<u>District I</u> 1625 N. French Dr., Hobbs, NM 88240 <u>District II</u> District III

1000 Rio Brazos Road, Aztec, NM 87410

District IV

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

Form C-141 Revised August 8, 2011

Release Notification and Corrective Action												
						OPERATOR					Final Rep	
Name of Company: Cimarex Energy Company						nny Titsworth		2				
				dland, TX 7970	1		No.: (432)250-20)59				
Facility Na	ne: Zafiro	State 32 Co	m #1			Facility Typ	e: Tank Battery					
Surface Ow	ner: State			Mineral O)wner:				API No	o.: 30-025-3	4508	
				LOCA	TIO	N OF REI	LEASE					
Unit Letter G	Section 32	Township 18	Range 34	Feet from the 2310	Nortl FNL	n/South Line	Feet from the 1980	East/V 1980	Vest Line	County Lea		
				Latitude: 32	2.705	10 Longitude	: -103.58040					
				NAT	URE	OF RELI	EASE					
Type of Rele							Release: 49 BBL			Recovered:		
Source of Re							our of Occurrence			Hour of Dis	covery	Ď.
Was Immedi	ate Notice (Yes 🗌	No 🔲 Not Req	uired	If YES, To	Whom? Johnny	/ Titswo	orth			
By Whom?	Mark Bisho	р				Date and H	our 12/12/13 14	100				
Was a Water			Yes X	No		If YES, Vo	lume Impacting th	ne Wate	ercourse.			
If a Watercon	irca wac Im	pacted, Descri	be Eully 8		-							
Unknown pe	rson malicio		entally cau	ised 3" load line t	to be p	ulled from Vic	taulic connection	to be pu	illed out of	connection	to wat	er tank.
Impacted are	a was excav		h of 8 feet	en.* bgs and transport onfirmation soil sa								
regulations a public health should their or or the environ	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:	Mlli	i Dec	Ker			OIL CONSERVATION DIVISION						
Printed Name	e: Melissa D	Decker on beha	alf of Cim	arex Energy		Approved by Environmental Specialist:						
Title: Project	Manager					Approval Date	e:	F	Expiration 1	Date:		
		r@talonlpe.co			Conditions of Approval:							
	Date: 08/1/2014 Phone: (831)345-2422 Attach Additional Sheets If Necessary											



Prepared for:

Prepared by:











CLOSURE REPORT

ZAFIRO STATE 32 COM #1 26.7 MILES WEST OF HOBBS, NEW MEXICO HOBBS, LEA COUNTY, NEW MEXICO

TALON/LPE PROJECT NO. 701162.053.01

PREPARED FOR:
CIMAREX ENERGY
600 NORTH MARIENFIELD SUITE 600
MIDLAND, TX 79701

Prepared By:

Melissa Decker Project Manager

Shane Curie, PG Professional Geologist

Talon/LPE 2901 State Highway 349 Midland, Texas 79706

June 3, 2014



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Appendix D Laboratory Analytical Data Reports and Chain of Custody Documentation

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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 Cimarex operated Zafiro State 32 Com #1 (site). The purpose of this report is to document remediation and site restoration activities undertaken regarding the release of condensate at the subject site.

The site is located approximately 26.7 miles west of the city of Hobbs, in Lea County, New Mexico. The GPS coordinates for the site are 32.70510° North latitude and 103.58040° West longitude. A condensate release occurred as a result of a faulty load line. Remediation activities occurred on site following guidance drafted by the New Mexico Energy, Natural Resources Department (EMNRD), New Mexico Oil Conservation Division (OCD) rules (NMAC 19.15.30 Remediation and NMAC 20.6.2 Ground and Surface Water Protection) and the New Mexico EMNRD OCD Guidelines for Remediation of Leaks, Spills and Releases as guidance.

On December 12, 2013, a release of condensate and produced water occurred at the referenced site from a faulty load line connection to a water tank. The release was determined to be approximately 49 barrels (bbl) of oil condensate lost with zero (0) bbl recovered. Cimarex completed a C-141 Release Notification and Corrective Action Report on December 12, 2013. The release impacted the surface area located inside the unlined containment firewall of the tank battery. The impacted area ranged from two (2) to six (6) feet wide and approximately 18 feet in length inside the firewall containment. The release also breached the containment and spilled onto the surrounding land surface. The impacted surface area measured one (1) to four (4) feet wide and 12 feet in length. A Topographic Map depicting the location of the Site is included as Figure 1. An Aerial Photograph of the Site is attached as Figure 2. Site Details are provided as Figure 3.

1.2 NMOCD Site Classification

The site is subject to regulatory oversight by the New Mexico EMNRD OCD. To address activities related to crude oil releases, the New Mexico EMNRD OCD utilizes the *Guidelines for Remediation of Leaks, Spills and Releases* as guidance, in addition to the OCD rules, specifically NMAC 19-15-30 Remediation. These guidance documents establish investigation and abatement action requirements for sites subject to reporting and/or corrective action.

A search of the New Mexico Water Rights (NMWRRS) database maintained by the New Mexico Office of the State Engineer (NMOSE), did not provide information for Section 32, Township 18S, Range 34. A search of nearby locations provided information indicating that groundwater should be encountered at approximately 50 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 are listed below:

Compound	Remediation Threshold
Benzene	10 mg/Kg (ppm)
BTEX	50 mg/kg (ppm)
TPH	100 mg/kg (ppm)

2.0 INITIAL SITE ACTIVITIES

On December 23, 2013, Talon personnel conducted an initial assessment of the site. A Third Party had previously excavated the impacted soils inside the containment as well as the land surface. The Third Party had excavated a depth of 10 to 12 inches bgs and transported 36 cubic yards of impacted soil to Sundance Services, an approved disposal facility. A new layer of clean gravel was placed inside the tank battery firewall.

3.0 DELINEATION ACTIVITIES

3.1 Vertical Delineation Activities

On January 13, 2014, Talon personnel collected initial assessments of soil contaminant levels through the advancement of soil borings from three (3) discreet locations (designated as BH1, BH2, and BH3) at one (1) foot intervals to a depth of six (6) feet bgs to document the vertical extent of the impacted soil. The samples were analyzed for concentration of benzene, toluene, ethylbenzene and total xylenes (BTEX) and Total Petroleum Hydrocarbons (TPH) using Texas Method TX1005 extended to C₃₅. The sample locations are documented on Figure 3. Initial laboratory analysis showed that the TPH concentration for BH2 and BH3 exceeded the allowable limit of 100 mg/Kg.

On February 6, 2014, Talon personnel conducted a second round of soil borings using a hand auger to assess the depth of impacted material. Seven (7) soil boring samples were advanced to different depths ranging from surface to eight (8) feet below ground surface (bgs). Talon personnel experienced hand auger refusal at eight (8) feet bgs. The samples were analyzed for TPH concentration. Analytical results showed the TPH concentration was well above the EMNRD OCD required level of 100 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 1.

3.2 Test Trench Activities

On April 9, 2014, Talon personnel excavated a test trench in order to attempt vertical delineation. The test trench was installed east of the tank battery in the impacted surface area. The test trench was excavated to a depth of 14 feet bgs. Two (2) samples were collected and designated as 13' BGS and 14' BGS. The samples were analyzed for concentration of BTEX and TPH. Initial analytical results, for the two (2) samples collected on April 9, 2014, indicated that the TPH concentration was below laboratory detectable limits. These samples established the vertical delineation of the release. 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 1.

3.3 Site Visit

On April 30, 2014, a site meeting was conducted with Talon personnel, Cimarex personnel, and an NMOCD Environmental Specialist. As a result of the site visit, guidelines were established for the remediation of the site. In order to preserve the structural integrity of the tank battery infrastructure, the proposed excavation was to be limited to eight (8) feet bgs. Talon personnel submitted a work plan to Cimarex personnel and the NMOCD Environmental Specialist to document the intended scope of remediation for the site.

4.0 SOIL EXCAVATION AND BACKFILL ACTIVITIES

4.1 Excavation Activities

On June 2, 2014, Talon personnel conducted excavation activities at the site. Talon personnel excavated the impacted area east of the tank battery to a depth of eight (8) feet bgs utilizing a trackhoe. The excavation area measured approximately 20 feet in length and 12 feet in width. Talon transported 80 cubic yards of excavated material to Lea Land, an approved disposal facility. The excavated area is depicted in Figure 4 of Appendix A.

4.2 Backfill, Compaction, and Site Grading Activities

The excavation area was backfilled with clean caliche to a depth of four (4) feet bgs. The caliche was provided by Cimarex using material gathered from the adjacent well pad. A 20 millimeter reinforced liner was placed at a depth of four (4) feet bgs to prevent further distribution of the contaminated area. The remaining excavation area was backfilled with material collected from the surrounding sand dunes which contain native seeds and vegetation. The site was backfilled, compacted, and graded to match pre-spill conditions. Backfill and compaction of the site was achieved by utilizing a trackhoe and a backhoe.

5.0 SAMPLING ACTIVITIES

5.1 Sample Collection

Following excavation activities, confirmation soil samples were collected on June 2, 2014. One (1) bottomhole confirmation sample was collected and designated as BH-1. Four (4) sidewall confirmation samples were collected from the four cardinal directions of the excavation (designated as SW-N, SW-S, SW-W, and SW-E). The soil samples were collected by Talon personnel 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.

Talon personnel collected soil samples for BTEX and TPH concentrations. The sample designated as BH was also submitted for analysis of chloride concentration. The samples were collected in laboratory provided sample containers, immediately placed in an ice-chilled cooler, and transported to TraceAnalysis in Midland, Texas.

5.2 Analytical Results

Initial laboratory analytical results indicated that TPH concentrations (C_6 - C_{35}) of the samples designated as SW-N, SW-E, and SW-S were less than 50.0 mg/Kg and the BTEX concentration was below the remediation threshold. The sample designated as SW-W contained a TPH concentration of 1,182 mg/Kg. The TPH concentration for the sample designated as BH-1 was determined to be 12,390 mg/Kg. The samples designated as BH-1 and SW-W both contained a TPH concentration above the remediation threshold; however, the structural integrity of the tank battery did not allow for further excavation in these areas. The sample designated as BH-1 contained a chloride concentration of 27 mg/Kg.

Copies of the laboratory analytical results and chain of custody documentation are presented in Appendix D. A summary of the excavation confirmation soil sample analytical results are presented on Table 2 and Table 3 in Appendix B.

6.0 CONCLUSION

6.1 Conclusions

- A crude oil release was reported by Cimarex at the site on December 12, 2014, as a result of a faulty load line. Cimarex personnel estimated that 49 bbl of condensate were released and zero (0) bbl were recovered, resulting in a net loss of 49 bbl of condensate.
- Following initial delineation activities, a site visit occurred on April 30, 2014. Talon personnel, Cimarex personnel, and an NMOCD Environmental Specialist were present at the meeting. A remediation plan was discussed and agreed upon following the meeting.
- Excavation activities were conducted by Talon personnel on June 2, 2014, and excavated material was transported to Lea Land in Carlsbad, New Mexico.
- The excavation area was backfilled with uncontaminated caliche to a depth of four (4) feet bgs. The caliche was provided by Cimarex using material gathered from the adjacent well pad.
- A liner was placed at a depth of four (4) feet bgs to prevent further distribution of the contaminate. The remaining excavation area was backfilled with material collected from the surrounding sand dunes which contain native seeds and vegetation.

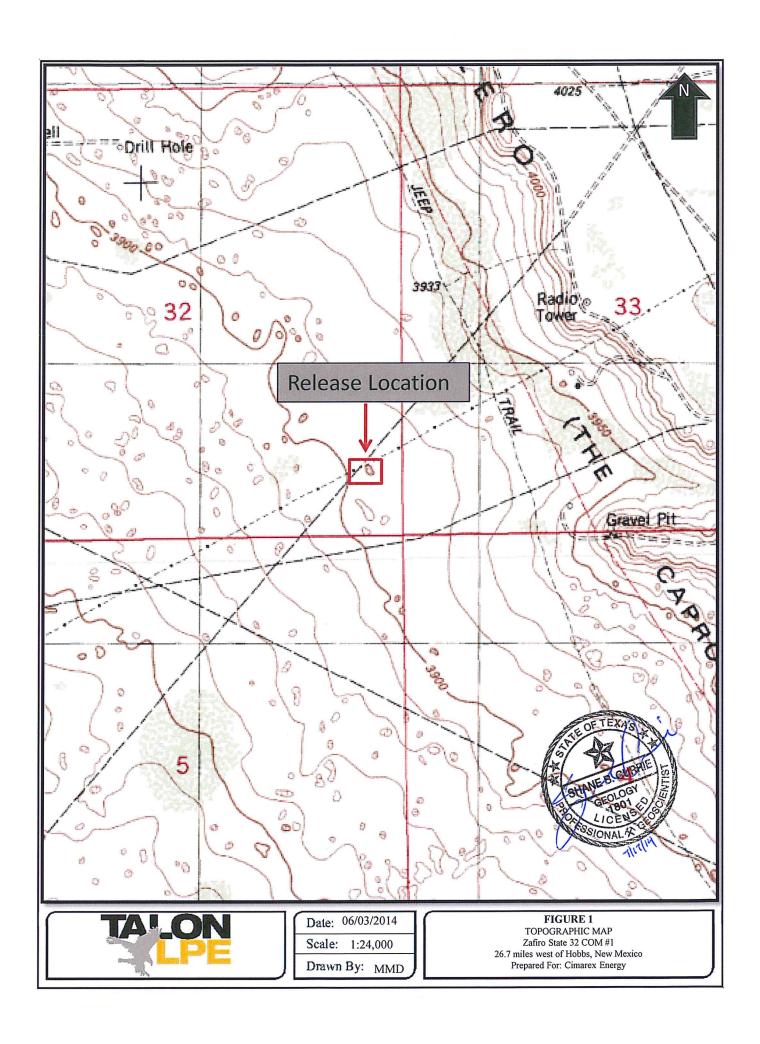
6.2 Recommendations

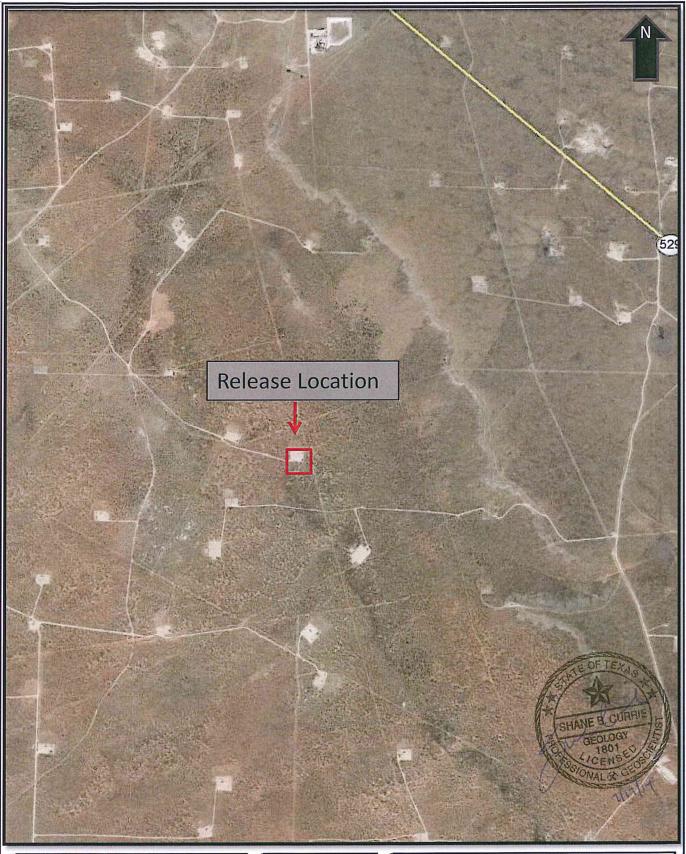
Based on laboratory analytical results of soil samples collected from the excavation limits, the horizontal and vertical extent of the release are in accordance with the remediation plan discussed on April 30, 2014.

This report will be the final documentation regarding the release. Based on the remediation activities and data presented in this report, no further action is proposed for this site.

APPENDIX A

FIGURES





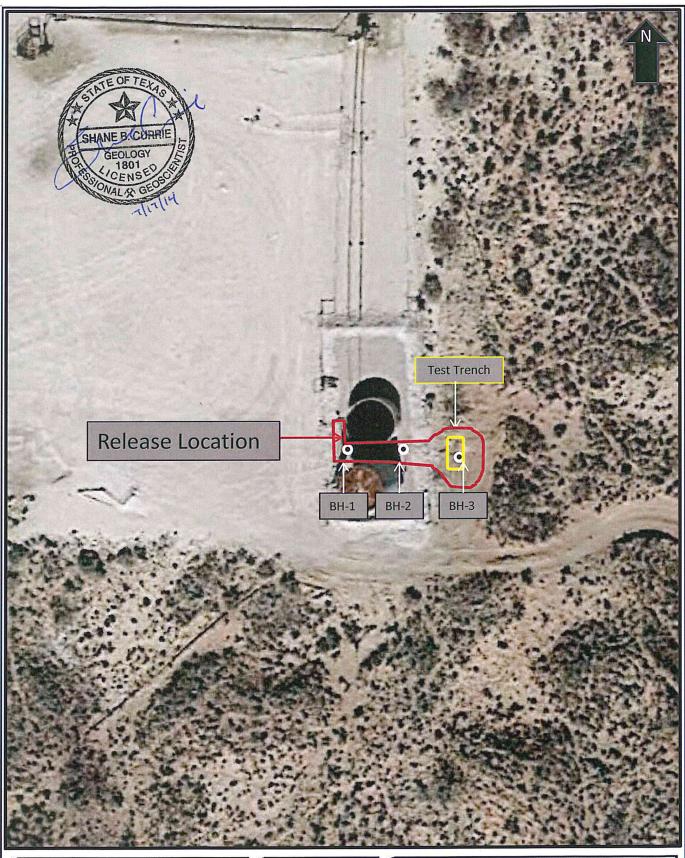


Date: 06/03/2014

Scale: Not to Scale

Drawn By: MMD

FIGURE 2
AERIAL MAP
Zafiro State 32 COM #1
26.7 miles west of Hobbs, New Mexico
Prepared For: Cimarex Energy





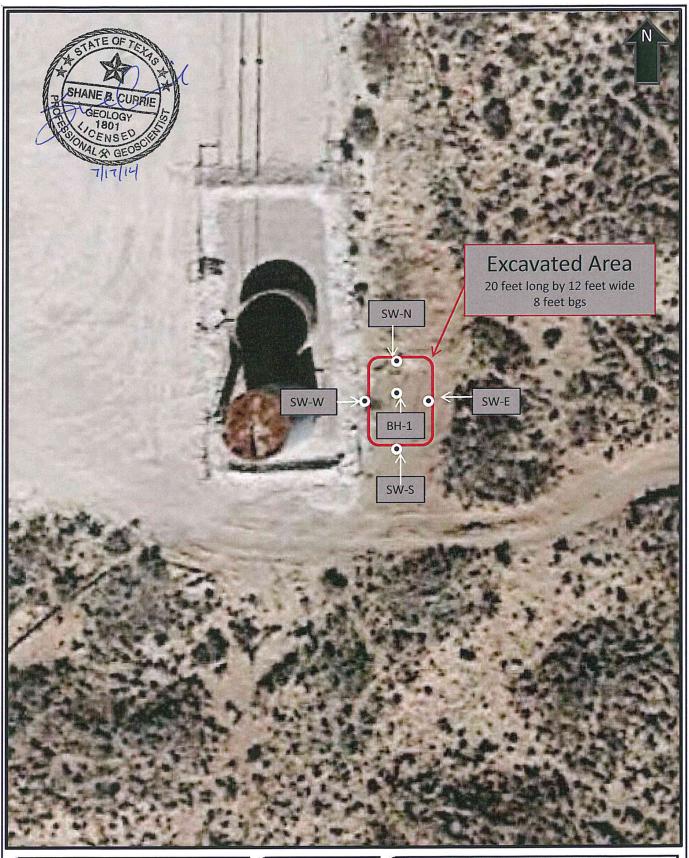
Date: 06/03/2014

Scale: Not to Scale

Drawn By: MMD

FIGURE 3

DELINEATION SITE DETAILS
Zafiro State 32 COM #1
26.7 miles west of Hobbs, New Mexico
Prepared For: Cimarex Energy





Date: 06/03/2014

Scale: Not to Scale

Drawn By: MMD

FIGURE 4
EXCAVATION SITE DETAILS
Zafiro State 32 COM #1
26.7 miles west of Hobbs, New Mexico
Prepared For: Cimarex Energy

APPENDIX B

TABLES



TABLE 1

SUMMARY OF SOIL ANALYTICAL DATA- DELINEATION ACTIVITIES CONCENTRATIONS OF TPH & BTEX IN SOIL

ZAFIRO STATE 32 COM #1 CIMAREX ENERGY

26.7 MILES WEST OF HOBBS, NEW MEXICO

TALON/LPE PROJECT NUMBER: 701162.053.01

	SAMPLE	N	/IETHOD: 8015	М	METHOD: 8021				
SAMPLE LOCATION	DATE	DRO (mg/Kg)	GRO (mg/Kg)	TOTAL TPH (mg/Kg)	Benzene	Toulene	Ethyl- benzene	Total Xylenes	
BH-1 1ft	1/13/2014	<50.0	<4.0	<54.0	<0.0200	<0.0200	< 0.0200	< 0.0500	
BH-2 1ft	1/13/2014	1,790	11,600	13,390	10	302	55	424	
BH-2 2ft	1/13/2014	3,090	31,600	34,690	74	1,170	206	1,540	
BH-2 3ft	1/13/2014	82	20	102	<0.0200	0	< 0.0200	0	
BH-3 1ft	1/13/2014	906	11,900	12,806	11	299	43	408	
BH-3 2ft	1/13/2014	1,520	11,900	13,420	10	234	38	341	
BH-3 3ft	1/13/2014	1,880	10,100	11,980	11	210	33	296	
BH-3 4ft	1/13/2014	1,900	15,000	16,900	14	336	46	462	
BH-3 5ft	1/13/2014	2,580	40,900	43,480	62	692	112	823	
BH-3 6ft	1/13/2014	2,770	32,900	35,670	48	830	90	980	
BH-3B Surface	2/6/2014	1,090	209	1,299	-	-	-	-	
BH-3B 2ft	2/6/2014	2,770	5,150	7,920	-	-	-	-	
BH-3B 4ft	2/6/2014	5,740	32,000	37,740	-	-	-	-	
BH-3B 5ft	2/6/2014	3,890	14,600	18,490	-	-	-	-	
BH-3B 6ft	2/6/2014	2,820	7,800	10,620	-	-	-	-	
BH-3B 7ft	2/6/2014	3,490	9,760	13,250	-	-	-	-	
BH-3B 8ft	2/6/2014	7,850	18,600	26,450	-	-	-	-	
13 " BGS	4/14/2014	<50.0	<4.00	<54.0	<0.0200	<0.0200	< 0.0200	<0.0200	
14 " BGS	4/14/2014	<50.0	<4.00	<54.0	<0.0200	<0.0200	< 0.0200	<0.0200	
Remedial Threshold				100	10				

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



TABLE 2

SUMMARY OF ANAYTICAL DATA- EXCAVTION ACTIVITIES CONCENTRATIONS OF TPH & BTEX IN SOIL

ZAFIRO STATE 32 COM #1 CIMAREX ENERGY 26.7 MILES WEST OF HOBBS, NEW MEXICO

TALON/LPE PROJECT NUMBER: 701162.053.01

		N	/IETHOD: 801	5M	METHOD: 8021				
SAMPLE LOCATION	SAMPLE DATE	DRO (mg/Kg)	GRO (mg/Kg)	TOTAL TPH (mg/Kg)	Benzene	Toulene	Ethyl- benzene	Total Xylenes	
BH-1	6/2/2014	2,220	9,170	11,390	13	111	53	308	
SW-N	6/2/2014	<50.0	<4.0	<54	0.601	2.36	2.74	17.6	
SW-E	6/2/2014	<50.0	<4.0	<54	0.0284	0.145	0.105	0.332	
SW-S	6/2/2014	<50.0	<4.0	<54	<0.0200	0.042	<0.0200	0.144	
SW-W	6/2/2014	648	543	1,191	<0.0200	<0.0200	0.0282	0.0906	
Remedial Threshold				100	10				

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



TABLE 3

SUMMARY OF SOIL ANALYTICAL DATA

CONCENTRATIONS OF CHLORIDE IN SOIL

ZAFIRO STATE 32 COM #1 CIMAREX ENERGY 26.7 MILES WEST OF HOBBS, NEW MEXICO

TALON/LPE PROJECT NUMBER: 701162.053.01

		METHOD: 300.0
SAMPLE LOCATION	SAMPLE DATE	CHLORIDE (mg/Kg)
BH-1	6/2/2014	27

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

APPENDIX C

PHOTOGRAPHIC DOCUMENTATION





Photograph No. 1

Direction:

East

Description:

Source of release



Photograph No. 2

Direction:

East

Description:

View of new gravel around release area





Photograph No. 3

Direction: North

Description:

Flow path, new gravel, and added berm height.



Photograph No. 4

Direction: South

Description:

View of flowpath and new gravel placed in tank containment.





Photograph No. 5

Direction:Northeast

Description:
Following a meeting with NMOCD personnel, the impacted vegetation area was to be excavated, lined, and backfilled.



Photograph No. 6

Direction: Southeast

Description:A test trench was completed to assess vertical limits of impacted soils.





Photograph No. 7

Direction:Northeast

Description:

Excavated area measuring 20 feet long by 12 feet wide. The total depth was approximately eight (8) feet bgs.



Photograph No. 8

Direction:

East

Description:

The area was backfilled with new caliche to a depth of four (4) feet bgs.





Photograph No. 9

Direction:North

Description:

A 20mm reinforced liner was placed at a depth of 4 feet to prevent any further contamination.



Photograph No. 10

Direction:

Northeast

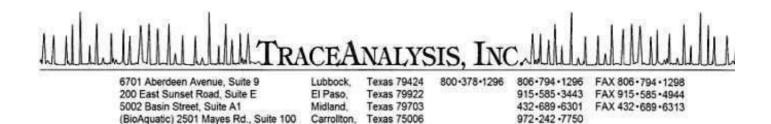
Description:

The lined area was backfilled with material from the surrounding area and graded to match pre-release conditions.



APPENDIX D

LABORATORY ANALYTICAL DATA REPORTS AND CHAIN OF CUSTODY DOCUMENTATION



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

Chris Spore Talon LPE-Midland 2901 State Highway 349 Midland, TX, 79706

Report Date: January 29, 2014

Work Order: 14011609

Project Location: Hobbs,NM

Project Name: Cimarex/Zafiro State 32 Com #1

Project Number: 70112.053.01

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
351558	BH-1 1ft	soil	2014-01-13	11:20	2014-01-16
351559	BH-1 2ft	soil	2014-01-13	11:40	2014-01-16
351560	BH-1 3ft	soil	2014-01-13	11:56	2014-01-16
351561	BH-1 4ft	soil	2014-01-13	12:03	2014-01-16
351562	BH-1 5ft	soil	2014-01-13	12:08	2014-01-16
351563	BH-1 6ft	soil	2014-01-13	12:14	2014-01-16
351564	BH-2 1ft	soil	2014-01-13	12:27	2014-01-16
351565	BH-2 2ft	soil	2014-01-13	12:40	2014-01-16
351566	BH-2 3ft	soil	2014-01-13	12:45	2014-01-16
351570	BH-3 1ft	soil	2014-01-13	13:02	2014-01-16
351571	BH-3 2ft	soil	2014-01-13	13:05	2014-01-16
351572	BH-3 3ft	soil	2014-01-13	13:09	2014-01-16
351573	BH-3 4ft	soil	2014-01-13	13:12	2014-01-16
351574	BH-35ft	soil	2014-01-13	13:17	2014-01-16
351575	BH-3 6ft	soil	2014-01-13	13:24	2014-01-16

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 39 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 Contents

Case Narrative
Analytical Report
Sample 351558 (BH-1 1ft)
Sample 351559 (BH-1 2ft)
Sample 351560 (BH-1 3ft)
Sample 351561 (BH-1 4ft)
Sample 351562 (BH-1 5ft)
Sample 351563 (BH-1 6ft)
Sample 351564 (BH-2 1ft)
Sample 351565 (BH-2 2ft)
Sample 351566 (BH-2 3ft)
Sample 351570 (BH-3 1ft)
Sample 351571 (BH-3 2ft)
Sample 351572 (BH-3 3ft)
Sample 351573 (BH-3 4ft)
Sample 351574 (BH-3 5ft)
Sample 351575 (BH-3 6ft)
bampic soloto (Bil s oit)
Method Blanks
QC Batch 108402 - Method Blank (1)
QC Batch 108403 - Method Blank (1)
QC Batch 108462 - Method Blank (1)
QC Batch 108466 - Method Blank (1)
QC Batch 108469 - Method Blank (1)
QC Batch 108534 - Method Blank (1)
QC Batch 108640 - Method Blank (1)
QC Batch 108704 - Method Blank (1)
Ge Baron 100101 11200104 Blann (1)
Laboratory Control Spikes
QC Batch 108402 - LCS (1)
QC Batch 108403 - LCS (1)
QC Batch 108462 - LCS (1)
QC Batch 108466 - LCS (1)
QC Batch 108469 - LCS (1)
QC Batch 108534 - LCS (1)
QC Batch 108640 - LCS (1)
QC Batch 108704 - LCS (1)
QC Batch 108402 - MS (1)
QC Batch 108403 - MS (1)
QC Batch 108462 - MS (1)
QC Batch 108466 - MS (1)
QC Batch 108469 - MS (1)
QC Batch 108534 - MS (1)
QC Batch 108640 - MS (1)
OC Botob 108704 MS (1)

Calibration Standards 3
QC Batch 108402 - CCV (1)
QC Batch 108402 - CCV (2)
QC Batch 108402 - CCV (3)
QC Batch 108403 - CCV (1)
QC Batch 108403 - CCV (2)
QC Batch 108403 - CCV (3)
QC Batch 108462 - CCV (1)
QC Batch 108462 - CCV (2)
QC Batch 108466 - CCV (1)
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QC Batch 108469 - CCV (1)
QC Batch 108469 - CCV (2)
QC Batch 108469 - CCV (3)
QC Batch 108534 - CCV (1)
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QC Batch 108640 - CCV (1)
QC Batch 108640 - CCV (2)
QC Batch 108640 - CCV (3)
QC Batch 108704 - CCV (1)
QC Batch 108704 - CCV (2)
Appendix 3
Report Definitions
Laboratory Certifications
Standard Flags
Result Comments
Attachments

Case Narrative

Samples for project Cimarex/Zafiro State 32 Com #1 were received by TraceAnalysis, Inc. on 2014-01-16 and assigned to work order 14011609. Samples for work order 14011609 were received intact at a temperature of 5.5 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	91647	2014-01-15 at 15:17	108402	2014-01-17 at 12:30
Chloride (Titration)	$\mathrm{SM}\ 4500\text{-}\mathrm{Cl}\ \mathrm{B}$	91713	2014-01-20 at 09:04	108462	2014-01-20 at 15:42
Chloride (Titration)	$\mathrm{SM}\ 4500\text{-}\mathrm{Cl}\ \mathrm{B}$	91782	2014-01-22 at 08:36	108534	2014-01-22 at 16:23
Chloride (Titration)	SM 4500-Cl B	91894	2014-01-27 at 08:22	108704	2014-01-28 at 15:20
TPH DRO - NEW	S 8015 D	91748	2014-01-20 at 08:00	108469	2014-01-21 at 08:53
TPH DRO - NEW	S 8015 D	91896	2014-01-24 at 16:00	108640	2014-01-27 at $06:20$
TPH GRO	S 8015 D	91647	2014-01-15 at 15:17	108403	2014-01-17 at 12:36
TPH GRO	S 8015 D	91710	2014-01-17 at 15:30	108466	2014-01-20 at $16:15$

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 14011609 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.

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Analytical Report

Sample: 351558 - BH-1 1ft

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035 QC Batch: 108402 Date Analyzed: 2014-01-17 Analyzed By: AK Prep Batch: 91647 Sample Preparation: 2014-01-15 Prepared By: AK

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	$_{ m Qr,U}$	2	< 0.0200	mg/Kg	1	0.0200
Toluene	$_{ m Qr,U}$	2	< 0.0200	mg/Kg	1	0.0200
Ethylbenzene	$_{\mathrm{Qr,Qs,U}}$	2	< 0.0200	mg/Kg	1	0.0200
Xylene	$_{ m Qr,Qs,U}$	2	< 0.0200	mg/Kg	1	0.0200

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.79	mg/Kg	1	2.00	90	70 - 130
4-Bromofluorobenzene (4-BFB)			2.02	mg/Kg	1	2.00	101	70 - 130

Sample: 351558 - BH-1 1ft

Laboratory: Midland

Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A QC Batch: 108462 Date Analyzed: 2014-01-20 Analyzed By: AR Prep Batch: 91713 Sample Preparation: 2014-01-20 Prepared By: AR

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			385	mg/Kg	5	4.00

Sample: 351558 - BH-1 1ft

Laboratory: Lubbock

Analysis: TPH DRO - NEW Analytical Method: Prep Method: S 8015 D N/A108469 QC Batch: Date Analyzed: 2014-01-21 Analyzed By: CMPrep Batch: 91748 Sample Preparation: 2014-01-20 Prepared By: CM

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO	U	1	< 50.0	mg/Kg	1	50.0

Report Date: January 29, 2014

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Work Order: 14011609 Cimarex/Zafiro State 32 Com #1 Page Number: 7 of 39 Hobbs,NM

S 5035

AK

AK

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			93.6	mg/Kg	1	100	94	70 - 130

Sample: 351558 - BH-1 1ft

Laboratory: Midland

Analysis: TPH GRO QC Batch: 108403 Prep Batch: 91647 Analytical Method:S 8015 DPrep Method:Date Analyzed:2014-01-17Analyzed By:Sample Preparation:2014-01-15Prepared By:

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.88	mg/Kg	1	2.00	94	70 - 130
4-Bromofluorobenzene (4-BFB)			2.01	mg/Kg	1	2.00	100	70 - 130

Sample: 351559 - BH-1 2ft

Laboratory: Midland

Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A QC Batch: 108534Date Analyzed: 2014-01-22 Analyzed By: AR Prep Batch: Prepared By: 91782 Sample Preparation: 2014-01-22 AR

Sample: 351560 - BH-1 3ft

Laboratory: Midland

Analysis: N/AChloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: QC Batch: 108704 Date Analyzed: 2014-01-28 Analyzed By: AR Prep Batch: 91894 Sample Preparation: Prepared By: AR 2014-01-27

 $continued \dots$

Report Date: January 29, 2014 Work Order: 14011609 Page Number: 8 of 39 70112.053.01 Cimarex/Zafiro State 32 Com #1 Hobbs,NM sample 351560 continued . . .

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			72.7	mg/Kg	5	4.00

Sample: 351561 - BH-1 4ft

Laboratory: Midland

Analysis: Chloride (Titration) Analytical Method: Prep Method: N/A SM 4500-Cl B QC Batch: Date Analyzed: Analyzed By: 108704 2014-01-28 ARPrep Batch: 91894 Sample Preparation: 2014-01-27 Prepared By: AR

Sample: 351562 - BH-15ft

Laboratory: Midland

Analysis: Chloride (Titration) Analytical Method: Prep Method: SM 4500-Cl B N/AQC Batch: 108704 Date Analyzed: Analyzed By: AR2014-01-28Prep Batch: 91894 Sample Preparation: 2014-01-27 Prepared By: AR

Sample: 351563 - BH-1 6ft

Laboratory: Midland

Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/AQC Batch: AR108704 Date Analyzed: 2014-01-28Analyzed By: Prep Batch: 91894 Sample Preparation: 2014-01-27 Prepared By: AR

Work Order: 14011609 Cimarex/Zafiro State 32 Com #1

< 20.0

mg/Kg

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4.00

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			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL

Sample: 351564 - BH-2 1ft

Laboratory: Midland

Chloride

BTEXAnalytical Method: S 8021BPrep Method: S 5035 Analysis: QC Batch: 108402 Date Analyzed: 2014-01-17 Analyzed By: AKPrep Batch: 91647 Sample Preparation: 2014-01-15 Prepared By: AK

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	Qr	2	9.90	mg/Kg	50	0.0200
Toluene	$_{ m Qr}$	2	302	mg/Kg	50	0.0200
Ethylbenzene	$_{ m Qr,Qs}$	2	$\bf 55.2$	mg/Kg	50	0.0200
Xylene	$_{ m Qr,Qs}$	2	424	mg/Kg	50	0.0200

							Spike	Percent	Recovery
Surrogate]	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				1.84	mg/Kg	50	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		55.5	mg/Kg	50	2.00	2775	70 - 130

Sample: 351564 - BH-2 1ft

Laboratory: Midland

Analysis: Chloride (Titration) Analytical Method: Prep Method: N/A SM 4500-Cl B QC Batch: 108462 Date Analyzed: Analyzed By: AR2014-01-20 Sample Preparation: Prep Batch: 91713 2014-01-20 Prepared By: AR

Sample: 351564 - BH-2 1ft

Laboratory: Lubbock

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/AQC Batch: 108469 Date Analyzed: Analyzed By: CM2014-01-21 Prep Batch: 91748 Sample Preparation: Prepared By: CM2014-01-20

Work Order: 14011609 Cimarex/Zafiro State 32 Com #1

x,	/Zafiro	State	32	Com	#1	l
	X	x/Zafiro	x/Zafiro State	x/Zafiro State 32	x/Zafiro State 32 Com	x/Zafiro State 32 Com #1

					I	RL			
Parameter			Flag	Cert	Resi	ılt	Units	Dilution	RL
DRO				1	17	1790 mg/Kg		1	50.0
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		140	mg/Kg	1	100	140	70 - 130
					9,				

Sample: 351564 - BH-2 1ft

Laboratory: Midland

 Iethod:
 S 8015 D
 Prep Method:
 S 5035

 ed:
 2014-01-17
 Analyzed By:
 AK

 aration:
 2014-01-15
 Prepared By:
 AK

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			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO	Je	2	11600	m mg/Kg	50	4.00

							$_{ m Spike}$	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	Qsr	Qsr		13.6	mg/Kg	50	2.00	680	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		29.9	mg/Kg	50	2.00	1495	70 - 130

Sample: 351565 - BH-2 2ft

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035 QC Batch: 108402 Date Analyzed: 2014-01-17 Analyzed By: AK Prep Batch: 91647 Sample Preparation: 2014-01-15 Prepared By: AK

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	Qr	2	74.0	m mg/Kg	200	0.0200
Toluene	$_{ m Qr}$	2	1170	mg/Kg	200	0.0200
Ethylbenzene	$_{ m Qr,Qs}$	2	206	mg/Kg	200	0.0200
Xylene	$_{ m Qr,Qs}$	2	1540	mg/Kg	200	0.0200

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	Qsr	Qsr		4.70	mg/Kg	200	2.00	235	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	$_{ m Qsr}$		96.3	mg/Kg	200	2.00	4815	70 - 130

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Sample: 351565 - BH-2 2ft

Laboratory: Lubbock

TPH DRO - NEW Analysis: Analytical Method: S 8015 D Prep Method: N/AQC Batch: 108640 Date Analyzed: 2014-01-27 Analyzed By: CMPrep Batch: Sample Preparation: Prepared By: 91896 2014-01-24 DS

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			207	mg/Kg	1	100	207	70 - 130

Sample: 351565 - BH-2 2ft

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 108403 Analyzed By: Date Analyzed: 2014-01-17 AKPrep Batch: 91647 Sample Preparation: 2014-01-15 Prepared By: AK

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	Qsr	Qsr		2.63	mg/Kg	200	2.00	132	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		381	mg/Kg	200	2.00	19050	70 - 130

Sample: 351566 - BH-2 3ft

Laboratory: Midland

BTEX Analysis: Analytical Method: S 8021BPrep Method: S 5035 QC Batch: 108402 Date Analyzed: 2014-01-17 Analyzed By: AK Prep Batch: 91647 Sample Preparation: 2014-01-15 Prepared By: AK

RLDilution Parameter Flag Cert Result Units RLBenzene < 0.0200 mg/Kg 1 0.0200 $_{
m Qr}$ 2 Toluene 0.104 mg/Kg1 0.0200Qr 2 Ethylbenzene mg/Kg1 0.0200 < 0.02002 $_{
m Qr,Qs}$ Xylene mg/Kg1 0.3080.0200Qr,Qs

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CM

DS

		-				Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.48	mg/Kg	1	2.00	74	70 - 130
4-Bromofluorobenzene (4-BFB)			1.83	mg/Kg	1	2.00	92	70 - 130

Sample: 351566 - BH-2 3ft

Laboratory: Lubbock

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A QC Batch: 108640Date Analyzed: 2014-01-27 Analyzed By: Prep Batch: 91896 Sample Preparation: 2014-01-24 Prepared By:

RLParameter Flag Cert Result Units Dilution RL82.2 $\overline{\mathrm{mg/Kg}}$ $\overline{\text{DRO}}$ 50.0 Qs

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			95.2	mg/Kg	1	100	95	70 - 130

Sample: 351566 - BH-2 3ft

Laboratory: Midland

TPH GRO S 8015 D Analysis: Analytical Method: Prep Method: S 5035QC Batch: 108403 Date Analyzed: 2014-01-17 Analyzed By: AKPrep Batch: 91647 Sample Preparation: 2014-01-15 Prepared By: AK

RL Flag Result Parameter Cert Units Dilution RL $\overline{\text{GRO}}$ 20.1 mg/Kg 4.00

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.59	mg/Kg	1	2.00	80	70 - 130
4-Bromofluorobenzene (4-BFB)			2.24	mg/Kg	1	2.00	112	70 - 130

Sample: 351570 - BH-3 1ft

Laboratory: Midland

Analysis: **BTEX** Analytical Method: S_{8021B} Prep Method: S 5035 QC Batch: 108402 Date Analyzed: 2014-01-17 Analyzed By: AKPrep Batch: 91647 Sample Preparation: 2014-01-15 Prepared By: AK

70112.053.01 Cimarex/Zafiro State 32 Com #1

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	$_{ m Qr}$	2	10.9	mg/Kg	50	0.0200
Toluene	$_{ m Qr}$	2	299	mg/Kg	50	0.0200
Ethylbenzene	$_{ m Qr,Qs}$	2	43.0	mg/Kg	50	0.0200
Xylene	$_{ m Qr,Qs}$	2	408	mg/Kg	50	0.0200

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							Spike	Percent	Recovery
Surrogate	I	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				1.64	mg/Kg	50	2.00	82	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	$_{\mathrm{Qsr}}$		57.7	mg/Kg	50	2.00	2885	70 - 130

Sample: 351570 - BH-3 1ft

Laboratory: Midland

Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/AQC Batch: Date Analyzed: 108462 2014-01-20 Analyzed By: ARPrep Batch: 91713 Sample Preparation: 2014-01-20 Prepared By: AR

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride	II		< 20.0	mg/Kg	5	4.00

Sample: 351570 - BH-3 1ft

Laboratory: Lubbock

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A QC Batch: 108469Date Analyzed: 2014 - 01 - 21Analyzed By: CMPrep Batch: 91748 Sample Preparation: Prepared By: 2014-01-20 CM

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO		1	906	mg/Kg	1	50.0

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			115	${ m mg/Kg}$	1	100	115	70 - 130

Sample: 351570 - BH-3 1ft

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 108403 Date Analyzed: 2014-01-17 Analyzed By: AK Prep Batch: 91647 Sample Preparation: 2014-01-15 Prepared By: AK

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					RL				
Parameter	Flag		Cert	I	Result	Unit	S	Dilution	RL
GRO	Je		2	1	1900	$\mathrm{mg/K}$	g	50	4.00
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		13.1	mg/Kg	50	2.00	655	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		106	mg/Kg	50	2.00	5300	70 - 130

Sample: 351571 - BH-3 2ft

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035 QC Batch: 108402 Date Analyzed: 2014-01-17 Analyzed By: AK Prep Batch: 91647 Sample Preparation: 2014-01-15 Prepared By: AK

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	Qr	2	10.1	m mg/Kg	200	0.0200
Toluene	$_{ m Qr}$	2	234	mg/Kg	200	0.0200
Ethylbenzene	$_{ m Qr,Qs}$	2	37.9	mg/Kg	200	0.0200
Xylene	$_{ m Qr,Qs}$	2	341	mg/Kg	200	0.0200

							$_{ m Spike}$	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	1_{Qsr}	Qsr		0.00	mg/Kg	200	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{ m Qsr}$		48.4	mg/Kg	200	2.00	2420	70 - 130

Sample: 351571 - BH-3 2ft

Laboratory: Lubbock

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A QC Batch: 108640Date Analyzed: Analyzed By: CM2014 - 01 - 27Prep Batch: 91896 Sample Preparation: 2014 - 01 - 24Prepared By: DS

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO	Qs	1	1520	mg/Kg	1	50.0

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		148	mg/Kg	1	100	148	70 - 130

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Sample: 351571 - BH-3 2ft

Laboratory: Midland

TPH GRO S 5035 Analysis: Analytical Method: S 8015 D Prep Method: QC Batch: 108403 Date Analyzed: 2014-01-17 Analyzed By: AK Prep Batch: 91647 Sample Preparation: 2014-01-15 Prepared By: AK

							$_{ m Spike}$	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	Qsr	Qsr		10.1	mg/Kg	200	2.00	505	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	$_{\mathrm{Qsr}}$		81.2	mg/Kg	200	2.00	4060	70 - 130

Sample: 351572 - BH-3 3ft

Laboratory: Midland

Analysis: **BTEX** Analytical Method: S_{8021B} Prep Method: S 5035 QC Batch: 108402 Date Analyzed: 2014 - 01 - 17Analyzed By: AK2014-01-15 Prep Batch: 91647Sample Preparation: Prepared By: AK

RLFlag Parameter Cert Result Units Dilution RL11.1 200 0.0200 Benzene mg/Kg Qr 2 Toluene 210 mg/Kg200 0.0200 $_{
m Qr}$ 2 200 0.0200Ethylbenzene 33.4 mg/Kg2 $_{
m Qr,Qs}$ **296** 200 mg/Kg0.0200Xylene $_{
m Qr,Qs}$

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	2 Qsr	Qsr		0.00	mg/Kg	200	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		42.4	mg/Kg	200	2.00	2120	70 - 130

Sample: 351572 - BH-3 3ft

Laboratory: Lubbock

TPH DRO - NEW Analysis: Analytical Method: S 8015 D Prep Method: N/AQC Batch: 108640 Date Analyzed: 2014-01-27 Analyzed By: CMPrep Batch: 91896 Sample Preparation: 2014-01-24 Prepared By: DS

 $\overline{continued}$. . .

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sample 351572 continued ...

					F	$^{ m RL}$			
Parameter			Flag	Cert	Resu	ılt	Units	Dilution	RL
					т) T			
					1	RL			
Parameter			Flag	Cert	Resu	ılt	Units	Dilution	RL
DRO			Qs	1	188	30	mg/Kg	1	50.0
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		162	mg/Kg	1	100	162	70 - 130

Sample: 351572 - BH-3 3ft

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 108403 Date Analyzed: 2014-01-17 Analyzed By: AK Prep Batch: 91647 Sample Preparation: 2014-01-15 Prepared By: AK

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO		2	10100	$\mathrm{mg/Kg}$	200	4.00

							$_{ m Spike}$	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	Qsr	Qsr		9.49	mg/Kg	200	2.00	474	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{ m Qsr}$	$_{\mathrm{Qsr}}$		87.4	mg/Kg	200	2.00	4370	70 - 130

Sample: 351573 - BH-3 4ft

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035 QC Batch: 108402 Date Analyzed: 2014-01-17 Analyzed By: AK Prep Batch: 91647 Sample Preparation: 2014-01-15 Prepared By: AK

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	Qr	2	14.0	$\mathrm{mg/Kg}$	200	0.0200
Toluene	$_{ m Qr}$	2	336	mg/Kg	200	0.0200
Ethylbenzene	$_{ m Qr,Qs}$	2	45.8	mg/Kg	200	0.0200
Xylene	$_{ m Qr,Qs}$	2	$\bf 462$	mg/Kg	200	0.0200

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Surrogate		Flag	Cert	Result	Units	Dilution	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		6.50	mg/Kg	200	2.00	325	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		69.5	${ m mg/Kg}$	200	2.00	3475	70 - 130

Sample: 351573 - BH-3 4ft

Laboratory: Lubbock

Analysis: TPH DRO - NEW QC Batch: 108640 Prep Batch: 91896

Analytical Method: S 8015 D Date Analyzed: 2014-01-27Sample Preparation: 2014-01-24

Prep Method: N/A Analyzed By: CMPrepared By: DS

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			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO	Qs	1	1900	mg/Kg	1	50.0

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		162	mg/Kg	1	100	162	70 - 130

Sample: 351573 - BH-3 4ft

Laboratory: Midland

Analysis: TPH GRO QC Batch: 108466 Prep Batch: 91710

Analytical Method: S 8015 D Date Analyzed: 2014-01-20 Sample Preparation: 2014-01-17

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

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO	Qs	2	15000	m mg/Kg	400	4.00

							$_{ m Spike}$	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				1.78	mg/Kg	400	2.00	89	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		131	mg/Kg	400	2.00	6550	70 - 130

Sample: 351574 - BH-35ft

Laboratory: Midland

Analysis: BTEXAnalytical Method: S 8021B Prep Method: S 5035 QC Batch: 108402 Date Analyzed: 2014-01-17Analyzed By: AKPrep Batch: 91647 Sample Preparation: 2014-01-15 Prepared By: AK

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			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	Qr	2	62.4	m mg/Kg	100	0.0200
Toluene	$_{ m Qr}$	2	$\boldsymbol{692}$	mg/Kg	100	0.0200
Ethylbenzene	$_{ m Qr,Qs}$	2	112	mg/Kg	100	0.0200
Xylene	$_{ m Qr,Qs}$	2	823	mg/Kg	100	0.0200

							$_{ m Spike}$	$\operatorname{Percent}$	Recovery	
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits	
Trifluorotoluene (TFT)				1.51	mg/Kg	100	2.00	76	70 - 130	
4-Bromofluorobenzene (4-BFB)	Qsr	$_{\mathrm{Qsr}}$		121	mg/Kg	100	2.00	6050	70 - 130	

Sample: 351574 - BH-35ft

Laboratory: Lubbock

TPH DRO - NEW Analysis: Analytical Method: S 8015 D Prep Method: N/AQC Batch: 108640 Date Analyzed: 2014 - 01 - 27Analyzed By: CMPrep Batch: 91896 Sample Preparation: Prepared By: 2014-01-24 DS

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		188	mg/Kg	1	100	188	70 - 130

Sample: 351574 - BH-35ft

Laboratory: Midland

S 8015 D Analysis: TPH GRO Analytical Method: Prep Method: S 5035 QC Batch: 108403 Date Analyzed: 2014-01-17 Analyzed By: AKPrep Batch: 91647 Sample Preparation: 2014-01-15 Prepared By: AK

							$_{ m Spike}$	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	Qsr	Qsr		34.2	mg/Kg	200	2.00	1710	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		310	mg/Kg	200	2.00	15500	70 - 130

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Sample: 351575 - BH-3 6ft

Laboratory: Midland

Analysis: BTEX Prep Method: S 5035 Analytical Method: S 8021BQC Batch: 108402 Date Analyzed: 2014-01-17 Analyzed By: Prep Batch: 91647 Sample Preparation: 2014-01-15 Prepared By:

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	Qr	2	47.6	mg/Kg	200	0.0200
Toluene	$_{ m Qr}$	2	830	mg/Kg	200	0.0200
Ethylbenzene	$_{ m Qr,Qs}$	2	89.5	mg/Kg	200	0.0200
Xylene	$_{ m Qr,Qs}$	2	980	$\mathrm{mg/Kg}$	200	0.0200

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AK

							$_{\mathrm{Spike}}$	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	$^{3}_{\mathrm{Qsr}}$	Qsr		1.36	mg/Kg	200	2.00	68	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		102	mg/Kg	200	2.00	5100	70 - 130

Sample: 351575 - BH-3 6ft

Laboratory: Lubbock

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A QC Batch: CM108640 Date Analyzed: 2014-01-27Analyzed By: Prep Batch: 91896 Sample Preparation: 2014 - 01 - 24Prepared By: DS

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO	Qs	1	2770	mg/Kg	1	50.0

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		196	mg/Kg	1	100	196	70 - 130

Sample: 351575 - BH-3 6ft

Midland Laboratory:

 $TPH\ GRO$ Analysis: Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 108403 Date Analyzed: AK2014-01-17 Analyzed By: Prep Batch: 91647 Sample Preparation: 2014-01-15 Prepared By: AK

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO	Je	2	32900	mg/Kg	200	4.00

4-Bromofluorobenzene (4-BFB)

Qsr

 $_{\mathrm{Qsr}}$

Work Order: 14011609 Cimarex/Zafiro State 32 Com #1

mg/Kg

200

2.00

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70 - 130

Spike Percent Recovery ${\bf Surrogate}$ Flag ${\bf Result}$ ${\bf Units}$ ${\bf Dilution}$ Amount Limits Cert Recovery Trifluorotoluene (TFT) 0.00 mg/Kg 200 2.00 0 70 - 130 Qsr

209

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Method Blanks

Method Blank (1) QC Batch: 108402

QC Batch: 108402 Date Analyzed: 2014-01-17 Analyzed By: AK Prep Batch: 91647 QC Preparation: 2014-01-15 Prepared By: AK

			MDL		
Parameter	Flag	Cert	Result	Units	RL
Benzene		2	< 0.00533	mg/Kg	0.02
Toluene		2	< 0.00645	mg/Kg	0.02
Ethylbenzene		2	< 0.0116	mg/Kg	0.02
Xvlene		2	< 0.00874	m mg/Kg	0.02

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.94	mg/Kg	1	2.00	97	70 - 130
4-Bromofluorobenzene (4-BFB)			2.06	mg/Kg	1	2.00	103	70 - 130

Method Blank (1) QC Batch: 108403

QC Batch: 108403 Date Analyzed: 2014-01-17 Analyzed By: AK Prep Batch: 91647 QC Preparation: 2014-01-15 Prepared By: AK

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.97	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			2.10	mg/Kg	1	2.00	105	70 - 130

Method Blank (1) QC Batch: 108462

QC Batch: 108462 Date Analyzed: 2014-01-20 Analyzed By: AR Prep Batch: 91713 QC Preparation: 2014-01-20 Prepared By: AR

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

Method Blank (1) QC Batch: 108466

QC Batch: 108466 Date Analyzed: 2014 - 01 - 20Analyzed By: AK Prepared By: AK

Prep Batch: 91710 QC Preparation: 2014-01-17

 MDL Parameter Flag Cert Result Units RLGRO < 2.32mg/Kg 2

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.07	mg/Kg	1	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)			2.22	mg/Kg	1	2.00	111	70 - 130

Method Blank (1) QC Batch: 108469

QC Batch: 108469 Date Analyzed: Analyzed By: CM 2014-01-21Prepared By: CM

Prep Batch: 91748 QC Preparation: 2014-01-20

MDLUnits Parameter Flag Cert Result RL $\overline{\mathrm{DRO}}$ 6.53 mg/Kg 50 1

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			90.0	mg/Kg	1	100	90	70 - 130

Method Blank (1) QC Batch: 108534

QC Batch: Date Analyzed: Analyzed By: AR 108534 2014-01-22 Prep Batch: 91782 QC Preparation: Prepared By: AR 2014-01-22

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

Method Blank (1) QC Batch: 108640

QC Batch: Analyzed By: CM 108640Date Analyzed: 2014 - 01 - 27Prepared By: CM

QC Preparation: Prep Batch: 91896 2014-01-24

 MDL ${\bf Parameter}$ Flag Cert Result Units RL $\overline{\mathrm{DRO}}$ < 5.22mg/Kg 50 1

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			91.6	${ m mg/Kg}$	1	100	92	70 - 130

Method Blank (1) QC Batch: 108704

QC Batch: 108704 Date Analyzed: Analyzed By: AR 2014 - 01 - 28Prep Batch: 91894 QC Preparation: 2014 - 01 - 27Prepared By: AR

MDL

Parameter Flag Cert Result Units RLChloride < 3.85mg/Kg

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 108402 Date Analyzed: 2014-01-17 Analyzed By: AK Prep Batch: 91647 QC Preparation: 2014-01-15 Prepared By: AK

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		2	1.92	mg/Kg	1	2.00	< 0.00533	96	70 - 130
Toluene		2	2.22	mg/Kg	1	2.00	< 0.00645	111	70 - 130
Ethylbenzene		2	2.20	mg/Kg	1	2.00	< 0.0116	110	70 - 130
Xylene		2	6.90	$\mathrm{mg/Kg}$	1	6.00	< 0.00874	115	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		2	1.84	mg/Kg	1	2.00	< 0.00533	92	70 - 130	4	20
Toluene		2	1.99	mg/Kg	1	2.00	< 0.00645	100	70 - 130	11	20
Ethylbenzene		2	2.11	mg/Kg	1	2.00	< 0.0116	106	70 - 130	4	20
Xylene		2	6.44	mg/Kg	1	6.00	< 0.00874	107	70 - 130	7	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)	2.55	1.90	mg/Kg	1	2.00	128	95	70 - 130
4-Bromofluorobenzene (4-BFB)	2.60	2.13	mg/Kg	1	2.00	130	106	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 108403 Date Analyzed: 2014-01-17 Analyzed By: AK Prep Batch: 91647 QC Preparation: 2014-01-15 Prepared By: AK

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		2	16.4	mg/Kg	1	20.0	< 2.32	82	70 - 130

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

 $continued \dots$

Work Order: 14011609 Cimarex/Zafiro State 32 Com #1

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control	snikes	continued		

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		2	15.9	mg/Kg	1	20.0	< 2.32	80	70 - 130	3	20

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

	LCS	LCSD			$_{ m Spike}$	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.79	1.72	mg/Kg	1	2.00	90	86	70 - 130
4-Bromofluorobenzene (4-BFB)	2.18	2.18	mg/Kg	1	2.00	109	109	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 108462 Prep Batch: 91713

Date Analyzed: 2014-01-20 QC Preparation: 2014-01-20 Analyzed By: AR Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			2400	mg/Kg	1	2500	< 3.85	96	89.7 - 115.9

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
Chloride			2590	mg/Kg	1	2500	< 3.85	104	89.7 - 115.9	8	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 108466 Date Analyzed: 2014-01-20 Prep Batch: 91710 QC Preparation: 2014-01-17 Analyzed By: AK Prepared By: AK

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		2	16.1	mg/Kg	1	20.0	< 2.32	80	70 - 130

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

 $continued \dots$

Work Order: 14011609 Cimarex/Zafiro State 32 Com #1

 $control\ spikes\ continued\ \dots$

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
			LCSD			Spike	Matrix		Rec.		RPD
Param	F	С	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	${ m Rec.} \ { m Limit}$	RPD	$\begin{array}{c} \mathrm{RPD} \\ \mathrm{Limit} \end{array}$

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

	LCS	LCSD			$_{ m Spike}$	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.85	1.88	mg/Kg	1	2.00	92	94	70 - 130
4-Bromofluorobenzene (4-BFB)	2.45	2.38	mg/Kg	1	2.00	122	119	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 108469 Prep Batch: 91748 Date Analyzed: 2014-01-21 QC Preparation: 2014-01-20

Analyzed By: CM Prepared By: CM

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			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		1	242	mg/Kg	1	250	6.53	94	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	233	mg/Kg	1	250	6.53	90	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
n-Tricosane	97.2	92.1	mg/Kg	1	100	97	92	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 108534 Prep Batch: 91782 Date Analyzed: 2014-01-22 QC Preparation: 2014-01-22 Analyzed By: AR Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			2580	mg/Kg	1	2500	< 3.85	103	89 7 - 115 9

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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
Chloride			2440	mg/Kg	1	2500	< 3.85	98	89.7 - 115.9	6	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 108640 Date Analyzed: 2014-01-27 Analyzed By: CM Prep Batch: 91896 QC Preparation: 2014-01-24 Prepared By: CM

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		1	215	mg/Kg	1	250	< 5.22	86	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	213	mg/Kg	1	250	< 5.22	85	70 - 130	1	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	91.4	92.4	mg/Kg	1	100	91	92	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 108704 Date Analyzed: 2014-01-28 Analyzed By: AR
Prep Batch: 91894 QC Preparation: 2014-01-27 Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			2870	mg/Kg	1	2500	< 3.85	115	89.7 - 115.9

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
Chloride			2840	mg/Kg	1	2500	< 3.85	114	89.7 - 115.9	1	20

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

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Matrix Spike (MS-1) Spiked Sample: 351440

QC Batch: 108402 Date Analyzed: 2014-01-17 Analyzed By: AK Prep Batch: 91647 QC Preparation: 2014-01-15 Prepared By: AK

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		2	1.70	mg/Kg	1	2.00	< 0.00533	85	70 - 130
Toluene		2	1.86	mg/Kg	1	2.00	< 0.00645	93	70 - 130
Ethylbenzene		2	1.97	mg/Kg	1	2.00	< 0.0116	98	70 - 130
Xylene		2	5.93	mg/Kg	1	6.00	< 0.00874	99	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	Qr	Qr	2	2.27	mg/Kg	1	2.00	< 0.00533	114	70 - 130	29	20
Toluene	$_{ m Qr}$	$_{ m Qr}$	2	2.50	mg/Kg	1	2.00	< 0.00645	125	70 - 130	29	20
Ethylbenzene	$_{ m Qr,Qs}$	$_{ m Qr,Qs}$	2	2.85	mg/Kg	1	2.00	< 0.0116	142	70 - 130	36	20
Xylene	$_{ m Qr,Qs}$	$_{ m Qr,Qs}$	2	8.59	mg/Kg	1	6.00	< 0.00874	143	70 - 130	37	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)	1.78	2.41	mg/Kg	1	2	89	120	70 - 130
4-Bromofluorobenzene (4-BFB)	1.97	2.76	mg/Kg	1	2	98	138	70 - 130

Matrix Spike (MS-1) Spiked Sample: 351440

QC Batch: 108403 Date Analyzed: 2014-01-17 Analyzed By: AK Prep Batch: 91647 QC Preparation: 2014-01-15 Prepared By: AK

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		2	16.9	mg/Kg	1	20.0	< 2.32	84	70 - 130

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

			MSD			$_{ m Spike}$	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		2	16.4	mg/Kg	1	20.0	< 2.32	82	70 - 130	3	20

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

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Work Order: 14011609 Cimarex/Zafiro State 32 Com #1 Page Number: 29 of 39 Hobbs,NM

	:1	continued		
matrar	Smikes	continuea		

Surrogate	$rac{MS}{Result}$	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.84	1.78	mg/Kg	1	2	92	89	70 - 130
4-Bromofluorobenzene (4-BFB)	2.16	2.12	mg/Kg	1	2	108	106	70 - 130

Matrix Spike (MS-1) Spiked Sample: 351830

 QC Batch:
 108462
 Date Analyzed:
 2014-01-20

 Prep Batch:
 91713
 QC Preparation:
 2014-01-20

Analyzed By: AR Prepared By: AR

			MS			Spike	Matrix		Rec.
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			27800	mg/Kg	10	2500	25400	96	78.9 - 121

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
Chloride			28100	mg/Kg	10	2500	25400	108	78.9 - 121	1	20

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

Matrix Spike (MS-1) Spiked Sample: 351613

QC Batch: 108466 Date Analyzed: 2014-01-20 Analyzed By: AK Prep Batch: 91710 QC Preparation: 2014-01-17 Prepared By: AK

				MS			Spike	Matrix		Rec.
Param		F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	Os	Os	2	<116	mg/Kg	50	20.0	<116	0	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	Qs	Qs	2	<116	mg/Kg	50	20.0	<116	0	70 - 130	0	20

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

 $continued \dots$

Work Order: 14011609 Cimarex/Zafiro State 32 Com #1

 $matrix\ spikes\ continued\ \dots$

Surrogate	$rac{MS}{Result}$	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.80	1.88	mg/Kg	50	2	90	94	70 - 130
4-Bromofluorobenzene (4-BFB)	2.40	2.36	mg/Kg	50	2	120	118	70 - 130

Matrix Spike (MS-1) Spiked Sample: 351656

QC Batch: 108469 Prep Batch: 91748 Date Analyzed: 2014-01-21 QC Preparation: 2014-01-20 Analyzed By: CM Prepared By: CM

Page Number: 30 of 39

Hobbs,NM

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		1	394	mg/Kg	1	250	88.7	122	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	409	mg/Kg	1	250	88.7	128	70 - 130	4	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	94.5	99.5	mg/Kg	1	100	94	100	70 - 130

Matrix Spike (MS-1) Spiked Sample: 351559

QC Batch: 108534 Prep Batch: 91782 Date Analyzed: 2014-01-22 QC Preparation: 2014-01-22 Analyzed By: AR Prepared By: AR

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			2770	mg/Kg	5	2500	364	96	78.9 - 121

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
Chloride			2900	mg/Kg	5	2500	364	101	78.9 - 121	5	20

Work Order: 14011609 Cimarex/Zafiro State 32 Com #1

Page Number: 31 of 39

Hobbs,NM

70112.053.01 Cimarex/Zafiro State 32 Com #

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

Matrix Spike (MS-1) Spiked Sample: 351575

QC Batch: 108640 Date Analyzed: 2014-01-27 Analyzed By: CM Prep Batch: 91896 QC Preparation: 2014-01-24 Prepared By: CM

				MS			Spike	Matrix		Rec.
Param		\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO	Os	Os	1	2370	mg/Kg	1	250	2770	-160	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	Os	Os	1	2880	mg/Kg	1	250	2770	44	70 - 130	19	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	Qsr	Qsr	166	187	mg/Kg	1	100	166	187	70 - 130

Matrix Spike (MS-1) Spiked Sample: 352563

QC Batch: 108704 Date Analyzed: 2014-01-28 Analyzed By: AR Prep Batch: 91894 QC Preparation: 2014-01-27 Prepared By: AR

			MS			Spike	Matrix		Rec.
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			2590	mg/Kg	5	2500	<19.2	104	78.9 - 121

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
Chloride			2700	mg/Kg	5	2500	<19.2	108	78.9 - 121	4	20

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

Report Date: January 29, 2014 Work Order: 14011609 Page Number: 32 of 39 70112.053.01 Cimarex/Zafiro State 32 Com #1 Hobbs,NM

Calibration Standards

Standard (CCV-1)

QC Batch: 108402 Date Analyzed: 2014-01-17 Analyzed By: AK

				CCVs True	$\begin{array}{c} {\rm CCVs} \\ {\rm Found} \end{array}$	$\begin{array}{c} { m CCVs} \\ { m Percent} \end{array}$	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		2	mg/kg	0.100	0.104	104	80 - 120	2014-01-17
Toluene		2	mg/kg	0.100	0.107	107	80 - 120	2014-01-17
Ethylbenzene		2	mg/kg	0.100	0.107	107	80 - 120	2014-01-17
Xylene		2	mg/kg	0.300	0.327	109	80 - 120	2014-01-17

Standard (CCV-2)

QC Batch: 108402 Date Analyzed: 2014-01-17 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		2	mg/kg	0.100	0.101	101	80 - 120	2014-01-17
Toluene		2	$\mathrm{mg/kg}$	0.100	0.104	104	80 - 120	2014-01-17
Ethylbenzene		2	mg/kg	0.100	0.104	104	80 - 120	2014-01-17
Xylene		2	mg/kg	0.300	0.315	105	80 - 120	2014-01-17

Standard (CCV-3)

QC Batch: 108402 Date Analyzed: 2014-01-17 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		2	mg/kg	0.100	0.0984	98	80 - 120	2014-01-17
Toluene		2	mg/kg	0.100	0.102	102	80 - 120	2014-01-17
Ethylbenzene		2	$\mathrm{mg/kg}$	0.100	0.102	102	80 - 120	2014-01-17
Xylene		2	mg/kg	0.300	0.310	103	80 - 120	2014-01-17

Work Order: 14011609 Cimarex/Zafiro State 32 Com#1 Page Number: 33 of 39

Hobbs,NM

Standard (CCV-1)

QC Batch: 108403 Date Analyzed: 2014-01-17 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		2	mg/Kg	1.00	1.04	104	80 - 120	2014-01-17

Standard (CCV-2)

QC Batch: 108403 Date Analyzed: 2014-01-17 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		2	mg/Kg	1.00	0.905	90	80 - 120	2014-01-17

Standard (CCV-3)

QC Batch: 108403 Date Analyzed: 2014-01-17 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		2	mg/Kg	1.00	1.05	105	80 - 120	2014-01-17

Standard (CCV-1)

QC Batch: 108462 Date Analyzed: 2014-01-20 Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	102	102	85 - 115	2014-01-20

Standard (CCV-2)

QC Batch: 108462 Date Analyzed: 2014-01-20 Analyzed By: AR

Work Order: 14011609 Cimarex/Zafiro State 32 Com #1

70112.053.01 Cimarex/Zafiro State 32 Com #1

Page Number: 34 of 39 Hobbs,NM

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	98.1	98	85 - 115	2014-01-20

Standard (CCV-1)

QC Batch: 108466 Date Analyzed: 2014-01-20 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		2	mg/Kg	1.00	1.05	105	80 - 120	2014-01-20

Standard (CCV-2)

QC Batch: 108466 Date Analyzed: 2014-01-20 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		2	mg/Kg	1.00	1.09	109	80 - 120	2014-01-20

Standard (CCV-1)

QC Batch: 108469 Date Analyzed: 2014-01-21 Analyzed By: CM

				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	2014-01-21

Standard (CCV-2)

QC Batch: 108469 Date Analyzed: 2014-01-21 Analyzed By: CM

Work Order: 14011609 Cimarex/Zafiro State 32 Com #1

70112.053.01 Cimarex/Zafiro State 32 Com #

Page Number: 35 of 39 Hobbs,NM

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	235	94	80 - 120	2014-01-21

Standard (CCV-3)

QC Batch: 108469 Date Analyzed: 2014-01-21 Analyzed By: CM

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	225	90	80 - 120	2014-01-21

Standard (CCV-1)

QC Batch: 108534 Date Analyzed: 2014-01-22 Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mø/Kø	100	102	102	85 - 115	2014-01-22

Standard (CCV-2)

QC Batch: 108534 Date Analyzed: 2014-01-22 Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	98.4	98	85 - 115	2014-01-22

Standard (CCV-1)

QC Batch: 108640 Date Analyzed: 2014-01-27 Analyzed By: CM

Work Order: 14011609

Page Number: 36 of 39

Hobbs,NM

70112.053.01Cimarex/Zafiro State 32 Com #1

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	202	81	80 - 120	2014-01-27

Standard (CCV-2)

QC Batch: 108640Date Analyzed: 2014-01-27 Analyzed By: CM

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	208	83	80 - 120	2014-01-27

Standard (CCV-3)

QC Batch: 108640Date Analyzed: 2014-01-27 Analyzed By: CM

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	204	82	80 - 120	2014-01-27

Standard (CCV-1)

QC Batch: 108704 Date Analyzed: 2014-01-28 Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	105	105	85 - 115	2014-01-28

Standard (CCV-2)

QC Batch: 108704 Date Analyzed: 2014-01-28 Analyzed By: AR

Work Order: 14011609 Cimarex/Zafiro State 32 Com #1 Page Number: 37 of 39

Hobbs,NM

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	94.6	95	85 - 115	2014-01-28

Report Date: January 29, 2014 Work Order: 14011609 Page Number: 38 of 39 70112.053.01 Cimarex/Zafiro State 32 Com #1 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	T104704219-13-9	Lubbock
2	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

Report Date: January 29, 2014 Work Order: 14011609 Page Number: 39 of 39 70112.053.01 Cimarex/Zafiro State 32 Com #1 Hobbs,NM

Result Comments

- 1 Surrogate low due to possible dilution out of sample.
- 2 Surrogate low due to possible dilution out of sample.
- 3 Surrogate low due to possible dilution out of sample.

Attachments

The scanned attachments will follow this page.

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

LAB Order ID # 14011 609

	Brandon & Clark 3403 Industrial Blvd. Hobbs, NM 88240 Tel (575) 392-7561 Fax (575) 392-4508	, s	- (°©Z	lard	stand	wo.	ı) Jue			VV	אוק	A muT	×										>	ext depth	xt depth	ext don	•		
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121000 LAB Order ID # raceAnalysis, Inc.

email: lab@traceanalysis.com

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

Suite

5002 Basin Street, Suite A1

Midland, Texas 79703

Tel (432) 689-6301

Fax (432) 689-6313

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

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200 East Sunset Rd., Suite E El Paso, Texas 79922
Tel (915) 585-3443
Fax (915) 585-944
1 (888) 588-3443

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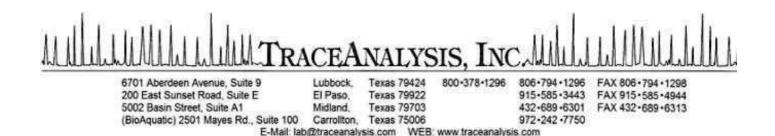
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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Chris Spore Talon LPE-Midland 2901 State Highway 349 Midland, TX, 79706

Report Date: February 18, 2014

Work Order: 14021005

Project Location: Hobbs,NM

Project Name: Cimarex/Zafiro State 32 Com #1

Project Number: 70112.053.01

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
354214	BH-3B Surface	soil	2014-02-06	12:00	2014-02-07
354215	BH-3B 2'bgs	soil	2014-02-06	12:06	2014-02-07
354216	BH-3B 4'bgs	soil	2014-02-06	12:11	2014-02-07
354217	BH-3B 5'bgs	soil	2014-02-06	12:16	2014-02-07
354218	BH-3B 6'bgs	soil	2014-02-06	12:20	2014-02-07
354219	BH-3B 7'bgs	soil	2014-02-06	12:24	2014-02-07
354220	BH-3B 8'bgs	soil	2014-02-06	12:34	2014-02-07

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 22 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael april

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

Report Contents

Case Narrative
Analytical Report Sample 354214 (BH-3B Surface) Sample 354215 (BH-3B 2'bgs) Sample 354216 (BH-3B 4'bgs) Sample 354217 (BH-3B 5'bgs) Sample 354218 (BH-3B 6'bgs) Sample 354219 (BH-3B 7'bgs) Sample 354220 (BH-3B 8'bgs)
Method Blanks 1 QC Batch 109229 - Method Blank (1) 1 QC Batch 109281 - Method Blank (1) 1 QC Batch 109347 - Method Blank (1) 1 QC Batch 109393 - Method Blank (1) 1
Laboratory Control Spikes 1. QC Batch 109229 - LCS (1) 1. QC Batch 109281 - LCS (1) 1. QC Batch 109347 - LCS (1) 1. QC Batch 109393 - LCS (1) 1. QC Batch 109229 - MS (1) 1. QC Batch 109281 - MS (1) 1. QC Batch 109347 - MS (1) 1. QC Batch 109393 - MS (1) 1.
Calibration Standards QC Batch 109229 - CCV (1) 1 QC Batch 109229 - CCV (2) 1 QC Batch 109229 - CCV (3) 1 QC Batch 109281 - CCV (1) 1 QC Batch 109281 - CCV (2) 1 QC Batch 109347 - CCV (3) 1 QC Batch 109347 - CCV (2) 1 QC Batch 109347 - CCV (3) 1 QC Batch 109347 - CCV (3) 1 QC Batch 109393 - CCV (1) 2 QC Batch 109393 - CCV (2) 2 QC Batch 109393 - CCV (3) 2
Appendix Report Definitions

Attachments	Attachments																																												- 2	2
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Case Narrative

Samples for project Cimarex/Zafiro State 32 Com #1 were received by TraceAnalysis, Inc. on 2014-02-07 and assigned to work order 14021005. Samples for work order 14021005 were received intact at a temperature of 3.8 C.

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

		Prep	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
TPH DRO - NEW	S 8015 D	92372	2014-02-12 at 14:00	109229	2014-02-13 at 09:12
TPH DRO - NEW	S 8015 D	92417	2014-02-13 at $14:45$	109281	2014-02-14 at 09:16
TPH GRO	S 8015 D	92440	2014-02-14 at 12:23	109347	2014-02-16 at 16:30
TPH GRO	S 8015 D	92451	2014-02-15 at 10:59	109393	2014-02-18 at 08:46

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 14021005 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.

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Analytical Report

Sample: 354214 - BH-3B Surface

Laboratory: Midland

TPH DRO - NEW Prep Method: Analysis: Analytical Method: S 8015 D N/AQC Batch: 109229 Date Analyzed: 2014-02-13 Analyzed By: RGPrep Batch: 92372 Sample Preparation: 2014-02-12 Prepared By: RG

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			109	${ m mg/Kg}$	1	100	109	70 - 130

Sample: 354214 - BH-3B Surface

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 109347 Date Analyzed: 2014-02-16 Analyzed By: AKPrep Batch: 92440 Sample Preparation: Prepared By: 2014-02-14 AK

							$_{ m Spike}$	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				1.42	mg/Kg	5	2.00	71	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		5.25	mg/Kg	5	2.00	262	70 - 130

Sample: 354215 - BH-3B 2'bgs

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/AQC Batch: 109229 Date Analyzed: 2014-02-13 Analyzed By: RGPrep Batch: 92372 Sample Preparation: 2014-02-12 Prepared By: RG

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Cimarex/Zafiro State 32 Com #1

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO	Qs	1	2770	mg/Kg	1	50.0

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			103	mg/Kg	1	100	103	70 - 130

Sample: 354215 - BH-3B 2'bgs

Laboratory: Midland

TPH GRO Analytical Method: Analysis: S 8015 D QC Batch: 109393Date Analyzed: 2014-02-18Prep Batch: 92451 Sample Preparation: 2014-02-15

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

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RLFlag Cert Dilution Parameter Result Units RL $\overline{\text{GRO}}$ 200 5150 mg/Kg 4.00 Qs 1

							$_{ m Spike}$	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				1.82	mg/Kg	200	2.00	91	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		66.1	mg/Kg	200	2.00	3305	70 - 130

Sample: 354216 - BH-3B 4'bgs

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/AQC Batch: 109281 Date Analyzed: 2014-02-14 Analyzed By: RGPrep Batch: 92417 Prepared By: Sample Preparation: 2014-02-13RG

RLFlag Parameter Cert Result Units Dilution RL5740 $\overline{\text{DRO}}$ mg/Kg 5 50.0

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		166	mg/Kg	5	100	166	70 - 130

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Sample: 354216 - BH-3B 4'bgs

Laboratory: Midland

TPH GRO S 5035Analysis: Analytical Method: S 8015 D Prep Method: QC Batch: 109393 Date Analyzed: 2014-02-18 Analyzed By: AK Prep Batch: 92451 Sample Preparation: 2014-02-15 Prepared By: AK

							$_{ m Spike}$	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	Qsr	Qsr		17.9	mg/Kg	400	2.00	895	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		289	mg/Kg	400	2.00	14450	70 - 130

Sample: 354217 - BH-3B 5'bgs

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/AQC Batch: 109281 Date Analyzed: 2014-02-14 Analyzed By: RGSample Preparation: 2014-02-13 Prepared By: Prep Batch: 92417 RG

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			128	mg/Kg	5	100	128	70 - 130

Sample: 354217 - BH-3B 5'bgs

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035QC Batch: 109393 Date Analyzed: 2014-02-18 Analyzed By: AK Prep Batch: 92451 Sample Preparation: 2014-02-15 Prepared By: AK

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~			~			D.1	Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	$_{\mathrm{Qsr}}$	Qsr		9.61	mg/Kg	200	2.00	480	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		137	mg/Kg	200	2.00	6850	70 - 130

Sample: 354218 - BH-3B 6'bgs

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A QC Batch: Analyzed By: RG 109229Date Analyzed: 2014-02-13Prep Batch: 92372 Sample Preparation: 2014-02-12Prepared By: RG

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			114	mg/Kg	1	100	114	70 - 130

Sample: 354218 - BH-3B 6'bgs

Laboratory: Midland

TPH GRO Analysis: Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 109347 Date Analyzed: 2014-02-16Analyzed By: AKPrep Batch: 92440 Sample Preparation: Prepared By: AK2014-02-14

							$_{ m Spike}$	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	Qsr	Qsr		5.97	mg/Kg	50	2.00	298	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{ m Qsr}$		85.2	mg/Kg	50	2.00	4260	70 - 130

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Sample: 354219 - BH-3B 7'bgs

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/AQC Batch: 109229 Date Analyzed: 2014-02-13 Analyzed By: RGPrep Batch: 92372 Sample Preparation: Prepared By: 2014-02-12 RG

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			119	$\mathrm{mg/Kg}$	1	100	119	70 - 130

Sample: 354219 - BH-3B 7'bgs

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 109347 Date Analyzed: Analyzed By: AK2014-02-16 Prep Batch: 92440 Sample Preparation: 2014-02-14 Prepared By: AK

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	Qsr	Qsr		8.28	mg/Kg	50	2.00	414	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		84.4	mg/Kg	50	2.00	4220	70 - 130

Sample: 354220 - BH-3B 8'bgs

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/AQC Batch: 109281 Date Analyzed: 2014-02-14 Analyzed By: RGPrep Batch: 92417 Sample Preparation: Prepared By: 2014-02-13 RG

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							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		151	mg/Kg	5	100	151	70 - 130

Sample: 354220 - BH-3B 8'bgs

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 109347 Date Analyzed: 2014-02-16 Analyzed By: Prep Batch: 92440 Sample Preparation: 2014-02-14 Prepared By:

RLParameter Cert Dilution Flag Result Units RL $\overline{\text{GRO}}$ 18600 mg/Kg 100 4.00 Je,Qs

							$_{\mathrm{Spike}}$	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	Qsr	Qsr		13.6	mg/Kg	100	2.00	680	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		137	mg/Kg	100	2.00	6850	70 - 130

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Method Blanks

Method Blank (1) QC Batch: 109229

QC Batch: 109229 Date Analyzed: 2014-02-13 Analyzed By: RG
Prep Batch: 92372 QC Preparation: 2014-02-12 Prepared By: RG

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			94.4	${ m mg/Kg}$	1	100	94	70 - 130

Method Blank (1) QC Batch: 109281

QC Batch: 109281 Date Analyzed: 2014-02-14 Analyzed By: RG
Prep Batch: 92417 QC Preparation: 2014-02-13 Prepared By: RG

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			95.9	$\mathrm{mg/Kg}$	1	100	96	70 - 130

Method Blank (1) QC Batch: 109347

QC Batch: 109347 Date Analyzed: 2014-02-16 Analyzed By: AK Prep Batch: 92440 QC Preparation: 2014-02-14 Prepared By: AK

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Cumagata	Elam	Cont	Dogult	Ilmita	Dilution	Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.66	mg/Kg	1	2.00	83	70 - 130
4-Bromofluorobenzene (4-BFB)			1.49	mg/Kg	1	2.00	74	70 - 130

Method Blank (1) QC Batch: 109393

4-Bromofluorobenzene (4-BFB)

QC Batch: 109393 Date Analyzed: 2014-02-18 Analyzed By: AK Prep Batch: 92451 QC Preparation: 2014-02-15 Prepared By: AK

 $\overline{\text{GRO}}$ < 2.32mg/Kg 1 Spike Percent Recovery Amount Surrogate Flag Cert Result Units Dilution Recovery Limits Trifluorotoluene (TFT) 1.66 mg/Kg2.00 83 70 - 130 1

1.52

mg/Kg

1

2.00

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 109229 Date Analyzed: 2014-02-13 Analyzed By: RG
Prep Batch: 92372 QC Preparation: 2014-02-12 Prepared By: RG

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		1	263	mg/Kg	1	250	< 6.88	105	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	266	mg/Kg	1	250	< 6.88	106	70 - 130	1	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	97.1	97.7	mg/Kg	1	100	97	98	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 109281 Date Analyzed: 2014-02-14 Analyzed By: RG Prep Batch: 92417 QC Preparation: 2014-02-13 Prepared By: RG

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		1	275	mg/Kg	1	250	39.1	94	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	292	mg/Kg	1	250	39.1	101	70 - 130	6	20

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	93.7	106	mg/Kg	1	100	94	106	70 - 130

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Laboratory Control Spike (LCS-1)

QC Batch: 109347 Date Analyzed: 2014-02-16 Analyzed By: AK Prep Batch: 92440 QC Preparation: 2014-02-14 Prepared By: AK

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	18.4	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	0	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)	1.80	1.72	mg/Kg	1	2.00	90	86	70 - 130
4-Bromofluorobenzene (4-BFB)	1.74	1.73	mg/Kg	1	2.00	87	86	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 109393 Date Analyzed: 2014-02-18 Analyzed By: AK Prep Batch: 92451 QC Preparation: 2014-02-15 Prepared By: AK

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	14.1	mg/Kg	1	20.0	< 2.32	70	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	Qs	Qs	1	13.9	mg/Kg	1	20.0	< 2.32	70	70 - 130	1	20

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.53	1.53	mg/Kg	1	2.00	76	76	70 - 130
4-Bromofluorobenzene (4-BFB)	1.48	1.65	mg/Kg	1	2.00	74	82	70 - 130

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Matrix Spike (MS-1) Spiked Sample: 354196

QC Batch: 109229 Date Analyzed: 2014-02-13 Analyzed By: RG Prep Batch: 92372 QC Preparation: 2014-02-12 Prepared By: RG

MS Spike Matrix Rec. Param F \mathbf{C} Result Units Dil. Amount Result Rec. Limit $\overline{\mathrm{DRO}}$ 9520 8600 70 - 130 mg/Kg 5 250 368 Qs Qs

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

RPD MSD Spike Matrix Rec. F Param \mathbf{C} Result Units Dil. Amount Result Rec. Limit RPD Limit $\overline{\text{DRO}}$ 8500 250 8600 -40 70 - 130 11 20 mg/Kg 5 Qs Qs 1

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

			MS	MSD			$_{\mathrm{Spike}}$	MS	MSD	Rec.
Surrogate			Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	Qsr	Qsr	310	297	mg/Kg	5	100	310	297	70 - 130

Matrix Spike (MS-1) Spiked Sample: 354257

QC Batch: 109281 Date Analyzed: 2014-02-14 Analyzed By: RG
Prep Batch: 92417 QC Preparation: 2014-02-13 Prepared By: RG

MSSpike Matrix Rec. Param F \mathbf{C} Result Units Dil. Amount Result Limit Rec. $\overline{\text{DRO}}$ 390 mg/Kg 250 195 78 70 - 130

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

RPD MSD Spike Matrix Rec. Units Dil. RPD Param C Result Amount Result Rec. Limit Limit $\overline{\mathrm{DRO}}$ 430 250 195 70 - 130 20 mg/Kg 94 10 1

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 97.4 100 70 - 130 n-Tricosane 95.2 mg/Kg 97 95

Matrix Spike (MS-1) Spiked Sample: 354239

QC Batch: 109347 Date Analyzed: 2014-02-16 Analyzed By: AK Prep Batch: 92440 QC Preparation: 2014-02-14 Prepared By: AK

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				MS			Spike	Matrix		Rec.
Param		\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	1 Qs	Qs	1	<23.2	mg/Kg	10	20.0	<23.2	0	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	$^{2}_{\mathrm{Qs}}$	Qs	1	<23.2	mg/Kg	10	20.0	<23.2	0	70 - 130	0	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)	1.60	1.59	mg/Kg	10	2	80	80	70 - 130
4-Bromofluorobenzene (4-BFB)	1.84	1.87	mg/Kg	10	2	92	94	70 - 130

Matrix Spike (MS-1) Spiked Sample: 354259

QC Batch: 109393 Date Analyzed: 2014-02-18 Analyzed By: AK Prep Batch: 92451 QC Preparation: 2014-02-15 Prepared By: AK

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	19.0	mg/Kg	1	20.0	2.72	81	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	19.2	mg/Kg	1	20.0	2.72	82	70 - 130	1	20	

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.45	1.52	mg/Kg	1	2	72	76	70 - 130
4-Bromofluorobenzene (4-BFB) Qsr Qsr	1.34	1.77	mg/Kg	1	2	67	88	70 - 130

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Calibration Standards

Standard (CCV-1)

QC Batch:	109229	Date Analyzed:	2014-02-13	Analyzed	l By:	RG
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				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	263	105	80 - 120	2014-02-13

Standard (CCV-2)

QC Batch: 109229 Date Analyzed: 2014-02-13 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	296	118	80 - 120	2014-02-13

Standard (CCV-3)

QC Batch: 109229 Date Analyzed: 2014-02-13 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	274	110	80 - 120	2014-02-13

Standard (CCV-1)

QC Batch: 109281 Date Analyzed: 2014-02-14 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	285	114	80 - 120	2014-02-14

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Standard (CCV-2)

QC Batch: 109281 Date Analyzed: 2014-02-14 Analyzed By: RG

CCVs CCVs Percent

True Found Percent Recovery Date Cert Units Param Flag Conc. Conc. Recovery Limits Analyzed $\overline{\mathrm{DRO}}$ mg/Kg 250 272 109 80 - 120 2014-02-14

Standard (CCV-3)

QC Batch: 109281 Date Analyzed: 2014-02-14 Analyzed By: RG

 CCVs CCVs CCVsPercent True Found Percent Recovery Date Flag Cert Units Conc. ${\rm Conc.}$ Recovery Limits Analyzed Param $\overline{\mathrm{DRO}}$ mg/Kg 250 266 106 80 - 120 2014-02-14

Standard (CCV-1)

QC Batch: 109347 Date Analyzed: 2014-02-16 Analyzed By: AK

CCVsCCVsCCVsPercent True Found Percent Recovery Date Param Flag Cert Units Conc. Conc. Recovery Limits Analyzed \overline{GRO} 1.00 80 - 120 2014-02-16 mg/Kg 0.935 94 1

Standard (CCV-2)

QC Batch: 109347 Date Analyzed: 2014-02-16 Analyzed By: AK

CCVsCCVsCCVsPercent True Found Percent Recovery Date Flag Param Cert Units Conc. Conc. Recovery Limits Analyzed $\overline{\text{GRO}}$ mg/Kg 1.00 0.897 90 80 - 120 2014-02-16 1

Standard (CCV-3)

QC Batch: 109347 Date Analyzed: 2014-02-16 Analyzed By: AK

Report Date: February 18, 2014 70112.053.01

Work Order: 14021005 Cimarex/Zafiro State 32 Com #1

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 $_{\rm Hobbs,NM}$

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	0.840	84	80 - 120	2014-02-16

Standard (CCV-1)

QC Batch: 109393 Date Analyzed: 2014-02-18 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	0.840	84	80 - 120	2014-02-18

Standard (CCV-2)

QC Batch: 109393 Date Analyzed: 2014-02-18 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	0.827	83	80 - 120	2014-02-18

Standard (CCV-3)

QC Batch: 109393 Date Analyzed: 2014-02-18 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	0.861	86	80 - 120	2014-02-18

Report Date: February 18, 2014 Work Order: 14021005 Page Number: 21 of 22 70112.053.01 Cimarex/Zafiro State 32 Com #1 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

Result Comments

Report Date: February 18, 2014 Work Order: 14021005 Page Number: 22 of 22 70112.053.01 Cimarex/Zafiro State 32 Com #1 Hobbs,NM

- 1 Dilution due to surfactants.
- 2 Dilution due to surfactants.

Attachments

The scanned attachments will follow this page.

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

501	
140216	
AB Order ID #	

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

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

D0 East Sunset Rd., Suite E El Paso, Texas 79922 Tel (915) 585-3443 Fax (915) 588-4944 1 (888) 588-3443

ANALYSIS REQUEST

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Page_{_}

SAMPLING **3MIT** CSDORED TURNIA COM 5002 Basin Street, Suite A1 **Midland, Texas 79703** Tel (432) 689-6301 Fax (432) 689-6313 **3TA** 810 (0-742-0742 **PRESERVATIVE** NONE METHOD ICE HOBN ⁵OS^zH 6701 Aberdeen Avenue, Suite 9 **Lubbock, Texas 79424**Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1298 EONH E-mail: HCI DOLBL SLUDGE MATRIX ЯIА ROIF Melissa Deeker **A3TAW** Yolume / Amount アルカアノ IraceAnalysis, Inc. # CONTAINERS Sintage email: lab@traceanalysis.com が 対 対 が Zip) 別 女 立 の FIELD CODE (including state) Company Name TONON 30 る *S*DOC (If different from above) Project #: 7) 52214 76 AB USE nvoice to: LAB# Project

DIOH Turn Around Time if different from standard Na, Ca, Mg, K, TDS, EC or Specify Method CI, F, 504, NO3-N, NO2-N, PO4-P, Alkalinity Moisture Content Dry Weight Basis Required Hq ,2ST ,QOB Check If Special Reporting Limits Are Needed TRRP Report Required Pesticides 8081 / 608 PCB's 8082 / 608 GC/MS Semi. Vol. 8270 / 625 REMARKS CC/W2 AOI 8560 / 624 RCI TCLP Pesticides TCLP Semi Volatiles Circle TCLP Volatiles LAB USE TCLP Metals Ag As Ba Cd Cr Pb Se Hg ONLY Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7 Log-in-Review act Y.L PAH 8270 / 625 TPH 8015 GRO / DRO / TVHC TPH 418.1 / TX1005 / TX1005 Ext(C35) 8021 / 602 / 8260 / 624 INST KELL OBS 25 8021 / 602 / 8260 / 624 **38TM 20k** OBS COR 38 260 33 INST INST OBS COR MARCKET STAIONIDE ICM 162 Time: Time: Date: Company: Company: Company څ Received by Received by: 440 Time: Date: Man LPr Company: Company Company elinguished by: Relinquished by Relinquished by

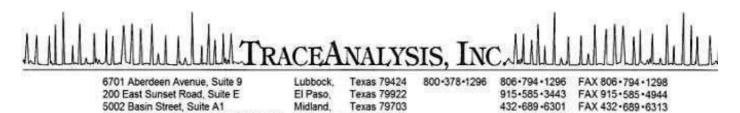
Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.

Carrier #

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(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/Zafiro State 32 Com #1

Project Number: 701162.053.01

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
360219	13' BGS	soil	2014-04-09	11:15	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 16 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

14041123

Work Order:

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Case Narrative

Samples for project Cimarex/Zafiro State 32 Com #1 were received by TraceAnalysis, Inc. on 2014-04-11 and assigned to work order 14041123. Samples for work order 14041123 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 14041123 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: 14041123 Page Number: 4 of 16 701162.053.01 Cimarex/Zafiro State 32 Com #1 Hobbs, NM

Analytical Report

Sample: 360219 - 13' BGS

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	m mg/Kg	1	0.0200
Ethylbenzene	U	1	< 0.0200	mg/Kg	1	0.0200
Xylene	$_{ m Qr,Qs,U}$	1	< 0.0200	mg/Kg	1	0.0200

						$_{ m Spike}$	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)			1.80	mg/Kg	1	2.00	90	70 - 130

Sample: 360219 - 13' BGS

Laboratory: Midland

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

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			101	mg/Kg	1	100	101	70 - 130

Sample: 360219 - 13' BGS

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

Report Date: April 16, 2014 701162.053.01

Trifluorotoluene (TFT)

4-Bromofluorobenzene (4-BFB)

Work Order: 14041123 Cimarex/Zafiro State 32 Com #1

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 $_{\rm Hobbs,NM}$

70 - 130

70 - 130

				RL				
Parameter	Flag	Cert		Result	Unit	ts	Dilution	RL
GRO	U	1		< 4.00	mg/K	g	1	4.00
						Spike	Percent	Recovery
Surrogate	Fl	ag Cert	Result	Units	Dilution	Amount	Recovery	Limits

2.09

1.77

mg/Kg

mg/Kg

1

1

2.00

2.00

Report Date: April 16, 2014 Work Order: 14041123 Page Number: 6 of 16 701162.053.01 Cimarex/Zafiro State 32 Com #1 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 701162.053.01

 $\overline{\text{GRO}}$

Work Order: 14041123 Cimarex/Zafiro State 32 Com #1

< 2.32

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mg/Kg

 $_{\rm Hobbs,NM}$

01162.053.01 Cimarex/Zafiro State 32 Com #1

MDL
Parameter Flag Cert Result Units RL

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.09	mg/Kg	1	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)			1.76	mg/Kg	1	2.00	88	70 - 130

Report Date: April 16, 2014 Work Order: 14041123 Page Number: 8 of 16 701162.053.01 Cimarex/Zafiro State 32 Com #1 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	\mathbf{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

Report Date: April 16, 2014

Work Order: 14041123

701162.053.01

Cimarex/Zafiro State 32 Com #1

	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)

111165 QC Batch: Prep Batch: 93954

Date Analyzed: 2014-04-15 QC Preparation: 2014-04-14 Analyzed By: AK Prepared By: AK

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Hobbs,NM

LCS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit \overline{GRO} 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: Date Analyzed: 2014 - 04 - 14Analyzed By: RG 111142 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			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

Report Date: April 16, 2014

701162.053.01

Work Order: 14041123 Cimarex/Zafiro State 32 Com #1 Page Number: 10 of 16

Hobbs,NM

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	122	110	mg/Kg	1	100	122	110	70 - 130

Spiked Sample: 360217 Matrix Spike (MS-1)

QC Batch: Date Analyzed: 2014-04-15 Analyzed By: AK 111164 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: Analyzed By: AK 111165 Date Analyzed: 2014-04-15 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

Report Date: April 16, 2014

Work Order: 14041123 Cimarex/Zafiro State 32 Com #7 Page Number: 11 of 16

701162.053.01 Cimarex/Zafiro State 32 Com #1 Hobbs,NM

			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		1	18.3	mg/Kg	1	20.0	< 2.32	92	70 - 130	0	20

	MS	MSD			$_{ m Spike}$	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	mg/Kg	1	2	98	93	70 - 130

Report Date: April 16, 2014 Work Order: 14041123 Page Number: 12 of 16 701162.053.01 Cimarex/Zafiro State 32 Com #1 Hobbs,NM

Calibration Standards

Standard (CCV-1)

QC Bate	ch: 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	
				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 701162.053.01

Work Order: 14041123 Cimarex/Zafiro State 32 Com #1

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	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

Page Number: 13 of 16

 $_{\rm Hobbs,NM}$

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.0940	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	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: 14041123 Page Number: 14 of 16 701162.053.01 Cimarex/Zafiro State 32 Com #1 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: 14041123 Page Number: 15 of 16 701162.053.01 Cimarex/Zafiro State 32 Com #1 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: 14041123 Page Number: 16 of 16 701162.053.01 Cimarex/Zafiro State 32 Com #1 Hobbs,NM

The scanned attachments will follow this page.

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

1404 1133

FraceAnalysis, Inc.

email: lab@traceanalysis.com

LAB Order ID #

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

Phone #:

Fax #:

₽

8808 Camp Bowie Blvd. West, Suite 180 **Ft. Worth, Texas 76116** Tel (817) 201-5260 Fax (817) 560-4336 ш D East Sunset Rd., Suite E El Paso, Texas 79922 Tel (915) 585-3443 Fax (915) 585-4944 1 (888) 588-3443

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

or Specify Method

(Circle

ANALYSIS REQUEST

TPH 8015 GRQ / DRO / TVHC TPH 418.1 / TX1005 / TX1005 Ext(C35) 8021B / 602 / 8260B / 624

8021B / 602 / 8260B / 624 mdeckeral belonine.com [tsworth

Johnny

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(If different from above)

Invoice to

Jecker

Uelissa

Contact Person

(Street, City, Zip)

Address:

Company Name: Tolon

Project #: 701162,053.01

Project Location (including state):

PRESERVATIVE Project Name: Zafin Sampler Signature:

SAMPLING METHOD

MATRIX

NONE ICE HOPN ^⁵OS^čH $^{\epsilon}ONH$

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CONTAINERS

LAB USE)

LAB#

FIELD CODE

Moisture Content

PCB's 8082 / 608

TCLP Pesticides TCLP Semi Volatiles

TCLP Volatiles

PAH 8270C / 625

X3T8

BETM

3MIT

DATE

GC/MS Semi. Vol. 8270C / 625

TCLP Metals Ag As Ba Cd Cr Pb Se Hg

Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7

GC/MS AOI: 8560B / 624

BOD, TSS, pH Pesticides 8081A / 608

BCI

PIOH Turn Around Time if different from standard

LAB USE ONLY

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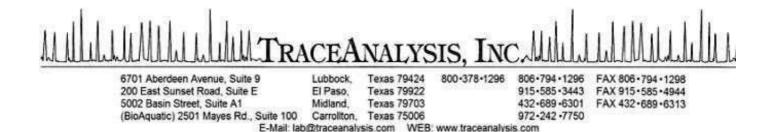
Check If Special Reporting Limits Are Needed

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

ORIGINAL COPY



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

Report Date: June 13, 2014

Work Order: 14060411

Project Location: Hobbs,NM

Project Name: Cimarex/Zafiro State 32 Com #1

Project Number: 701162.053.01

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
364623	BH-1	soil	2014-06-02	12:30	2014-06-04
364624	SW-N	soil	2014-06-02	12:33	2014-06-04
364625	SW-E	soil	2014-06-02	12:35	2014-06-04
364626	SW-S	soil	2014-06-02	12:42	2014-06-04
364627	SW-W	soil	2014-06-02	12:46	2014-06-04

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 24 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael april

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

Report Contents

Case Narrative	4
Analytical Report Sample 364623 (BH-1) Sample 364624 (SW-N) Sample 364625 (SW-E) Sample 364626 (SW-S) Sample 364627 (SW-W)	5 6 7 8 9
QC Batch 112541 - Method Blank (1) 1 QC Batch 112605 - Method Blank (1) 1 QC Batch 112624 - Method Blank (1) 1	12 12 12 12 13
QC Batch 112541 - LCS (1) 1 QC Batch 112605 - LCS (1) 1 QC Batch 112624 - LCS (1) 1	14 14 14 15
QC Batch 112541 - MS (1) 1 QC Batch 112605 - MS (1) 1 QC Batch 112624 - MS (1) 1	17 17 17 18
QC Batch 112541 - CCV (2) 2 QC Batch 112541 - CCV (3) 2 QC Batch 112541 - CCV (4) 2 QC Batch 112605 - ICV (1) 2 QC Batch 112605 - CCV (1) 2 QC Batch 112624 - CCV (1) 2 QC Batch 112624 - CCV (2) 2 QC Batch 112788 - CCV (1) 2	20 20 20 20 20 21 21 21 21 22
Report Definitions	23 23 23 23

Case Narrative

Samples for project Cimarex/Zafiro State 32 Com #1 were received by TraceAnalysis, Inc. on 2014-06-04 and assigned to work order 14060411. Samples for work order 14060411 were received intact at a temperature of 3.3 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	95118	2014-06-04 at 10:56	112541	2014-06-05 at 07:49
Chloride (Titration)	SM 4500-Cl B	95202	2014-06-06 at 13:26	112605	2014-06-06 at $13:26$
TPH DRO - NEW	S 8015 D	95370	2014-06-12 at 12:00	112788	2014-06-13 at $10:06$
TPH GRO	S 8015 D	95222	2014-06-07 at 10:17	112624	2014-06-08 at $09:23$

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 14060411 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.

The temperature of the Cold Box for storing samples was between 6 and 15.0 degrees C between June 8th and June 9th, 2014. We do not believe this will affect your TPH results.

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: June 13, 2014 Work Order: 14060411 Page Number: 5 of 24 701162.053.01 Cimarex/Zafiro State 32 Com #1 Hobbs,NM

Analytical Report

Sample: 364623 - BH-1

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035 QC Batch: 112541 Date Analyzed: 2014-06-05 Analyzed By: AK Prep Batch: 95118 Sample Preparation: 2014-06-04 Prepared By: AK

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene		2	13.4	mg/Kg	5	0.0200
Toluene	Je	2	111	mg/Kg	5	0.0200
Ethylbenzene	Je	2	52.6	mg/Kg	5	0.0200
Xylene	Je	2	308	mg/Kg	5	0.0200

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			12.4	mg/Kg	5	10.0	124	70 - 130
4-Bromofluorobenzene (4-BFB)			21.1	mg/Kg	5	10.0	211	70 - 130

Sample: 364623 - BH-1

Laboratory: Lubbock

Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A QC Batch: 112605 Date Analyzed: 2014-06-06 Analyzed By: AT Prep Batch: 95202 Sample Preparation: 2014-06-06 Prepared By: AT

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			27.0	mg/Kg	5	5.00

Sample: 364623 - BH-1

Laboratory: Lubbock

Analysis: TPH DRO - NEW Analytical Method: Prep Method: S 8015 D N/AQC Batch: 112788 Date Analyzed: 2014-06-13 Analyzed By: CMPrep Batch: 95370 Sample Preparation: 2014-06-12 Prepared By: CM

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO		1	2220	m mg/Kg	1	50.0

Work Order: 14060411Cimarex/Zafiro State 32 Com #1 Page Number: 6 of 24

Hobbs,NM

01162.053.01	Cimarex	/Zafiro	State	32	Com	#
01102.000.01	Cilliaica	Zamo	State	02	Com	TT

C		T21	Ct	D14	TT:4-	D:1+:	Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		150	mg/Kg	1	100	150	70 - 130
•									

Sample: 364623 - BH-1

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 112624 Date Analyzed: 2014-06-08 Analyzed By: AK Prep Batch: 95222 Sample Preparation: 2014-06-07 Prepared By: AK

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO	Je	2	9170	mg/Kg	50	4.00

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				1.49	mg/Kg	50	2.00	74	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	Qsr		149	mg/Kg	50	2.00	7450	70 - 130

Sample: 364624 - SW-N

Laboratory: Midland

S 5035 Analysis: BTEXAnalytical Method: S 8021B Prep Method: QC Batch: Analyzed By: AK112541 Date Analyzed: 2014-06-05 Prep Batch: 95118 Sample Preparation: 2014-06-04 Prepared By: AK

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene		2	0.601	$\mathrm{mg/Kg}$	1	0.0200
Toluene		2	2.36	mg/Kg	1	0.0200
Ethylbenzene		2	2.74	mg/Kg	1	0.0200
Xylene		2	17.6	mg/Kg	1	0.0200

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.91	mg/Kg	1	2.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			5.04	mg/Kg	1	2.00	252	70 - 130

701162.053.01

Work Order: 14060411 Page Number: 7 of 24 Cimarex/Zafiro State 32 Com #1 Hobbs,NM

Sample: 364624 - SW-N

Laboratory: Lubbock

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/AQC Batch: 112788 Date Analyzed: 2014-06-13 Analyzed By: CMPrep Batch: Sample Preparation: Prepared By: 95370 2014-06-12 CM

RLParameter Flag Cert Result Units Dilution RL $\overline{\text{DRO}}$ < 50.0 mg/Kg 50.0

						$_{\rm Spike}$	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			102	mg/Kg	1	100	102	70 - 130

Sample: 364624 - SW-N

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 112624 Date Analyzed: Analyzed By: 2014-06-08 AKPrep Batch: 95222 Sample Preparation: 2014-06-07 Prepared By: AK

RLParameter Flag Cert Result Units Dilution RLGRO < 4.00 mg/Kg 4.00 U

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.03	mg/Kg	1	2.00	102	70 - 130
4-Bromofluorobenzene (4-BFB)			1.79	mg/Kg	1	2.00	90	70 - 130

Sample: 364625 - SW-E

Laboratory: Midland

BTEXAnalysis: Analytical Method: S_{8021B} Prep Method: S 5035 QC Batch: 112541 Date Analyzed: 2014-06-05 Analyzed By: AK Prep Batch: Sample Preparation: Prepared By: 95118 2014-06-04 AK

RLDilution Parameter Flag Cert Result Units RLBenzene 0.0284mg/Kg 1 0.0200 2 Toluene 0.145mg/Kg1 0.02002 Ethylbenzene 0.105mg/Kg1 0.0200 2 Xylene 0.332mg/Kg1 0.0200

Work Order: 14060411 Cimarex/Zafiro State 32 Com #1

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Surrogate

Spike Percent Recovery Flag Cert Result Units Dilution Amount Recovery Limits 1.97 mg/Kg 2.00 98 70 - 130 1

1

2.00

mg/Kg

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Hobbs,NM

70 - 130

Sample: 364625 - SW-E

4-Bromofluorobenzene (4-BFB)

Laboratory: Lubbock

Trifluorotoluene (TFT)

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/AQC Batch: 112788Date Analyzed: 2014-06-13 Analyzed By: CMPrep Batch: 95370 Sample Preparation: 2014 - 06 - 12Prepared By: CM

2.31

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			102	mg/Kg	1	100	102	70 - 130

Sample: 364625 - SW-E

Laboratory: Midland

TPH GRO Analysis: Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 112624 Date Analyzed: 2014-06-08 Analyzed By: AKPrep Batch: 95222 Sample Preparation: 2014-06-07 Prepared By: AK

						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)			1.85	mg/Kg	1	2.00	92	70 - 130

Sample: 364626 - SW-S

Laboratory: Midland

Analysis: **BTEX** Analytical Method: S_{8021B} Prep Method: S 5035 QC Batch: 112541 Date Analyzed: 2014-06-05 Analyzed By: AKPrep Batch: 95118 Sample Preparation: 2014-06-04 Prepared By: AK

Work Order: 14060411 Cimarex/Zafiro State 32 Com #1

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Hobbs,NM

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	2	< 0.0200	m mg/Kg	1	0.0200
Toluene		2	0.0420	mg/Kg	1	0.0200
Ethylbenzene	U	2	< 0.0200	mg/Kg	1	0.0200
Xylene		2	0.144	mg/Kg	1	0.0200

						$_{ m Spike}$	Percent	Recovery	
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits	
Trifluorotoluene (TFT)			1.96	mg/Kg	1	2.00	98	70 - 130	
4-Bromofluorobenzene (4-BFB)			2.37	mg/Kg	1	2.00	118	70 - 130	

Sample: 364626 - SW-S

Laboratory: Lubbock

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A QC Batch: 112788 Date Analyzed: 2014-06-13 Analyzed By: CM Prep Batch: 95370 Sample Preparation: 2014-06-12 Prepared By: CM

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO	JЬ	1	< 50.0	mg/Kg	1	50.0

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			102	mg/Kg	1	100	102	70 - 130

Sample: 364626 - SW-S

Laboratory: Midland

S 8015 D Analysis: TPH GRO Analytical Method: Prep Method: S 5035QC Batch: 112624 Date Analyzed: 2014-06-08 Analyzed By: AKPrep Batch: 95222 Sample Preparation: 2014-06-07 Prepared By: AK

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO	U	2	< 4.00	m mg/Kg	1	4.00

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.74	mg/Kg	1	2.00	87	70 - 130
4-Bromofluorobenzene (4-BFB)			1.53	mg/Kg	1	2.00	76	70 - 130

701162.053.01 Cimarex/Zafiro State 32 Com #1

Sample: 364627 - SW-W

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035 QC Batch: 112541 Date Analyzed: 2014-06-05 Analyzed By: AK Prep Batch: 95118 Sample Preparation: 2014-06-04 Prepared By: AK

Work Order: 14060411

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Hobbs,NM

Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	2	< 0.0200	mg/Kg	1	0.0200
Toluene	U	2	< 0.0200	mg/Kg	1	0.0200
Ethylbenzene		2	0.0282	mg/Kg	1	0.0200
Xvlene		2	0.0906	mg/Kg	1	0.0200

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.96	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			2.28	mg/Kg	1	2.00	114	70 - 130

Sample: 364627 - SW-W

Laboratory: Lubbock

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A QC Batch: CM112788 Date Analyzed: 2014-06-13 Analyzed By: Prep Batch: 95370 Sample Preparation: 2014 - 06 - 12Prepared By: CM

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO		1	648	mg/Kg	1	50.0

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			115	mg/Kg	1	100	115	70 - 130

Sample: 364627 - SW-W

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 112624 Date Analyzed: 2014-06-08 Analyzed By: AK Prep Batch: 95222 Sample Preparation: 2014-06-07 Prepared By: AK

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO		2	534	m mg/Kg	10	4.00

Report Date: June 13, 2014 701162.053.01

Work Order: 14060411 Cimarex/Zafiro State 32 Com #1 Page Number: 11 of 24

Hobbs,NM

Spike Percent Recovery ${\bf Surrogate}$ Flag Result ${\bf Units}$ ${\bf Dilution}$ Amount Recovery Limits Cert Trifluorotoluene (TFT) 1.89 mg/Kg 10 2.00 94 70 - 130 mg/Kg 4-Bromofluorobenzene (4-BFB) 750 70 - 130 15.010 2.00 $_{\mathrm{Qsr}}$

Report Date: June 13, 2014 Work Order: 14060411 Page Number: 12 of 24 701162.053.01 Cimarex/Zafiro State 32 Com #1 Hobbs, NM

Method Blanks

Method Blank (1) QC Batch: 112541

QC Batch: 112541 Date Analyzed: 2014-06-05 Analyzed By: AK Prep Batch: 95118 QC Preparation: 2014-06-04 Prepared By: AK

		MDL							
Parameter	Flag	Cert	Result	Units	RL				
Benzene		2	< 0.00354	mg/Kg	0.02				
Toluene		2	< 0.00966	mg/Kg	0.02				
Ethylbenzene		2	< 0.00790	mg/Kg	0.02				
Xvlene		2	< 0.00667	mg/Kg	0.02				

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

Method Blank (1) QC Batch: 112605

QC Batch: 112605 Date Analyzed: 2014-06-06 Analyzed By: AT Prep Batch: 95202 QC Preparation: 2014-06-06 Prepared By: AT

			MDL		
Parameter	Flag	Cert	Result	Units	RL
Chloride			< 3.05	mg/Kg	5

Method Blank (1) QC Batch: 112624

QC Batch: 112624 Date Analyzed: 2014-06-08 Analyzed By: AK Prep Batch: 95222 QC Preparation: 2014-06-07 Prepared By: AK

			MDL		
Parameter	Flag	Cert	Result	Units	RL
GRO		2	< 2.32	mg/Kg	4

Report Date: June 13, $2014\,$

701162.053.01 Cimarex/Zafiro State 32 Com #1

Work Order: 14060411 Page Number: 13 of 24 arex/Zafiro State 32 Com #1 Hobbs,NM

						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)			1.77	mg/Kg	1	2.00	88	70 - 130

Method Blank (1) QC Batch: 112788

QC Batch: 112788 Date Analyzed: 2014-06-13 Analyzed By: CM

Prep Batch: 95370 QC Preparation: 2014-06-12 Prepared By: CM

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			105	${ m mg/Kg}$	1	100	105	70 - 130

Report Date: June 13, 2014 Work Order: 14060411 Page Number: 14 of 24 701162.053.01 Cimarex/Zafiro State 32 Com #1 Hobbs,NM

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 112541 Date Analyzed: 2014-06-05 Analyzed By: AK Prep Batch: 95118 QC Preparation: 2014-06-04 Prepared By: AK

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		2	1.89	mg/Kg	1	2.00	< 0.00354	94	70 - 130
Toluene		2	2.00	mg/Kg	1	2.00	< 0.00966	100	70 - 130
Ethylbenzene		2	2.10	mg/Kg	1	2.00	< 0.00790	105	70 - 130
Xylene		2	6.37	mg/Kg	1	6.00	< 0.00667	106	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
Benzene		2	2.05	mg/Kg	1	2.00	< 0.00354	103	70 - 130	8	20
Toluene		2	2.18	mg/Kg	1	2.00	< 0.00966	109	70 - 130	9	20
Ethylbenzene		2	2.30	mg/Kg	1	2.00	< 0.00790	115	70 - 130	9	20
Xylene		2	6.96	mg/Kg	1	6.00	< 0.00667	116	70 - 130	9	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)	1.96	1.98	mg/Kg	1	2.00	98	99	70 - 130
4-Bromofluorobenzene (4-BFB)	2.18	2.20	mg/Kg	1	2.00	109	110	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 112605 Date Analyzed: 2014-06-06 Analyzed By: AT Prep Batch: 95202 QC Preparation: 2014-06-06 Prepared By: AT

			LCS			Spike	Matrix		Rec.
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			513	mg/Kg	1	500	< 3.05	103	85 - 115

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

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701162.053.01

Work Order: 14060411 Cimarex/Zafiro State 32 Com #1 Page Number: 15 of 24 Hobbs,NM

control	spikes	continued		

-			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
			T CCD			C :1	N / - +:		Das		DDD
			LCSD			$_{ m Spike}$	Matrix		$\mathrm{Rec}.$		RPD
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit

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

Laboratory Control Spike (LCS-1)

QC Batch: Analyzed By: AK 112624 Date Analyzed: 2014-06-08 Prep Batch: 95222 Prepared By: AK QC Preparation: 2014-06-07

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		2	15.8	mg/Kg	1	20.0	< 2.32	79	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		2	16.3	mg/Kg	1	20.0	< 2.32	82	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
Trifluorotoluene (TFT)	1.94	2.02	mg/Kg	1	2.00	97	101	70 - 130
4-Bromofluorobenzene (4-BFB)	1.94	1.92	mg/Kg	1	2.00	97	96	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: Date Analyzed: 2014-06-13 Analyzed By: CM 112788 Prep Batch: 95370 QC Preparation: 2014-06-12 Prepared By: CM

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		1	228	mg/Kg	1	250	12	86	70 - 130

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

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Report Date: June 13, 2014 701162.053.01

Work Order: 14060411 Cimarex/Zafiro State 32 Com #1

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 $_{\rm Hobbs,NM}$

control snikes continued

control spikes continued			LCSD			Spike	Matrix		Rec.		RPD
Param	F	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
			LCSD			Spike	Matrix		Rec.		RPD
Param	F	\mathbf{C}	LCSD Result	Units	Dil.	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	Matrix Result	Rec.	$\begin{array}{c} { m Rec.} \\ { m Limit} \end{array}$	RPD	$\begin{array}{c} \text{RPD} \\ \text{Limit} \end{array}$

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	97.9	97.8	mg/Kg	1	100	98	98	70 - 130

Report Date: June 13, 2014 Work Order: 14060411 Page Number: 17 of 24 701162.053.01 Cimarex/Zafiro State 32 Com #1 Hobbs,NM

Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 364595

QC Batch: 112541 Date Analyzed: 2014-06-05 Analyzed By: AK Prep Batch: 95118 QC Preparation: 2014-06-04 Prepared By: AK

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		2	1.97	mg/Kg	1	2.00	0.0193	98	70 - 130
Toluene		2	2.08	mg/Kg	1	2.00	0.0215	103	70 - 130
Ethylbenzene		2	2.13	mg/Kg	1	2.00	< 0.00790	106	70 - 130
Xylene		2	6.52	mg/Kg	1	6.00	< 0.00667	109	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	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		2	1.83	mg/Kg	1	2.00	0.0193	90	70 - 130	7	20
Toluene		2	1.93	mg/Kg	1	2.00	0.0215	95	70 - 130	8	20
Ethylbenzene		2	2.00	mg/Kg	1	2.00	< 0.00790	100	70 - 130	6	20
Xylene		2	6.08	mg/Kg	1	6.00	< 0.00667	101	70 - 130	7	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	2.00	mg/Kg	1	2	101	100	70 - 130
4-Bromofluorobenzene (4-BFB)	2.33	2.35	mg/Kg	1	2	116	118	70 - 130

Matrix Spike (MS-1) Spiked Sample: 364623

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			588	mg/Kg	1	500	27	112	75.2 - 127

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

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Work Order: 14060411 701162.053.01Cimarex/Zafiro State 32 Com #1 Page Number: 18 of 24 Hobbs,NM

matrix	spikes	continued				
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man a spines somemas III			MSD			Spike	Matrix		Rec.		RPD
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			615	mg/Kg	1	500	27	118	75.2 - 127	4	20

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

Matrix Spike (MS-1) Spiked Sample: 364626

QC Batch: 112624 Date Analyzed: 2014-06-08 Analyzed By: AK Prep Batch: 95222 QC Preparation: 2014-06-07 Prepared By: AK

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		2	15.4	mg/Kg	1	20.0	< 2.32	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		2	15.3	mg/Kg	1	20.0	< 2.32	76	70 - 130	1	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)	1.91	1.90	mg/Kg	1	2	96	95	70 - 130
4-Bromofluorobenzene (4-BFB)	1.79	1.88	mg/Kg	1	2	90	94	70 - 130

Matrix Spike (MS-1) Spiked Sample: 364529

QC Batch: Date Analyzed: 2014-06-13 Analyzed By: CM 112788 Prep Batch: 95370 QC Preparation: 2014-06-12 Prepared By: CM

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		1	219	mg/Kg	1	250	< 5.22	88	70 - 130

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

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Report Date: June 13, 2014 701162.053.01

Work Order: 14060411 Cimarex/Zafiro State 32 Com #1

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 $_{\rm Hobbs,NM}$

matrix spikes continued			MSD			Spike	Matrix		Rec.		RPD
Param	F	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO		1	235	mg/Kg	1	250	< 5.22	94	70 - 130	7	20

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

	MS	MSD			$_{ m Spike}$	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	103	103	mg/Kg	1	100	103	103	70 - 130

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Calibration Standards

Standard (CCV-2)

QC Batch: 112541 Date Analyzed: 2014-06-05 Analyzed By: AK

				CCVs True	CCVs Found	$\begin{array}{c} { m CCVs} \\ { m Percent} \end{array}$	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		2	mg/kg	0.100	0.106	106	80 - 120	2014-06-05
Toluene		2	mg/kg	0.100	0.108	108	80 - 120	2014-06-05
Ethylbenzene		2	mg/kg	0.100	0.100	100	80 - 120	2014-06-05
Xylene		2	mg/kg	0.300	0.308	103	80 - 120	2014-06-05

Standard (CCV-3)

QC Batch: 112541 Date Analyzed: 2014-06-05 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		2	mg/kg	0.100	0.104	104	80 - 120	2014-06-05
Toluene		2	mg/kg	0.100	0.108	108	80 - 120	2014-06-05
Ethylbenzene		2	mg/kg	0.100	0.0992	99	80 - 120	2014-06-05
Xylene		2	mg/kg	0.300	0.305	102	80 - 120	2014-06-05

Standard (CCV-4)

QC Batch: 112541 Date Analyzed: 2014-06-05 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		2	mg/kg	0.100	0.102	102	80 - 120	2014-06-05
Toluene		2	$\mathrm{mg/kg}$	0.100	0.104	104	80 - 120	2014-06-05
Ethylbenzene		2	mg/kg	0.100	0.101	101	80 - 120	2014-06-05
Xylene		2	mg/kg	0.300	0.310	103	80 - 120	2014-06-05

 Report Date: June 13, 2014
 Work Order: 14060411
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 701162.053.01
 Cimarex/Zafiro State 32 Com #1
 Hobbs,NM

Standard (ICV-1)

QC Batch: 112605 Date Analyzed: 2014-06-06 Analyzed By: AT

				ICVs	ICVs	ICVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	103	103	85 - 115	2014-06-06

Standard (CCV-1)

QC Batch: 112605 Date Analyzed: 2014-06-06 Analyzed By: AT

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	97.0	97	85 - 115	2014-06-06

Standard (CCV-1)

QC Batch: 112624 Date Analyzed: 2014-06-08 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		2	mg/Kg	1.00	1.02	102	80 - 120	2014-06-08

Standard (CCV-2)

QC Batch: 112624 Date Analyzed: 2014-06-08 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		2	mg/Kg	1.00	0.927	93	80 - 120	2014-06-08

Standard (CCV-1)

QC Batch: 112788 Date Analyzed: 2014-06-13 Analyzed By: CM

Report Date: June 13, 2014 701162.053.01

Work Order: 14060411 Cimarex/Zafiro State 32 Com #1

Page Number: 22 of 24

 $_{\rm Hobbs,NM}$

CCVsCCVsCCVsPercent True Found Percent Recovery Date Param Cert ${\bf Units}$ Conc. ${\rm Conc.}$ Recovery Limits Analyzed Flag 250 232 80 - 120 $\overline{\mathrm{DRO}}$ mg/Kg 93 2014-06-13

Standard (CCV-2)

QC Batch: 112788 Date Analyzed: 2014-06-13 Analyzed By: CM

 CCVs CCVs CCVs Percent True Found Percent Recovery Date Flag Cert Units Conc. Conc. Limits Analyzed Param Recovery 80 - 120 $\overline{\mathrm{DRO}}$ mg/Kg 250 224 90 2014-06-13 Report Date: June 13, 2014 Work Order: 14060411 Page Number: 23 of 24 701162.053.01 Cimarex/Zafiro State 32 Com #1 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	T104704219-14-10	Lubbock
2	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

Report Date: June 13, 2014 Work Order: 14060411 Page Number: 24 of 24 701162.053.01 Cimarex/Zafiro State 32 Com #1 Hobbs,NM

Attachments

The scanned attachments will follow this page.

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

LAB Order ID#

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

246-246

200

Midland,

(Street, City, Zip)
MJ 349

Company Name: Talon ILPE

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 78922 Tel (915) 585-3443 Fax (915) 585-3443 1 (888) 588-3443

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8808 Camp Bowie Blvd. West, Suite 180 **Ft. Worth, Texas 76116** Ft. **81** (817) 201-5260 Fax (817) 560-4336

N.0. or Specify Method **ANALYSIS REQUEST** Vol. 8270C / 625 Circle

Mdecker @ talon lge.com

TCLP Metals Ag As Ba Cd Cr Pb Se Hg Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 PAH 8270C / 625 8021B / 602 / 8260B / 624 8021B / 602 / 8260B / 624

3

Project Name:

CIMQYC

(If different from above)

0

Project #: 7011 62.053

Project Location (including

TPH 8015 GRO / DRO / TVHC TPH 418.1 / TX1005 / TX1005 Ext(C35) X3T8 MTBE

Turn Around Time if different from standard

SAMPLING **TIME**

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TCLP Semi Volatiles

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TRRP Report Required

Check If Special Reporting Limits Are Needed

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Time:

Date:

Company

Relinquished by:

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

ORIGINAL COPY

GC/MS AOI: 8260B / 624

PCB's 8082 / 608

Moisture Content

ploH

BOD, TSS, pH

GC/MS Semi.

Pesticides 8081A / 608

ACHIONIAL

TCLP Pesticides

I

140

1335 242 9421

LAB Order ID#

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 Shone #: 742-0742 malcrey otalon pr. com

Invoice to: Johnny Titsiwith - CIMAYEX (If different from above)

Project #: 7011 62.053.0

Project Location (including state

Midland

(Street, City, Zip)

9

Company Name: Talon ILPE

Project Name:

Sampler Signature:

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

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

of

Page

8808 Camp Bowie Blvd. West, Suite 180 Ft. Worth, Texas 76116 Ft. (817) 201-5260 Fax (817) 560-4336 2 Circle or Specify Method **ANALYSIS REQUEST**

Chlorida Moisture Content на ,гзг ,пов Pesticides 8081A / 608 PCB's 8082 / 608 GC/MS Semi. Vol. 8270C / 625 GC/MS Vol. 8260B / 624 TCLP Pesticides TCLP Semi Volatiles TCLP Volatiles TCLP Metals Ag As Ba Cd Cr Pb Se Hg Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 PAH 8270C / 625 TPH 8015 GRO / DRO / TVHC TPH 418.1 / TX1005 / TX1005 Ext(C35) 8021B / 602 / 8260B / 624 **X**∃LB 8021B / 602 / 8260B / 624 **HATRE** (233 942 1235 242 W/2/14/230

TIME

BTAQ

NONE

NaOH

[⊅]OS^ZH HNO³ HCI

SCUDGE

InuomA \ emuloV

CONTAINERS

FIELD CODE

>-M5 3-30

979 129

625

364623

LAB USE ONLY LAB#

AIA

SOIL **A**3TAW

ICE

SAMPLING

PRESERVATIVE

METHOD

MATRIX

Turn Around Time if different from standard

ONLY Temp°c: 8:40 93

Time:

Company:

Received by:

Time:

15:2

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Company:

Relinquished by:

Dry Weight Basis Required

REMARKS:

LAB USE

Temp°c:

Company:

Received by:

Time:

Date:

Relinquished by

alon IPF Company:

Retinguished by:

Time:

Company

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Received by

Check If Special Reporting Limits Are Needed TRRP Report Required

1R 285788

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

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

Form C-141 Revised August 8, 2011 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

			Rel	ease Notifi	catio				
			-			OPERA			tial Report
Name of C	ompany: C	Cimarex Ener	rgy Com	pany	10.1		hnny Titsworth No. (432)250-2		
		State 32 Co		fidland, TX 797	01		e: Tank Battery		Name of the State of
racility Na	me: Zamo	State 32 Co	111 # 1	- AND THE SAME OF STREET	real Paris	racinty ryp	e. Tank Battery	man	
Surface Ov	vner: State			Mineral	Owner:			APIN	No. 30-025-34508
			ie.	LOC	ATIO	N OF RE	LEASE	Victoria de la companya da la compan	AUGUST 1988 1988 1987 1987 1987 1987 1987 1987
Unit Letter G	Section 32	Township 18	Range 34	Feet from the 2310	North FNL	h/South Line Feet from the East/West Li 1980 FEL			County Lea
		La française de				OF REL	le: <u>-103.58040</u> EASE		
ype of Rele	ease: Conde	nsate		1-10-11-10-1-1-1-1-1-1-1-1-1-1-1-1-1-1-			Release: 49 BB		: Recovered:
Source of Re	elease: Load	d line					ur of Occurrence		Hour of Discovery:
Vas Immed	iate Notice (Yes 🔲	No Dot Re	quired	If YES, To		ohnny Titsworth	*
	Mark Bisho						Iour: 12/12/13		
Vas a Water	rcourse Read		Yes X	No		If YES, Vo	olume Impacting	the Watercourse.	
Describe Ca Unknown pe	use of Probl erson malici	em and Reme ously or accid	dial Actic entally ca	on Taken.* used 3" load line	to be pu	lled from Vic	taulic connection	to be pulled out o	of connection to water tank
Majority of	spill was co		the firew	all, with a small a					i
regulations a public health should their or the enviro	all operators n or the envi operations l onment. In a	are required to ronment. The	o report a acceptan adequatel OCD acce	nd/or file certain ce of a C-141 rep v investigate and	release r ort by th remediat	notifications a le NMOCD m le contaminat	nd perform correct arked as "Final R on that pose a thr	ctive actions for race eport" does not re eat to ground wat	rsuant to NMOCD rules and eleases which may endanger elieve the operator of liability ter, surface water, human health compliance with any other
Signature:	a	1	5	>			OIL CON	SERVATIO1	N DIVISION
COMPANY OF THE PARTY OF THE PAR	ne: Johnny	Fitsworth .				Approved by	Environmental S	pecialist:	
l'itle: Envir	onmental C	ompliance Co	ordinator	Declaration of Commence	_	Approval Da	te:	Expiratio	n Date:
3-mail Add	ress: jtitswo	orth@cimarex.		1		Conditions o	Conditions of Approval:		Attached
Date: 12/1: Attach Add		ets If Necess		432)-250-2059		VIII		//	4