



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:

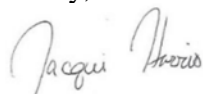
Recommended Remedial Action Levels (RRALs)	
Chlorides	600 mg/kg
TPH (GRO and DRO and MRO)	100 mg/kg
Benzene	10 mg/kg
Total BTEX	50 mg/kg

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.

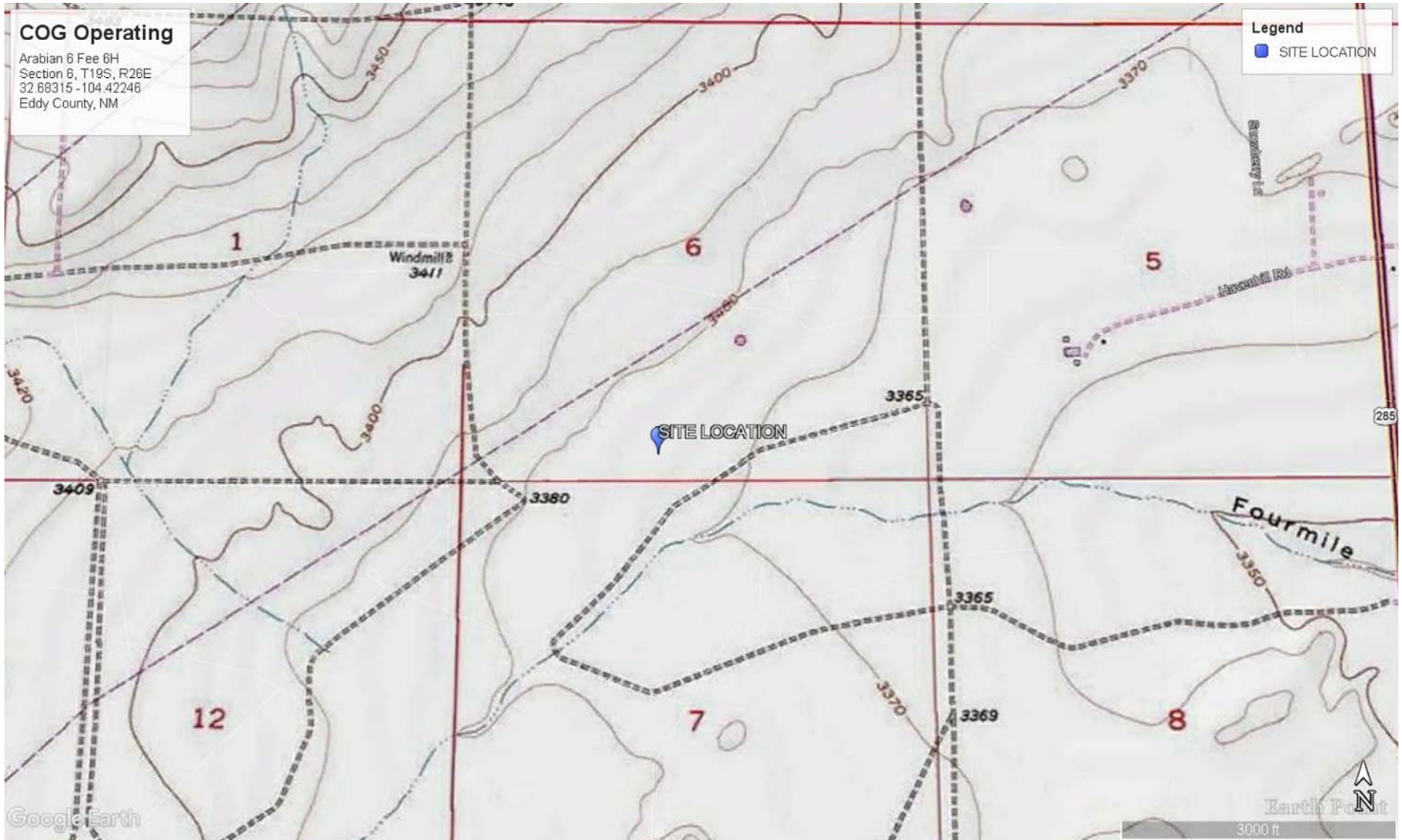
Should you have any questions or concerns about this release, please do not hesitate to contact me.

Sincerely,



Jacqui Harris
Senior HSE Coordinator
Jharris2@concho.com

Maps



5/8/2020

Site and Sample Map

Arabian 6 Fee #006H

2RP-5433



Google Earth

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													
NMOCD RAL Limits (mg/kg)				-	-	-	100	-	-		10	50	600
B1	8/16/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<.050	<0.300	352
B2	8/17/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<.050	<0.300	560
B3	8/18/2019	X	re-sampled	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<.050	<0.300	704
	9/24/2019	X		-	-	-	-	-	-	-	-	-	768
B4	8/19/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<.050	<0.300	96
B5	8/20/2019	X	re-sampled	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<.050	<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	<.050	<0.300	48
B7	8/22/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<.050	<0.300	480
B8	8/23/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<.050	<0.300	368
B9	8/24/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<.050	<0.300	448
B10	8/25/2019	X	re-sampled	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<.050	<0.300	768
	9/24/2019	X		-	-	-	-	-	-	-	-	-	864
B11	8/26/2019	X	re-sampled	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<.050	<0.300	688
	9/24/2019	X		-	-	-	-	-	-	-	-	-	1,120
B12	8/27/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<.050	<0.300	32
S1	8/28/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<.050	<0.300	352
S2	8/29/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<.050	<0.300	352
S3	8/30/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<.050	<0.300	352
S4	8/31/2019	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<.050	<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		

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 O'neal</u>	Date: _____
email: _____	Telephone: _____
<u>OCD Only</u>	
Received by: <u>Amalia B. Ramirez</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 not 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.

State of New Mexico
Oil Conservation Division

Page 4

Incident ID	NAB1914240573
District RP	
Facility ID	
Application ID	

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:  Date: _____

email: _____ Telephone: _____

OCD Only

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

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 Harris _____ 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 6, T19S, R26E
32.68315 -104.42246
Eddy County, NM

Legend

- High
- Low
- Medium
- SITE LOCATION

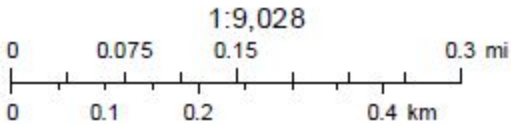
SITE LOCATION



New Mexico NFHL Data



May 20, 2020





1 / 1



FEMA
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus
Flood.org is made possible through a collaboration with NMDHSEM, EDAC, and FEMA.
This is a non-regulatory product for informational use only. Please consult your local floodplain administrator for further information.



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

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

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.

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 with a large, stylized 'C' and 'K'.

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



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 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, SM4500Cl-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)

BTX 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 BTX	<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	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)

BTX 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 BTX	<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)

BTX 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 BTX	<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, SM4500CI-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, SM4500Cl-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)

BTX 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 BTX	<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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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)

BTX 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 BTX	<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	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



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 12 (H902878-12)

BTX 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 BTX	<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	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
 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 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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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)

BTX 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 BTX	<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	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)

BTX 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 BTX	<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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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

Cardinal Laboratories

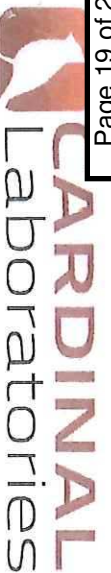
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A handwritten signature in black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager

Page 19 of 20



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

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

10FZ

Page 20 of 20



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: COG Operating LLC		P.O. #:		BILL TO		ANALYSIS REQUEST					
Project Manager: Dakota Neel		Company: COG Operating LLC									
Address: 2208 West Main		State: NM Zip: 88210		Attn: Robert McNeill							
City: Artesia		Address: 600 W Illinois		City: Midland							
Phone #: (575) 746-2010		Fax #: Project Owner:		State: TX Zip: 79701							
Project #:		Project Location:		Phone #: (432) 221-0388							
Sampler Name: Dakota Neel		Fax #:									
FOR LAB USE ONLY											
Lab I.D. Sample I.D.		(G)RAB OR (C)OMP.		DATE		TIME					
		# CONTAINERS									
<div style="display: flex; justify-content: space-between;"> <div> H902828 11 B 11 12 B 12 13 S 1 14 S 2 15 S 3 16 S 4 </div> <div> 1 1 1 1 1 1 </div> </div>		<div style="display: flex; justify-content: space-between;"> <div> GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER : ACID/BASE: ICE / COOL OTHER : </div> <div> 1 1 1 1 1 1 1 1 1 </div> </div>		<div style="display: flex; justify-content: space-between;"> <div> 8-16-10 9:55 10:05 10:10 10:15 </div> <div> 1 1 1 1 1 </div> </div>		<div style="display: flex; justify-content: space-between;"> <div> BTEX TPH Chloride </div> <div> 1 1 1 1 1 </div> </div>					
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Relinquished By: Date: Time: Received By:											
Delivered By: (Circle One) 2.82 #97 Sampler - UPS - Bus - Other: Permitted 3.20 Sample Condition Cool Intact Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Checked By: (Initials) <i>YO</i>											



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.

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, flowing 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: 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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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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A handwritten signature in black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager

