

SITE INFORMATION

Report Type: Work Plan 1RP-4315

General Site Information:

Site:	Deckard Federal Com #002H					
Company:	COG Operating LLC					
Section, Township and Range	Unit C	Sec. 13	T 24S	R 33E		
Lease Number:	API No. 30-025-41382					
County:	Lea County					
GPS:	32.224670° N			103.52814° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From intersection of HWY 128 & Delaware Basin Rd, travel west on HWY 128 for 3.3 mi, turn north onto CR 2-A for 0.8 mi, turn east onto lease road for 0.5 mi, turn north onto lease rd for 0.25 mi, turn east onto lease road for 1.6 mi to location.					

Release Data:

Date Released:	6/11/2016
Type Release:	Oil
Source of Contamination:	Flare
Fluid Released:	12 bbls
Fluids Recovered:	10 bbls

Official Communication:

Name:	Robert McNeil		Ike Tavarez
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		4000 N. Big Spring
	600 W. Illinois Ave.		Ste 401
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 687-8110
Fax:	(432) 684-7137		
Email:	rmcneil@conchoresources.com		Ike.Tavarez@tetrattech.com

Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	
>100 ft.	0	130'
WellHead Protection:	Ranking Score	Site Data
Water Source <1,000 ft., Private <200 ft.	20	
Water Source >1,000 ft., Private >200 ft.	0	0
Surface Body of Water:	Ranking Score	Site Data
<200 ft.	20	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0
Total Ranking Score:		0

Acceptable Soil RRAL (mg/kg)

Benzene	Total BTEX	TPH
10	50	5,000



TETRA TECH

NMOCD Conditions of Approval:

- 1.) Please re-sample Sample point 3 prior to excavation.
- 2.) Notify NMOCD prior to Sampling to allow witnessing opportunity.

September 2, 2016

Thank You,

Kristen Lynch NMOCD

Mr. Jamie Keyes
Environmental Engineer Specialist
Oil Conservation Division, District 1
1625 North French Drive
Hobbs, New Mexico 88240

Re: Work Plan for the COG Operating LLC., Deckard Federal Com #002H, Unit C, Section 13, Township 24 South, Range 33 East, Lea County, New Mexico. 1RP-4315

Mr. Keyes:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC., (COG) to assess a spill from the Deckard Federal Com #002H, Unit C, Section 13, Township 24 South, Range 33 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.224670°, W 103.52814°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on June 11, 2016, and released approximately twelve (12) bbls of oil due to a failed tester valve, which resulted in the FWKO overflowing and sending the oil to the flare. Approximately ten (10) bbls of oil was recovered. The spill is located inside the flare berm measuring approximately 40'x40' and migrated into the pasture impacting an area of approximately 75'x100'. The initial C-141 form is included in Appendix A.

Groundwater

Two water wells were listed in Section 13 on the New Mexico Office of the State Engineers website, which listed the depth to groundwater at 390' and 420' below surface, and are likely producing from a deeper aquifer. According to the NMOCD groundwater map, the average depth to groundwater in this area is between 75 to 125' below surface. The wells listed on the New Mexico Office of the State Engineers website and in the Groundwater Report 6, Geology and Ground-Water Conditions in Southern Lea County, New Mexico are plotted on a topographic map, Depth to Groundwater & Surface Elevations Map, which is included in Appendix B. Referring to the topographic map, the wells with shallow depths to groundwater appear to be directly related to an alluvium formation. The

Tetra Tech

4000 North Big Spring, Suite 401, Midland, TX 79705

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com

water wells listed in Sec 23, T 24S, R 33E and in Sec. 32, T 23S, R 34E show depths to groundwater of 110' and 130' below surface, with surface elevations of 3,584' and 3,597', respectively. The site location shows a surface elevation of 3,598'. Based on relative elevation the groundwater at the site is estimated to be approximately 130' below surface. The groundwater data is shown in Appendix B.

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

Soil Assessment and Analytical Results

On June 28, 2016, COG personnel collected three (3) samples (S1, S2, and S3) from the impacted area in the pasture to a depth of 6" below surface. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, the areas of S1 and S2 showed total BTEX and chloride concentrations below the laboratory reporting limits. The total TPH concentrations in the areas of S1 and S2 were below the RRAL's with concentrations of 110 mg/kg and 22.5 mg/kg, respectively. However, the area of S3 showed a total TPH concentration of 18,660 mg/kg and a total BTEX concentration of 139 mg/kg, respectively, at 6" below surface and the hydrocarbon impact in the area was not vertically defined.

On August 15, 2016, Tetra Tech personnel were onsite to evaluate and sample the release area at the flare. Two (2) auger holes (AH-1 and AH-2) were installed to 4-4.5' below surface using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 2. The auger hole locations are shown on Figure 3.

Referring to Table 1, the areas of auger holes (AH-1 and AH-2) exceeded the RRAL's for total TPH and total BTEX in the shallow soils. The area of auger

hole (AH-1) showed a TPH concentration of 6,600 mg/kg at 0-1' below surface, which then declined with depth to 60.4 mg/kg at 1-1.5' below surface. The area of auger hole (AH-2) showed total TPH concentrations of 12,500 mg/kg at 0-1' and 6,840 mg/kg at 1-1.5', which then declined with depth to 15.1 mg/kg at 2-2.5' below surface. The area of auger hole (AH-1) showed a total BTEX concentration of 221 mg/kg at 0-1', before declining with depth to 0.389 mg/kg at 1-1.5' below surface. The area of auger hole (AH-2) showed a BTEX concentration of 388 mg/kg at 0-1', which declined with depth to <0.300 mg/kg at 2-2.5' below surface.

The chloride concentrations in all samples collected were below laboratory reporting limits.

Work Plan

Based on the results, COG proposes to remove impacted material as highlighted (green) in Table 1 and shown on Figure 4. The area of auger hole (AH-1) will be excavated to a depth of approximately 1.0' and the area of auger hole (AH-2) will be excavated to a depth of approximately 1.5' below surface to remove the hydrocarbon impacted soils. Additionally, Tetra Tech will be re-sampling the area of S3 to re-confirm the impact in the pasture. If the samples are above the RRAL, the area of S3 will be excavated to a depth of approximately 1.0' below surface. The excavated areas will be backfilled with clean material to surface grade. The excavated material will be transported offsite for proper disposal.

The proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safety concerns for onsite personnel. As such, Tetra Tech will excavate the impacted soils to the maximum extent practicable.

Upon completion, a final report will be submitted to the NMOCD. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH



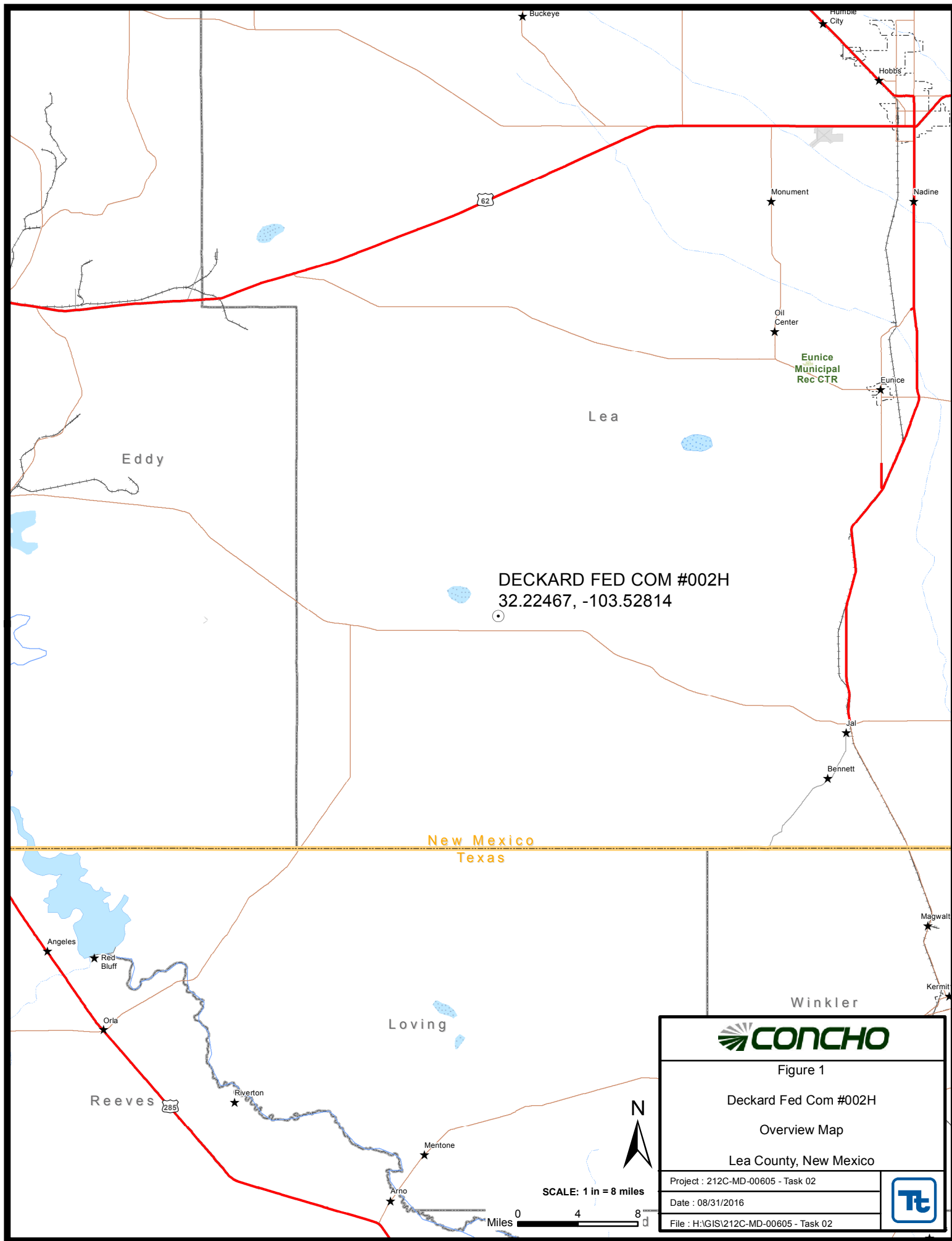
Clair Gonzales,
Geologist I

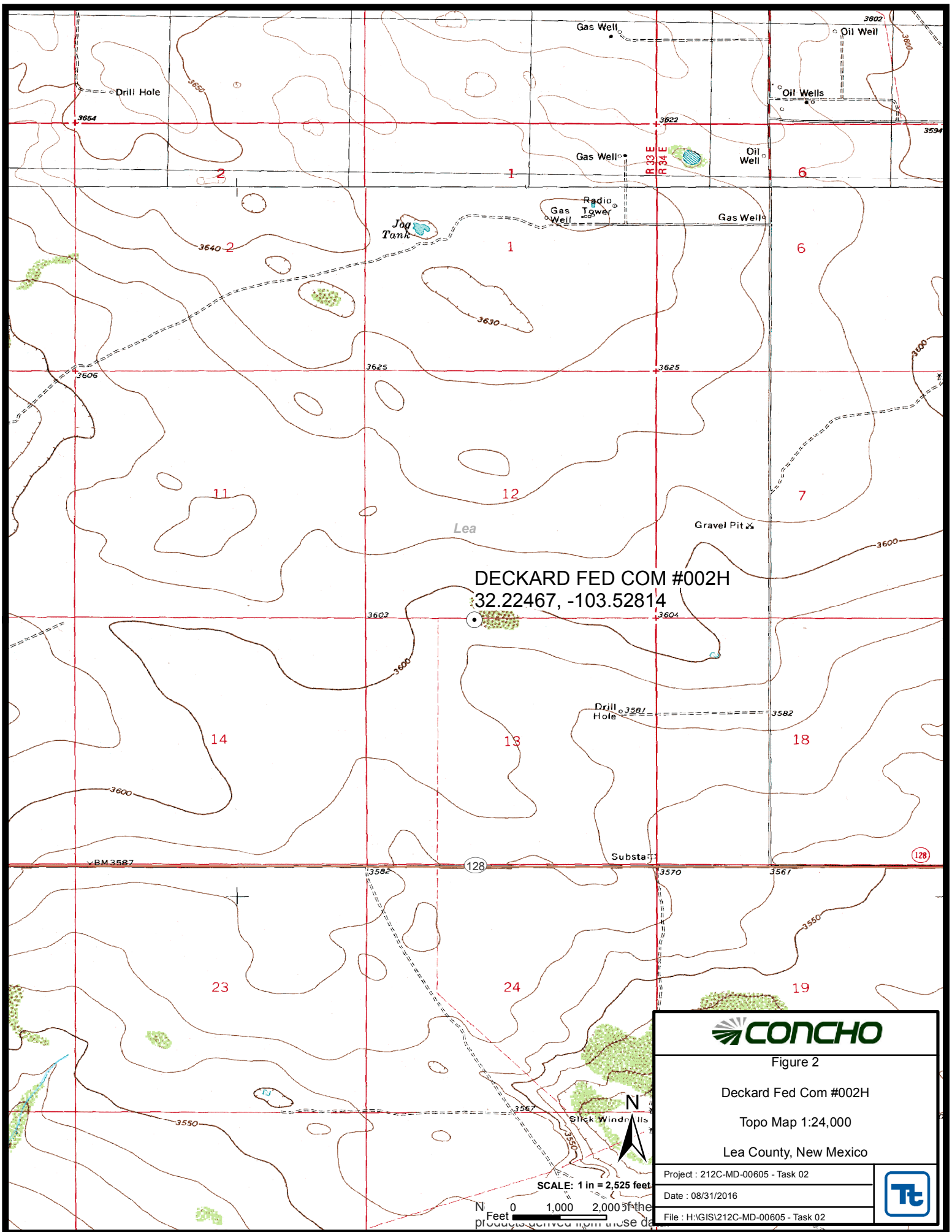


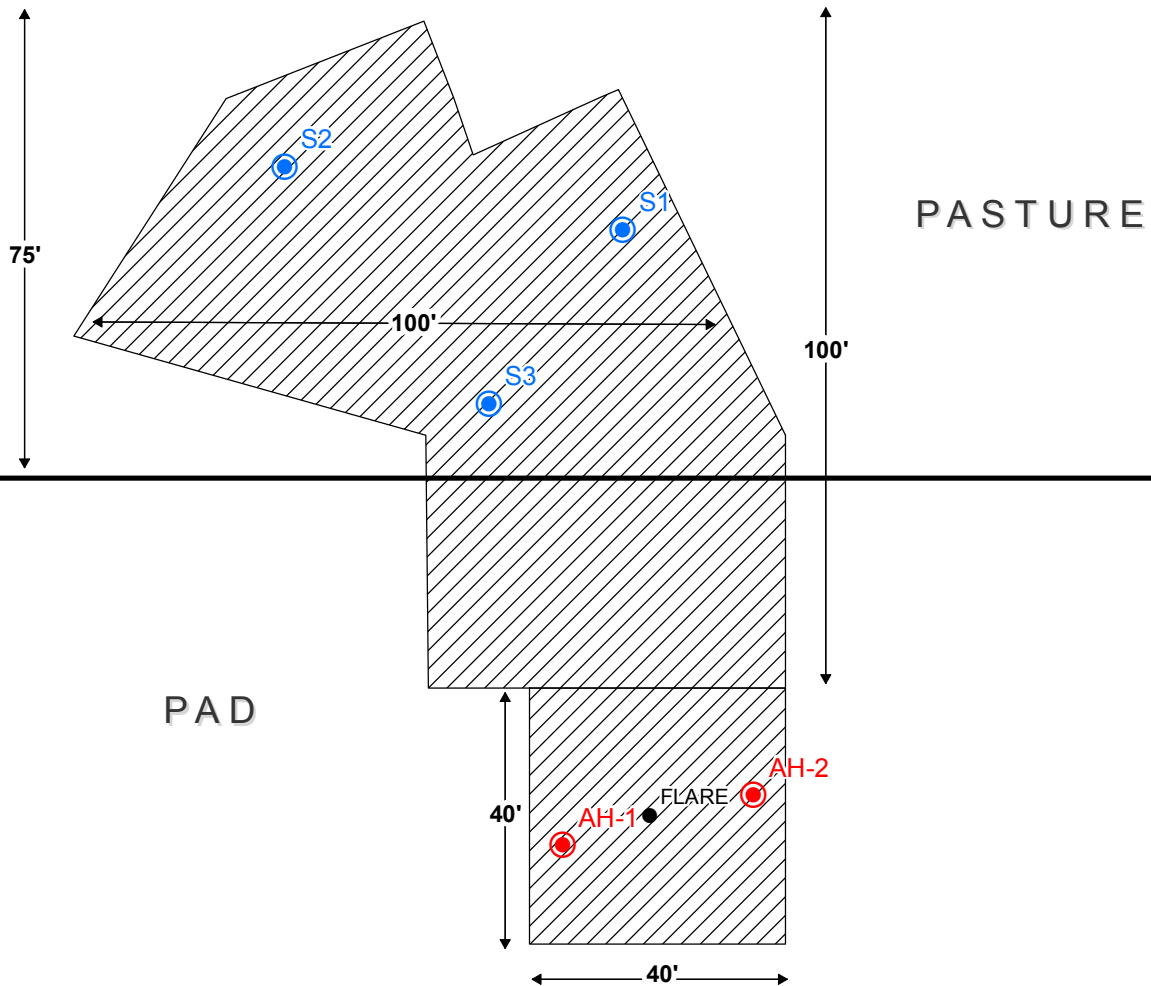
Ike Tavaréz,
Senior Project Manager, P.G.

cc: Robert McNeill – COG
Dakota Neel – COG

Figures







EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- SOIL SAMPLE LOCATIONS
- ▨ SPILL AREA



SCALE: 1 IN = 30 FEET

Feet 0 15 30



Figure 3

Deckard Fed Com #002H

Spill Assessment Map

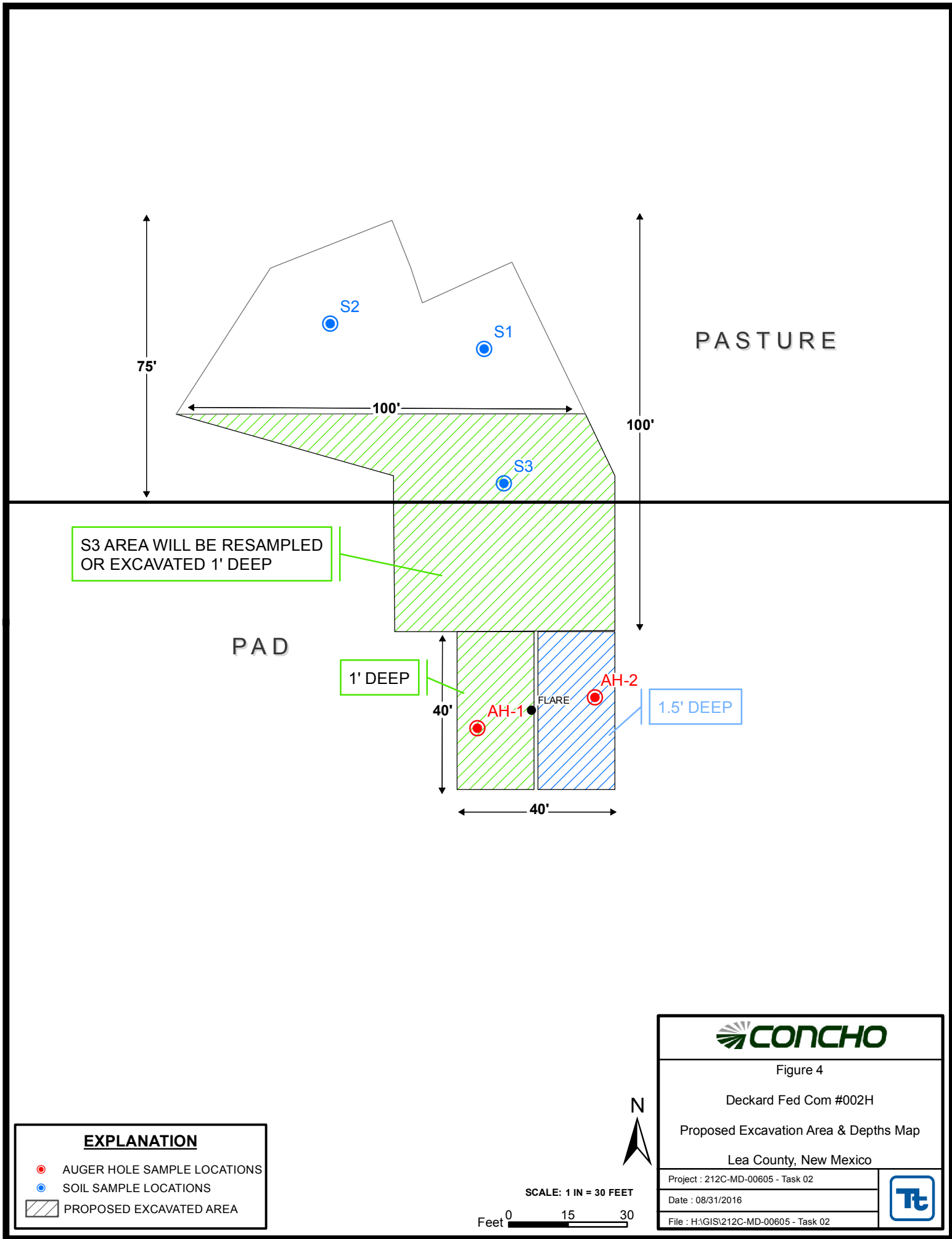
Lea County, New Mexico

Project : 212C-MD-00605 - Task 02

Date : 08/31/2016

File : H:\GIS\212C-MD-00605 - Task 02





Tables

Table 1
COG Operating LLC.
Deckard Federal Commingle #002H
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (in)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
S1	6/28/2016	6	X		<10.0	110	110	<0.50	<0.50	<0.50	<0.150	<0.300	<16.0
S2	6/28/2016	6	X		<10.0	22.5	22.5	<0.50	<0.50	<0.50	<0.150	<0.300	<16.0
S3	6/28/2016	6	X		2,260	16,400	18,660	1.37	31.2	18.0	88.5	139	208

(-) Not Analyzed

Proposed Excavation Depths

Table 2
COG Operating LLC.
Deckard Federal Commingle #002H
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-1	8/15/2016	0-1	X		1,460	5,140	6,600	4.04	63.8	29.2	124	221	<16.0
	"	1-1.5	X		<10.0	60.4	60.4	<0.050	0.076	0.051	0.262	0.389	<16.0
	"	2-2.5	X		-	-	-	-	-	-	-	-	<16.0
	"	3-3.5	X		-	-	-	-	-	-	-	-	<16.0
	"	4-4.5	X		-	-	-	-	-	-	-	-	16.0
AH-2	8/15/2016	0-1	X		3,450	9,050	12,500	8.02	122	47.4	210	388	16.0
	"	1-1.5	X		2,040	4,800	6,840	6.94	84.5	29.6	129	250	<16.0
	"	2-2.5	X		<10.0	15.1	15.1	<0.050	<0.050	<0.050	<0.150	<0.300	<16.0
	"	3-3.5	X		-	-	-	-	-	-	-	-	<16.0
	"	4-4.5	X		-	-	-	-	-	-	-	-	<16.0

(-) Not Analyzed

Proposed Excavation Depths

Appendix A

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

State of New Mexico
Energy Minerals and Natural Resources

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

RECEIVED

By JKeyes at 7:22 am, Jun 21, 2016

Form C-141
Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating LLC	Contact: Robert McNeill	
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443	
Facility Name: DECKARD FEDERAL COM #002H	Facility Type: Battery	
Surface Owner: Fee	Mineral Owner: Federal	API No. 30-025-41382

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	13	24S	33E	190'	North	1980'	West	Lea

Latitude 32.2243538 Longitude -103.5281677

NATURE OF RELEASE

Type of Release: Oil	Volume of Release: 12 bbls Oil	Volume Recovered: 10 bbls Oil
Source of Release: Flare	Date and Hour of Occurrence: 6/11/2016 unknown	Date and Hour of Discovery: 6/11/2016 9:00 am
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

This release was caused when the motor valve on tester stayed stuck open causing a drop in pressure. Motor valve for water side did not open as well filling up knockout and sending it to flare. A vacuum truck was dispatched to recover all standing fluid and Microblaze was applied to the pasture.

Describe Area Affected and Cleanup Action Taken.*

This spill impacted the containment around the flare and the nearby pasture. 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: <i>Amanda T. Davis</i>	OIL CONSERVATION DIVISION	
Printed Name: Amanda Trujillo Davis	Approved by Environmental Specialist: <i>Jani Keyes</i>	
Title: Senior Environmental Coordinator	Approval Date: 06/21/2016	Expiration Date: 08/21/2016
E-mail Address: atrujillo@concho.com	Conditions of Approval:	Attached <input type="checkbox"/> IRP 4315
Date: June 20, 2016 Phone: 575-748-6940	Discrete samples only. Delineate and remediate per NMOCD guidelines. Ensure BLM concurrence/ approval.	

* Attach Additional Sheets If Necessary

nJXK1617326344
pJXK1617326446

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Deckard Federal Com #002H, Lea County, New Mexico

23 South			32 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

23 South			33 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

23 South			34 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

24 South			32 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

24 South			33 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

24 South			34 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

25 South			32 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

25 South			33 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

25 South			34 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)
 Geology and Groundwater Resources of Eddy County, NM (Report 3)

34 NMOCD - Groundwater Data

121 Abandoned Waterwell (recently measured)



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
C 02308		LE		1	3	1	10	24S	33E	634953	3567364*	40	20	20
C 02309		LE		2	2	2	25	24S	33E	639638	3562994*	60	30	30
C 02310		LE		2	3	2	33	24S	33E	634437	3560918*	120	70	50
C 02311		LE		2	3	2	33	24S	33E	634437	3560918*	120	70	50
C 02430		LE		3	3	3	16	24S	33E	633377	3564732*	643	415	228
C 02431		LE		4	4	4	17	24S	33E	633175	3564728*	525	415	110
C 02432		LE		4	4	4	17	24S	33E	633175	3564728*	640	415	225
C 02563		LE		1	4	2	33	24S	33E	634639	3560923*	120		
C 02564		LE		2	4	2	33	24S	33E	634839	3560923*	120		
C 02890		LE		2	4	29		24S	33E	633114	3562012*	500		
C 03565 POD3		LE		3	4	08		24S	33E	632763	3566546		1533	
C 03591 POD1		LE		2	1	4	05	24S	33E	632731	3568518			
C 03600 POD1		LE		2	2	1	26	24S	33E	637275	3563023			
C 03600 POD2		LE		4	4	1	25	24S	33E	638824	3562329			
C 03600 POD3		LE		3	4	2	26	24S	33E	637784	3562340			
C 03600 POD4		LE		3	3	1	26	24S	33E	636617	3562293			
C 03600 POD5		LE		3	2	4	26	24S	33E	637857	3562020			
C 03600 POD6		LE		3	1	4	26	24S	33E	637383	3562026			
C 03600 POD7		LE		3	1	3	26	24S	33E	636726	3561968			
C 03601 POD1		LE		4	4	2	23	24S	33E	638124	3563937			
C 03601 POD2		LE		3	2	4	23	24S	33E	637846	3563588			
C 03601 POD3		LE		1	3	3	24	24S	33E	638142	3563413			
C 03601 POD4		LE		3	3	3	24	24S	33E	638162	3561375			
C 03601 POD5		LE		2	4	4	23	24S	33E	637988	3563334			
C 03601 POD6		LE		1	4	4	23	24S	33E	637834	3563338			
C 03601 POD7		LE		4	4	4	23	24S	33E	637946	3563170			

*UTM location was derived from PLSS - see Help

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub- Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
C 03602 POD2			LE	4	4	1	25	24S	33E	638824	3562329			
C 03603 POD1			LE	3	2	2	35	24S	33E	637805	3561225			
C 03603 POD2			LE	3	1	2	35	24S	33E	637384	3561167			
C 03603 POD3			LE	4	1	1	35	24S	33E	636890	3561092			
C 03603 POD4			LE	3	2	4	35	24S	33E	637789	3560461			
C 03603 POD5			LE	3	3	2	35	24S	33E	636745	3560767			
C 03603 POD6			LE	3	1	3	35	24S	33E	636749	3560447			
C 03662 POD1		C	LE	3	1	2	23	24S	33E	637342	3564428	550	110	440
C 03666 POD1		C	LE	2	3	4	13	24S	33E	639132	3565078	650	390	260
C 03679 POD1		C	ED	1	4	2	14	24S	33E	603567	3581547	700	575	125
C 03917 POD1		C	LE	4	1	3	13	24S	33E	638374	3565212	600	420	180

Average Depth to Water: **371 feet**

Minimum Depth: **20 feet**

Maximum Depth: **1533 feet**

Record Count: 37

PLSS Search:

Township: 24S

Range: 33E



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
C 03620 POD1	C	LE		1	4	3	32	23S	34E	641790	3569941	480	130	350

Average Depth to Water: **130 feet**

Minimum Depth: **130 feet**

Maximum Depth: **130 feet**

Record Count: 1

PLSS Search:

Section(s): 32

Township: 23S

Range: 34E



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
C 03601 POD1		LE		4	4	2	23	24S	33E	638124	3563937			
C 03601 POD2		LE		3	2	4	23	24S	33E	637846	3563588			
C 03601 POD5		LE		2	4	4	23	24S	33E	637988	3563334			
C 03601 POD6		LE		1	4	4	23	24S	33E	637834	3563338			
C 03601 POD7		LE		4	4	4	23	24S	33E	637946	3563170			
C 03662 POD1	C	LE		3	1	2	23	24S	33E	637342	3564428	550	110	440

Average Depth to Water: **110 feet**

Minimum Depth: **110 feet**

Maximum Depth: **110 feet**

Record Count: 6

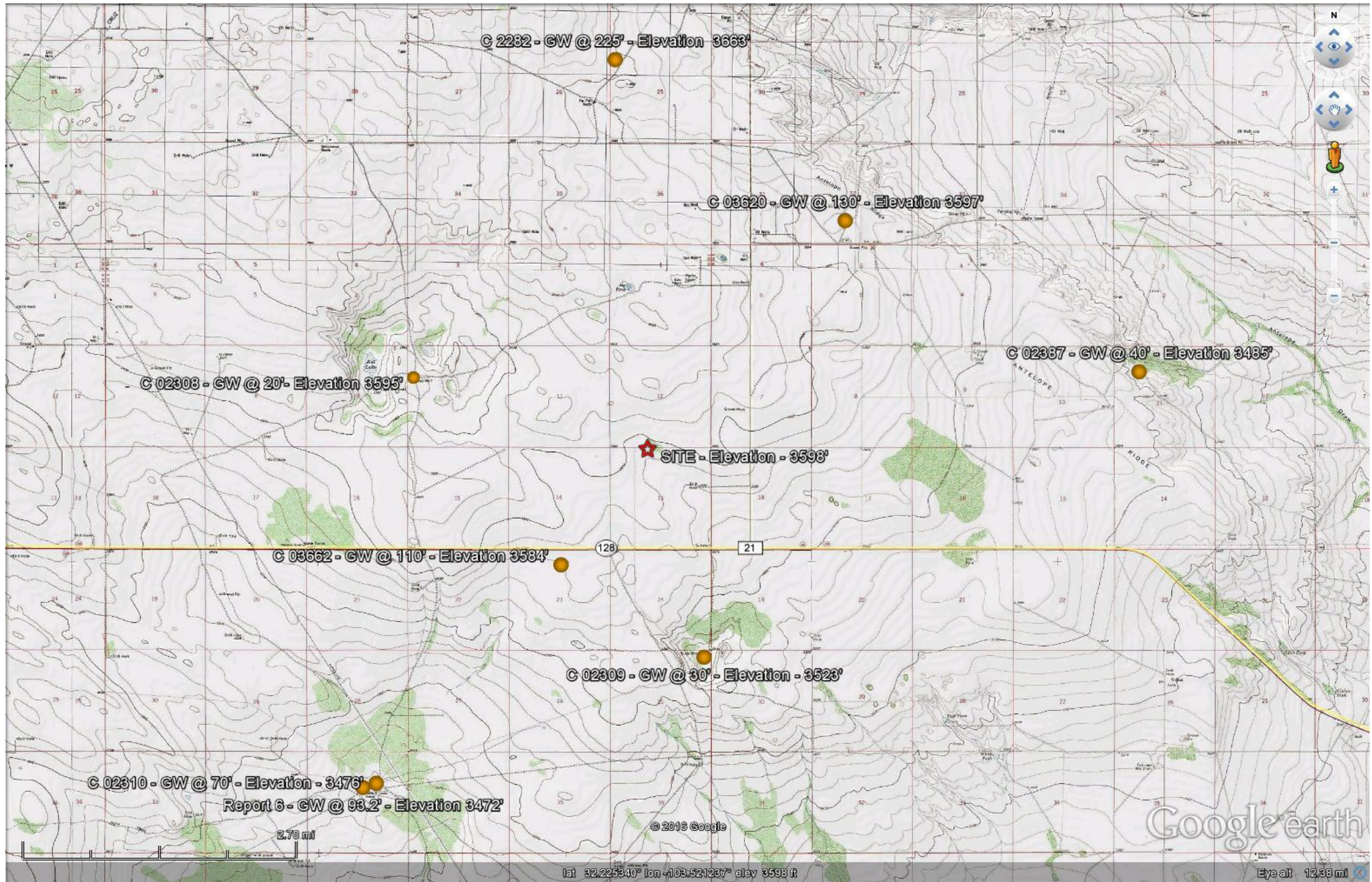
PLSS Search:

Section(s): 23

Township: 24S

Range: 33E

COG
Deckard Federal Com #002H
Depth to Groundwater & Surface Elevations Map



Appendix C



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

August 23, 2016

DAKOTA NEEL

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: DECKARD FED COM #002H

Enclosed are the results of analyses for samples received by the laboratory on 08/16/16 16:45.

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

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

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

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

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

Sincerely,

Mike Snyder For Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: DECKARD FED COM #002H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
23-Aug-16 11:41

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AH-1 (0-1')	H601834-01	Soil	15-Aug-16 00:00	16-Aug-16 16:45
AH-1 (1-1.5')	H601834-02	Soil	15-Aug-16 00:00	16-Aug-16 16:45
AH-1 (2-2.5')	H601834-03	Soil	15-Aug-16 00:00	16-Aug-16 16:45
AH-1 (3-3.5')	H601834-04	Soil	15-Aug-16 00:00	16-Aug-16 16:45
AH-1 (4-4.5')	H601834-05	Soil	15-Aug-16 00:00	16-Aug-16 16:45
AH-2 (0-1')	H601834-06	Soil	15-Aug-16 00:00	16-Aug-16 16:45
AH-2 (1-1.5')	H601834-07	Soil	15-Aug-16 00:00	16-Aug-16 16:45
AH-2 (2-2.5')	H601834-08	Soil	15-Aug-16 00:00	16-Aug-16 16:45
AH-2 (3-3.5')	H601834-09	Soil	15-Aug-16 00:00	16-Aug-16 16:45
AH-2 (4-4.5')	H601834-10	Soil	15-Aug-16 00:00	16-Aug-16 16:45

Cardinal Laboratories

*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Project: DECKARD FED COM #002H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
23-Aug-16 11:41

AH-1 (0-1') H601834-01 (Soil)

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

Inorganic Compounds

Chloride	<16.0		16.0	mg/kg	4	6081707	AC	19-Aug-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	4.04		1.00	mg/kg	1000	6081802	MS	18-Aug-16	8021B	
Toluene*	63.8		1.00	mg/kg	1000	6081802	MS	18-Aug-16	8021B	
Ethylbenzene*	29.2		1.00	mg/kg	1000	6081802	MS	18-Aug-16	8021B	
Total Xylenes*	124		3.00	mg/kg	1000	6081802	MS	18-Aug-16	8021B	
Total BTEX	221		6.00	mg/kg	1000	6081802	MS	18-Aug-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 114 % 73.6-140 6081802 MS 18-Aug-16 8021B

Petroleum Hydrocarbons by GC FID

S-04

GRO C6-C10	1460		10.0	mg/kg	1	6081702	MS	17-Aug-16	8015B	
DRO >C10-C28	5140		10.0	mg/kg	1	6081702	MS	17-Aug-16	8015B	

Surrogate: 1-Chlorooctane 195 % 35-147 6081702 MS 17-Aug-16 8015B

Surrogate: 1-Chlorooctadecane 182 % 28-171 6081702 MS 17-Aug-16 8015B

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Project: DECKARD FED COM #002H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
23-Aug-16 11:41

AH-1 (1-1.5') H601834-02 (Soil)

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

Inorganic Compounds

Chloride	<16.0		16.0	mg/kg	4	6081707	AC	19-Aug-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6081802	MS	18-Aug-16	8021B	
Toluene*	0.076		0.050	mg/kg	50	6081802	MS	18-Aug-16	8021B	
Ethylbenzene*	0.051		0.050	mg/kg	50	6081802	MS	18-Aug-16	8021B	
Total Xylenes*	0.262		0.150	mg/kg	50	6081802	MS	18-Aug-16	8021B	
Total BTEX	0.389		0.300	mg/kg	50	6081802	MS	18-Aug-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			110 %	73.6-140		6081802	MS	18-Aug-16	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6081702	MS	17-Aug-16	8015B	
DRO >C10-C28	60.4		10.0	mg/kg	1	6081702	MS	17-Aug-16	8015B	
Surrogate: 1-Chlorooctane			93.9 %	35-147		6081702	MS	17-Aug-16	8015B	
Surrogate: 1-Chlorooctadecane			105 %	28-171		6081702	MS	17-Aug-16	8015B	

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: DECKARD FED COM #002H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
23-Aug-16 11:41**AH-1 (2-2.5')
H601834-03 (Soil)**

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

Chloride	<16.0		16.0	mg/kg	4	6081707	AC	19-Aug-16	4500-Cl-B	
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*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: DECKARD FED COM #002H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
23-Aug-16 11:41**AH-1 (3-3.5')
H601834-04 (Soil)**

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

Chloride	<16.0		16.0	mg/kg	4	6081707	AC	19-Aug-16	4500-Cl-B	
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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: DECKARD FED COM #002H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
23-Aug-16 11:41**AH-1 (4-4.5')
H601834-05 (Soil)**

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

Chloride	16.0		16.0	mg/kg	4	6081707	AC	19-Aug-16	4500-Cl-B	
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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Project: DECKARD FED COM #002H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
23-Aug-16 11:41

AH-2 (0-1') H601834-06 (Soil)

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

Inorganic Compounds

Chloride	16.0		16.0	mg/kg	4	6081707	AC	19-Aug-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	8.02		2.00	mg/kg	2000	6081802	MS	18-Aug-16	8021B	
Toluene*	122		2.00	mg/kg	2000	6081802	MS	18-Aug-16	8021B	
Ethylbenzene*	47.4		2.00	mg/kg	2000	6081802	MS	18-Aug-16	8021B	
Total Xylenes*	210		6.00	mg/kg	2000	6081802	MS	18-Aug-16	8021B	
Total BTEX	388		12.0	mg/kg	2000	6081802	MS	18-Aug-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 120 % 73.6-140 6081802 MS 18-Aug-16 8021B

Petroleum Hydrocarbons by GC FID

S-06

GRO C6-C10	3450		50.0	mg/kg	5	6081702	MS	17-Aug-16	8015B	
DRO >C10-C28	9050		50.0	mg/kg	5	6081702	MS	17-Aug-16	8015B	

Surrogate: 1-Chlorooctane 176 % 35-147 6081702 MS 17-Aug-16 8015B

Surrogate: 1-Chlorooctadecane 205 % 28-171 6081702 MS 17-Aug-16 8015B

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Project: DECKARD FED COM #002H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
23-Aug-16 11:41

AH-2 (1-1.5') H601834-07 (Soil)

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

Inorganic Compounds

Chloride	<16.0		16.0	mg/kg	4	6081707	AC	19-Aug-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	6.94		1.00	mg/kg	1000	6081802	MS	18-Aug-16	8021B	
Toluene*	84.5		1.00	mg/kg	1000	6081802	MS	18-Aug-16	8021B	
Ethylbenzene*	29.6		1.00	mg/kg	1000	6081802	MS	18-Aug-16	8021B	
Total Xylenes*	129		3.00	mg/kg	1000	6081802	MS	18-Aug-16	8021B	
Total BTEX	250		6.00	mg/kg	1000	6081802	MS	18-Aug-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID)		119 %		73.6-140		6081802	MS	18-Aug-16	8021B	
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Petroleum Hydrocarbons by GC FID

S-06

GRO C6-C10	2040		50.0	mg/kg	5	6081702	MS	17-Aug-16	8015B	
DRO >C10-C28	4800		50.0	mg/kg	5	6081702	MS	17-Aug-16	8015B	

Surrogate: 1-Chlorooctane		191 %		35-147		6081702	MS	17-Aug-16	8015B	
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Surrogate: 1-Chlorooctadecane		161 %		28-171		6081702	MS	17-Aug-16	8015B	
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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Project: DECKARD FED COM #002H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
23-Aug-16 11:41

AH-2 (2-2.5') H601834-08 (Soil)

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

Inorganic Compounds

Chloride	<16.0		16.0	mg/kg	4	6081707	AC	19-Aug-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6082001	MS	20-Aug-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6082001	MS	20-Aug-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6082001	MS	20-Aug-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6082001	MS	20-Aug-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6082001	MS	20-Aug-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			106 %	73.6-140		6082001	MS	20-Aug-16	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6081901	MS	20-Aug-16	8015B	
DRO >C10-C28	15.1		10.0	mg/kg	1	6081901	MS	20-Aug-16	8015B	
Surrogate: 1-Chlorooctane			97.4 %	35-147		6081901	MS	20-Aug-16	8015B	
Surrogate: 1-Chlorooctadecane			103 %	28-171		6081901	MS	20-Aug-16	8015B	

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: DECKARD FED COM #002H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
23-Aug-16 11:41**AH-2 (3-3.5')
H601834-09 (Soil)**

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

Cardinal Laboratories**Inorganic Compounds**

Chloride	<16.0		16.0	mg/kg	4	6081707	AC	19-Aug-16	4500-Cl-B	
----------	-------	--	------	-------	---	---------	----	-----------	-----------	--

Cardinal Laboratories

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: DECKARD FED COM #002H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
23-Aug-16 11:41**AH-2 (4-4.5')
H601834-10 (Soil)**

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

Cardinal Laboratories**Inorganic Compounds**

Chloride	<16.0		16.0	mg/kg	4	6081707	AC	19-Aug-16	4500-Cl-B	
----------	-------	--	------	-------	---	---------	----	-----------	-----------	--

Cardinal Laboratories

*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: DECKARD FED COM #002H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
23-Aug-16 11:41**Inorganic Compounds - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch 6081707 - 1:4 DI Water									
Blank (6081707-BLK1)									
					Prepared: 17-Aug-16 Analyzed: 18-Aug-16				
Chloride	ND	16.0	mg/kg						
LCS (6081707-BS1)									
					Prepared: 17-Aug-16 Analyzed: 18-Aug-16				
Chloride	432	16.0	mg/kg	400	108	80-120			
LCS Dup (6081707-BSD1)									
					Prepared: 17-Aug-16 Analyzed: 18-Aug-16				
Chloride	448	16.0	mg/kg	400	112	80-120	3.64	20	

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Project: DECKARD FED COM #002H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
23-Aug-16 11:41

Volatile Organic Compounds by EPA Method 8021 - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 6081802 - Volatiles

Blank (6081802-BLK1)

Prepared & Analyzed: 18-Aug-16

Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	0.0536		mg/kg	0.0500		107	73.6-140			

LCS (6081802-BS1)

Prepared & Analyzed: 18-Aug-16

Benzene	2.30	0.050	mg/kg	2.00		115	82.6-122			
Toluene	2.35	0.050	mg/kg	2.00		117	72.9-122			
Ethylbenzene	2.25	0.050	mg/kg	2.00		113	65.4-131			
Total Xylenes	6.81	0.150	mg/kg	6.00		113	73.8-125			
Surrogate: 4-Bromofluorobenzene (PID)	0.0535		mg/kg	0.0500		107	73.6-140			

LCS Dup (6081802-BSD1)

Prepared & Analyzed: 18-Aug-16

Benzene	2.34	0.050	mg/kg	2.00		117	82.6-122	1.39	8.23	
Toluene	2.38	0.050	mg/kg	2.00		119	72.9-122	1.25	8.71	
Ethylbenzene	2.29	0.050	mg/kg	2.00		115	65.4-131	1.81	9.46	
Total Xylenes	6.94	0.150	mg/kg	6.00		116	73.8-125	1.86	8.66	
Surrogate: 4-Bromofluorobenzene (PID)	0.0530		mg/kg	0.0500		106	73.6-140			

Batch 6082001 - Volatiles

Blank (6082001-BLK1)

Prepared & Analyzed: 20-Aug-16

Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	0.0535		mg/kg	0.0500		107	73.6-140			

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Project: DECKARD FED COM #002H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
23-Aug-16 11:41

Volatile Organic Compounds by EPA Method 8021 - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 6082001 - Volatiles

LCS (6082001-BS1)

Prepared & Analyzed: 20-Aug-16

Benzene	2.34	0.050	mg/kg	2.00		117	82.6-122			
Toluene	2.38	0.050	mg/kg	2.00		119	72.9-122			
Ethylbenzene	2.27	0.050	mg/kg	2.00		113	65.4-131			
Total Xylenes	6.88	0.150	mg/kg	6.00		115	73.8-125			
Surrogate: 4-Bromofluorobenzene (PID)	0.0534		mg/kg	0.0500		107	73.6-140			

LCS Dup (6082001-BS1)

Prepared & Analyzed: 20-Aug-16

Benzene	2.32	0.050	mg/kg	2.00		116	82.6-122	0.544	8.23	
Toluene	2.36	0.050	mg/kg	2.00		118	72.9-122	0.515	8.71	
Ethylbenzene	2.26	0.050	mg/kg	2.00		113	65.4-131	0.249	9.46	
Total Xylenes	6.87	0.150	mg/kg	6.00		114	73.8-125	0.246	8.66	
Surrogate: 4-Bromofluorobenzene (PID)	0.0536		mg/kg	0.0500		107	73.6-140			

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Project: DECKARD FED COM #002H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
23-Aug-16 11:41

Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 6081702 - General Prep - Organics

Blank (6081702-BLK1)

Prepared & Analyzed: 17-Aug-16

GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	47.6		mg/kg	50.0		95.1	35-147			
Surrogate: 1-Chlorooctadecane	52.0		mg/kg	50.0		104	28-171			

LCS (6081702-BS1)

Prepared & Analyzed: 17-Aug-16

GRO C6-C10	189	10.0	mg/kg	200		94.3	76.7-115			
DRO >C10-C28	198	10.0	mg/kg	200		98.9	78.3-122			
Total TPH C6-C28	386	10.0	mg/kg	400		96.6	79.8-117			
Surrogate: 1-Chlorooctane	49.3		mg/kg	50.0		98.6	35-147			
Surrogate: 1-Chlorooctadecane	52.8		mg/kg	50.0		106	28-171			

LCS Dup (6081702-BSD1)

Prepared & Analyzed: 17-Aug-16

GRO C6-C10	204	10.0	mg/kg	200		102	76.7-115	7.74	9.42	
DRO >C10-C28	212	10.0	mg/kg	200		106	78.3-122	7.06	13.2	
Total TPH C6-C28	416	10.0	mg/kg	400		104	79.8-117	7.39	10.7	
Surrogate: 1-Chlorooctane	51.7		mg/kg	50.0		103	35-147			
Surrogate: 1-Chlorooctadecane	56.1		mg/kg	50.0		112	28-171			

Batch 6081901 - General Prep - Organics

Blank (6081901-BLK1)

Prepared & Analyzed: 19-Aug-16

GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	51.6		mg/kg	50.0		103	35-147			
Surrogate: 1-Chlorooctadecane	60.9		mg/kg	50.0		122	28-171			

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Project: DECKARD FED COM #002H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
23-Aug-16 11:41

Petroleum Hydrocarbons by GC FID - Quality Control
Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 6081901 - General Prep - Organics
LCS (6081901-BS1)

Prepared & Analyzed: 19-Aug-16

GRO C6-C10	214	10.0	mg/kg	200		107	76.7-115			
DRO >C10-C28	230	10.0	mg/kg	200		115	78.3-122			
Total TPH C6-C28	445	10.0	mg/kg	400		111	79.8-117			
Surrogate: 1-Chlorooctane	58.3		mg/kg	50.0		117	35-147			
Surrogate: 1-Chlorooctadecane	64.1		mg/kg	50.0		128	28-171			

LCS Dup (6081901-BS1)

Prepared & Analyzed: 19-Aug-16

GRO C6-C10	220	10.0	mg/kg	200		110	76.7-115	2.60	9.42	
DRO >C10-C28	240	10.0	mg/kg	200		120	78.3-122	4.12	13.2	
Total TPH C6-C28	460	10.0	mg/kg	400		115	79.8-117	3.39	10.7	
Surrogate: 1-Chlorooctane	60.3		mg/kg	50.0		121	35-147			
Surrogate: 1-Chlorooctadecane	64.5		mg/kg	50.0		129	28-171			

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analysis Request of Chain of Custody Record



TETRA TECH

1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

HL018'34

CLIENT NAME:

COG

SITE MANAGER:

Adria Govee

PROJECT NO.:

HL01-M1-0205

PROJECT NAME:

COG Decked Field Cum CO211

LAB I.D. NUMBER

DATE

TIME

MATRIX

COMP

GRAB

SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS

FILTERED (Y/N)

HCL

HNO3

ICE

NONE

PRESERVATIVE METHOD

BTEX 8021B

TPH 8015 MOD TX1005 (Ext. to C35)

PAH 8270

RCRA Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8240/8260/824

GC/MS Semi. Vol. 8270/825

PCB's 8080/608

Pest. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

PAGE: 1

OF: 1

ANALYSIS REQUEST
(Circle or Specify Method No.)

RELINQUISHED BY: (Signature)

Date: 8/15

Time: 14:45

RECEIVED BY: (Signature)

Date: 8/15

Time: 14:45

RECEIVED BY: (Signature)

Date: 8/15

Time: 14:45

RECEIVED BY: (Signature)

Date: 8/15

Time: 14:45

RECEIVED BY: (Signature)

Date: 8/15

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Date: 8/15

Time: 14:45

RELINQUISHED BY: (Signature)

Date: 8/15

Time: 14:45

RELINQUISHED BY: (Signature)

Date: 8/15

RECEIVING LABORATORY:

ADDRESS:

CITY:

STATE:

ZIP:

PHONE:

DATE:

TIME:

REMARKS:

Run deeper if total BTEX exceeds 50 mg/kg or TPH exceeds 1000 mg/kg

Run deeper sample if TPH exceeds 1000 mg/kg

Run deeper sample if TPH exceeds 1000 mg/kg

Run deeper sample if TPH exceeds 1000 mg/kg

Run deeper sample if TPH exceeds 1000 mg/kg

Run deeper sample if TPH exceeds 1000 mg/kg

Run deeper sample if TPH exceeds 1000 mg/kg

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