

SITE INFORMATION

Report Type: Work Plan

General Site Information:

Site:	Airbus 12 Federal #002H					
Company:	COG Operating LLC					
Section, Township and Range	Unit D	Sec. 12	T 19S	R 31E		
Lease Number:	API No. 30-015-38503					
County:	Eddy					
GPS:	32.68114° N			103.83085° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From the intersection of NM-243 & CR 126A, travel north on 126A for approximately 7.1 mi, turn west onto lease road for 2.25 mi, turn north onto lease road for 0.1 mi to location.					

Release Data:

Date Released:	6/15/2016
Type Release:	Oil & Produced Water
Source of Contamination:	Flare
Fluid Released:	3 bbls oil & 2 bbls water
Fluids Recovered:	1 bbl oil & 1 bbl water

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	
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



September 2, 2016

Heather Patterson
Environmental Engineer Specialist
Oil Conservation Division, District 2
811 S. First Street
Artesia, New Mexico 88210

Re: Work Plan for the COG Operating LLC., Airbus 12 Federal #002H, Unit D, Section 12, Township 19 South, Range 31 East, Eddy County, New Mexico.

Ms. Patterson:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC., (COG) to assess a spill from Airbus 12 Federal #002H, Unit D, Section 12, Township 19 South, Range 31 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.68114°, W 103.83085°. 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 15, 2016, and released approximately three (3) barrels of oil and two (2) barrels of produced water due to a failed dump valve on a FWKO. Approximately one (1) barrel of oil and one (1) barrel of produced water was recovered. The release is located on the location pad and in the pasture which measures approximately 75'x150'. The initial C-141 form is included in Appendix A.

Groundwater

No water wells were listed within Section 12. According to the NMOCD groundwater map, the average depth to groundwater in this area is between 100' to 125' 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

Tetra Tech

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

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com

(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 August 16, 2016, Tetra Tech personnel were onsite to evaluate and sample the release area. Two (2) auger holes (AH-1 and AH-2) were installed to depths of 4-4.5' and 6-6.5' 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 sampling results are summarized in Table 1. 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 areas of auger holes (AH-1 and AH-2) showed total TPH concentrations of 38,900 mg/kg and 20,200 mg/kg at 0-1' below surface, respectively. However, the TPH concentrations both declined with depth at 1-1.5' to 3,050 mg/kg (AH-1) and 122 mg/kg (AH-2). In addition, the area of auger hole (AH-1) showed a total BTEX concentration of 717 mg/kg at 0-1' below surface, which declined with depth to below laboratory reporting limits at 2-2.5' below surface. The area of auger hole (AH-2) showed a total BTEX concentration of 720 mg/kg at 0-1' below surface, which also declined with depth to 1.16 mg/kg at 1-1.5' below surface.

The chloride concentrations in all samples collected were below 250 mg/kg and does not appear to be an environmental concern.

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 1.5-2.0' and the area of auger hole (AH-2) will be excavated to a depth of approximately 1-1.5' below surface to remove the hydrocarbon impacted soils. 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

A handwritten signature in blue ink that reads 'Clair Gonzales'.

Clair Gonzales,
Geologist I

A handwritten signature in blue ink that reads 'Ike Tavaréz'.

Ike Tavaréz,
Senior Project Manager, P.G.

cc: Robert McNeill – COG
Dakota Neel – COG

Figures

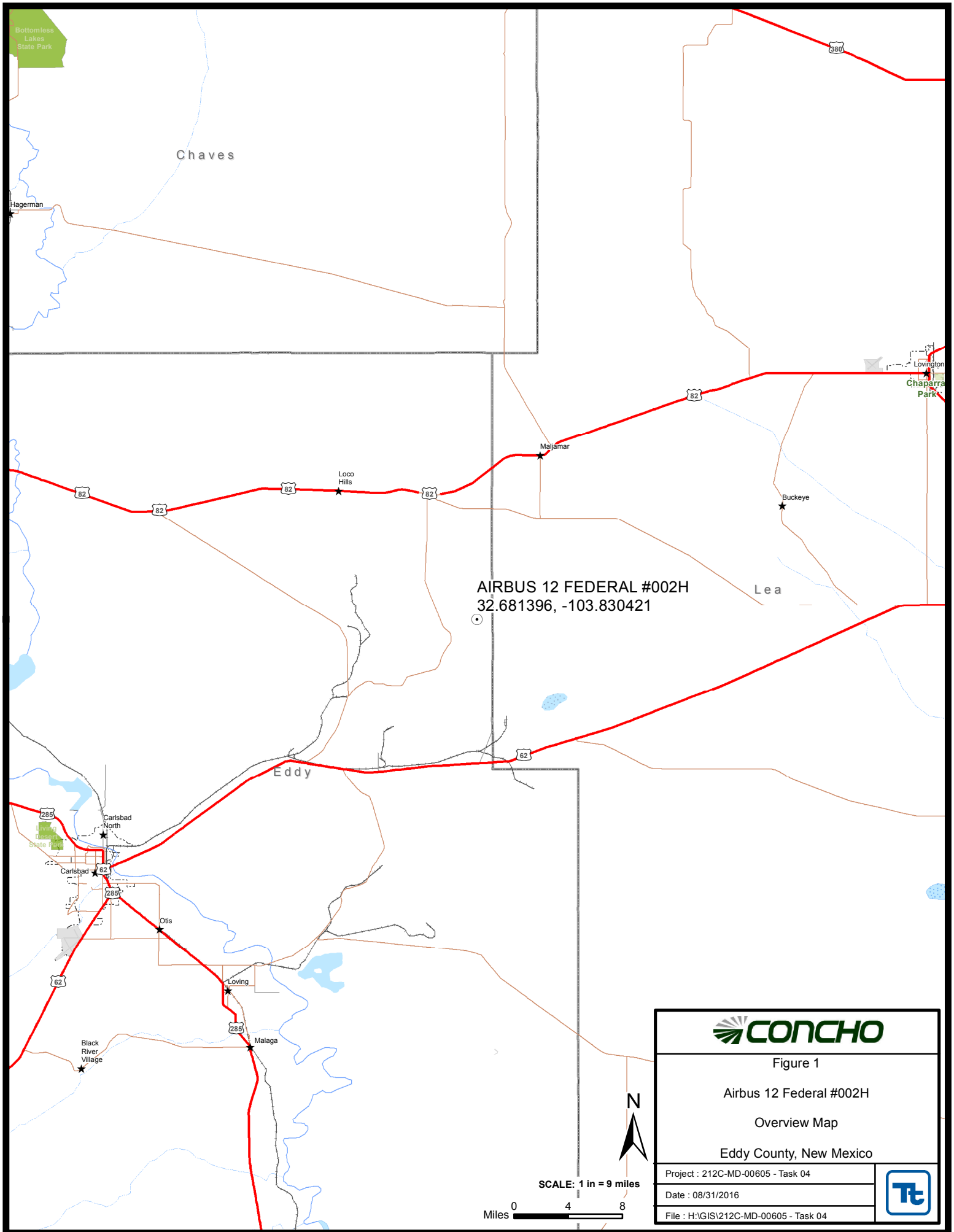


Figure 1

Airbus 12 Federal #002H

Overview Map

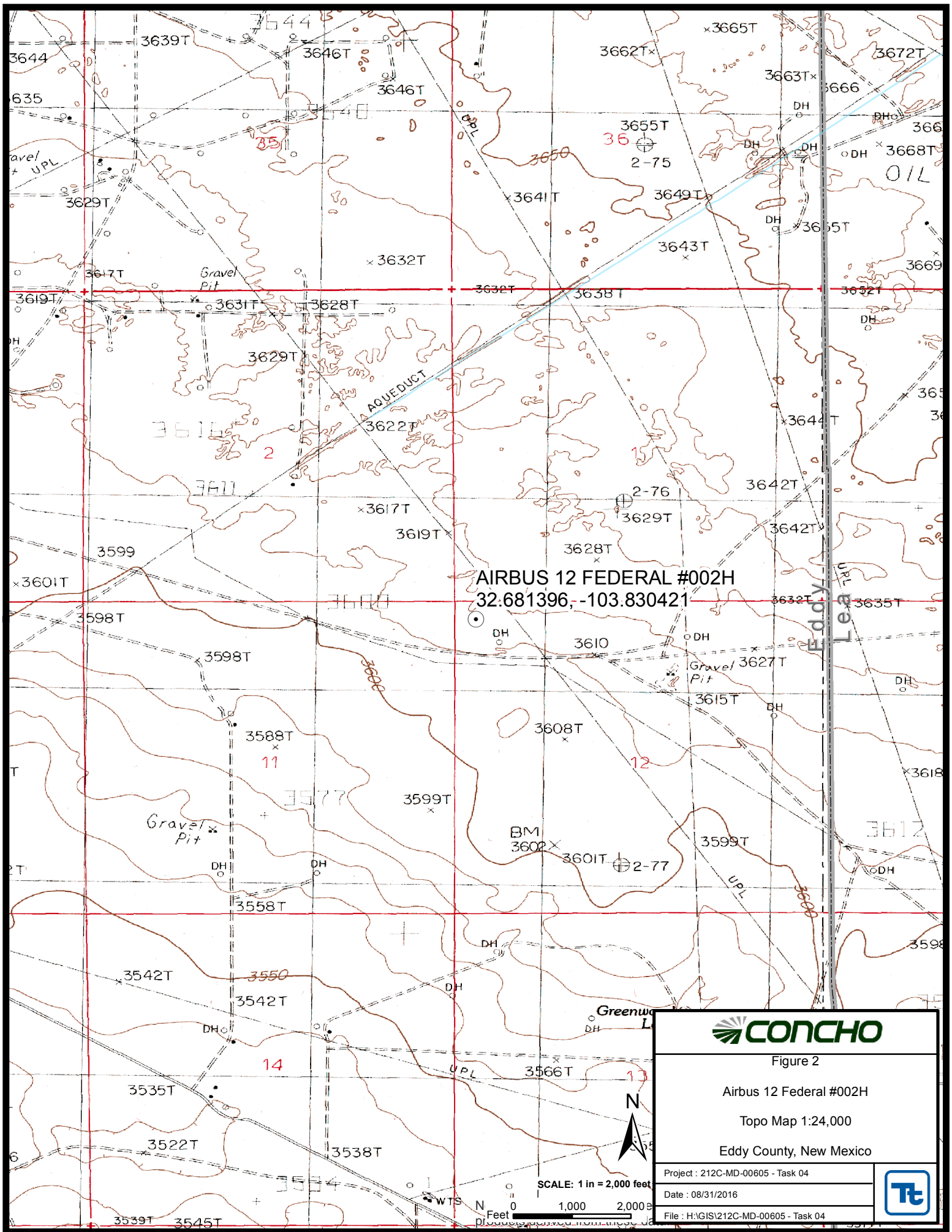
Eddy County, New Mexico

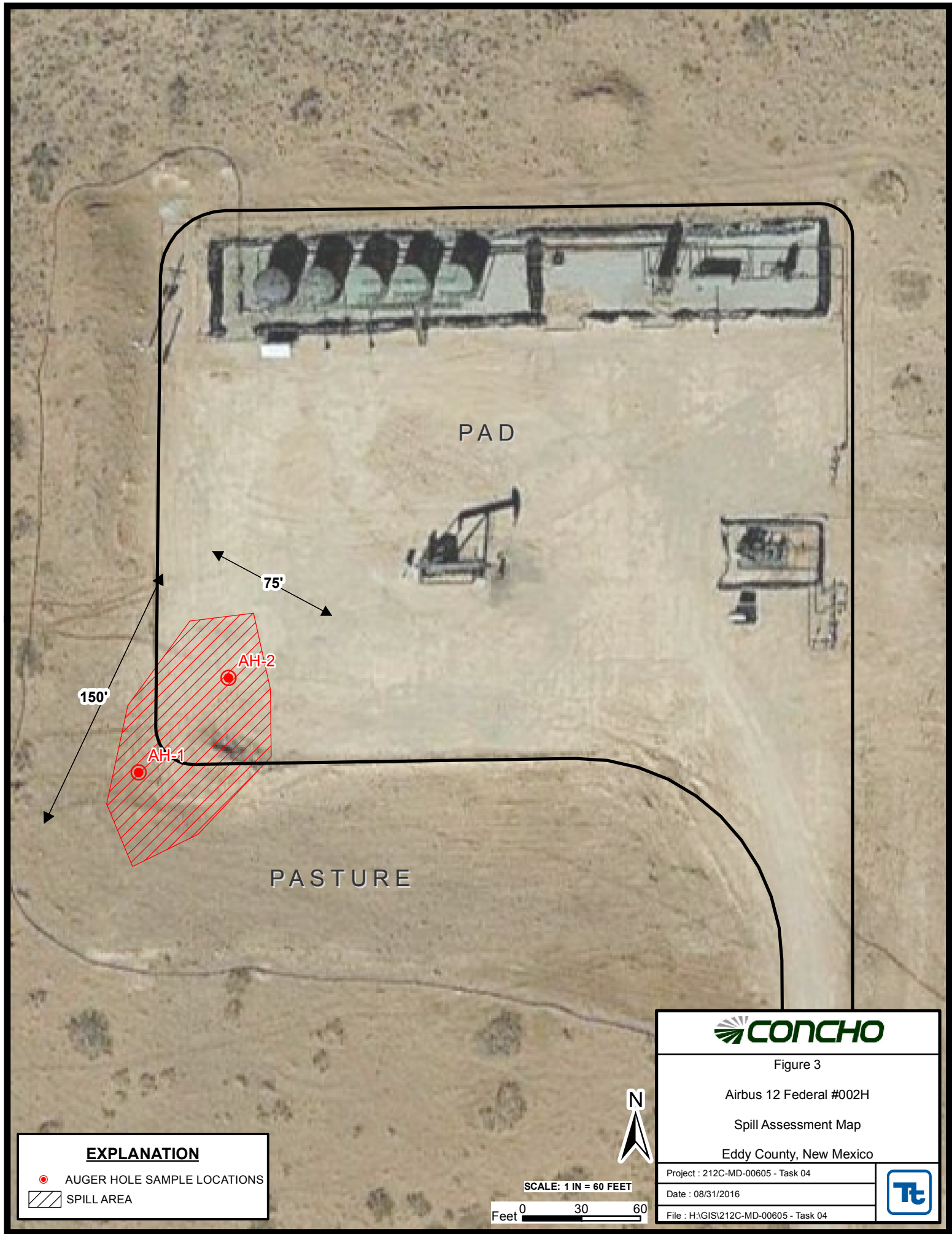
Project : 212C-MD-00605 - Task 04

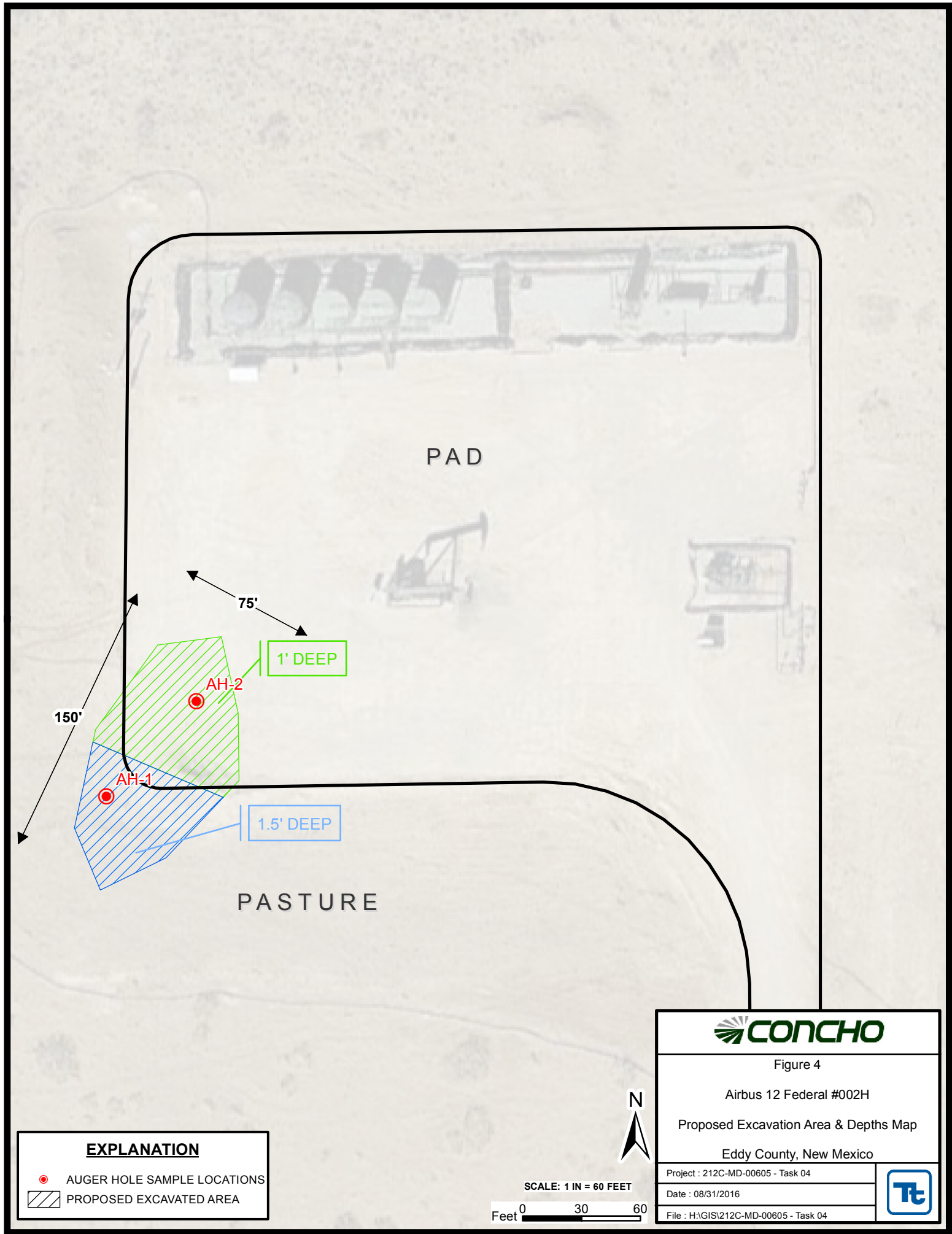
Date : 08/31/2016

File : H:\GIS\212C-MD-00605 - Task 04









Tables

Table 1
COG Operating LLC.
Airbus 12 Federal #2H
Eddy 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	8/16/2016	0-1	X		10,400	28,500	38,900	37.7	273	165	241	717	80.0
	"	1-1.5	X		875	2,170	3,050	3.58	45.5	32.6	48.9	131	32.0
	"	2-2.5	X		-	-	-	<0.050	<0.050	<0.050	<0.150	<0.300	32.0
	"	3-3.5	X		-	-	-	-	-	-	-	-	64.0
	"	4-4.5	X		-	-	-	-	-	-	-	-	80.0
AH-2	8/16/2016	0-1	X		4,410	15,800	20,200	33.2	271	165	250	720	112
	"	1-1.5	X		14.4	108	122	0.109	0.399	0.200	0.450	1.16	48.0
	"	2-2.5	X		-	-	-	-	-	-	-	-	48.0
	"	3-3.5	X		-	-	-	-	-	-	-	-	80.0
	"	4-4.5	X		-	-	-	-	-	-	-	-	176
	"	5-5.5	X		-	-	-	-	-	-	-	-	176
	"	6-6.5	X		-	-	-	-	-	-	-	-	128

(-) 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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating LLC	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443
Facility Name: AIRBUS 12 FEDERAL #002H	Facility Type: Battery

Surface Owner: Federal	Mineral Owner: Federal	API No. 30-015-38503
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LOCATION OF RELEASE

Unit Letter D	Section 12	Township 19S	Range 31E	Feet from the 330'	North/South Line North	Feet from the 330'	East/West Line West	County Eddy
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Latitude/Longitude 32.6813965, -103.8304214 NAD83

NATURE OF RELEASE

Type of Release: Oil & Produced Water	Volume of Release: 3 bbls Oil; 2 bbls PW	Volume Recovered: 1 bbls Oil ; 1 bbls PW
Source of Release: Flare	Date and Hour of Occurrence: 6/15/2016, unknown	Date and Hour of Discovery: 6/15/2016 10:00 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 dump valve on the FWKO malfunctioned. Fluid was sent to flare as a result. A vacuum truck was dispatched to recover standing fluid.

Describe Area Affected and Cleanup Action Taken.*

The spill impacted the pad and pasture around the flare. 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:	
Title: Senior Environmental Coordinator	Approval Date:	Expiration Date:
E-mail Address: atrujillo@concho.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: June 23, 2016 Phone: 575-748-6940		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Airbus 12 Federal #002H, Eddy County, New Mexico

18 South			30 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23 44	24
30	29	28	27	26	25
31	32	33	34	35	36

18 South			31 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15 98	14	13 400
19	20	21	22	23 317	24
30	29	28	27	26	25
31	32	33	34	35 261	36

18 South			32 East		
6	5	4 65	3	2	1
7 460	8	9	10	11	12
82	17	16	15	14	13
19	20	21 84	22	23	24
30	29	28	27 429	26	25
31	32	33	34 117	35	36

19 South			30 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
90	31	32	33	34	35
115					

19 South			31 East		
6	5	4	3	2	1
7	8	9	10	11	12 SITE
18	17	16	15	14	13
19	20	21	22	23	24
180	30	29	28	27	26
			180		
31	32	33	34	35	36
		101			130

19 South			32 East		
6	5	4	3	2	1
7	8	9	10	11	12
	365				
18	17	16	15	14	13 135
19	20	21	22	23	24
102	345				
30	29	28	27	26	25
31	32	33	34	35	36
			250		

20 South			30 East		
6	5 3.5	4	3	2	1
7	8	9	10 6	11	12
18	17	16	15	14	13
19	20	21 29	22	23	24
30	29	28 150	27	26	25
31	32 170	33 191	34	35	36

20 South			31 East		
6	5	4	3	2	1
7	8	9	10 130	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 80

20 South			32 East		
6	5	4	3	2	1 21.8
7	8	9	10	11	12
18	17	16	15	14	13
89	19	20	21	22	23
30	29	28	27 12.3	26	25
9.9	31	32	33	34	35
					46

- 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
CP 00641		ED		4	1	36	19S	31E		610247	3609634*	300	130	170
CP 00642		ED		2	2	25	19S	31E		611025	3611657*	250		
CP 00722 POD1	CP	LE		4	3	3	28	19S	31E	605106	3610273*	200		
CP 00722 POD3		LE		2	4	1	33	19S	31E	605519	3609673*	220	140	80
CP 00723		ED		2	1	1	33	19S	31E	605111	3610071*	139		
CP 00725		ED		1	3	3	28	19S	31E	604906	3610473*	231		
CP 00829		LE		2	4	16	19S	31E		606165	3614009*	120		
CP 00873		ED		1	1	19	19S	31E		601772	3613147*	340	180	160
CP 01554 POD1	CP	LE		2	2	1	22	19S	31E	607166	3613354	400		
CP 01554 POD2	CP	LE		2	2	1	22	19S	31E	607165	3613322	400		

Average Depth to Water: **150 feet**

Minimum Depth: **130 feet**

Maximum Depth: **180 feet**

Record Count: 10

PLSS Search:

Township: 19S

Range: 31E

*UTM location was derived from PLSS - see Help

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

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: AIRBUS 12 FED #2H

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: AIRBUS 12 FED #2H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
23-Aug-16 10:54

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AH-1 (0-1')	H601831-01	Soil	16-Aug-16 00:00	16-Aug-16 16:45
AH-1 (1-1.5')	H601831-02	Soil	16-Aug-16 00:00	16-Aug-16 16:45
AH-1 (2-2.5')	H601831-03	Soil	16-Aug-16 00:00	16-Aug-16 16:45
AH-1 (3-3.5')	H601831-04	Soil	16-Aug-16 00:00	16-Aug-16 16:45
AH-1 (4-4.5')	H601831-05	Soil	16-Aug-16 00:00	16-Aug-16 16:45
AH-2 (0-1')	H601831-06	Soil	16-Aug-16 00:00	16-Aug-16 16:45
AH-2 (1-1.5')	H601831-07	Soil	16-Aug-16 00:00	16-Aug-16 16:45
AH-2 (2-2.5')	H601831-08	Soil	16-Aug-16 00:00	16-Aug-16 16:45
AH-2 (3-3.5')	H601831-09	Soil	16-Aug-16 00:00	16-Aug-16 16:45
AH-2 (4-4.5')	H601831-10	Soil	16-Aug-16 00:00	16-Aug-16 16:45
AH-2 (5-5.5')	H601831-11	Soil	16-Aug-16 00:00	16-Aug-16 16:45
AH-2 (6-6.5')	H601831-12	Soil	16-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: AIRBUS 12 FED #2H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
23-Aug-16 10:54

AH-1 (0-1') H601831-01 (Soil)

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

Inorganic Compounds

Chloride	80.0		16.0	mg/kg	4	6081705	AC	18-Aug-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	37.7		5.00	mg/kg	5000	6081701	MS	17-Aug-16	8021B	
Toluene*	273		5.00	mg/kg	5000	6081701	MS	17-Aug-16	8021B	
Ethylbenzene*	165		5.00	mg/kg	5000	6081701	MS	17-Aug-16	8021B	
Total Xylenes*	241		15.0	mg/kg	5000	6081701	MS	17-Aug-16	8021B	
Total BTEX	717		30.0	mg/kg	5000	6081701	MS	17-Aug-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID)	111 %		73.6-140			6081701	MS	17-Aug-16	8021B	
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Petroleum Hydrocarbons by GC FID

S-06

GRO C6-C10	10400		100	mg/kg	10	6081608	MS	17-Aug-16	8015B	
DRO >C10-C28	28500		100	mg/kg	10	6081608	MS	17-Aug-16	8015B	

Surrogate: 1-Chlorooctane	682 %		35-147			6081608	MS	17-Aug-16	8015B	
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Surrogate: 1-Chlorooctadecane	1200 %		28-171			6081608	MS	17-Aug-16	8015B	
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Cardinal Laboratories

*=Accredited Analyte

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



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

Analytical Results For:

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

Project: AIRBUS 12 FED #2H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
23-Aug-16 10:54

AH-1 (1-1.5') H601831-02 (Soil)

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

Inorganic Compounds

Chloride	32.0		16.0	mg/kg	4	6081705	AC	18-Aug-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	3.58		0.500	mg/kg	500	6081701	MS	17-Aug-16	8021B	
Toluene*	45.5		0.500	mg/kg	500	6081701	MS	17-Aug-16	8021B	
Ethylbenzene*	32.6		0.500	mg/kg	500	6081701	MS	17-Aug-16	8021B	
Total Xylenes*	48.9		1.50	mg/kg	500	6081701	MS	17-Aug-16	8021B	
Total BTEX	131		3.00	mg/kg	500	6081701	MS	17-Aug-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			119 %	73.6-140		6081701	MS	17-Aug-16	8021B	

Petroleum Hydrocarbons by GC FID

S-06

GRO C6-C10	875		50.0	mg/kg	5	6081608	MS	17-Aug-16	8015B	
DRO >C10-C28	2170		50.0	mg/kg	5	6081608	MS	17-Aug-16	8015B	
Surrogate: 1-Chlorooctane			149 %	35-147		6081608	MS	17-Aug-16	8015B	
Surrogate: 1-Chlorooctadecane			130 %	28-171		6081608	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: AIRBUS 12 FED #2H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
23-Aug-16 10:54

AH-1 (2-2.5') H601831-03 (Soil)

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

Inorganic Compounds

Chloride	32.0	16.0	mg/kg	4	6081705	AC	18-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)		105 %	73.6-140		6082001	MS	20-Aug-16	8021B

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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: AIRBUS 12 FED #2H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
23-Aug-16 10:54**AH-1 (3-3.5')
H601831-04 (Soil)**

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

Chloride	64.0		16.0	mg/kg	4	6081705	AC	18-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: AIRBUS 12 FED #2H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
23-Aug-16 10:54**AH-1 (4-4.5')
H601831-05 (Soil)**

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

Chloride	80.0		16.0	mg/kg	4	6081705	AC	18-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: AIRBUS 12 FED #2H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
23-Aug-16 10:54

AH-2 (0-1') H601831-06 (Soil)

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

Inorganic Compounds

Chloride	112		16.0	mg/kg	4	6081705	AC	18-Aug-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	33.2		2.00	mg/kg	2000	6081701	MS	17-Aug-16	8021B	
Toluene*	271		2.00	mg/kg	2000	6081701	MS	17-Aug-16	8021B	
Ethylbenzene*	165		2.00	mg/kg	2000	6081701	MS	17-Aug-16	8021B	
Total Xylenes*	250		6.00	mg/kg	2000	6081701	MS	17-Aug-16	8021B	
Total BTEX	720		12.0	mg/kg	2000	6081701	MS	17-Aug-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			118 %	73.6-140		6081701	MS	17-Aug-16	8021B	
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Petroleum Hydrocarbons by GC FID

S-06

GRO C6-C10	4410		100	mg/kg	10	6081608	MS	17-Aug-16	8015B	
DRO >C10-C28	15800		100	mg/kg	10	6081608	MS	17-Aug-16	8015B	
Surrogate: 1-Chlorooctane			189 %	35-147		6081608	MS	17-Aug-16	8015B	
Surrogate: 1-Chlorooctadecane			382 %	28-171		6081608	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: AIRBUS 12 FED #2H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
23-Aug-16 10:54

AH-2 (1-1.5') H601831-07 (Soil)

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

Inorganic Compounds

Chloride	48.0		16.0	mg/kg	4	6081705	AC	18-Aug-16	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	0.109		0.050	mg/kg	50	6081701	MS	17-Aug-16	8021B	
Toluene*	0.399		0.050	mg/kg	50	6081701	MS	17-Aug-16	8021B	
Ethylbenzene*	0.200		0.050	mg/kg	50	6081701	MS	17-Aug-16	8021B	
Total Xylenes*	0.450		0.150	mg/kg	50	6081701	MS	17-Aug-16	8021B	
Total BTEX	1.16		0.300	mg/kg	50	6081701	MS	17-Aug-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 108 % 73.6-140 6081701 MS 17-Aug-16 8021B

Petroleum Hydrocarbons by GC FID

GRO C6-C10	14.4		10.0	mg/kg	1	6081608	MS	17-Aug-16	8015B	
DRO >C10-C28	108		10.0	mg/kg	1	6081608	MS	17-Aug-16	8015B	


Surrogate: 1-Chlorooctane 100 % 35-147 6081608 MS 17-Aug-16 8015B

Surrogate: 1-Chlorooctadecane 105 % 28-171 6081608 MS 17-Aug-16 8015B

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Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: AIRBUS 12 FED #2H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
23-Aug-16 10:54**AH-2 (2-2.5')
H601831-08 (Soil)**

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

Chloride	48.0		16.0	mg/kg	4	6081705	AC	18-Aug-16	4500-Cl-B	
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Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: AIRBUS 12 FED #2H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
23-Aug-16 10:54**AH-2 (3-3.5')
H601831-09 (Soil)**

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

Chloride	80.0		16.0	mg/kg	4	6081705	AC	18-Aug-16	4500-Cl-B	
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Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: AIRBUS 12 FED #2H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
23-Aug-16 10:54**AH-2 (4-4.5')
H601831-10 (Soil)**

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

Chloride	176		16.0	mg/kg	4	6081705	AC	18-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: AIRBUS 12 FED #2H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
23-Aug-16 10:54**AH-2 (5-5.5')
H601831-11 (Soil)**

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

Chloride	176		16.0	mg/kg	4	6081705	AC	18-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: AIRBUS 12 FED #2H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONEReported:
23-Aug-16 10:54**AH-2 (6-6.5')
H601831-12 (Soil)**

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

Chloride	128		16.0	mg/kg	4	6081706	AC	18-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: AIRBUS 12 FED #2H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
23-Aug-16 10:54

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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Batch 6081705 - 1:4 DI Water

Blank (6081705-BLK1)

Prepared: 17-Aug-16 Analyzed: 18-Aug-16

Chloride	ND	16.0	mg/kg						
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LCS (6081705-BS1)

Prepared: 17-Aug-16 Analyzed: 18-Aug-16

Chloride	400	16.0	mg/kg	400	100	80-120			
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LCS Dup (6081705-BSD1)

Prepared: 17-Aug-16 Analyzed: 18-Aug-16

Chloride	400	16.0	mg/kg	400	100	80-120	0.00	20	
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Batch 6081706 - 1:4 DI Water

Blank (6081706-BLK1)

Prepared: 17-Aug-16 Analyzed: 18-Aug-16

Chloride	ND	16.0	mg/kg						
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LCS (6081706-BS1)

Prepared: 17-Aug-16 Analyzed: 18-Aug-16

Chloride	400	16.0	mg/kg	400	100	80-120			
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LCS Dup (6081706-BSD1)

Prepared: 17-Aug-16 Analyzed: 18-Aug-16

Chloride	400	16.0	mg/kg	400	100	80-120	0.00	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: AIRBUS 12 FED #2H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
23-Aug-16 10:54

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 6081701 - Volatiles

Blank (6081701-BLK1)

Prepared & Analyzed: 17-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)	0.0537		mg/kg	0.0500		107	73.6-140			

LCS (6081701-BS1)

Prepared & Analyzed: 17-Aug-16

Benzene	2.32	0.050	mg/kg	2.00		116	82.6-122			
Toluene	2.37	0.050	mg/kg	2.00		119	72.9-122			
Ethylbenzene	2.29	0.050	mg/kg	2.00		114	65.4-131			
Total Xylenes	6.90	0.150	mg/kg	6.00		115	73.8-125			
Surrogate: 4-Bromofluorobenzene (PID)	0.0538		mg/kg	0.0500		108	73.6-140			

LCS Dup (6081701-BSD1)

Prepared & Analyzed: 17-Aug-16

Benzene	2.35	0.050	mg/kg	2.00		117	82.6-122	1.22	8.23	
Toluene	2.41	0.050	mg/kg	2.00		120	72.9-122	1.57	8.71	
Ethylbenzene	2.33	0.050	mg/kg	2.00		116	65.4-131	1.73	9.46	
Total Xylenes	7.00	0.150	mg/kg	6.00		117	73.8-125	1.52	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: AIRBUS 12 FED #2H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
23-Aug-16 10:54

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-BSD1)

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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*=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: AIRBUS 12 FED #2H
Project Number: NONE GIVEN
Project Manager: DAKOTA NEEL
Fax To: NONE

Reported:
23-Aug-16 10:54

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 6081608 - General Prep - Organics

Blank (6081608-BLK1)

Prepared & Analyzed: 16-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	57.9		mg/kg	50.0		116	28-171			

LCS (6081608-BS1)

Prepared & Analyzed: 16-Aug-16

GRO C6-C10	201	10.0	mg/kg	200		101	76.7-115			
DRO >C10-C28	203	10.0	mg/kg	200		102	78.3-122			
Total TPH C6-C28	404	10.0	mg/kg	400		101	79.8-117			
Surrogate: 1-Chlorooctane	52.9		mg/kg	50.0		106	35-147			
Surrogate: 1-Chlorooctadecane	50.3		mg/kg	50.0		101	28-171			

LCS Dup (6081608-BSD1)

Prepared & Analyzed: 16-Aug-16

GRO C6-C10	212	10.0	mg/kg	200		106	76.7-115	5.19	9.42	
DRO >C10-C28	211	10.0	mg/kg	200		105	78.3-122	3.72	13.2	
Total TPH C6-C28	423	10.0	mg/kg	400		106	79.8-117	4.46	10.7	
Surrogate: 1-Chlorooctane	55.9		mg/kg	50.0		112	35-147			
Surrogate: 1-Chlorooctadecane	51.2		mg/kg	50.0		102	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.
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

CLIENT NAME: HMD1831

PROJECT NO.: C06

SITE MANAGER: Adrian Garcia

PROJECT NAME: C06 - Airbus 12 Feb #2H

SAMPLE IDENTIFICATION: Eddy Co. NM

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB
1	8/16		S	X	AA 4-10-1'
2					(1-1.5')
3					(2-2.5')
4					(3-3.5')
5					(4-4.5')
6					AA 2 10-1'
7					(1-1.5')
8					(2-2.5')
9					(3-3.5')
10					(4-4.5')

NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE
1	N			X	

PRESERVATIVE METHOD

BTX 8021B
TX1005 (Ext. to C35)

PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se
TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles
TCLP Semi Volatiles	RCI
GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625
PCB's 8080/608	Pest. 808/608
Chloride	Gamma Spec.
Alpha Beta (Air)	PLM (Asbestos)
Major Anions/Cations, pH, TDS	

ANALYSIS REQUEST
(Circle or Specify Method No.)

PAGE: 1 OF: 2

RELINQUISHED BY: (Signature) <i>Adrian Garcia</i>	Date: 8/16/16	RECEIVED BY: (Signature) <i>Adrian Garcia</i>	Date: 8/16/16
RELINQUISHED BY: (Signature)	Date:	RECEIVED BY: (Signature)	Date:
RELINQUISHED BY: (Signature)	Date:	RECEIVED BY: (Signature)	Date:
RELINQUISHED BY: (Signature)	Date:	RECEIVED BY: (Signature)	Date:

RECEIVING LABORATORY: Cardinal Labs	Time:	RECEIVED BY: (Signature)	Date:
ADDRESS: Hobbs	STATE: NM	ZIP:	
CITY: Hobbs	PHONE:	DATE:	TIME:

SAMPLE CONDITION WHEN RECEIVED: 3.58c	REMARKS: #75
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Please fill out all copies - Laboratory retains Yellow copy - Return Original copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

Analysis Request of Chain of Custody Record



TETRA TECH

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

CLIENT NAME:

CE

SITE MANAGER:

Adrian Garcia

PROJECT NO.:

11601531

PROJECT NAME:

CE - Midland - 2005

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. 8240/8260/624

GC/MS Semi. Vol. 8270/625

PCB's 8080/608

Pest. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

PAGE:

OF:

ANALYSIS REQUEST
(Circle or Specify Method No.)

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