: 111678 Date Analyzed: 2014-05-04 Analyzed By: AK Prep Batch: 94417 Sample Preparation: 2014-05-02 Prepared By: AK

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

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.08	mg/Kg	1	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)			1.89	mg/Kg	1	2.00	94	70 - 130

Sample: 361947 - Pad-B

Laboratory: Midland

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO	O.a.	1	212	mø/Kø	1	50.0

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		135	mg/Kg	1	100	135	70 - 130

Sample: 361947 - Pad-B

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 111714 Date Analyzed: 2014-05-05 Analyzed By: AK Prep Batch: 94442 Sample Preparation: 2014-05-05 Prepared By: AK

Report Date: May 6, 2014 701162.054.01

Work Order: 14050131 Cimarex/Quail 11

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 $_{\rm Hobbs,NM}$

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.35	mg/Kg	1	2.00	118	70 - 130
4-Bromofluorobenzene (4-BFB)			1.98	mg/Kg	1	2.00	99	70 - 130

Report Date: May 6, 2014 Work Order: 14050131 Page Number: 6 of 15 701162.054.01 Cimarex/Quail 11 Hobbs,NM

Method Blanks

Method Blank (1) QC Batch: 111675

QC Batch: 111675 Date Analyzed: 2014-05-04 Analyzed By: RG Prep Batch: 94450 QC Preparation: 2014-05-05 Prepared By: RG

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			110	mg/Kg	1	100	110	70 - 130

Method Blank (1) QC Batch: 111678

QC Batch: 111678 Date Analyzed: 2014-05-04 Analyzed By: AK Prep Batch: 94417 QC Preparation: 2014-05-02 Prepared By: AK

MDL Parameter Cert Result Units RLFlag Benzene mg/Kg 0.02 < 0.003541 Toluene < 0.00966 mg/Kg 0.02Ethylbenzene < 0.00790 mg/Kg0.02 1 Xylene mg/Kg< 0.00667 0.02

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.10	mg/Kg	1	2.00	105	70 - 130
4-Bromofluorobenzene (4-BFB)			1.88	mg/Kg	1	2.00	94	70 - 130

Method Blank (1) QC Batch: 111714

QC Batch: 111714 Date Analyzed: 2014-05-05 Analyzed By: AK Prep Batch: 94442 QC Preparation: 2014-05-05 Prepared By: AK

Report Date: May 6, 2014 701162.054.01

Work Order: 14050131 Cimarex/Quail 11 Page Number: 7 of 15

Hobbs,NM

			MDL			
Parameter	Flag	Cert	Result		Units	RL
GRO		1	< 2.32]	mg/Kg	4
				Spile	Dorgont	Pogovory

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.13	mg/Kg	1	2.00	106	70 - 130
4-Bromofluorobenzene (4-BFB)			1.75	mg/Kg	1	2.00	88	70 - 130

Report Date: May 6, 2014 Work Order: 14050131 Page Number: 8 of 15 701162.054.01 Cimarex/Quail 11 Hobbs,NM

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 111675 Date Analyzed: 2014-05-04 Analyzed By: RG
Prep Batch: 94450 QC Preparation: 2014-05-05 Prepared By: RG

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		1	227	mg/Kg	1	250	15.1	85	70 - 130

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO		1	216	mg/Kg	1	250	15.1	80	70 - 130	5	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	119	114	mg/Kg	1	100	119	114	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 111678 Date Analyzed: 2014-05-04 Analyzed By: AK Prep Batch: 94417 QC Preparation: 2014-05-02 Prepared By: AK

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	1.94	mg/Kg	1	2.00	< 0.00354	97	70 - 130
Toluene		1	2.00	mg/Kg	1	2.00	< 0.00966	100	70 - 130
Ethylbenzene		1	1.97	mg/Kg	1	2.00	< 0.00790	98	70 - 130
Xylene		1	6.03	mg/Kg	1	6.00	< 0.00667	100	70 - 130

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	1.88	mg/Kg	1	2.00	< 0.00354	94	70 - 130	3	20
Toluene		1	1.95	mg/Kg	1	2.00	< 0.00966	98	70 - 130	2	20
Ethylbenzene		1	1.92	mg/Kg	1	2.00	< 0.00790	96	70 - 130	3	20
Xylene		1	5.89	mg/Kg	1	6.00	< 0.00667	98	70 - 130	2	20

Report Date: May 6, 2014701162.054.01 Work Order: 14050131 Cimarex/Quail 11

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.04	2.09	mg/Kg	1	2.00	102	104	70 - 130
4-Bromofluorobenzene (4-BFB)	1.92	1.96	mg/Kg	1	2.00	96	98	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 111714 Prep Batch: 94442 Date Analyzed: 2014-05-05 QC Preparation: 2014-05-05 Analyzed By: AK Prepared By: AK

Page Number: 9 of 15

 $_{\rm Hobbs,NM}$

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	18.5	mg/Kg	1	20.0	< 2.32	92	70 - 130

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		1	18.4	mg/Kg	1	20.0	< 2.32	92	70 - 130	1	20

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.25	2.22	mg/Kg	1	2.00	112	111	70 - 130
4-Bromofluorobenzene (4-BFB)	2.22	2.24	mg/Kg	1	2.00	111	112	70 - 130

Report Date: May 6, 2014 Work Order: 14050131 Page Number: 10 of 15 701162.054.01 Cimarex/Quail 11 Hobbs,NM

Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 361947

QC Batch: 111675 Date Analyzed: 2014-05-04 Analyzed By: RG
Prep Batch: 94450 QC Preparation: 2014-05-05 Prepared By: RG

				MS			Spike	Matrix		Rec.
Param		F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO	Qs	Qs	1	352	mg/Kg	1	250	212	56	70 - 130

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

			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO		1	402	mg/Kg	1	250	212	76	70 - 130	13	20

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

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	122	136	mg/Kg	1	100	122	136	70 - 130

Matrix Spike (MS-1) Spiked Sample: 361587

QC Batch: 111678 Date Analyzed: 2014-05-04 Analyzed By: AK Prep Batch: 94417 QC Preparation: 2014-05-02 Prepared By: AK

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	1.85	mg/Kg	1	2.00	< 0.00354	92	70 - 130
Toluene		1	1.91	mg/Kg	1	2.00	< 0.00966	96	70 - 130
Ethylbenzene		1	1.91	mg/Kg	1	2.00	< 0.00790	96	70 - 130
Xylene		1	5.78	mg/Kg	1	6.00	< 0.00667	96	70 - 130

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

			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	1.95	mg/Kg	1	2.00	< 0.00354	98	70 - 130	5	20
Toluene		1	2.01	mg/Kg	1	2.00	< 0.00966	100	70 - 130	5	20
Ethylbenzene		1	2.02	mg/Kg	1	2.00	< 0.00790	101	70 - 130	6	20
Xylene		1	6.16	mg/Kg	1	6.00	< 0.00667	103	70 - 130	6	20

Report Date: May 6, 2014

Work Order: 14050131

701162.054.01

Cimarex/Quail 11

	$_{ m MS}$	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.05	2.03	mg/Kg	1	2	102	102	70 - 130
4-Bromofluorobenzene (4-BFB)	1.92	1.92	mg/Kg	1	2	96	96	70 - 130

Matrix Spike (MS-1) Spiked Sample: 361947

QC Batch: 111714 Prep Batch: 94442 Date Analyzed: 2014-05-05 QC Preparation: 2014-05-05 Analyzed By: AK Prepared By: AK

Page Number: 11 of 15

 $_{\rm Hobbs,NM}$

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	17.7	mg/Kg	1	20.0	2.33	77	70 - 130

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

			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		1	20.4	mg/Kg	1	20.0	2.33	90	70 - 130	14	20

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.19	2.22	mg/Kg	1	2	110	111	70 - 130
4-Bromofluorobenzene (4-BFB)	2.22	2.30	mg/Kg	1	2	111	115	70 - 130

Report Date: May 6, 2014 Work Order: 14050131 Page Number: 12 of 15 701162.054.01 Cimarex/Quail 11 Hobbs,NM

Calibration Standards

Standard (CCV-1)

QC Batch: 111675 Date Analyzed: 2014-05-04 Analyzed By: RG

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	228	91	80 - 120	2014-05-04

Standard (CCV-2)

QC Batch: 111675 Date Analyzed: 2014-05-04 Analyzed By: RG

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	207	83	80 - 120	2014-05-04

Standard (CCV-1)

QC Batch: 111678 Date Analyzed: 2014-05-04 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.103	103	80 - 120	2014-05-04
Toluene		1	mg/kg	0.100	0.102	102	80 - 120	2014-05-04
Ethylbenzene		1	mg/kg	0.100	0.0935	94	80 - 120	2014-05-04
Xylene		1	mg/kg	0.300	0.285	95	80 - 120	2014-05-04

Standard (CCV-2)

QC Batch: 111678 Date Analyzed: 2014-05-04 Analyzed By: AK

Report Date: May 6, 2014 701162.054.01

Work Order: 14050131 Cimarex/Quail 11 Page Number: 13 of 15

 $_{\rm Hobbs,NM}$

				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.0833	83	80 - 120	2014-05-04
Toluene		1	mg/kg	0.100	0.100	100	80 - 120	2014-05-04
Ethylbenzene		1	mg/kg	0.100	0.0989	99	80 - 120	2014-05-04
Xylene		1	mg/kg	0.300	0.300	100	80 - 120	2014-05-04

Standard (CCV-1)

QC Batch: 111714 Date Analyzed: 2014-05-05 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.12	112	80 - 120	2014-05-05

Standard (CCV-2)

QC Batch: 111714 Date Analyzed: 2014-05-05 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	0.958	96	80 - 120	2014-05-05

Report Date: May 6, 2014 Work Order: 14050131 Page Number: 14 of 15 701162.054.01 Cimarex/Quail 11 Hobbs,NM

Appendix

Report Definitions

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

Laboratory Certifications

	Certifying	Certification	Laboratory
\mathbf{C}	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-13-7	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

Report Date: May 6, 2014 Work Order: 14050131 Page Number: 15 of 15 701162.054.01 Cimarex/Quail 11 Hobbs,NM

The scanned attachments will follow this page.

Please note, each attachment may consist of more than one page.

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

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Turn Around Time if different from standard

APPENDIX E

NMOCD RELEASE NOTIFICATION AND CORRECTIVE ACTION (C-141)

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

Revised August 8, 2011

Form C-141

Oil Conservation Division 1220 South St. Francis Dr. Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

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I hereby cert	ify that the	information g	iven above	e is true and comp	lete to	the best of my	knowledge and u	ndersta	nd that purs	suant to NM	OCD	rules and
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Title: Enviro	onmental Co	ompliance Co	ordinator			Approval Da	te:		Expiration	Date:		
E-mail Addr	ess: jtitswo	rth@cimarex.	com			Conditions o	f Approval:			Attached		

Date: 1/23/14

Phone: (432)-250-2059

^{*} Attach Additional Sheets If Necessary