



REMEDIATION WORK PLAN

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**

April 2017

Prepared for:

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

Prepared by:

Thomas Franklin
Environmental Manager

Jack Zimmerman, P.G., C.P.G
Senior Geologist

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WORK PLAN

**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**

April 2017

1.0 INTRODUCTION

1.1 Site Description & Background

American Safety Services Inc. (ASSI) has prepared this Work Plan for the Concho Operating, LLC. (COG) COI Empire South Unit #015 (referred to hereinafter as the "Site" or "subject Site"). This Work Plan is based upon the interpretation of the data collected by ASSI.

The COI Empire South Unit #015 is located in Unit Letter E, Section 08, Township 18 South, Range 29 East, Eddy County, New Mexico (GPS 32.7637024, -104.103363).

Remedial actions will be conducted 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 Work Plan is to present documentation of the activities that were performed to date and to request an effective means to remediate 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 175 to 200 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) and 5,000 mg/Kg for Total Petroleum Hydrocarbons (TPH) and 600 mg/Kg for Chloride. Currently, the NMOCD is considering adjusting limits for Chloride concentration in soil from 250 mg/Kg to 600 mg/Kg. Those limits are not included on the current ranking score.

3.0 INITIAL RESPONSE & TRENCHING ACTIVITIES

3.1 Initial Response

On September 21, 2016, ASSI personnel performed a site inspection in response to a lightning strike and subsequent fire at the COG COI Empire South Unit #015 facility. The site inspection was in response to a release directly to the ground of Ninety (90) barrels (bbls) of crude oil. None of the fluids were recovered due to burning in the fire. The release impacted approximately fifteen thousand-sixty (15,060) square feet of production pad and adjacent pasture area.

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

Forty-four (44) soil samples were collected from fourteen (14) auger hole locations on September 21, 2016 by ASSI personnel for laboratory analysis. The samples were analyzed for BTEX, TPH, and Chloride (Table 1). Analytical results were compared to the NMOCD *Guidelines for Remediation of Leaks, Spills and Releases* (Section VI A. Contaminated Soils) and show Chloride exceedances exist above the NMOCD clean-up goals at auger hole location AH-5 from surface to three and a one-half (3.5) foot bgs. Vertical delineation has not been achieved at sample location AH-5. Accordingly, NMOCD's threshold of 600 mg/Kg to satisfy clean-up goals has not been met.

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 normal turn-around time.

Figures 3 and 4 are Site diagrams that indicate the approximate location of the auger holes installed in relation to pertinent land features and general Site boundaries, which is included in Appendix A.

5.0 WORK PLAN

Based upon the data collected and the work completed by ASSI, the constituent of concern (COC) at sample location AH-5 has not been vertically delineated. Laboratory analytical data indicated elevated Chloride concentrations were present from surface to three and one-half (3.5) feet bgs. Furthermore, laboratory analysis shows that TPH and BTEX concentrations are below the NMOCD clean-up goals.

Based on the analytical data, COG and ASSI propose to remove the impacted material as presented in Table 1. The area adjacent to and around location AH-5 will be excavated to a depth of approximately three and one-half (3.5) foot and a test trench will be installed at the bottom of the excavated area to further delineate Chloride concentrations at depth. All material excavated will be stockpiled onsite and subsequently removed (hauled away) offsite to a proper disposal facility under appropriate manifest. The excavated area will then be backfilled to grade with clean material and the surface grade contoured to the surrounding landscape.



APPENDIX A

Figures

N

82

Lovington Hwy

 COI Empire South Unit #15

360

© 2016 Google

Imagery Date: 2/1/1997 lat 32.777912° lon -104.084811°



N

 COI Empire South Unit #15



Imagery Date: 3/12/199616 lat 32.763717° lon -104.103093°

September 14, 2016

COI Empire South Unit #015

COI EMPIRE SOUTH UNIT #015

(30-015-22236)

Legend

- AOI
- TANK

32.763494, -104.103221

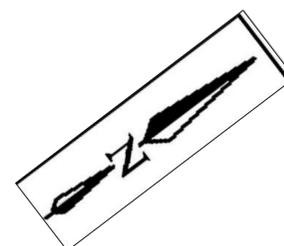
Tank



200 ft

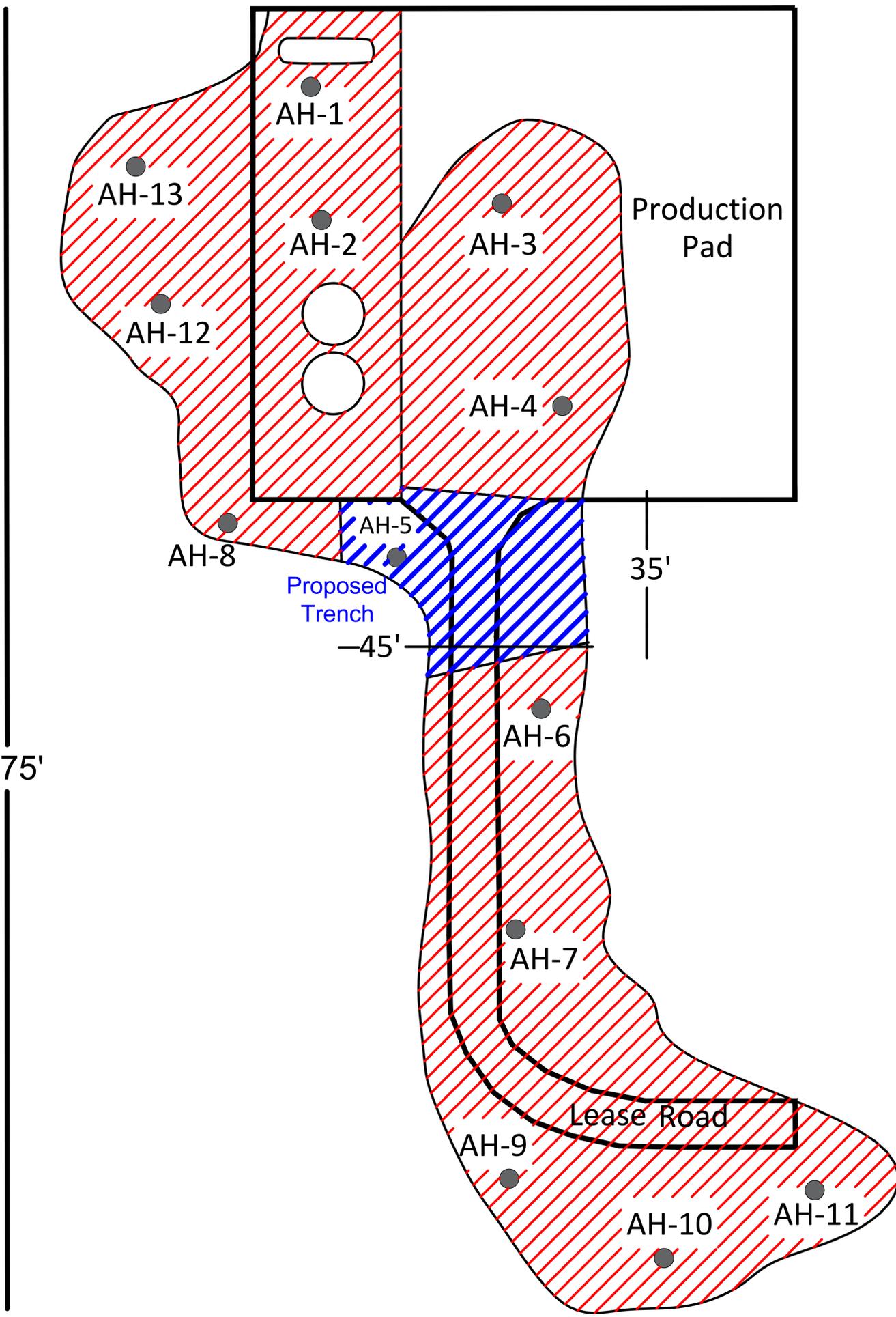
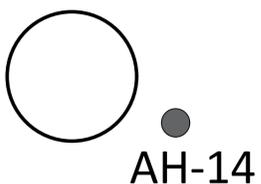
Google earth





55' 35'

Ejected Tank



Legend

-  Spill Area
-  3.5' Excavation
-  Sample Point

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



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

FIGURE 4
Proposed Excavation Areas



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	<10.0	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
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

Proposed Excavation Depth

Concentrations in **BOLD** exceed the NMOCD Guidelines

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-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

mg/Kg - milligrams per Kilogram

- = Not Established

Proposed Excavation Depth

Concentrations in **BOLD** exceed the NMOCD Guidelines



APPENDIX C

Laboratory Analysis

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

Cardinal Laboratories

* = Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence or any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



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	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	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			96.7 %			6092301	MS	23-Sep-16	8021B	

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	
<i>Surrogate: 1-Chlorooctane</i>			70.0 %			6092201	MS	22-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			101 %			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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			96.4 %		73.6-140	6092301	MS	23-Sep-16	8021B	
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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	
<i>Surrogate: 1-Chlorooctane</i>			84.6 %		35-147	6092201	MS	22-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			101 %		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-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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			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	6092201	MS	22-Sep-16	8015B	
DRO >C10-C28	25.8		10.0	mg/kg	1	6092201	MS	22-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctane</i>			86.0 %		35-147	6092201	MS	22-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			99.9 %		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-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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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-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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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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			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	
<i>Surrogate: 1-Chlorooctane</i>			81.1 %		35-147	6092705	MS	27-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			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	
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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	<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, 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 (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	
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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	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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			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	
<i>Surrogate: 1-Chlorooctane</i>			87.1 %		35-147	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			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, 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 (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, 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 (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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			94.7 %		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	16.9		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctane</i>			87.2 %		35-147	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			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	
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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			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, 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 (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, 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 (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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			95.7 %		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	18.7		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctane</i>			80.4 %		35-147	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			97.3 %		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	
<i>Surrogate: 1-Chlorooctane</i>			84.6 %		35-147	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			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-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, 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 (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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			96.7 %		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	34.2		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctane</i>			86.4 %		35-147	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			96.7 %	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	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctane</i>			86.8 %	35-147		6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			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, 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 (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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			97.2 %		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	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctane</i>			81.5 %		35-147	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			93.3 %		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, 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	
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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			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, 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 (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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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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			96.3 %		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	27.5		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctane</i>			84.0 %		35-147	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			96.5 %		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	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctane</i>			85.1 %		35-147	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			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-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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			95.9 %		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	717		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctane</i>			86.3 %		35-147	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			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	
<i>Surrogate: 1-Chlorooctane</i>			78.9 %	35-147		6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			95.1 %	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-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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			96.0 %		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	115		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctane</i>			79.1 %		35-147	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			96.9 %		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	17.5		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctane</i>			79.5 %		35-147	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			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, 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 (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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			97.5 %		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	20.4		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctane</i>			80.4 %		35-147	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			95.9 %	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	<10.0		10.0	mg/kg	1	6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctane</i>			80.1 %	35-147		6092202	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			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-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	
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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			97.3 %		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	6092203	MS	23-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6092203	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctane</i>			72.2 %		35-147	6092203	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			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, 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 (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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			97.8 %		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	6092203	MS	23-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6092203	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctane</i>			74.2 %		35-147	6092203	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			97.1 %		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	6092203	MS	23-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6092203	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctane</i>			77.0 %		35-147	6092203	MS	23-Sep-16	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			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							
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>	<i>0.0513</i>		<i>mg/kg</i>	<i>0.0500</i>		<i>103</i>	<i>73.6-140</i>			

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			
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>	<i>0.0507</i>		<i>mg/kg</i>	<i>0.0500</i>		<i>101</i>	<i>73.6-140</i>			

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	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>	<i>0.0495</i>		<i>mg/kg</i>	<i>0.0500</i>		<i>99.0</i>	<i>73.6-140</i>			

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			
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>	<i>0.0665</i>		<i>mg/kg</i>	<i>0.0500</i>		<i>133</i>	<i>73.6-140</i>			

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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
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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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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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			
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>	<i>0.0488</i>		mg/kg	<i>0.0500</i>		<i>97.5</i>	<i>73.6-140</i>			

LCS Dup (6092602-BSD1)

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	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>	<i>0.0484</i>		mg/kg	<i>0.0500</i>		<i>96.9</i>	<i>73.6-140</i>			

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			
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>	<i>0.0496</i>		mg/kg	<i>0.0500</i>		<i>99.2</i>	<i>73.6-140</i>			

Matrix Spike Dup (6092602-MSD1)

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	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>	<i>0.0494</i>		mg/kg	<i>0.0500</i>		<i>98.8</i>	<i>73.6-140</i>			

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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							
<i>Surrogate: 1-Chlorooctane</i>	41.9		mg/kg	50.0		83.8	35-147			
<i>Surrogate: 1-Chlorooctadecane</i>	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			
<i>Surrogate: 1-Chlorooctane</i>	50.7		mg/kg	50.0		101	35-147			
<i>Surrogate: 1-Chlorooctadecane</i>	55.6		mg/kg	50.0		111	28-171			

LCS Dup (6092201-BSD1)

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	
<i>Surrogate: 1-Chlorooctane</i>	50.3		mg/kg	50.0		101	35-147			
<i>Surrogate: 1-Chlorooctadecane</i>	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
<i>Surrogate: 1-Chlorooctane</i>	53.7		mg/kg	50.0		107	35-147			
<i>Surrogate: 1-Chlorooctadecane</i>	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-BSD1)

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-MSD1)

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

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

BILL TO

ANALYSIS REQUEST

Company Name: COG P.O. #: _____
 Project Manager: Darsh Neel Company: COG
 Address: _____ Attn: Robert McNeil
 City: _____ State: _____ Zip: _____
 Phone #: _____ Fax #: _____
 Project #: _____ Project Owner: _____
 Project Name: Empire South Unit # 15 State: TX Zip: _____
 Project Location: Eddy Co NW Phone #: _____
 Sampler Name: Ryan Rich Fax #: _____

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	TPH	BTEX	Chloride	Duplicate
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :						
H602120	AH1 (0-1)	C	1	X						9/21/16					
	2 (1-1.5)	C	1	X							X				
	3 (2-2.5)	C	1	X							X				
	AH2 (0-1)	C	1	X							X				
	4 (1-1.5)	C	1	X							X				
	5 (2-2.5)	C	1	X							X				
	AH3 (0-1)	C	1	X							X				
	6 (1-1.5)	C	1	X							X				
	7 (2-2.5)	C	1	X							X				
	AH4 (0-1)	C	1	X							X				
	8 (1-1.5)	C	1	X							X				
	9 (2-2.5)	C	1	X							X				

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons, or otherwise.

Relinquished By: [Signature] Date: 9/21/16 Received By: [Signature]
 Relinquished By: [Signature] Date: 9/21/16 Received By: [Signature]

Delivered By: (Circle One) UPS 9:20 Sample Condition: Intact CHECKED BY: [Signature]
 Sampler - UPS - Bus - Other: 9:20 Cool Intact Yes No

REMARKS: Samples Skipped from Field
IT TPH exceeds 5,000 mg/lbs, Benzene exceeds 10 mg/lbs or Total BTEX exceeds 50 mg/lbs in deeper samples



CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Drews Noel, Co

Project Manager: Drews Noel, Co

Address: _____ State: _____ Zip: _____

City: _____ State: _____ Zip: _____

Phone #: _____ Fax #: _____

Project #: _____ Project Owner: _____

Project Name: Empire South Unit #15

Project Location: Eddy Co NM

Sampler Name: Rosa Reid

FOR LAB USE ONLY

BILL TO

P.O. #: _____

Company: DN

Attn: Rober F. McNeil

Address: _____

City: Midland

State: TX Zip: _____

Phone #: _____

Fax #: _____

ANALYSIS REQUEST

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	TPH	BTEX	Chloride	Duplicate
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :						
<u>H002120</u>	<u>AN3 (1-15)</u>	<u>G</u>	<u>1</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
	<u>T2 (2-25)</u>	<u>C</u>	<u>1</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
	<u>10 T3 (2-1)</u>	<u>C</u>	<u>1</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
	<u>11 T4 (1-15)</u>	<u>G</u>	<u>1</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
	<u>12 T5 (2-25)</u>	<u>C</u>	<u>1</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
	<u>13 T6 (3-35)</u>	<u>C</u>	<u>1</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
	<u>14 T7 (0-1)</u>	<u>C</u>	<u>1</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
	<u>15 T8 (1-15)</u>	<u>C</u>	<u>1</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
	<u>16 T9 (2-25)</u>	<u>C</u>	<u>1</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
	<u>17 T10 (3-35)</u>	<u>C</u>	<u>1</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>										

PLEASE NOTE: Liability and Damages, Cardinal's liability and clients exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analysis. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruption, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: [Signature] Date: 9/21/16 Time: 1500

Received By: Medi Jansen Date: _____ Time: _____

Relinquished By: [Signature] Date: _____ Time: _____

Received By: [Signature] Date: _____ Time: _____

Delivered By: (Circle One) UPS - Bus - Other: _____

Sample Condition: Cool Intact Yes No

Checked By: [Signature] (Initials)

REMARKS: See remarks on pg 1

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326 #95

pg 2 of 5



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

13 3 of 5

BILL TO

ANALYSIS REQUEST

Company Name: 96
 Project Manager: Dorela Noel
 Address: _____
 City: _____ State: _____ Zip: _____
 Phone #: _____ Fax #: _____
 Project #: _____ Project Owner: _____
 Project Name: Empire South Unit #15
 Project Location: Ed 17 Co N/A
 Sampler Name: Pava Reile
 P.O. #: _____ Company: 96
 Attn: Robert McNeil
 Address: _____ City: _____
 State: _____ Zip: _____
 Phone #: _____ Fax #: _____

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	TPH	BTEX	Chloride
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :					
<u>H602180</u>	<u>A16 (0-1)</u>	<u>✓</u>	<u>1</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>9/21/16</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	
<u>19 20 25</u>	<u>(1-1.5)</u>	<u>✓</u>	<u>6</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>		<u>✓</u>	<u>✓</u>	<u>✓</u>	
<u>20 25</u>	<u>(2-2.5)</u>	<u>✓</u>	<u>6</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>		<u>✓</u>	<u>✓</u>	<u>✓</u>	
<u>21 25 24</u>	<u>13-3.5</u>	<u>✓</u>	<u>6</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>		<u>✓</u>	<u>✓</u>	<u>✓</u>	
<u>22 25 25</u>	<u>A17 (0-1)</u>	<u>✓</u>	<u>6</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>		<u>✓</u>	<u>✓</u>	<u>✓</u>	
<u>23 24 26</u>	<u>(1-1.5)</u>	<u>✓</u>	<u>6</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>		<u>✓</u>	<u>✓</u>	<u>✓</u>	
<u>24 25</u>	<u>(2-2.5)</u>	<u>✓</u>	<u>6</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>		<u>✓</u>	<u>✓</u>	<u>✓</u>	
<u>25 26</u>	<u>A18 (0-1)</u>	<u>✓</u>	<u>6</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>		<u>✓</u>	<u>✓</u>	<u>✓</u>	
<u>26 27</u>	<u>(1-1.5)</u>	<u>✓</u>	<u>6</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>		<u>✓</u>	<u>✓</u>	<u>✓</u>	
<u>27 28</u>	<u>(2-2.5)</u>	<u>✓</u>	<u>6</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>		<u>✓</u>	<u>✓</u>	<u>✓</u>	

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Relinquished By: [Signature]
 Date: 9/21/16
 Time: 1500
 Received By: [Signature]
 Date: _____
 Time: _____

Delivered By: (Circle One)
 Sampler - UPS - Bus - Other: 9.12c
 Sample Condition
 Cool Yes No
 Anhydrous Yes No
 Checked By: [Signature]

REMARKS: See remarks on PS 1
 Phone Result: Yes No
 Add'l Phone #: _____
 Fax Result: Yes No
 Add'l Fax #: _____

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

PS 5 of 5

Company Name: <u>CG</u> Project Manager: <u>Ashley Noel</u> Address: City: State: Zip: Phone #: Fax #: Project #: Project Name: <u>Empire South Unit # 15</u> Project Location: <u>Eddy Co NR</u> Sampler Name: <u>Ryan Parks</u>		BILL TO P.O. #: Company: <u>CG</u> Attn: <u>Robert McNeil</u> Address: City: <u>Midland</u> State: <u>TX</u> Zip: Phone #: Fax #:	
FOR LAB USE ONLY Lab I.D. Sample I.D.		(G)RAB OR (C)OMP. # CONTAINERS GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER : ACID/BASE: ICE / COOL OTHER :	MATRIX PRESERV SAMPLING
38 <u>41</u> 39 <u>42</u> 40 <u>43</u> 41 <u>44</u> 42 <u>45</u> 43 <u>46</u> 44 <u>47</u>	AH 12 (1-1.5) ↑ (2-2.5) AH 13 (0-1) ↓ (1-1.5) ↓ (2-2.5) AH 14 (0-1) ↑ (1-1.5)	6 6 6 6 6 6	1 1 1 1 1 1
DATE TIME		DATE TIME	
9/2/16 1500		9/2/16 1500	
Relinquished By: <u>[Signature]</u> Relinquished Date: <u>9/2/16</u> Time: <u>1500</u>		Received By: <u>[Signature]</u> Received Date: <u>9/2/16</u> Time: <u>1500</u>	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Sample Condition Cool <input type="checkbox"/> Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
REMARKS: <u>See Remarks on PS 1</u>		ANALYSIS REQUEST TPH <input checked="" type="checkbox"/> BTEX <input checked="" type="checkbox"/> Chloride <input checked="" type="checkbox"/>	

* Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326



APPENDIX D

Initial 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	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: 	<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

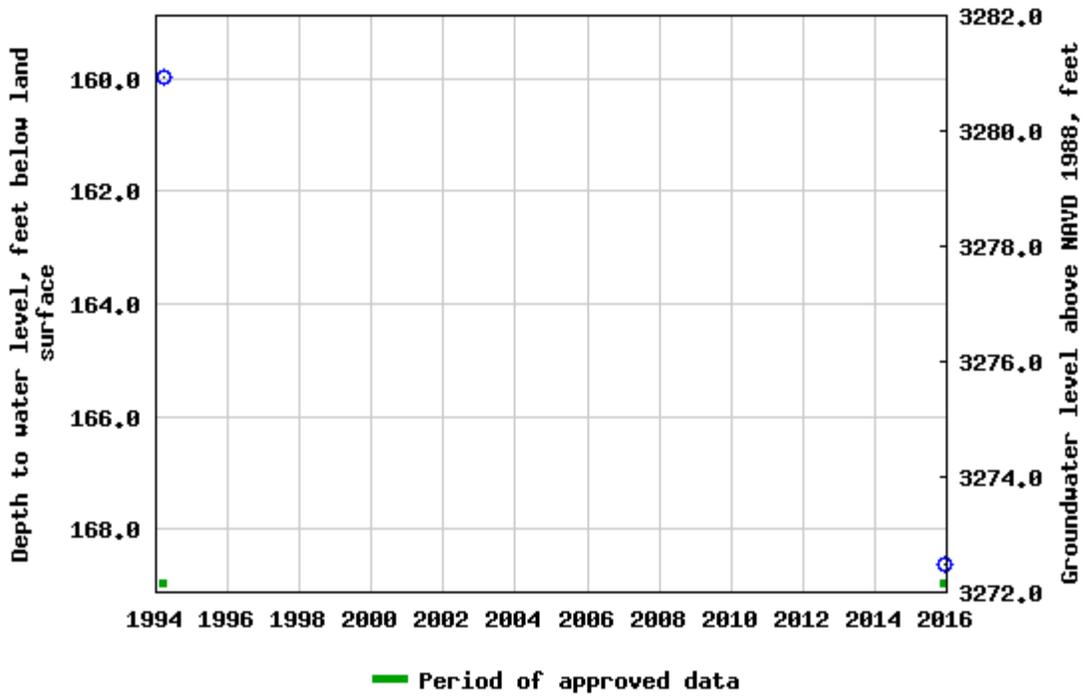


APPENDIX E

Groundwater Data



USGS 324402104014701 18S.29E.24.14413



USGS 324403104013601 18S.29E.24.23313

