CONESTOGA-ROVERS
& ASSOCIATES

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www.CRAworld.com

September 16, 2014 Reference No. 088210/07

Mr. Zane Kurtz
EOG Resources
5509 Champions Drive
Midland, TX 79706

Dear Mr. Kurtz:

Re: Summary of Soil Sampling
Elk Wallow 11 #3
1RP-3318
Lea County, New Mexico

At the request of EOG Resources, Inc. (EOG), Conestoga Rovers and Associates (CRA), performed a subsurface assessment at the above referenced location on August 7, 2014. The Site is located at coordinates 32.1516 N, -103.9519 W and is southeast of Loving, New Mexico, in Eddy County (see Figure 1). The case number is 1RP-3318.

The site is currently an active Tank Battery. The Site's topography is relatively flat, covered with windblown sand, sparse vegetation, and mesquite trees. A release occurred at the flare on the northeast end of the on-site caliche pad. Based on the C-141 form, the release was estimated to be forty-five barrels from the flare in the northeast corner of the pad; 20 barrels were recovered. Impacted soil surrounding the flare had been excavated. Based on the soil stockpile that was observed on site during the CRA Site assessment, it appeared approximately 20 cubic yards of soil had been excavated. The soil stockpile was placed on plastic sheeting. The excavation had been backfilled with clean soil at the time of CRA's assessment.

Presented below is a summary of the August 07, 2014 sampling event.

Sampling Activities

The sampling activities performed at the Site consisted of hand-shovel digging and hand auguring to depths of 3-5' depth, based on extent of contamination in field tests or by the restricting soil layer, accompanied by soil sampling and field screening. Sampling tools were cleaned with an alconox wash solution and clean water rinse prior to collecting each soil sample. Field screening was performed for chlorides using Hach Cloride Test strips and total petroleum hydrocarbons (TPH) using a Petroflag Hydocarbon analysis kit. Results of the field screening indicated that concentrations were below regulatory limits.

Following field screening, soil samples were collected for laboratory analysis of chlorides by EPA Method 300.0, TPH by EPA Method 8015, and benzene, toluene, ethylbenzene, and xylene (BTEX) by EPA Method 8021. Soil samples were submitted under chain of custody documentation via overnight delivery to Trace Analysis Laboratories of Midland, Texas.

1.0 Site Risk Ranking

The New Mexico Oil Conservation Division (NMOCD) has a risk ranking system to establish the regulatory limits for petroleum hydrocarbons. The risk ranking system is based on the depth to groundwater, the presence of wellhead protection areas, and the distance of the site to surface water bodies.

Based on the New Mexico Tech Pit Portal, the depth to groundwater in the vicinity of the site is approximately 40 to 60 feet (ft) below ground surface (bgs). There are no well head protection areas in the vicinity of the site and no surface water bodies. Based on this, the NMOCD Risk Ranking score for the site is 20. The Recommended Remediation Action Levels (RRALs) for the site are 100 parts per million (ppm) for TPH, 10 ppm for benzene, 50 ppm for total BTEX. The recommended concentration for chlorides is 250 ppm (see table below).

New Mexico Oil Conservation Division Spill Guidelines	
Ranking Criteria	Score
Depth to Ground Water (less than 50 ft)	20
Wellhead Protection Area	0
Distance to Surface Body Water	0
Ranking Criteria Total Score	0
*Because the ranking criteria total score is 20, NMOCD RRALs are 10 ppm for benzene, 50 ppm for BTEX, 100 ppm for total TPH, and 250 ppm for chlorides.	

2.0 Laboratory Analytical Results

The laboratory analytical results indicated that concentrations of BTEX and TPH were below the laboratory reporting limit for the samples that were submitted for analysis. Chloride concentrations

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& ASSOCIATES

were below the NMOCD RRALs for the samples that were submitted for analysis (see Figure 2). A copy of the laboratory analyses is included as Appendix A.

Based on the results of the laboratory analyses, CRA recommends that no further action be required for this site. If you have any questions or comments with regards to this work plan, please do not hesitate to contact our Albuquerque office at (505) 884-0672.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Reviewed by:

Bernard Bockisch, PMP
Senior Project Manager

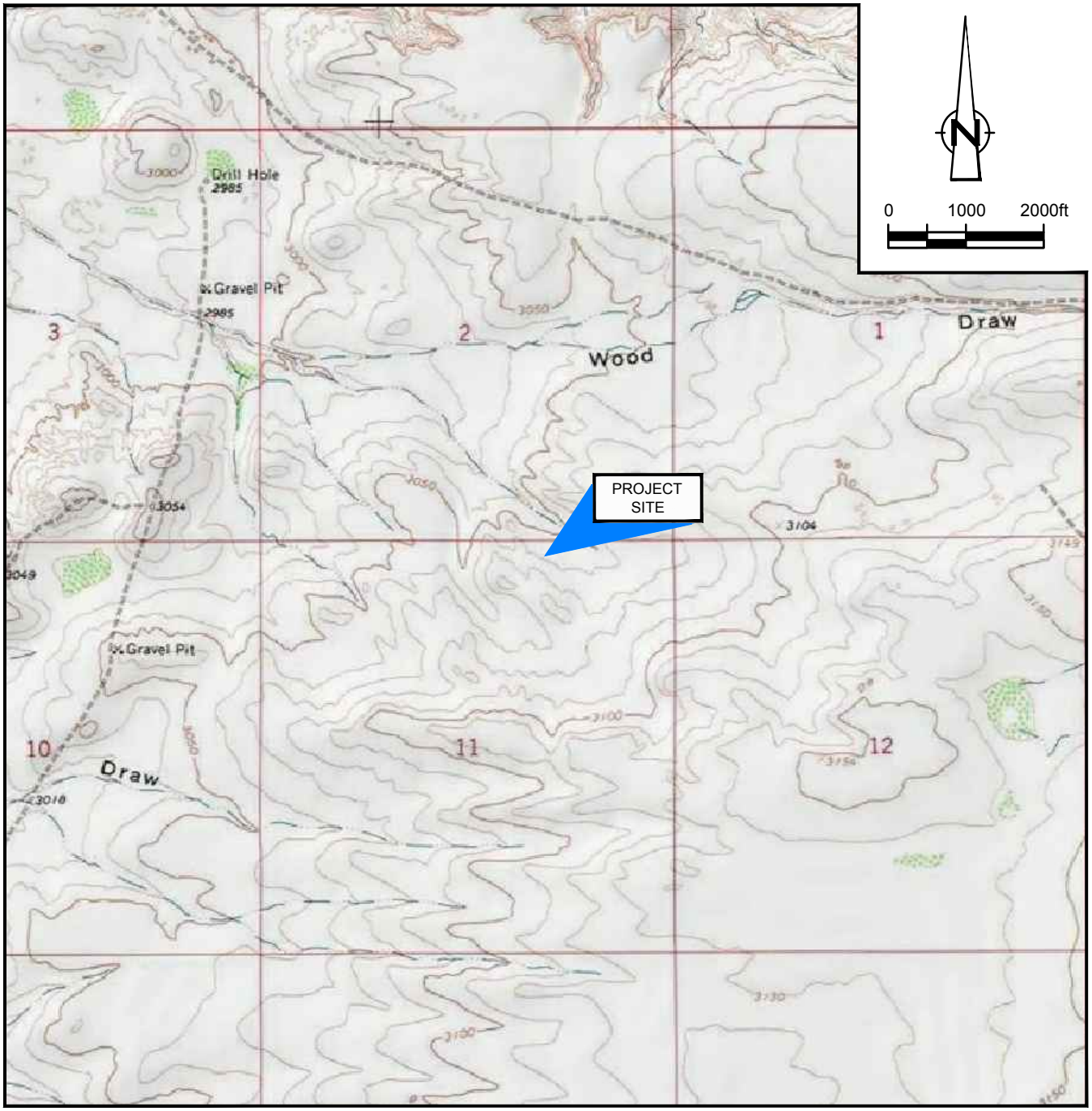
Jeffrey Walker,
Senior Project Manager

BB/mc/1
Encl. (5)

Attachments:

Figure 1. Site Location Map
Figure 3. Site Detail Map
Appendix A. Laboratory Analytical Results

Figures



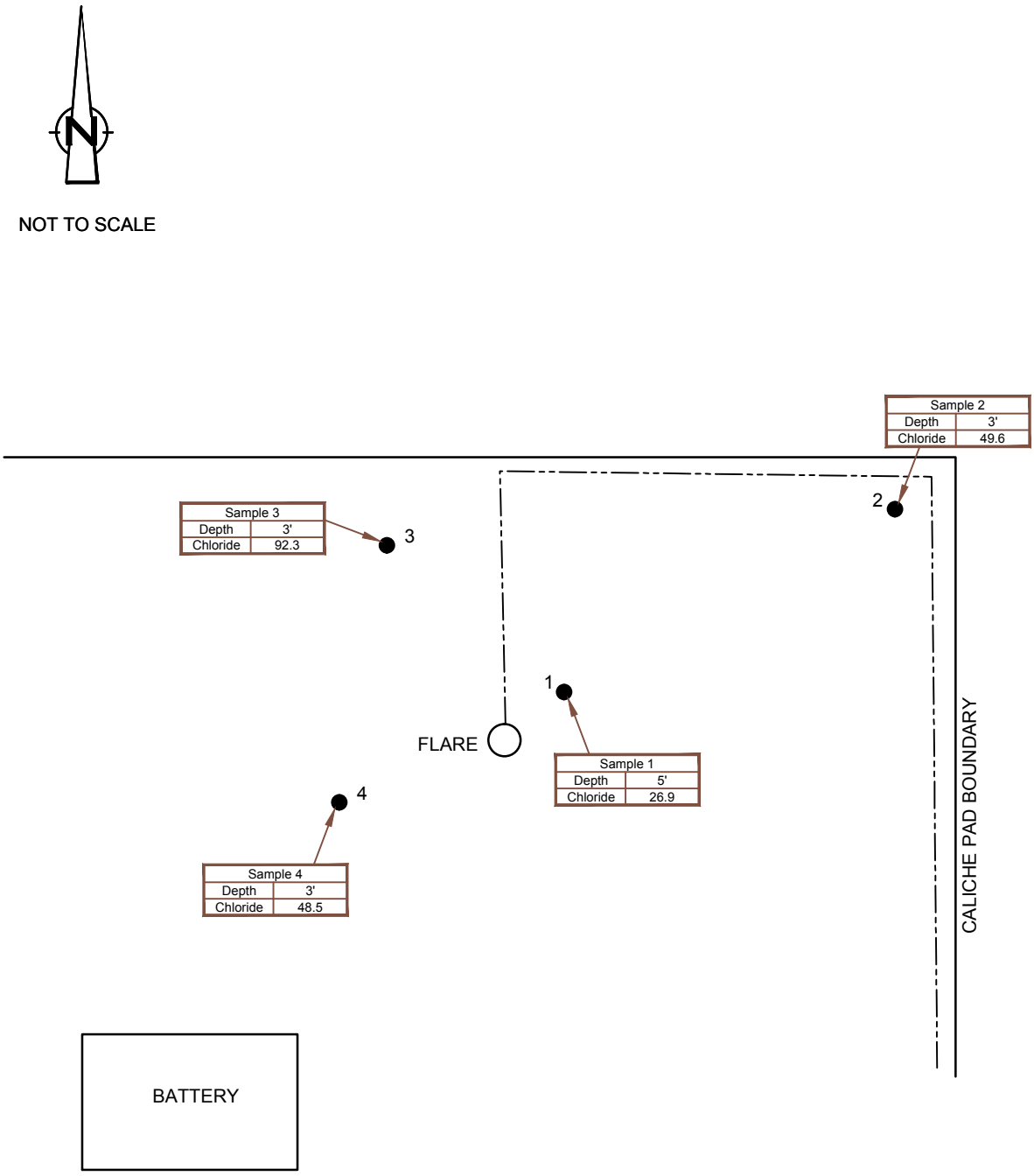
SOURCE: USGS 7.5 MINUTE QUAD
"PIERCE CANYON, TEXAS"

LAT/LONG: 32.1514° NORTH, 103.9519° WEST
COORDINATE: NAD83 DATUM, U.S. FOOT
STATE PLANE ZONE - NEW MEXICO EAST

Figure 1

SITE LOCATION MAP
ELK WALLOW 11 #3
EDDY COUNTY, NEW MEXICO
EOG Resources, Inc.

088210-07(PRES006)GN-DL001 SEP 10/2014



LEGEND	
●	Surface Sample Location
————	Pipeline
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes Concentration (mg/kg)
TPH	Total Petroleum Hydrocarbons Concentration (mg/kg)

Constituent	Regulatory Limits
Chloride	250
BTEX	10
TPH	100

NOTES:

1. All results are in mg/kg.
2. Chlorides, TPH, and BTEX were below regulatory limits for all samples.

Figure 2

SITE DETAIL MAP
ELK WALLOW 11 #3
EDDY COUNTY, NEW MEXICO
EOG Resources, Inc.

088210-07(PRES006)GN-DL001 SEP 10/2014

Attachment A

Laboratory Analytical Results

TRACEANALYSIS, INC.

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

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Bernie Bocuisch
CRA-Albuquerque
6121 Indian School Rd NE
Albuquerque, NM, 87110

Report Date: August 26, 2014

Work Order: 14081210

Project Location: Malaga, NM
Project Name: EOG/Elk Wallow 11 #3
Project Number: 088210-07

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
371428	088210-080714-SP-01	soil	2014-08-07	12:00	2014-08-12
371429	088210-080714-SP-02	soil	2014-08-07	13:15	2014-08-12
371430	088210-080714-SP-03	soil	2014-08-07	13:30	2014-08-12
371431	088210-080714-SP-04	soil	2014-08-07	13:45	2014-08-12

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.

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

Report Contents

Case Narrative

Samples for project EOG/Elk Wallow 11 #3 were received by TraceAnalysis, Inc. on 2014-08-12 and assigned to work order 14081210. Samples for work order 14081210 were received intact at a temperature of 4.6 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	96950	2014-08-15 at 07:35	114640	2014-08-18 at 07:36
Chloride (IC)	E 300.0	97157	2014-08-21 at 11:38	114888	2014-08-25 at 08:34
TPH DRO - NEW	S 8015 D	96868	2014-08-13 at 10:26	114556	2014-08-14 at 08:05
TPH GRO	S 8015 D	96950	2014-08-15 at 07:35	114641	2014-08-15 at 07:44

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 14081210 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Analytical Report

Sample: 371428 - 088210-080714-SP-01

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	114640	Date Analyzed:	2014-08-18	Analyzed By:	AK
Prep Batch:	96950	Sample Preparation:	2014-08-15	Prepared By:	AK

Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	3	<0.0200	mg/Kg	1	0.0200
Toluene	U	3	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	3	<0.0200	mg/Kg	1	0.0200
Xylene	U	3	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.90	mg/Kg	1	2.00	95	70 - 130
4-Bromofluorobenzene (4-BFB)			1.88	mg/Kg	1	2.00	94	70 - 130

Sample: 371428 - 088210-080714-SP-01

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	114888	Date Analyzed:	2014-08-25	Analyzed By:	RL
Prep Batch:	97157	Sample Preparation:		Prepared By:	RL

Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride		1,2,4	**26.9**	mg/Kg	1	25.0

Sample: 371428 - 088210-080714-SP-01

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	114556	Date Analyzed:	2014-08-14	Analyzed By:	SC
Prep Batch:	96868	Sample Preparation:	2014-08-13	Prepared By:	SC

Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO		3	<50.0	mg/Kg	1	50.0

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

Sample: 371428 - 088210-080714-SP-01

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	114641	Date Analyzed:	2014-08-15	Analyzed By:	AK
Prep Batch:	96950	Sample Preparation:	2014-08-15	Prepared By:	AK

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	U	3	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.06	mg/Kg	1	2.00	103	70 - 130
4-Bromofluorobenzene (4-BFB)			1.88	mg/Kg	1	2.00	94	70 - 130

Sample: 371429 - 088210-080714-SP-02

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	114640	Date Analyzed:	2014-08-18	Analyzed By:	AK
Prep Batch:	96950	Sample Preparation:	2014-08-15	Prepared By:	AK

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	U	3	<0.0200	mg/Kg	1	0.0200
Toluene	U	3	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	3	<0.0200	mg/Kg	1	0.0200
Xylene	U	3	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.90	mg/Kg	1	2.00	95	70 - 130
4-Bromofluorobenzene (4-BFB)			1.87	mg/Kg	1	2.00	94	70 - 130

Sample: 371429 - 088210-080714-SP-02

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	114888	Date Analyzed:	2014-08-25	Analyzed By:	RL
Prep Batch:	97157	Sample Preparation:		Prepared By:	RL

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride		1,2,4	**49.6**	mg/Kg	1	25.0

Sample: 371429 - 088210-080714-SP-02

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	114556	Date Analyzed:	2014-08-14	Analyzed By:	SC
Prep Batch:	96868	Sample Preparation:	2014-08-13	Prepared By:	SC

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	U	3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	61.9	mg/Kg	1	100	62	70 - 130

Sample: 371429 - 088210-080714-SP-02

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	114641	Date Analyzed:	2014-08-15	Analyzed By:	AK
Prep Batch:	96950	Sample Preparation:	2014-08-15	Prepared By:	AK

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	U	3	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.01	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			1.87	mg/Kg	1	2.00	94	70 - 130

Sample: 371430 - 088210-080714-SP-03

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	114640	Date Analyzed:	2014-08-18	Analyzed By:	AK
Prep Batch:	96950	Sample Preparation:	2014-08-15	Prepared By:	AK

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	U	3	<0.0200	mg/Kg	1	0.0200
Toluene	U	3	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	3	<0.0200	mg/Kg	1	0.0200
Xylene	U	3	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.91	mg/Kg	1	2.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			1.90	mg/Kg	1	2.00	95	70 - 130

Sample: 371430 - 088210-080714-SP-03

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	114888	Date Analyzed:	2014-08-25	Analyzed By:	RL
Prep Batch:	97157	Sample Preparation:		Prepared By:	RL

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride		1,2,4	**92.3**	mg/Kg	1	25.0

Sample: 371430 - 088210-080714-SP-03

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	114556	Date Analyzed:	2014-08-14	Analyzed By:	SC
Prep Batch:	96868	Sample Preparation:	2014-08-13	Prepared By:	SC

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO		3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			97.7	mg/Kg	1	100	98	70 - 130

Sample: 371430 - 088210-080714-SP-03

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	114641	Date Analyzed:	2014-08-15	Analyzed By:	AK
Prep Batch:	96950	Sample Preparation:	2014-08-15	Prepared By:	AK

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	U	3	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.03	mg/Kg	1	2.00	102	70 - 130
4-Bromofluorobenzene (4-BFB)			1.90	mg/Kg	1	2.00	95	70 - 130

Sample: 371431 - 088210-080714-SP-04

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	114640	Date Analyzed:	2014-08-18	Analyzed By:	AK
Prep Batch:	96950	Sample Preparation:	2014-08-15	Prepared By:	AK

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	U	3	<0.0200	mg/Kg	1	0.0200
Toluene	U	3	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	3	<0.0200	mg/Kg	1	0.0200
Xylene	U	3	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.92	mg/Kg	1	2.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			1.76	mg/Kg	1	2.00	88	70 - 130

Sample: 371431 - 088210-080714-SP-04

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	114888	Date Analyzed:	2014-08-25	Analyzed By:	RL
Prep Batch:	97157	Sample Preparation:		Prepared By:	RL

continued ...

sample 371431 continued . . .

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1,2,4	**48.5**	mg/Kg	1	25.0

Sample: 371431 - 088210-080714-SP-04

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	114556	Date Analyzed:	2014-08-14	Analyzed By:	SC
Prep Batch:	96868	Sample Preparation:	2014-08-13	Prepared By:	SC

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			70.5	mg/Kg	1	100	70	70 - 130

Sample: 371431 - 088210-080714-SP-04

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	114641	Date Analyzed:	2014-08-15	Analyzed By:	AK
Prep Batch:	96950	Sample Preparation:	2014-08-15	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	3	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.03	mg/Kg	1	2.00	102	70 - 130
4-Bromofluorobenzene (4-BFB)			1.82	mg/Kg	1	2.00	91	70 - 130

Method Blanks

Method Blank (1) QC Batch: 114556

QC Batch:	114556	Date Analyzed:	2014-08-14	Analyzed By:	SC
Prep Batch:	96868	QC Preparation:	2014-08-13	Prepared By:	SC

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		3	<7.41	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			98.5	mg/Kg	1	100	98	70 - 130

Method Blank (1) QC Batch: 114640

QC Batch:	114640	Date Analyzed:	2014-08-18	Analyzed By:	AK
Prep Batch:	96950	QC Preparation:	2014-08-15	Prepared By:	AK

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		3	<0.00533	mg/Kg	0.02
Toluene		3	<0.00645	mg/Kg	0.02
Ethylbenzene		3	<0.0116	mg/Kg	0.02
Xylene		3	<0.00874	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.94	mg/Kg	1	2.00	97	70 - 130
4-Bromofluorobenzene (4-BFB)			1.77	mg/Kg	1	2.00	88	70 - 130

Method Blank (1) QC Batch: 114641

QC Batch:	114641	Date Analyzed:	2014-08-15	Analyzed By:	AK
Prep Batch:	96950	QC Preparation:	2014-08-15	Prepared By:	AK

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		3	<2.32	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.01	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			1.78	mg/Kg	1	2.00	89	70 - 130

Method Blank (1) QC Batch: 114888

QC Batch:	114888	Date Analyzed:	2014-08-25	Analyzed By:	RL
Prep Batch:	97157	QC Preparation:	2014-08-21	Prepared By:	MM

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1,2,4	<2.66	mg/Kg	25

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 114556 | Date Analyzed: 2014-08-14 | Analyzed By: SC
Prep Batch: 96868 | QC Preparation: 2014-08-13 | Prepared By: SC

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		[3]	225	mg/Kg	1	250	<7.41	90	70 - 130

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		[3]	225	mg/Kg	1	250	<7.41	90	70 - 130	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	103	103	mg/Kg	1	100	103	103	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 114640 | Date Analyzed: 2014-08-18 | Analyzed By: AK
Prep Batch: 96950 | QC Preparation: 2014-08-15 | Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		[3]	1.86	mg/Kg	1	2.00	<0.00533	93	70 - 130
Toluene		[3]	2.02	mg/Kg	1	2.00	<0.00645	101	70 - 130
Ethylbenzene		[3]	2.11	mg/Kg	1	2.00	<0.0116	106	70 - 130
Xylene		[3]	6.42	mg/Kg	1	6.00	<0.00874	107	70 - 130

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		[3]	1.82	mg/Kg	1	2.00	<0.00533	91	70 - 130	2	20
Toluene		[3]	1.94	mg/Kg	1	2.00	<0.00645	97	70 - 130	4	20
Ethylbenzene		[3]	2.07	mg/Kg	1	2.00	<0.0116	104	70 - 130	2	20
Xylene		[3]	6.23	mg/Kg	1	6.00	<0.00874	104	70 - 130	3	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.93	1.96	mg/Kg	1	2.00	96	98	70 - 130
4-Bromofluorobenzene (4-BFB)	1.89	1.91	mg/Kg	1	2.00	94	96	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 114641 | Date Analyzed: 2014-08-15 | Analyzed By: AK
Prep Batch: 96950 | QC Preparation: 2014-08-15 | Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		[3]	19.7	mg/Kg	1	20.0	<2.32	98	70 - 130

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		[3]	17.5	mg/Kg	1	20.0	<2.32	88	70 - 130	12	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.95	1.94	mg/Kg	1	2.00	98	97	70 - 130
4-Bromofluorobenzene (4-BFB)	1.90	1.90	mg/Kg	1	2.00	95	95	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 114888 | Date Analyzed: 2014-08-25 | Analyzed By: RL
Prep Batch: 97157 | QC Preparation: 2014-08-21 | Prepared By: MM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		[1,2,4]	235	mg/Kg	1	250	<2.66	94	90 - 110

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		[1,2,4]	232	mg/Kg	1	250	<2.66	93	90 - 110	1	20

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

Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 370833

QC Batch: 114556 | Date Analyzed: 2014-08-14 | Analyzed By: SC
Prep Batch: 96868 | QC Preparation: 2014-08-13 | Prepared By: SC

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		[3]	176	mg/Kg	1	250	16.4	64	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		[3]	213	mg/Kg	1	250	16.4	79	70 - 130	19	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	109	103	mg/Kg	1	100	109	103	70 - 130

Matrix Spike (MS-1) Spiked Sample: 371431

QC Batch: 114640 | Date Analyzed: 2014-08-18 | Analyzed By: AK
Prep Batch: 96950 | QC Preparation: 2014-08-15 | Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		[3]	1.84	mg/Kg	1	2.00	<0.00533	92	70 - 130
Toluene		[3]	1.98	mg/Kg	1	2.00	<0.00645	99	70 - 130
Ethylbenzene		[3]	2.07	mg/Kg	1	2.00	<0.0116	104	70 - 130
Xylene		[3]	6.25	mg/Kg	1	6.00	<0.00874	104	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		[3]	1.64	mg/Kg	1	2.00	<0.00533	82	70 - 130	12	20
Toluene		[3]	1.79	mg/Kg	1	2.00	<0.00645	90	70 - 130	10	20
Ethylbenzene		[3]	1.88	mg/Kg	1	2.00	<0.0116	94	70 - 130	10	20
Xylene		[3]	5.68	mg/Kg	1	6.00	<0.00874	95	70 - 130	10	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.89	1.90	mg/Kg	1	2	94	95	70 - 130
4-Bromofluorobenzene (4-BFB)	1.82	1.81	mg/Kg	1	2	91	90	70 - 130

Matrix Spike (MS-1) Spiked Sample: 371431

QC Batch: 114641 | Date Analyzed: 2014-08-15 | Analyzed By: AK
Prep Batch: 96950 | QC Preparation: 2014-08-15 | Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		[3]	19.5	mg/Kg	1	20.0	<2.32	98	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		[3]	20.8	mg/Kg	1	20.0	<2.32	104	70 - 130	6	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.93	1.89	mg/Kg	1	2	96	94	70 - 130
4-Bromofluorobenzene (4-BFB)	1.88	1.86	mg/Kg	1	2	94	93	70 - 130

Matrix Spike (MS-1) Spiked Sample: 371430

QC Batch: 114888 | Date Analyzed: 2014-08-25 | Analyzed By: RL
Prep Batch: 97157 | QC Preparation: 2014-08-21 | Prepared By: MM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		[1,2,4]	339	mg/Kg	1	250	92.3	99	80 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		[1,2,4]	341	mg/Kg	1	250	92.3	99	80 - 120	1	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 114556 | Date Analyzed: 2014-08-14 | Analyzed By: SC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		3	mg/Kg	250	223	89	80 - 120	2014-08-14

Standard (CCV-2)

QC Batch: 114556 | Date Analyzed: 2014-08-14 | Analyzed By: SC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		3	mg/Kg	250	234	94	80 - 120	2014-08-14

Standard (CCV-3)

QC Batch: 114556 | Date Analyzed: 2014-08-14 | Analyzed By: SC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		3	mg/Kg	250	209	84	80 - 120	2014-08-14

Standard (CCV-1)

QC Batch: 114640 | Date Analyzed: 2014-08-18 | Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		3	mg/kg	0.100	0.0971	97	80 - 120	2014-08-18
Toluene		3	mg/kg	0.100	0.102	102	80 - 120	2014-08-18

continued ...

standard continued ...

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Ethylbenzene		3	mg/kg	0.100	0.102	102	80 - 120	2014-08-18
Xylene		3	mg/kg	0.300	0.309	103	80 - 120	2014-08-18

Standard (CCV-2)

QC Batch: 114640 Date Analyzed: 2014-08-18 Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		3	mg/kg	0.100	0.0976	98	80 - 120	2014-08-18
Toluene		3	mg/kg	0.100	0.0997	100	80 - 120	2014-08-18
Ethylbenzene		3	mg/kg	0.100	0.0987	99	80 - 120	2014-08-18
Xylene		3	mg/kg	0.300	0.300	100	80 - 120	2014-08-18

Standard (CCV-3)

QC Batch: 114640 Date Analyzed: 2014-08-18 Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		3	mg/kg	0.100	0.0903	90	80 - 120	2014-08-18
Toluene		3	mg/kg	0.100	0.0942	94	80 - 120	2014-08-18
Ethylbenzene		3	mg/kg	0.100	0.0925	92	80 - 120	2014-08-18
Xylene		3	mg/kg	0.300	0.280	93	80 - 120	2014-08-18

Standard (CCV-1)

QC Batch: 114641 Date Analyzed: 2014-08-15 Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		3	mg/Kg	1.00	1.07	107	80 - 120	2014-08-15

Standard (CCV-2)

QC Batch: 114641 | Date Analyzed: 2014-08-15 | Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		3	mg/Kg	1.00	0.958	96	80 - 120	2014-08-15

Standard (CCV-3)

QC Batch: 114641 | Date Analyzed: 2014-08-15 | Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		3	mg/Kg	1.00	0.922	92	80 - 120	2014-08-15

Standard (CCV-1)

QC Batch: 114888 | Date Analyzed: 2014-08-25 | Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1,2,4	mg/Kg	25.0	23.8	95	90 - 110	2014-08-25

Standard (CCV-2)

QC Batch: 114888 | Date Analyzed: 2014-08-25 | Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1,2,4	mg/Kg	25.0	24.3	97	90 - 110	2014-08-25

Appendix

Report Definitions

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

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	LELAP	LELAP-02003	Lubbock
2	NELAP	T104704219-14-10	Lubbock
3	NELAP	T104704392-14-8	Midland
4		2013-083	Lubbock

Standard Flags

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

Attachments

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

LAB Order ID # 1408210

Page _____ of _____

TraceAnalysis, Inc.

email: lab@traceanalysis.com

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

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

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

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

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

Company Name: CBA
Phone #: (505) 280-0572
Address: (Street, City, Zip) 6121 Indian School Rd NE, Albuquerque, NM, 87110
Fax #:
Contact Person: Bernie Bockisch
E-mail: bbockisch@cbaworld.com
Invoice to:
(If different from above)
Project #: 088210/07
Project Name: EOG-Elk Wallow 11#3
Project Location (including state): Near Malaga, NM
Sampler Signature: Steven Perez

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
371428	088210-080714-SP-01	1			X								X	8/7/14	~~13:00~~ 11:00
429	088210-080714-SP-02	1			↓								↓	↓	13:15
430	088210-080714-SP-03	1			↓								↓	↓	13:30
431	088210-080714-SP-04	1			↓								↓	↓	13:45

MTBE 8021 / 602 / 8260 / 624	BTEX 8021 / 602 / 8260 / 624	TPH 418.1 / TX1005 / TX1005 Ext(C35)	TPH 8015 GRO / DRO / TVHC	PAH 8270 / 625	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260 / 624	GC/MS Semi. Vol. 8270 / 625	PCB's 8082 / 608	Pesticides 8081 / 608	BOD, TSS, pH	Moisture Content	Cl, F, SO_4, NO_3-N, NO_2-N, PO_4-P, Alkalinity	Na, Ca, Mg, K, TDS, EC	Chlorides 300.0				Turn Around Time if different from standard	Hold
	X	X																	X					
	↓	↓																	↓					
	↓	↓																	↓					
	↓	↓																	↓					

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
Steven Perez	CBA	8/11/14	3:15		TA	8/12/14	10:10	INST RJ OBS 4.7 °C COR 4.6 °C
								INST ____ OBS ____ °C COR ____ °C
				BC TA		8/13/14	9:15	INST IR3 OBS 5.6 °C COR 5.5 °C

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

REMARKS: Midland - DRO/GRO/BTEX
Lubbock - Cl

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

Carrier # FedEx 8057 1764 8282 / 1502 ZR5 25928

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

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