



5433May 18, 2020

Oil Conservation Division, District II  
811 S. First St.  
Artesia, NM 88210

**Arabian 6 Fee #006H**

**RP#: 2RP-5433**

**DOR: May 1, 2019**

**GPS: 32.68315, -104.42246**

**Unit Letter N, Section 06, Township 19 South, Range 26 East  
Eddy County, New Mexico**

To Whom It May Concern,

COG Operating, LLC (COG) is pleased to submit the following work plan in response to a release that occurred at the Arabian 6 Fee #006H tank battery. The release is in Unit Letter N, Section 06, Township 19 South, Range 26 East in Eddy County, New Mexico. More specifically the latitude and longitude for the release are 32.68315 North and -104.42246 West.

**BACKGROUND**

The release was discovered on May 1, 2019 and was caused by a packing gland on the valve pressuring up and blowing out a stuffing box packing. A C-141 initial report was submitted to the New Mexico Oil Conservation Division (NMOCD). The initial C-141 is presented in Appendix A. The release resulted in approximately eighteen (18) barrels (bbls) of produced water and a tenth (0.1) bbl of oil. Fifteen (15) bbls of produced water was recovered by a vacuum truck.

On August 16, 2019, A total of sixteen (16) soil samples (B1 thru B12, and S1-S4) were collected to delineate the impacted area. The site and sample map is attached. On September 24, 2019 personnel returned to the location to collect additional samples around B3, B5, B10 & B11 due to elevated chlorides found in the initial sample event. Analytical results are shown in Table 1 and reports are attached in Appendix D.

**GROUNDWATER AND REGULATORY FRAMEWORK**

According to water data from the New Mexico Office of State Engineers (NMOSE) the depth to groundwater for the location is estimated to be greater than 100 ft (bgs). NMOSE data can be found in Appendix B.

A risk based evaluation and site determinations were performed in accordance to the New Mexico Oil Conservation Division (NMOCD) Rule (Title 19 Chapter 15 Part 29) for releases on oil and gas development and production in New Mexico (effective August 14, 2018). According to the site characterization evaluation, the location is in medium karst. No other receptors (water wells, playas, water course, flood plain, or lake beds) were located within each specific boundaries or distance from the site. The groundwater data and the site characterization evaluation data is summarized in Appendix C. The delineation and closure criteria are listed below:

#### General Site Characterization and Groundwater:

Site Characterization	Average Groundwater Depth (ft.)
Medium karst	>100 feet

#### Delineation and Closure Criteria:

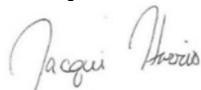
Recommended Remedial Action Levels (RRALs)	
Chlorides	600 mg/kg
TPH (GRO and DRO and MRO)	100 mg/kg
Benzene	10 mg/kg
Total BTEX	50 mg/kg

#### REQUEST FOR DEFERRAL

- The impacted area in the vicinity of sample locations B3, B10, & B11 are located in the immediate vicinity of the wellhead. Due to the location of the contamination and the remediation causing a major facility deconstruction, COG respectfully requests these areas be deferred until the well is plugged and abandoned. Final remediation and reclamation will take place in accordance with 19.15.29.12 and 19.15.29.13 NMAC.

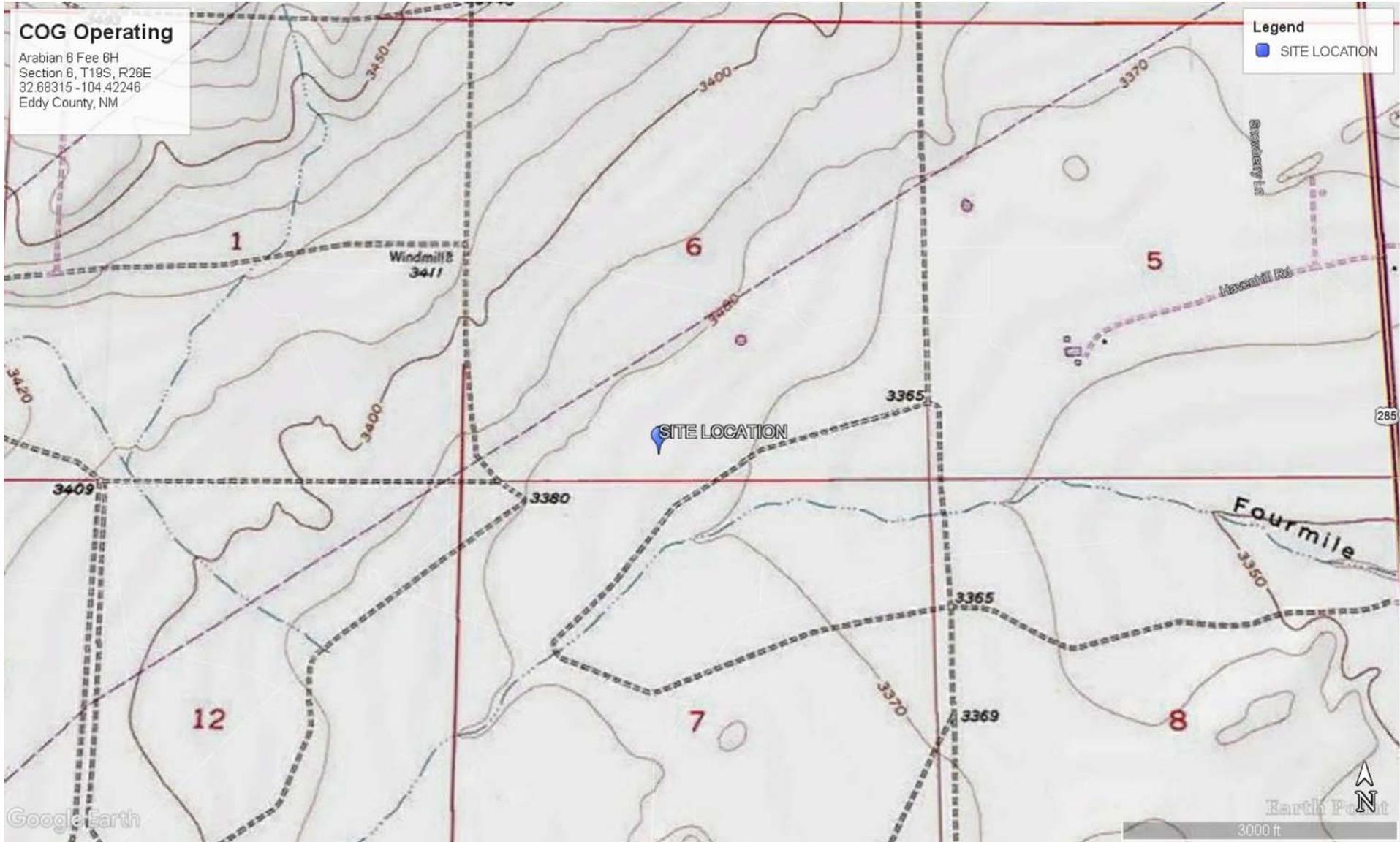
Should you have any questions or concerns about this release, please do not hesitate to contact me.

Sincerely,



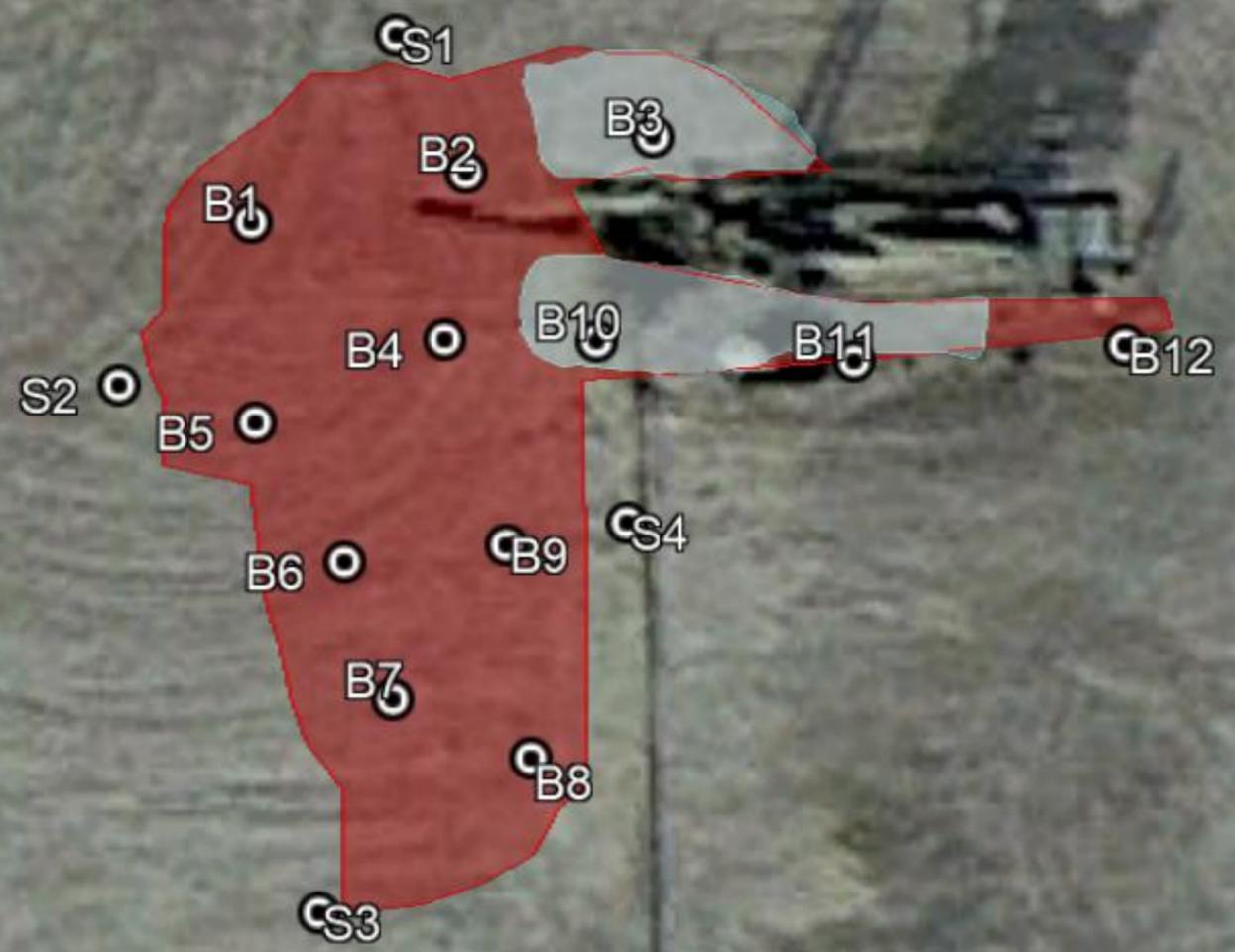
Jacqui Harris  
Senior HSE Coordinator  
[Jharris2@concho.com](mailto:Jharris2@concho.com)

# Maps



5/8/2020

# Site and Sample Map Arabian 6 Fee #006H 2RP-5433



51 ft

© 2020 Google

Google Earth

1997

Imagery Date: 12/21/2019 lat 32.682839° lon -104.422199° elev 3378 ft eye alt 3603 ft

# Table of Analytical Data

**Table 1**  
**COG Operating LLC.**  
**Arabian 6 Fee # 006H**  
**Eddy County, New Mexico**

Sample ID	Sample Date	Soil Status		TPH (mg/kg)							Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	
		In-Situ	Removed	GRO	DRO	MRO	Total	GRO	DRO	Total				
GW	>100													
<b>NMOCD RAL Limits (mg/kg)</b>				<b>-</b>			<b>100</b>	<b>-</b>			<b>10</b>	<b>50</b>	<b>600</b>	
B1	8/16/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<0.300	352	
B2	8/17/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<0.300	560	
B3	8/18/2019	X	re-sampled	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<0.300	704	
	9/24/2019	X		-	-	-	-	-	-	-	-	-	<b>768</b>	
B4	8/19/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<0.300	96	
B5	8/20/2019	X	re-sampled	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<0.300	688	
B5	9/24/2019	X		-	-	-	-	-	-	-	-	-	176	
B6	8/21/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<0.300	48	
B7	8/22/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<0.300	480	
B8	8/23/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<0.300	368	
B9	8/24/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<0.300	448	
B10	8/25/2019	X	re-sampled	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<0.300	768	
	9/24/2019	X		-	-	-	-	-	-	-	-	-	<b>864</b>	
B11	8/26/2019	X	re-sampled	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<0.300	688	
	9/24/2019	X		-	-	-	-	-	-	-	-	-	<b>1,120</b>	
B12	8/27/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<0.300	32	
S1	8/28/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<0.300	352	
S2	8/29/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<0.300	352	
S3	8/30/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<0.300	352	
S4	8/31/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<0.300	176	

(-) Not Analyzed

Proposed Deferral

# Appendix A

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

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

Form C-141  
Revised August 24, 2018  
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

## Release Notification

### Responsible Party

Responsible Party	OGRID
Contact Name	Contact Telephone
Contact email	Incident # (assigned by OCD)
Contact mailing address	

### Location of Release Source

Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Site Type
Date Release Discovered	API# (if applicable)

Unit Letter	Section	Township	Range	County

Surface Owner:  State  Federal  Tribal  Private (Name: \_\_\_\_\_)

### Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

State of New Mexico  
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC?  <input type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

### Initial Response

*The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury*

<input type="checkbox"/> The source of the release has been stopped. <input type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.
If all the actions described above have <u>not</u> been undertaken, explain why:
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.
Printed Name: _____ Title: _____ Signature: <u>Delann Opreant</u> Date: _____ email: _____ Telephone: _____
<b><u>OCD Only</u></b> Received by: <u>Amalia Baramante</u> Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

## Site Assessment/Characterization

*This information must be provided to the appropriate district office no later than 90 days after the release discovery date.*

What is the shallowest depth to groundwater beneath the area affected by the release?	_____ (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

**Characterization Report Checklist: Each of the following items must be included in the report.**

- Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- Field data
- Data table of soil contaminant concentration data
- Depth to water determination
- Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- Boring or excavation logs
- Photographs including date and GIS information
- Topographic/Aerial maps
- Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.



Incident ID	
District RP	
Facility ID	
Application ID	

## Remediation Plan

**Remediation Plan Checklist:** *Each of the following items must be included in the plan.*

- Detailed description of proposed remediation technique
- Scaled sitemap with GPS coordinates showing delineation points
- Estimated volume of material to be remediated
- Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

**Deferral Requests Only:** *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- Extents of contamination must be fully delineated.
- Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_  
 Signature:   Jacqui Heredia   \_\_\_\_\_ Date: \_\_\_\_\_  
 email: \_\_\_\_\_ Telephone: \_\_\_\_\_

**OCD Only**

Received by:   Cristina Eads   Date:   05/21/2020  

- Approved     Approved with Attached Conditions of Approval     Denied     Deferral Approved

Signature:   Cristina Eads   Date:   07/22/2020

# Appendix B

# COG Operating

Arabian 6 Fee 6H  
Section 8, T19S, R26E  
32.68315 -104.42246  
Eddy County, NM

**Legend**

- High
- Low
- Medium
- SITE LOCATION

SITE LOCATION

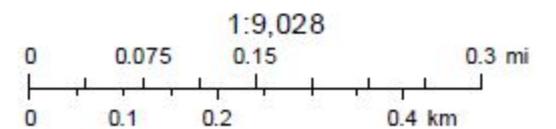


1000 ft

# New Mexico NFHL Data



May 20, 2020



Navigation and status icons: a save icon, a print icon, up and down arrows, a page indicator '1 / 1', zoom in and zoom out icons, and a share icon.

FEMA  
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus



# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

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

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

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

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
<a href="#">RA 07954</a>	RA	ED		3	2	3	05	19S	26E	555566	3616763*	1492	290	175	115
<a href="#">RA 07066</a>	RA	ED		3	4	1	05	19S	26E	555561	3617166*	1656	202	100	102
<a href="#">RA 03983</a>	RA	CH			4	3	01	19S	25E	552457	3616444*	1692	375	100	275
<a href="#">RA 01343</a>	RA	ED		2	1	1	18	19S	26E	553777	3614525*	1821	440	69	371
<a href="#">RA 07066 POD2</a>	RA	ED		4	4	1	05	19S	26E	555761	3617166*	1830	150		
<a href="#">RA 06986</a>	RA	ED			1	4	05	19S	26E	556070	3616865*	2004	195	165	30
<a href="#">RA 07172</a>	RA	ED			1	4	05	19S	26E	556070	3616865*	2004	210	95	115
<a href="#">RA 06588</a>	RA	ED		4	3	4	05	19S	26E	556173	3616360*	2029	200		
<a href="#">RA 08557</a>	RA	ED		2	1	4	05	19S	26E	556169	3616964*	2128	232	100	132
<a href="#">RA 07165</a>	RA	ED			3	2	05	19S	26E	556065	3617269*	2147	193	110	83
<a href="#">RA 07508</a>	RA	ED			3	2	05	19S	26E	556065	3617269*	2147	185	150	35
<a href="#">RA 10133</a>	RA	ED			3	2	05	19S	26E	556065	3617269*	2147	177	138	39
<a href="#">RA 08098</a>	RA	ED		3	1	2	05	19S	26E	555959	3617571*	2210	215	100	115
<a href="#">RA 08315</a>	RA	ED		3	1	2	05	19S	26E	555959	3617571*	2210	195	100	95
<a href="#">RA 08567</a>	RA	ED		1	4	4	05	19S	26E	556376	3616561*	2246	264	80	184
<a href="#">RA 07639</a>	RA	ED			3	1	01	19S	25E	552049	3617250*	2296	260	172	88
<a href="#">RA 06129</a>	RA	ED			4	4	05	19S	26E	556477	3616462*	2338	125	190	-65
<a href="#">RA 07260</a>	RA	ED			1	2	05	19S	26E	556060	3617672*	2351	198	100	98
<a href="#">RA 12324 POD1</a>	RA	ED		3	4	2	05	19S	26E	556339	3617207	2371	235	135	100
<a href="#">RA 12627 POD1</a>	RA	ED		1	2	4	05	19S	26E	556415	3617007	2375	220	100	120
<a href="#">RA 07239</a>	RA	ED			2	4	05	19S	26E	556472	3616866*	2393	191	100	91
<a href="#">RA 11633 POD1</a>	RA	ED		2	1	2	05	19S	26E	556059	3617756	2400	180	130	50

\*UTM location was derived from PLSS - see Help

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

Average Depth to Water: **120 feet**

Minimum Depth: **69 feet**

Maximum Depth: **190 feet**

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**Record Count:** 22

**UTMNAD83 Radius Search (in meters):**

**Easting (X):** 554144

**Northing (Y):** 3616309

**Radius:** 2415

# Appendix C



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

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August 22, 2019

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

RE: ARABIAN 6 FEE # 6

Enclosed are the results of analyses for samples received by the laboratory on 08/21/19 12:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style.

Celey D. Keene  
Lab Director/Quality Manager



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

**Analytical Results For:**

COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received: 08/21/2019  
 Reported: 08/22/2019  
 Project Name: ARABIAN 6 FEE # 6  
 Project Number: NONE GIVEN  
 Project Location: COG

Sampling Date: 08/16/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: B 1 (H902878-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/21/2019	ND	1.79	89.7	2.00	0.0805	
Toluene*	<0.050	0.050	08/21/2019	ND	1.99	99.6	2.00	6.86	
Ethylbenzene*	<0.050	0.050	08/21/2019	ND	2.02	101	2.00	7.43	
Total Xylenes*	<0.150	0.150	08/21/2019	ND	6.15	102	6.00	7.61	
Total BTEX	<0.300	0.300	08/21/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	352	16.0	08/22/2019	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/21/2019	ND	204	102	200	0.808	
DRO >C10-C28*	<10.0	10.0	08/21/2019	ND	196	98.2	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	08/21/2019	ND					

Surrogate: 1-Chlorooctane 88.3 % 41-142

Surrogate: 1-Chlorooctadecane 89.5 % 37.6-147

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 and 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 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 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



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

**Analytical Results For:**

COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received: 08/21/2019  
 Reported: 08/22/2019  
 Project Name: ARABIAN 6 FEE # 6  
 Project Number: NONE GIVEN  
 Project Location: COG

Sampling Date: 08/16/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: B 2 (H902878-02)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/21/2019	ND	1.79	89.7	2.00	0.0805	
Toluene*	<0.050	0.050	08/21/2019	ND	1.99	99.6	2.00	6.86	
Ethylbenzene*	<0.050	0.050	08/21/2019	ND	2.02	101	2.00	7.43	
Total Xylenes*	<0.150	0.150	08/21/2019	ND	6.15	102	6.00	7.61	
Total BTEX	<0.300	0.300	08/21/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	560	16.0	08/22/2019	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/21/2019	ND	204	102	200	0.808	
DRO >C10-C28*	<10.0	10.0	08/21/2019	ND	196	98.2	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	08/21/2019	ND					

Surrogate: 1-Chlorooctane 94.7 % 41-142

Surrogate: 1-Chlorooctadecane 98.9 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received: 08/21/2019  
 Reported: 08/22/2019  
 Project Name: ARABIAN 6 FEE # 6  
 Project Number: NONE GIVEN  
 Project Location: COG

Sampling Date: 08/16/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: B 3 (H902878-03)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/21/2019	ND	1.79	89.7	2.00	0.0805	
Toluene*	<0.050	0.050	08/21/2019	ND	1.99	99.6	2.00	6.86	
Ethylbenzene*	<0.050	0.050	08/21/2019	ND	2.02	101	2.00	7.43	
Total Xylenes*	<0.150	0.150	08/21/2019	ND	6.15	102	6.00	7.61	
Total BTEX	<0.300	0.300	08/21/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	704	16.0	08/22/2019	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/21/2019	ND	204	102	200	0.808	
DRO >C10-C28*	<10.0	10.0	08/21/2019	ND	196	98.2	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	08/21/2019	ND					

Surrogate: 1-Chlorooctane 101 % 41-142

Surrogate: 1-Chlorooctadecane 107 % 37.6-147

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**Analytical Results For:**

COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received: 08/21/2019  
 Reported: 08/22/2019  
 Project Name: ARABIAN 6 FEE # 6  
 Project Number: NONE GIVEN  
 Project Location: COG

Sampling Date: 08/16/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: B 4 (H902878-04)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/21/2019	ND	1.79	89.7	2.00	0.0805	
Toluene*	<0.050	0.050	08/21/2019	ND	1.99	99.6	2.00	6.86	
Ethylbenzene*	<0.050	0.050	08/21/2019	ND	2.02	101	2.00	7.43	
Total Xylenes*	<0.150	0.150	08/21/2019	ND	6.15	102	6.00	7.61	
Total BTEX	<0.300	0.300	08/21/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	08/22/2019	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/21/2019	ND	204	102	200	0.808	
DRO >C10-C28*	<10.0	10.0	08/21/2019	ND	196	98.2	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	08/21/2019	ND					

Surrogate: 1-Chlorooctane 108 % 41-142

Surrogate: 1-Chlorooctadecane 114 % 37.6-147

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**Analytical Results For:**

COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received: 08/21/2019  
 Reported: 08/22/2019  
 Project Name: ARABIAN 6 FEE # 6  
 Project Number: NONE GIVEN  
 Project Location: COG

Sampling Date: 08/16/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: B 5 (H902878-05)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/22/2019	ND	1.79	89.7	2.00	0.0805	
Toluene*	<0.050	0.050	08/22/2019	ND	1.99	99.6	2.00	6.86	
Ethylbenzene*	<0.050	0.050	08/22/2019	ND	2.02	101	2.00	7.43	
Total Xylenes*	<0.150	0.150	08/22/2019	ND	6.15	102	6.00	7.61	
Total BTEX	<0.300	0.300	08/22/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	688	16.0	08/22/2019	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/21/2019	ND	204	102	200	0.808	
DRO >C10-C28*	<10.0	10.0	08/21/2019	ND	196	98.2	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	08/21/2019	ND					

Surrogate: 1-Chlorooctane 106 % 41-142

Surrogate: 1-Chlorooctadecane 112 % 37.6-147

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**Analytical Results For:**

COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received: 08/21/2019  
 Reported: 08/22/2019  
 Project Name: ARABIAN 6 FEE # 6  
 Project Number: NONE GIVEN  
 Project Location: COG

Sampling Date: 08/16/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: B 6 (H902878-06)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/22/2019	ND	1.79	89.7	2.00	0.0805	
Toluene*	<0.050	0.050	08/22/2019	ND	1.99	99.6	2.00	6.86	
Ethylbenzene*	<0.050	0.050	08/22/2019	ND	2.02	101	2.00	7.43	
Total Xylenes*	<0.150	0.150	08/22/2019	ND	6.15	102	6.00	7.61	
Total BTEX	<0.300	0.300	08/22/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 109 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	08/22/2019	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/21/2019	ND	204	102	200	0.808	
DRO >C10-C28*	<10.0	10.0	08/21/2019	ND	196	98.2	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	08/21/2019	ND					

Surrogate: 1-Chlorooctane 112 % 41-142

Surrogate: 1-Chlorooctadecane 120 % 37.6-147

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**Analytical Results For:**

COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received: 08/21/2019  
 Reported: 08/22/2019  
 Project Name: ARABIAN 6 FEE # 6  
 Project Number: NONE GIVEN  
 Project Location: COG

Sampling Date: 08/16/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: B 7 (H902878-07)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/22/2019	ND	1.75	87.3	2.00	4.33	
Toluene*	<0.050	0.050	08/22/2019	ND	2.10	105	2.00	2.42	
Ethylbenzene*	<0.050	0.050	08/22/2019	ND	2.14	107	2.00	2.66	
Total Xylenes*	<0.150	0.150	08/22/2019	ND	6.56	109	6.00	3.68	
Total BTEX	<0.300	0.300	08/22/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	480	16.0	08/22/2019	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/21/2019	ND	204	102	200	0.808	
DRO >C10-C28*	<10.0	10.0	08/21/2019	ND	196	98.2	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	08/21/2019	ND					

Surrogate: 1-Chlorooctane 103 % 41-142

Surrogate: 1-Chlorooctadecane 108 % 37.6-147

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**Analytical Results For:**

COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received: 08/21/2019  
 Reported: 08/22/2019  
 Project Name: ARABIAN 6 FEE # 6  
 Project Number: NONE GIVEN  
 Project Location: COG

Sampling Date: 08/16/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: B 8 (H902878-08)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/22/2019	ND	1.75	87.3	2.00	4.33	
Toluene*	<0.050	0.050	08/22/2019	ND	2.10	105	2.00	2.42	
Ethylbenzene*	<0.050	0.050	08/22/2019	ND	2.14	107	2.00	2.66	
Total Xylenes*	<0.150	0.150	08/22/2019	ND	6.56	109	6.00	3.68	
Total BTEX	<0.300	0.300	08/22/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	368	16.0	08/22/2019	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/21/2019	ND	204	102	200	0.808	
DRO >C10-C28*	<10.0	10.0	08/21/2019	ND	196	98.2	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	08/21/2019	ND					

Surrogate: 1-Chlorooctane 102 % 41-142

Surrogate: 1-Chlorooctadecane 110 % 37.6-147

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**Analytical Results For:**

COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received: 08/21/2019  
 Reported: 08/22/2019  
 Project Name: ARABIAN 6 FEE # 6  
 Project Number: NONE GIVEN  
 Project Location: COG

Sampling Date: 08/16/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: B 9 (H902878-09)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/22/2019	ND	1.75	87.3	2.00	4.33	
Toluene*	<0.050	0.050	08/22/2019	ND	2.10	105	2.00	2.42	
Ethylbenzene*	<0.050	0.050	08/22/2019	ND	2.14	107	2.00	2.66	
Total Xylenes*	<0.150	0.150	08/22/2019	ND	6.56	109	6.00	3.68	
Total BTEX	<0.300	0.300	08/22/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	448	16.0	08/22/2019	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/21/2019	ND	204	102	200	0.808	
DRO >C10-C28*	<10.0	10.0	08/21/2019	ND	196	98.2	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	08/21/2019	ND					

Surrogate: 1-Chlorooctane 95.7 % 41-142

Surrogate: 1-Chlorooctadecane 103 % 37.6-147

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**Analytical Results For:**

COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received: 08/21/2019  
 Reported: 08/22/2019  
 Project Name: ARABIAN 6 FEE # 6  
 Project Number: NONE GIVEN  
 Project Location: COG

Sampling Date: 08/16/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: B 10 (H902878-10)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/22/2019	ND	1.75	87.3	2.00	4.33	
Toluene*	<0.050	0.050	08/22/2019	ND	2.10	105	2.00	2.42	
Ethylbenzene*	<0.050	0.050	08/22/2019	ND	2.14	107	2.00	2.66	
Total Xylenes*	<0.150	0.150	08/22/2019	ND	6.56	109	6.00	3.68	
Total BTEX	<0.300	0.300	08/22/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	768	16.0	08/22/2019	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/22/2019	ND	205	102	200	3.65	
DRO >C10-C28*	<10.0	10.0	08/22/2019	ND	195	97.4	200	2.93	
EXT DRO >C28-C36	<10.0	10.0	08/22/2019	ND					

Surrogate: 1-Chlorooctane 98.6 % 41-142

Surrogate: 1-Chlorooctadecane 104 % 37.6-147

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\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received: 08/21/2019  
 Reported: 08/22/2019  
 Project Name: ARABIAN 6 FEE # 6  
 Project Number: NONE GIVEN  
 Project Location: COG

Sampling Date: 08/16/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: B 11 (H902878-11)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/22/2019	ND	1.75	87.3	2.00	4.33	
Toluene*	<0.050	0.050	08/22/2019	ND	2.10	105	2.00	2.42	
Ethylbenzene*	<0.050	0.050	08/22/2019	ND	2.14	107	2.00	2.66	
Total Xylenes*	<0.150	0.150	08/22/2019	ND	6.56	109	6.00	3.68	
Total BTEX	<0.300	0.300	08/22/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	688	16.0	08/22/2019	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/22/2019	ND	205	102	200	3.65	
DRO >C10-C28*	<10.0	10.0	08/22/2019	ND	195	97.4	200	2.93	
EXT DRO >C28-C36	<10.0	10.0	08/22/2019	ND					

Surrogate: 1-Chlorooctane 101 % 41-142

Surrogate: 1-Chlorooctadecane 108 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received: 08/21/2019  
 Reported: 08/22/2019  
 Project Name: ARABIAN 6 FEE # 6  
 Project Number: NONE GIVEN  
 Project Location: COG

Sampling Date: 08/16/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: B 12 (H902878-12)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/22/2019	ND	1.75	87.3	2.00	4.33	
Toluene*	<0.050	0.050	08/22/2019	ND	2.10	105	2.00	2.42	
Ethylbenzene*	<0.050	0.050	08/22/2019	ND	2.14	107	2.00	2.66	
Total Xylenes*	<0.150	0.150	08/22/2019	ND	6.56	109	6.00	3.68	
Total BTEX	<0.300	0.300	08/22/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	08/22/2019	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/22/2019	ND	206	103	200	0.821	
DRO >C10-C28*	<10.0	10.0	08/22/2019	ND	216	108	200	5.15	
EXT DRO >C28-C36	<10.0	10.0	08/22/2019	ND					

Surrogate: 1-Chlorooctane 99.2 % 41-142

Surrogate: 1-Chlorooctadecane 107 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received:	08/21/2019	Sampling Date:	08/16/2019
Reported:	08/22/2019	Sampling Type:	Soil
Project Name:	ARABIAN 6 FEE # 6	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG		

**Sample ID: S 1 (H902878-13)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/22/2019	ND	1.75	87.3	2.00	4.33	
Toluene*	<0.050	0.050	08/22/2019	ND	2.10	105	2.00	2.42	
Ethylbenzene*	<0.050	0.050	08/22/2019	ND	2.14	107	2.00	2.66	
Total Xylenes*	<0.150	0.150	08/22/2019	ND	6.56	109	6.00	3.68	
Total BTEX	<0.300	0.300	08/22/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	352	16.0	08/22/2019	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/22/2019	ND	206	103	200	0.821	
DRO >C10-C28*	<10.0	10.0	08/22/2019	ND	216	108	200	5.15	
EXT DRO >C28-C36	<10.0	10.0	08/22/2019	ND					

Surrogate: 1-Chlorooctane 103 % 41-142

Surrogate: 1-Chlorooctadecane 111 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received: 08/21/2019  
 Reported: 08/22/2019  
 Project Name: ARABIAN 6 FEE # 6  
 Project Number: NONE GIVEN  
 Project Location: COG

Sampling Date: 08/16/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: S 2 (H902878-14)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/22/2019	ND	1.75	87.3	2.00	4.33	
Toluene*	<0.050	0.050	08/22/2019	ND	2.10	105	2.00	2.42	
Ethylbenzene*	<0.050	0.050	08/22/2019	ND	2.14	107	2.00	2.66	
Total Xylenes*	<0.150	0.150	08/22/2019	ND	6.56	109	6.00	3.68	
Total BTEX	<0.300	0.300	08/22/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	352	16.0	08/22/2019	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/22/2019	ND	206	103	200	0.821	
DRO >C10-C28*	<10.0	10.0	08/22/2019	ND	216	108	200	5.15	
EXT DRO >C28-C36	<10.0	10.0	08/22/2019	ND					

Surrogate: 1-Chlorooctane 69.4 % 41-142

Surrogate: 1-Chlorooctadecane 70.5 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received: 08/21/2019  
 Reported: 08/22/2019  
 Project Name: ARABIAN 6 FEE # 6  
 Project Number: NONE GIVEN  
 Project Location: COG

Sampling Date: 08/16/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: S 3 (H902878-15)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/22/2019	ND	1.75	87.3	2.00	4.33	
Toluene*	<0.050	0.050	08/22/2019	ND	2.10	105	2.00	2.42	
Ethylbenzene*	<0.050	0.050	08/22/2019	ND	2.14	107	2.00	2.66	
Total Xylenes*	<0.150	0.150	08/22/2019	ND	6.56	109	6.00	3.68	
Total BTEX	<0.300	0.300	08/22/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	352	16.0	08/22/2019	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/22/2019	ND	206	103	200	0.821	
DRO >C10-C28*	<10.0	10.0	08/22/2019	ND	216	108	200	5.15	
EXT DRO >C28-C36	<10.0	10.0	08/22/2019	ND					

Surrogate: 1-Chlorooctane 95.8 % 41-142

Surrogate: 1-Chlorooctadecane 103 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received: 08/21/2019  
 Reported: 08/22/2019  
 Project Name: ARABIAN 6 FEE # 6  
 Project Number: NONE GIVEN  
 Project Location: COG

Sampling Date: 08/16/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: S 4 (H902878-16)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/22/2019	ND	1.75	87.3	2.00	4.33	
Toluene*	<0.050	0.050	08/22/2019	ND	2.10	105	2.00	2.42	
Ethylbenzene*	<0.050	0.050	08/22/2019	ND	2.14	107	2.00	2.66	
Total Xylenes*	<0.150	0.150	08/22/2019	ND	6.56	109	6.00	3.68	
Total BTEX	<0.300	0.300	08/22/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 115 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	08/22/2019	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/22/2019	ND	206	103	200	0.821	
DRO >C10-C28*	<10.0	10.0	08/22/2019	ND	216	108	200	5.15	
EXT DRO >C28-C36	<10.0	10.0	08/22/2019	ND					

Surrogate: 1-Chlorooctane 96.7 % 41-142

Surrogate: 1-Chlorooctadecane 107 % 37.6-147

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Notes and Definitions

- S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
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

Celey D. Keene, Lab Director/Quality Manager

02 jo 19 e pag



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 Operating LLC	P.O. #:
Project Manager: Dakota Neel	Company: COG Operating LLC
Address: 2208 West Main	Attn: Robert McNeill
City: Artesia	Address: 600 W Illinois
State: NM	City: Midland
Zip: 88210	State: TX
Phone #: (575) 746-2010	Zip: 79701
Fax #: (575) 746-2010	Phone #: (432) 221-0388
Project #: Project Owner:	Fax #:
Project Name: ARABIAN 6 FES #6	
Project Location: Dakota Neel	

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	BTEX	TPH	Chloride
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :					
H962878	B 1	✓	1						8-16	4:00				
	B 2									9:25				
	B 3									9:10				
	B 4									9:15				
	B 5									9:20				
	B 6									9:25				
	B 7									9:30				
	B 8									9:35				
	B 9									9:40				
	B 10									9:45				

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Relinquished By: *[Signature]* Date: 5-21-19 Time: 12:00

Received By: *[Signature]* Date: 5-21-19 Time: 12:00

Delivered By: (Circle One) 2.82 #497 Sample Condition Cool Intact

Sampler - UPS - Bus - Other: Constructed 3.22

Checked By: (Initials) *[Initials]*

REMARKS: RUSH

FORN006720

Please fax written changes to 575-393-2476

10F2



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

**CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

02 of 02 pages

Company Name: COG Operating LLC

Project Manager: Dakota Neel

Address: 2208 West Main

City: Artesia

Phone #: (575) 746-2010

Project #:

Project Name: ARABIAN B FILL # 6

Project Location:

Sampler Name: Dakota Neel

**BILL TO**

P.O. #:

Company: COG Operating LLC

Attn: Robert McNeill

Address: 600 W Illinois

City: Midland

State: TX Zip: 79701

Phone #: (432) 221-0388

Fax #:

**ANALYSIS REQUEST**

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	BTX	TPH	Chloride	ANALYSIS REQUEST				
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :						ACID/BASE:	ICE / COOL	OTHER :	ADD'l Phone #:	ADD'l Fax #:
H902878	B 11	✓	1							8-16-19	9:56	✓	✓	✓					
	B 12		1								9:55	✓	✓	✓					
	S 1		1								10:04	✓	✓	✓					
	S 2		1								10:05	✓	✓	✓					
	S 3		1								10:10	✓	✓	✓					
	S 4		1								10:15	✓	✓	✓					

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Relinquished By: *DKN*

Received By: *Jamara*

Date: 5-21-19  
 Time: 12:00

Date: 8-21-19  
 Time: 12:00

Delivered By: (Circle One) *2.82*

Sample Condition

CHECKED BY: (Initials)

Sampler - UPS - Bus - Other: *Printed 3.02*

Sample Condition  
 Cool  Intact   
 Yes  No   
 Yes  No

5. Please fax written changes to 575-393-2476



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

---

September 26, 2019

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

RE: ARABIAN 6 FEE # 6

Enclosed are the results of analyses for samples received by the laboratory on 09/25/19 12:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene".

Celey D. Keene  
Lab Director/Quality Manager



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

**Analytical Results For:**

COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received: 09/25/2019  
 Reported: 09/26/2019  
 Project Name: ARABIAN 6 FEE # 6  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

Sampling Date: 09/24/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: B 3 (H903294-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	768	16.0	09/26/2019	ND	416	104	400	0.00	

**Sample ID: B 5 (H903294-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	09/26/2019	ND	416	104	400	0.00	

**Sample ID: B 10 (H903294-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	864	16.0	09/26/2019	ND	416	104	400	0.00	

**Sample ID: B 11 (H903294-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1120	16.0	09/26/2019	ND	416	104	400	0.00	

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\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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**Notes and Definitions**

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

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Celey D. Keene, Lab Director/Quality Manager



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 (575) 393-2326 FAX (575) 393-2476

**CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

**BILL TO**

**ANALYSIS REQUEST**

Company Name: COG Operating LLC		P.O. #:	
Project Manager: Dakota Neel		Company: COG Operating LLC	
Address: 2208 West Main		Attn: Jennifer Knowlton	
City: Artesia	State: NM	Address: 600 W Illinois	
Phone #: (575) 746-2010	Fax #: (575) 746-2010	City: Midland	
Project #:	Project Owner: AAABIAN B BISHA	State: TX	Zip: 79701
Project Location:		Phone #: (432) 221-0388	Fax #:
Sampler Name: Dakota Neel			

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	BTX	TPH	Chloride
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :					
H903394	B 3	C	1						9-24-19	3:00 PM			X	
	B 5	C	1							3:05 PM			X	
	B 10	C	1							3:10 PM			X	
	B 11	C	1							3:15 PM			X	

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Relinquished By: <i>[Signature]</i>	Date: 9-25-19	Received By: <i>[Signature]</i>	Date: 9-25-19
Relinquished By: <i>[Signature]</i>	Date: 11-09	Received By: <i>[Signature]</i>	Date: 9-25-19
Delivered By: (Circle One) <i>[Signature]</i>	Time: 13:145	Sample Condition	CHECKED BY: <i>[Signature]</i>
Sampler - UPS - Bus - Other: <i>[Signature]</i>	Time: 4:00	Cool <input type="checkbox"/> Yes <input type="checkbox"/> No	(Initials)
	Time: 5:00	Intact <input type="checkbox"/> Yes <input type="checkbox"/> No	

Phone Result:  Yes  No Add'l Phone #: \_\_\_\_\_  
 Fax Result:  Yes  No Add'l Fax #: \_\_\_\_\_  
 REMARKS:

*RUSH*

FORM 0007-R-20  
 5. Please fax written changes to 575-393-2476