



2057 Commerce Drive
Midland, TX 79703

432.520.7720 PHONE
432.520.7701 FAX

www.trcsolutions.com

APPROVED

By Olivia Yu at 9:53 am, Sep 27, 2017

September 5, 2017

Olivia Yu
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division, District 1
1625 French Drive
Hobbs, NM 88240

Amber Groves
Hobbs Field Office
New Mexico State Land Office
2827 N. Dal Paso St., Suite 117
Hobbs, New Mexico 88240

NMOCD approves of the completed delineation for 1RP-4667. The proposed additional delineation for the areas represented by T1 and T3 is also approved. Provide scaled map of the location of additional test trenches.

Re: Soil Investigation Summary and Proposed Remediation Workplan
Jaguar 18 State #002H (1RP-4667)
GPS: N 32.29842° W 103.61335°
Unit Letter “N”, Section 18, Township 23 South, Range 33 East
Lea County, New Mexico

Dear Ms. Yu and Ms. Groves,

TRC Environmental Corporation (TRC), on behalf of COG Operating, LLC (COG) has prepared this Soil Investigation Summary and Proposed Remediation Workplan (Workplan) for the Jaguar 18 State #002H Release Site (Release Site). The purpose of this Workplan is to propose remediation activities designed to advance the Jaguar 18 State #002H Release Site toward an NMOCD approved Site Closure Status. The legal description of the Release Site is Unit Letter “N”, Section 18, Township 23 South, Range 33 East, in Lea County, New Mexico. The GPS coordinates for the site are N 32.29842° W 103.61335°. The subject property is administered by the New Mexico State Land Office (NMSLO). A Site Location Map and Site Map are provided as Figure 1 and Figure 2, respectively.

On March 29, 2017, COG discovered a crude oil and produced water release from a casing valve on the wellhead. The release was contained on the location on the caliche pad. The release area measured approximately 22,036 square feet. On March 30, 2017, a COG representative notified the NMOCD and NMSLO and submitted a Release Notification and Corrective Action (Form C-141) to the NMOCD on April 7, 2017. During initial response activities, the casing valve on the wellhead was properly closed. Approximately forty (40) barrels of fluid was released from the casing valve, with approximately thirty (30) barrels recovered. The Form C-141 is attached to this report.

A groundwater database maintained by The New Mexico Office of the State Engineer (NMOSE) did not identify any registered water wells in Section 18, Township 20 South, Range 35 East. A reference map utilized by the New Mexico Oil Conservation Division (NMOCD) Hobbs District Office indicates groundwater should be encountered at approximately five hundred (500) feet below ground surface (bgs). Based on the NMOCD site classification system, zero (0) points will be assigned to the subject area ranking as a result of this criterion.

No water wells were observed within one-thousand (1,000) feet of the Release Site. Based on the NMOCD site classification system, zero (0) points will be assigned to the subject area ranking as a result of this criterion.

No surface water was observed within one-thousand (1,000) feet of the release. Based on the NMOCD site classification system, zero (0) points will be assigned to the subject area ranking as a result of this criterion.

Based on the NMOCD Site Classification criteria, the Release Site soil remediation levels are 10 milligrams per Kilogram (mg/Kg) for benzene, 50 mg/Kg for benzene, toluene, ethylbenzene and xylenes (BTEX), and five thousand (5,000) mg/Kg for total petroleum hydrocarbons (TPH). Per NMOCD request, chloride remediation levels for the Release Site will be 600 mg/Kg.

On April 18, 2017, a Concho Representative collected forty-eight (48) delineation soil samples from the impacted area. (See attached Table 1 for a summary of laboratory results). The soil samples were submitted to Cardinal Laboratories in Hobbs, New Mexico for determination of concentrations of BTEX using Method SW 846-8021B, TPH using Method SW 846-8015M, and chloride using Method SM 4500 Cl-B. The analytical results indicated benzene and BTEX concentrations were less than the applicable laboratory Method Detection Limit (MDL) and NMOCD regulatory guidelines for the submitted soil samples. The laboratory results indicated TPH concentrations were less than the applicable laboratory MDL for all submitted soil samples, with the exception of soil samples NORTH-SURF (22 mg/Kg), T1-SURF (4,131.5 mg/Kg), and T1-1' (57.1 mg/Kg) which exhibited TPH concentrations below NMOCD regulatory guidelines. Chloride concentrations ranged from less than the laboratory MDL for soil samples NORTH-SURF and T1-1' to 7,360 mg/Kg for soil sample T5-SURF. A review of laboratory analytical results indicated chloride concentrations were above NMOCD regulatory guidelines for soil samples T1-SURF (4,930 mg/Kg), T1-4' (816 mg/Kg), T1-5' (1,490 mg/Kg), T2-SURF (4,960 mg/Kg), T2-1' (4,800 mg/Kg), T3-3' (6,480 mg/Kg), T3-4' (3,440 mg/Kg), T5-SURF (7,360 mg/Kg), T5-1' (1,230 mg/Kg), and T5-2' (736 mg/Kg).

Based on the analytical results of the soil samples collected on April 18, 2017, COG proposes the following field activities designed to remediate the Jaguar 18 State #002H Release:

- Utilizing a backhoe, excavate the area represented by soil sample T1 to approximately six (6) inches bgs. No excavation activities will be performed in the areas represented by soil samples T3 and T4, with the exception of any visibly stained areas, which will be aesthetically addressed. The areas represented by soil samples T2 and T5 will be excavated to approximately two (2) feet bgs.
- In the areas represented by soil samples T1 and T3, additional delineation trenches will be advanced and soil samples will be collected at approximately three (3) feet bgs, four (4) feet bgs,

and five (5) feet bgs and submitted to the laboratory for chloride analysis to confirm the laboratory results of the April 18, 2017 sampling event. If laboratory results indicate the chloride concentrations are above NMOCD regulatory guidelines, the non-impacted overburden will be temporarily stockpiled adjacent to the excavation and excavation activities will continue at three (3) feet bgs in the area represented by trench T3 and at four (4) feet bgs in the area represented by trench T1. The non-impacted overburden will be utilized as backfill material.

- In addition, one (1) background trench will be advanced outside of the impacted area and soil samples will be collected and submitted at depths of approximately three (3) feet, four (4) feet, and five (5) feet and submitted for chloride analysis.
- On receipt of favorable analytical results (below the NMOCD regulatory guidelines referenced above), the excavation will be backfilled with non-impacted locally obtained "like" soil and the excavated impacted soil will be transported under manifest to an NMOCD approved disposal facility.
- Prepare and submit a "Remediation Summary and Site Closure Request" to the NMOCD and NMSLO.

COG is prepared to begin the activities outlined in this Proposed Remediation Workplan on NMOCD and NMSLO approval.

If you have any questions, or if additional information is required, please feel free to call me at 432-520-7720 (office) or 432-664-6699 (cell).

Thank you,



Nikki Green
Project Manager
TRC Environmental Corporation

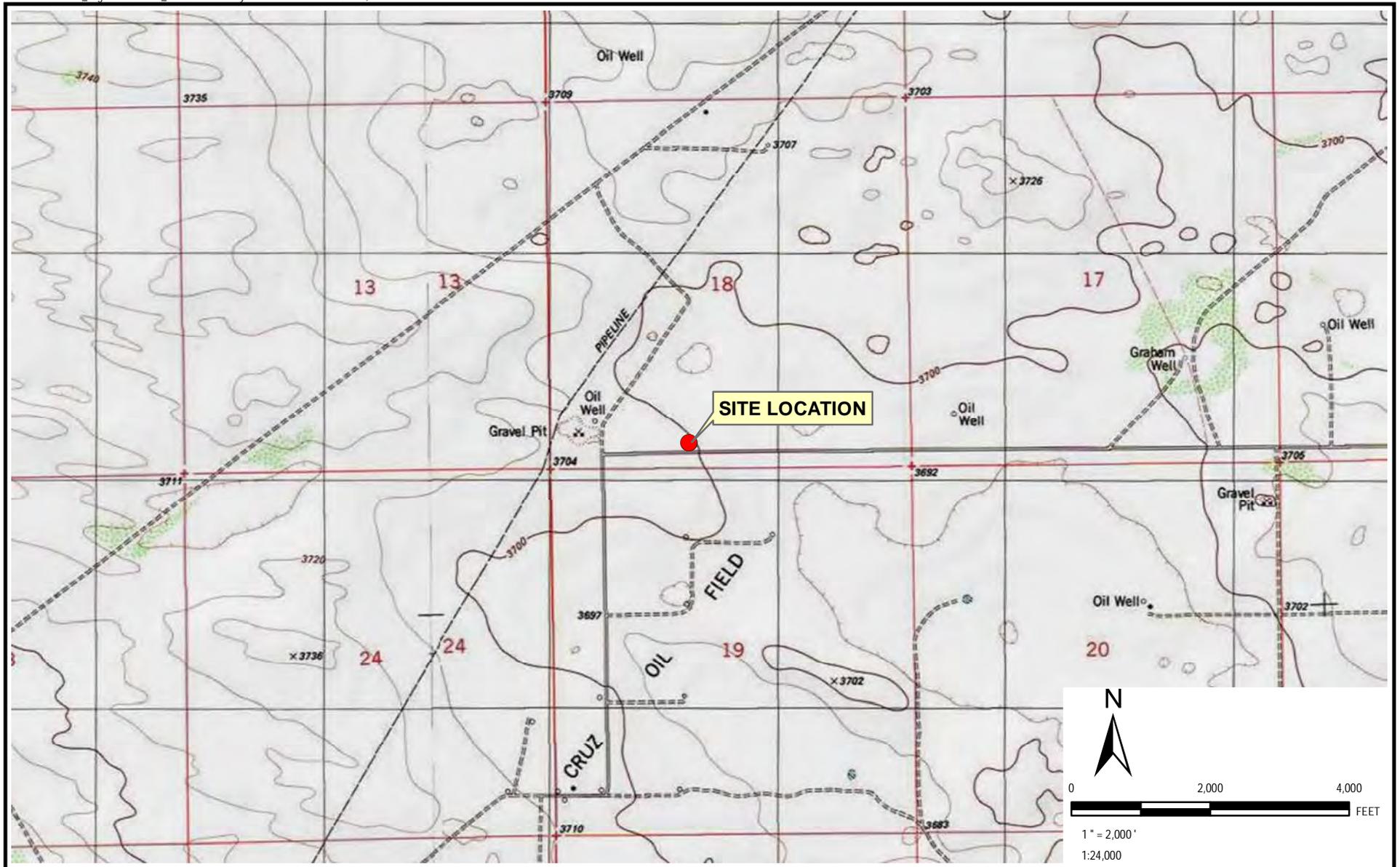


Jeffrey Kindley, PG
Senior Project Manager
TRC Environmental Corporation

Attachments:

- Figure 1 - Site Location Map
- Figure 2 - Site Map
- Table 1 - Concentrations of Benzene, BTEX, TPH and Chloride in Soil Laboratory Analytical Results
- Release Notification and Corrective Action (Form C-141)

cc: File



2075 Commerce Drive
Midland, TX 79703
Phone: 432.520.770

TRC - GIS

TITLE:

**FIGURE 1
SITE LOCATION MAP**

PROJECT:

**JAGUAR 18 STATE #002H
LEA COUNTY, NEW MEXICO
COG OPERATING, LLC**

DRAWN BY: MLOVELACE

CHECKED BY: NGREEN

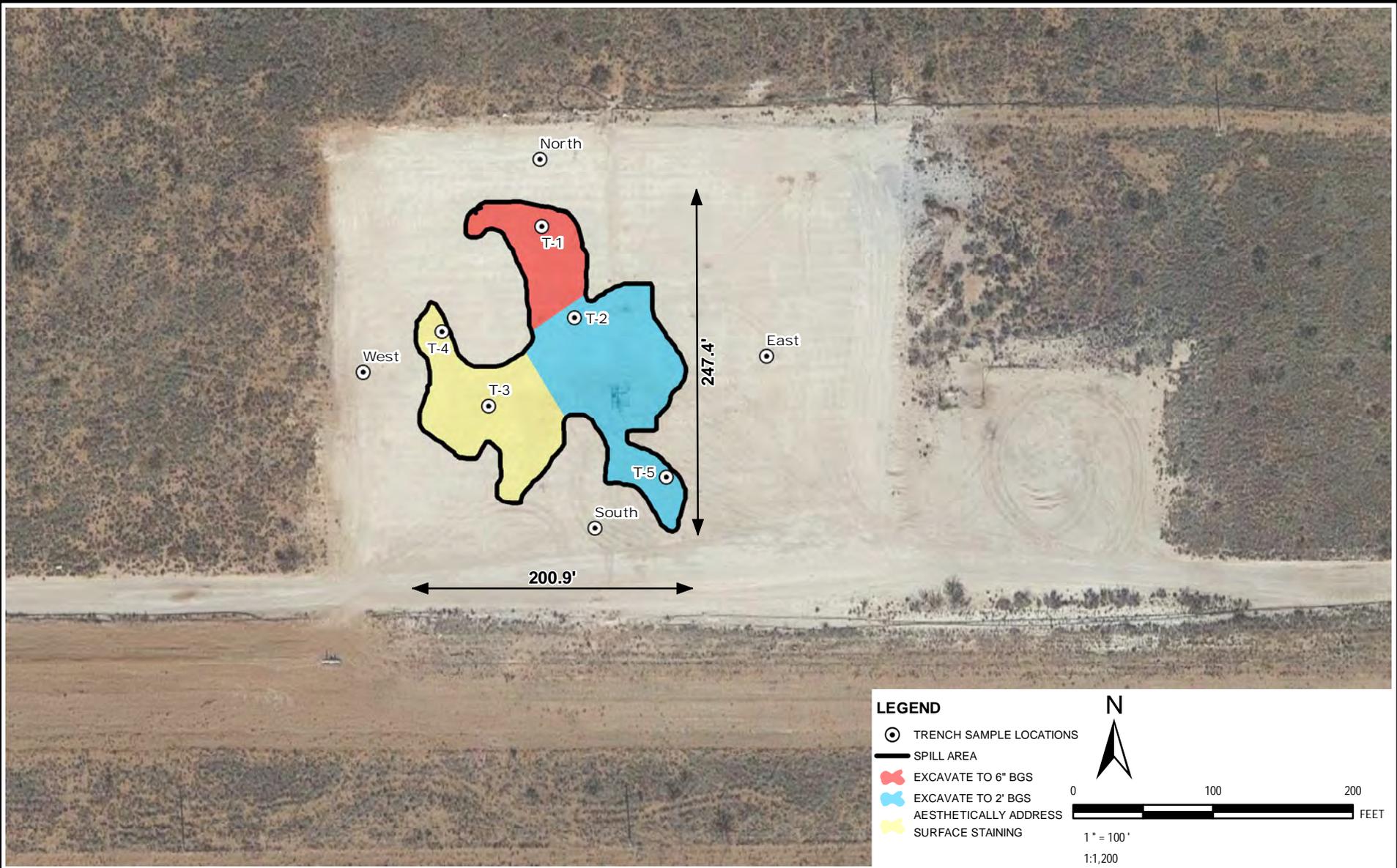
APPROVED BY: NGREEN

DATE: JULY 2017

PROJ. NO.: 279779

GPS: LAT. N 32.29842°, LONG. W 103.61335°

SW1/4 SW1/4 SEC 18 T23S R33E



LEGEND

- TRENCH SAMPLE LOCATIONS
- SPILL AREA
- EXCAVATE TO 6" BGS
- EXCAVATE TO 2' BGS
- AESTHETICALLY ADDRESS
- SURFACE STAINING

N

0 100 200
FEET

1" = 100'
1:1,200



2075 Commerce Drive
Midland, TX 79703
Phone: 432.520.770

TRC - GIS

TITLE:	FIGURE 2 SITE MAP
PROJECT:	JAGUAR 18 STATE #002H LEA COUNTY, NEW MEXICO COG OPERATING, LLC.

DRAWN BY:	MLOVELACE
CHECKED BY:	NGREEN
APPROVED BY:	NGREEN
DATE:	AUGUST 2017
PROJ. NO.:	279779
GPS:	LAT. N 32.29842°, LONG. W 103.61335°
SW1/4 SW1/4 SEC 18 T23S R33E	

TABLE 1

CONCENTRATIONS OF BENZENE, BTEX, TPH AND CHLORIDE IN SOIL

COG Operating, LLC
 Jaguar 18 State #002H (1RP-4667)
 LEA COUNTY, NEW MEXICO

All concentrations are reported in mg/Kg

SAMPLE LOCATION	SAMPLE DATE	SOIL STATUS	METHODS: SW 846-8021b					METHOD: SW 8015M			SM4500Cl-B	
			BENZENE	TOLUENE	ETHYL-BENZENE	m, p -XYLENES	o -XYLENE	TOTAL BTEX	TPH GRO C ₆ -C ₁₀	TPH DRO C _{>10} -C ₂₈	TOTAL TPH C ₆ -C ₂₈	CHLORIDE
NMOCD Site Classification Criteria			10					50			5,000	600
T1-SURF	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	11.5	4,120	4,131.5	4,930	
T1-1'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<10.0	57.1	57.1	<16.0	
T1-2'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<10.0	<10.0	<10.0	16.0	
T1-3'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<10.0	<10.0	<10.0	240	
T1-4'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<10.0	<10.0	<10.0	816	
T1-5'	4/18/2017	Trench	-	-	-	-	-	-	-	-	1,490	
T1-6'	4/18/2017	Trench	-	-	-	-	-	-	-	-	480	
T1-8'	4/18/2017	Trench	-	-	-	-	-	-	-	-	336	
T1-10'	4/18/2017	Trench	-	-	-	-	-	-	-	-	80.0	
T2-SURF	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<10.0	<10.0	<10.0	4,960	
T2-1'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<10.0	<10.0	<10.0	4,800	
T2-2'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<10.0	<10.0	<10.0	576	
T2-3'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<10.0	<10.0	<10.0	144	
T2-4'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<10.0	<10.0	<10.0	176	
T2-6'	4/18/2017	Trench	-	-	-	-	-	-	-	-	48.0	
T3-SURF	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<10.0	<10.0	<10.0	64.0	
T3-1'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<10.0	<10.0	<10.0	80.0	
T3-2'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<10.0	<10.0	<10.0	112	
T3-3'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<10.0	<10.0	<10.0	6,480	
T3-4'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<10.0	<10.0	<10.0	3,440	
T3-6'	4/18/2017	Trench	-	-	-	-	-	-	-	-	432	
T3-8'	4/18/2017	Trench	-	-	-	-	-	-	-	-	176	
T4-SURF	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<10.0	<10.0	<10.0	560	
T4-1'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<10.0	<10.0	<10.0	560	

TABLE 1

CONCENTRATIONS OF BENZENE, BTEX, TPH AND CHLORIDE IN SOIL

COG Operating, LLC
 Jaguar 18 State #002H (1RP-4667)
 LEA COUNTY, NEW MEXICO

All concentrations are reported in mg/Kg

SAMPLE LOCATION	SAMPLE DATE	SOIL STATUS	METHODS: SW 846-8021b					METHOD: SW 8015M			SM4500Cl-B	
			BENZENE	TOLUENE	ETHYL-BENZENE	m, p - XYLENES	o - XYLENE	TOTAL BTEX	TPH GRO C ₆ -C ₁₀	TPH DRO C _{>10} -C ₂₈	TOTAL TPH C ₆ -C ₂₈	CHLORIDE
NMOCD Site Classification Criteria			10					50			5,000	600
T4-2'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<0.150	<10.0	<10.0	<10.0	544
T4-3'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<0.150	<10.0	<10.0	<10.0	32.0
T4-4'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<0.150	<10.0	<10.0	<10.0	16.0
T4-6'	4/18/2017	Trench	-	-	-	-	-	-	-	-	-	64.0
T4-8'	4/18/2017	Trench	-	-	-	-	-	-	-	-	-	96.0
T5-SURF	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<0.150	<10.0	<10.0	<10.0	7,360
T5-1'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<0.150	<10.0	<10.0	<10.0	1,230
T5-2'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<0.150	<10.0	<10.0	<10.0	736
T5-3'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<0.150	<10.0	<10.0	<10.0	64.0
T5-4'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<0.150	<10.0	<10.0	<10.0	64.0
T5-6'	4/18/2017	Trench	-	-	-	-	-	-	-	-	-	192
T5-8'	4/18/2017	Trench	-	-	-	-	-	-	-	-	-	160
WEST-SURF	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<0.150	<10.0	<10.0	<10.0	32.0
WEST-1'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<0.150	<10.0	<10.0	<10.0	16.0
WEST-2'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<0.150	<10.0	<10.0	<10.0	32.0
EAST-SURF	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<0.150	<10.0	<10.0	<10.0	64.0
EAST-1'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<0.150	<10.0	<10.0	<10.0	16.0
EAST-2'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<0.150	<10.0	<10.0	<10.0	32.0
SOUTH-SURF	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<0.150	<10.0	<10.0	<10.0	224
SOUTH-1'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<0.150	<10.0	<10.0	<10.0	112
SOUTH-2'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<0.150	<10.0	<10.0	<10.0	112
NORTH-SURF	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150	<0.150	<0.150	<10.0	22.0	22.0	<16.0

TABLE 1

CONCENTRATIONS OF BENZENE, BTEX, TPH AND CHLORIDE IN SOIL

**COG Operating, LLC
Jaguar 18 State #002H (1RP-4667)
LEA COUNTY, NEW MEXICO**

All concentrations are reported in mg/Kg

SAMPLE LOCATION	SAMPLE DATE	SOIL STATUS	METHODS: SW 846-8021b					METHOD: SW 8015M			SM4500Cl-B	
			BENZENE	TOLUENE	ETHYL-BENZENE	m, p - XYLENES	o - XYLENE	TOTAL BTEX	TPH GRO C ₆ -C ₁₀	TPH DRO C _{>10} -C ₂₈	TOTAL TPH C ₆ -C ₂₈	CHLORIDE
NMOCD Site Classification Criteria			10					50			5,000	600
NORTH-1'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150		<0.150	<10.0	<10.0	<10.0	16.0
NORTH-2'	4/18/2017	Trench	<0.050	<0.050	<0.050	<0.150		<0.150	<10.0	<10.0	<10.0	16.0



April 27, 2017

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

RE: JAGUAR 18 STATE #002H

Enclosed are the results of analyses for samples received by the laboratory on 04/20/17 12:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T1 - SURFACE (H701053-01)

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	04/22/2017	ND	1.94	96.8	2.00	0.897	
Toluene*	<0.050	0.050	04/22/2017	ND	1.85	92.7	2.00	1.13	
Ethylbenzene*	<0.050	0.050	04/22/2017	ND	1.87	93.3	2.00	0.506	
Total Xylenes*	<0.150	0.150	04/22/2017	ND	5.32	88.7	6.00	0.459	
Total BTEX	<0.300	0.300	04/22/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 90.3 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4930	16.0	04/24/2017	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS						S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	11.5	10.0	04/21/2017	ND	198	98.8	200	1.91		
DRO >C10-C28	4120	10.0	04/21/2017	ND	207	104	200	1.74		

Surrogate: 1-Chlorooctane 94.2 % 28.3-164

Surrogate: 1-Chlorooctadecane 338 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T1 - 1' (H701053-02)

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	04/22/2017	ND	1.94	96.8	2.00	0.897	
Toluene*	<0.050	0.050	04/22/2017	ND	1.85	92.7	2.00	1.13	
Ethylbenzene*	<0.050	0.050	04/22/2017	ND	1.87	93.3	2.00	0.506	
Total Xylenes*	<0.150	0.150	04/22/2017	ND	5.32	88.7	6.00	0.459	
Total BTEX	<0.300	0.300	04/22/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 94.3 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	04/24/2017	ND	448	112	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	04/21/2017	ND	198	98.8	200	1.91	
DRO >C10-C28	57.1	10.0	04/21/2017	ND	207	104	200	1.74	

Surrogate: 1-Chlorooctane 90.9 % 28.3-164

Surrogate: 1-Chlorooctadecane 96.7 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T1 - 2' (H701053-03)

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	04/22/2017	ND	1.94	96.8	2.00	0.897		
Toluene*	<0.050	0.050	04/22/2017	ND	1.85	92.7	2.00	1.13		
Ethylbenzene*	<0.050	0.050	04/22/2017	ND	1.87	93.3	2.00	0.506		
Total Xylenes*	<0.150	0.150	04/22/2017	ND	5.32	88.7	6.00	0.459		
Total BTEX	<0.300	0.300	04/22/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.1 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	04/24/2017	ND	448	112	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	04/21/2017	ND	198	98.8	200	1.91		
DRO >C10-C28	<10.0	10.0	04/21/2017	ND	207	104	200	1.74		

Surrogate: 1-Chlorooctane 88.1 % 28.3-164

Surrogate: 1-Chlorooctadecane 80.7 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T1 - 3' (H701053-04)

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	04/22/2017	ND	1.94	96.8	2.00	0.897		
Toluene*	<0.050	0.050	04/22/2017	ND	1.85	92.7	2.00	1.13		
Ethylbenzene*	<0.050	0.050	04/22/2017	ND	1.87	93.3	2.00	0.506		
Total Xylenes*	<0.150	0.150	04/22/2017	ND	5.32	88.7	6.00	0.459		
Total BTEX	<0.300	0.300	04/22/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 96.9 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	240	16.0	04/24/2017	ND	432	108	400	7.14		

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	04/21/2017	ND	198	98.8	200	1.91		
DRO >C10-C28	<10.0	10.0	04/21/2017	ND	207	104	200	1.74		

Surrogate: 1-Chlorooctane 87.7 % 28.3-164

Surrogate: 1-Chlorooctadecane 80.0 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T1 - 4' (H701053-05)

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	04/22/2017	ND	1.94	96.8	2.00	0.897	
Toluene*	<0.050	0.050	04/22/2017	ND	1.85	92.7	2.00	1.13	
Ethylbenzene*	<0.050	0.050	04/22/2017	ND	1.87	93.3	2.00	0.506	
Total Xylenes*	<0.150	0.150	04/22/2017	ND	5.32	88.7	6.00	0.459	
Total BTEX	<0.300	0.300	04/22/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.7 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	816	16.0	04/24/2017	ND	432	108	400	7.14	

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	04/22/2017	ND	198	98.8	200	1.91	
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	207	104	200	1.74	

Surrogate: 1-Chlorooctane 91.4 % 28.3-164

Surrogate: 1-Chlorooctadecane 84.2 % 34.7-157

Sample ID: T1 - 5' (H701053-06)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1490	16.0	04/25/2017	ND	432	108	400	7.14	

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T1 - 6' (H701053-07)

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	04/25/2017	ND	432	108	400	7.14	

Sample ID: T1 - 8' (H701053-08)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	336	16.0	04/25/2017	ND	432	108	400	7.14	

Sample ID: T1 - 10' (H701053-09)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	04/25/2017	ND	432	108	400	7.14	

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T2 - SURFACE (H701053-10)

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	04/22/2017	ND	1.94	96.8	2.00	0.897		
Toluene*	<0.050	0.050	04/22/2017	ND	1.85	92.7	2.00	1.13		
Ethylbenzene*	<0.050	0.050	04/22/2017	ND	1.87	93.3	2.00	0.506		
Total Xylenes*	<0.150	0.150	04/22/2017	ND	5.32	88.7	6.00	0.459		
Total BTEX	<0.300	0.300	04/22/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.4 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4960	16.0	04/25/2017	ND	432	108	400	7.14		

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	04/22/2017	ND	198	98.8	200	1.91		
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	207	104	200	1.74		

Surrogate: 1-Chlorooctane 88.3 % 28.3-164

Surrogate: 1-Chlorooctadecane 82.3 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T2 - 1' (H701053-11)

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	04/22/2017	ND	1.94	96.8	2.00	0.897		
Toluene*	<0.050	0.050	04/22/2017	ND	1.85	92.7	2.00	1.13		
Ethylbenzene*	<0.050	0.050	04/22/2017	ND	1.87	93.3	2.00	0.506		
Total Xylenes*	<0.150	0.150	04/22/2017	ND	5.32	88.7	6.00	0.459		
Total BTEX	<0.300	0.300	04/22/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.7 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4800	16.0	04/25/2017	ND	432	108	400	7.14		

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	04/22/2017	ND	198	98.8	200	1.91		
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	207	104	200	1.74		

Surrogate: 1-Chlorooctane 86.6 % 28.3-164

Surrogate: 1-Chlorooctadecane 83.7 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T2 - 2' (H701053-12)

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	04/24/2017	ND	1.80	90.1	2.00	0.871		
Toluene*	<0.050	0.050	04/24/2017	ND	1.75	87.4	2.00	0.818		
Ethylbenzene*	<0.050	0.050	04/24/2017	ND	1.79	89.5	2.00	0.819	QR-03	
Total Xylenes*	<0.150	0.150	04/24/2017	ND	5.12	85.3	6.00	0.650		
Total BTEX	<0.300	0.300	04/24/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.8 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	576	16.0	04/25/2017	ND	432	108	400	7.14		

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	04/22/2017	ND	198	98.8	200	1.91		
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	207	104	200	1.74		

Surrogate: 1-Chlorooctane 94.9 % 28.3-164

Surrogate: 1-Chlorooctadecane 87.8 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T2 - 3' (H701053-13)

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	04/24/2017	ND	1.80	90.1	2.00	0.871		
Toluene*	<0.050	0.050	04/24/2017	ND	1.75	87.4	2.00	0.818		
Ethylbenzene*	<0.050	0.050	04/24/2017	ND	1.79	89.5	2.00	0.819		
Total Xylenes*	<0.150	0.150	04/24/2017	ND	5.12	85.3	6.00	0.650		
Total BTEX	<0.300	0.300	04/24/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.8 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	144	16.0	04/25/2017	ND	432	108	400	7.14		

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	04/22/2017	ND	198	98.8	200	1.91		
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	207	104	200	1.74		

Surrogate: 1-Chlorooctane 84.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 74.4 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T2 - 4' (H701053-14)

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	04/24/2017	ND	1.80	90.1	2.00	0.871	
Toluene*	<0.050	0.050	04/24/2017	ND	1.75	87.4	2.00	0.818	
Ethylbenzene*	<0.050	0.050	04/24/2017	ND	1.79	89.5	2.00	0.819	
Total Xylenes*	<0.150	0.150	04/24/2017	ND	5.12	85.3	6.00	0.650	
Total BTEX	<0.300	0.300	04/24/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.5 % 72-148

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	04/25/2017	ND	432	108	400	7.14	

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	04/22/2017	ND	200	100	200	4.05	
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	215	107	200	4.17	

Surrogate: 1-Chlorooctane 86.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 83.6 % 34.7-157

Sample ID: T2 - 6' (H701053-15)

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	04/25/2017	ND	432	108	400	7.14	

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T3 - SURFACE (H701053-16)

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	04/24/2017	ND	1.80	90.1	2.00	0.871	
Toluene*	<0.050	0.050	04/24/2017	ND	1.75	87.4	2.00	0.818	
Ethylbenzene*	<0.050	0.050	04/24/2017	ND	1.79	89.5	2.00	0.819	
Total Xylenes*	<0.150	0.150	04/24/2017	ND	5.12	85.3	6.00	0.650	
Total BTEX	<0.300	0.300	04/24/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.7 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	04/25/2017	ND	432	108	400	7.14	

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	04/22/2017	ND	200	100	200	4.05	
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	215	107	200	4.17	

Surrogate: 1-Chlorooctane 85.1 % 28.3-164

Surrogate: 1-Chlorooctadecane 76.2 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T3 - 1' (H701053-17)

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	04/24/2017	ND	1.80	90.1	2.00	0.871		
Toluene*	<0.050	0.050	04/24/2017	ND	1.75	87.4	2.00	0.818		
Ethylbenzene*	<0.050	0.050	04/24/2017	ND	1.79	89.5	2.00	0.819		
Total Xylenes*	<0.150	0.150	04/24/2017	ND	5.12	85.3	6.00	0.650		
Total BTEX	<0.300	0.300	04/24/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	04/25/2017	ND	432	108	400	7.14		

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	04/22/2017	ND	200	100	200	4.05		
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	215	107	200	4.17		

Surrogate: 1-Chlorooctane 92.1 % 28.3-164

Surrogate: 1-Chlorooctadecane 83.8 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T3 - 2' (H701053-18)

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	04/24/2017	ND	1.80	90.1	2.00	0.871		
Toluene*	<0.050	0.050	04/24/2017	ND	1.75	87.4	2.00	0.818		
Ethylbenzene*	<0.050	0.050	04/24/2017	ND	1.79	89.5	2.00	0.819		
Total Xylenes*	<0.150	0.150	04/24/2017	ND	5.12	85.3	6.00	0.650		
Total BTEX	<0.300	0.300	04/24/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	112	16.0	04/25/2017	ND	432	108	400	7.14		

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	04/22/2017	ND	200	100	200	4.05		
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	215	107	200	4.17		

Surrogate: 1-Chlorooctane 85.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 78.2 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T3 - 3' (H701053-19)

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	04/24/2017	ND	1.80	90.1	2.00	0.871		
Toluene*	<0.050	0.050	04/24/2017	ND	1.75	87.4	2.00	0.818		
Ethylbenzene*	<0.050	0.050	04/24/2017	ND	1.79	89.5	2.00	0.819		
Total Xylenes*	<0.150	0.150	04/24/2017	ND	5.12	85.3	6.00	0.650		
Total BTEX	<0.300	0.300	04/24/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	6480	16.0	04/25/2017	ND	432	108	400	7.14		

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	04/22/2017	ND	200	100	200	4.05		
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	215	107	200	4.17		

Surrogate: 1-Chlorooctane 88.9 % 28.3-164

Surrogate: 1-Chlorooctadecane 80.4 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T3 - 4' (H701053-20)

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	04/24/2017	ND	1.80	90.1	2.00	0.871	
Toluene*	<0.050	0.050	04/24/2017	ND	1.75	87.4	2.00	0.818	
Ethylbenzene*	<0.050	0.050	04/24/2017	ND	1.79	89.5	2.00	0.819	
Total Xylenes*	<0.150	0.150	04/24/2017	ND	5.12	85.3	6.00	0.650	
Total BTEX	<0.300	0.300	04/24/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3440	16.0	04/25/2017	ND	432	108	400	7.14	

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	04/22/2017	ND	200	100	200	4.05	
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	215	107	200	4.17	

Surrogate: 1-Chlorooctane 77.4 % 28.3-164

Surrogate: 1-Chlorooctadecane 77.0 % 34.7-157

Sample ID: T3 - 6' (H701053-21)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	04/25/2017	ND	432	108	400	7.14	

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T3 - 8' (H701053-22)

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	04/25/2017	ND	432	108	400	7.14	

Sample ID: T4 - SURFACE (H701053-23)

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	04/24/2017	ND	1.80	90.1	2.00	0.871	
Toluene*	<0.050	0.050	04/24/2017	ND	1.75	87.4	2.00	0.818	
Ethylbenzene*	<0.050	0.050	04/24/2017	ND	1.79	89.5	2.00	0.819	
Total Xylenes*	<0.150	0.150	04/24/2017	ND	5.12	85.3	6.00	0.650	
Total BTEX	<0.300	0.300	04/24/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	560	16.0	04/25/2017	ND	432	108	400	7.14	

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	04/22/2017	ND	200	100	200	4.05	
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	215	107	200	4.17	

Surrogate: 1-Chlorooctane 82.8 % 28.3-164

Surrogate: 1-Chlorooctadecane 76.7 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T4 - 1' (H701053-24)

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	04/24/2017	ND	1.80	90.1	2.00	0.871		
Toluene*	<0.050	0.050	04/24/2017	ND	1.75	87.4	2.00	0.818		
Ethylbenzene*	<0.050	0.050	04/24/2017	ND	1.79	89.5	2.00	0.819		
Total Xylenes*	<0.150	0.150	04/24/2017	ND	5.12	85.3	6.00	0.650		
Total BTEX	<0.300	0.300	04/24/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.8 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	560	16.0	04/25/2017	ND	432	108	400	0.00	QM-07	

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	04/22/2017	ND	200	100	200	4.05		
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	215	107	200	4.17		

Surrogate: 1-Chlorooctane 88.6 % 28.3-164

Surrogate: 1-Chlorooctadecane 86.7 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T4 - 2' (H701053-25)

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	04/24/2017	ND	1.80	90.1	2.00	0.871		
Toluene*	<0.050	0.050	04/24/2017	ND	1.75	87.4	2.00	0.818		
Ethylbenzene*	<0.050	0.050	04/24/2017	ND	1.79	89.5	2.00	0.819		
Total Xylenes*	<0.150	0.150	04/24/2017	ND	5.12	85.3	6.00	0.650		
Total BTEX	<0.300	0.300	04/24/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	544	16.0	04/25/2017	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	04/22/2017	ND	200	100	200	4.05		
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	215	107	200	4.17		

Surrogate: 1-Chlorooctane 93.3 % 28.3-164

Surrogate: 1-Chlorooctadecane 84.8 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T4 - 3' (H701053-26)

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	04/24/2017	ND	1.80	90.1	2.00	0.871		
Toluene*	<0.050	0.050	04/24/2017	ND	1.75	87.4	2.00	0.818		
Ethylbenzene*	<0.050	0.050	04/24/2017	ND	1.79	89.5	2.00	0.819		
Total Xylenes*	<0.150	0.150	04/24/2017	ND	5.12	85.3	6.00	0.650		
Total BTEX	<0.300	0.300	04/24/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 72-148

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	04/25/2017	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	04/22/2017	ND	200	100	200	4.05		
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	215	107	200	4.17		

Surrogate: 1-Chlorooctane 90.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 83.8 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T4 - 4' (H701053-27)

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	04/24/2017	ND	1.80	90.1	2.00	0.871	
Toluene*	<0.050	0.050	04/24/2017	ND	1.75	87.4	2.00	0.818	
Ethylbenzene*	<0.050	0.050	04/24/2017	ND	1.79	89.5	2.00	0.819	
Total Xylenes*	<0.150	0.150	04/24/2017	ND	5.12	85.3	6.00	0.650	
Total BTEX	<0.300	0.300	04/24/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	04/25/2017	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	04/22/2017	ND	200	100	200	4.05	
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	215	107	200	4.17	

Surrogate: 1-Chlorooctane 91.3 % 28.3-164

Surrogate: 1-Chlorooctadecane 87.3 % 34.7-157

Sample ID: T4 - 6' (H701053-28)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	04/25/2017	ND	432	108	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence 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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T4 - 8' (H701053-29)

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	04/25/2017	ND	432	108	400	0.00	

Sample ID: T5 - SURFACE (H701053-30)

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	04/24/2017	ND	1.80	90.1	2.00	0.871	
Toluene*	<0.050	0.050	04/24/2017	ND	1.75	87.4	2.00	0.818	
Ethylbenzene*	<0.050	0.050	04/24/2017	ND	1.79	89.5	2.00	0.819	
Total Xylenes*	<0.150	0.150	04/24/2017	ND	5.12	85.3	6.00	0.650	
Total BTEX	<0.300	0.300	04/24/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.6 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	7360	16.0	04/25/2017	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	04/22/2017	ND	200	100	200	4.05	
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	215	107	200	4.17	

Surrogate: 1-Chlorooctane 89.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 86.2 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T5 - 1' (H701053-31)

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	04/24/2017	ND	1.80	90.1	2.00	0.871		
Toluene*	<0.050	0.050	04/24/2017	ND	1.75	87.4	2.00	0.818		
Ethylbenzene*	<0.050	0.050	04/24/2017	ND	1.79	89.5	2.00	0.819		
Total Xylenes*	<0.150	0.150	04/24/2017	ND	5.12	85.3	6.00	0.650		
Total BTEX	<0.300	0.300	04/24/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1230	16.0	04/25/2017	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	04/22/2017	ND	200	100	200	4.05		
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	215	107	200	4.17		

Surrogate: 1-Chlorooctane 85.6 % 28.3-164

Surrogate: 1-Chlorooctadecane 81.4 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T5 - 2' (H701053-32)

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	04/24/2017	ND	1.80	90.1	2.00	0.871	
Toluene*	<0.050	0.050	04/24/2017	ND	1.75	87.4	2.00	0.818	
Ethylbenzene*	<0.050	0.050	04/24/2017	ND	1.79	89.5	2.00	0.819	
Total Xylenes*	<0.150	0.150	04/24/2017	ND	5.12	85.3	6.00	0.650	
Total BTEX	<0.300	0.300	04/24/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	736	16.0	04/25/2017	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	04/22/2017	ND	200	100	200	4.05	
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	215	107	200	4.17	

Surrogate: 1-Chlorooctane 85.2 % 28.3-164

Surrogate: 1-Chlorooctadecane 79.4 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T5 - 3' (H701053-33)

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	04/24/2017	ND	1.80	90.1	2.00	0.871		
Toluene*	<0.050	0.050	04/24/2017	ND	1.75	87.4	2.00	0.818		
Ethylbenzene*	<0.050	0.050	04/24/2017	ND	1.79	89.5	2.00	0.819		
Total Xylenes*	<0.150	0.150	04/24/2017	ND	5.12	85.3	6.00	0.650		
Total BTEX	<0.300	0.300	04/24/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.4 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	04/25/2017	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	04/22/2017	ND	200	100	200	4.05		
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	215	107	200	4.17		

Surrogate: 1-Chlorooctane 76.8 % 28.3-164

Surrogate: 1-Chlorooctadecane 75.7 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T5 - 4' (H701053-34)

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	04/25/2017	ND	1.96	97.8	2.00	2.29	
Toluene*	<0.050	0.050	04/25/2017	ND	1.80	90.1	2.00	1.74	
Ethylbenzene*	<0.050	0.050	04/25/2017	ND	1.80	90.0	2.00	1.25	
Total Xylenes*	<0.150	0.150	04/25/2017	ND	5.12	85.3	6.00	1.34	
Total BTEX	<0.300	0.300	04/25/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.6 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	04/25/2017	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	04/22/2017	ND	200	100	200	4.05	
DRO >C10-C28	<10.0	10.0	04/22/2017	ND	215	107	200	4.17	

Surrogate: 1-Chlorooctane 76.8 % 28.3-164

Surrogate: 1-Chlorooctadecane 76.9 % 34.7-157

Sample ID: T5 - 6' (H701053-35)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	04/25/2017	ND	432	108	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence 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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: T5 - 8' (H701053-36)
Chloride, SM4500Cl-B
mg/kg
Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	04/25/2017	ND	432	108	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence 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

Notes and Definitions

- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- ** Samples not received at proper temperature of 6°C or below.
- *** Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C
Samples reported on an as received basis (wet) unless otherwise noted on report





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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

1 of 5

BILL TO

ANALYSIS REQUEST

Company Name: COG Operating LLC
 Project Manager: Aaron Lieb
 Address: 2407 Pecos Avenue
 City: Artesia State: NM Zip: 88210
 Phone #: 575-748-1553 Fax #:
 Project #: Project Owner:
 Project Name: Jaguar 18 State #002H
 Project Location:
 Sampler Name: Aaron Lieb
 P.O. #:
 Company: COG Operating LLC
 Attn: Robert McNeill
 Address: 600 W Illinois
 City: Midland
 State: TX Zip: 79701
 Phone #: (432) 221-0388
 Fax #:

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	BTEX	TPH	Chloride
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :					
H7D1053														
	T1-SURF			X					4/18/17	10:30AM	X	X	X	
	T1-1'			X					4/18/17	10:30AM	X	X	X	
	T1-2'			X					4/18/17	10:30AM	X	X	X	
	T1-3'			X					4/18/17	10:30AM	X	X	X	
	T1-4'			X					4/18/17	10:30AM	X	X	X	
	T1-5'			X					4/18/17	10:30AM	X	X	X	
	T1-6'			X					4/18/17	10:40AM	X	X	X	
	T1-8'			X					4/18/17	10:40 AM	X	X	X	
	T1-10'			X					4/18/17	10:40 AM	X	X	X	

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

Relinquished By: _____ Date: _____
 Received By: _____ Date: _____
 Relinquished By: _____ Date: _____
 Received By: _____ Date: _____

Relinquished By: _____ Date: 4-20-17
 Received By: _____ Date: 4-20-17
 Delivered By: (Circle One) #75 4.10
 Sampler - UPS - Bus - Other: _____
 Sample Condition: Cool Intact
 Yes No
 Checked By: _____ (Initials)

Phone Result: Yes No Add'l Phone #: _____
 Fax Result: Yes No Add'l Fax #: _____
 REMARKS: dneel2@concho.com
 alieb@concho.com
 rorubs@concho.com
 rhaskeil@concho.com



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

3 of 5

Company Name: COG Operating LLC		BILL TO		ANALYSIS REQUEST	
Project Manager: Aaron Lieb		P.O. #:			
Address: 2407 Pecos Avenue		Company: COG Operating LLC			
City: Artesia		Attn: Robert McNeill			
Phone #: 575-748-1553		Address: 600 W Illinois			
Project #: _____		City: Midland			
Project Name: Jaguar 18 State #002H		State: TX			
Project Location: _____		Zip: 79701			
Sampler Name: Aaron Lieb		Phone #: (432) 221-0388			
FOR LAB USE ONLY		Fax #:			

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	BTEX	TPH	Chloride
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :					
H7D1D53														
116	T3-SURF			X					4/18/17	11:30AM	X	X	X	
17	T3-1'			X					4/18/17	11:30AM	X	X	X	
18	T3-2'			X					4/18/17	11:30AM	X	X	X	
19	T3-3'			X					4/18/17	11:30AM	X	X	X	
20	T3-4'			X					4/18/17	11:30AM	X	X	X	
21	T3-6'			X					4/18/17	11:30AM	X	X	X	
22	T3-8'			X					4/18/17	11:30AM	X	X	X	

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

Relinquished By:	Date:	Received By:	DATE
	Time:		
Relinquished By:	Date: 4-20-17	Received By: <i>Jamara Rodriguez</i>	4/18/17
	Time:		
Delivered By: (Circle One)		Sample Condition	CHECKED BY: <i>[Signature]</i>
Sampler - UPS - Bus - Other: #75		Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:		
Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:		
REMARKS:			
dnee12@concho.com alleb@concho.com rgrubbs@concho.com thaskell@concho.com			



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

4 of 5

BILL TO

ANALYSIS REQUEST

Company Name: COG Operating LLC
 Project Manager: Aaron Lieb
 Address: 2407 Pecos Avenue
 City: Artesia State: NM Zip: 88210
 Phone #: 575-748-1553 Fax #: [blank]
 Project #: [blank] Project Owner: [blank]
 Project Name: Jaguar 18 State #002H
 Project Location: [blank]
 Sampler Name: Aaron Lieb
 P.O. #: [blank] Company: COG Operating LLC
 Attn: Robert McNeill
 Address: 600 W Illinois
 City: Midland
 State: TX Zip: 79701
 Phone #: (432) 221-0388
 Fax #: [blank]

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						PRESERV	SAMPLING	DATE	TIME	BTEX	TPH	Chloride
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :							
H7D1053	T4-SURF			X							4/18/17	12:15PM	X			
23	T4-1'			X							4/18/17	12:15PM	X			
24	T4-2'			X							4/18/17	12:15PM	X			
25	T4-3'			X							4/18/17	12:15PM	X			
26	T4-4'			X							4/18/17	12:15PM	X			
27	T4-6'			X							4/18/17	12:15PM	X			
28	T4-8'			X							4/18/17	12:15PM	X			

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

Relinquished By: [blank] Date: [blank] Received By: [Signature] Date: 4-20-17
 Relinquished By: [blank] Date: [blank] Received By: [Signature] Date: [blank]
 Delivered By: (Circle One) #75
 Sampler - UPS - Bus - Other: 4.10
 Sample Condition: Cool Intact
 Yes No
 Yes No
 CHECKED BY: [Signature]
 REMARKS:
 dhree12@concho.com
 alieb@concho.com
 rgrubbs@concho.com
 rthaskell@concho.com
 Phone Result: Yes No Add'l Phone #: [blank]
 Fax Result: Yes No Add'l Fax #: [blank]



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

5 of 5

Company Name: COG Operating LLC
 Project Manager: Aaron Lieb
 Address: 2407 Pecos Avenue
 City: Artesia State: NM Zip: 88210
 Phone #: 575-748-1553 Fax #: [blank]
 Project #: [blank] Project Owner: [blank]
 Project Name: Jaguar 18 State #002H
 Project Location: [blank]
 Sampler Name: Aaron Lieb
 P.O. #: [blank] Company: COG Operating LLC
 Attn: Robert McNeill
 Address: 600 W Illinois
 City: Midland
 State: TX Zip: 79701
 Phone #: (432) 221-0388
 Fax #: [blank]

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX							DATE	TIME	BTEX	TPH	Chloride
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:					
H701053															
3D	T5-SURF			X						4/18/17	12:40PM	X	X	X	
31	T5-1'			X						4/18/17	12:40PM	X	X	X	
32	T5-2'			X						4/18/17	12:40PM	X	X	X	
33	T5-3'			X						4/18/17	12:40PM	X	X	X	
34	T5-4'			X						4/18/17	12:40PM	X	X	X	
35	T5-6'			X						4/18/17	12:40PM	X	X	X	
36	T5-8'			X						4/18/17	12:40PM	X	X	X	

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

Relinquished By: [blank] Date: [blank] Time: [blank]
 Received By: [blank] Date: [blank] Time: [blank]
 Relinquished By: [blank] Date: 4-20-17 Time: [blank]
 Received By: [blank] Date: [blank] Time: [blank]
 Delivered By: (Circle One) #75 4.1P
 Sampler - UPS - Bus - Other: [blank]
 Sample Condition: Cool Intact
 REMARKS: [blank]
 Phone Result: Yes No Add'l Phone #: [blank]
 Fax Result: Yes No Add'l Fax #: [blank]
 dneel2@concho.com
 alieb@concho.com
 rgrubbs@concho.com
 maskell@concho.com



April 27, 2017

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

RE: JAGUAR 18 STATE #002H

Enclosed are the results of analyses for samples received by the laboratory on 04/20/17 11:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/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, flowing "C" and "K".

Celey D. Keene
Lab Director/Quality Manager

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: NORTH - SURFACE (H701058-01)

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	04/25/2017	ND	1.96	97.8	2.00	2.29		
Toluene*	<0.050	0.050	04/25/2017	ND	1.80	90.1	2.00	1.74		
Ethylbenzene*	<0.050	0.050	04/25/2017	ND	1.80	90.0	2.00	1.25		
Total Xylenes*	<0.150	0.150	04/25/2017	ND	5.12	85.3	6.00	1.34		
Total BTEX	<0.300	0.300	04/25/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	04/25/2017	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	04/24/2017	ND	184	91.9	200	1.36		
DRO >C10-C28	22.0	10.0	04/24/2017	ND	194	97.1	200	1.76		

Surrogate: 1-Chlorooctane 86.2 % 28.3-164
Surrogate: 1-Chlorooctadecane 69.9 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: NORTH - 1' (H701058-02)

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	04/25/2017	ND	1.96	97.8	2.00	2.29		
Toluene*	<0.050	0.050	04/25/2017	ND	1.80	90.1	2.00	1.74		
Ethylbenzene*	<0.050	0.050	04/25/2017	ND	1.80	90.0	2.00	1.25		
Total Xylenes*	<0.150	0.150	04/25/2017	ND	5.12	85.3	6.00	1.34		
Total BTEX	<0.300	0.300	04/25/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	04/25/2017	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	04/24/2017	ND	184	91.9	200	1.36		
DRO >C10-C28	<10.0	10.0	04/24/2017	ND	194	97.1	200	1.76		

Surrogate: 1-Chlorooctane 85.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 73.4 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: NORTH - 2' (H701058-03)

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	04/25/2017	ND	1.96	97.8	2.00	2.29		
Toluene*	<0.050	0.050	04/25/2017	ND	1.80	90.1	2.00	1.74		
Ethylbenzene*	<0.050	0.050	04/25/2017	ND	1.80	90.0	2.00	1.25		
Total Xylenes*	<0.150	0.150	04/25/2017	ND	5.12	85.3	6.00	1.34		
Total BTEX	<0.300	0.300	04/25/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.0 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	04/25/2017	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	04/24/2017	ND	184	91.9	200	1.36		
DRO >C10-C28	<10.0	10.0	04/24/2017	ND	194	97.1	200	1.76		

Surrogate: 1-Chlorooctane 83.2 % 28.3-164

Surrogate: 1-Chlorooctadecane 63.8 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SOUTH - SURFACE (H701058-04)

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	04/25/2017	ND	1.96	97.8	2.00	2.29		
Toluene*	<0.050	0.050	04/25/2017	ND	1.80	90.1	2.00	1.74		
Ethylbenzene*	<0.050	0.050	04/25/2017	ND	1.80	90.0	2.00	1.25		
Total Xylenes*	<0.150	0.150	04/25/2017	ND	5.12	85.3	6.00	1.34		
Total BTEX	<0.300	0.300	04/25/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	224	16.0	04/25/2017	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	04/24/2017	ND	184	91.9	200	1.36		
DRO >C10-C28	<10.0	10.0	04/24/2017	ND	194	97.1	200	1.76		

Surrogate: 1-Chlorooctane 92.2 % 28.3-164

Surrogate: 1-Chlorooctadecane 88.0 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SOUTH - 1' (H701058-05)

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	04/25/2017	ND	1.96	97.8	2.00	2.29		
Toluene*	<0.050	0.050	04/25/2017	ND	1.80	90.1	2.00	1.74		
Ethylbenzene*	<0.050	0.050	04/25/2017	ND	1.80	90.0	2.00	1.25		
Total Xylenes*	<0.150	0.150	04/25/2017	ND	5.12	85.3	6.00	1.34		
Total BTEX	<0.300	0.300	04/25/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	112	16.0	04/25/2017	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	04/24/2017	ND	184	91.9	200	1.36		
DRO >C10-C28	<10.0	10.0	04/24/2017	ND	194	97.1	200	1.76		

Surrogate: 1-Chlorooctane 87.7 % 28.3-164

Surrogate: 1-Chlorooctadecane 82.3 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SOUTH - 2' (H701058-06)

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	04/25/2017	ND	1.96	97.8	2.00	2.29		
Toluene*	<0.050	0.050	04/25/2017	ND	1.80	90.1	2.00	1.74		
Ethylbenzene*	<0.050	0.050	04/25/2017	ND	1.80	90.0	2.00	1.25		
Total Xylenes*	<0.150	0.150	04/25/2017	ND	5.12	85.3	6.00	1.34		
Total BTEX	<0.300	0.300	04/25/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	112	16.0	04/25/2017	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	04/24/2017	ND	184	91.9	200	1.36		
DRO >C10-C28	<10.0	10.0	04/24/2017	ND	194	97.1	200	1.76		

Surrogate: 1-Chlorooctane 93.2 % 28.3-164

Surrogate: 1-Chlorooctadecane 88.7 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: EAST - SURFACE (H701058-07)

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	04/25/2017	ND	1.96	97.8	2.00	2.29		
Toluene*	<0.050	0.050	04/25/2017	ND	1.80	90.1	2.00	1.74		
Ethylbenzene*	<0.050	0.050	04/25/2017	ND	1.80	90.0	2.00	1.25		
Total Xylenes*	<0.150	0.150	04/25/2017	ND	5.12	85.3	6.00	1.34		
Total BTEX	<0.300	0.300	04/25/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.8 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	04/25/2017	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	04/24/2017	ND	184	91.9	200	1.36		
DRO >C10-C28	<10.0	10.0	04/24/2017	ND	194	97.1	200	1.76		

Surrogate: 1-Chlorooctane 81.1 % 28.3-164

Surrogate: 1-Chlorooctadecane 75.7 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: EAST - 1' (H701058-08)

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	04/25/2017	ND	1.96	97.8	2.00	2.29		
Toluene*	<0.050	0.050	04/25/2017	ND	1.80	90.1	2.00	1.74		
Ethylbenzene*	<0.050	0.050	04/25/2017	ND	1.80	90.0	2.00	1.25		
Total Xylenes*	<0.150	0.150	04/25/2017	ND	5.12	85.3	6.00	1.34		
Total BTEX	<0.300	0.300	04/25/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.3 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	04/25/2017	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	04/24/2017	ND	184	91.9	200	1.36		
DRO >C10-C28	<10.0	10.0	04/24/2017	ND	194	97.1	200	1.76		

Surrogate: 1-Chlorooctane 96.9 % 28.3-164

Surrogate: 1-Chlorooctadecane 91.5 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: EAST - 2' (H701058-09)

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	04/25/2017	ND	1.96	97.8	2.00	2.29		
Toluene*	<0.050	0.050	04/25/2017	ND	1.80	90.1	2.00	1.74		
Ethylbenzene*	<0.050	0.050	04/25/2017	ND	1.80	90.0	2.00	1.25		
Total Xylenes*	<0.150	0.150	04/25/2017	ND	5.12	85.3	6.00	1.34		
Total BTEX	<0.300	0.300	04/25/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.6 % 72-148

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	04/25/2017	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	04/24/2017	ND	184	91.9	200	1.36		
DRO >C10-C28	<10.0	10.0	04/24/2017	ND	194	97.1	200	1.76		

Surrogate: 1-Chlorooctane 97.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 89.1 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: WEST - SURFACE (H701058-10)

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	04/25/2017	ND	1.96	97.8	2.00	2.29	
Toluene*	<0.050	0.050	04/25/2017	ND	1.80	90.1	2.00	1.74	
Ethylbenzene*	<0.050	0.050	04/25/2017	ND	1.80	90.0	2.00	1.25	
Total Xylenes*	<0.150	0.150	04/25/2017	ND	5.12	85.3	6.00	1.34	
Total BTEX	<0.300	0.300	04/25/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.8 % 72-148

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	04/25/2017	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	04/24/2017	ND	184	91.9	200	1.36	
DRO >C10-C28	<10.0	10.0	04/24/2017	ND	194	97.1	200	1.76	

Surrogate: 1-Chlorooctane 87.4 % 28.3-164

Surrogate: 1-Chlorooctadecane 81.1 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: WEST - 1' (H701058-11)

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	04/25/2017	ND	1.96	97.8	2.00	2.29	
Toluene*	<0.050	0.050	04/25/2017	ND	1.80	90.1	2.00	1.74	
Ethylbenzene*	<0.050	0.050	04/25/2017	ND	1.80	90.0	2.00	1.25	
Total Xylenes*	<0.150	0.150	04/25/2017	ND	5.12	85.3	6.00	1.34	
Total BTEX	<0.300	0.300	04/25/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	04/25/2017	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	04/24/2017	ND	184	91.9	200	1.36	
DRO >C10-C28	<10.0	10.0	04/24/2017	ND	194	97.1	200	1.76	

Surrogate: 1-Chlorooctane 91.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 84.9 % 34.7-157

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

Analytical Results For:

 COG OPERATING
 AARON LIEB
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 04/20/2017
 Reported: 04/27/2017
 Project Name: JAGUAR 18 STATE #002H
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: WEST - 2' (H701058-12)

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	04/25/2017	ND	1.96	97.8	2.00	2.29	
Toluene*	<0.050	0.050	04/25/2017	ND	1.80	90.1	2.00	1.74	
Ethylbenzene*	<0.050	0.050	04/25/2017	ND	1.80	90.0	2.00	1.25	
Total Xylenes*	<0.150	0.150	04/25/2017	ND	5.12	85.3	6.00	1.34	
Total BTEX	<0.300	0.300	04/25/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 72-148

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	04/25/2017	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	04/24/2017	ND	184	91.9	200	1.36	
DRO >C10-C28	<10.0	10.0	04/24/2017	ND	194	97.1	200	1.76	

Surrogate: 1-Chlorooctane 99.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 94.4 % 34.7-157

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

Notes and Definitions

- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- ** Samples not received at proper temperature of 6°C or below.
- *** Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C
- Samples reported on an as received basis (wet) unless otherwise noted on report

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



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

1 of 4

BILL TO

ANALYSIS REQUEST

Company Name: COG Operating LLC
 Project Manager: Aaron Lieb
 Address: 2407 Pecos Avenue
 City: Artesia State: NM Zip: 88210
 Phone #: 575-748-1553 Fax #: _____
 Project #: _____ Project Owner: _____
 Project Name: Jaguar 18 State #002H
 Project Location: _____
 Sampler Name: Aaron Lieb
 P.O. #: _____ Company: COG Operating LLC
 Attn: Robert McNeill
 Address: 600 W Illinois
 City: Midland
 State: TX Zip: 79701
 Phone #: (432) 221-0388
 Fax #: _____

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	BTEX	TPH	Chloride
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :					
H701058	NORTH-SURF					X			4/18/17	1:00PM	X	X	X	
1	NORTH-1'					X			4/18/17	1:00PM	X	X	X	
2	NORTH-2'					X			4/18/17	1:00PM	X	X	X	
3														

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

Relinquished By: _____ Date: _____ Time: _____ Received By: _____
 Relinquished By: _____ Date: _____ Time: _____ Received By: _____
 Date: 4-20-17 Time: 11:30
 Received By: *Juanita*
 Sample Condition: Cool Intact
 Checked By: *TL*
 Delivered By: (Circle One) UPS Bus Other: _____
 4.1c
 70. #75
 FORM 0007-20

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

Form C-141
Revised August 8, 2011

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

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

Release Notification and Corrective Action

OPERATOR

Initial Report Final Report

Name of Company: COG Operating LLC	OGRID# [229137]	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443	
Facility Name: JAGUAR 18 STATE #002H	Facility Type: Well	

Surface Owner: State	Mineral Owner:	API No. 30-025-41428
----------------------	----------------	----------------------

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N	18	23S	33E	330'	South	1980'	West	Lea

Latitude 32.29842 Longitude 103.61335

NATURE OF RELEASE

Type of Release: Oil & Produced Water	Volume of Release: 15bbls of Oil & 25bbls of Produced Water	Volume Recovered: 10bbls of Oil & 20bbls of Produced Water
Source of Release: Wellhead	Date and Hour of Occurrence: 3/29/2017 07:00 AM	Date and Hour of Discovery: 3/29/2017 07:00 AM
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Ms. Yu - NMOCD / Ms. Groves - SLO	
By Whom? Robert Grubbs Jr	Date and Hour: Thu 3/30/2017 9:50 AM	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

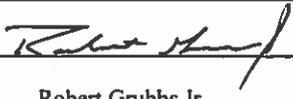
RECEIVED
By Olivia Yu at 8:33 am, Apr 07, 2017

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
The release was caused by a valve that was left half way open on the north casing valve. Close valve.

Describe Area Affected and Cleanup Action Taken.*
This release was contained on the pad. Concho will have the spill site sampled to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation work.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 	OIL CONSERVATION DIVISION	
Printed Name: Robert Grubbs Jr.	Approved by Environmental Specialist: 	
Title: Senior HSE Coordinator	Approval Date: 4/7/2017	Expiration Date:
E-mail Address: rgrubbs@concho.com	Conditions of Approval: see attached directive	Attached <input checked="" type="checkbox"/>
Date: April 3, 2017	Phone: 432-683-7443	

* Attach Additional Sheets If Necessary

1RP-4667

nOY1709731177

pOY1709731513

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 4/3/2017 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 1R-4667 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC. [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District 1 office in Hobbs on or before 5/5/2017. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.
- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.
- Nominal detection limits for field and laboratory analyses must be provided.
- Composite sampling is not generally allowed.
- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

- Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold

OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us