



Remediation Summary & Closure Request

Property:
Concho Operating, LLC.
COI Empire South Unit #015
Eddy County, New Mexico
Unit Letter "E", Section 08, Township 18 South, Range 29 East
Latitude 32.7637024, Longitude -104.103363
2RP-3894

September 2017

Prepared for:

Concho Operating, LLC.
600 West Illinois Avenue
Midland, TX 79701
Attn: **Mrs. Rebecca Haskell**

Prepared by:

Ryan Reich
Environmental Project Manager

Thomas Franklin
Environmental Manager

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Remediation Summary & Closure Request

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Lea County, New Mexico
Unit Letter "E", Section 08, Township 18 South, Range 29 East
Latitude 32.7637024, Longitude -104.103363
2RP-3894**

September 2017

1.0 INTRODUCTION

1.1 Site Description & Background

American Safety Services Inc. (ASSI) has prepared this Closure Request for the Concho Operating, LLC. (COG) COI Empire South Unit #015. This Closure request is based upon the interpretation of the data collected by ASSI.

The COI Empire South Unit #015 (referred to hereinafter as the "Site" or "subject Site") is located in Unit Letter "E", Section 8, Township 18 South, Range 29 East, Eddy County, New Mexico (GPS 32.7637024N, -104.103363W).

Remedial actions were conducted by ASSI in accordance with New Mexico Energy, Minerals, and Natural Resources Department (EMNRD), Oil Conservation Division (NMOCD) rules (*NMAC 19.15.29 Release Notification*) and the NMOCD *Guidelines for Remediation of Leaks, Spills and Releases* as guidance.

1.2 Project Objective

The objective of the Closure Request is to present documentation of the activities that were performed to date and to request an effective means to close the Site.

1.3 Standard of Care

ASSI's services are performed in accordance with standards provided by a firm rendering the same or similar services in the area during the same time period. ASSI makes no warranties, express or implied, as to the services performed hereunder. Additionally, ASSI does not warranty the work of third parties supplying information used in the report (e.g. laboratories, regulatory agencies, or other third parties). This scope of services will be performed in accordance with the scope of work agreed with the client.

1.4 Reliance

This report has been prepared for the exclusive use of COG, and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the Site) is prohibited without the express written authorization of COG and ASSI. Any unauthorized distribution or reuse is at the sole risk of COG. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions and limitations stated in the proposal, the report, and ASSI's Agreement. The limitation of liability defined in the agreement is the aggregate limit of ASSI's liability to the client.

2.0 SITE RANKING & PROPOSED REMEDIAL ACTION GOALS

The Site is subject to regulatory oversight by the NMOCD. To address activities related to releases, the NMOCD utilizes the *Guidelines for Remediation of Leaks, Spills and Releases* as guidance, in addition to the NMOCD rules, specifically NMAC 19.15.29 *Release Notification*. These documents establish investigation and abatement action requirements for sites subject to reporting and/or corrective action.

In accordance with the NMOCD's *Guidelines for Remediation of Leaks, Spills and Releases*, ASSI utilized the general site characteristics to determine the appropriate "ranking" for the Site. The ranking criteria and associated scoring are provided in the table below:

Ranking Criteria			Ranking Score
Depth to Groundwater	<50 feet	20	0
	50 to 99 feet	10	
	>100 feet	0	
Wellhead Protection Area, <1,000 feet from a water source, or; <200 feet from private domestic water source.	Yes	20	0
	No	0	
Distance to Surface Water Body	<200 feet	20	0
	200 to 1,000 feet	10	
	>1,000 feet	0	
Total Ranking Score			0

Based on ASSI's evaluation of the scoring criteria, the Site would have a Total Ranking Score of 0. This ranking is based on the following:

- The depth to the initial groundwater-bearing zone is greater than 150 feet at the Site.
- The impacted area is greater than 200 feet from a private domestic water source.
- Distance to the nearest surface water body is greater than 1,000 ft.

Based on a Total Ranking Score of 0, cleanup goals for soils remaining in place include: 10 milligrams per kilogram (mg/Kg) for Benzene, 50 mg/Kg for Total Benzene, Toluene, Ethylbenzene, and Xylene (BTEX), 5,000 mg/Kg for Total Petroleum Hydrocarbons (TPH), and 600 mg/Kg for Chloride.

Figures 1 and 2 show the location of the Site in Lea County, New Mexico and surrounding topography.

2.1 Groundwater Research

According to research conducted on the New Mexico Office of the State Engineer (NMOSE) groundwater database, no registered water wells were located in section 08. According to ChevronTexaco Groundwater Trend Map, groundwater is between one hundred twenty-five (125) and one hundred fifty (150) feet in the approximate location of the Site.

3.0 INITIAL RESPONSE & ACTIVITIES

3.1 Initial Response

On September 21, 2017, ASSI personnel responded to a reportable release that occurred on August 30, 2016. Ninety (90) barrels (bbls) of oil was released directly to the ground caused when lightning struck the Site. None of the fluids were recovered. The release impacted approximately thirty-three thousand seven hundred-fifty (33,750) square feet of production pad and adjacent pasture area (Figure 3).

3.2 Sampling Activities

Sampling activities were conducted on September 21, 2016 by ASSI using a stainless steel hand auger. Mr. Ryan Reich, an ASSI environmental professional, was present to document onsite activities (written and photographic). Fourteen (14) auger holes were installed, using a stainless steel hand auger, each to various depths ranging from surface (0') to three and one-half (3.5) foot below ground surface (bgs) (Table 1) and shown on Figure 4. Discrete samples were collected from all auger hole locations at the following intervals 0'-1', 1'-1.5', 1'-1.5', 2'-2.5', and 3'-3.5' bgs. Soil was field screened for Chloride utilizing electro conductivity during sampling activities.

3.3 Soil Sampling Analytical Results

Analytical results were compared to the NMOCD *Guidelines for Remediation of Leaks, Spills and Releases* (Section VI A. Contaminated Soils) and show all Chloride levels are below the NMOCD clean-up goals as discussed in Section 2.0 at all sample locations. However, at location AH-5 vertical delineation was achieved at a depth of four (4) feet bgs with a Chloride concentration of 90.6 mg/Kg. Delineation efforts were achieved during the implementation of the approved remediation work plan. Each location meets the NMOCD's threshold of 600 mg/Kg satisfying clean-up goal criteria.

3.4 Excavation Activities

Excavation remediation activities were conducted by ASSI and began in the area previously identified. Mr. Ryan Reich, an ASSI environmental professional, was present to observe on-Site activities. Remediation efforts began on August 21, 2017 and were completed on August 24th and included the removal of impacted material from the Site and transporting it off-Site to an appropriate disposal facility. The final dimensions of the excavation were thirty-five (35) feet in length, forty-five (45) feet in width and three and one-half (3.5) feet in depth near the center as shown in Figure 4 (Appendix A). Approximately two hundred and twenty (220) cubic yards (yd³) of impacted soil was transported to R-360 Environmental Solutions for proper disposal, the manifests are shown in Appendix E.

3.4.1 Excavation Confirmation Soil Sampling Program

Delineation sampling around the excavated area of AH-5 was conducted on August 21, 2017. A total of seven (7) samples were collected, one (1) sample from each excavated sidewall in its perspective cardinal direction (North, South, East and West) and three (3) samples from Trench 1 (i.e., T-1[AH5] [3.5'EB]) ranging in various depths from the surface of the excavated bottom to one and one-half (1.5) feet below the excavated bottom.

4.0 LABORATORY ANALYTICAL METHODS

The samples were analyzed for TPH GRO/DRO utilizing EPA method SW-846 8015, BTEX using EPA method SW-846 8021B, and Chloride utilizing EPA method SW-846 300.1. Copies of the laboratory analysis are provided in Appendix D.

Soil was collected in laboratory prepared glassware, placed on ice, and packed in a cooler. The sample coolers and completed chain-of-custody forms were relinquished to Cardinal Laboratories in Hobbs, New Mexico for the September 21st sampling event and to Xenco Laboratories in Midland, Texas for the August 21st sampling event.

Figure 4 shows the approximate location of the sampling (i.e., Auger Hole, Sidewall and Trench) locations and dimensions of the previously excavated area in relation to pertinent land features and general Site boundaries, which is included in Appendix A.

5.0 REMEDIATION SUMMARY AND CLOSURE REQUEST

Based upon the data provided by ASSI, the constituents of concern were horizontally and vertically delineated below the cleanup levels. The excavated area was backfilled and brought to grade with clean material. Based upon the response actions and laboratory analytical results, no additional investigation and/or remediation appears warranted at this time. ASI respectfully requests closure of the Site on behalf of COG. Copies of the Initial and Final C-141 are provided in Appendix D.




APPENDIX A


Figures

COG - COI Empire South Unit 15

Figure 1

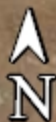
Legend

 COI Empire South Unit #15

 COI Empire South Unit #15

Bluestem-Rd

360



Google Earth

©2017 Google


2 mi

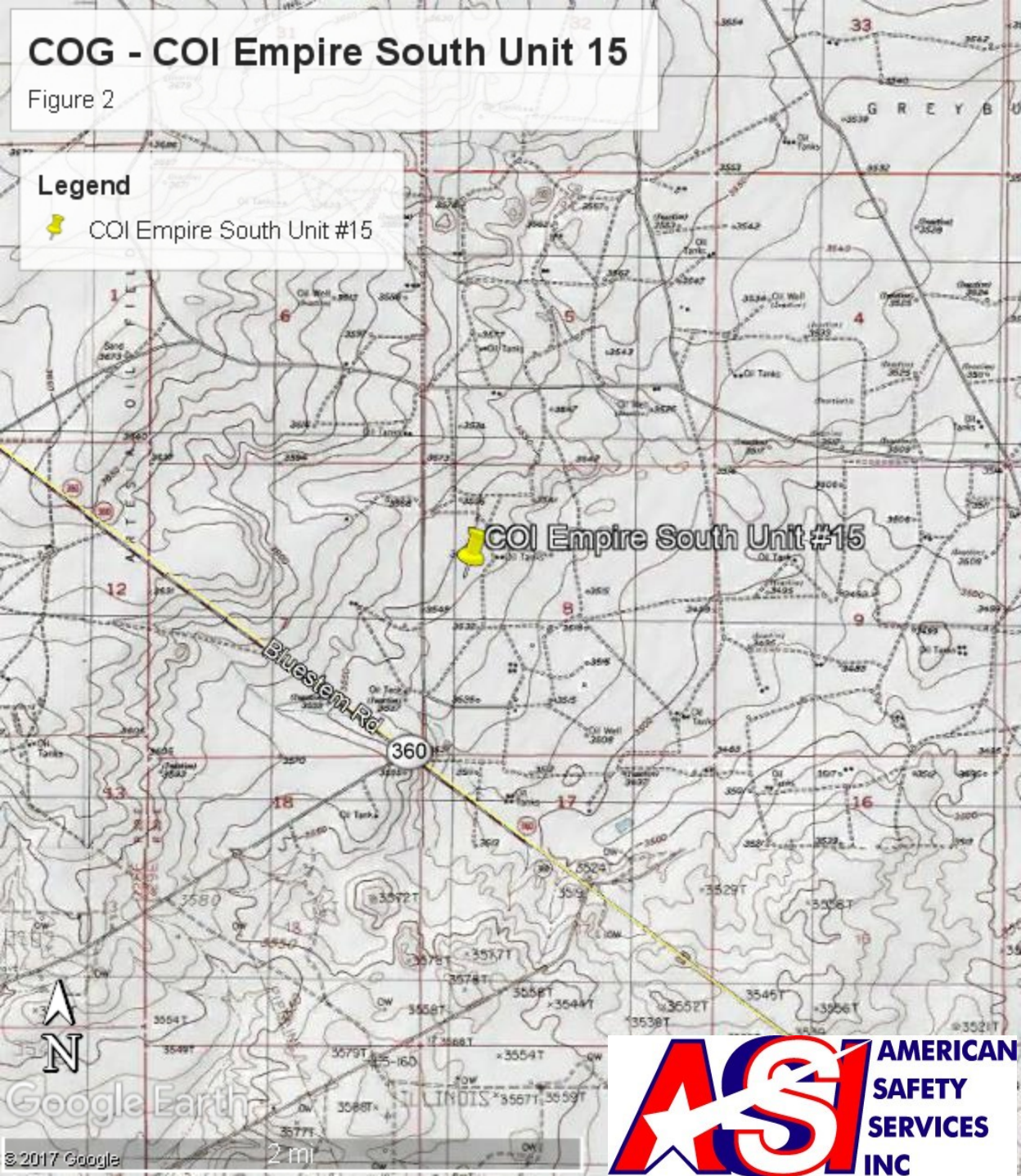


COG - COI Empire South Unit 15

Figure 2

Legend

 COI Empire South Unit #15



Google Earth

© 2017 Google



2 mi




COG - COI Empire South Unit 15

Figure 3

Legend

-  COI Empire South Unit #15
-  Release Footprint

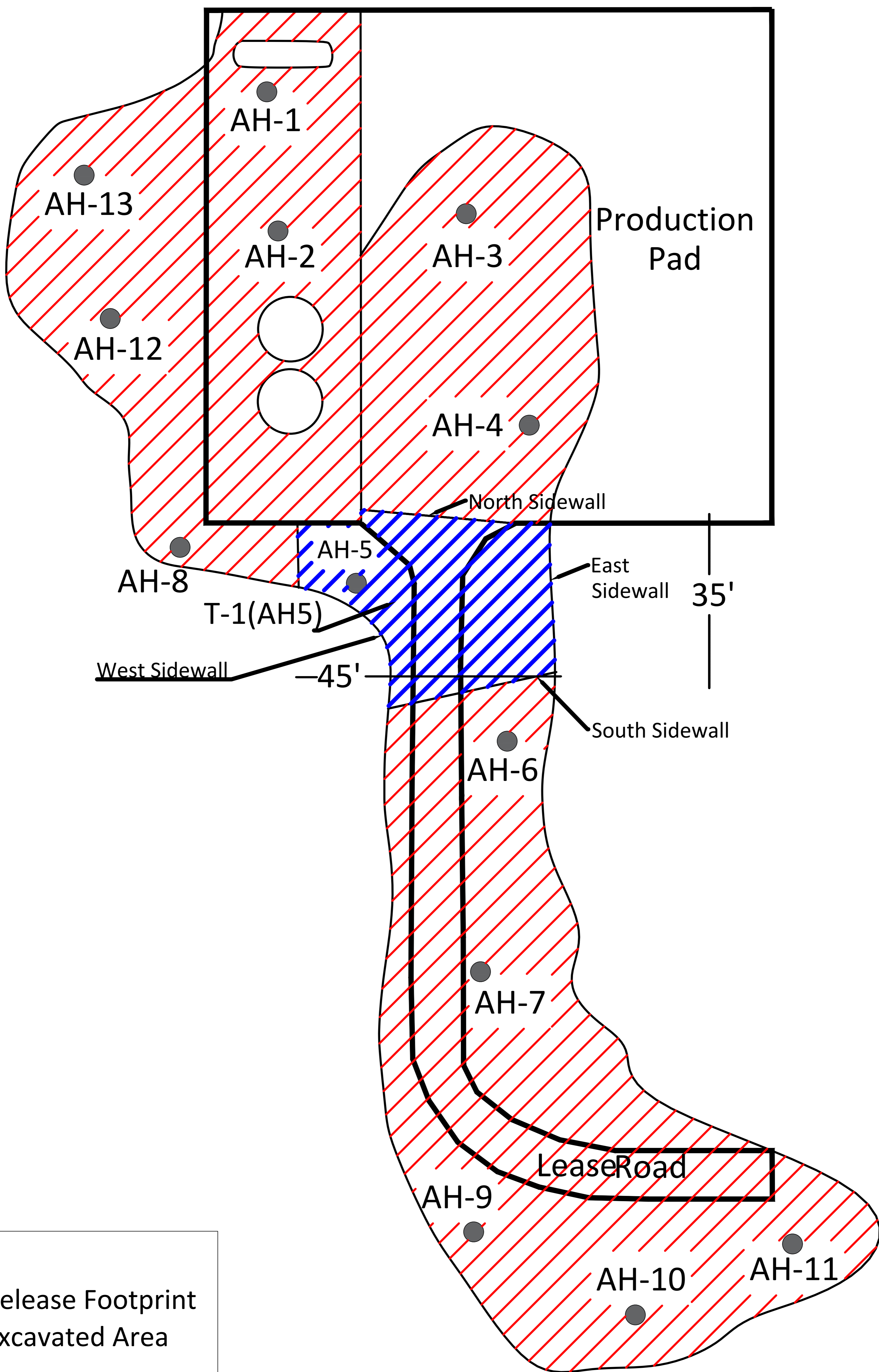
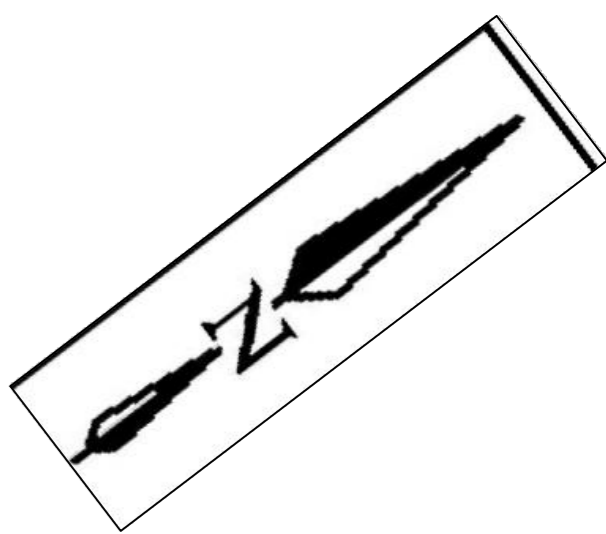
 COI Empire South Unit #15


N
Google Earth

©2017 Google

400 ft





Legend

- Release Footprint
- Excavated Area
- Sample Point

Concho-
COI Empire South Unit #015
Eddy County, New Mexico
32.7637N, -104.1033W



**AMERICAN
SAFETY
SERVICES
INC**

American Safety Services, Inc
8715 Andrews Hwy
Odessa, TX 79765
Phone: (432) 552-7625

FIGURE 4
Excavated Areas Map



APPENDIX B

Table 1

TABLE 1 Summary of Delineation Sampling Analytical Results Concentrations of Benzene, BTEX, TPH & Chloride in Soil Concho Operating, LLC COI Empire South Unit #15 Eddy County, New Mexico NMOCD REF: #2RP-3894												
SAMPLE LOCATION	SAMPLE DEPTH (bgs)	SAMPLE DATE	SOIL STATUS	8021B					8015M			300.0
				BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYLBENZENE (mg/Kg)	XYLENES (mg/Kg)	TOTAL BTEX (mg/Kg)	GRO (mg/Kg)	DRO (mg/Kg)	Total TPH (mg/Kg)	CHLORIDE (mg/Kg)
NMOCD - Guidelines for Remediation of Leaks, Spills and Releases				10	NE	NE	NE	50	NE	NE	5,000	600
Vertical Delineation Sampling												
AH-1	0'-1'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<50.0	242	242	144
AH-1	1'-1.5'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	128	128	32.0
AH-1	2'-2.5'	9/21/2016	In-Situ	-	-	-	-	-	-	-	-	16.0
AH-2	0'-1'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	25.8	25.8	48.0
AH-2	1'-1.5'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	23.1	23.1	32.0
AH-2	2'-2.5'	9/21/2016	In-Situ	-	-	-	-	-	-	-	-	32.0
AH-3	0'-1'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	68.6	68.6	128
AH-3	1'-1.5'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	192
AH-3	2'-2.5'	9/21/2016	In-Situ	-	-	-	-	-	-	-	-	304
AH-4	0'-1'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	35.8	35.8	<16.0
AH-4	1'-1.5'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<16.0
AH-4	2'-2.5'	9/21/2016	In-Situ	-	-	-	-	-	-	-	-	<16.0
AH-4	3'-3.5'	9/21/2016	In-Situ	-	-	-	-	-	-	-	-	<16.0
AH-5	0'-1'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	16.9	16.9	960
AH-5	1'-1.5'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	752
AH-5	2'-2.5'	9/21/2016	In-Situ	-	-	-	-	-	-	-	-	736
AH-5	3'-3.5'	9/21/2016	In-Situ	-	-	-	-	-	-	-	-	864
T-1 (AH5)(3.5'EB)	0-0.5'	8/21/2017	In-Situ	-	-	-	-	-	-	-	-	90.6
T-1 (AH5)(3.5'EB)	0.5'-1'	8/21/2017	In-Situ	-	-	-	-	-	-	-	-	90.2
T-1 (AH5)(3.5'EB)	1'-1.5'	8/21/2017	In-Situ	-	-	-	-	-	-	-	-	75.8
AH-6	0'-1'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	18.7	18.7	16.0
AH-6	1'-1.5'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	16.0
AH-6	2'-2.5'	9/21/2016	In-Situ	-	-	-	-	-	-	-	-	16.0
AH-6	3'-3.5'	9/21/2016	In-Situ	-	-	-	-	-	-	-	-	<16.0
AH-7	0'-1'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	34.2	34.2	128
AH-7	1'-1.5'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	16.0
AH-7	2'-2.5'	9/21/2016	In-Situ	-	-	-	-	-	-	-	-	16.0

mg/Kg - milligrams per Kilogram

— = Not Established

Excavated Depth

Concentrations in **BOLD** exceed the NMOCD Guidelines

In-Situ = sample collected in place

TABLE 1 Summary of Delineation Sampling Analytical Results Concentrations of Benzene, BTEX, TPH & Chloride in Soil Concho Operating, LLC COI Empire South Unit #15 Eddy County, New Mexico NMOCD REF: #2RP-3894												
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NMOCD - Guidelines for Remediation of Leaks, Spills and Releases				10	NE	NE	NE	50	NE	NE	5,000	600
Vertical Delineation Sampling												
AH-8	0'-1'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<16.0
AH-8	1'-1.5'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	48.0
AH-8	2'-2.5'	9/21/2016	In-Situ	-	-	-	-	-	-	-	-	32.0
AH-9	0'-1'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	27.5	27.5	<16.0
AH-9	1'-1.5'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<16.0
AH-9	2'-2.5'	9/21/2016	In-Situ	-	-	-	-	-	-	-	-	<16.0
AH-10	0'-1'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	717	717	<16.0
AH-10	1'-1.5'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	59.5	59.5	16.0
AH-10	2'-2.5'	9/21/2016	In-Situ	-	-	-	-	-	-	-	-	32.0
AH-11	0'-1'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	115	115	<16.0
AH-11	1'-1.5'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	17.5	17.5	16.0
AH-11	2'-2.5'	9/21/2016	In-Situ	-	-	-	-	-	-	-	-	<16.0
AH-12	0'-1'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	20.4	20.4	<16.0
AH-12	1'-1.5'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<16.0
AH-12	2'-2.5'	9/21/2016	In-Situ	-	-	-	-	-	-	-	-	<16.0
AH-13	0'-1'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.0
AH-13	1'-1.5'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<16.0
AH-13	2'-2.5'	9/21/2016	In-Situ	-	-	-	-	-	-	-	-	<16.0
AH-14	0'-1'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<16.0
AH-14	1'-1.5'	9/21/2016	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<16.0
North Sidewall	-	8/21/2017	In-situ	-	-	-	-	-	-	-	-	ND
South Sidewall	-	8/21/2017	In-situ	-	-	-	-	-	-	-	-	ND
East Sidewall	-	8/21/2017	In-situ	-	-	-	-	-	-	-	-	98.6
West Sidewall	-	8/21/2017	In-situ	-	-	-	-	-	-	-	-	ND

mg/Kg - milligrams per Kilogram

— = Not Established

Proposed Excavation Depth

Concentrations in **BOLD** exceed the NMOCD Guidelines

ND = non detect

In-situ = sample collected in place



APPENDIX C

Laboratory Analysis



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

September 28, 2016

DAKOTA NEEL

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: EMPIRE SOUTH UNIT #15

Enclosed are the results of analyses for samples received by the laboratory on 09/21/16 15:00.

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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AH-1 (0-1')	H602120-01	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-1 (1-1.5')	H602120-02	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-1 (2-2.5')	H602120-03	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-2 (0-1')	H602120-04	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-2 (1-1.5')	H602120-05	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-2 (2-2.5')	H602120-06	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-3 (0-1')	H602120-07	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-3 (1-1.5')	H602120-08	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-3 (2-2.5')	H602120-09	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-4 (0-1')	H602120-10	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-4 (1-1.5')	H602120-11	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-4 (2-2.5')	H602120-12	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-4 (3-3.5')	H602120-13	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-5 (0-1')	H602120-14	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-5 (1-1.5')	H602120-15	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-5 (2-2.5')	H602120-16	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-5 (3-3.5')	H602120-17	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-6 (0-1')	H602120-18	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-6 (1-1.5')	H602120-19	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-6 (2-2.5')	H602120-20	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-6 (3-3.5')	H602120-21	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-7 (0-1')	H602120-22	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-7 (1-1.5')	H602120-23	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-7 (2-2.5')	H602120-24	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-8 (0-1')	H602120-25	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-8 (1-1.5')	H602120-26	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-8 (2-2.5')	H602120-27	Soil	21-Sep-16 00:00	21-Sep-16 15:00

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
28-Sep-16 11:12

AH-9 (0-1')	H602120-28	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-9 (1-1.5')	H602120-29	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-9 (2-2.5')	H602120-30	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-10 (0-1')	H602120-31	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-10 (1-1.5')	H602120-32	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-10 (2-2.5')	H602120-33	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-11 (0-1')	H602120-34	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-11 (1-1.5')	H602120-35	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-11 (2-2.5')	H602120-36	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-12 (0-1')	H602120-37	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-12 (1-1.5')	H602120-38	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-12 (2-2.5')	H602120-39	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-13 (0-1')	H602120-40	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-13 (1-1.5')	H602120-41	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-13 (2-2.5')	H602120-42	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-14 (0-1')	H602120-43	Soil	21-Sep-16 00:00	21-Sep-16 15:00
AH-14 (1-1.5')	H602120-44	Soil	21-Sep-16 00:00	21-Sep-16 15:00

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-1 (0-1') H602120-01 (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	6092306	AC	23-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092301	MS	23-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092301	MS	23-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092301	MS	23-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092301	MS	23-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092301	MS	23-Sep-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			96.7 %		73.6-140	6092301	MS	23-Sep-16	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10	<50.0		50.0	mg/kg	5	6092201	MS	22-Sep-16	8015B	
DRO >C10-C28	242		50.0	mg/kg	5	6092201	MS	22-Sep-16	8015B	

Surrogate: 1-Chlorooctane			70.0 %		35-147	6092201	MS	22-Sep-16	8015B	
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Surrogate: 1-Chlorooctadecane			101 %		28-171	6092201	MS	22-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, 88210

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-1 (1-1.5') H602120-02 (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	6092306	AC	23-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092301	MS	23-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092301	MS	23-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092301	MS	23-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092301	MS	23-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092301	MS	23-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			96.4 %	73.6-140		6092301	MS	23-Sep-16	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092201	MS	22-Sep-16	8015B	
DRO >C10-C28	128		10.0	mg/kg	1	6092201	MS	22-Sep-16	8015B	
Surrogate: 1-Chlorooctane			84.6 %	35-147		6092201	MS	22-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			101 %	28-171		6092201	MS	22-Sep-16	8015B	

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Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
28-Sep-16 11:12**AH-1 (2-2.5')
H602120-03 (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	6092306	AC	23-Sep-16	4500-Cl-B	
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Analytical Results For:

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

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-2 (0-1') H602120-04 (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	6092306	AC	23-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			98.2 %	73.6-140		6092302	MS	23-Sep-16	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092201	MS	22-Sep-16	8015B	
DRO >C10-C28	25.8		10.0	mg/kg	1	6092201	MS	22-Sep-16	8015B	
Surrogate: 1-Chlorooctane			86.0 %	35-147		6092201	MS	22-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			99.9 %	28-171		6092201	MS	22-Sep-16	8015B	

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Analytical Results For:

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

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-2 (1-1.5') H602120-05 (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	6092306	AC	23-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			97.1 %	73.6-140		6092302	MS	23-Sep-16	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092202	MS	22-Sep-16	8015B	
DRO >C10-C28	23.1		10.0	mg/kg	1	6092202	MS	22-Sep-16	8015B	
Surrogate: 1-Chlorooctane			83.6 %	35-147		6092202	MS	22-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			93.5 %	28-171		6092202	MS	22-Sep-16	8015B	

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Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
28-Sep-16 11:12**AH-2 (2-2.5')
H602120-06 (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	6092306	AC	23-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-3 (0-1') H602120-07 (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	6092306	AC	23-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092602	MS	27-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092602	MS	27-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092602	MS	27-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092602	MS	27-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092602	MS	27-Sep-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			98.0 %		73.6-140	6092602	MS	27-Sep-16	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092705	MS	27-Sep-16	8015B	
DRO >C10-C28	68.6		10.0	mg/kg	1	6092705	MS	27-Sep-16	8015B	

Surrogate: 1-Chlorooctane			81.1 %		35-147	6092705	MS	27-Sep-16	8015B	
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Surrogate: 1-Chlorooctadecane			96.7 %		28-171	6092705	MS	27-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, 88210

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-3 (1-1.5') H602120-08 (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	6092306	AC	23-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092602	MS	27-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092602	MS	27-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092602	MS	27-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092602	MS	27-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092602	MS	27-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			97.8 %		73.6-140	6092602	MS	27-Sep-16	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092705	MS	27-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6092705	MS	27-Sep-16	8015B	
Surrogate: 1-Chlorooctane			88.0 %		35-147	6092705	MS	27-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			106 %		28-171	6092705	MS	27-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
28-Sep-16 11:12**AH-3 (2-2.5')
H602120-09 (Soil)**

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

Chloride	304		16.0	mg/kg	4	6092306	AC	23-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-4 (0-1') H602120-10 (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	6092306	AC	23-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			97.7 %		73.6-140	6092302	MS	23-Sep-16	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
DRO >C10-C28	35.8		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctane			86.9 %		35-147	6092202	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			95.7 %		28-171	6092202	MS	23-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, 88210

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-4 (1-1.5') H602120-11 (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	6092306	AC	23-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092302	MS	23-Sep-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			98.2 %		73.6-140	6092302	MS	23-Sep-16	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	

Surrogate: 1-Chlorooctane			87.1 %		35-147	6092202	MS	23-Sep-16	8015B	
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Surrogate: 1-Chlorooctadecane			94.5 %		28-171	6092202	MS	23-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
28-Sep-16 11:12**AH-4 (2-2.5')
H602120-12 (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	6092306	AC	23-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
28-Sep-16 11:12**AH-4 (3-3.5')
H602120-13 (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	6092306	AC	23-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-5 (0-1') H602120-14 (Soil)

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

Inorganic Compounds

Chloride	960		16.0	mg/kg	4	6092306	AC	23-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092302	MS	23-Sep-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 94.7 % 73.6-140 6092302 MS 23-Sep-16 8021B

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
DRO >C10-C28	16.9		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	

Surrogate: 1-Chlorooctane 87.2 % 35-147 6092202 MS 23-Sep-16 8015B

Surrogate: 1-Chlorooctadecane 102 % 28-171 6092202 MS 23-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, 88210

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-5 (1-1.5') H602120-15 (Soil)

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

Inorganic Compounds

Chloride	752		16.0	mg/kg	4	6092306	AC	23-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092302	MS	23-Sep-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 96.8 % 73.6-140 6092302 MS 23-Sep-16 8021B

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	

Surrogate: 1-Chlorooctane 85.2 % 35-147 6092202 MS 23-Sep-16 8015B

Surrogate: 1-Chlorooctadecane 93.5 % 28-171 6092202 MS 23-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
28-Sep-16 11:12**AH-5 (2-2.5')
H602120-16 (Soil)**

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

Chloride	736		16.0	mg/kg	4	6092307	AC	26-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
28-Sep-16 11:12**AH-5 (3-3.5')
H602120-17 (Soil)**

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

Chloride	864		16.0	mg/kg	4	6092307	AC	26-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-6 (0-1') H602120-18 (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	6092307	AC	26-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			95.7 %	73.6-140		6092302	MS	23-Sep-16	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
DRO >C10-C28	18.7		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctane			80.4 %	35-147		6092202	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			89.2 %	28-171		6092202	MS	23-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, 88210

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-6 (1-1.5') H602120-19 (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	6092307	AC	26-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			97.3 %	73.6-140		6092302	MS	23-Sep-16	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctane			84.6 %	35-147		6092202	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			94.2 %	28-171		6092202	MS	23-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
28-Sep-16 11:12**AH-6 (2-2.5')
H602120-20 (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	6092307	AC	26-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
28-Sep-16 11:12**AH-6 (3-3.5')
H602120-21 (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	6092307	AC	26-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-7 (0-1') H602120-22 (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	6092307	AC	26-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092302	MS	23-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			96.7 %	73.6-140		6092302	MS	23-Sep-16	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
DRO >C10-C28	34.2		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctane			86.4 %	35-147		6092202	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			95.2 %	28-171		6092202	MS	23-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, 88210

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-7 (1-1.5') H602120-23 (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	6092307	AC	26-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			96.7 %	73.6-140		6092302	MS	24-Sep-16	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctane			86.8 %	35-147		6092202	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			99.1 %	28-171		6092202	MS	23-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
28-Sep-16 11:12**AH-7 (2-2.5')
H602120-24 (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	6092307	AC	26-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-8 (0-1') H602120-25 (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	6092307	AC	26-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092302	MS	24-Sep-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 97.2 % 73.6-140 6092302 MS 24-Sep-16 8021B

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	

Surrogate: 1-Chlorooctane 81.5 % 35-147 6092202 MS 23-Sep-16 8015B

Surrogate: 1-Chlorooctadecane 93.3 % 28-171 6092202 MS 23-Sep-16 8015B

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Analytical Results For:

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

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-8 (1-1.5') H602120-26 (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	6092307	AC	26-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			97.2 %	73.6-140		6092302	MS	24-Sep-16	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctane			69.9 %	35-147		6092202	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			77.2 %	28-171		6092202	MS	23-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
28-Sep-16 11:12**AH-8 (2-2.5')
H602120-27 (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	6092307	AC	26-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-9 (0-1') H602120-28 (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	6092307	AC	26-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092302	MS	24-Sep-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 96.3 % 73.6-140 6092302 MS 24-Sep-16 8021B

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
DRO >C10-C28	27.5		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	

Surrogate: 1-Chlorooctane 84.0 % 35-147 6092202 MS 23-Sep-16 8015B

Surrogate: 1-Chlorooctadecane 94.2 % 28-171 6092202 MS 23-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, 88210

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-9 (1-1.5') H602120-29 (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	6092307	AC	26-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			96.5 %	73.6-140		6092302	MS	24-Sep-16	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctane			85.1 %	35-147		6092202	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			95.2 %	28-171		6092202	MS	23-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
28-Sep-16 11:12**AH-9 (2-2.5')
H602120-30 (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	6092307	AC	26-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-10 (0-1') H602120-31 (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	6092307	AC	26-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092302	MS	24-Sep-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 95.9 % 73.6-140 6092302 MS 24-Sep-16 8021B

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
DRO >C10-C28	717		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	

Surrogate: 1-Chlorooctane 86.3 % 35-147 6092202 MS 23-Sep-16 8015B

Surrogate: 1-Chlorooctadecane 111 % 28-171 6092202 MS 23-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, 88210

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-10 (1-1.5')

H602120-32 (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	6092307	AC	26-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092302	MS	24-Sep-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			96.6 %	73.6-140		6092302	MS	24-Sep-16	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
DRO >C10-C28	59.5		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	

Surrogate: 1-Chlorooctane			78.9 %	35-147		6092202	MS	23-Sep-16	8015B	
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Surrogate: 1-Chlorooctadecane			95.1 %	28-171		6092202	MS	23-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
28-Sep-16 11:12**AH-10 (2-2.5')****H602120-33 (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	6092307	AC	26-Sep-16	4500-Cl-B	
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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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-11 (0-1') H602120-34 (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	6092307	AC	26-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			96.0 %	73.6-140		6092302	MS	24-Sep-16	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
DRO >C10-C28	115		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctane			79.1 %	35-147		6092202	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			98.6 %	28-171		6092202	MS	23-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, 88210

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-11 (1-1.5') H602120-35 (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	6092307	AC	26-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092302	MS	24-Sep-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 96.9 % 73.6-140 6092302 MS 24-Sep-16 8021B

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
DRO >C10-C28	17.5		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	

Surrogate: 1-Chlorooctane 79.5 % 35-147 6092202 MS 23-Sep-16 8015B

Surrogate: 1-Chlorooctadecane 94.3 % 28-171 6092202 MS 23-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
28-Sep-16 11:12**AH-11 (2-2.5')****H602120-36 (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	6092308	AC	26-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-12 (0-1') H602120-37 (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	6092308	AC	26-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			97.5 %	73.6-140		6092302	MS	24-Sep-16	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
DRO >C10-C28	20.4		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctane			80.4 %	35-147		6092202	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			93.4 %	28-171		6092202	MS	23-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, 88210

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-12 (1-1.5') H602120-38 (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	6092308	AC	26-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092302	MS	24-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			95.9 %	73.6-140		6092302	MS	24-Sep-16	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctane			80.1 %	35-147		6092202	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			95.2 %	28-171		6092202	MS	23-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
28-Sep-16 11:12**AH-12 (2-2.5')****H602120-39 (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	6092308	AC	26-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-13 (0-1') H602120-40 (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	6092308	AC	26-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092303	MS	24-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092303	MS	24-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092303	MS	24-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092303	MS	24-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092303	MS	24-Sep-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			96.8 %		73.6-140	6092303	MS	24-Sep-16	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	

Surrogate: 1-Chlorooctane			83.8 %		35-147	6092202	MS	23-Sep-16	8015B	
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Surrogate: 1-Chlorooctadecane			99.8 %		28-171	6092202	MS	23-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, 88210

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-13 (1-1.5')

H602120-41 (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	6092308	AC	26-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092303	MS	24-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092303	MS	24-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092303	MS	24-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092303	MS	24-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092303	MS	24-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			97.3 %		73.6-140	6092303	MS	24-Sep-16	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092203	MS	23-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6092203	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctane			72.2 %		35-147	6092203	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			86.4 %		28-171	6092203	MS	23-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
28-Sep-16 11:12**AH-13 (2-2.5')****H602120-42 (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	6092308	AC	26-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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-14 (0-1') H602120-43 (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	6092308	AC	26-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092303	MS	24-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092303	MS	24-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092303	MS	24-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092303	MS	24-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092303	MS	24-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			97.8 %	73.6-140		6092303	MS	24-Sep-16	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092203	MS	23-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6092203	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctane			74.2 %	35-147		6092203	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			86.5 %	28-171		6092203	MS	23-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, 88210

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

AH-14 (1-1.5')

H602120-44 (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	6092308	AC	26-Sep-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6092303	MS	24-Sep-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6092303	MS	24-Sep-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6092303	MS	24-Sep-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6092303	MS	24-Sep-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6092303	MS	24-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			97.1 %	73.6-140		6092303	MS	24-Sep-16	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6092203	MS	23-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6092203	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctane			77.0 %	35-147		6092203	MS	23-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			88.9 %	28-171		6092203	MS	23-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, 88210

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6092306 - 1:4 DI Water										
Blank (6092306-BLK1)				Prepared & Analyzed: 23-Sep-16						
Chloride	ND	16.0	mg/kg							
LCS (6092306-BS1)				Prepared & Analyzed: 23-Sep-16						
Chloride	432	16.0	mg/kg	400		108	80-120			
LCS Dup (6092306-BSD1)				Prepared & Analyzed: 23-Sep-16						
Chloride	464	16.0	mg/kg	400		116	80-120	7.14	20	
Duplicate (6092306-DUP1)				Source: H602103-02		Prepared & Analyzed: 23-Sep-16				
Chloride	336	16.0	mg/kg		352			4.65	20	
Matrix Spike (6092306-MS1)				Source: H602103-02		Prepared & Analyzed: 23-Sep-16				
Chloride	752	16.0	mg/kg	400	352	100	80-120			
Batch 6092307 - 1:4 DI Water										
Blank (6092307-BLK1)				Prepared: 23-Sep-16 Analyzed: 26-Sep-16						
Chloride	ND	16.0	mg/kg							
LCS (6092307-BS1)				Prepared: 23-Sep-16 Analyzed: 26-Sep-16						
Chloride	448	16.0	mg/kg	400		112	80-120			
LCS Dup (6092307-BSD1)				Prepared: 23-Sep-16 Analyzed: 26-Sep-16						
Chloride	448	16.0	mg/kg	400		112	80-120	0.00	20	
Duplicate (6092307-DUP1)				Source: H602120-16		Prepared: 23-Sep-16 Analyzed: 26-Sep-16				
Chloride	768	16.0	mg/kg		736			4.26	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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

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 6092307 - 1:4 DI Water

Matrix Spike (6092307-MS1) Source: H602120-16 Prepared: 23-Sep-16 Analyzed: 26-Sep-16

Chloride	1170	16.0	mg/kg	400	736	108	80-120			
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Batch 6092308 - 1:4 DI Water

Blank (6092308-BLK1) Prepared: 23-Sep-16 Analyzed: 26-Sep-16

Chloride	ND	16.0	mg/kg							
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LCS (6092308-BS1) Prepared: 23-Sep-16 Analyzed: 26-Sep-16

Chloride	432	16.0	mg/kg	400		108	80-120			
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LCS Dup (6092308-BSD1) Prepared: 23-Sep-16 Analyzed: 26-Sep-16

Chloride	432	16.0	mg/kg	400		108	80-120	0.00	20	
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Duplicate (6092308-DUP1) Source: H602120-36 Prepared: 23-Sep-16 Analyzed: 26-Sep-16

Chloride	ND	16.0	mg/kg		0.00				20	
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Matrix Spike (6092308-MS1) Source: H602120-36 Prepared: 23-Sep-16 Analyzed: 26-Sep-16

Chloride	432	16.0	mg/kg	400	0.00	108	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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

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 6092301 - Volatiles

Blank (6092301-BLK1)

Prepared & Analyzed: 23-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)	0.0513		mg/kg	0.0500		103	73.6-140			

LCS (6092301-BS1)

Prepared & Analyzed: 23-Sep-16

Benzene	1.78	0.050	mg/kg	2.00		89.0	82.6-122			
Toluene	1.81	0.050	mg/kg	2.00		90.3	72.9-122			
Ethylbenzene	1.72	0.050	mg/kg	2.00		86.1	65.4-131			
Total Xylenes	5.21	0.150	mg/kg	6.00		86.8	73.8-125			
Surrogate: 4-Bromofluorobenzene (PID)	0.0507		mg/kg	0.0500		101	73.6-140			

LCS Dup (6092301-BSD1)

Prepared & Analyzed: 23-Sep-16

Benzene	1.79	0.050	mg/kg	2.00		89.7	82.6-122	0.762	8.23	
Toluene	1.82	0.050	mg/kg	2.00		91.1	72.9-122	0.839	8.71	
Ethylbenzene	1.74	0.050	mg/kg	2.00		87.1	65.4-131	1.08	9.46	
Total Xylenes	5.26	0.150	mg/kg	6.00		87.7	73.8-125	1.07	8.66	
Surrogate: 4-Bromofluorobenzene (PID)	0.0495		mg/kg	0.0500		99.0	73.6-140			

Matrix Spike (6092301-MS1)

Source: H602100-08


Prepared & Analyzed: 23-Sep-16

Benzene	2.91	0.200	mg/kg	2.00	0.756	108	66.7-126			
Toluene	10.8	0.200	mg/kg	2.00	8.96	89.7	58.1-125			
Ethylbenzene	9.67	0.200	mg/kg	2.00	8.46	60.5	45.6-142			
Total Xylenes	39.5	0.600	mg/kg	6.00	35.6	65.1	52-138			
Surrogate: 4-Bromofluorobenzene (PID)	0.0665		mg/kg	0.0500		133	73.6-140			

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Page 50 of 65

Analytical Results For:

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

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

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 6092301 - Volatiles

Matrix Spike Dup (6092301-MSD1)

Source: H602100-08

Prepared & Analyzed: 23-Sep-16

Benzene	2.98	0.200	mg/kg	2.00	0.756	111	66.7-126	2.34	12.2	
Toluene	11.1	0.200	mg/kg	2.00	8.96	106	58.1-125	3.02	18.1	
Ethylbenzene	9.98	0.200	mg/kg	2.00	8.46	76.1	45.6-142	3.17	33.4	
Total Xylenes	40.8	0.600	mg/kg	6.00	35.6	86.8	52-138	3.24	36.2	
Surrogate: 4-Bromofluorobenzene (PID)	0.0673		mg/kg	0.0500		135	73.6-140			

Batch 6092302 - Volatiles

Blank (6092302-BLK1)

Prepared & Analyzed: 23-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		98.0	73.6-140			

LCS (6092302-BS1)

Prepared & Analyzed: 23-Sep-16

Benzene	2.22	0.050	mg/kg	2.00		111	82.6-122			
Toluene	2.24	0.050	mg/kg	2.00		112	72.9-122			
Ethylbenzene	2.14	0.050	mg/kg	2.00		107	65.4-131			
Total Xylenes	6.49	0.150	mg/kg	6.00		108	73.8-125			
Surrogate: 4-Bromofluorobenzene (PID)	0.0485		mg/kg	0.0500		97.0	73.6-140			

LCS Dup (6092302-BSD1)

Prepared & Analyzed: 23-Sep-16

Benzene	2.21	0.050	mg/kg	2.00		110	82.6-122	0.608	8.23	
Toluene	2.25	0.050	mg/kg	2.00		112	72.9-122	0.304	8.71	
Ethylbenzene	2.16	0.050	mg/kg	2.00		108	65.4-131	0.858	9.46	
Total Xylenes	6.54	0.150	mg/kg	6.00		109	73.8-125	0.875	8.66	
Surrogate: 4-Bromofluorobenzene (PID)	0.0496		mg/kg	0.0500		99.3	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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

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 6092302 - Volatiles

Matrix Spike (6092302-MS1)		Source: H602120-04			Prepared: 23-Sep-16 Analyzed: 24-Sep-16					
Benzene	1.94	0.050	mg/kg	2.00	ND	97.0	66.7-126			
Toluene	1.98	0.050	mg/kg	2.00	0.017	98.2	58.1-125			
Ethylbenzene	1.90	0.050	mg/kg	2.00	0.021	94.0	45.6-142			
Total Xylenes	5.72	0.150	mg/kg	6.00	0.027	94.9	52-138			
Surrogate: 4-Bromofluorobenzene (PID)		0.0490	mg/kg	0.0500		98.0	73.6-140			

Matrix Spike Dup (6092302-MSD1)		Source: H602120-04			Prepared: 23-Sep-16 Analyzed: 24-Sep-16					
Benzene	1.95	0.050	mg/kg	2.00	ND	97.5	66.7-126	0.463	12.2	
Toluene	1.98	0.050	mg/kg	2.00	0.017	98.2	58.1-125	0.0575	18.1	
Ethylbenzene	1.90	0.050	mg/kg	2.00	0.021	94.0	45.6-142	0.0505	33.4	
Total Xylenes	5.71	0.150	mg/kg	6.00	0.027	94.6	52-138	0.230	36.2	
Surrogate: 4-Bromofluorobenzene (PID)		0.0481	mg/kg	0.0500		96.1	73.6-140			

Batch 6092303 - Volatiles

Blank (6092303-BLK1)		Prepared: 23-Sep-16 Analyzed: 24-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		96.2	73.6-140			

LCS (6092303-BS1)		Prepared: 23-Sep-16 Analyzed: 24-Sep-16								
Benzene	1.82	0.050	mg/kg	2.00		91.1	82.6-122			
Toluene	1.84	0.050	mg/kg	2.00		92.1	72.9-122			
Ethylbenzene	1.77	0.050	mg/kg	2.00		88.4	65.4-131			
Total Xylenes	5.32	0.150	mg/kg	6.00		88.7	73.8-125			
Surrogate: 4-Bromofluorobenzene (PID)		0.0487	mg/kg	0.0500		97.3	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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

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 6092303 - Volatiles

LCS Dup (6092303-BSD1)

Prepared: 23-Sep-16 Analyzed: 24-Sep-16

Benzene	1.80	0.050	mg/kg	2.00		90.2	82.6-122	0.992	8.23	
Toluene	1.83	0.050	mg/kg	2.00		91.4	72.9-122	0.714	8.71	
Ethylbenzene	1.75	0.050	mg/kg	2.00		87.6	65.4-131	0.904	9.46	
Total Xylenes	5.27	0.150	mg/kg	6.00		87.8	73.8-125	1.05	8.66	
Surrogate: 4-Bromofluorobenzene (PID)	0.0487		mg/kg	0.0500		97.4	73.6-140			

Matrix Spike (6092303-MS1)

Source: H602120-40

Prepared: 23-Sep-16 Analyzed: 24-Sep-16

Benzene	2.20	0.050	mg/kg	2.00	ND	110	66.7-126			
Toluene	2.24	0.050	mg/kg	2.00	0.018	111	58.1-125			
Ethylbenzene	2.15	0.050	mg/kg	2.00	0.021	106	45.6-142			
Total Xylenes	6.51	0.150	mg/kg	6.00	0.036	108	52-138			
Surrogate: 4-Bromofluorobenzene (PID)	0.0494		mg/kg	0.0500		98.8	73.6-140			

Matrix Spike Dup (6092303-MSD1)

Source: H602120-40

Prepared: 23-Sep-16 Analyzed: 24-Sep-16

Benzene	2.24	0.050	mg/kg	2.00	ND	112	66.7-126	1.71	12.2	
Toluene	2.27	0.050	mg/kg	2.00	0.018	113	58.1-125	1.53	18.1	
Ethylbenzene	2.17	0.050	mg/kg	2.00	0.021	107	45.6-142	1.06	33.4	
Total Xylenes	6.56	0.150	mg/kg	6.00	0.036	109	52-138	0.773	36.2	
Surrogate: 4-Bromofluorobenzene (PID)	0.0493		mg/kg	0.0500		98.7	73.6-140			

Batch 6092602 - Volatiles

Blank (6092602-BLK1)

Prepared: 26-Sep-16 Analyzed: 27-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		96.5	73.6-140			

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Analytical Results For:

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

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

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 6092602 - Volatiles

LCS (6092602-BS1)

Prepared: 26-Sep-16 Analyzed: 27-Sep-16

Benzene	2.31	0.050	mg/kg	2.00		115	82.6-122			
Toluene	2.34	0.050	mg/kg	2.00		117	72.9-122			
Ethylbenzene	2.24	0.050	mg/kg	2.00		112	65.4-131			
Total Xylenes	6.74	0.150	mg/kg	6.00		112	73.8-125			
Surrogate: 4-Bromofluorobenzene (PID)	0.0488		mg/kg	0.0500		97.5	73.6-140			

LCS Dup (6092602-BS1)

Prepared: 26-Sep-16 Analyzed: 27-Sep-16

Benzene	2.31	0.050	mg/kg	2.00		116	82.6-122	0.272	8.23	
Toluene	2.34	0.050	mg/kg	2.00		117	72.9-122	0.0127	8.71	
Ethylbenzene	2.26	0.050	mg/kg	2.00		113	65.4-131	0.841	9.46	
Total Xylenes	6.79	0.150	mg/kg	6.00		113	73.8-125	0.682	8.66	
Surrogate: 4-Bromofluorobenzene (PID)	0.0484		mg/kg	0.0500		96.9	73.6-140			

Matrix Spike (6092602-MS1)

Source: H602134-12

Prepared: 26-Sep-16 Analyzed: 27-Sep-16

Benzene	2.19	0.050	mg/kg	2.00	ND	109	66.7-126			
Toluene	2.22	0.050	mg/kg	2.00	0.012	111	58.1-125			
Ethylbenzene	2.14	0.050	mg/kg	2.00	0.024	106	45.6-142			
Total Xylenes	6.42	0.150	mg/kg	6.00	0.022	107	52-138			
Surrogate: 4-Bromofluorobenzene (PID)	0.0496		mg/kg	0.0500		99.2	73.6-140			

Matrix Spike Dup (6092602-MS1)

Source: H602134-12

Prepared: 26-Sep-16 Analyzed: 28-Sep-16

Benzene	2.23	0.050	mg/kg	2.00	ND	111	66.7-126	1.73	12.2	
Toluene	2.27	0.050	mg/kg	2.00	0.012	113	58.1-125	2.21	18.1	
Ethylbenzene	2.20	0.050	mg/kg	2.00	0.024	109	45.6-142	2.49	33.4	
Total Xylenes	6.60	0.150	mg/kg	6.00	0.022	110	52-138	2.76	36.2	
Surrogate: 4-Bromofluorobenzene (PID)	0.0494		mg/kg	0.0500		98.8	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: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

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 6092201 - General Prep - Organics

Blank (6092201-BLK1)

Prepared & Analyzed: 22-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	41.9		mg/kg	50.0		83.8	35-147			
Surrogate: 1-Chlorooctadecane	48.0		mg/kg	50.0		96.1	28-171			

LCS (6092201-BS1)

Prepared & Analyzed: 22-Sep-16

GRO C6-C10	195	10.0	mg/kg	200		97.5	76.7-115			
DRO >C10-C28	203	10.0	mg/kg	200		102	78.3-122			
Total TPH C6-C28	398	10.0	mg/kg	400		99.5	79.8-117			
Surrogate: 1-Chlorooctane	50.7		mg/kg	50.0		101	35-147			
Surrogate: 1-Chlorooctadecane	55.6		mg/kg	50.0		111	28-171			

LCS Dup (6092201-BS1)

Prepared & Analyzed: 22-Sep-16

GRO C6-C10	194	10.0	mg/kg	200		96.8	76.7-115	0.733	9.42	
DRO >C10-C28	201	10.0	mg/kg	200		100	78.3-122	1.22	13.2	
Total TPH C6-C28	394	10.0	mg/kg	400		98.6	79.8-117	0.981	10.7	
Surrogate: 1-Chlorooctane	50.3		mg/kg	50.0		101	35-147			
Surrogate: 1-Chlorooctadecane	54.4		mg/kg	50.0		109	28-171			

Matrix Spike (6092201-MS1)

Source: H602100-09

Prepared & Analyzed: 22-Sep-16

GRO C6-C10	218	10.0	mg/kg	200	126	45.9	66.4-123			QM-07
DRO >C10-C28	249	10.0	mg/kg	200	141	53.7	67.6-126			QM-07
Total TPH C6-C28	466	10.0	mg/kg	400	267	49.8	60.8-134			QM-07
Surrogate: 1-Chlorooctane	53.7		mg/kg	50.0		107	35-147			
Surrogate: 1-Chlorooctadecane	57.3		mg/kg	50.0		115	28-171			

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

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 6092201 - General Prep - Organics

Matrix Spike Dup (6092201-MSD1)		Source: H602100-09			Prepared & Analyzed: 22-Sep-16					
GRO C6-C10	219	10.0	mg/kg	200	126	46.5	66.4-123	1.34	10.2	QM-07
DRO >C10-C28	252	10.0	mg/kg	200	141	55.3	67.6-126	2.84	11.6	QM-07
Total TPH C6-C28	471	10.0	mg/kg	400	267	50.9	60.8-134	2.15	9.02	QM-07
Surrogate: 1-Chlorooctane	54.0		mg/kg	50.0		108	35-147			
Surrogate: 1-Chlorooctadecane	57.9		mg/kg	50.0		116	28-171			

Batch 6092202 - General Prep - Organics

Blank (6092202-BLK1)		Prepared & Analyzed: 22-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	42.1		mg/kg	50.0		84.2	35-147			
Surrogate: 1-Chlorooctadecane	47.9		mg/kg	50.0		95.8	28-171			

LCS (6092202-BS1)		Prepared & Analyzed: 22-Sep-16								
GRO C6-C10	194	10.0	mg/kg	200		97.1	76.7-115			
DRO >C10-C28	200	10.0	mg/kg	200		99.8	78.3-122			
Total TPH C6-C28	394	10.0	mg/kg	400		98.4	79.8-117			
Surrogate: 1-Chlorooctane	50.3		mg/kg	50.0		101	35-147			
Surrogate: 1-Chlorooctadecane	53.3		mg/kg	50.0		107	28-171			

LCS Dup (6092202-BSD1)		Prepared & Analyzed: 22-Sep-16								
GRO C6-C10	194	10.0	mg/kg	200		97.2	76.7-115	0.115	9.42	
DRO >C10-C28	199	10.0	mg/kg	200		99.3	78.3-122	0.479	13.2	
Total TPH C6-C28	393	10.0	mg/kg	400		98.3	79.8-117	0.185	10.7	
Surrogate: 1-Chlorooctane	50.5		mg/kg	50.0		101	35-147			
Surrogate: 1-Chlorooctadecane	52.4		mg/kg	50.0		105	28-171			

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

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 6092202 - General Prep - Organics

Matrix Spike (6092202-MS1)		Source: H602120-05			Prepared: 22-Sep-16 Analyzed: 23-Sep-16					
GRO C6-C10	190	10.0	mg/kg	200	ND	94.9	66.4-123			
DRO >C10-C28	231	10.0	mg/kg	200	23.1	104	67.6-126			
Total TPH C6-C28	421	10.0	mg/kg	400	24.2	99.1	60.8-134			
Surrogate: 1-Chlorooctane	52.4		mg/kg	50.0		105	35-147			
Surrogate: 1-Chlorooctadecane	56.4		mg/kg	50.0		113	28-171			
Matrix Spike Dup (6092202-MSD1)		Source: H602120-05			Prepared: 22-Sep-16 Analyzed: 23-Sep-16					
GRO C6-C10	192	10.0	mg/kg	200	ND	95.8	66.4-123	0.995	10.2	
DRO >C10-C28	237	10.0	mg/kg	200	23.1	107	67.6-126	3.07	11.6	
Total TPH C6-C28	429	10.0	mg/kg	400	24.2	101	60.8-134	2.09	9.02	
Surrogate: 1-Chlorooctane	52.7		mg/kg	50.0		105	35-147			
Surrogate: 1-Chlorooctadecane	57.6		mg/kg	50.0		115	28-171			

Batch 6092203 - General Prep - Organics

Blank (6092203-BLK1)		Prepared: 22-Sep-16 Analyzed: 23-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	37.2		mg/kg	50.0		74.5	35-147			
Surrogate: 1-Chlorooctadecane	44.1		mg/kg	50.0		88.3	28-171			
LCS (6092203-BS1)		Prepared & Analyzed: 22-Sep-16								
GRO C6-C10	178	10.0	mg/kg	200		89.2	76.7-115			
DRO >C10-C28	176	10.0	mg/kg	200		88.0	78.3-122			
Total TPH C6-C28	354	10.0	mg/kg	400		88.6	79.8-117			
Surrogate: 1-Chlorooctane	43.7		mg/kg	50.0		87.4	35-147			
Surrogate: 1-Chlorooctadecane	31.5		mg/kg	50.0		63.0	28-171			

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

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 6092203 - General Prep - Organics

LCS Dup (6092203-BSD1)

Prepared & Analyzed: 22-Sep-16

GRO C6-C10	193	10.0	mg/kg	200		96.5	76.7-115	7.92	9.42	
DRO >C10-C28	193	10.0	mg/kg	200		96.3	78.3-122	8.92	13.2	
Total TPH C6-C28	386	10.0	mg/kg	400		96.4	79.8-117	8.42	10.7	
Surrogate: 1-Chlorooctane	48.9		mg/kg	50.0		97.8	35-147			
Surrogate: 1-Chlorooctadecane	41.3		mg/kg	50.0		82.6	28-171			

Matrix Spike (6092203-MS1)

Source: H602120-41

Prepared: 22-Sep-16 Analyzed: 23-Sep-16

GRO C6-C10	187	10.0	mg/kg	200	ND	93.7	66.4-123			
DRO >C10-C28	183	10.0	mg/kg	200	4.37	89.3	67.6-126			
Total TPH C6-C28	370	10.0	mg/kg	400	5.35	91.3	60.8-134			
Surrogate: 1-Chlorooctane	47.8		mg/kg	50.0		95.7	35-147			
Surrogate: 1-Chlorooctadecane	51.3		mg/kg	50.0		103	28-171			

Matrix Spike Dup (6092203-MSD1)

Source: H602120-41

Prepared: 22-Sep-16 Analyzed: 23-Sep-16

GRO C6-C10	189	10.0	mg/kg	200	ND	94.3	66.4-123	0.611	10.2	
DRO >C10-C28	188	10.0	mg/kg	200	4.37	91.6	67.6-126	2.53	11.6	
Total TPH C6-C28	376	10.0	mg/kg	400	5.35	92.7	60.8-134	1.55	9.02	
Surrogate: 1-Chlorooctane	48.4		mg/kg	50.0		96.8	35-147			
Surrogate: 1-Chlorooctadecane	52.8		mg/kg	50.0		106	28-171			

Batch 6092705 - General Prep - Organics

Blank (6092705-BLK1)

Prepared & Analyzed: 27-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	44.0		mg/kg	50.0		88.0	35-147			
Surrogate: 1-Chlorooctadecane	52.2		mg/kg	50.0		104	28-171			

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Project: EMPIRE SOUTH UNIT #15
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
28-Sep-16 11:12

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 6092705 - General Prep - Organics

LCS (6092705-BS1)

Prepared & Analyzed: 27-Sep-16

GRO C6-C10	203	10.0	mg/kg	200		102	76.7-115			
DRO >C10-C28	202	10.0	mg/kg	200		101	78.3-122			
Total TPH C6-C28	405	10.0	mg/kg	400		101	79.8-117			
Surrogate: 1-Chlorooctane	52.3		mg/kg	50.0		105	35-147			
Surrogate: 1-Chlorooctadecane	53.8		mg/kg	50.0		108	28-171			

LCS Dup (6092705-BS1)

Prepared & Analyzed: 27-Sep-16

GRO C6-C10	207	10.0	mg/kg	200		104	76.7-115	2.03	9.42	
DRO >C10-C28	205	10.0	mg/kg	200		103	78.3-122	1.80	13.2	
Total TPH C6-C28	412	10.0	mg/kg	400		103	79.8-117	1.91	10.7	
Surrogate: 1-Chlorooctane	56.0		mg/kg	50.0		112	35-147			
Surrogate: 1-Chlorooctadecane	57.0		mg/kg	50.0		114	28-171			

Matrix Spike (6092705-MS1)

Source: H602120-07

Prepared & Analyzed: 27-Sep-16

GRO C6-C10	178	10.0	mg/kg	200	ND	88.8	66.4-123			
DRO >C10-C28	223	10.0	mg/kg	200	68.6	77.0	67.6-126			
Total TPH C6-C28	400	10.0	mg/kg	400	69.6	82.6	60.8-134			
Surrogate: 1-Chlorooctane	40.0		mg/kg	50.0		79.9	35-147			
Surrogate: 1-Chlorooctadecane	42.5		mg/kg	50.0		85.1	28-171			

Matrix Spike Dup (6092705-MS1)

Source: H602120-07

Prepared & Analyzed: 27-Sep-16

GRO C6-C10	171	10.0	mg/kg	200	ND	85.5	66.4-123	3.74	10.2	
DRO >C10-C28	218	10.0	mg/kg	200	68.6	74.5	67.6-126	3.33	11.6	
Total TPH C6-C28	389	10.0	mg/kg	400	69.6	79.7	60.8-134	3.56	9.02	
Surrogate: 1-Chlorooctane	38.3		mg/kg	50.0		76.7	35-147			
Surrogate: 1-Chlorooctadecane	40.6		mg/kg	50.0		81.1	28-171			

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

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



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pg 1 of 5

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: <u>COG</u>		P.O. #:		BILL TO																	
Project Manager: <u>Dakota Neel</u>		Company: <u>COG</u>		ANALYSIS REQUEST																	
Address:		Attn: <u>Robert McNeil</u>																			
City:		Address:																			
Phone #:		City: <u>Midland</u>																			
State:		State: <u>TX</u>																			
Zip:		Zip:																			
Project #:		Project Owner:																			
Project Name: <u>Empire South Unit # 15</u>		City: <u>Midland</u>																			
Project Location: <u>Edg 16 NW</u>		State: <u>TX</u>																			
Sample Name: <u>River Rich</u>		Phone #:																			
FOR LAB USE ONLY		Fax #:																			
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						PRESERV.	SAMPLING										
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	TPH	BTEX	Chloride				
<u>H602120</u>	<u>AH1 (0-1)</u>	<u>C</u>	<u>1</u>	<u>X</u>									<u>9/2/16</u>		<u>X</u>	<u>X</u>	<u>X</u>				
	<u>2 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>3 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>4 AH2 (0-1)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>5 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>6 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>7 AH3 (0-1)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>8 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>9 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>10 AH4 (0-1)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>11 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>12 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>13 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>14 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>15 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>16 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>17 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>18 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>19 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>20 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>21 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>22 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>23 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>24 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>25 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>26 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>27 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>28 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>29 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>30 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>31 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>32 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>33 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>34 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>35 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>36 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>37 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>38 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>39 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>40 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>41 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>42 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>43 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>44 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>45 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>46 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>47 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>48 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>49 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>50 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>51 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>52 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>53 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>54 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>55 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>56 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>57 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>58 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>59 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>60 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>61 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>62 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>63 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>64 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>65 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>66 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>67 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>68 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>69 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>70 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>71 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>72 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>73 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>74 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>75 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>76 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>77 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>78 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>79 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>80 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>81 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>82 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>83 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>84 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>85 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>86 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>87 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>88 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>89 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>90 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>91 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
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	<u>93 (1-1.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
	<u>94 (2-2.5)</u>	<u>C</u>		<u>X</u>											<u>X</u>	<u>X</u>	<u>X</u>				
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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

gives to (575) 393-2326



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

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Company Name: (36)		BILL TO		ANALYSIS REQUEST															
Project Manager: Darlene Reed		P.O. #:																	
Address:		Company: (06)																	
City:		Attn: Robert McNeil																	
State:		Address:																	
Zip:		City:																	
Phone #:		State:																	
Fax #:		Zip:																	
Project #:		Phone #:																	
Project Name: Empire South Unit #15		Fax #:																	
Project Location: Edley Co. N.M.		PRESERV																	
Sampler Name: Paula Reile		SAMPLING																	
FOR LAB USE ONLY																			
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX		PRESERV		SAMPLING											
				GROUNDWATER															
				WASTEWATER															
				SOIL															
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171-172	(1-1.5)																		
172-173	(1-1.5)																		
173-174	(1-1.5)																		
174-175	(1-1.5)																		
175-176	(1-1.5)																		
176-177	(1-1.5)																		
177-178	(1-1.5)																		
178-179	(1-1.5)																		



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

PS 4x5

Page 64 of 65



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 65 of 65

**PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701**



Analytical Report

Prepared for:

Thomas Franklin
American Safety Services, Inc
8715 Andrews Hwy
Odessa, TEXAS 79765

Project: COG-COI Empire South Unit #015

Project Number: [none]

Location: Eddy Co NM

Lab Order Number: 7H23001



NELAP/TCEQ # T104704516-16-7

Report Date: 08/28/17

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: COG-COI Empire South Unit #015
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
T-1 (AH5) (3.5' EB) 0-0.5	7H23001-01	Soil	08/21/17 13:15	08-22-2017 16:30
T-1 (AH5) (3.5' EB) 0.5-1	7H23001-02	Soil	08/21/17 13:20	08-22-2017 16:30
T-1 (AH5) (3.5' EB) 1-1.5	7H23001-03	Soil	08/21/17 13:25	08-22-2017 16:30
T-1 (AH5) North Sidewall	7H23001-04	Soil	08/21/17 16:00	08-22-2017 16:30
T-1 (AH5) South Sidewall	7H23001-05	Soil	08/21/17 16:04	08-22-2017 16:30
T-1 (AH5) East Sidewall	7H23001-06	Soil	08/21/17 16:12	08-22-2017 16:30
T-1 (AH5) West Sidewall	7H23001-07	Soil	08/21/17 16:16	08-22-2017 16:30

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: COG-COI Empire South Unit #015
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

T-1 (AH5) (3.5' EB) 0-0.5
7H23001-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	90.6	1.04	mg/kg dry	1	P7H2311	08/23/17	08/24/17	EPA 300.0	
% Moisture	7.0	0.1	%	1	P7H2403	08/24/17	08/24/17	ASTM D2216	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: COG-COI Empire South Unit #015
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

T-1 (AH5) (3.5' EB) 0.5-1
7H23001-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	90.2	1.06	mg/kg dry	1	P7H2311	08/23/17	08/24/17	EPA 300.0
% Moisture	6.0	0.1	%	1	P7H2403	08/24/17	08/24/17	ASTM D2216

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: COG-COI Empire South Unit #015
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

T-1 (AH5) (3.5' EB) 1-1.5
7H23001-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	75.8	1.08	mg/kg dry	1	P7H2311	08/23/17	08/24/17	EPA 300.0
% Moisture	7.0	0.1	%	1	P7H2403	08/24/17	08/24/17	ASTM D2216

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: COG-COI Empire South Unit #015
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

T-1 (AH5) North Sidewall
7H23001-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.09	mg/kg dry	1	P7H2311	08/23/17	08/24/17	EPA 300.0
% Moisture	8.0	0.1	%	1	P7H2403	08/24/17	08/24/17	ASTM D2216

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: COG-COI Empire South Unit #015
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

T-1 (AH5) South Sidewall
7H23001-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.02	mg/kg dry	1	P7H2311	08/23/17	08/24/17	EPA 300.0
% Moisture	2.0	0.1	%	1	P7H2403	08/24/17	08/24/17	ASTM D2216

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: COG-COI Empire South Unit #015
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

T-1 (AH5) East Sidewall
7H23001-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	98.6	1.02	mg/kg dry	1	P7H2311	08/23/17	08/24/17	EPA 300.0
% Moisture	2.0	0.1	%	1	P7H2403	08/24/17	08/24/17	ASTM D2216

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: COG-COI Empire South Unit #015
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

T-1 (AH5) West Sidewall
7H23001-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.02	mg/kg dry	1	P7H2311	08/23/17	08/24/17	EPA 300.0
% Moisture	2.0	0.1	%	1	P7H2403	08/24/17	08/24/17	ASTM D2216

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: COG-COI Empire South Unit #015
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7H2311 - *** DEFAULT PREP ***										
Blank (P7H2311-BLK1)				Prepared: 08/23/17 Analyzed: 08/24/17						
Chloride	ND	1.00	mg/kg wet							
LCS (P7H2311-BS1)				Prepared: 08/23/17 Analyzed: 08/24/17						
Chloride	410	1.00	mg/kg wet	400		102	80-120			
LCS Dup (P7H2311-BSD1)				Prepared: 08/23/17 Analyzed: 08/24/17						
Chloride	425	1.00	mg/kg wet	400		106	80-120	3.69	20	
Duplicate (P7H2311-DUP1)				Source: 7H22005-01		Prepared: 08/23/17 Analyzed: 08/24/17				
Chloride	787	5.05	mg/kg dry		794			0.997	20	
Duplicate (P7H2311-DUP2)				Source: 7H17001-07		Prepared: 08/23/17 Analyzed: 08/24/17				
Chloride	10000	50.5	mg/kg dry		9840			1.63	20	
Matrix Spike (P7H2311-MS1)				Source: 7H22005-01		Prepared: 08/23/17 Analyzed: 08/24/17				
Chloride	1860	5.05	mg/kg dry	1010	794	106	80-120			
Batch P7H2403 - *** DEFAULT PREP ***										
Blank (P7H2403-BLK1)				Prepared & Analyzed: 08/24/17						
% Moisture	ND	0.1	%							
Duplicate (P7H2403-DUP1)				Source: 7H23001-07		Prepared & Analyzed: 08/24/17				
% Moisture	1.0	0.1	%		2.0			66.7	20	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: COG-COI Empire South Unit #015
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Notes and Definitions

BULK Samples received in Bulk soil containers
DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference
LCS Laboratory Control Spike
MS Matrix Spike
Dup Duplicate

Report Approved By:



Date:

8/28/2017

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Permian Basin Environmental Lab, LP
10014 S. County Road 1213
Midland, Texas 79706

Phone: 432-686-7235

Project Manager: Thomas Franklin

Company Name: American Safety Services Inc.

Company Address: 8715 Andrews Hwy.

City/State/Zip: Odessa, TX 79765

Telephone No: 432-557-9868/432-552-7625

Sampler Signature: *[Signature]*

e-mail: tf Franklin@americansafety.net
zimmerman@americansafety.net

Report Format: ☐ Standard ☐ TRRP ☐ NPDES

PO #:

Project Name: CO6 - COE Empire South Unit #

Project #:

Project Loc: Eddy Co NW

(lab use only)
ORDER #: 1473001

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Ice	HNO ₃	HCl	H ₂ SO ₄	NaOH	Na ₂ S ₂ O ₃	None	Other (Specify)	DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	TPH: 418.1 8015M 8015B	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO ₄ , Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chloride 3000	
1	T-1(AHS)(3.5'ER)	0	0.5	8/21/17	1315	X	1	X																					
2	" "	0.5	1		1320	X																							
3	" "	1	1.5		1325	X																							
4	T-1(AHS) North Sidewall	-	-		1600	X																							
5	T-1(AHS) South Sidewall	-	-		1604	X																							
6	T-1(AHS) East Sidewall	-	-		1612	X																							
7	T-1(AHS) West Sidewall	-	-		1616	X																							
	NRE																												

Special Instructions:

Direct Ball CO6 - AITU Body Haskel * 40% Back * (temped @ office 15:40, 4.9°C)

Relinquished by:	Date	Time	Received by:	Date	Time
<i>[Signature]</i>	8/22/17	1540	<i>[Signature]</i>	8/22/17	1540
<i>[Signature]</i>	8/22/17	1638	<i>[Signature]</i>	8/22/17	1630

Relinquished by:	Date	Time	Received by:	Date	Time
<i>[Signature]</i>	8/22/17	1540	<i>[Signature]</i>	8/22/17	1540
<i>[Signature]</i>	8/22/17	1638	<i>[Signature]</i>	8/22/17	1630

Relinquished by:	Date	Time	Received by:	Date	Time
<i>[Signature]</i>	8/22/17	1540	<i>[Signature]</i>	8/22/17	1540
<i>[Signature]</i>	8/22/17	1638	<i>[Signature]</i>	8/22/17	1630

Relinquished by:	Date	Time	Received by:	Date	Time
<i>[Signature]</i>	8/22/17	1540	<i>[Signature]</i>	8/22/17	1540
<i>[Signature]</i>	8/22/17	1638	<i>[Signature]</i>	8/22/17	1630

Relinquished by:	Date	Time	Received by:	Date	Time
<i>[Signature]</i>	8/22/17	1540	<i>[Signature]</i>	8/22/17	1540
<i>[Signature]</i>	8/22/17	1638	<i>[Signature]</i>	8/22/17	1630

Relinquished by:	Date	Time	Received by:	Date	Time
<i>[Signature]</i>	8/22/17	1540	<i>[Signature]</i>	8/22/17	1540
<i>[Signature]</i>	8/22/17	1638	<i>[Signature]</i>	8/22/17	1630

Relinquished by:	Date	Time	Received by:	Date	Time
<i>[Signature]</i>	8/22/17	1540	<i>[Signature]</i>	8/22/17	1540
<i>[Signature]</i>	8/22/17	1638	<i>[Signature]</i>	8/22/17	1630

Relinquished by:	Date	Time	Received by:	Date	Time
<i>[Signature]</i>	8/22/17	1540	<i>[Signature]</i>	8/22/17	1540
<i>[Signature]</i>	8/22/17	1638	<i>[Signature]</i>	8/22/17	1630

Laboratory Comments:

Sample Containers intact? ☒ N
VOCs Free of Headspace? ☒ N
Labels on container(s) ☒ N
Custody seals on container(s) ☒ N
Custody seals on cooler(s) ☒ N
Sample Hand Delivered by Sampler/Client Rep. ? ☒ N
by Courier? ☒ N
Temperature Upon Receipt: 3.2 °C
Adjusted: WF

Received: 3.2 °C
Adjusted: WF

Received: 3.2 °C
Adjusted: WF

Received: 3.2 °C
Adjusted: WF

Received: 3.2 °C
Adjusted: WF

Received: 3.2 °C
Adjusted: WF

Received: 3.2 °C
Adjusted: WF

Received: 3.2 °C
Adjusted: WF



APPENDIX D

Initial and Final C-141

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating LLC	Contact: Robert McNeill	
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-230-0077	
Facility Name: COI EMPIRE SOUTH UNIT #015	Facility Type: Battery	
Surface Owner: Private	Mineral Owner: Federal	API No. 30-015-22236

LOCATION OF RELEASE

Unit Letter E	Section 08	Township 18S	Range 29E	Feet from the 1980	North/South Line North	Feet from the 660	East/West Line West	County Eddy
------------------	---------------	-----------------	--------------	-----------------------	---------------------------	----------------------	------------------------	----------------

Latitude 32.7637024 Longitude -104.103363

NATURE OF RELEASE

Type of Release: Oil	Volume of Release: 90 bbls	Volume Recovered: 0 bbls
Source of Release: Lightning	Date and Hour of Occurrence: 8/29/2016 unknown	Date and Hour of Discovery: 8/29/2016 8:00 a.m.
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Heather Patterson/NMOCD and Shelly Tucker/BLM	
By Whom? Dakota Neel	Date and Hour: 8/30/2016 12:48 p.m.	
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.*

This release was caused when lightning struck the facility. The facility was a total loss.

Describe Area Affected and Cleanup Action Taken.*

The release impacted both the location and the pasture immediately surrounding the facility. Oil released during the incident was burned and non-recoverable. 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: 	<u>OIL CONSERVATION DIVISION</u>	
Printed Name: Dakota Neel	Approved by Environmental Specialist:	
Title: Environmental Coordinator	Approval Date:	Expiration Date:
E-mail Address: dneel2@concho.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: September 16, 2016	Phone: 575-748-6933	

* Attach Additional Sheets If Necessary

NM OIL CONSERVATION

ARTESIA DISTRICT

State of New Mexico
Energy Minerals and Natural Resources

SEP 16 2016

Form C-141
Revised August 8, 2011

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

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

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

RECEIVED

Release Notification and Corrective Action

NAB1626351435 **229137** **OPERATOR** ☒ Initial Report ☐ Final Report

Name of Company: COG Operating LLC	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-230-0077
Facility Name: COI EMPIRE SOUTH UNIT #015	Facility Type: Battery
Surface Owner: Private	Mineral Owner: Federal
API No. 30-015-22236	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E	08	18S	29E	1980	North	660	West	Eddy

Latitude 32.7637024 Longitude -104.103363

NATURE OF RELEASE

Type of Release: Oil	Volume of Release: 90 bbls	Volume Recovered: 0 bbls
Source of Release: Lightning	Date and Hour of Occurrence: 8/29/2016 unknown	Date and Hour of Discovery: 8/29/2016 8:00 a.m.
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Heather Patterson/NMOCD and Shelly Tucker/BLM	
By Whom? Dakota Neel	Date and Hour: 8/30/2016 12:48 p.m.	
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.*


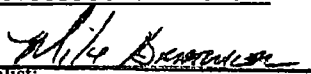
Describe Cause of Problem and Remedial Action Taken.*

This release was caused when lightning struck the facility. The facility was a total loss.

Describe Area Affected and Cleanup Action Taken.*

The release impacted both the location and the pasture immediately surrounding the facility. Oil released during the incident was burned and non-recoverable. 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: Dakota Neel	Signed By  Approved by Environmental Specialist:	
Title: Environmental Coordinator	Approval Date: 9/19/16	Expiration Date: N/A
E-mail Address: dneel2@concho.com	Conditions of Approval: Remediation per O.C.D. Rules & Guidelines <input type="checkbox"/> Attached <input type="checkbox"/>	
Date: September 16, 2016 Phone: 575-748-6933	SUBMIT REMEDIATION PROPOSAL NO	

* Attach Additional Sheets If Necessary

LATER THAN: 10/20/16

2RP-3894



APPENDIX E

Waste Manifest



NEW MEXICO NON-HAZARDOUS OILFIELD WASTE MANIFEST

(PLEASE PRINT)

Company Man Contact Information

Name Carla NellPhone No. 505-215-2183

GENERATOR

NO. 252548

Operator No. _____
Operators Name CU
Address _____
City, State, Zip _____
Phone No. _____

Permit/RRC No. _____
Lease/Well Name & No. CU Empire South Unit 115
County Eddy
API No. 20-015-22236
Rig Name & No. NA
AFE/PO No. _____

EXEMPT E&P Waste/Service Identification and Amount (place volume next to waste type in barrels or cubic yards)

Oil Based Muds	NON-INJECTABLE WATERS	INJECTABLE WATERS
Oil Based Cuttings	Washout Water (Non-Injectable)	Washout Water (Injectable)
Water Based Muds	Completion Fluid/Flow back (Non-Injectable)	Completion Fluid/Flow back (Injectable)
Water Based Cuttings	Produced Water (Non-Injectable)	Produced Water (Injectable)
Produced Formation Solids	Gathering Line Water/Waste (Non-Injectable)	Gathering Line Water/Waste (Injectable)
Tank Bottoms	INTERNAL USE ONLY	OTHER EXEMPT WASTES (type and generation process of the waste)
E&P Contaminated Soil	Truck Washout (exempt waste)	
Gas Plant Waste		

WASTE GENERATION PROCESS: ☐ DRILLING ☐ COMPLETION ☐ PRODUCTION ☐ GATHERING LINES

NON-EXEMPT E&P Waste/Service Identification and Amount

All non-exempt E&P waste must be analysed and be below the threshold limits for toxicity (TCLP), Ignitability, Corrosivity and Reactivity.

Non-Exempt Other _____ *please select from **Non-Exempt Waste List** on back

QUANTITY B - BARRELS L - LIQUID Y - YARDS E - EACH

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste load is (Check the appropriate classification)

- ☒ RCRA EXEMPT: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste (R360 Accepts certifications on a per load basis only)
- ☐ RCRA NON-EXEMPT: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined by 40 CFR, part 261, subpart D, as amended. The following documentation demonstrating the waste as non-hazardous is attached. (Check the appropriate items as provided)
- ☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Other (Provide Description Below)

- ☐ EMERGENCY NON-OILFIELD: Emergency non-hazardous, non-oilfield waste that has been ordered by the Department of Public Safety (the order, documentation of non-hazardous waste determination and a description of the waste must accompany this form)

(PRINT) AUTHORIZED AGENTS NAME

DATE

SIGNATURE

TRANSPORTER

Transporter's Name HPST
Address _____
Phone No. _____

Driver's Name _____
Print Name HBEL
Phone No. _____
Truck No. 1130

I hereby certify that the above named material(s) was/were picked up at the Generator's site listed above and delivered without incident to the disposal facility listed below.

SHIPMENT DATE

DRIVER'S SIGNATURE

DELIVERY DATE

DRIVER'S SIGNATURE

TRUCK TIME STAMP

IN: _____ OUT: _____

DISPOSAL FACILITY

RECEIVING AREA

Name/No. 50151

Site Name/ Permit No. Halfway Facility / NM1-006
Address 6601 Hobbs Hwy US 62/180 Mile Marker 66 Carlsbad, NM 88220

Phone No. 575-393-1079

NORM READINGS TAKEN? (Circle One) YES ☐ NO ☒ If YES, was reading > 50 micro roentgens? (circle one) YES ☐ NO ☐

PASS THE PAINT FILTER TEST? (Circle One) YES ☐ NO ☒

TANK BOTTOMS

1st Gauge	Feet	Inches	BS&W/BBLs Received	BS&W (%)
2nd Gauge			Free Water	
Received			Total Received	

I hereby certify that the above load material has been (circle one): ACCEPTED ☒ DENIED ☐ If denied, why? Incorrect

NAME (PRINT)

DATE

TITLE

SIGNATURE



Permian Basin

Customer: COG OPERATING LLC
Customer #: CRI2120
Ordered by: DAKOTA NEEL
AFE #:
PO #:
Manifest #: NA
Manif. Date: 8/22/2017
Hauler: APSI
Driver: RUBEN
Truck #: 1130
Card #
Job Ref #

Ticket #: 700-828896
Bid #: O6UJ9A00092L
Date: 8/22/2017
Generator: COG OPERATING LLC
Generator #:
Well Ser. #: 22236
Well Name: COI EMPIRE SOUTH UNIT
Well #: .015
Field:
Field #:
Rig: NON-DRILLING
County: EDDY (NM)

Facility: CRI

Product / Service

Quantity Units

Contaminated Soil (RCRA Exempt)

20.00 yards

	Cell	pH	Cl	Cond.	%Solids	TDS	PCI/GM	MR/HR	H2S	% Oil	Weight
Lab Analysis:	50	0.00	0.00	0.00	0						

Generator Certification Statement of Waste Status

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is:

☒ RCRA Exempt: Oil Field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste.

☐ RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24 or listed hazardous waste as defined in 40 CFR, part 261, subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check the appropriate items):

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Process Knowledge ☐ Other (Provide description above)

Driver/ Agent Signature

R360 Representative Signature

Customer Approval

THIS IS NOT AN INVOICE!

Approved By: _____

Date: _____



Permian Basin

Customer: COG OPERATING LLC
Customer #: CRI2120
Ordered by: DAKOTA NEEL
AFE #:
PO #:
Manifest #: NA
Manif. Date: 8/24/2017
Hauler: APSI
Driver: ABEL
Truck #: 1130
Card #
Job Ref #

Ticket #: 700-829311
Bid #: O6UJ9A00092L
Date: 8/24/2017
Generator: COG OPERATING LLC
Generator #:
Well Ser. #: 22236
Well Name: COI EMPIRE SOUTH UNIT
Well #: .015
Field:
Field #:
Rig: NON-DRILLING
County: EDDY (NM)

Facility: CRI

Product / Service											Quantity Units	
Contaminated Soil (RCRA Exempt)											20.00 yards	
	Cell	pH	Cl	Cond.	%Solids	TDS	PCI/GM	MR/HR	H2S	% Oil	Weight	
Lab Analysis:	50	0.00	0.00	0.00	0							

Generator Certification Statement of Waste Status

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is:

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Driver/ Agent Signature

R360 Representative Signature

Customer Approval

THIS IS NOT AN INVOICE!

Approved By: _____

Date: _____



Permian Basin

Customer: COG OPERATING LLC
Customer #: CRI2120
Ordered by: DAKOTA NEEL
AFE #:
PO #:
Manifest #: NA
Manif. Date: 8/24/2017
Hauler: APSI
Driver: ABEL
Truck #: 1130
Card #
Job Ref #

Ticket #: 700-829386
Bid #: O6UJ9A00092L
Date: 8/24/2017
Generator: COG OPERATING LLC
Generator #:
Well Ser. #: 22236
Well Name: COI EMPIRE SOUTH UNIT
Well #: -015
Field:
Field #:
Rig: NON-DRILLING
County: EDDY (NM)

Facility: CRI

Product / Service						Quantity Units					
Contaminated Soil (RCRA Exempt)						20.00 yards					
	Cell	pH	Cl	Cond.	%Solids	TDS	PCI/GM	MR/HR	H2S	% Oil	Weight
Lab Analysis:	50	0.00	0.00	0.00	0						

Generator Certification Statement of Waste Status

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is:

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Driver/ Agent Signature

R360 Representative Signature

Customer Approval

THIS IS NOT AN INVOICE!

Approved By: _____

Date: _____



Permian Basin

Customer: COG OPERATING LLC
Customer #: CRI2120
Ordered by: DAKOTA NEAL
AFE #:
PO #:
Manifest #: NA
Manif. Date: 8/24/2017
Hauler: APSI
Driver: ABEL
Truck #: 1130
Card #
Job Ref #

Ticket #: 700-829345
Bid #: O6UJ9A00092L
Date: 8/24/2017
Generator: COG OPERATING LLC
Generator #:
Well Ser. #: 22236
Well Name: COI EMPIRE SOUTH UNIT
Well #: .015
Field:
Field #:
Rig: NON-DRILLING
County: EDDY (NM)

Facility: CRI

Product / Service						Quantity Units					
Contaminated Soil (RCRA Exempt)						20.00 yards					
	Cell	pH	Cl	Cond.	%Solids	TDS	PCI/GM	MR/HR	H2S	% Oil	Weight
Lab Analysis:	50/51	0.00	0.00	0.00	0						

Generator Certification Statement of Waste Status

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is:

☒ RCRA Exempt: Oil Field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste.

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Driver/ Agent Signature

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Customer Approval

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