

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, 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

HOBBS OCD

Form C-141
Revised October 10, 2003

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

AUG 13 2014

Submit 2 Copies to appropriate
District Office in accordance
with Rule 116 on back
side of form

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company	COG Operating LLC	Contact	Robert McNeil
Address	600 West Illinois Avenue, Midland, Texas 79701	Telephone No.	(432) 230-0077
Facility Name	BC-GC Compressor Station	Facility Type	Compressor Station

Surface Owner: Federal	Mineral Owner	Lease No. (API#) 30-025-39420
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
L	19	17S	32E					Lea

Latitude N 32.81635° Longitude W 103.81087°

NATURE OF RELEASE

Type of Release: Oil	Volume of Release 75 bbls	Volume Recovered 70 bbls
Source of Release Oil Tank	Date and Hour of Occurrence 08-04-2013	Date and Hour of Discovery 08-04-2013 8:00 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Geoffrey Leking - NMOCD	
By Whom? Michelle Mullins	Date and Hour 08-05-2013 08:00 a.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

N/A

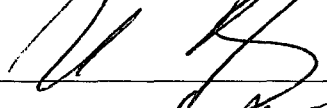
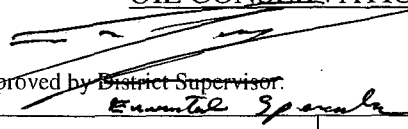
Describe Cause of Problem and Remedial Action Taken.*

Production separator at the GC-1 Battery malfunctioned, sending all fluid to the compressor station causing the oil tank to overflow. Reconnected the float ball inside separator at GC-1.

Describe Area Affected and Cleanup Action Taken.*

Initially 75 bbls of oil were released from an oil tank and 70 bbls was recovered with a vacuum truck. Tetra Tech inspected site and collected samples to define spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal. Site was then brought up to surface grade with clean backfill material. Tetra Tech prepared closure report and submitted to NMOCD for review.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 	OIL CONSERVATION DIVISION	
Printed Name: Ike Tavarez	Approved by District Supervisor: 	
Title: Senior Project Manager, P.G.	Approval Date: 8-14-14	Expiration Date: _____
E-mail Address: Ike.Tavarez@tetratech.com	Conditions of Approval: _____	Attached ☐
Date: 7-23-14 Phone: (432) 687-8110	1RP-3238	

Attach Additional Sheets If Necessary

AUG 14 2014

0312 229132
9701422 630067
9701422 630432

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - BC-GC Compressor Station
Lea County, New Mexico

16 South 31 East					
6	5	4	3	2	290
7	8	9	10	11	12
18	17	16	15	14	113
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36
290					

17 South 31 East					
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36
					271

18 South 31 East					
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	98	14
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36
					261

16 South 32 East					
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36
					260

17 South 32 East					
6	5	4	82	3	2
7	8	9	10	132	11
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

18 South 32 East					
6	5	4	65	3	2
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

16 South 33 East					
6	5	180	4	3	130
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36
190	168		160		

17 South 33 East					
6	90	5	4	3	155
7	167	8	9	10	11
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

18 South 33 East					
6	5	4	3	2	1
7	8	100	9	10	11
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

-  New Mexico State Engineers Well Reports
-  USGS Well Reports
-  Geology and Groundwater Conditions in Southern Eddy, County, NM
-  NMOCD - Groundwater Data
-  Field water level
-  New Mexico Water and Infrastructure Data System

Appendix C

Summary Report

Ike Tavarez
Tetra Tech
1910 N. Big Spring Street
Midland, TX 79705

Report Date: September 6, 2013

Work Order: 13082314



Project Location: NM
Project Name: COG/BC-GC Compressor Station
Project Number: TBD

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
339691	AH-1 0-1'	soil	2013-08-22	00:00	2013-08-23
339692	AH-1 1-1.5'	soil	2013-08-22	00:00	2013-08-23
339693	AH-1 2-2.5'	soil	2013-08-22	00:00	2013-08-23
339694	AH-1 3-3.5'	soil	2013-08-22	00:00	2013-08-23
339695	AH-2 0-1'	soil	2013-08-22	00:00	2013-08-23
339696	AH-2 1-1.5'	soil	2013-08-22	00:00	2013-08-23
339697	AH-2 2-2.5'	soil	2013-08-22	00:00	2013-08-23
339698	AH-2 3-3.5'	soil	2013-08-22	00:00	2013-08-23
339699	AH-2 4-4.5'	soil	2013-08-22	00:00	2013-08-23
339700	AH-2 5-5.5'	soil	2013-08-22	00:00	2013-08-23
339701	AH-2 6-6.5'	soil	2013-08-22	00:00	2013-08-23
339702	AH-3 0-1'	soil	2013-08-22	00:00	2013-08-23
339703	AH-3 1-1.5'	soil	2013-08-22	00:00	2013-08-23
339704	AH-3 2-2.5'	soil	2013-08-22	00:00	2013-08-23
339705	AH-3 3-3.5'	soil	2013-08-22	00:00	2013-08-23
339706	AH-3 4-4.5'	soil	2013-08-22	00:00	2013-08-23
339707	AH-4 0-1'	soil	2013-08-22	00:00	2013-08-23
339708	AH-4 1-1.5'	soil	2013-08-22	00:00	2013-08-23
339709	AH-4 2-2.5'	soil	2013-08-22	00:00	2013-08-23
339710	AH-4 3-3.5'	soil	2013-08-22	00:00	2013-08-23
339860	AH-1 4-4.5'	soil	2013-08-22	00:00	2013-08-23

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
339691 - AH-1 0-1'	<0.0200	<0.0200	0.963	1.48	987	139 Qs
339692 - AH-1 1-1.5'					<50.0	<4.00 Qs
339695 - AH-2 0-1'	8.18 Je	172	195	215	3980	6460 Je, Qs

continued ...

... continued

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
339696 - AH-2 1-1.5'	65.9	366 Jc	278 Jc	284 Jc	1870	8480 Jc, Qs
339697 - AH-2 2-2.5'	<0.0200	0.104	0.347	0.292	<50.0	45.8 Qs
339702 - AH-3 0-1'	<1.00 ¹ Qr, Qs	21.2 Qr	59.4 Qr	144 Qr	11700	3070 Qs
339703 - AH-3 1-1.5'	4.27 Qr, Qs	158 Qr	207 Qr	311 Qr	10400	7100 Qs
339704 - AH-3 2-2.5'	55.8 Qr, Qs	546 Jc, Qr	518 Qr	723 Jc, Qr	14000	16000 Qs
339705 - AH-3 3-3.5'	<0.400 ² Qr, Qs	51.8 Qr	85.3 Qr	134 Qr	2930	3200 Qs
339706 - AH-3 4-4.5'	<0.400 ³ Qr, Qs	5.17 Qr	19.9 Qr	39.5 Qr	1430	1080 Qs
339707 - AH-4 0-1'	<0.0200 Qr, Qs	<0.0200 Qr	<0.0200 Qr	0.0227 Qr	<50.0	<4.00 Qs

Sample: 339691 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		195	mg/Kg	4

Sample: 339692 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		161	mg/Kg	4

Sample: 339693 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		292	mg/Kg	4

Sample: 339694 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		390	mg/Kg	4

Sample: 339695 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		902	mg/Kg	4

Sample: 339696 - AH-2 1-1.5'

¹dilution due to hydrocarbons.²Dilution due to hydrocarbons.³Dilution due to hydrocarbons.

Param	Flag	Result	Units	RL
Chloride		2530	mg/Kg	4

Sample: 339697 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		9790	mg/Kg	4

Sample: 339698 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		4040	mg/Kg	4

Sample: 339699 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		341	mg/Kg	4

Sample: 339700 - AH-2 5-5.5'

Param	Flag	Result	Units	RL
Chloride		521	mg/Kg	4

Sample: 339701 - AH-2 6-6.5'

Param	Flag	Result	Units	RL
Chloride		374	mg/Kg	4

Sample: 339702 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 339703 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 339704 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 339705 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		38.3	mg/Kg	4

Sample: 339706 - AH-3 4-4.5'

Param	Flag	Result	Units	RL
Chloride		115	mg/Kg	4

Sample: 339707 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		139	mg/Kg	4

Sample: 339708 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 339709 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 339710 - AH-4 3-3.5'

Param	Flag	Result	Units	RL
Chloride		340	mg/Kg	4

Sample: 339860 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		917	mg/Kg	4



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

Ike Tavaréz
Tetra Tech
1910 N. Big Spring Street
Midland, TX, 79705

Report Date: September 6, 2013

Work Order: 13082314



Project Location: NM
Project Name: COG/BC-GC Compressor Station
Project Number: TBD

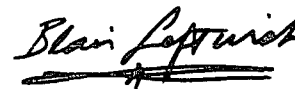
Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
339691	AH-1 0-1'	soil	2013-08-22	00:00	2013-08-23
339692	AH-1 1-1.5'	soil	2013-08-22	00:00	2013-08-23
339693	AH-1 2-2.5'	soil	2013-08-22	00:00	2013-08-23
339694	AH-1 3-3.5'	soil	2013-08-22	00:00	2013-08-23
339695	AH-2 0-1'	soil	2013-08-22	00:00	2013-08-23
339696	AH-2 1-1.5'	soil	2013-08-22	00:00	2013-08-23
339697	AH-2 2-2.5'	soil	2013-08-22	00:00	2013-08-23
339698	AH-2 3-3.5'	soil	2013-08-22	00:00	2013-08-23
339699	AH-2 4-4.5'	soil	2013-08-22	00:00	2013-08-23
339700	AH-2 5-5.5'	soil	2013-08-22	00:00	2013-08-23
339701	AH-2 6-6.5'	soil	2013-08-22	00:00	2013-08-23
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339703	AH-3 1-1.5'	soil	2013-08-22	00:00	2013-08-23
339704	AH-3 2-2.5'	soil	2013-08-22	00:00	2013-08-23
339705	AH-3 3-3.5'	soil	2013-08-22	00:00	2013-08-23
339706	AH-3 4-4.5'	soil	2013-08-22	00:00	2013-08-23
339707	AH-4 0-1'	soil	2013-08-22	00:00	2013-08-23
339708	AH-4 1-1.5'	soil	2013-08-22	00:00	2013-08-23

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
339709	AH-4 2-2.5'	soil	2013-08-22	00:00	2013-08-23
339710	AH-4 3-3.5'	soil	2013-08-22	00:00	2013-08-23
339860	AH-1 4-4.5'	soil	2013-08-22	00:00	2013-08-23

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 47 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	5
Analytical Report	6
Sample 339691 (AH-1 0-1')	6
Sample 339692 (AH-1 1-1.5')	7
Sample 339693 (AH-1 2-2.5')	8
Sample 339694 (AH-1 3-3.5')	8
Sample 339695 (AH-2 0-1')	9
Sample 339696 (AH-2 1-1.5')	10
Sample 339697 (AH-2 2-2.5')	12
Sample 339698 (AH-2 3-3.5')	13
Sample 339699 (AH-2 4-4.5')	13
Sample 339700 (AH-2 5-5.5')	14
Sample 339701 (AH-2 6-6.5')	14
Sample 339702 (AH-3 0-1')	14
Sample 339703 (AH-3 1-1.5')	16
Sample 339704 (AH-3 2-2.5')	17
Sample 339705 (AH-3 3-3.5')	19
Sample 339706 (AH-3 4-4.5')	20
Sample 339707 (AH-4 0-1')	21
Sample 339708 (AH-4 1-1.5')	23
Sample 339709 (AH-4 2-2.5')	23
Sample 339710 (AH-4 3-3.5')	23
Sample 339860 (AH-1 4-4.5')	24
Method Blanks	25
QC Batch 104434 - Method Blank (1)	25
QC Batch 104498 - Method Blank (1)	25
QC Batch 104521 - Method Blank (1)	25
QC Batch 104522 - Method Blank (1)	25
QC Batch 104523 - Method Blank (1)	26
QC Batch 104664 - Method Blank (1)	26
QC Batch 104698 - Method Blank (1)	26
QC Batch 104712 - Method Blank (1)	27
QC Batch 104767 - Method Blank (1)	27
QC Batch 104768 - Method Blank (1)	28
Laboratory Control Spikes	29
QC Batch 104434 - LCS (1)	29
QC Batch 104498 - LCS (1)	29
QC Batch 104521 - LCS (1)	29
QC Batch 104522 - LCS (1)	30
QC Batch 104523 - LCS (1)	30
QC Batch 104664 - LCS (1)	31
QC Batch 104698 - LCS (1)	31
QC Batch 104712 - LCS (1)	32

QC Batch 104767 - LCS (1)	32
QC Batch 104768 - LCS (1)	33
QC Batch 104434 - MS (1)	33
QC Batch 104498 - xMS (1)	34
QC Batch 104521 - MS (1)	34
QC Batch 104522 - MS (1)	35
QC Batch 104523 - MS (1)	35
QC Batch 104664 - xMS (1)	35
QC Batch 104698 - MS (1)	36
QC Batch 104712 - MS (1)	37
QC Batch 104767 - MS (1)	37
QC Batch 104768 - MS (1)	38

Calibration Standards	39
------------------------------	-----------

QC Batch 104434 - CCV (1)	39
QC Batch 104434 - CCV (2)	39
QC Batch 104434 - CCV (3)	39
QC Batch 104498 - CCV (1)	39
QC Batch 104498 - CCV (2)	39
QC Batch 104498 - CCV (3)	40
QC Batch 104521 - CCV (1)	40
QC Batch 104521 - CCV (2)	40
QC Batch 104522 - CCV (1)	40
QC Batch 104522 - CCV (2)	41
QC Batch 104523 - CCV (1)	41
QC Batch 104523 - CCV (2)	41
QC Batch 104664 - CCV (1)	41
QC Batch 104664 - CCV (2)	42
QC Batch 104698 - CCV (1)	42
QC Batch 104698 - CCV (2)	42
QC Batch 104698 - CCV (3)	42
QC Batch 104712 - CCV (1)	43
QC Batch 104712 - CCV (2)	43
QC Batch 104712 - CCV (3)	43
QC Batch 104767 - CCV (1)	43
QC Batch 104767 - CCV (2)	44
QC Batch 104767 - CCV (3)	44
QC Batch 104768 - CCV (1)	44
QC Batch 104768 - CCV (2)	45
QC Batch 104768 - CCV (3)	45

Appendix	46
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Report Definitions	46
Laboratory Certifications	46
Standard Flags	46
Result Comments	46
Attachments	47

Case Narrative

Samples for project COG/BC-GC Compressor Station were received by TraceAnalysis, Inc. on 2013-08-23 and assigned to work order 13082314. Samples for work order 13082314 were received intact at a temperature of 2.0 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	88682	2013-09-03 at 16:06	104698	2013-09-04 at 11:19
BTEX	S 8021B	88771	2013-09-05 at 16:33	104767	2013-09-05 at 16:33
Chloride (Titration)	SM 4500-Cl B	88533	2013-08-28 at 10:21	104521	2013-08-28 at 15:01
Chloride (Titration)	SM 4500-Cl B	88533	2013-08-28 at 10:21	104522	2013-08-28 at 15:09
Chloride (Titration)	SM 4500-Cl B	88533	2013-08-28 at 10:21	104523	2013-08-28 at 16:17
TPH DRO - NEW	S 8015 D	88495	2013-08-26 at 10:30	104434	2013-08-27 at 11:07
TPH DRO - NEW	S 8015 D	88547	2013-08-27 at 13:00	104498	2013-08-28 at 13:24
TPH DRO - NEW	S 8015 D	88674	2013-09-02 at 23:00	104664	2013-09-03 at 14:59
TPH GRO	S 8015 D	88682	2013-09-03 at 16:06	104712	2013-09-04 at 14:14
TPH GRO	S 8015 D	88771	2013-09-05 at 16:33	104768	2013-09-05 at 16:33

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 13082314 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: 339691 - AH-1 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 104698

Prep Batch: 88682

Analytical Method: S 8021B

Date Analyzed: 2013-09-04

Sample Preparation: 2013-09-03

Prep Method: S 5035

Analyzed By: AK

Prepared By: AK

Parameter	Flag	Cert	RL 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	0.963	mg/Kg	1	0.0200
Xylene		2	1.48	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.04	mg/Kg	1	2.00	102	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{st}	Q _{st}	6.88	mg/Kg	1	2.00	344	70 - 130

Sample: 339691 - AH-1 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 104521

Prep Batch: 88533

Analytical Method: SM 4500-Cl B

Date Analyzed: 2013-08-28

Sample Preparation: 2013-08-28

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			195	mg/Kg	5	4.00

Sample: 339691 - AH-1 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 104434

Prep Batch: 88495

Analytical Method: S 8015 D

Date Analyzed: 2013-08-27

Sample Preparation: 2013-08-26

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		2	987	mg/Kg	1	50.0

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 7 of 47
NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			157	mg/Kg	1	100	157	76.3 - 192.6

Sample: 339691 - AH-1 0-1'

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 104712

Prep Batch: 88682

Analytical Method: S 8015 D

Date Analyzed: 2013-09-04

Sample Preparation: 2013-09-03

Prep Method: S 5035

Analyzed By: AK

Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q _{st}	2	139	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.36	mg/Kg	1	2.00	118	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{st}	Q _{st}	15.3	mg/Kg	1	2.00	765	70 - 130

Sample: 339692 - AH-1 1-1.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 104521

Prep Batch: 88533

Analytical Method: SM 4500-Cl B

Date Analyzed: 2013-08-28

Sample Preparation: 2013-08-28

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			161	mg/Kg	5	4.00

Sample: 339692 - AH-1 1-1.5'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 104498

Prep Batch: 88547

Analytical Method: S 8015 D

Date Analyzed: 2013-08-28

Sample Preparation: 2013-08-27

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		2	<50.0	mg/Kg	1	50.0

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 8 of 47
NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			100	mg/Kg	1	100	100	76.3 - 192.6

Sample: 339692 - AH-1 1-1.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 104712
Prep Batch: 88682

Analytical Method: S 8015 D
Date Analyzed: 2013-09-04
Sample Preparation: 2013-09-03

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.32	mg/Kg	1	2.00	116	70 - 130
4-Bromofluorobenzene (4-BFB)			2.53	mg/Kg	1	2.00	126	70 - 130

Sample: 339693 - AH-1 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104521
Prep Batch: 88533

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-08-28
Sample Preparation: 2013-08-28

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			292	mg/Kg	5	4.00

Sample: 339694 - AH-1 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104521
Prep Batch: 88533

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-08-28
Sample Preparation: 2013-08-28

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

continued ...

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 9 of 47
NM

sample 339694 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			390	mg/Kg	5	4.00

Sample: 339695 - AH-2 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 104698

Prep Batch: 88682

Analytical Method: S 8021B

Date Analyzed: 2013-09-04

Sample Preparation: 2013-09-03

Prep Method: S 5035

Analyzed By: AK

Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		2	8.18	mg/Kg	10	0.0200
Toluene		2	172	mg/Kg	10	0.0200
Ethylbenzene		2	195	mg/Kg	10	0.0200
Xylene		2	215	mg/Kg	10	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			16.1	mg/Kg	10	20.0	80	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	177	mg/Kg	10	20.0	885	70 - 130

Sample: 339695 - AH-2 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 104521

Prep Batch: 88533

Analytical Method: SM 4500-Cl B

Date Analyzed: 2013-08-28

Sample Preparation: 2013-08-28

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			902	mg/Kg	5	4.00

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 10 of 47
NM

Sample: 339695 - AH-2 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 104434 Date Analyzed: 2013-08-27 Analyzed By: CW
Prep Batch: 88495 Sample Preparation: 2013-08-26 Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		2	3980	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Q _{SR}	Q _{SR}	338	mg/Kg	5	100	338	76.3 - 192.6

Sample: 339695 - AH-2 0-1'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 104712 Date Analyzed: 2013-09-04 Analyzed By: AK
Prep Batch: 88682 Sample Preparation: 2013-09-03 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	J _{CC} , Q _S	2	6460	mg/Kg	10	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			23.1	mg/Kg	10	20.0	116	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{SR}	Q _{SR}	487	mg/Kg	10	20.0	2435	70 - 130

Sample: 339696 - AH-2 1-1.5'

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 104698 Date Analyzed: 2013-09-04 Analyzed By: AK
Prep Batch: 88682 Sample Preparation: 2013-09-03 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		2	65.9	mg/Kg	10	0.0200
Toluene	J _{CC}	2	366	mg/Kg	10	0.0200
Ethylbenzene	J _{CC}	2	278	mg/Kg	10	0.0200
Xylene	J _{CC}	2	284	mg/Kg	10	0.0200

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 11 of 47
NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{sr}	Q _{sr}	305	mg/Kg	10	20.0	1525	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	189	mg/Kg	10	20.0	945	70 - 130

Sample: 339696 - AH-2 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 104521 Date Analyzed: 2013-08-28 Analyzed By: AR
Prep Batch: 88533 Sample Preparation: 2013-08-28 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2530	mg/Kg	10	4.00

Sample: 339696 - AH-2 1-1.5'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 104498 Date Analyzed: 2013-08-28 Analyzed By: CW
Prep Batch: 88547 Sample Preparation: 2013-08-27 Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		2	1870	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Q _{sr}	Q _{sr}	202	mg/Kg	1	100	202	76.3 - 192.6

Sample: 339696 - AH-2 1-1.5'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 104712 Date Analyzed: 2013-09-04 Analyzed By: AK
Prep Batch: 88682 Sample Preparation: 2013-09-03 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	J _{sr} , Q _{sr}	2	8480	mg/Kg	10	4.00

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 12 of 47
NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{sr}	Q _{sr}	28.2	mg/Kg	10	20.0	141	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	534	mg/Kg	10	20.0	2670	70 - 130

Sample: 339697 - AH-2 2-2.5'

Laboratory: Midland

Analysis: BTEX

QC Batch: 104698

Prep Batch: 88682

Analytical Method: S 8021B

Date Analyzed: 2013-09-04

Sample Preparation: 2013-09-03

Prep Method: S 5035

Analyzed By: AK

Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		2	<0.0200	mg/Kg	1	0.0200
Toluene		2	0.104	mg/Kg	1	0.0200
Ethylbenzene		2	0.347	mg/Kg	1	0.0200
Xylene		2	0.292	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{sr}	Q _{sr}	0.490	mg/Kg	1	2.00	24	70 - 130
4-Bromofluorobenzene (4-BFB)			2.10	mg/Kg	1	2.00	105	70 - 130

Sample: 339697 - AH-2 2-2.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 104521

Prep Batch: 88533

Analytical Method: SM 4500-Cl B

Date Analyzed: 2013-08-28

Sample Preparation: 2013-08-28

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			9790	mg/Kg	10	4.00

Sample: 339697 - AH-2 2-2.5'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 104498

Prep Batch: 88547

Analytical Method: S 8015 D

Date Analyzed: 2013-08-28

Sample Preparation: 2013-08-27

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 13 of 47
NM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		2	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			95.5	mg/Kg	1	100	96	76.3 - 192.6

Sample: 339697 - AH-2 2-2.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 104712
Prep Batch: 88682

Analytical Method: S 8015 D
Date Analyzed: 2013-09-04
Sample Preparation: 2013-09-03

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q _{st}	2	45.8	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{st}	Q _{st}	1.07	mg/Kg	1	2.00	54	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{st}	Q _{st}	3.77	mg/Kg	1	2.00	188	70 - 130

Sample: 339698 - AH-2 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104521
Prep Batch: 88533

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-08-28
Sample Preparation: 2013-08-28

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4040	mg/Kg	10	4.00

Sample: 339699 - AH-2 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104521
Prep Batch: 88533

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-08-28
Sample Preparation: 2013-08-28

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

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 14 of 47
NM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			341	mg/Kg	5	4.00

Sample: 339700 - AH-2 5-5.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 104521 Date Analyzed: 2013-08-28 Analyzed By: AR
Prep Batch: 88533 Sample Preparation: 2013-08-28 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			521	mg/Kg	5	4.00

Sample: 339701 - AH-2 6-6.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 104522 Date Analyzed: 2013-08-28 Analyzed By: AR
Prep Batch: 88533 Sample Preparation: 2013-08-28 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			374	mg/Kg	5	4.00

Sample: 339702 - AH-3 0-1'

Laboratory: Lubbock
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 104767 Date Analyzed: 2013-09-05 Analyzed By: JS
Prep Batch: 88771 Sample Preparation: 2013-09-05 Prepared By: JS

Parameter	Flag	Cert	RL	Units	Dilution	RL
			Result			
Benzene	Qr, Qs, U	1	<1.00	mg/Kg	50	0.0200
Toluene	Qr	1	21.2	mg/Kg	50	0.0200
Ethylbenzene	Qr	1	59.4	mg/Kg	50	0.0200

continued ...

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 15 of 47
NM

sample 339702 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Xylene	Q	1	144	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{st}	Q _{st}	2.68	mg/Kg	50	2.00	134	66.2 - 120
4-Bromofluorobenzene (4-BFB)	Q _{st}	Q _{st}	2.54	mg/Kg	50	2.00	127	59.5 - 120

Sample: 339702 - AH-3 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 104522 Date Analyzed: 2013-08-28 Analyzed By: AR
Prep Batch: 88533 Sample Preparation: 2013-08-28 Prepared By: AR

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

Sample: 339702 - AH-3 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 104434 Date Analyzed: 2013-08-27 Analyzed By: CW
Prep Batch: 88495 Sample Preparation: 2013-08-26 Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		2	11700	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Q _{st}	Q _{st}	798	mg/Kg	5	100	798	76.3 - 192.6

Sample: 339702 - AH-3 0-1'

Laboratory: Lubbock
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 104768 Date Analyzed: 2013-09-05 Analyzed By: JS
Prep Batch: 88771 Sample Preparation: 2013-09-05 Prepared By: JS

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 16 of 47
NM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q _{SR}	1	3070	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{SR}	Q _{SR}	18.9	mg/Kg	50	2.00	945	73 - 122
4-Bromofluorobenzene (4-BFB)	Q _{SR}	Q _{SR}	272	mg/Kg	50	2.00	13600	74.6 - 120

Sample: 339703 - AH-3 1-1.5'

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 104767

Prep Batch: 88771

Analytical Method: S 8021B

Date Analyzed: 2013-09-05

Sample Preparation: 2013-09-05

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Q ₁ , Q _{SR}	1	4.27	mg/Kg	50	0.0200
Toluene	Q ₁	1	158	mg/Kg	50	0.0200
Ethylbenzene	Q ₁	1	207	mg/Kg	50	0.0200
Xylene	Q ₁	1	311	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{SR}	Q _{SR}	3.66	mg/Kg	50	100	4	66.2 - 120
4-Bromofluorobenzene (4-BFB)	Q _{SR}	Q _{SR}	37.2	mg/Kg	50	100	37	59.5 - 120

Sample: 339703 - AH-3 1-1.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 104522

Prep Batch: 88533

Analytical Method: SM 4500-Cl B

Date Analyzed: 2013-08-28

Sample Preparation: 2013-08-28

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 17 of 47
NM

Sample: 339703 - AH-3 1-1.5'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 104498

Prep Batch: 88547

Analytical Method: S 8015 D

Date Analyzed: 2013-08-28

Sample Preparation: 2013-08-27

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		2	10400	mg/Kg	10	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Q _{sr}	Q _{sr}	744	mg/Kg	10	100	744	76.3 - 192.6

Sample: 339703 - AH-3 1-1.5'

Laboratory: Lubbock

Analysis: TPH GRO

QC Batch: 104768

Prep Batch: 88771

Analytical Method: S 8015 D

Date Analyzed: 2013-09-05

Sample Preparation: 2013-09-05

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q _s	1	7100	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{sr}	Q _{sr}	122	mg/Kg	50	2.00	6100	73 - 122
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	466	mg/Kg	50	2.00	23300	74.6 - 120

Sample: 339704 - AH-3 2-2.5'

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 104767

Prep Batch: 88771

Analytical Method: S 8021B

Date Analyzed: 2013-09-05

Sample Preparation: 2013-09-05

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Q _r , Q _s	1	55.8	mg/Kg	50	0.0200
Toluene	J _n , Q _r	1	546	mg/Kg	50	0.0200
Ethylbenzene	Q _r	1	518	mg/Kg	50	0.0200
Xylene	J _n , Q _r	1	723	mg/Kg	50	0.0200

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 18 of 47
NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{NT}	Q _{NT}	14.8	mg/Kg	50	100	15	66.2 - 120
4-Bromofluorobenzene (4-BFB)			78.1	mg/Kg	50	100	78	59.5 - 120

Sample: 339704 - AH-3 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 104522 Date Analyzed: 2013-08-28 Analyzed By: AR
Prep Batch: 88533 Sample Preparation: 2013-08-28 Prepared By: AR

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

Sample: 339704 - AH-3 2-2.5'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 104498 Date Analyzed: 2013-08-28 Analyzed By: CW
Prep Batch: 88547 Sample Preparation: 2013-08-27 Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		2	14000	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Q _{NT}	Q _{NT}	869	mg/Kg	5	100	869	76.3 - 192.6

Sample: 339704 - AH-3 2-2.5'

Laboratory: Lubbock
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 104768 Date Analyzed: 2013-09-05 Analyzed By: JS
Prep Batch: 88771 Sample Preparation: 2013-09-05 Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q _{NT}	1	16000	mg/Kg	50	4.00

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 19 of 47
NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	431	mg/Kg	50	2.00	21550	73 - 122
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	862	mg/Kg	50	2.00	43100	74.6 - 120

Sample: 339705 - AH-3 3-3.5'

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 104767

Prep Batch: 88771

Analytical Method: S 8021B

Date Analyzed: 2013-09-05

Sample Preparation: 2013-09-05

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Qr, Qs	1	<0.400	mg/Kg	20	0.0200
Toluene	Qr	1	51.8	mg/Kg	20	0.0200
Ethylbenzene	Qr	1	85.3	mg/Kg	20	0.0200
Xylene	Qr	1	134	mg/Kg	20	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	2.58	mg/Kg	20	40.0	6	66.2 - 120
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	16.9	mg/Kg	20	40.0	42	59.5 - 120

Sample: 339705 - AH-3 3-3.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 104522

Prep Batch: 88533

Analytical Method: SM 4500-Cl B

Date Analyzed: 2013-08-28

Sample Preparation: 2013-08-28

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			38.3	mg/Kg	5	4.00

Sample: 339705 - AH-3 3-3.5'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 104498

Prep Batch: 88547

Analytical Method: S 8015 D

Date Analyzed: 2013-08-28

Sample Preparation: 2013-08-27

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 20 of 47
NM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		2	2930	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Q _{st}	Q _{st}	250	mg/Kg	5	100	250	76.3 - 192.6

Sample: 339705 - AH-3 3-3.5'

Laboratory: Lubbock

Analysis: TPH GRO

QC Batch: 104768

Prep Batch: 88771

Analytical Method: S 8015 D

Date Analyzed: 2013-09-05

Sample Preparation: 2013-09-05

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q _s	1	3200	mg/Kg	20	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{st}	Q _{st}	51.7	mg/Kg	20	2.00	2585	73 - 122
4-Bromofluorobenzene (4-BFB)	Q _{st}	Q _{st}	223	mg/Kg	20	2.00	11150	74.6 - 120

Sample: 339706 - AH-3 4-4.5'

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 104767

Prep Batch: 88771

Analytical Method: S 8021B

Date Analyzed: 2013-09-05

Sample Preparation: 2013-09-05

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	3 Q _r , Q _{st} , U	1	<0.400	mg/Kg	20	0.0200
Toluene	Q _r	1	5.17	mg/Kg	20	0.0200
Ethylbenzene	Q _r	1	19.9	mg/Kg	20	0.0200
Xylene	Q _r	1	39.5	mg/Kg	20	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{st}	Q _{st}	2.13	mg/Kg	20	40.0	5	66.2 - 120
4-Bromofluorobenzene (4-BFB)	Q _{st}	Q _{st}	7.93	mg/Kg	20	40.0	20	59.5 - 120

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 21 of 47
NM

Sample: 339706 - AH-3 4-4.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-08-28	Analyzed By:	AR
QC Batch:	104522	Sample Preparation:	2013-08-28	Prepared By:	AR
Prep Batch:	88533				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			115	mg/Kg	5	4.00

Sample: 339706 - AH-3 4-4.5'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2013-09-03	Analyzed By:	CW
QC Batch:	104664	Sample Preparation:	2013-09-02	Prepared By:	CW
Prep Batch:	88674				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		2	1430	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			177	mg/Kg	5	100	177	76.3 - 192.6

Sample: 339706 - AH-3 4-4.5'

Laboratory:	Lubbock	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2013-09-05	Analyzed By:	JS
QC Batch:	104768	Sample Preparation:	2013-09-05	Prepared By:	JS
Prep Batch:	88771				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q _{st}	1	1080	mg/Kg	20	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{st}	Q _{st}	10.7	mg/Kg	20	2.00	535	73 - 122
4-Bromofluorobenzene (4-BFB)	Q _{st}	Q _{st}	94.5	mg/Kg	20	2.00	4725	74.6 - 120

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 22 of 47
NM

Sample: 339707 - AH-4 0-1'

Laboratory: Lubbock

Analysis: BTEX

QC Batch: 104767

Prep Batch: 88771

Analytical Method: S 8021B

Date Analyzed: 2013-09-05

Sample Preparation: 2013-09-05

Prep Method: S 5035

Analyzed By: JS

Prepared By: JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Qr, Qs, U	1	<0.0200	mg/Kg	1	0.0200
Toluene	Qr	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	Qs, U	1	<0.0200	mg/Kg	1	0.0200
Xylene	B, Qs	1	0.0227	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.06	mg/Kg	1	2.00	103	66.2 - 120
4-Bromofluorobenzene (4-BFB)			2.12	mg/Kg	1	2.00	106	59.5 - 120

Sample: 339707 - AH-4 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 104522

Prep Batch: 88533

Analytical Method: SM 4500-Cl B

Date Analyzed: 2013-08-28

Sample Preparation: 2013-08-28

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			139	mg/Kg	5	4.00

Sample: 339707 - AH-4 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 104434

Prep Batch: 88495

Analytical Method: S 8015 D

Date Analyzed: 2013-08-27

Sample Preparation: 2013-08-26

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	u	2	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			108	mg/Kg	1	100	108	76.3 - 192.6

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 23 of 47
NM

Sample: 339707 - AH-4 0-1'

Laboratory: Lubbock
Analysis: TPH GRO
QC Batch: 104768
Prep Batch: 88771

Analytical Method: S 8015 D
Date Analyzed: 2013-09-05
Sample Preparation: 2013-09-05

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qst	Qst	2.49	mg/Kg	1	2.00	124	73 - 122
4-Bromofluorobenzene (4-BFB)			2.39	mg/Kg	1	2.00	120	74.6 - 120

Sample: 339708 - AH-4 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104522
Prep Batch: 88533

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-08-28
Sample Preparation: 2013-08-28

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

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

Sample: 339709 - AH-4 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104522
Prep Batch: 88533

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-08-28
Sample Preparation: 2013-08-28

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

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

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 24 of 47
NM

Sample: 339710 - AH-4 3-3.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-08-28	Analyzed By:	AR
QC Batch:	104522	Sample Preparation:	2013-08-28	Prepared By:	AR
Prep Batch:	88533				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			340	mg/Kg	5	4.00

Sample: 339860 - AH-1 4-4.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-08-28	Analyzed By:	AR
QC Batch:	104523	Sample Preparation:	2013-08-28	Prepared By:	AR
Prep Batch:	88533				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			917	mg/Kg	5	4.00

Method Blanks

Method Blank (1) QC Batch: 104434

QC Batch: 104434
Prep Batch: 88495

Date Analyzed: 2013-08-27
QC Preparation: 2013-08-26

Analyzed By: CW
Prepared By: CW

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		2	<10.2	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			106	mg/Kg	1	100	106	64.1 - 164.4

Method Blank (1) QC Batch: 104498

QC Batch: 104498
Prep Batch: 88547

Date Analyzed: 2013-08-28
QC Preparation: 2013-08-27

Analyzed By: CW
Prepared By: CW

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		2	<10.2	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			96.4	mg/Kg	1	100	96	64.1 - 164.4

Method Blank (1) QC Batch: 104521

QC Batch: 104521
Prep Batch: 88533

Date Analyzed: 2013-08-28
QC Preparation: 2013-08-28

Analyzed By: AR
Prepared By: AR

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

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 26 of 47
NM

Method Blank (1) QC Batch: 104522

QC Batch: 104522
Prep Batch: 88533

Date Analyzed: 2013-08-28
QC Preparation: 2013-08-28

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 104523

QC Batch: 104523
Prep Batch: 88533

Date Analyzed: 2013-08-28
QC Preparation: 2013-08-28

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 104664

QC Batch: 104664
Prep Batch: 88674

Date Analyzed: 2013-09-03
QC Preparation: 2013-09-02

Analyzed By: CW
Prepared By: CW

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		2	<10.2	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			102	mg/Kg	1	100	102	64.1 - 164.4

Method Blank (1) QC Batch: 104698

QC Batch: 104698
Prep Batch: 88682

Date Analyzed: 2013-09-04
QC Preparation: 2013-09-03

Analyzed By: AK
Prepared By: AK

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 27 of 47
NM

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		2	<0.00810	mg/Kg	0.02
Toluene		2	<0.00750	mg/Kg	0.02
Ethylbenzene		2	<0.00730	mg/Kg	0.02
Xylene		2	<0.00700	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.48	mg/Kg	1	2.00	74	70 - 130
4-Bromofluorobenzene (4-BFB)			1.46	mg/Kg	1	2.00	73	70 - 130

Method Blank (1) QC Batch: 104712

QC Batch: 104712
Prep Batch: 88682

Date Analyzed: 2013-09-04
QC Preparation: 2013-09-03

Analyzed By: AK
Prepared By: AK

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.64	mg/Kg	1	2.00	82	70 - 130
4-Bromofluorobenzene (4-BFB)			1.91	mg/Kg	1	2.00	96	70 - 130

Method Blank (1) QC Batch: 104767

QC Batch: 104767
Prep Batch: 88771

Date Analyzed: 2013-09-05
QC Preparation: 2013-09-05

Analyzed By: JS
Prepared By: JS

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00473	mg/Kg	0.02
Toluene		1	<0.00416	mg/Kg	0.02
Ethylbenzene		1	<0.00511	mg/Kg	0.02
Xylene		1	0.0107	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.80	mg/Kg	1	2.00	90	66.2 - 120

continued ...

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 28 of 47
NM

method blank continued ...

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-Bromofluorobenzene (4-BFB)			1.80	mg/Kg	1	2.00	90	59.5 - 120

Method Blank (1) QC Batch: 104768

QC Batch: 104768
Prep Batch: 88771

Date Analyzed: 2013-09-05
QC Preparation: 2013-09-05

Analyzed By: JS
Prepared By: JS

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<0.230	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.15	mg/Kg	1	2.00	108	73 - 122
4-Bromofluorobenzene (4-BFB)			2.04	mg/Kg	1	2.00	102	74.6 - 120

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 104434
Prep Batch: 88495

Date Analyzed: 2013-08-27
QC Preparation: 2013-08-26

Analyzed By: CW
Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		2	264	mg/Kg	1	250	<10.2	106	53.8 - 129

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		2	267	mg/Kg	1	250	<10.2	107	53.8 - 129	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	101	97.7	mg/Kg	1	100	101	98	61.3 - 170.4

Laboratory Control Spike (LCS-1)

QC Batch: 104498
Prep Batch: 88547

Date Analyzed: 2013-08-28
QC Preparation: 2013-08-27

Analyzed By: CW
Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		2	256	mg/Kg	1	250	<10.2	102	53.8 - 129

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		2	267	mg/Kg	1	250	<10.2	107	53.8 - 129	4	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	94.5	97.3	mg/Kg	1	100	94	97	61.3 - 170.4

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 30 of 47
NM

Laboratory Control Spike (LCS-1)

QC Batch: 104521
Prep Batch: 88533

Date Analyzed: 2013-08-28
QC Preparation: 2013-08-28

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2500	mg/Kg	1	2500	<3.85	100	89.7 - 115.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2630	mg/Kg	1	2500	<3.85	105	89.7 - 115.9	5	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: 104522
Prep Batch: 88533

Date Analyzed: 2013-08-28
QC Preparation: 2013-08-28

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2290	mg/Kg	1	2500	<3.85	92	89.7 - 115.9

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			2390	mg/Kg	1	2500	<3.85	96	89.7 - 115.9	4	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: 104523
Prep Batch: 88533

Date Analyzed: 2013-08-28
QC Preparation: 2013-08-28

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2430	mg/Kg	1	2500	<3.85	97	89.7 - 115.9

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

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 31 of 47
NM

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2470	mg/Kg	1	2500	<3.85	99	89.7 - 115.9	2	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: 104664
Prep Batch: 88674

Date Analyzed: 2013-09-03
QC Preparation: 2013-09-02

Analyzed By: CW
Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		2	263	mg/Kg	1	250	<10.2	105	53.8 - 129

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		2	264	mg/Kg	1	250	<10.2	106	53.8 - 129	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	102	105	mg/Kg	1	100	102	105	61.3 - 170.4

Laboratory Control Spike (LCS-1)

QC Batch: 104698
Prep Batch: 88682

Date Analyzed: 2013-09-04
QC Preparation: 2013-09-03

Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	2.12	mg/Kg	1	2.00	<0.00810	106	70 - 130
Toluene		2	2.08	mg/Kg	1	2.00	<0.00750	104	70 - 130
Ethylbenzene		2	2.09	mg/Kg	1	2.00	<0.00730	104	70 - 130
Xylene		2	6.18	mg/Kg	1	6.00	<0.00700	103	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		2	1.97	mg/Kg	1	2.00	<0.00810	98	70 - 130	7	20
Toluene		2	2.02	mg/Kg	1	2.00	<0.00750	101	70 - 130	3	20

continued ...

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 32 of 47
NM

control spikes continued . . .

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Ethylbenzene		2	2.03	mg/Kg	1	2.00	<0.00730	102	70 - 130	3	20
Xylene		2	5.96	mg/Kg	1	6.00	<0.00700	99	70 - 130	4	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.47	2.02	mg/Kg	1	2.00	74	101	70 - 130
4-Bromofluorobenzene (4-BFB)	1.63	1.89	mg/Kg	1	2.00	82	94	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 104712
Prep Batch: 88682

Date Analyzed: 2013-09-04
QC Preparation: 2013-09-03

Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	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.

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		2	16.9	mg/Kg	1	20.0	<2.32	84	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	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.30	2.12	mg/Kg	1	2.00	115	106	70 - 130
4-Bromofluorobenzene (4-BFB)	2.52	2.52	mg/Kg	1	2.00	126	126	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 104767
Prep Batch: 88771

Date Analyzed: 2013-09-05
QC Preparation: 2013-09-05

Analyzed By: JS
Prepared By: JS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.80	mg/Kg	1	2.00	<0.00473	90	69.3 - 120
Toluene		1	1.89	mg/Kg	1	2.00	<0.00416	94	70.5 - 120

continued . . .

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 33 of 47
NM

control spikes continued ...

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Ethylbenzene		1	1.96	mg/Kg	1	2.00	<0.00511	98	70.6 - 120
Xylene		1	5.95	mg/Kg	1	6.00	0.0107	99	70.7 - 120

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		1	1.74	mg/Kg	1	2.00	<0.00473	87	69.3 - 120	3	20
Toluene		1	1.83	mg/Kg	1	2.00	<0.00416	92	70.5 - 120	3	20
Ethylbenzene		1	1.91	mg/Kg	1	2.00	<0.00511	96	70.6 - 120	3	20
Xylene		1	5.80	mg/Kg	1	6.00	0.0107	97	70.7 - 120	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)	1.92	1.85	mg/Kg	1	2.00	96	92	66.2 - 120
4-Bromofluorobenzene (4-BFB)	1.94	1.88	mg/Kg	1	2.00	97	94	59.5 - 120

Laboratory Control Spike (LCS-1)

QC Batch: 104768
Prep Batch: 88771

Date Analyzed: 2013-09-05
QC Preparation: 2013-09-05

Analyzed By: JS
Prepared By: JS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	16.4	mg/Kg	1	20.0	<0.230	82	60.1 - 120

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		1	16.8	mg/Kg	1	20.0	<0.230	84	60.1 - 120	2	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)	2.22	2.25	mg/Kg	1	2.00	111	112	73 - 122
4-Bromofluorobenzene (4-BFB)	2.22	2.25	mg/Kg	1	2.00	111	112	74.6 - 120

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 34 of 47
NM

Matrix Spike (MS-1) Spiked Sample: 339707

QC Batch: 104434
Prep Batch: 88495

Date Analyzed: 2013-08-27
QC Preparation: 2013-08-26

Analyzed By: CW
Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		2	294	mg/Kg	1	250	<10.2	118	29 - 168.5

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		2	285	mg/Kg	1	250	<10.2	114	29 - 168.5	3	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	111	mg/Kg	1	100	109	111	59.5 - 168.9

Matrix Spike (xMS-1) Spiked Sample: 339698

QC Batch: 104498
Prep Batch: 88547

Date Analyzed: 2013-08-28
QC Preparation: 2013-08-27

Analyzed By: CW
Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		2	278	mg/Kg	1	250	20.3	103	29 - 168.5

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		2	292	mg/Kg	1	250	20.3	109	29 - 168.5	5	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	93.2	95.3	mg/Kg	1	100	93	95	59.5 - 168.9

Matrix Spike (MS-1) Spiked Sample: 339700

QC Batch: 104521
Prep Batch: 88533

Date Analyzed: 2013-08-28
QC Preparation: 2013-08-28

Analyzed By: AR
Prepared By: AR

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 35 of 47
NM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2880	mg/Kg	5	2500	521	94	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			3060	mg/Kg	5	2500	521	102	78.9 - 121	6	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: 339710

QC Batch: 104522
Prep Batch: 88533

Date Analyzed: 2013-08-28
QC Preparation: 2013-08-28

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2570	mg/Kg	5	2500	340	89	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2750	mg/Kg	5	2500	340	96	78.9 - 121	7	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: 339765

QC Batch: 104523
Prep Batch: 88533

Date Analyzed: 2013-08-28
QC Preparation: 2013-08-28

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			7980	mg/Kg	10	2500	5500	99	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			8400	mg/Kg	10	2500	5500	116	78.9 - 121	5	20

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

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 36 of 47
NM

Matrix Spike (xMS-1) Spiked Sample: 88674

QC Batch: 104664
Prep Batch: 88674

Date Analyzed: 2013-09-03
QC Preparation: 2013-09-02

Analyzed By: CW
Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		2	217	mg/Kg	1	250	<10.2	87	29 - 168.5

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		2	227	mg/Kg	1	250	<10.2	91	29 - 168.5	4	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	96.4	92.4	mg/Kg	1	100	96	92	59.5 - 168.9

Matrix Spike (MS-1) Spiked Sample: 339630

QC Batch: 104698
Prep Batch: 88682

Date Analyzed: 2013-09-04
QC Preparation: 2013-09-03

Analyzed By: AK
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	2.07	mg/Kg	1	2.00	<0.00810	104	70 - 130
Toluene		2	2.06	mg/Kg	1	2.00	<0.00750	103	70 - 130
Ethylbenzene		2	2.08	mg/Kg	1	2.00	<0.00730	104	70 - 130
Xylene		2	6.10	mg/Kg	1	6.00	<0.00700	102	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		2	2.12	mg/Kg	1	2.00	<0.00810	106	70 - 130	2	20
Toluene		2	2.10	mg/Kg	1	2.00	<0.00750	105	70 - 130	2	20
Ethylbenzene		2	2.13	mg/Kg	1	2.00	<0.00730	106	70 - 130	2	20
Xylene		2	6.26	mg/Kg	1	6.00	<0.00700	104	70 - 130	3	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)	2.07	1.91	mg/Kg	1	2	104	96	70 - 130

continued ...

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 37 of 47
NM

matrix spikes continued ...

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
4-Bromofluorobenzene (4-BFB)	1.92	1.72	mg/Kg	1	2	96	86	70 - 130

Matrix Spike (MS-1) Spiked Sample: 339630

QC Batch: 104712
Prep Batch: 88682

Date Analyzed: 2013-09-04
QC Preparation: 2013-09-03

Analyzed By: AK
Prepared By: AK

Param			F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	Qs	Qs	2		12.6	mg/Kg	1	20.0	<2.32	63	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	Qs	Qs	2	13.1	mg/Kg	1	20.0	<2.32	66	70 - 130	4	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)	1.59	2.27	mg/Kg	1	2	80	114	70 - 130
4-Bromofluorobenzene (4-BFB)	1.88	2.66	mg/Kg	1	2	94	133	70 - 130

Matrix Spike (MS-1) Spiked Sample: 341090

QC Batch: 104767
Prep Batch: 88771

Date Analyzed: 2013-09-05
QC Preparation: 2013-09-05

Analyzed By: JS
Prepared By: JS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.91	mg/Kg	5	2.00	<0.0236	96	63.6 - 120
Toluene		1	1.99	mg/Kg	5	2.00	<0.0208	100	67.8 - 128
Ethylbenzene		1	2.04	mg/Kg	5	2.00	<0.0256	102	69.5 - 136
Xylene		1	6.36	mg/Kg	5	6.00	1.1	88	69.3 - 139

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

Param			MSD				Spike	Matrix		Rec.		RPD
	F	C	Result	Units	Dil.		Amount	Result	Rec.	Limit	RPD	Limit
Benzene	Qr, Qs	Qr, Qs	1	2.46	mg/Kg	5	2.00	<0.0236	123	63.6 - 120	25	20

continued ...

matrix spikes continued ...

Param				MSD		Dil.	Spike	Matrix	Rec.	Rec. Limit	RPD	RPD Limit
	F	C	Result	Units	Amount		Result					
Toluene	Q _r	Q _r	1	2.53	mg/Kg	5	2.00	<0.0208	126	67.8 - 128	24	20
Ethylbenzene	Q _r	Q _r	1	2.52	mg/Kg	5	2.00	<0.0256	126	69.5 - 136	21	20
Xylene	Q _r	Q _r	1	7.80	mg/Kg	5	6.00	1.1	112	69.3 - 139	20	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)	2.12	2.50	mg/Kg	5	2	106	125	66.2 - 120
4-Bromofluorobenzene (4-BFB)	2.04	2.45	mg/Kg	5	2	102	122	59.5 - 120

Matrix Spike (MS-1) Spiked Sample: 341090

QC Batch: 104768
Prep Batch: 88771

Date Analyzed: 2013-09-05
QC Preparation: 2013-09-05

Analyzed By: JS
Prepared By: JS

Param			MS			Spike	Matrix		Rec.
	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	Q _s	Q _s	1	50.3	mg/Kg	5	20.0	36.8	68
									40.3 - 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
GRO	Q _s	Q _s		1	55.4	mg/Kg	5	20.0	36.8	93	40.3 - 120	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)	Q _{sr}	Q _{sr}	2.59	2.46	mg/Kg	5	2	130	123	73 - 122
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	5.23	5.39	mg/Kg	5	2	262	270	74.6 - 120

Calibration Standards

Standard (CCV-1)

QC Batch: 104434

Date Analyzed: 2013-08-27

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	285	114	80 - 120	2013-08-27

Standard (CCV-2)

QC Batch: 104434

Date Analyzed: 2013-08-27

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	264	106	80 - 120	2013-08-27

Standard (CCV-3)

QC Batch: 104434

Date Analyzed: 2013-08-27

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	234	94	80 - 120	2013-08-27

Standard (CCV-1)

QC Batch: 104498

Date Analyzed: 2013-08-28

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	273	109	80 - 120	2013-08-28

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 40 of 47
NM

Standard (CCV-2)

QC Batch: 104498

Date Analyzed: 2013-08-28

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	253	101	80 - 120	2013-08-28

Standard (CCV-3)

QC Batch: 104498

Date Analyzed: 2013-08-28

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	270	108	80 - 120	2013-08-28

Standard (CCV-1)

QC Batch: 104521

Date Analyzed: 2013-08-28

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.9	100	85 - 115	2013-08-28

Standard (CCV-2)

QC Batch: 104521

Date Analyzed: 2013-08-28

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2013-08-28

Standard (CCV-1)

QC Batch: 104522

Date Analyzed: 2013-08-28

Analyzed By: AR

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 41 of 47
NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	98.4	98	85 - 115	2013-08-28

Standard (CCV-2)

QC Batch: 104522

Date Analyzed: 2013-08-28

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	102	102	85 - 115	2013-08-28

Standard (CCV-1)

QC Batch: 104523

Date Analyzed: 2013-08-28

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	102	102	85 - 115	2013-08-28

Standard (CCV-2)

QC Batch: 104523

Date Analyzed: 2013-08-28

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	98.0	98	85 - 115	2013-08-28

Standard (CCV-1)

QC Batch: 104664

Date Analyzed: 2013-09-03

Analyzed By: CW

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 42 of 47
NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	261	104	80 - 120	2013-09-03

Standard (CCV-2)

QC Batch: 104664

Date Analyzed: 2013-09-03

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	286	114	80 - 120	2013-09-03

Standard (CCV-1)

QC Batch: 104698

Date Analyzed: 2013-09-04

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/kg	0.100	0.0961	96	80 - 120	2013-09-04
Toluene		2	mg/kg	0.100	0.0942	94	80 - 120	2013-09-04
Ethylbenzene		2	mg/kg	0.100	0.0938	94	80 - 120	2013-09-04
Xylene		2	mg/kg	0.300	0.277	92	80 - 120	2013-09-04

Standard (CCV-2)

QC Batch: 104698

Date Analyzed: 2013-09-04

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/kg	0.100	0.114	114	80 - 120	2013-09-04
Toluene		2	mg/kg	0.100	0.111	111	80 - 120	2013-09-04
Ethylbenzene		2	mg/kg	0.100	0.109	109	80 - 120	2013-09-04
Xylene		2	mg/kg	0.300	0.321	107	80 - 120	2013-09-04

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 43 of 47
NM

Standard (CCV-3)

QC Batch: 104698

Date Analyzed: 2013-09-04

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/kg	0.100	0.111	111	80 - 120	2013-09-04
Toluene		2	mg/kg	0.100	0.108	108	80 - 120	2013-09-04
Ethylbenzene		2	mg/kg	0.100	0.106	106	80 - 120	2013-09-04
Xylene		2	mg/kg	0.300	0.307	102	80 - 120	2013-09-04

Standard (CCV-1)

QC Batch: 104712

Date Analyzed: 2013-09-04

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		2	mg/Kg	1.00	1.03	103	80 - 120	2013-09-04

Standard (CCV-2)

QC Batch: 104712

Date Analyzed: 2013-09-04

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		2	mg/Kg	1.00	0.926	93	80 - 120	2013-09-04

Standard (CCV-3)

QC Batch: 104712

Date Analyzed: 2013-09-04

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		2	mg/Kg	1.00	1.08	108	80 - 120	2013-09-04

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 44 of 47
NM

Standard (CCV-1)

QC Batch: 104767

Date Analyzed: 2013-09-05

Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.101	101	80 - 120	2013-09-05
Toluene		1	mg/kg	0.100	0.0971	97	80 - 120	2013-09-05
Ethylbenzene		1	mg/kg	0.100	0.0970	97	80 - 120	2013-09-05
Xylene		1	mg/kg	0.300	0.293	98	80 - 120	2013-09-05

Standard (CCV-2)

QC Batch: 104767

Date Analyzed: 2013-09-05

Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0926	93	80 - 120	2013-09-05
Toluene		1	mg/kg	0.100	0.0919	92	80 - 120	2013-09-05
Ethylbenzene		1	mg/kg	0.100	0.0918	92	80 - 120	2013-09-05
Xylene		1	mg/kg	0.300	0.276	92	80 - 120	2013-09-05

Standard (CCV-3)

QC Batch: 104767

Date Analyzed: 2013-09-05

Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0911	91	80 - 120	2013-09-05
Toluene		1	mg/kg	0.100	0.0900	90	80 - 120	2013-09-05
Ethylbenzene		1	mg/kg	0.100	0.0904	90	80 - 120	2013-09-05
Xylene		1	mg/kg	0.300	0.270	90	80 - 120	2013-09-05

Standard (CCV-1)

QC Batch: 104768

Date Analyzed: 2013-09-05

Analyzed By: JS

Report Date: September 6, 2013
TBD

Work Order: 13082314
COG/BC-GC Compressor Station

Page Number: 45 of 47
NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.20	120	80 - 120	2013-09-05

Standard (CCV-2)

QC Batch: 104768

Date Analyzed: 2013-09-05

Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.16	116	80 - 120	2013-09-05

Standard (CCV-3)

QC Batch: 104768

Date Analyzed: 2013-09-05

Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.10	110	80 - 120	2013-09-05

Appendix

Report Definitions

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

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-13-9	Lubbock
2	NELAP	T104704392-12-4	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 than 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

- 1 dilution due to hydrocarbons.
- 2 Dilution due to hydrocarbons.
- 3 Dilution due to hydrocarbons.

Attachments

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

13082314

3

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 2

**TETRA TECH**1910 N. Big Spring St.
Midland, Texas 79705

(432) 682-4559 • Fax (432) 682-3946

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Tavares

PROJECT NO.:

PROJECT NAME:

BC-CG Compressor Station

NUMBER OF CONTAINERS

PRESERVATIVE
METHODLAB I.D.
NUMBER

DATE

TIME

MATRIX

COMP

GRAB

SAMPLE IDENTIFICATION

FILTERED (Y/N)

HCL

HNO3

ICE

NONE

BTEX-8091B
TPH 8015 MOD
PAH-9270

TX1005 (Ext. to C35)

RCRA Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8240/8260/624

GC/MS Semi. Vol. 8270/625

PCB's 8080/608

Pest. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

33961

8-22-03

S

X

AH-1

O-1

692

S

X

"

1-1.5

693

S

X

"

2-2.5

694

S

X

"

3-3.5

695

S

X

AH-2

O-1

696

S

X

"

1-1.5

697

S

X

"

2-2.5

email: lab@traceanalysis.com

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

Company Name: TETRA TECH	Phone #:
Address: (Street, City, Zip)	Fax #:
Contact Person: MIKE JAVAREZ	E-mail:
Invoice to: (If different from above)	
Project #:	Project Name: COG / BC-GC COMPRESSOR ST.
Project Location (including state): NY	Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

[illegible]

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST <u>12.1</u> OBS <u>2.1</u> COR <u>2.0</u>	LAB USE ONLY Intact <u>Y/N</u> Headspace <u>Y/N/NA</u> ☐ Dry Weight Basis Required ☐ TRRP Report Required ☐ Check If Special Reporting Limits Are Needed Log-in-Review _____	REMARKS:
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST _____ OBS _____ COR _____		
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST _____ OBS _____ COR _____		

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

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Carrier #

13082314

3

Analysis Request of Chain of Custody Record

PAGE: L OF: 2

**TETRA TECH**

1910 N. Big Spring St.

Midland, Texas 79705

(432) 682-4559 • Fax (432) 682-3946

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Tavares

PROJECT NO.:

PROJECT NAME:

BC-CG Compressor Station

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015	PCRA Metals	TCLP Metals	TCLP Volatiles	TCLP Semi V	RCI	GC-MS Vol. 8	GC-MS Semi	PCB's 8080/600	Pest. 808/600	Chloride	Gamma Spec	Alpha Beta (A)	PLM (Asbest)	Major Anions	
339181	8-22-03		S		X	AH-1 0-1					X		X	X										X					
692			S		X	" 1-1.5					X		X	X										X					
693			S		X	" 2-2.5					X													X					
694			S		X	" 3-3.5					X													X					
695			S		X	AH-2 0-1					X		X	X										X					
696			S		X	" 1-1.5					X		X	X										X					
697			S		X	" 2-2.5					X		X	X										X					
698			S		X	" 3-3.5					X													X					
699			S		X	" 4-4.5					X													X					
700			S		X	" 5-5.5					X													X					

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

SAMPLED BY: (Print & Initial)

Date:

Time:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

SAMPLE SHIPPED BY: (Circle)

AIRBILL #:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

TETRA TECH CONTACT PERSON:

OTHER:

RECEIVING LABORATORY:

RECEIVED BY: (Signature)

ADDRESS:

CITY:

STATE:

ZIP:

CONTACT:

PHONE:

DATE:

TIME:

SAMPLE CONDITION WHEN RECEIVED:

REMARKS:

2.0°

If Benzene exceeds 10, total BTEX exceeds 50, or TPH exceeds 1000 run deeper samples

Results by:

RUSH Charges Authorized:

Yes

No

Please fill out all copies - Laboratory retains Yellow copy - Return Original copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

Received sample AH-1 4-4.5' not listed - added

13082314

Analysis Request of Chain of Custody Record

PAGE: 2 OF: 3

**TETRA TECH**

1910 N. Big Spring St.

Midland, Texas 79705

(432) 682-4559 • Fax (432) 682-3946

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Tavaraz

PROJECT NO.:

PROJECT NAME:

BC- GC Compressor Station

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD				BTEX 8021B TPH 8015 MOD. TX1005 (Ext. to C35) PAH 8270	PCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8240/8260/624	GC/MS Semi. Vol. 8270/625	PCB's 8080/608	Pest 809/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
									HCL	HNO3	ICE	NONE															
701	8-22-03		S		X	AH-2 0-6.5					X												X				
702			S		X	AH-3 0-1					X		X	X									X				
703			S		X	" 0-1.5					X		X	X									X				
704			S		Y	" 2-2.5					X		X	X									X				
705			S		X	" 3-3.5					X		X	X									X				
706			S		X	" 4-4.5					X		X	X									X				
707			S		X	AH-4 0-1					X		X	X									X				
708			S		X	" 1-1.5					X												X				
709			S		X	" 2-2.5					X												X				
710			S		X	" 3-3.5					X												X				

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

SAMPLED BY: (Print & Initial)

Date:

Time:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

SAMPLE SHIPPED BY: (Circle)

AIRBILL #:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

HAND DELIVERED UPS
TETRA TECH CONTACT PERSON:

OTHER:

Results by:

RECEIVING LABORATORY:

RECEIVED BY: (Signature)

ADDRESS:

CITY:

STATE:

ZIP:

CONTACT:

PHONE:

DATE:

TIME:

SAMPLE CONDITION WHEN RECEIVED:

REMARKS:

2.0°

RUSH Charges
Authorized:

Yes

No

Please fill out all copies - Laboratory retains Yellow copy - Return Original copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

email: lab@traceanalysis.com

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

Relinquished by: <u>IT</u>	Company: <u>IT</u>	Date: <u>8/23/13</u>	Time: <u>9:40</u>	Received by: <u>TA</u>	Company: <u>TA</u>	Date: <u>8/23/13</u>	Time: <u>9:40</u>	INST <u>12.1</u>	LAB USE ONLY Inlet <u>Y/N</u> Headspace <u>Y/N/NA</u> ☐ Dry Weight Basis Required ☐ TRRP Report Required ☐ Check If Special Reporting Limits Are Needed Log-in-Review <u> </u>
								OBS <u>2.1</u> COR <u>2.0</u>	
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST _____ OBS _____ COR _____	
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST _____ OBS _____ COR _____	

Carrier #

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May 19, 2014

IKE TAVAREZ

TETRA TECH

1910 N. BIG SPRING STREET

MIDLAND, TX 79705

RE: BC-GC COMPRESSOR STATION

Enclosed are the results of analyses for samples received by the laboratory on 05/13/14 16:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

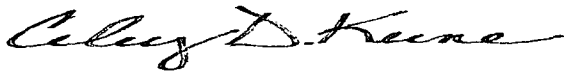
Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

 TETRA TECH
 IKE TAVAREZ
 1910 N. BIG SPRING STREET
 MIDLAND TX, 79705
 Fax To: (432) 682-3946

Received:	05/13/2014	Sampling Date:	05/13/2014
Reported:	05/19/2014	Sampling Type:	Soil
Project Name:	BC-GC COMPRESSOR STATION	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	COG - LEA COUNTY, NM		

Sample ID: AH 2 5' (H401451-01)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1440	16.0	05/15/2014	ND	416	104	400	0.00	

Sample ID: AH 2 6' (H401451-02)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	368	16.0	05/15/2014	ND	416	104	400	0.00	

Sample ID: AH 2 SOUTH SIDEWALL (H401451-03)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	05/15/2014	ND	416	104	400	0.00	

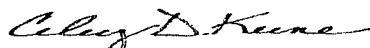
Sample ID: AH 2 EAST SIDEWALL (H401451-04)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	992	16.0	05/14/2014	ND	400	100	400	3.92	

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 TETRA TECH
 IKE TAVAREZ
 1910 N. BIG SPRING STREET
 MIDLAND TX, 79705
 Fax To: (432) 682-3946

Received:	05/13/2014	Sampling Date:	05/13/2014
Reported:	05/19/2014	Sampling Type:	Soil
Project Name:	BC-GC COMPRESSOR STATION	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	COG - LEA COUNTY, NM		

Sample ID: AH 2 WEST SIDEWALL (H401451-05)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	05/14/2014	ND	400	100	400	3.92	

Sample ID: AH 2 NORTH SIDEWALL (H401451-06)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	05/14/2014	ND	400	100	400	3.92	

Sample ID: AH 3 BOTTOMHOLE 5' (H401451-07)

BTEX 82608		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/14/2014	ND	2.23	111	2.00	3.76	
Toluene*	<0.050	0.050	05/14/2014	ND	2.04	102	2.00	0.367	
Ethylbenzene*	<0.050	0.050	05/14/2014	ND	2.04	102	2.00	2.82	
Total Xylenes*	<0.150	0.150	05/14/2014	ND	5.95	99.2	6.00	2.15	
Total BTEX	<0.300	0.300	05/14/2014	ND					

Surrogate: Dibromofluoromethane 98.9 % 61.3-142

Surrogate: Toluene-d8 98.2 % 71.3-129

Surrogate: 4-Bromofluorobenzene 104 % 65.7-141

Cardinal Laboratories

* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 TETRA TECH
 IKE TAVAREZ
 1910 N. BIG SPRING STREET
 MIDLAND TX, 79705
 Fax To: (432) 682-3946

 Received: 05/13/2014
 Reported: 05/19/2014
 Project Name: BC-GC COMPRESSOR STATION
 Project Number: NONE GIVEN
 Project Location: COG - LEA COUNTY, NM

 Sampling Date: 05/13/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: AH 3 NORTH SIDEWALL (H401451-08)

BTEx 82608		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/14/2014	ND	2.23	111	2.00	3.76	
Toluene*	<0.050	0.050	05/14/2014	ND	2.04	102	2.00	0.367	
Ethylbenzene*	<0.050	0.050	05/14/2014	ND	2.04	102	2.00	2.82	
Total Xylenes*	<0.150	0.150	05/14/2014	ND	5.95	99.2	6.00	2.15	
Total BTEx	<0.300	0.300	05/14/2014	ND					
Surrogate: Dibromofluoromethane	98.5 %	61.3-142							
Surrogate: Toluene-d8	100 %	71.3-129							
Surrogate: 4-Bromofluorobenzene	104 %	65.7-141							

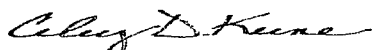
Sample ID: AH 3 SOUTH SIDEWALL (H401451-09)

BTEx 82608		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/14/2014	ND	2.23	111	2.00	3.76	
Toluene*	<0.050	0.050	05/14/2014	ND	2.04	102	2.00	0.367	
Ethylbenzene*	<0.050	0.050	05/14/2014	ND	2.04	102	2.00	2.82	
Total Xylenes*	<0.150	0.150	05/14/2014	ND	5.95	99.2	6.00	2.15	
Total BTEx	<0.300	0.300	05/14/2014	ND					
Surrogate: Dibromofluoromethane	99.6 %	61.3-142							
Surrogate: Toluene-d8	103 %	71.3-129							
Surrogate: 4-Bromofluorobenzene	101 %	65.7-141							

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 TETRA TECH
 IKE TAVAREZ
 1910 N. BIG SPRING STREET
 MIDLAND TX, 79705
 Fax To: (432) 682-3946

Received:	05/13/2014	Sampling Date:	05/13/2014
Reported:	05/19/2014	Sampling Type:	Soil
Project Name:	BC-GC COMPRESSOR STATION	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	COG - LEA COUNTY, NM		

Sample ID: AH 3 WEST SIDEWALL (H401451-10)

BTX 82608		mg/kg	Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/14/2014	ND	2.23	111	2.00	3.76	
Toluene*	<0.050	0.050	05/14/2014	ND	2.04	102	2.00	0.367	
Ethylbenzene*	<0.050	0.050	05/14/2014	ND	2.04	102	2.00	2.82	
Total Xylenes*	<0.150	0.150	05/14/2014	ND	5.95	99.2	6.00	2.15	
Total BTX	<0.300	0.300	05/14/2014	ND					
Surrogate: Dibromofluoromethane	97.3 %	61.3-142							
Surrogate: Toluene-d8	98.8 %	71.3-129							
Surrogate: 4-Bromofluorobenzene	101 %	65.7-141							

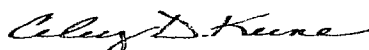
Sample ID: TRENCH 1 (AH 3) 6' (H401451-11)

BTX 82608		mg/kg	Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/14/2014	ND	2.23	111	2.00	3.76	
Toluene*	<0.050	0.050	05/14/2014	ND	2.04	102	2.00	0.367	
Ethylbenzene*	<0.050	0.050	05/14/2014	ND	2.04	102	2.00	2.82	
Total Xylenes*	<0.150	0.150	05/14/2014	ND	5.95	99.2	6.00	2.15	
Total BTX	<0.300	0.300	05/14/2014	ND					
Surrogate: Dibromofluoromethane	98.4 %	61.3-142							
Surrogate: Toluene-d8	99.7 %	71.3-129							
Surrogate: 4-Bromofluorobenzene	100 %	65.7-141							

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

TETRA TECH
IKE TAVAREZ
1910 N. BIG SPRING STREET
MIDLAND TX, 79705
Fax To: (432) 682-3946

Received:	05/13/2014	Sampling Date:	05/13/2014
Reported:	05/19/2014	Sampling Type:	Soil
Project Name:	BC-GC COMPRESSOR STATION	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	COG - LEA COUNTY, NM		

Sample ID: TRENCH 1 (AH 3) 8' (H401451-12)

BTX 8260B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/14/2014	ND	2.23	111	2.00	3.76	
Toluene*	<0.050	0.050	05/14/2014	ND	2.04	102	2.00	0.367	
Ethylbenzene*	<0.050	0.050	05/14/2014	ND	2.04	102	2.00	2.82	
Total Xylenes*	<0.150	0.150	05/14/2014	ND	5.95	99.2	6.00	2.15	
Total BTX	<0.300	0.300	05/14/2014	ND					
Surrogate: Dibromofluoromethane	96.7 %	61.3-142							
Surrogate: Toluene-d8	98.8 %	71.3-129							
Surrogate: 4-Bromofluorobenzene	102 %	65.7-141							

Sample ID: TRENCH 2 (AH 4) 4' (H401451-13)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16.0	05/14/2014	ND	400	100	400	3.92	

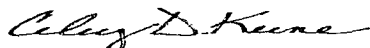
Sample ID: TRENCH 2 (AH 4) 6' (H401451-14)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	208	16.0	05/14/2014	ND	400	100	400	3.92	

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager

Analysis Request of Chain of Custody Record



TETRA TECH

1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

PAGE: 1 OF: 2

ANALYSIS REQUEST
(Circle or Specify Method No.)

H4D1451

CLIENT NAME: COG

SITE MANAGER: Ike Tavaroz

PROJECT NO.:

PROJECT NAME: COG - BC-GC Compressor Station
Lea, Co. NM

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF	FILTERED (Y)	HCL	HNO3	ICE	NONE	EX 8021P	TPH 8015	PAH 8270	RCRA Metals	TCLP Metals	TCLP Volatile	TCLP Semi V	RCI	GC-MS Vol. &	GC-MS Semi	PCB's 8080/0	Pest. 808/600	Chlordane	Gamma Spec	Alpha Beta (/	PLM (Asbest	Major Anions	
1	5/13		S		X	AH 2 5'	1	N			X															X				
2						AH 2 6'																				X				
3						AH 2 South Sidewall																				X				
4						AH 2 East Sidewall																				X				
5						AH 2 West Sidewall																				X				
6						AH 2 North Sidewall																				X				
7						AH 3 Bottomhole 5'								X																
8						AH 3 North sidewall								X																
9						AH 3 South Sidewall								X																
10						AH 3 West Sidewall,								X																

RELINQUISHED BY: (Signature) <i>Adrian Garcia</i>	Date: 5/13/14 Time: 4:00	RECEIVED BY: (Signature) <i>Adrian Garcia</i>	Date: 5/13/14 Time: 4:00	SAMPLED BY: (Print & Initial) <i>Adrian Garcia</i>	Date: 5/13/14 Time: 4:00
RELINQUISHED BY: (Signature)	Date: _____ Time: _____	RECEIVED BY: (Signature)	Date: _____ Time: _____	SAMPLE SHIPPED BY: (Circle) ☒ FEDEX ☐ BUS ☐ UPS	AIRBILL #: _____
RELINQUISHED BY: (Signature)	Date: _____ Time: _____	RECEIVED BY: (Signature)	Date: _____ Time: _____	TETRA TECH CONTACT PERSON: <i>Ike Tavaroz</i>	OTHER: _____
RECEIVING LABORATORY: ADDRESS: CITY: Hobbs STATE: NM ZIP: _____	PHONE: _____	RECEIVED BY: (Signature)	DATE: _____ TIME: _____	RESULTS BY: _____	
SAMPLE CONDITION WHEN RECEIVED: 1.80 #54	REMARKS: Rush Trench 1- Total BTEX and AH 3 Bottom hole and sidewalls	RUSH Charges Authorized: ☒ Yes ☐ No			

Please fill out all copies - Laboratory retains Yellow copy - Return Original copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

Analysis Request of Chain of Custody Record

PAGE: 2 OF: 2



TETRA TECH

1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

ANALYSIS REQUEST
(Circle or Specify Method No.)

H401451

CLIENT NAME: **COG**

SITE MANAGER: **Ike Tavaréz**

PROJECT NO.: **112MCD5965**

PROJECT NAME: **COG - BC-GC compressor station**

LAB I.D. NUMBER: **2014** DATE: **2014** TIME: MATRIX: COMP: GRAB: SAMPLE IDENTIFICATION: **Lea, Co. NM**

NUMBER	2014	MAT	CON	GRA		NUM	FILT	HCL	HNO	ICE	NON	TEX	TPH	PAH	RCR	TCL	TCL	TCL	RCI	GC.I	GC.I	PCB	Pest	Gamma	Alpha	PLM	Major
11					Trench 1 (AH 3) 6'	1	N			X			X														
12					Trench 1 (AH 3) 8'								X														
13					Trench 2 (AH 4) 4'																			X			
14					Trench 2 (AH 4) 6'																			X			

RELINQUISHED BY: (Signature) **Adrian Garcia** Date: **5/13/14** Time:

RECEIVED BY: (Signature) **Adrian Garcia** Date: **5/13/14** Time:

SAMPLER BY: (Print & Initial) **Adrian Garcia/AG** Date: **5/13/14** Time:

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

SAMPLE SHIPPED BY: (Circle) **FEDEX** **HAND DELIVERED** **BUS** **UPS** AIRBILL #: OTHER:

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

TETRA TECH CONTACT PERSON: **Ike Tavaréz** Results by:

RECEIVING LABORATORY: **Cardinal Labs** ADDRESS: **Hobbs** STATE: **NM** ZIP: CITY: PHONE: CONTACT:

RECEIVED BY: (Signature) DATE: TIME:

RUSH Charges **Yes** **No**

SAMPLE CONDITION WHEN RECEIVED: **1.8c #54**

REMARKS: **Rush Trench 1 Total BTex; and AH 3 Bottom hole and sidewall**

SITE INFORMATION

HOBBS OCD

Report Type: Closure Report

General Site Information:

AUG 13 2014

Site:	BC-GC Compressor Station				
Company:	COG Operating LLC				
Section, Township and Range	Unit L	Section 19	T 17S	R 32E	RECEIVED
Lease Number:	API-30-025-39420				
County:	Lea County				
GPS:	32.81635° N			103.81087° W	
Surface Owner:	Federal				
Mineral Owner:					
Directions:	From the intersection of 529 and 82, travel south on 529 for 4.5 miles, then turn north onto lease road for 0.83 miles. At T intersection turn West for 0.43miles then turn north for 0.27 miles. At T intersection turn west for 0.8 miles, then turn north for 0.14 miles to location.				

Release Data:

Date Released:	8/4/2013
Type Release:	Oil
Source of Contamination:	Oil Tank
Fluid Released:	75 bbls
Fluids Recovered:	70 bbls

Official Communication:

Name:	Robert McNeill		Ike Tavaréz
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		4000 N. Big Spring
	600 W. Illinois Ave.		Suite 401
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 682-4559
Fax:	(432) 684-7137		
Email:	rmcneill@conchoresources.com		ike.tavarez@tetrattech.com

Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	
>100 ft.	0	
WellHead Protection:	Ranking Score	Site Data
Water Source <1,000 ft., Private <200 ft.	20	
Water Source >1,000 ft., Private >200 ft.	0	0
Surface Body of Water:	Ranking Score	Site Data
<200 ft.	20	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0
Total Ranking Score:	0	

Acceptable Soil RRAL (mg/kg)

Benzene	Total BTEX	TPH
10	50	5,000



TETRA TECH

July 23, 2014

Mr. Geoffrey Leking
Environmental Engineer Specialist
Oil Conservation Division, District 1
1625 North French Drive
Hobbs, New Mexico 88240

Re: Closure Report for the COG Operating LLC., BC-GC Compressor Station, Unit L, Section 19, Township 17 South, Range 32 East, Lea County, New Mexico.

Mr. Leking:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the BC-GC Compressor Station, Unit L, Section 19, Township 17 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.81635°, W 103.81087°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on August 04, 2013, and released approximately seventy five (75) barrels of fluid from the oil tank with seventy (70) barrels of standing fluids recovered. The spill occurred on the pad inside the tank firewalls (20' x 20'), which breached and migrated on the pad measuring approximately 45' x 60'. The spill migrated off the pad measuring approximately 15' x 25'. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 19. According to the NMOCD groundwater map, the average depth to groundwater in this area is approximately 250' below surface. The average depth to groundwater map is shown in Appendix B.

Tetra Tech

4000 North Big Spring, Suite 401, Midland, TX 79705

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com



Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

Soil Assessment and Analytical Results

On August 22, 2013, Tetra Tech personnel inspected and sampled the spill area. Four (4) auger holes (AH-1 through AH-4) were installed using a stainless steel hand auger to assess the impacted soils. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, auger holes (AH-1 and AH-4) showed no TPH and BTEX concentrations above the RRAL. The areas of AH-2 and AH-3 showed TPH concentrations exceeding the RRAL, but declined below the RRAL at 2.0' and 4.0', respectively. In addition, BTEX concentrations exceeded the RRAL, but also declined below the RRAL's at 2.0' (AH-2). The area of AH-3 showed a total BTEX of 64.6 mg/kg at 4.0' and not vertically defined.

The chloride concentrations detected in the areas of AH-1, AH-3 and AH-4 did not show a significant chloride impact to the soils. The area of AH-2 did show elevated chlorides with a high of 9,790 mg/kg at 2.0', but declined with depth to 341 mg/kg at 4.0' below surface. The area of AH-4 did show an increasing chloride with depth of 914 mg/kg at 4.0' and not vertically defined. The deeper chloride impact appears to a historical impact.



Remediation Activities

On May 12, 2014, Tetra Tech supervised the removal impacted material as highlighted (green) in Table 1 and shown on Figure 4.

Prior to excavation of the soils, Tetra Tech installed two (2) backhoe trenches (T-1 and T-2) in the areas of AH-3 and AH-4 to define extents and confirm the detectable chloride concentrations in the soils. The areas of T-1 (AH-3) showed total BTEX concentrations below the RRAL at 6.0' and 8.0' below surface. The area of T-2 (AH-4) showed chloride concentrations of 288 mg/kg at 4.0' and 208 mg/kg at 6.0' below surface and confirmed no significant impact to this area.

Based on the results, auger hole (AH-2) was excavated to a depth of approximately 4.0' below surface and auger hole (AH-3) was excavated to approximately 5.0' below surface.

Once excavated, confirmation samples were collected at the north, south, east and west sidewalls of AH-2, which showed chloride concentrations of 80.0 mg/kg, 96.0 mg/kg, 992 mg/kg, and 192 mg/kg, respectively. A bottom hole sample was also collected in the area of AH-2 which showed a chloride concentration of 1,440 mg/kg, which then declined with depth to 368 mg/kg at 6.0' below surface (1.0' below excavation bottom). In addition, confirmation samples were also taken at the north, south, and west sidewalls as well as the bottom hole of AH-3, which did not show concentrations below the RRAL.

Once the areas were excavated to the appropriate depths, the excavations were backfilled with clean soil to grade, and approximately 408 cubic yards of excavated material was hauled to proper disposal.

Conclusion

Based on the assessment and remediation work performed at this site, COG requests closure of this spill issue. A final C-141 is enclosed in Appendix A. If you have any questions or comments concerning the assessment or the remediation activities for this site, please call me at (432) 682-4559.

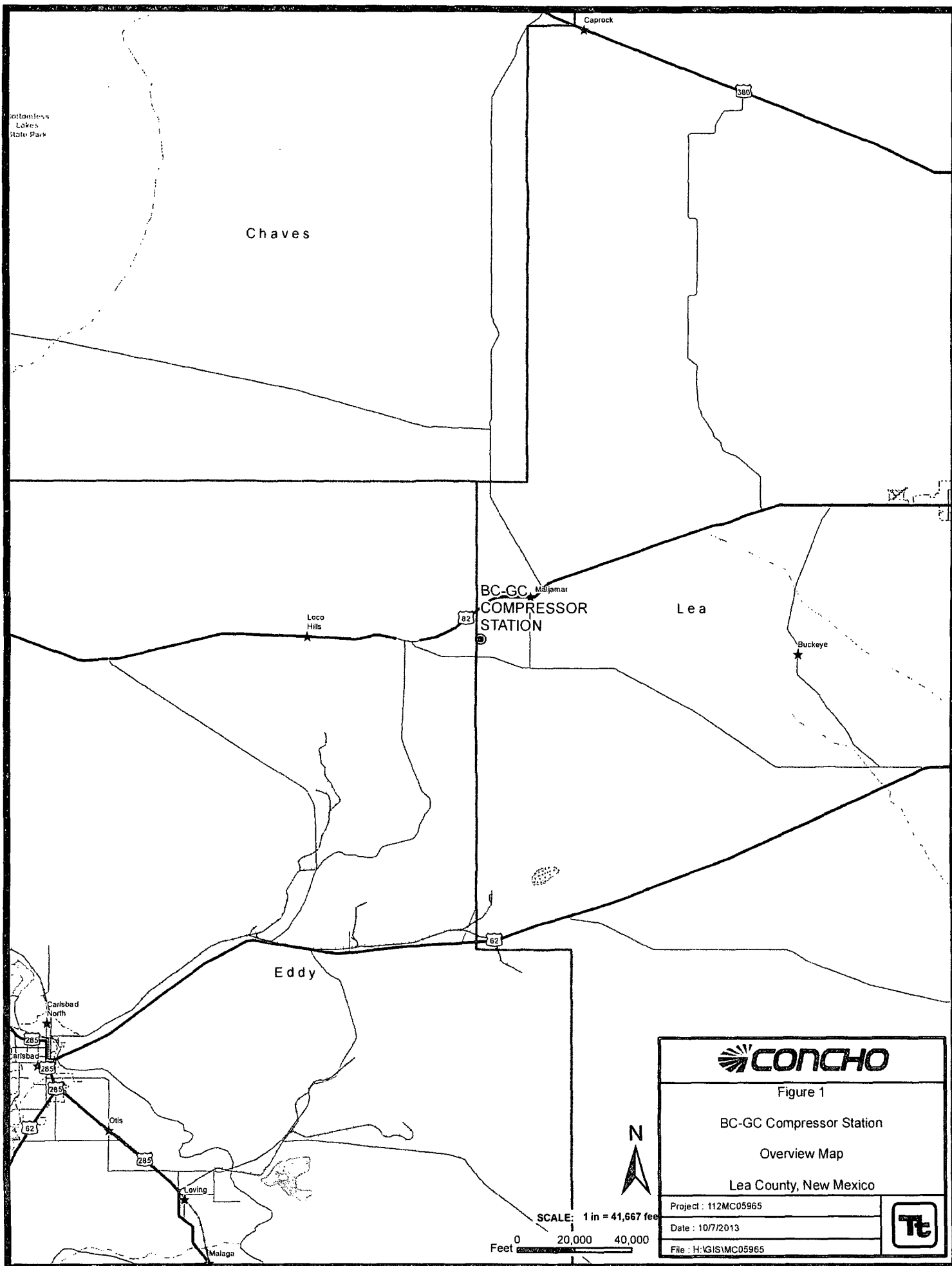
Respectfully submitted,
TETRA TECH

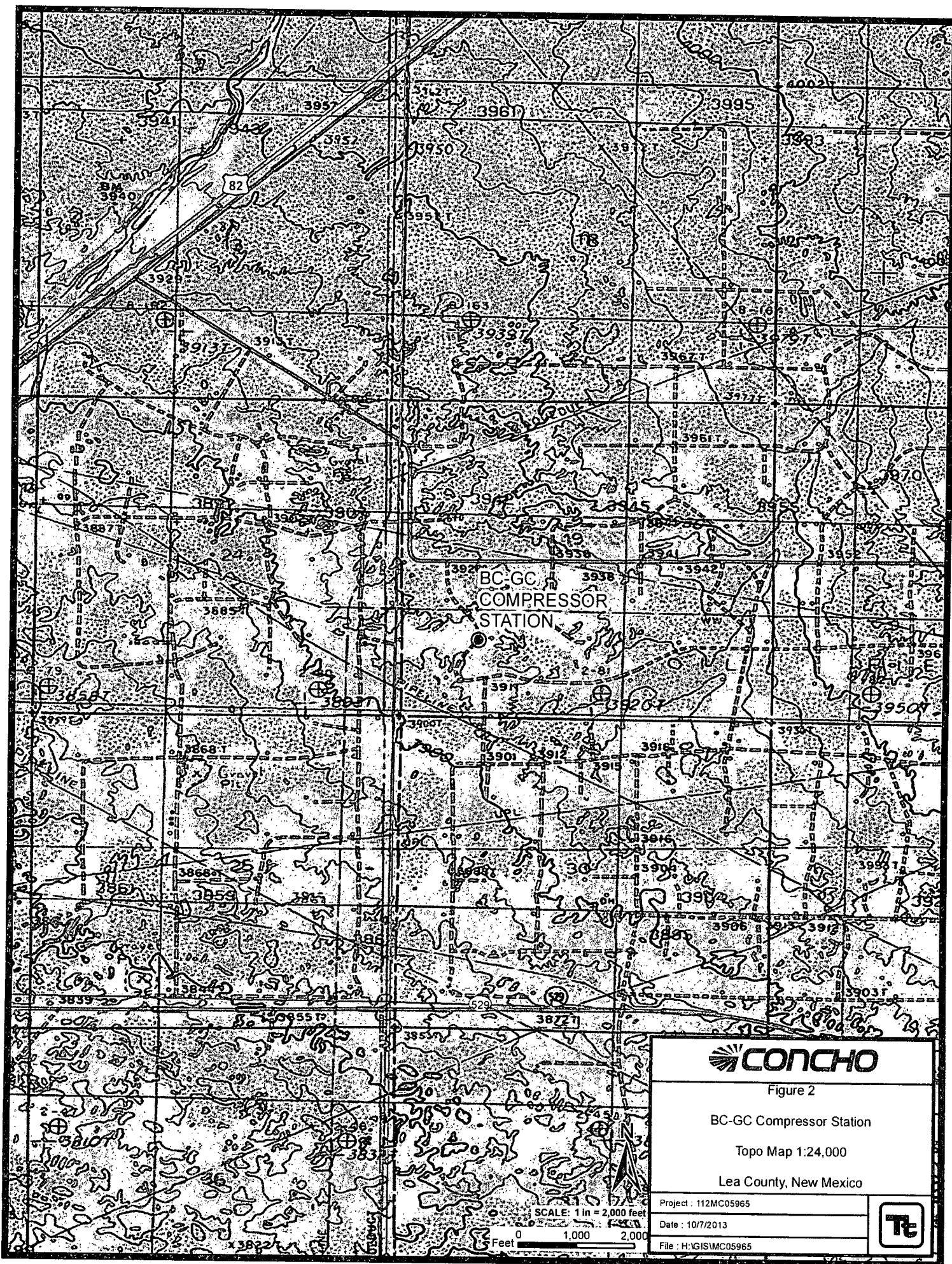
Clair Gonzales,
Geologist

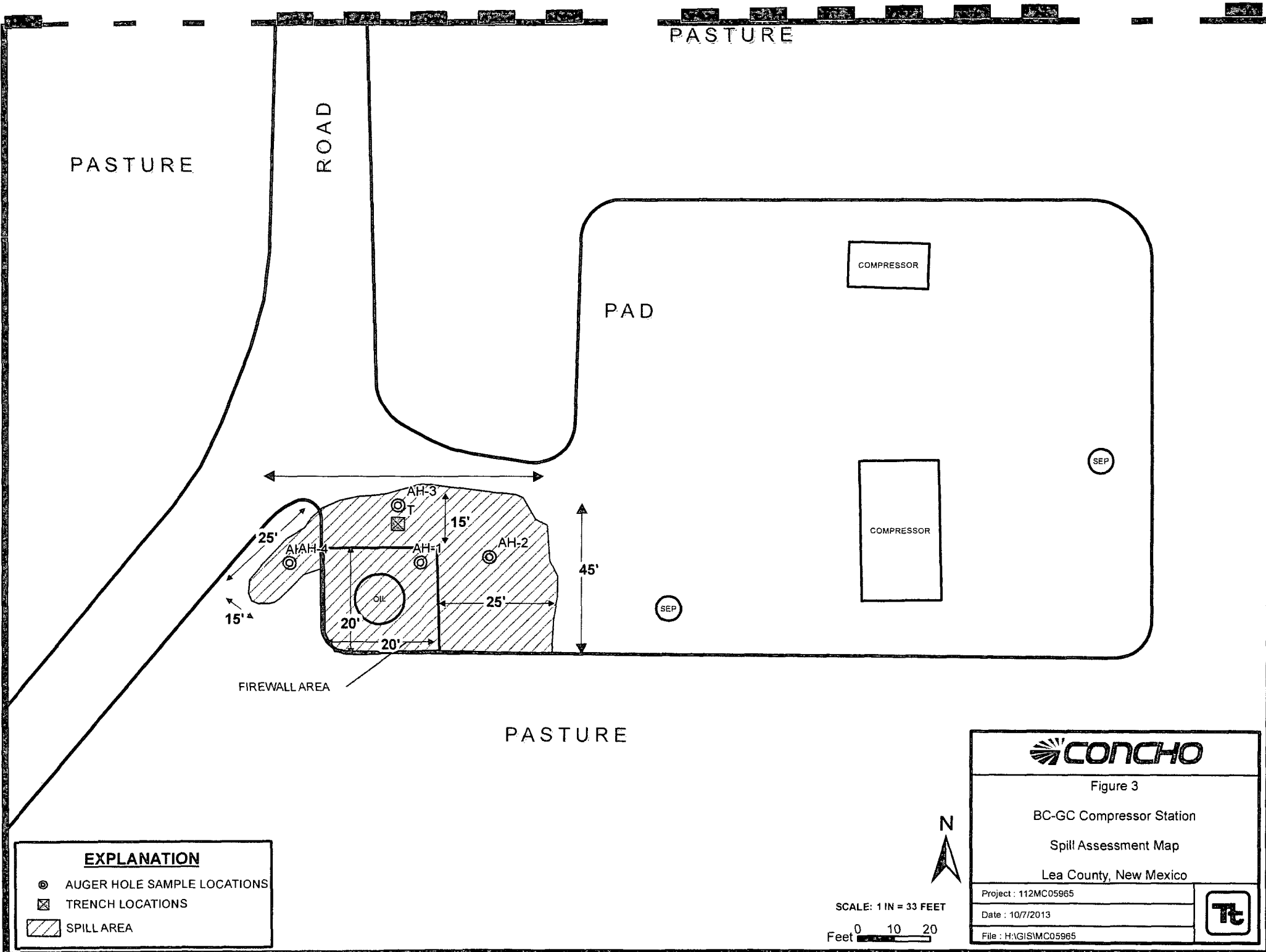


TETRA TECH

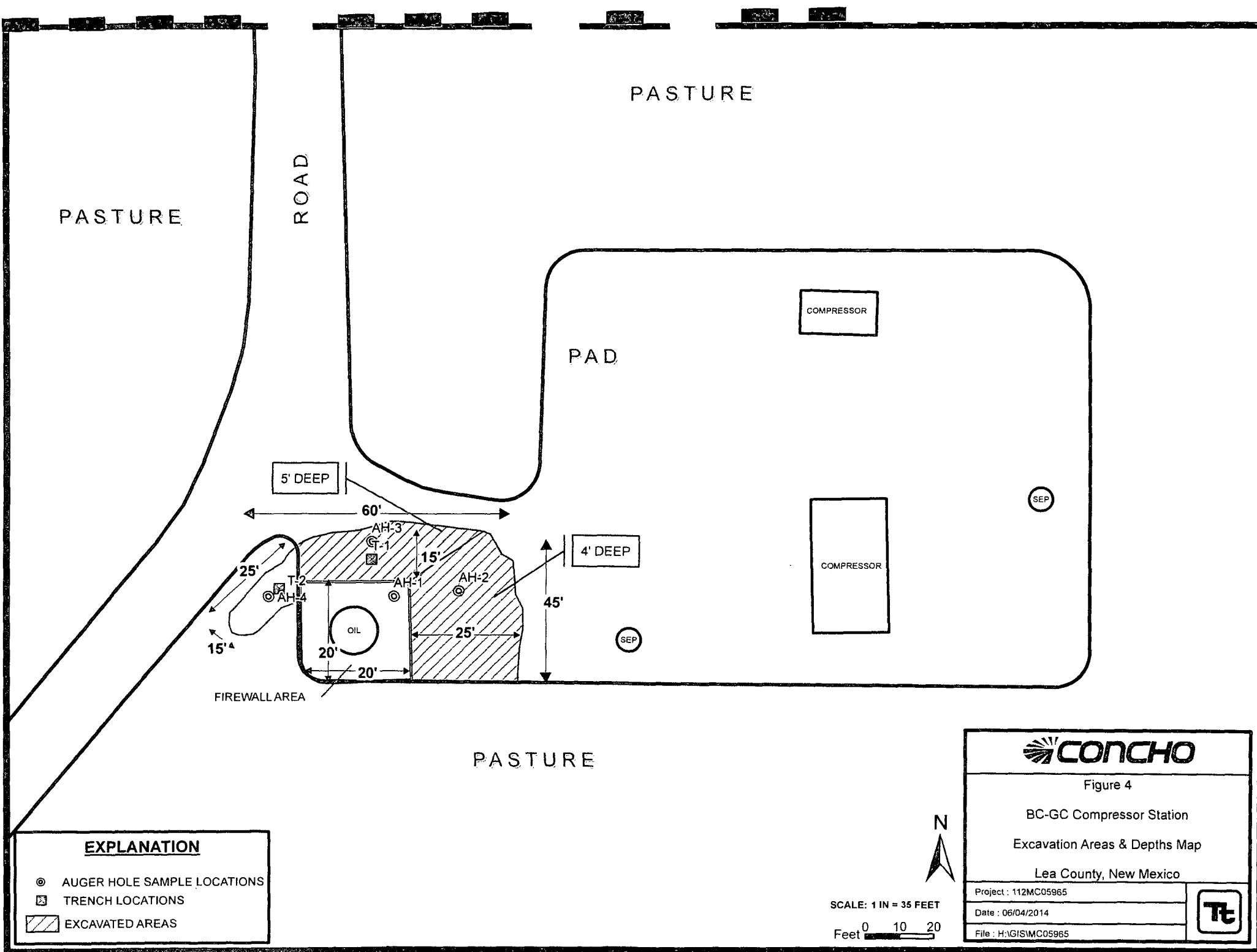
Figures











Tables

Table 1
COG Operating LLC.
BC-GC Compressor Station
Lea County, New Mexico

Sample ID	Sample Date	BEB Sample Depth (ft)	Excavation Bottom Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
AH-1	8/22/2013	0-1	0	X		139	987	1,126	<0.0200	<0.0200	0.963	1.480	2.443	195
	"	1-1.5	"	X		<4.00	<50.0	<50.0	-	-	-	-	-	161
	"	2-2.5	"	X		-	-	-	-	-	-	-	-	292
	"	3-3.5	"	X		-	-	-	-	-	-	-	-	390
AH-2	8/22/2013	0-1	0		X	6,460	3,980	10,440	8.18	712	195	215	1,130	902
	"	1-1.5	"		X	8,480	1,870	10,350	65.9	366	278	284	994	2,530
	"	2-2.5	"		X	45.8	<50.0	45.8	<0.0200	0.104	0.347	0.292	0.743	9,790
	"	3-3.5	"		X	-	-	-	-	-	-	-	-	4,040
	"	4-4.5	"		X	-	-	-	-	-	-	-	-	341
	"	5-5.5	"	X		-	-	-	-	-	-	-	-	521
	"	6-6.5	"	X		-	-	-	-	-	-	-	-	374
AH-2 Bottom Hole	5/13/2014	5	0	X		-	-	-	-	-	-	-	-	1,440
	"	"	1	X		-	-	-	-	-	-	-	-	368
AH-2 South Sidewall	5/13/2014	-	0	X		-	-	-	-	-	-	-	-	96.0
AH-2 East Sidewall	"	-	"	X		-	-	-	-	-	-	-	-	992
AH-2 West Sidewall	"	-	"	X		-	-	-	-	-	-	-	-	192
AH-2 North Sidewall	"	-	"	X		-	-	-	-	-	-	-	-	80.0
AH-3	8/22/2013	0-1	0		X	3070	11,700	14,770	<1.00	21.2	59.4	144	225	<20.0
	"	1-1.5	"		X	7,100	10,400	17,500	4.27	158	207	311	680	<20.0
	"	2-2.5	"		X	16,000	14,000	30,000	55.8	546	518	723	1,843	<20.0
	"	3-3.5	"		X	3,200	2,930	6,130	<0.400	51.8	85.3	134	271	38.3
	"	4-4.5	"		X	1,080	1,430	2,510	<0.400	5.17	19.9	39.5	64.6	115
AH-3 Bottom Hole	5/13/2014	5	0	X		-	-	-	<0.050	<0.050	<0.050	<0.150	<0.300	-
AH-3 North Sidewall	"	-	"	X		-	-	-	<0.050	<0.050	<0.050	<0.150	<0.300	-
AH-3 South Sidewall	"	-	"	X		-	-	-	<0.050	<0.050	<0.050	<0.150	<0.300	-
AH-3 West Sidewall	"	-	"	X		-	-	-	<0.050	<0.050	<0.050	<0.150	<0.300	-
Trench 1	5/13/2014	6	0	X		-	-	-	<0.050	<0.050	<0.050	<0.150	<0.300	-
	"	8	"	X		-	-	-	<0.050	<0.050	<0.050	<0.150	<0.300	-

Table 1
COG Operating LLC.
BC-GC Compressor Station
Lea County, New Mexico

Sample ID	Sample Date	BEB Sample Depth (ft)	Excavation Bottom Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
AH-4	8/22/2013	0-1	0	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	0.0227	0.0227	139
	"	1-1.5	"	X		-	-	-	-	-	-	-	-	<20.0
	"	2-2.5	"	X		-	-	-	-	-	-	-	-	<20.0
	"	3-3.5	"	X		-	-	-	-	-	-	-	-	340
	"	4-4.5	"	X		-	-	-	-	-	-	-	-	917
Trench 2	5/13/2014	4	0	X		-	-	-	-	-	-	-	-	288
	"	6	"	X		-	-	-	-	-	-	-	-	208

(-) Not Analyzed

(BEB) Below Excavation Bottom

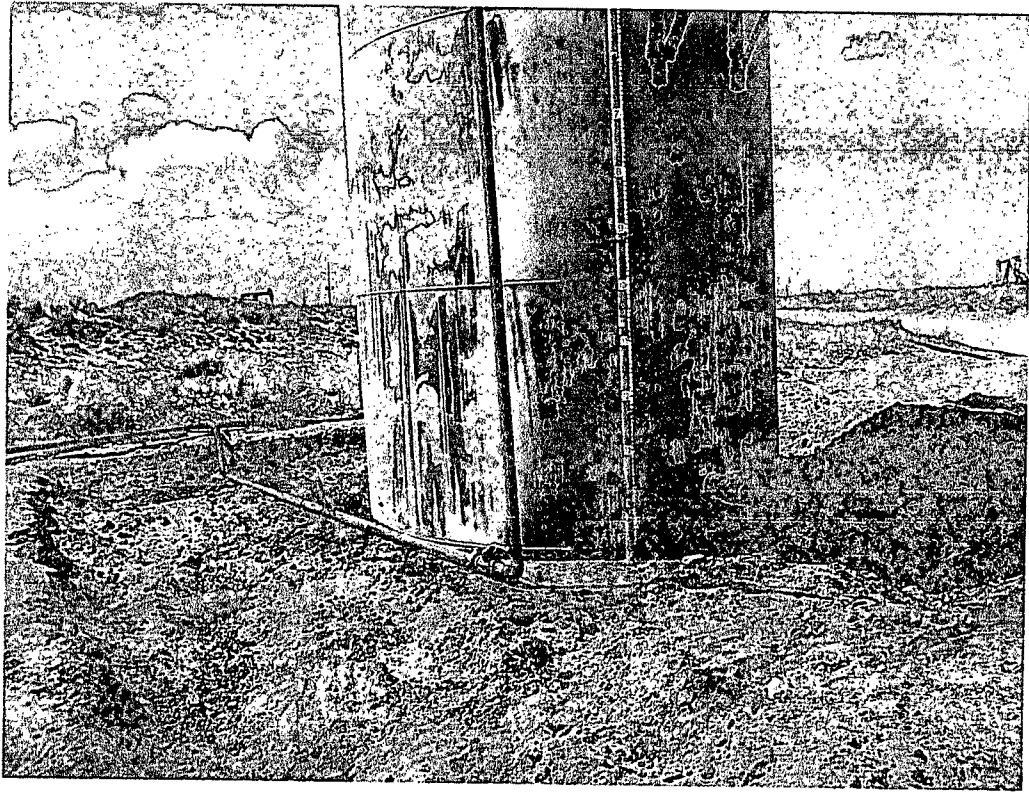
 Excavated Depths

Photos

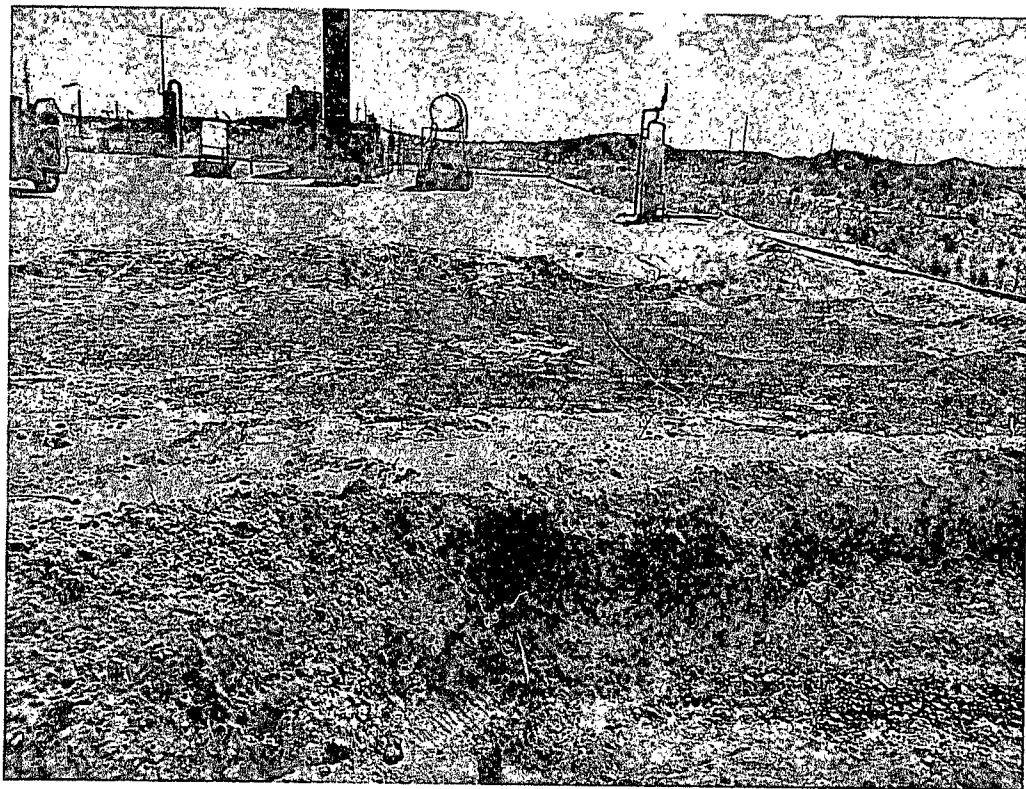
COG Operating LLC
BC-GC Compressor
Station
Lea County, New Mexico



TETRA TECH

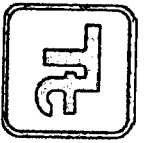


View Southwest – AH-1



View East – AH-1 and AH-2

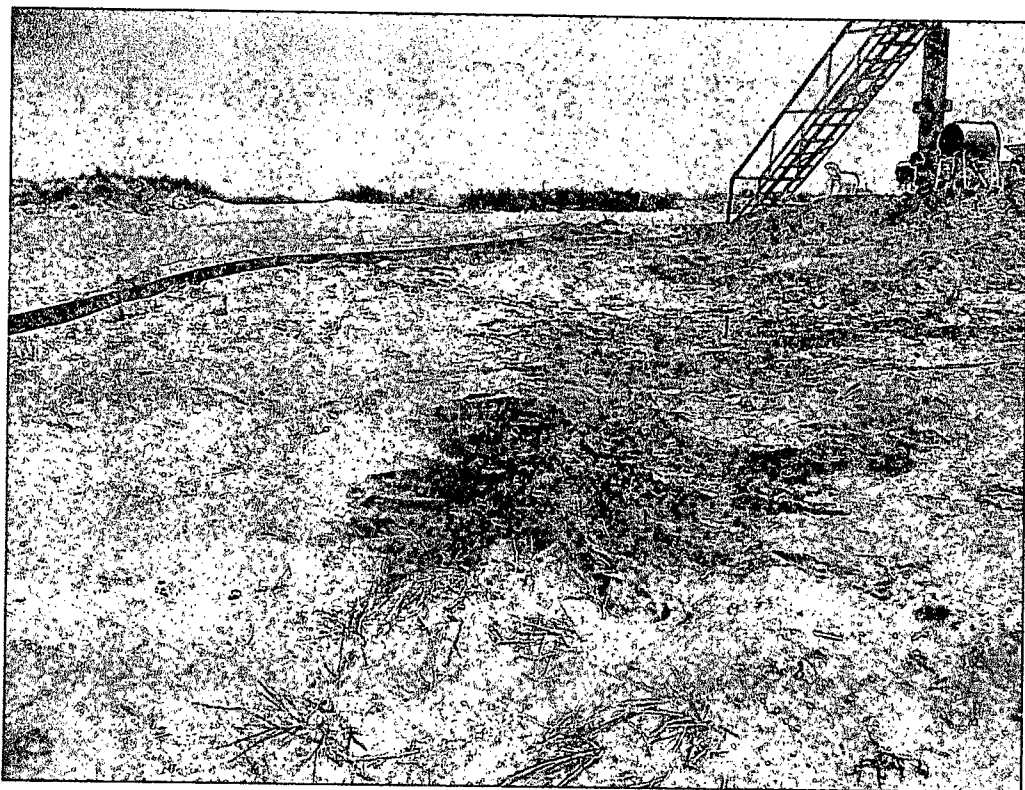
COG Operating LLC
BC-GC Compressor
Station
Lea County, New Mexico



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View Northwest – AH-2 and AH-3

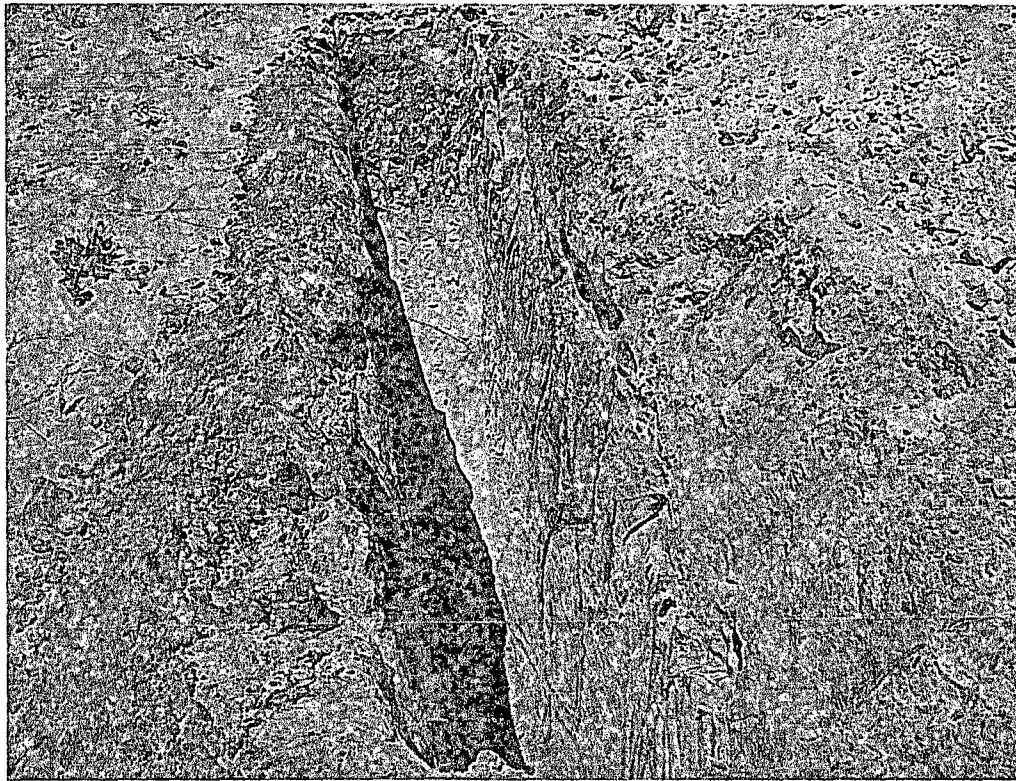


View Northeast – AH-4

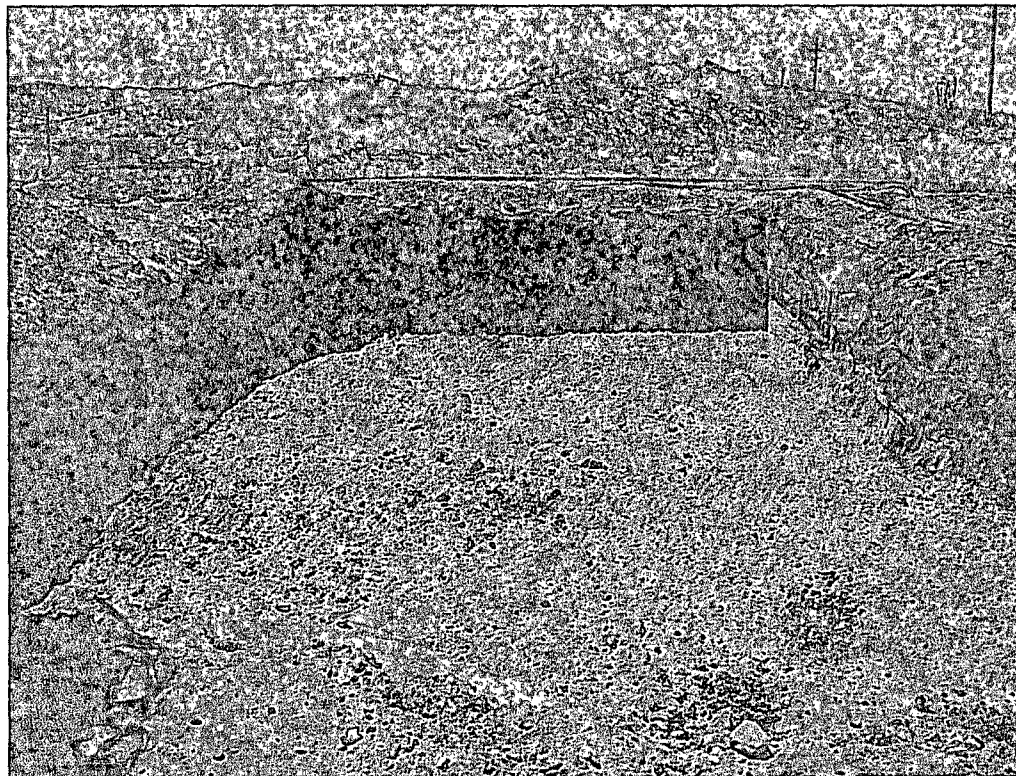
COG Operating LLC
BC-GC Compressor
Station
Lea County, New Mexico



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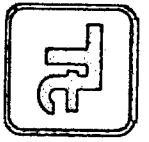


Typical Trench

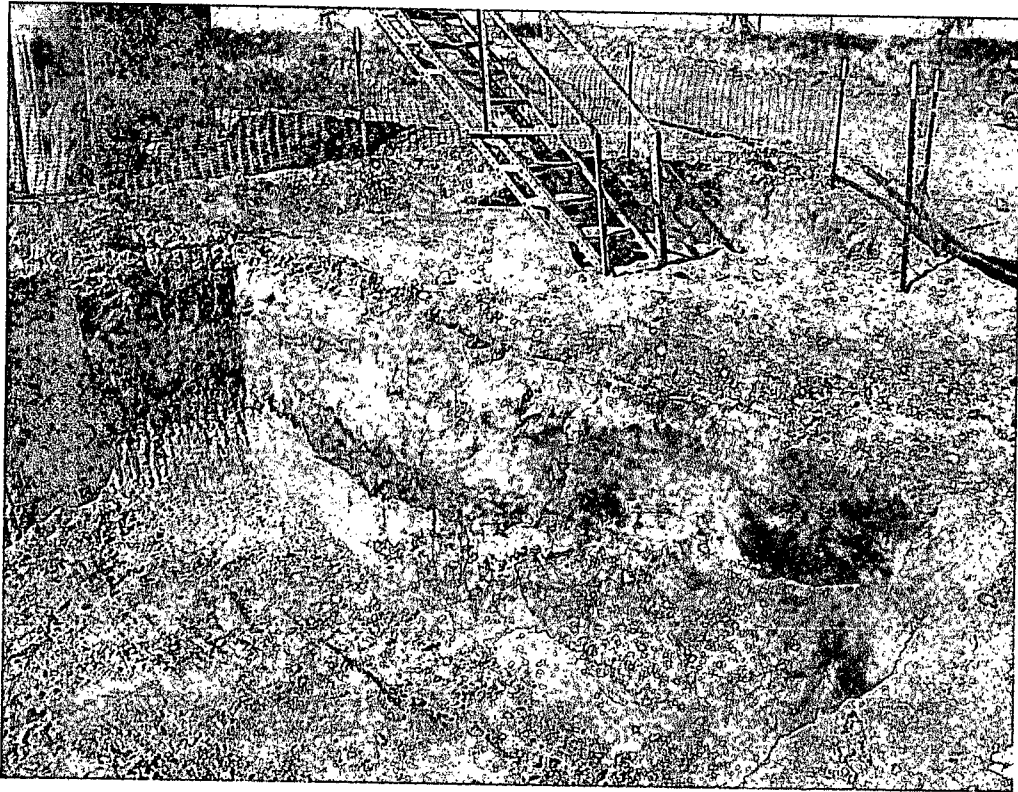


View South – Excavated area of AH-2

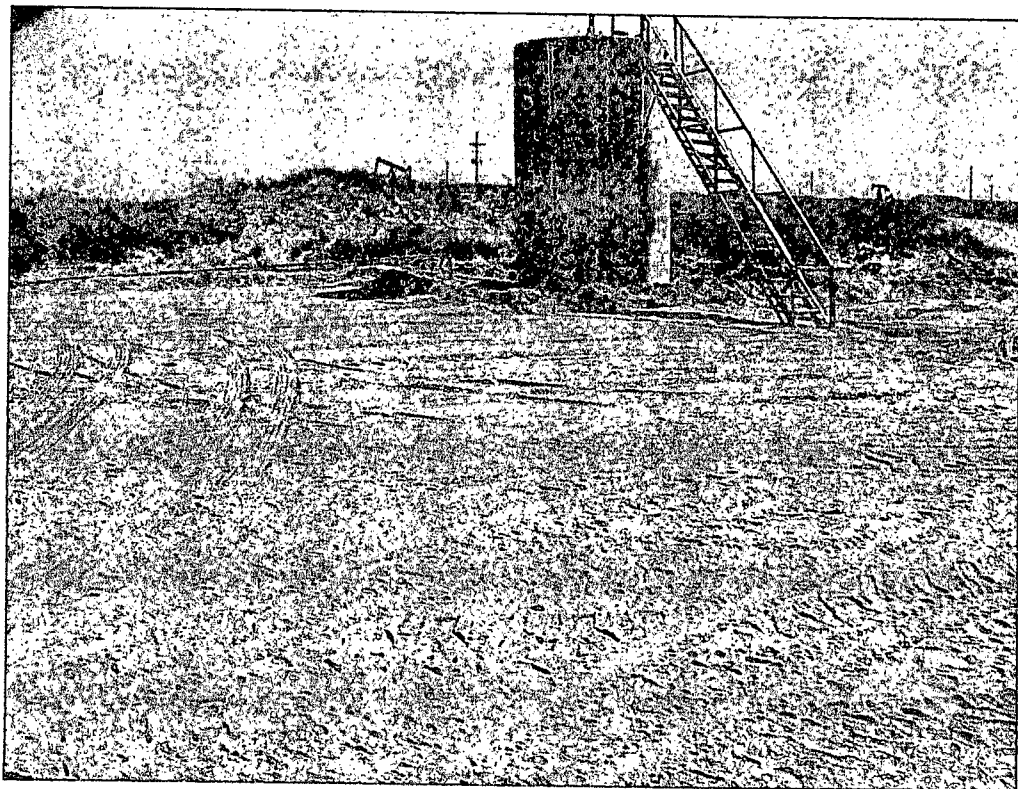
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View West – Excavated area of AH-3



View South – Backfilled areas of AH-2 and AH-3

Appendix A