

SITE INFORMATION

Report Type: Work Plan 2RP-3820

General Site Information:

Site:	Cluster State Com #001H					
Company:	COG Operating LLC					
Section, Township and Range	Unit D	Sec. 16	T 26S	R 27E		
Lease Number:	API No. 30-015-37547					
County:	Eddy					
Facility GPS:	32.0486679° N			104.2026672° W		
Release GPS:	32.03728° N			104.21032° W		
Surface Owner:	State					
Mineral Owner:						
Directions:	FRM:US-285 & CR-724/WHITES CITY RD, GO W ON WHITES CITY RD APPRX 7.8MI, TRN S APPRX 1.9MI, TRN W APPRX 0.2MI, TRN N ON LEASE RD & FOLLOW RD TO GPS.					

Release Data:

Date Released:	8/3/2016
Type Release:	Produced Water
Source of Contamination:	Damaged Flowline
Fluid Released:	10 bbls
Fluids Recovered:	0 bbls

Official Communication:

Name:	Robert McNeil		Ike Tavaréz
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		4000 N. Big Spring
	600 W. Illinois Ave.		Ste 401
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 687-8110
Fax:	(432) 684-7137		
Email:	rmcneil@conchoresources.com		Ike.Tavaréz@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:		10

Acceptable Soil RRAL (mg/kg)		
Benzene	Total BTEX	TPH
10	50	1,000



TETRA TECH

October 3, 2016

Heather Patterson
Environmental Engineer Specialist
Oil Conservation Division, District 2
811 S. First Street
Artesia, New Mexico 88210

Re: Work Plan for the COG Operating LLC., Cluster State Com #001H, Unit D, Section 16, Township 26 South, Range 27 East, Eddy County, New Mexico. 2RP-3820

Ms. Patterson:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC., (COG) to assess a spill from Cluster State Com #001H, Unit D, Section 16, Township 26 South, Range 27 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.03728°, W 104.21032°. 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 3, 2016, and released approximately ten (10) barrels of produced water due to a damaged flowline. None of the fluids were recovered. The initial C-141 lists the site as being in Section 16, however the release occurred in the pasture in Section 17, and measured approximately 150'x 175 and 50'x 555'. The initial C-141 form is included in Appendix A.

Groundwater

According to the NMOCD groundwater map, the average depth to groundwater in this area is less than 50' below surface. No water wells were listed within Sections 16 or 17. The site location shows an approximate surface elevation of 3305'.

One well in Section 22 is listed on the New Mexico State Engineers Well Report showed a depth to groundwater of 50' below surface and has a surface elevation of approximately 3105'. Additionally, the Geology and Groundwater Resources of Eddy County, NM (Report 3) reported two water wells in Section 5 and 13, Township 26 South, Range 27 East. These wells reported groundwater depths of 12.0' and 35.0', with surface elevations of 3105' and 3068', respectively. The well locations appear to be installed in the draw areas and may be producing from

Tetra Tech

4000 North Big Spring, Suite 401, Midland, TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com



the shallow alluvium formation. The main aquifer in the area is from the deeper Rustler Formation. Based on relative elevations, the depth to groundwater in this area appears to be greater than 50' below surface. The groundwater data is shown in Appendix B.

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 1,000 mg/kg.

Soil Assessment and Analytical Results

On September 14, 2016 Tetra Tech personnel were onsite to evaluate and sample the release area. Eight (8) boreholes (BH-1 through BH-8) and one auger hole (AH-1) were installed to depths of 7.5' to 40.0' below surface. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. The borehole drilling logs are included in Appendix C. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix D. The sampling results are summarized in Table 1. The borehole and auger hole locations are shown on Figure 3.

Referring to Table 1, none of the areas sampled showed total TPH or BTEX concentrations above the RRAL's. However, the areas of boreholes (BH-1, BH-2, BH-3 and BH-4) as well as auger hole (AH-1) showed elevated chloride concentrations in the shallow soils.

The area of auger hole (AH-1), showed chloride concentrations that increased with depth to 15,200 mg/kg at 3-3.5' below surface before declining to 3,680 mg/kg at 4-4.5' below surface. Deeper samples were not collected due to a dense formation and the impact area was not vertically defined.

Boreholes (BH-1, BH-2, BH-3 and BH-4) showed chloride highs at 0-1' below surface with concentrations of 30,800 mg/kg, 24,400 mg/kg, 9,060 mg/kg and 13,600 mg/kg, which declined with depth with bottom hole samples of 128 mg/kg at 39-40', 144 mg/kg at 29-30', 128 mg/kg at 29-30' and 576 mg/kg at 14-15', respectively. All of the boreholes were vertically defined or significantly declined with depth. Boreholes (BH-5, BH-6, BH-7 and BH-8) did not show a significant chloride concentrations and do not appear to be an environmental concern.



TETRA TECH

Based on the results, Tetra Tech returned to the site on September 22, 2016, to confirm and define the extents in the area of auger hole (AH-1) using a stainless steel hand auger. Selected samples were analyzed chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix D. The sampling results are summarized in Table 1. The auger hole location are shown on Figure 3.

Referring to Table 1, the area of auger hole (AH-1) showed chloride concentrations that increased with depth to 12,600 mg/kg at 3-3.5' below surface. However, the chloride impact declined with depth to 37.8 mg/kg at 7-7.5' below surface. The impacted areas was vertically defined.

Work Plan

Based on the results, COG proposes to remove impacted material as highlighted (green) in Table 1 and shown on Figure 4. The areas of borehole (BH-1) and auger hole (AH-1) will be excavated to a depth of approximately 4.0' to 5.0' below surface. The areas of boreholes (BH-3 and BH-4) will be excavated to a depth of approximately 2.0' to 3.0' and 6.0' to 7.0' in the area of borehole (BH-2) to remove the chloride impacted soils. The excavated areas will be backfilled with clean material to surface grade. The excavated material will be transported offsite for proper disposal.

The proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safety concerns for onsite personnel. As such, Tetra Tech will excavate the impacted soils to the maximum extent practicable

Upon completion, a final report will be submitted to the NMOCD. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call me at (432) 682-4559.

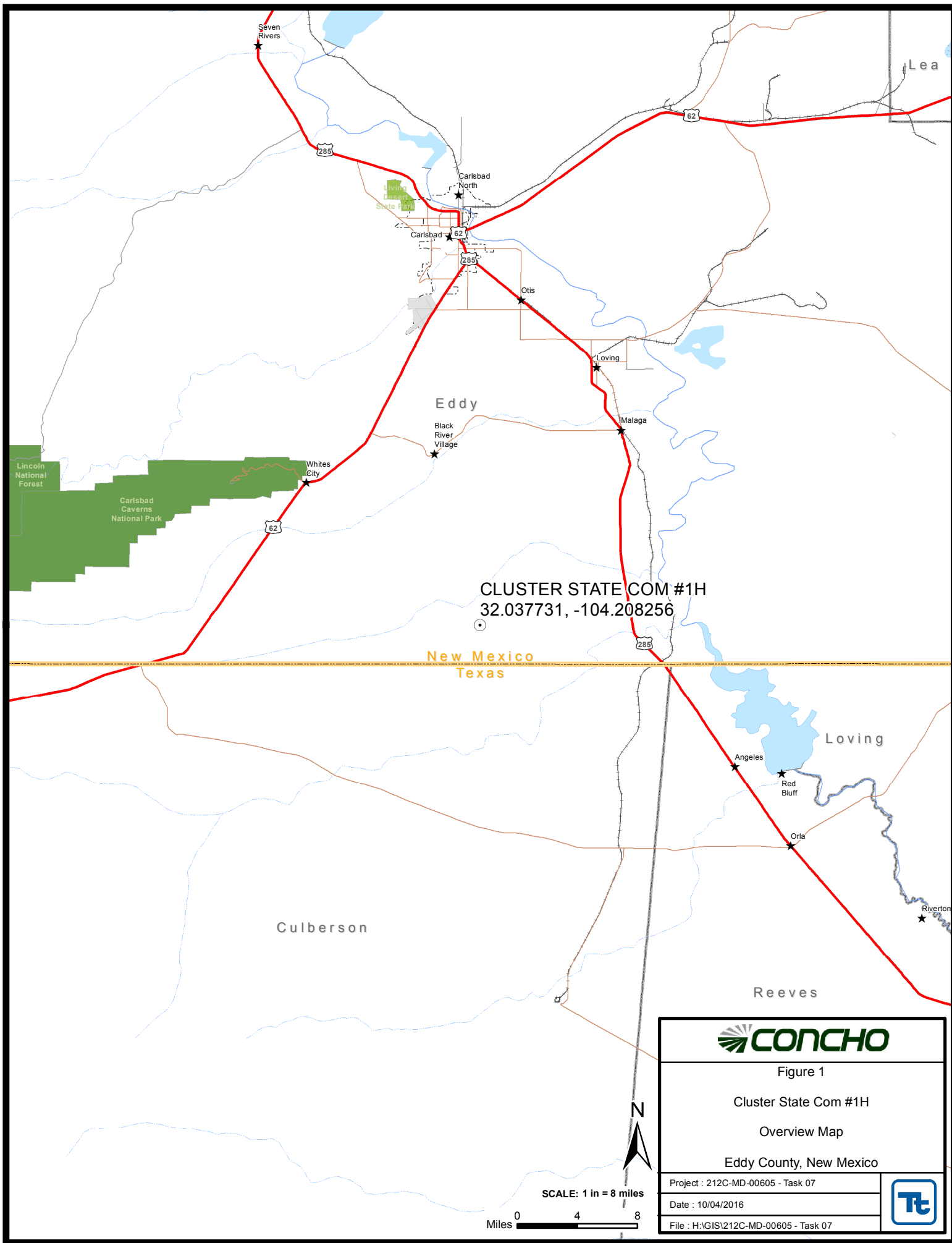
Respectfully submitted,
TETRA TECH

Clair Gonzales,
Geologist I

Ike Tavaréz,
Senior Project Manager, P.G.

cc: Robert McNeill – COG
Dakota Neel – COG

Figures



CLUSTER STATE COM #1H
32.037731, -104.208256

New Mexico
Texas

Culberson

Reeves



Figure 1

Cluster State Com #1H

Overview Map

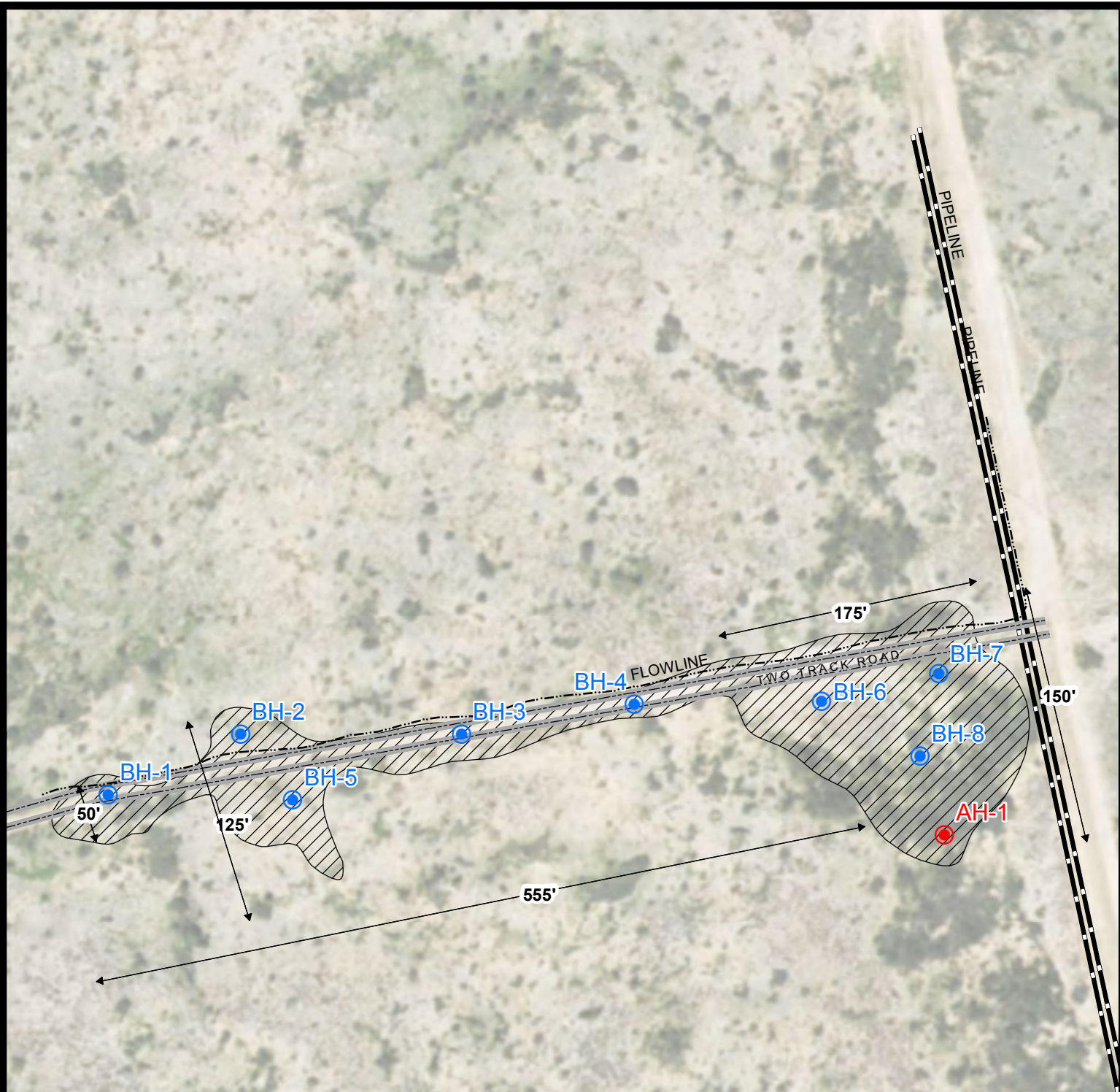
Eddy County, New Mexico

Project : 212C-MD-00605 - Task 07

Date : 10/04/2016

File : H:\GIS\212C-MD-00605 - Task 07





EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- BORE HOLE SAMPLE LOCATIONS
- SPILL AREA

N

Source: Esri, DigitalGlobe, GeoEye, USDA, USGS, AeroGRID, IGN, SRTM30, User Community



Figure 3

Cluster State Com #1H
(32.037731,-104.208256)

Spill Assessment Map

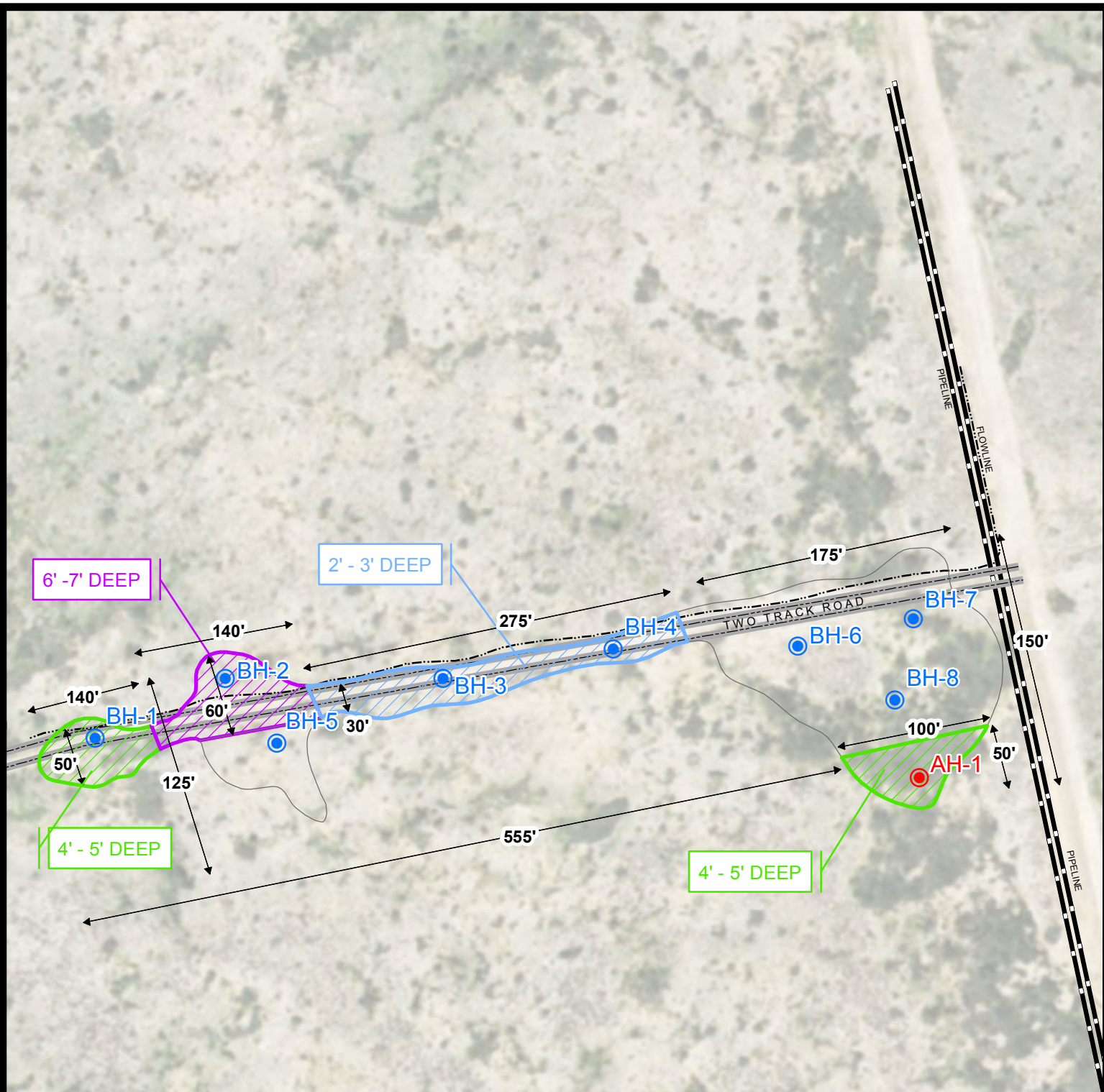
Eddy County, New Mexico

Project : 212C-MD-00605 - Task 07

Date : 10/04/2016

File : H:\GIS\212C-MD-00605 - Task 07





EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- BORE HOLE SAMPLE LOCATIONS
- PROPOSED EXCAVATION AREA

N

Source: Esri, DigitalGlobe, GeoEye, USDA, USGS, AeroGRID, IGN, SRTM30, User Community



Figure 4

Cluster State Com #1H
(32.037731,-104.208256)

Proposed Excavation Areas & Depths Map

Eddy County, New Mexico

Project : 212C-MD-00605 - Task 07

Date : 10/04/2016

File : H:\GIS\212C-MD-00605 - Task 07



Tables

Table 1
COG Operating LLC.
Cluster State Commingle #1H
Eddy County, New Mexico

Sample ID	Sample Date	Sample 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						
BH-1	9/14/2016	0-1	X		<10.0	<10.0	<20.0	<0.050	<0.050	<0.050	<0.150	<0.300	30,800
	"	2-3	X		-	-	-	-	-	-	-	-	17,600
	"	4-5	X		-	-	-	-	-	-	-	-	2,560
	"	6-7	X		-	-	-	-	-	-	-	-	544
	"	9-10	X		-	-	-	-	-	-	-	-	80.0
	"	14-15	X		-	-	-	-	-	-	-	-	48.0
	"	19-20	X		-	-	-	-	-	-	-	-	192
	"	24-25	X		-	-	-	-	-	-	-	-	144
	"	29-30	X		-	-	-	-	-	-	-	-	96.0
	"	39-40	X		-	-	-	-	-	-	-	-	128
BH-2	9/14/2016	0-1	X		<10.0	<10.0	<20.0	<0.050	<0.050	<0.050	<0.150	<0.300	24,400
	"	2-3	X		-	-	-	-	-	-	-	-	22,800
	"	4-5	X		-	-	-	-	-	-	-	-	8,130
	"	6-7	X		-	-	-	-	-	-	-	-	2,560
	"	9-10	X		-	-	-	-	-	-	-	-	672
	"	14-15	X		-	-	-	-	-	-	-	-	432
	"	19-20	X		-	-	-	-	-	-	-	-	320
	"	24-25	X		-	-	-	-	-	-	-	-	272
	"	29-30	X		-	-	-	-	-	-	-	-	144

Table 1
COG Operating LLC.
Cluster State Commingle #1H
Eddy County, New Mexico

Sample ID	Sample Date	Sample 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						
BH-3	9/14/2016	0-1	X		<10.0	<10.0	<20.0	<0.050	<0.050	<0.050	<0.150	<0.300	9,060
	"	2-3	X		-	-	-	-	-	-	-	-	7,730
	"	4-5	X		-	-	-	-	-	-	-	-	832
	"	6-7	X		-	-	-	-	-	-	-	-	880
	"	9-10	X		-	-	-	-	-	-	-	-	352
	"	14-15	X		-	-	-	-	-	-	-	-	528
	"	19-20	X		-	-	-	-	-	-	-	-	624
	"	24-25	X		-	-	-	-	-	-	-	-	288
	"	29-30	X		-	-	-	-	-	-	-	-	128
BH-4	9/14/2016	0-1	X		<10.0	<10.0	<20.0	<0.050	<0.050	<0.050	<0.150	<0.300	13,600
	"	2-3	X		-	-	-	-	-	-	-	-	12,000
	"	4-5	X		-	-	-	-	-	-	-	-	176
	"	6-7	X		-	-	-	-	-	-	-	-	160
	"	9-10	X		-	-	-	-	-	-	-	-	288
	"	14-15	X		-	-	-	-	-	-	-	-	576
BH-5	9/14/2016	0-1	X		<10.0	<10.0	<20.0	<0.050	<0.050	<0.050	<0.150	<0.300	48.0
	"	2-3	X		-	-	-	-	-	-	-	-	288
	"	4-5	X		-	-	-	-	-	-	-	-	48.0
	"	6-7	X		-	-	-	-	-	-	-	-	144
	"	9-10	X		-	-	-	-	-	-	-	-	96.0
	"	14-15	X		-	-	-	-	-	-	-	-	48.0

Table 1
COG Operating LLC.
Cluster State Commingle #1H
Eddy County, New Mexico

Sample ID	Sample Date	Sample 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						
BH-6	9/14/2016	0-1	X		<10.0	<10.0	<20.0	<0.050	<0.050	<0.050	<0.150	<0.300	<16.0
	"	2-3	X		-	-	-	-	-	-	-	-	48.0
	"	4-5	X		-	-	-	-	-	-	-	-	48.0
	"	6-7	X		-	-	-	-	-	-	-	-	<16.0
	"	9-10	X		-	-	-	-	-	-	-	-	<16.0
	"	14-15	X		-	-	-	-	-	-	-	-	48.0
BH-7	9/15/2016	0-1	X		<10.0	<10.0	<20.0	<0.050	<0.050	<0.050	<0.150	<0.300	64.0
	"	2-3	X		-	-	-	-	-	-	-	-	64.0
	"	4-5	X		-	-	-	-	-	-	-	-	32.0
	"	6-7	X		-	-	-	-	-	-	-	-	32.0
	"	9-10	X		-	-	-	-	-	-	-	-	48.0
BH-8	9/15/2016	0-1	X		<10.0	23.8	23.8	<0.050	<0.050	<0.050	<0.150	<0.300	<16.0
	"	2-3	X		-	-	-	-	-	-	-	-	<16.0
	"	4-5	X		-	-	-	-	-	-	-	-	32.0
	"	6-7	X		-	-	-	-	-	-	-	-	176
	"	9-10	X		-	-	-	-	-	-	-	-	80.0

Table 1
COG Operating LLC.
Cluster State Commingle #1H
Eddy County, New Mexico

Sample ID	Sample Date	Sample 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-1	9/15/2016	0-1	X		<10.0	23.8	23.8	<0.050	<0.050	<0.050	<0.150	<0.300	928
	"	1-1.5	X		-	-	-	-	-	-	-	-	11,600
	"	2-2.5	X		-	-	-	-	-	-	-	-	12,000
	"	3-3.5	X		-	-	-	-	-	-	-	-	15,200
	"	4-4.5	X		-	-	-	-	-	-	-	-	3,680
AH-1	9/22/2016	0-1	X		-	-	-	-	-	-	-	-	4,120
	"	1-1.5	X		-	-	-	-	-	-	-	-	9,480
	"	2-2.5	X		-	-	-	-	-	-	-	-	10,800
	"	3-3.5	X		-	-	-	-	-	-	-	-	12,600
	"	4-4.5	X		-	-	-	-	-	-	-	-	3,040
	"	5-5.5	X		-	-	-	-	-	-	-	-	665
	"	6-6.5	X		-	-	-	-	-	-	-	-	373
	"	7-7.5	X		-	-	-	-	-	-	-	-	37.8

(-) Not Analyzed

Proposed Excavation Depths

Appendix A

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

NM OIL CONSERVATION

ARTESIA DISTRICT

Form C-141
Revised August 8, 2011

AUG 04 2016

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

RECEIVED

Release Notification and Corrective Action

NAB1421834653 OPERATOR ☒ Initial Report ☐ Final Report

Name of Company:	COG Operating LLC <u>229137</u>	Contact:	Robert McNeill
Address:	600 West Illinois Avenue, Midland TX 79701	Telephone No.	432-683-7443
Facility Name:	CLUSTER STATE COM #001H	Facility Type:	Flowline
Surface Owner:	State	Mineral Owner:	API No. 30-015-37547

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	16	26S	27E	380'	North	330'	West	Eddy

Latitude 32.0486679 Longitude 104.2026672

NATURE OF RELEASE

Type of Release:	Produced Water	Volume of Release:	10bbls of Produced Water	Volume Recovered:	0bbls of Produced Water
Source of Release:	Flowline	Date and Hour of Occurrence:	08/03/2016 10:30 am	Date and Hour of Discovery:	08/03/2016 10:30 am
Was Immediate Notice Given?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?			
By Whom?		Date and Hour:			
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.			
If a Watercourse was Impacted, Describe Fully.*					
Describe Cause of Problem and Remedial Action Taken.*					
A polyline was damaged by a vehicle or road equipment. Replaced damaged section of line.					
Describe Area Affected and Cleanup Action Taken.*					
This release occurred on a 4" polyline on the side of the road. A spill area of 200'X1'. Concho will have the spill site sampled to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation work.					
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:	Robert Grubbs Jr.	Approved by Environmental Specialist <u>[Signature]</u>			
Title:	Senior Environmental Coordinator	Approval Date:	8/5/16	Expiration Date:	N/A
E-mail Address:	rgrubbs@concho.com	Conditions of Approval:			
Date:	August 4, 2016	Remediation per O.C.D. Rules & Guidelines <input type="checkbox"/> Attached <input type="checkbox"/>			
Phone:	432-683-7443	SUBMIT REMEDIATION PROPOSAL NO			

* Attach Additional Sheets If Necessary

LATER THAN: 9/8/16 2RP-3820

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Cluster State Com #001H
Eddy County, New Mexico

25 South			26 East		
6	5	4	3	2	1
7	8	9	45	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

25 South			27 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

25 South			28 East		
6	5	4	35	3	2
7	8	9	32	10	11
18	17	16	15	48	14
19	20	21	22	23	24
30	29	28	27	26	40
31	32	33	34	35	36

26 South			26 East		
6	5	4	3	2	1
7	8	22	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

26 South			27 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

26 South			28 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

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)

90 Geology and Groundwater Resources of Eddy County, NM (Report 3)

34 NMOCD - Groundwater Data

123 Tetra Tech installed temporary wells and field water level

143 NMOCD Groundwater map well location



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
C 02218	CUB	ED		4	1	4	07	26S	27E	573039	3546725*	35		
C 02219	CUB	ED		4	4	4	05	26S	27E	575033	3547948*	35		
C 02474	CUB	ED		4	3	02	26S	27E	578964	3548029*		100		
C 02475	CUB	ED		2	4	13	26S	27E	581450	3545252*		100		
C 02476	CUB	ED		4	1	24	26S	27E	580653	3544032*		150		
C 02930	C	ED		2	3	4	22	26S	27E	577938	3543284*	100	50	50

Average Depth to Water: **50 feet**

Minimum Depth: **50 feet**

Maximum Depth: **50 feet**

Record Count: 6

PLSS Search:

Township: 26S

Range: 27E

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

Appendix C

SAMPLE LOG

Client:	COG			
Site Name	Cluster State Com #001H			
Boring/Well:	BH-1			
GPS	32.03728, -104.21032			
Project #:	212C-MD-00605.07			
Total Depth	40'			
Date Installed:	9/14/2016			

[illegible]

SAMPLE LOG

Client:	COG			
Site Name	Cluster State Com #001H			
Boring/Well:	BH-2			
GPS	32.03741, -104.20970			
Project #:	212C-MD-00605.07			
Total Depth	30'			
Date Installed:	9/14/2016			

[illegible]

SAMPLE LOG

Client:	COG			
Site Name	Cluster State Com #001H			
Boring/Well:	BH-3			
GPS	32.03757, -104.20942			
Project #:	212C-MD-00605.07			
Total Depth	30'			
Date Installed:	9/14/2016			

[illegible]

SAMPLE LOG

Client:	COG			
Site Name	Cluster State Com #001H			
Boring/Well:	BH-4			
GPS	32.03770, -104.20879			
Project #:	212C-MD-00605.07			
Total Depth	15'			
Date Installed:	9/14/2016			

[illegible]

SAMPLE LOG

Client:	COG			
Site Name	Cluster State Com #001H			
Boring/Well:	BH-5			
GPS	32.03729, -104.20988			
Project #:	212C-MD-00605.07			
Total Depth	15'			
Date Installed:	9/14/2016			

[illegible]

SAMPLE LOG

Client:	COG			
Site Name	Cluster State Com #001H			
Boring/Well:	BH-6			
GPS	32.03745, -104.20844			
Project #:	212C-MD-00605.07			
Total Depth	15'			
Date Installed:	9/14/2016			

[illegible]

SAMPLE LOG

Client:	COG			
Site Name	Cluster State Com #001H			
Boring/Well:	BH-7			
GPS	32.03736, -104.20829			
Project #:	212C-MD-00605.07			
Total Depth	10'			
Date Installed:	9/15/2016			

[illegible]

SAMPLE LOG

Client:	COG			
Site Name	Cluster State Com #001H			
Boring/Well:	BH-8			
GPS	32.03768, -104.20845			
Project #:	212C-MD-00605.07			
Total Depth	10'			
Date Installed:	9/15/2016			

[illegible]

Appendix D

September 21, 2016

IKE TAVAREZ

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: CLUSTER STATE COM #1H

Enclosed are the results of analyses for samples received by the laboratory on 09/15/16 13:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. 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/ga/lab_accred_certif.html.

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

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

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

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:

COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210

Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONE

Reported:
21-Sep-16 09:19

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH-1 0-1'	H602073-01	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-1 2-3'	H602073-02	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-1 4-5'	H602073-03	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-1 6-7'	H602073-04	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-1 9-10'	H602073-05	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-1 14-15'	H602073-06	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-1 19-20'	H602073-07	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-1 24-25'	H602073-08	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-1 29-30'	H602073-09	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-1 39-40'	H602073-10	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-2 0-1'	H602073-11	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-2 2-3'	H602073-12	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-2 4-5'	H602073-13	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-2 6-7'	H602073-14	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-2 9-10'	H602073-15	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-2 14-15'	H602073-16	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-2 19-20'	H602073-17	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-2 24-25'	H602073-18	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-2 29-30'	H602073-19	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-3 0-1'	H602073-20	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-3 2-3'	H602073-21	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-3 4-5'	H602073-22	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-3 6-7'	H602073-23	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-3 9-10'	H602073-24	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-3 14-15'	H602073-25	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-3 19-20'	H602073-26	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-3 24-25'	H602073-27	Soil	14-Sep-16 00:00	15-Sep-16 13:00

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210

Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONE

Reported:
21-Sep-16 09:19

BH-3 29-30'	H602073-28	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-4 0-1'	H602073-29	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-4 2-3'	H602073-30	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-4 4-5'	H602073-31	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-4 6-7'	H602073-32	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-4 9-10'	H602073-33	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-4 14-15'	H602073-34	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-5 0-1'	H602073-35	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-5 2-3'	H602073-36	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-5 4-5'	H602073-37	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-5 6-7'	H602073-38	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-5 9-10'	H602073-39	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-5 14-15'	H602073-40	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-6 0-1'	H602073-41	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-6 2-3'	H602073-42	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-6 4-5'	H602073-43	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-6 6-7'	H602073-44	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-6 9-10'	H602073-45	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-6 14-15'	H602073-46	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-7 0-1'	H602073-47	Soil	15-Sep-16 00:00	15-Sep-16 13:00
BH-7 2-3'	H602073-48	Soil	15-Sep-16 00:00	15-Sep-16 13:00
BH-7 4-5'	H602073-49	Soil	15-Sep-16 00:00	15-Sep-16 13:00
BH-7 6-7'	H602073-50	Soil	15-Sep-16 00:00	15-Sep-16 13:00
BH-7 9-10'	H602073-51	Soil	15-Sep-16 00:00	15-Sep-16 13:00
BH-8 0-1'	H602073-52	Soil	15-Sep-16 00:00	15-Sep-16 13:00
BH-8 2-3'	H602073-53	Soil	15-Sep-16 00:00	15-Sep-16 13:00
BH-8 4-5'	H602073-54	Soil	15-Sep-16 00:00	15-Sep-16 13:00
BH-8 6-7'	H602073-55	Soil	15-Sep-16 00:00	15-Sep-16 13:00
BH-8 9-10'	H602073-56	Soil	15-Sep-16 00:00	15-Sep-16 13:00
AH-1 0-1'	H602073-57	Soil	15-Sep-16 00:00	15-Sep-16 13:00

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19

AH-1 1-1.5'	H602073-58	Soil	15-Sep-16 00:00	15-Sep-16 13:00
AH-1 2-2.5'	H602073-59	Soil	15-Sep-16 00:00	15-Sep-16 13:00
AH-1 3-3.5'	H602073-60	Soil	15-Sep-16 00:00	15-Sep-16 13:00
AH-1 4-4.5'	H602073-61	Soil	15-Sep-16 00:00	15-Sep-16 13:00

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210

Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONE

Reported:
21-Sep-16 09:19

BH-1 0-1' H602073-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	30800	16.0	mg/kg	4	6091507	AC	16-Sep-16	4500-Cl-B
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B
Toluene*	<0.050	0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B
Ethylbenzene*	<0.050	0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B
Total Xylenes*	<0.150	0.150	mg/kg	50	6091601	MS	16-Sep-16	8021B
Total BTEX	<0.300	0.300	mg/kg	50	6091601	MS	16-Sep-16	8021B

Surrogate: 4-Bromofluorobenzene (PID)	98.1 %	73.6-140	6091601	MS	16-Sep-16	8021B
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Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0	10.0	mg/kg	1	6091504	MS	16-Sep-16	8015B
DRO >C10-C28	<10.0	10.0	mg/kg	1	6091504	MS	16-Sep-16	8015B

Surrogate: 1-Chlorooctane	35.0 %	35-147	6091504	MS	16-Sep-16	8015B
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Surrogate: 1-Chlorooctadecane	34.9 %	28-171	6091504	MS	16-Sep-16	8015B
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-1 2-3'**
H602073-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	17600		16.0	mg/kg	4	6091507	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-1 4-5'**
H602073-03 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	2560		16.0	mg/kg	4	6091507	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-1 6-7'**
H602073-04 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	544		16.0	mg/kg	4	6091507	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-1 9-10'**
H602073-05 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	80.0		16.0	mg/kg	4	6091507	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-1 14-15'**
H602073-06 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	48.0		16.0	mg/kg	4	6091507	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-1 19-20'**
H602073-07 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	192		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-1 24-25'**
H602073-08 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	144		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-1 29-30'**
H602073-09 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	96.0		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
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Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-1 39-40'**
H602073-10 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	128		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
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Analytical Results For:

COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210

Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONE

Reported:
21-Sep-16 09:19

BH-2 0-1' H602073-11 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	24400		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6091601	MS	16-Sep-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 99.8 % 73.6-140 6091601 MS 16-Sep-16 8021B

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6091504	MS	16-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6091504	MS	16-Sep-16	8015B	

Surrogate: 1-Chlorooctane 89.8 % 35-147 6091504 MS 16-Sep-16 8015B

Surrogate: 1-Chlorooctadecane 98.2 % 28-171 6091504 MS 16-Sep-16 8015B

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Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-2 2-3'**
H602073-12 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	22800		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
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P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-2 4-5'**
H602073-13 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	8130		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
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Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-2 6-7'**
H602073-14 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	2560		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
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Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-2 9-10'**
H602073-15 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	672		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
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Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-2 14-15'**
H602073-16 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	432		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
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Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-2 19-20'**
H602073-17 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	320		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
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Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-2 24-25'**
H602073-18 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	272		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
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Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-2 29-30'**
H602073-19 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	144		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
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Analytical Results For:

COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210

Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONE

Reported:
21-Sep-16 09:19

BH-3 0-1' H602073-20 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	9060	16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B
Toluene*	<0.050	0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B
Ethylbenzene*	<0.050	0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B
Total Xylenes*	<0.150	0.150	mg/kg	50	6091601	MS	16-Sep-16	8021B
Total BTEX	<0.300	0.300	mg/kg	50	6091601	MS	16-Sep-16	8021B
Surrogate: 4-Bromofluorobenzene (PID)	99.9 %	73.6-140	6091601	MS	16-Sep-16	8021B		

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0	10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B
DRO >C10-C28	<10.0	10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B
Surrogate: 1-Chlorooctane	91.9 %	35-147	6091901	MS	19-Sep-16	8015B		
Surrogate: 1-Chlorooctadecane	109 %	28-171	6091901	MS	19-Sep-16	8015B		

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Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-3 2-3'**
H602073-21 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	7730		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
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Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-3 4-5'**
H602073-22 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	832		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
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Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-3 6-7'**
H602073-23 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	880		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
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Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-3 9-10'**
H602073-24 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	352		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-3 14-15'**
H602073-25 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	528		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-3 19-20'**
H602073-26 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	624		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-3 24-25'**
H602073-27 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	288		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-3 29-30'**
H602073-28 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	128		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210

Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONE

Reported:
21-Sep-16 09:19

BH-4 0-1' H602073-29 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	13600		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6091601	MS	16-Sep-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			98.0 %		73.6-140	6091601	MS	16-Sep-16	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	

Surrogate: 1-Chlorooctane			85.5 %		35-147	6091901	MS	19-Sep-16	8015B	
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Surrogate: 1-Chlorooctadecane			103 %		28-171	6091901	MS	19-Sep-16	8015B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-4 2-3'**
H602073-30 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	12000		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 COG OPERATING
 P. O. BOX 1630
 ARTESIA NM, 88210

 Project: CLUSTER STATE COM #1H
 Project Number: 212C-MO-00605
 Project Manager: IKE TAVAREZ
 Fax To: NONE

 Reported:
 21-Sep-16 09:19

BH-4 4-5'
H602073-31 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories
Inorganic Compounds

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Chloride	176		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-4 6-7'**
H602073-32 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	160		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-4 9-10'**
H602073-33 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	288		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-4 14-15'**
H602073-34 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	576		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210

Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONE

Reported:
21-Sep-16 09:19

BH-5 0-1' H602073-35 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	48.0		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6091601	MS	16-Sep-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 98.8 % 73.6-140 6091601 MS 16-Sep-16 8021B

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	

Surrogate: 1-Chlorooctane 89.1 % 35-147 6091901 MS 19-Sep-16 8015B

Surrogate: 1-Chlorooctadecane 106 % 28-171 6091901 MS 19-Sep-16 8015B

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Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-5 2-3'**
H602073-36 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	288		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-5 4-5'**
H602073-37 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	48.0		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
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Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-5 6-7'**
H602073-38 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	144		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-5 9-10'**
H602073-39 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	96.0		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-5 14-15'**
H602073-40 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	48.0		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210

Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONE

Reported:
21-Sep-16 09:19

BH-6 0-1' H602073-41 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	<16.0		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6091601	MS	16-Sep-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			98.3 %		73.6-140	6091601	MS	16-Sep-16	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	

Surrogate: 1-Chlorooctane			80.3 %		35-147	6091901	MS	19-Sep-16	8015B	
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Surrogate: 1-Chlorooctadecane			88.3 %		28-171	6091901	MS	19-Sep-16	8015B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-6 2-3'**
H602073-42 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	48.0		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-6 4-5'**
H602073-43 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	48.0		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-6 6-7'**
H602073-44 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	<16.0		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-6 9-10'**
H602073-45 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	<16.0		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-6 14-15'**
H602073-46 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	48.0		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210

Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONE

Reported:
21-Sep-16 09:19

BH-7 0-1' H602073-47 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	64.0		16.0	mg/kg	4	6091607	AC	16-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6091906	MS	20-Sep-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			99.4 %	73.6-140		6091906	MS	20-Sep-16	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	

Surrogate: 1-Chlorooctane			93.4 %	35-147		6091901	MS	19-Sep-16	8015B	
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Surrogate: 1-Chlorooctadecane			113 %	28-171		6091901	MS	19-Sep-16	8015B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-7 2-3'**
H602073-48 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	64.0		16.0	mg/kg	4	6091607	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-7 4-5'**
H602073-49 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	32.0		16.0	mg/kg	4	6091607	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-7 6-7'**
H602073-50 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	32.0		16.0	mg/kg	4	6091607	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-7 9-10'**
H602073-51 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	48.0		16.0	mg/kg	4	6091607	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210

Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONE

Reported:
21-Sep-16 09:19

BH-8 0-1' H602073-52 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	<16.0		16.0	mg/kg	4	6091607	AC	16-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			99.6 %	73.6-140		6091906	MS	20-Sep-16	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	
DRO >C10-C28	23.8		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	
Surrogate: 1-Chlorooctane			78.1 %	35-147		6091901	MS	19-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			89.4 %	28-171		6091901	MS	19-Sep-16	8015B	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-8 2-3'**
H602073-53 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	<16.0		16.0	mg/kg	4	6091607	AC	16-Sep-16	4500-Cl-B	
----------	-------	--	------	-------	---	---------	----	-----------	-----------	--

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-8 4-5'**
H602073-54 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	32.0		16.0	mg/kg	4	6091607	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-8 6-7'**
H602073-55 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	176		16.0	mg/kg	4	6091607	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**BH-8 9-10'**
H602073-56 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	80.0		16.0	mg/kg	4	6091607	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210

Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONE

Reported:
21-Sep-16 09:19

AH-1 0-1' H602073-57 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	928		16.0	mg/kg	4	6091607	AC	16-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6091906	MS	20-Sep-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 99.5 % 73.6-140 6091906 MS 20-Sep-16 8021B

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	

Surrogate: 1-Chlorooctane 88.2 % 35-147 6091901 MS 19-Sep-16 8015B

Surrogate: 1-Chlorooctadecane 103 % 28-171 6091901 MS 19-Sep-16 8015B

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**AH-1 1-1.5'**
H602073-58 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	11600		16.0	mg/kg	4	6091607	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**AH-1 2-2.5'**
H602073-59 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	12000		16.0	mg/kg	4	6091607	AC	16-Sep-16	4500-Cl-B	
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Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**AH-1 3-3.5'**
H602073-60 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	15200		16.0	mg/kg	4	6091607	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONEReported:
21-Sep-16 09:19**AH-1 4-4.5'**
H602073-61 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	3680		16.0	mg/kg	4	6091607	AC	16-Sep-16	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210

Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONE

Reported:
21-Sep-16 09:19

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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Batch 6091507 - 1:4 DI Water

Blank (6091507-BLK1)

Prepared & Analyzed: 15-Sep-16

Chloride	ND	16.0	mg/kg
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LCS (6091507-BS1)

Prepared & Analyzed: 15-Sep-16

Chloride	432	16.0	mg/kg	400	108	80-120
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LCS Dup (6091507-BSD1)

Prepared & Analyzed: 15-Sep-16

Chloride	432	16.0	mg/kg	400	108	80-120	0.00	20
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Duplicate (6091507-DUP1)

Source: H602070-04

Prepared & Analyzed: 15-Sep-16

Chloride	352	16.0	mg/kg	352	0.00	20
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Matrix Spike (6091507-MS1)

Source: H602070-04

Prepared & Analyzed: 15-Sep-16

Chloride	800	16.0	mg/kg	400	352	112	80-120
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Batch 6091605 - 1:4 DI Water

Blank (6091605-BLK1)

Prepared & Analyzed: 16-Sep-16

Chloride	ND	16.0	mg/kg
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LCS (6091605-BS1)

Prepared & Analyzed: 16-Sep-16

Chloride	432	16.0	mg/kg	400	108	80-120
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LCS Dup (6091605-BSD1)

Prepared & Analyzed: 16-Sep-16

Chloride	432	16.0	mg/kg	400	108	80-120	0.00	20
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Duplicate (6091605-DUP1)

Source: H602073-07

Prepared & Analyzed: 16-Sep-16

Chloride	224	16.0	mg/kg	192	15.4	20
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210

Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONE

Reported:
21-Sep-16 09:19

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 6091605 - 1:4 DI Water

Matrix Spike (6091605-MS1)	Source: H602073-07			Prepared & Analyzed: 16-Sep-16						
Chloride	624	16.0	mg/kg	400	192	108	80-120			

Batch 6091606 - 1:4 DI Water

Blank (6091606-BLK1)				Prepared & Analyzed: 16-Sep-16						
Chloride	ND	16.0	mg/kg							

LCS (6091606-BS1)				Prepared & Analyzed: 16-Sep-16						
Chloride	432	16.0	mg/kg	400		108	80-120			

LCS Dup (6091606-BSD1)				Prepared & Analyzed: 16-Sep-16						
Chloride	432	16.0	mg/kg	400		108	80-120	0.00	20	

Duplicate (6091606-DUP1)	Source: H602073-28			Prepared & Analyzed: 16-Sep-16						
Chloride	144	16.0	mg/kg		128			11.8	20	

Matrix Spike (6091606-MS1)	Source: H602073-28			Prepared & Analyzed: 16-Sep-16						
Chloride	576	16.0	mg/kg	400	128	112	80-120			

Batch 6091607 - 1:4 DI Water

Blank (6091607-BLK1)				Prepared & Analyzed: 16-Sep-16						
Chloride	ND	16.0	mg/kg							

LCS (6091607-BS1)				Prepared & Analyzed: 16-Sep-16						
Chloride	416	16.0	mg/kg	400		104	80-120			

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 COG OPERATING
 P. O. BOX 1630
 ARTESIA NM, 88210

 Project: CLUSTER STATE COM #1H
 Project Number: 212C-MO-00605
 Project Manager: IKE TAVAREZ
 Fax To: NONE

 Reported:
 21-Sep-16 09:19

Inorganic Compounds - Quality Control
Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 6091607 - 1:4 DI Water
LCS Dup (6091607-BSD1)

Prepared & Analyzed: 16-Sep-16

Chloride	416	16.0	mg/kg	400	104	80-120	0.00	20
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Duplicate (6091607-DUP1)

Source: H602073-48

Prepared & Analyzed: 16-Sep-16

Chloride	64.0	16.0	mg/kg	64.0	0.00	20
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Matrix Spike (6091607-MS1)

Source: H602073-48

Prepared & Analyzed: 16-Sep-16

Chloride	480	16.0	mg/kg	400	64.0	104	80-120
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210

Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONE

Reported:
21-Sep-16 09:19

Volatile Organic Compounds by EPA Method 8021 - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 6091601 - Volatiles

Blank (6091601-BLK1)

Prepared & Analyzed: 16-Sep-16

Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	ND		mg/kg	0.0500		98.6	73.6-140			

LCS (6091601-BS1)

Prepared & Analyzed: 16-Sep-16

Benzene	2.17	0.050	mg/kg	2.00		109	82.6-122			
Toluene	2.22	0.050	mg/kg	2.00		111	72.9-122			
Ethylbenzene	2.13	0.050	mg/kg	2.00		106	65.4-131			
Total Xylenes	6.39	0.150	mg/kg	6.00		107	73.8-125			
Surrogate: 4-Bromofluorobenzene (PID)	0.0495		mg/kg	0.0500		99.1	73.6-140			

LCS Dup (6091601-BSD1)

Prepared & Analyzed: 16-Sep-16

Benzene	2.21	0.050	mg/kg	2.00		110	82.6-122	1.46	8.23	
Toluene	2.25	0.050	mg/kg	2.00		112	72.9-122	1.09	8.71	
Ethylbenzene	2.15	0.050	mg/kg	2.00		107	65.4-131	1.02	9.46	
Total Xylenes	6.45	0.150	mg/kg	6.00		107	73.8-125	0.838	8.66	
Surrogate: 4-Bromofluorobenzene (PID)	0.0488		mg/kg	0.0500		97.6	73.6-140			

Matrix Spike (6091601-MS1)

Source: H602075-01

Prepared & Analyzed: 16-Sep-16

Benzene	2.05	0.050	mg/kg	2.00	0.006	102	66.7-126			
Toluene	2.11	0.050	mg/kg	2.00	0.037	103	58.1-125			
Ethylbenzene	2.04	0.050	mg/kg	2.00	0.041	99.7	45.6-142			
Total Xylenes	6.09	0.150	mg/kg	6.00	0.022	101	52-138			
Surrogate: 4-Bromofluorobenzene (PID)	0.0502		mg/kg	0.0500		100	73.6-140			

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210

Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONE

Reported:
21-Sep-16 09:19

Volatile Organic Compounds by EPA Method 8021 - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 6091601 - Volatiles

Matrix Spike Dup (6091601-MSD1)		Source: H602075-01			Prepared & Analyzed: 16-Sep-16					
Benzene	2.06	0.050	mg/kg	2.00	0.006	103	66.7-126	0.594	12.2	
Toluene	2.12	0.050	mg/kg	2.00	0.037	104	58.1-125	0.694	18.1	
Ethylbenzene	2.05	0.050	mg/kg	2.00	0.041	100	45.6-142	0.687	33.4	
Total Xylenes	6.12	0.150	mg/kg	6.00	0.022	102	52-138	0.604	36.2	
Surrogate: 4-Bromofluorobenzene (PID)	0.0493		mg/kg	0.0500		98.6	73.6-140			

Batch 6091906 - Volatiles

Blank (6091906-BLK1)		Prepared: 19-Sep-16 Analyzed: 20-Sep-16								
Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	ND		mg/kg	0.0500		99.7	73.6-140			

LCS (6091906-BS1)		Prepared: 19-Sep-16 Analyzed: 20-Sep-16								
Benzene	1.95	0.050	mg/kg	2.00		97.5	82.6-122			
Toluene	1.98	0.050	mg/kg	2.00		99.1	72.9-122			
Ethylbenzene	1.89	0.050	mg/kg	2.00		94.6	65.4-131			
Total Xylenes	5.67	0.150	mg/kg	6.00		94.6	73.8-125			
Surrogate: 4-Bromofluorobenzene (PID)	0.0497		mg/kg	0.0500		99.4	73.6-140			

LCS Dup (6091906-BSD1)		Prepared: 19-Sep-16 Analyzed: 20-Sep-16								
Benzene	2.05	0.050	mg/kg	2.00		102	82.6-122	4.78	8.23	
Toluene	2.08	0.050	mg/kg	2.00		104	72.9-122	5.01	8.71	
Ethylbenzene	1.99	0.050	mg/kg	2.00		99.6	65.4-131	5.15	9.46	
Total Xylenes	5.97	0.150	mg/kg	6.00		99.4	73.8-125	5.01	8.66	
Surrogate: 4-Bromofluorobenzene (PID)	0.0493		mg/kg	0.0500		98.6	73.6-140			

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210

Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONE

Reported:
21-Sep-16 09:19

Volatile Organic Compounds by EPA Method 8021 - Quality Control
Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch 6091906 - Volatiles

Matrix Spike (6091906-MS1)		Source: H602073-47			Prepared: 19-Sep-16 Analyzed: 20-Sep-16					
Benzene	2.18	0.050	mg/kg	2.00	ND	109	66.7-126			
Toluene	2.21	0.050	mg/kg	2.00	0.010	110	58.1-125			
Ethylbenzene	2.13	0.050	mg/kg	2.00	0.012	106	45.6-142			
Total Xylenes	6.45	0.150	mg/kg	6.00	0.017	107	52-138			
Surrogate: 4-Bromofluorobenzene (PID)	0.0504		mg/kg	0.0500		101	73.6-140			
Matrix Spike Dup (6091906-MSD1)		Source: H602073-47			Prepared: 19-Sep-16 Analyzed: 20-Sep-16					
Benzene	2.17	0.050	mg/kg	2.00	ND	109	66.7-126	0.0729	12.2	
Toluene	2.21	0.050	mg/kg	2.00	0.010	110	58.1-125	0.187	18.1	
Ethylbenzene	2.13	0.050	mg/kg	2.00	0.012	106	45.6-142	0.272	33.4	
Total Xylenes	6.45	0.150	mg/kg	6.00	0.017	107	52-138	0.0453	36.2	
Surrogate: 4-Bromofluorobenzene (PID)	0.0507		mg/kg	0.0500		101	73.6-140			

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210

Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONE

Reported:
21-Sep-16 09:19

Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 6091504 - General Prep - Organics

Blank (6091504-BLK1)

Prepared: 15-Sep-16 Analyzed: 16-Sep-16

GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	48.3		mg/kg	50.0		96.7	35-147			
Surrogate: 1-Chlorooctadecane	54.2		mg/kg	50.0		108	28-171			

LCS (6091504-BS1)

Prepared: 15-Sep-16 Analyzed: 16-Sep-16

GRO C6-C10	182	10.0	mg/kg	200		91.0	76.7-115			
DRO >C10-C28	192	10.0	mg/kg	200		95.8	78.3-122			
Total TPH C6-C28	374	10.0	mg/kg	400		93.4	79.8-117			
Surrogate: 1-Chlorooctane	52.8		mg/kg	50.0		106	35-147			
Surrogate: 1-Chlorooctadecane	53.3		mg/kg	50.0		107	28-171			

LCS Dup (6091504-BSD1)

Prepared: 15-Sep-16 Analyzed: 16-Sep-16

GRO C6-C10	192	10.0	mg/kg	200		96.0	76.7-115	5.31	9.42	
DRO >C10-C28	207	10.0	mg/kg	200		104	78.3-122	7.89	13.2	
Total TPH C6-C28	399	10.0	mg/kg	400		99.8	79.8-117	6.64	10.7	
Surrogate: 1-Chlorooctane	55.9		mg/kg	50.0		112	35-147			
Surrogate: 1-Chlorooctadecane	57.0		mg/kg	50.0		114	28-171			

Matrix Spike (6091504-MS1)

Source: H602055-04

Prepared: 15-Sep-16 Analyzed: 16-Sep-16

GRO C6-C10	170	50.0	mg/kg	200	25.0	72.3	66.4-123			
DRO >C10-C28	4540	50.0	mg/kg	200	4710	NR	67.6-126			QM-07
Total TPH C6-C28	4710	50.0	mg/kg	400	4730	NR	60.8-134			QM-07
Surrogate: 1-Chlorooctane	49.0		mg/kg	50.0		98.0	35-147			
Surrogate: 1-Chlorooctadecane	95.1		mg/kg	50.0		190	28-171			S-06

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210

Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONE

Reported:
21-Sep-16 09:19

Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 6091504 - General Prep - Organics

Matrix Spike Dup (6091504-MSD1)		Source: H602055-04			Prepared: 15-Sep-16 Analyzed: 16-Sep-16					
GRO C6-C10	127	50.0	mg/kg	200	25.0	51.1	66.4-123	34.3	10.2	QM-07, QR-03
DRO >C10-C28	4760	50.0	mg/kg	200	4710	25.1	67.6-126	NR	11.6	QM-07
Total TPH C6-C28	4890	50.0	mg/kg	400	4730	38.1	60.8-134	NR	9.02	QM-07, QR-03
Surrogate: 1-Chlorooctane	50.9		mg/kg	50.0		102	35-147			
Surrogate: 1-Chlorooctadecane	94.4		mg/kg	50.0		189	28-171			S-06

Batch 6091901 - General Prep - Organics

Blank (6091901-BLK1)		Prepared & Analyzed: 19-Sep-16								
GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	49.0		mg/kg	50.0		98.0	35-147			
Surrogate: 1-Chlorooctadecane	53.2		mg/kg	50.0		106	28-171			

LCS (6091901-BS1)		Prepared & Analyzed: 19-Sep-16								
GRO C6-C10	202	10.0	mg/kg	200		101	76.7-115			
DRO >C10-C28	211	10.0	mg/kg	200		106	78.3-122			
Total TPH C6-C28	413	10.0	mg/kg	400		103	79.8-117			
Surrogate: 1-Chlorooctane	50.9		mg/kg	50.0		102	35-147			
Surrogate: 1-Chlorooctadecane	55.3		mg/kg	50.0		111	28-171			

LCS Dup (6091901-BSD1)		Prepared & Analyzed: 19-Sep-16								
GRO C6-C10	208	10.0	mg/kg	200		104	76.7-115	2.97	9.42	
DRO >C10-C28	216	10.0	mg/kg	200		108	78.3-122	2.27	13.2	
Total TPH C6-C28	424	10.0	mg/kg	400		106	79.8-117	2.61	10.7	
Surrogate: 1-Chlorooctane	51.7		mg/kg	50.0		103	35-147			
Surrogate: 1-Chlorooctadecane	56.9		mg/kg	50.0		114	28-171			

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Celey D. Keene, Lab Director/Quality Manager

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COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210

Project: CLUSTER STATE COM #1H
Project Number: 212C-MO-00605
Project Manager: IKE TAVAREZ
Fax To: NONE

Reported:
21-Sep-16 09:19

Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch 6091901 - General Prep - Organics

Matrix Spike (6091901-MS1)		Source: H602073-20			Prepared & Analyzed: 19-Sep-16					
GRO C6-C10	173	10.0	mg/kg	200	ND	86.4	66.4-123			
DRO >C10-C28	188	10.0	mg/kg	200	3.73	92.4	67.6-126			
Total TPH C6-C28	361	10.0	mg/kg	400	5.32	89.0	60.8-134			
Surrogate: 1-Chlorooctane	47.1		mg/kg	50.0		94.2	35-147			
Surrogate: 1-Chlorooctadecane	52.4		mg/kg	50.0		105	28-171			
Matrix Spike Dup (6091901-MSD1)		Source: H602073-20			Prepared & Analyzed: 19-Sep-16					
GRO C6-C10	162	10.0	mg/kg	200	ND	81.0	66.4-123	6.41	10.2	
DRO >C10-C28	173	10.0	mg/kg	200	3.73	84.5	67.6-126	8.82	11.6	
Total TPH C6-C28	335	10.0	mg/kg	400	5.32	82.4	60.8-134	7.69	9.02	
Surrogate: 1-Chlorooctane	43.2		mg/kg	50.0		86.5	35-147			
Surrogate: 1-Chlorooctadecane	47.8		mg/kg	50.0		95.5	28-171			

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside if QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
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

PAGE: 4 OF: 7

ANALYSIS REQUEST
(Circle or Specify Method No.)



TETRA TECH

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

H602073

CLIENT NAME:

SITE MANAGER:

PROJECT NO.:

PROJECT NAME:

212C-MD-100605

Cluster State Com #14

LAB I.D. NUMBER

DATE TIME

MATRIX

COMP.

GRAB

SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS

FILTERED (Y/N)

HCL

HNO3

ICE

NONE

PRESERVATIVE METHOD

BTEX 8021B

TPH 8015 MOD. TX1005 (Ext. to C35)

PAH 8270

RCRA 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. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

31

9/14

5

X

BH-4

4-5

32

33

34

35

36

37

38

39

40

RECEIVING LABORATORY

ADDRESS:

CITY:

STATE:

ZIP:

PHONE:

DATE:

TIME:

RECEIVED BY: (Signature)

RECEIVED BY: (Signature)

RECEIVED BY: (Signature)

RECEIVED BY: (Signature)

RECEIVED BY: (Signature)

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RECEIVED BY: (Signature)

RECEIVED BY: (Signature)

RECEIVED BY: (Signature)

RECEIVED BY: (Signature)

RECEIVED BY: (Signature)

SAMPLE CONDITION WHEN RECEIVED

2.38 #74

REMARKS:

PAGE: 6 OF: 7



(432) 682-4559 • Fax (432) 682-3946

SITE MANAGER:

PROJECT NAME:

Ike Tayaot

PROJECT NAME: Clusket State Com #14

MATRIX
COMP.
GRAB

SAMPLE IDENTIFICATION

☐ NONE

Major Anions/Cations, pH, TDS

PRESERVATIVE METHOD

CAMPI EN BY (B-2) & Division

SAMPLED BY: (Print & Initial)

SAMPLE SHIPPED BY: (Circle)

HAND DELIVERED	UPS
----------------	-----

1

Corona

[illegible]

72#

[illegible]

No

Page 81 of 82

Analysis Request of Chain of Custody Record



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

CLIENT NAME: H602073

PROJECT NO.: CCG

SITE MANAGER: Iko Tavaroz

PROJECT NAME: 22C-MD-0005

Cluster State Com #114

LAB I.D. NUMBER

DATE 2016

TIME

MATRIX

COMP.

GRAB

SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS

FILTERED (Y/N)

HCL

HNO3

ICE

NONE

PRESERVATIVE METHOD

BTEX 8021B

TPH 8015 MOD. TX1005 (Ext. to C35)

PAH 8270

RCRA 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. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

PAGE: 7 OF: 7
ANALYSIS REQUEST
(Circle or Specify Method No.)

RELINQUISHED BY: (Signature) <i>Don Sura</i>	Date: 9/15/16 Time: 1:00	RECEIVED BY: (Signature) <i>John Thurston</i>	Date: 9/15/16 Time: 11:00	SAMPLE BY: (Print & Initial) <i>TS</i>	Date: 9/15/16 Time: 11:00
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:	Results by: _____
RECEIVING LABORATORY:	STATE: _____	ZIP: _____	DATE: _____	TIME: _____	RUSH Charges Authorized: Yes No
CITY: _____	PHONE: _____				
CONTACT: _____					
SAMPLE CONDITION WHEN RECEIVED:	REMARKS:				

Analytical Report 537439

**for
Tetra Tech- Midland**

Project Manager: Ike Tavaréz

Cluster State Com #1 H

212c-MD-00605.07

30-SEP-16

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)
Xenco-San Antonio: Texas (T104704534)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

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Sample Receipt Conformance Report	12



30-SEP-16

Project Manager: **Ike Tavaréz**
Tetra Tech- Midland
4000 N. Big Spring Suite 401
Midland, TX 79705

Reference: XENCO Report No(s): **537439**
Cluster State Com #1 H
Project Address: Eddy Co NM

Ike Tavaréz:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 537439. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 537439 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Kelsey Brooks

Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Odessa - San Antonio - Tampa - Lakeland - Atlanta - Phoenix - Oklahoma - Latin America



Sample Cross Reference 537439



Tetra Tech- Midland, Midland, TX

Cluster State Com #1 H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH-1	S	09-22-16 00:00	0 - 1	537439-001
AH-1	S	09-22-16 00:00	1 - 1.5	537439-002
AH-1	S	09-22-16 00:00	2 - 2.5	537439-003
AH-1	S	09-22-16 00:00	3 - 3.5	537439-004
AH-1	S	09-22-16 00:00	4 - 4.5	537439-005
AH-1	S	09-22-16 00:00	5 - 5.5	537439-006
AH-1	S	09-22-16 00:00	6 - 6.5	537439-007
AH-1	S	09-22-16 00:00	7 - 7.5	537439-008



CASE NARRATIVE



Client Name: Tetra Tech- Midland

Project Name: Cluster State Com #1 H

Project ID: 212c-MD-00605.07
Work Order Number(s): 537439

Report Date: 30-SEP-16
Date Received: 09/23/2016

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analysis Summary 537439

Tetra Tech- Midland, Midland, TX

Project Name: Cluster State Com #1 H



Project Id: 212c-MD-00605.07

Contact: Ike Tavaréz

Project Location: Eddy Co NM

Date Received in Lab: Fri Sep-23-16 11:55 am

Report Date: 30-SEP-16

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	537439-001	537439-002	537439-003	537439-004	537439-005	537439-006
	<i>Field Id:</i>	AH-1	AH-1	AH-1	AH-1	AH-1	AH-1
	<i>Depth:</i>	0-1	1-1.5	2-2.5	3-3.5	4-4.5	5-5.5
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Sep-22-16 00:00	Sep-22-16 00:00	Sep-22-16 00:00	Sep-22-16 00:00	Sep-22-16 00:00	Sep-22-16 00:00
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	Sep-30-16 09:00	Sep-30-16 09:00	Sep-30-16 09:00	Sep-30-16 09:00	Sep-30-16 09:00	Sep-30-16 09:00
	<i>Analyzed:</i>	Sep-30-16 11:19	Sep-30-16 11:40	Sep-30-16 11:47	Sep-30-16 11:54	Sep-30-16 12:01	Sep-30-16 12:22
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		4120 50.0	9480 100	10800 100	12600 250	3040 50.0	665 50.0

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Kelsey Brooks
Project Manager



Certificate of Analysis Summary 537439

Tetra Tech- Midland, Midland, TX

Project Name: Cluster State Com #1 H



Project Id: 212c-MD-00605.07

Contact: Ike Tavaréz

Project Location: Eddy Co NM

Date Received in Lab: Fri Sep-23-16 11:55 am

Report Date: 30-SEP-16

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	537439-007	537439-008				
	Field Id:	AH-1	AH-1				
	Depth:	6-6.5	7-7.5				
	Matrix:	SOIL	SOIL				
	Sampled:	Sep-22-16 00:00	Sep-22-16 00:00				
Inorganic Anions by EPA 300/300.1	Extracted:	Sep-30-16 09:00	Sep-30-16 09:00				
	Analyzed:	Sep-30-16 12:29	Sep-30-16 12:36				
	Units/RL:	mg/kg RL	mg/kg RL				
Chloride		373 50.0	37.8 5.00				

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use.
The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories.
XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented.
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Kelsey Brooks
Project Manager

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **SQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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(602) 437-0330	



BS / BSD Recoveries



Project Name: Cluster State Com #1 H

Work Order #: 537439

Project ID: 212c-MD-00605.07

Analyst: MNR

Date Prepared: 09/30/2016

Date Analyzed: 09/30/2016

Lab Batch ID: 3001120

Sample: 714399-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<5.00	250	233	93	250	234	94	0	90-110	20	

Relative Percent Difference RPD = $200 * |(C-F)/(C+F)|$

Blank Spike Recovery [D] = $100 * (C)/[B]$

Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries



Project Name: Cluster State Com #1 H

Work Order # : 537439

Project ID: 212c-MD-00605.07

Lab Batch ID: 3001120

QC- Sample ID: 536657-006 S

Batch #: 1 Matrix: Soil

Date Analyzed: 09/30/2016

Date Prepared: 09/30/2016

Analyst: MNR

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	920	250	1160	96	250	1150	92	1	90-110	20	

Lab Batch ID: 3001120

QC- Sample ID: 537439-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 09/30/2016

Date Prepared: 09/30/2016

Analyst: MNR

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	4120	2500	6760	106	2500	6650	101	2	90-110	20	

Matrix Spike Percent Recovery $[D] = 100 * (C - A) / B$
Relative Percent Difference $RPD = 200 * |(C - F) / (C + F)|$

Matrix Spike Duplicate Percent Recovery $[G] = 100 * (F - A) / E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: Tetra Tech- Midland

Date/ Time Received: 09/23/2016 11:55:00 AM

Work Order #: 537439

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	2.3
#2 *Shipping container in good condition?	N/A
#3 *Samples received on ice?	Yes
#4 *Custody Seal present on shipping container/ cooler?	N/A
#5 *Custody Seals intact on shipping container/ cooler?	N/A
#6 Custody Seals intact on sample bottles?	N/A
#7 *Custody Seals Signed and dated?	N/A
#8 *Chain of Custody present?	Yes
#9 Sample instructions complete on Chain of Custody?	Yes
#10 Any missing/extra samples?	No
#11 Chain of Custody signed when relinquished/ received?	Yes
#12 Chain of Custody agrees with sample label(s)?	Yes
#13 Container label(s) legible and intact?	Yes
#14 Sample matrix/ properties agree with Chain of Custody?	Yes
#15 Samples in proper container/ bottle?	Yes
#16 Samples properly preserved?	Yes
#17 Sample container(s) intact?	Yes
#18 Sufficient sample amount for indicated test(s)?	Yes
#19 All samples received within hold time?	Yes
#20 Subcontract of sample(s)?	N/A
#21 VOC samples have zero headspace (less than 1/4 inch bubble)?	N/A
#22 <2 for all samples preserved with HNO ₃ , HCL, H ₂ SO ₄ ? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	N/A
#23 >10 for all samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH?	N/A

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by:

Jessica Kramer

Jessica Kramer

Date: 09/23/2016

Checklist reviewed by:

Kelsey Brooks

Kelsey Brooks

Date: 09/23/2016