SITE INFORMATION

Report Type: Closure Report

General Site Information:

Site:	**Dodd Federal Unit #128 (Well Location)**					
Company:	**COG Operating LLC**					
Section, Township and Range	**Unit I**	**Sec 11**	**T17S**	**R29E**		
Lease Number:	**API-30-015-36157**					
County:	**Eddy County**					
GPS:	**32.84806° N**			**104.03749° W**		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	In Loco Hills, from the intersection of Haggerman Cutoff and 82, travel west on Hwy 82 for 2.9 miles. Turn right and travel 1.8 miles, turn left and travel 150' to site.					

Release Data:

Date Released:	12/23/2012	RECEIVED
Type Release:	Oil	
Source of Contamination:	Mobile Storage Tank	AUG 23 2013
Fluid Released:	22 bbls	
Fluids Recovered:	18 bbls	NMOCD ARTESIA

Official Communication:

Name:	Pat Ellis		Ike Tavarez
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		1910 N. Big Spring
	600 W. Illinois Ave.		
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 682-4559
Fax:	(432) 684-7137		
Email:	pellis@conchoresources.com		ike.tavarez@tetratech.com

Ranking Criteria

Depth to Groundwater:	***Ranking Score***	***Site Data***
<50 ft	20	
50-99 ft	10	
>100 ft.	0	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

TETRA TECH

May 15, 2013

Mr. Mike Bratcher
Environmental Engineer Specialist
Oil Conservation Division, District 2
811 S. First Street
Artesia, New Mexico 88210

Re: Closure Report for the COG Operating LLC., Dodd Federal Unit #128 Well Location, Unit I, Section 11, Township 17 South, Range 29 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the Dodd Federal Unit #128 Well Location located in Unit I, Section 11, Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.84806°, W 104.03749°. 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 December 23, 2012, and released approximately twenty two (22) barrels of oil from a mobile storage tank. To alleviate the problem, COG personnel lowered the oil level in the mobile tank. Eighteen (18) barrels of standing oil was recovered. The spill initiated on the east side of the pad in the pasture and migrated north -northwest affecting an area approximately 30' X 285'. The final C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 11. According to the NMOCD groundwater map, the average depth to groundwater in this area is approximately 150' below surface. The groundwater data is shown in Figure B.

Tetra Tech
1910 North Big Spring, Midland,TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

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 January 23, 2013, Tetra Tech personnel inspected and sampled the spill area. Seven (7) auger holes (AH-1 through AH-7) were installed 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, a shallow hydrocarbon impact was detected in the subsurface soils. With the exception of AH-1 and AH-3, all of the auger holes location exceeded the RRAL for either TPH, benzene or total BTEX. Auger holes (AH-2, AH-4, AH-5, AH-6 and AH-7) showed concentrations above the RRAL at 0-1' and declined below the RRAL at 1-1.5' below surface. Auger hole (AH-2) was not vertically defined at 1-1.5' below surface. The areas of AH-1 and AH-3 did not show hydrocarbon impacted soils above the RRAL. Deeper samples were not collected due to the dense formation at the site.

In addition, the chloride detected ranged from <20.0 mg/kg to 113 mg/kg. The chloride concentrations detected do not appear to an environmental concern.

Site Remediation and Conclusion

On May 7, 2013, Tetra Tech personnel supervised the excavation of the impacted soils. A trench (CS-1) was installed in the area of AH-2 to further delineate the vertical extent of the hydrocarbon release. Referring to Table 1, the confirmation trench samples not show any hydrocarbon impacts at 3.0' below surface, above the RRAL.

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In order to remove the hydrocarbon concentrations above the RRAL, the excavation depths ranged from 1.0' to 3.0' below surface. The excavated areas and depths are highlighted in Table 1 and shown on Figure 4. Approximately 180 cubic yards^3 of soil were removed and transported to R360 facility for proper disposal. Once approved by the BLM, the site was then backfilled with clean material to surface grade, ripped and seeded.

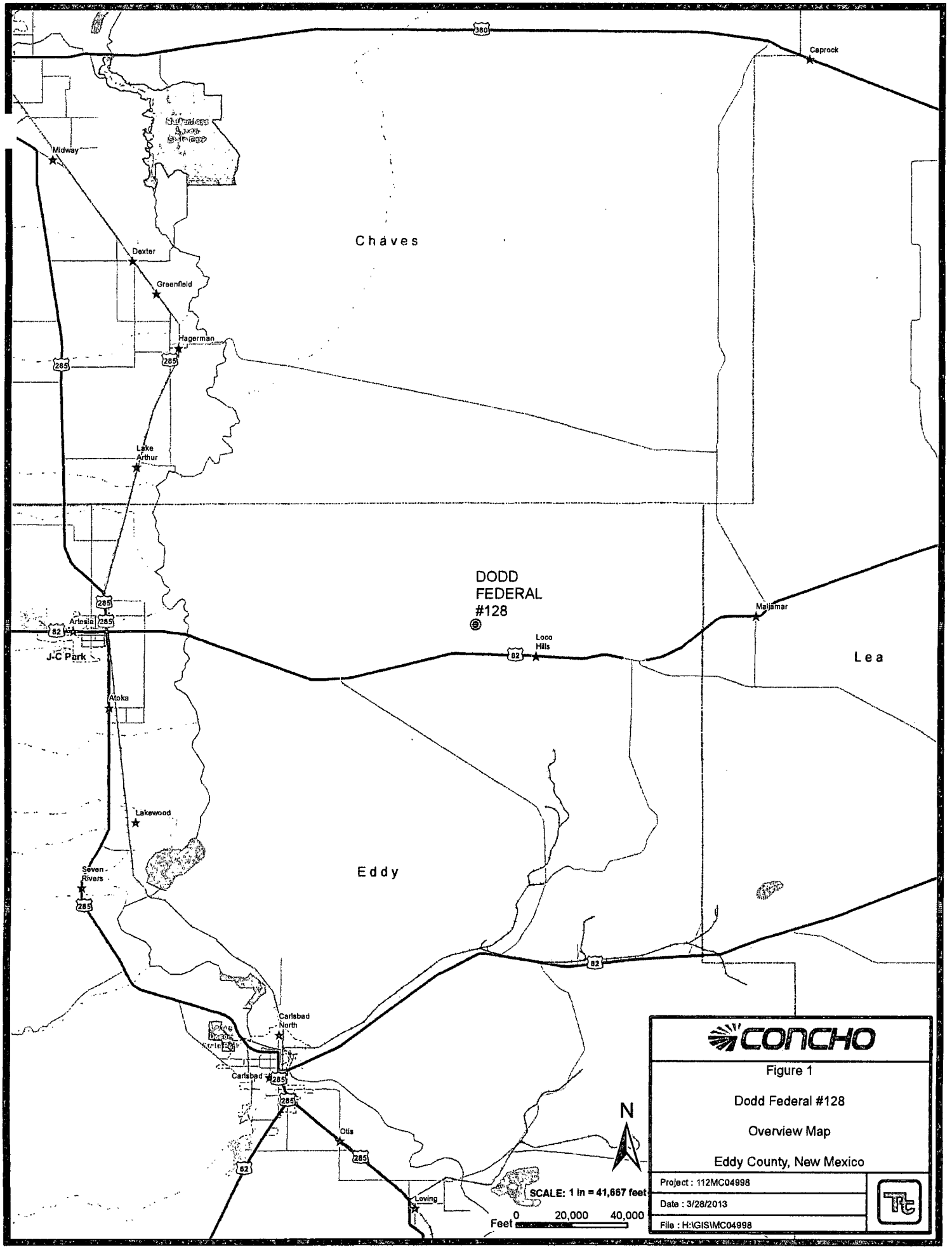
Based on the remediation activities performed at this location, COG requests closure for this site. The C-141 (Final) is included in Appendix A. If you have any questions or comments concerning the assessment or the remediation activities performed at the site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

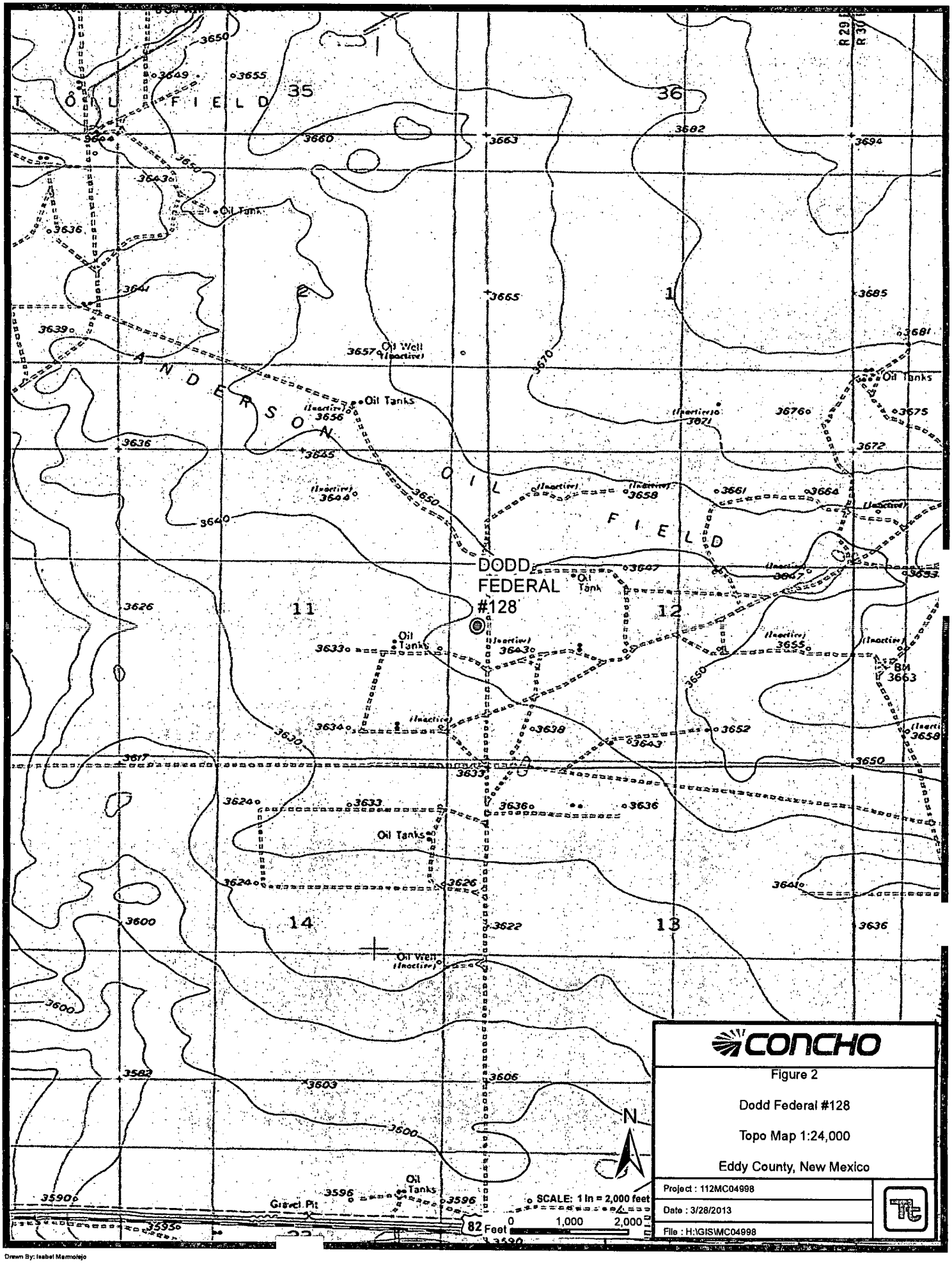
Ike Tavarez, PG
Senior Project Manager

cc: Pat Ellis – COG
cc: Jeff Robertson – BLM

Figures



Drawn By: Isabel Marmolejo



CONCHO

Figure 2

Dodd Federal #128

Topo Map 1:24,000

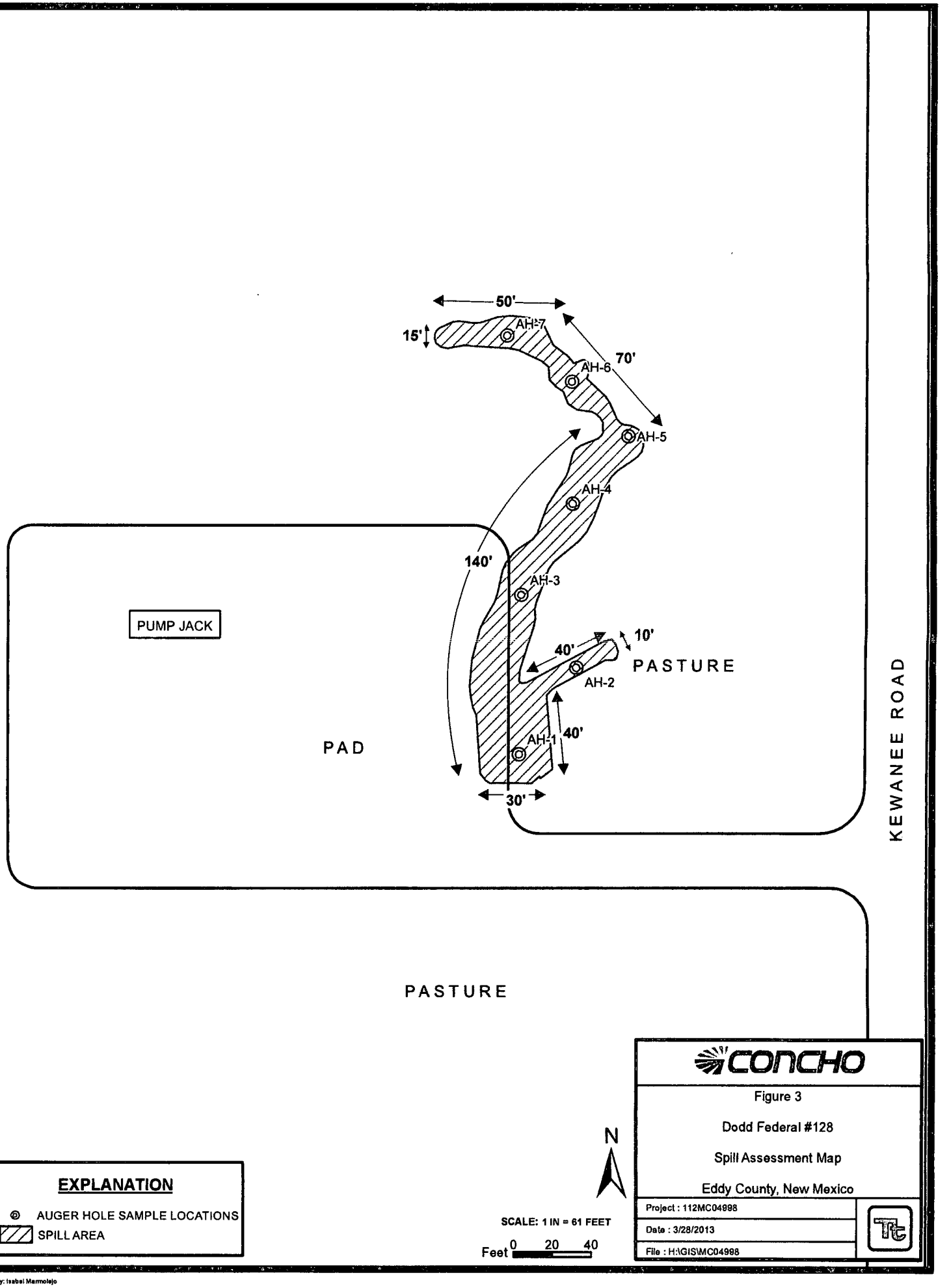
Eddy County, New Mexico

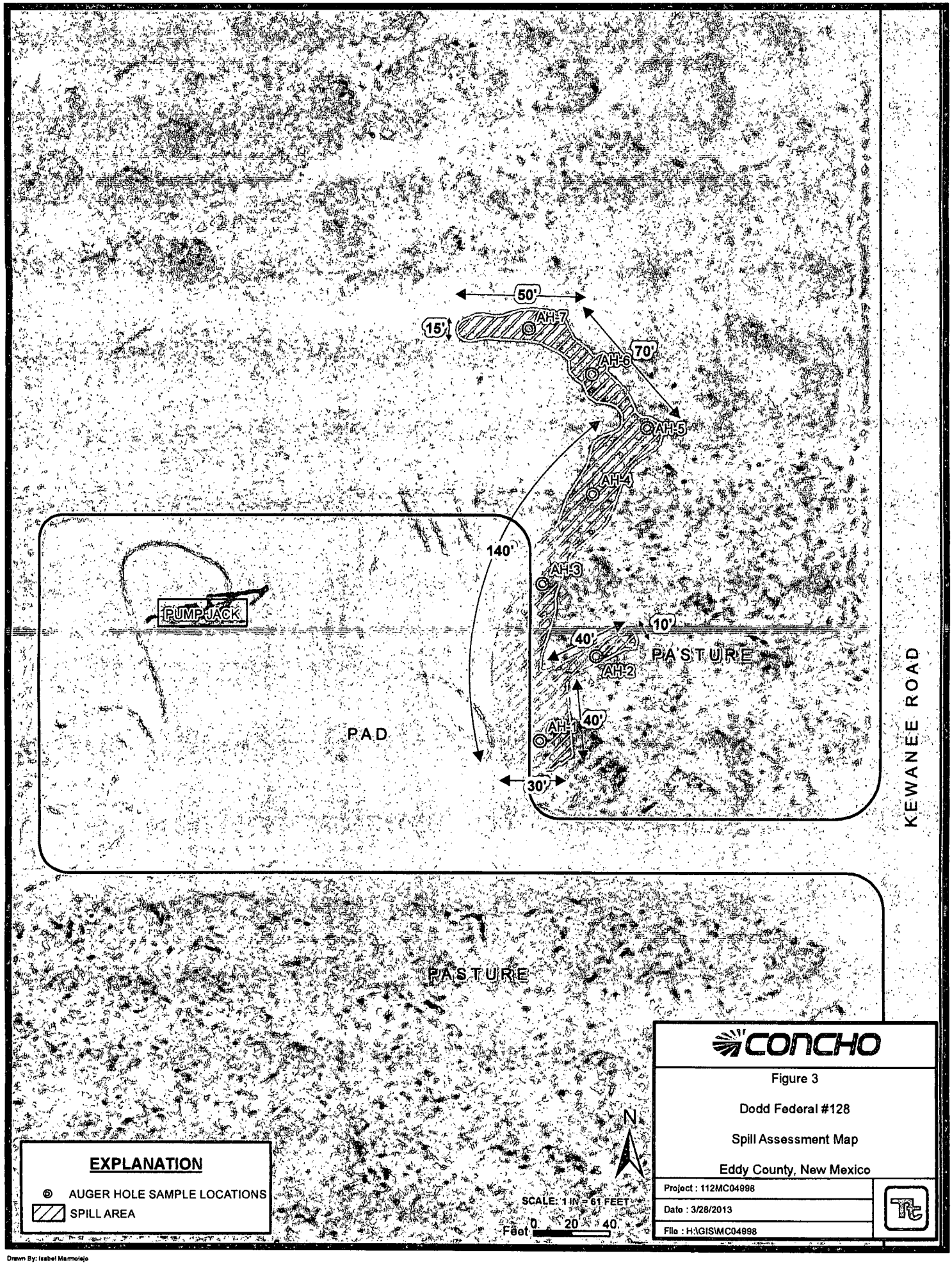
Project : 112MC04998

Date : 3/28/2013

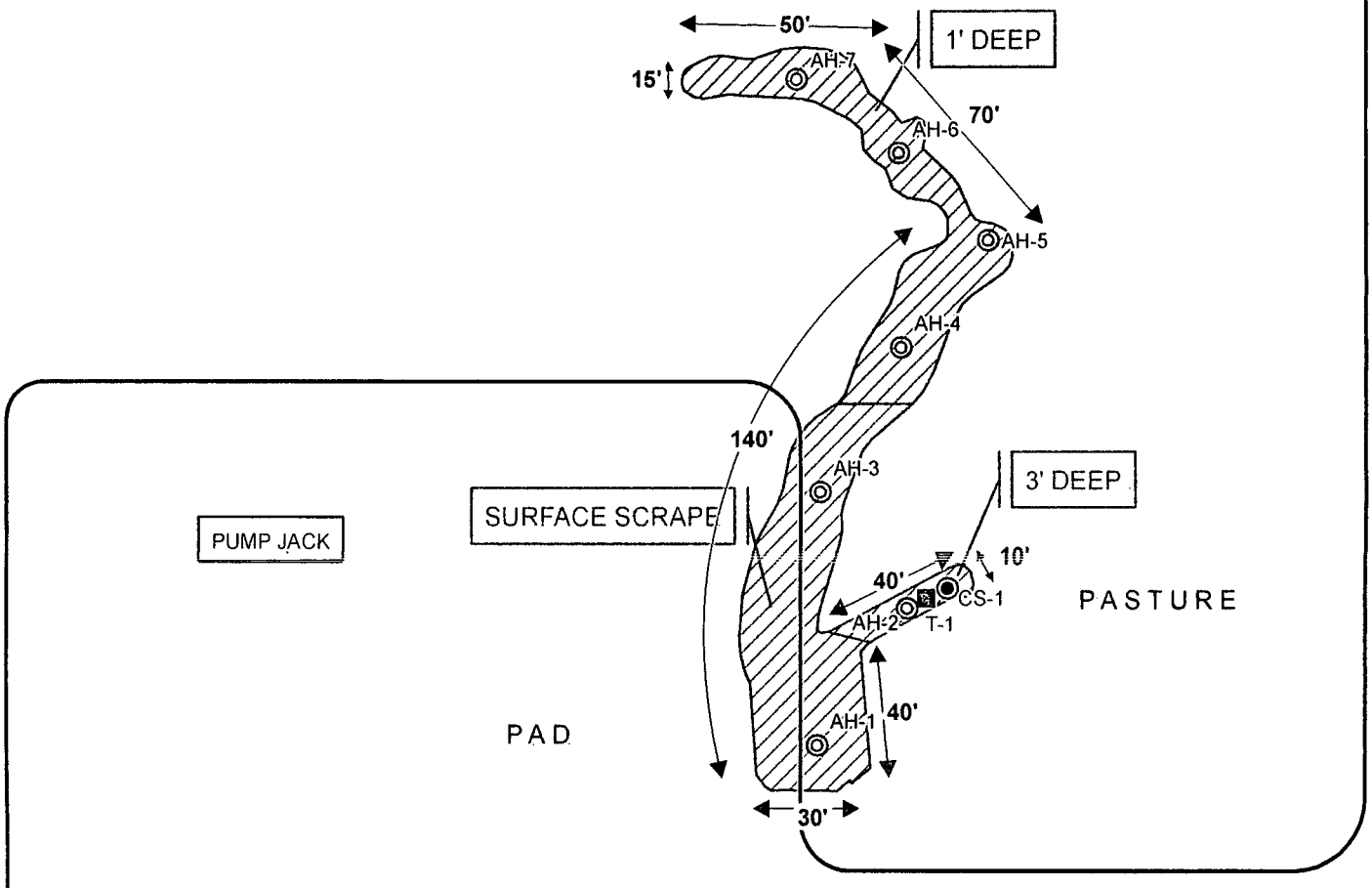
File : H:\GIS\MC04998

Drawn By: Isabel Marmolejo


50'
15'
AH-7
AH-6
70'
AH-5
AH-4
140'
AH-3
PUMP JACK
10'
40'
PASTURE
AH-2
PAD
AH-1
40'
30'
KEWANEE ROAD
PASTURE
N
SCALE: 1 IN = 61 FEET
Feet 0 20 40
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
SPILL AREA
CONCHO
Figure 3
Dodd Federal #128
Spill Assessment Map
Eddy County, New Mexico
Project : 112MC04988
Date : 3/28/2013
File : H:\GIS\MC04988
Drawn By: Isabel Marmolejo



Drawn By: Isabel Marmolejo



EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- CONFIRMATION SAMPLE LOCATION
- TRENCH LOCATION
- EXCAVATED AREAS

N

SCALE: 1 IN = 60 FEET

Feet 0 20 40

CONCHO

Figure 4

Dodd Federal #128

Excavation Areas & Depths Map

Eddy County, New Mexico

Project : 112MC04998

Date : 5/15/2013

File : H:\GIS\MC04998

Drawn By: Isabel Marmolejo

Tables

Table 1
COG Operating LLC.
Dodd Federal #128
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB 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	1/23/2013	0-1	1	X		5.81	92.6	98.4	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	113
	"	1-1.5	1	X		-	-	-	-	-	-	-	-	<20.0
AH-2	1/23/2013	0-1	-		X	11,200	14,600	25,800	87.6	425	312	323	1,148	<20.0
	"	1-1.5	-		X	8,780	12,600	21,380	103	533	332	339	1,307	<20.0
CS-1	5/7/2013	2	-		X	1,560	607	2,167	0.265	21.1	35.8	28.0	85.2	-
	"	3	-		X	16.3	<50.0	16.3	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	-
	"	4	-	X		15.9	64.1	80.0	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	-
AH-3	1/23/2013	0-1	1	X		9.67	62.7	72.4	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<20.0
	"	1-1.5	1	X		-	-	-	-	-	-	-	-	<20.0
AH-4	1/23/2013	0-1	-		X	6,920	12,300	19,220	41.2	313	252	292	898	<20.0
	"	1-1.5	-	X		7.28	337	344	<0.0200	0.0864	<0.0200	0.121	0.207	<20.0
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	22.7
AH-5	1/23/2013	0-1	-		X	2,990	10,300	13,290	17.2	241	224	248	730	<20.0
	"	1-1.5	-	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<20.0
AH-6	1/23/2013	0-1	-		X	1,450	2,780	4,230	1.79	50.0	53.3	57.6	163	<20.0
	"	1-1.5	-	X		-	-	-	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<20.0
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	<20.0
	"	2.5-3	-	X		-	-	-	-	-	-	-	-	36.8
AH-7	1/23/2013	0-1	-		X	4,310	7,750	12,060	11.7	170	141	147	470	<20.0
	"	1-1.5	-	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<20.0
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	<20.0
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	<20.0

(-) Not Analyzed

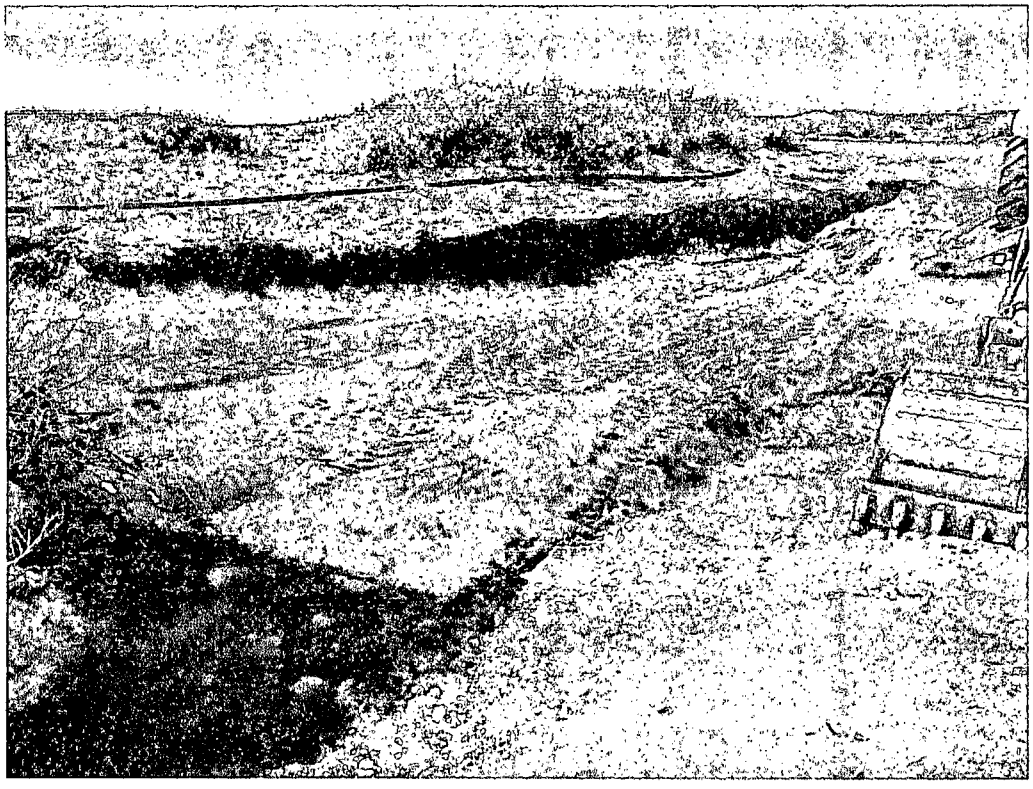
(BEB) Below Excavation Bottom

Excavated Areas and Depths

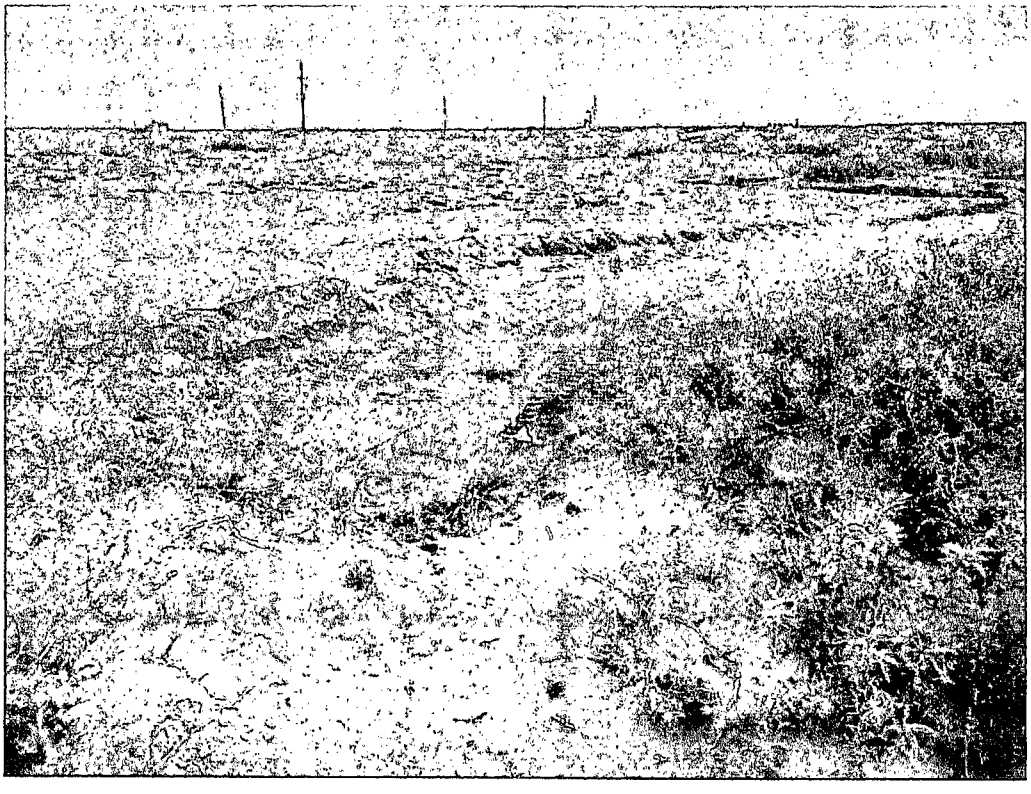
Photos

COG Operating LLC
Dodd Federal Unit #128
Eddy County, New Mexico

TETRA TECH



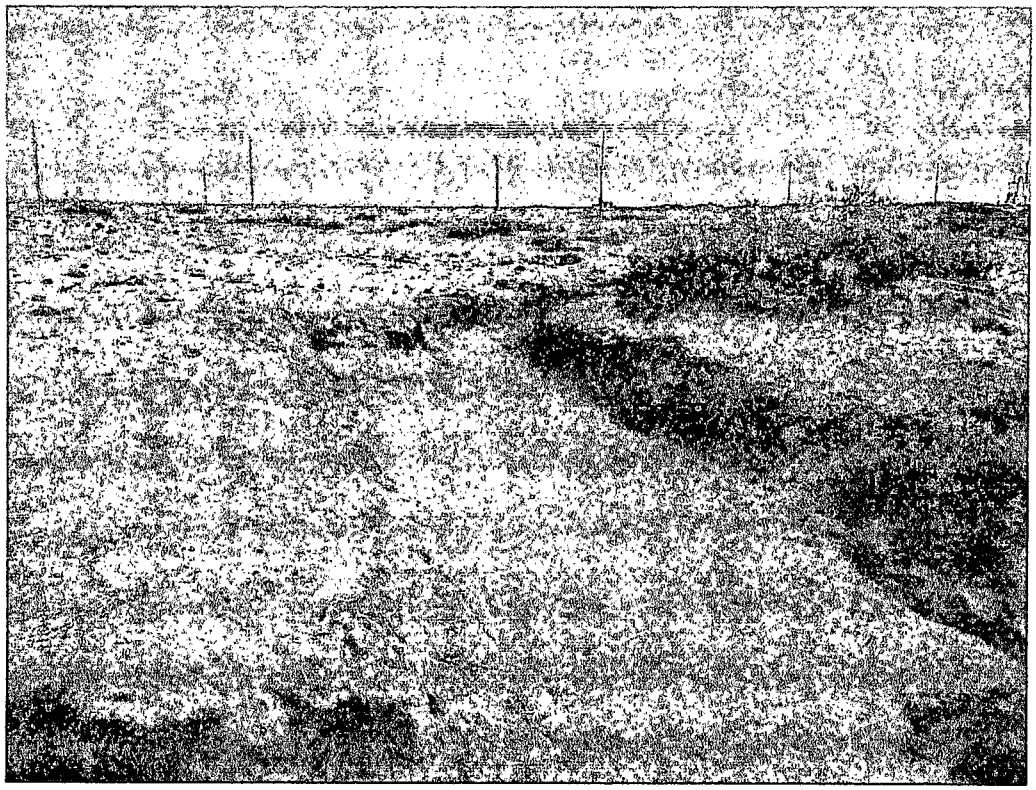
View South – Area of AH-2



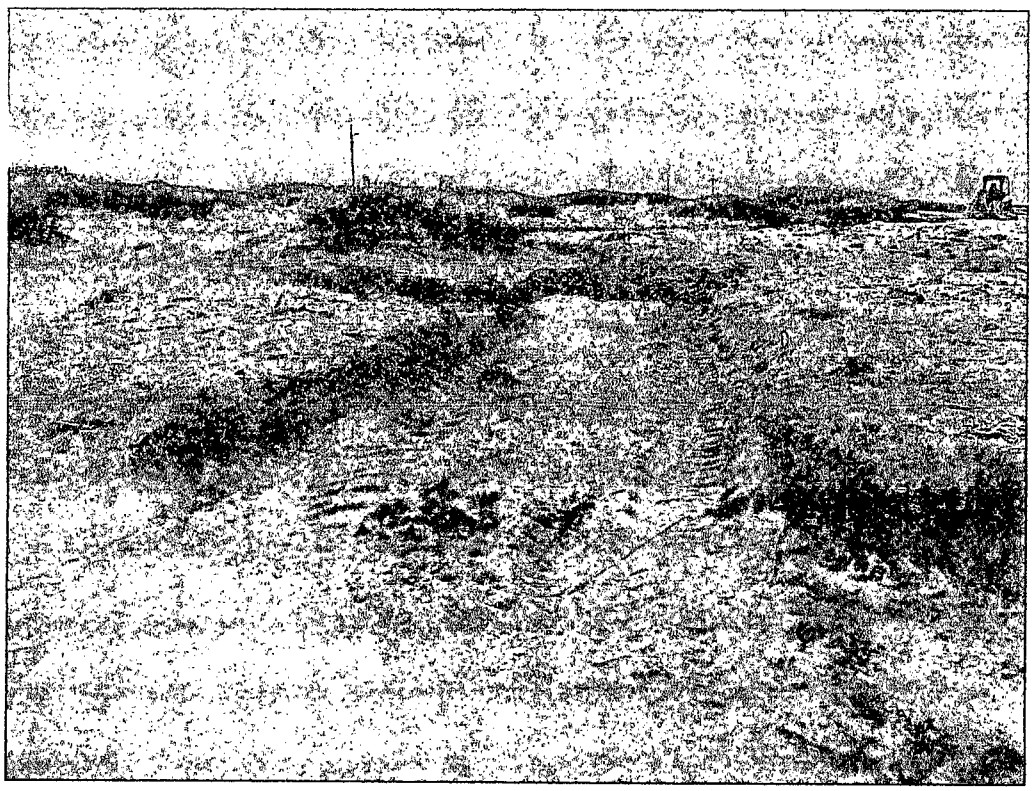
View North – Area of AH-4 and AH-5

COG Operating LLC
Dodd Federal Unit #128
Eddy County, New Mexico

TETRA TECH



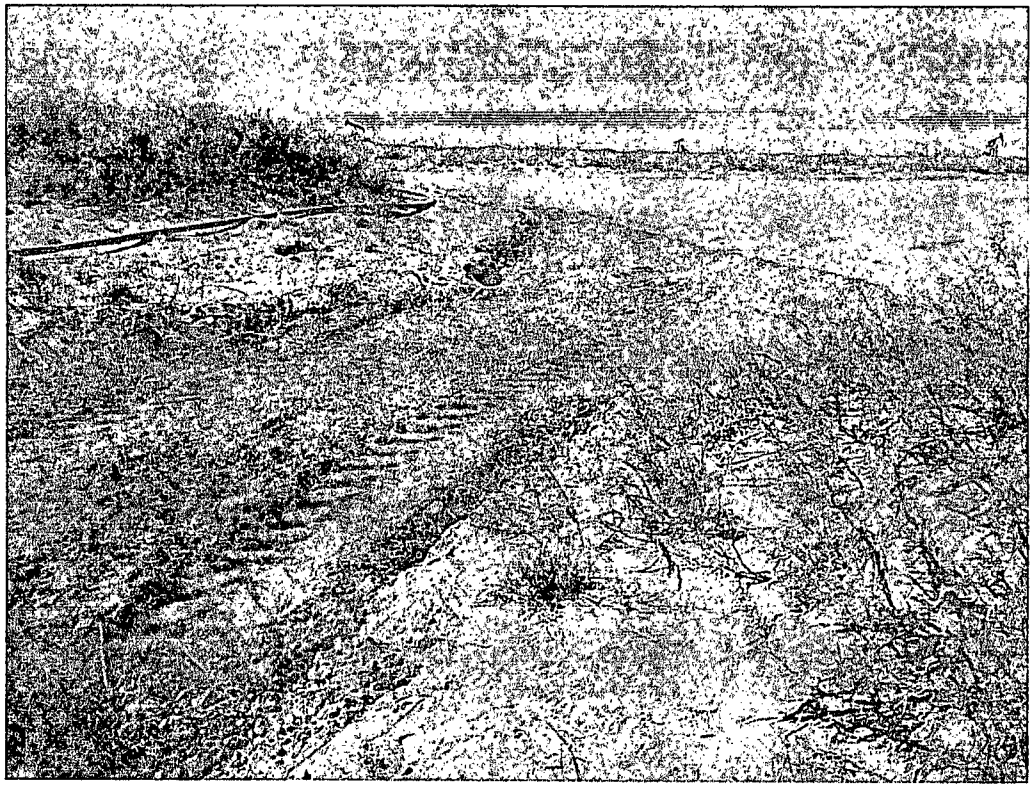
View Southeast – Area of AH-6



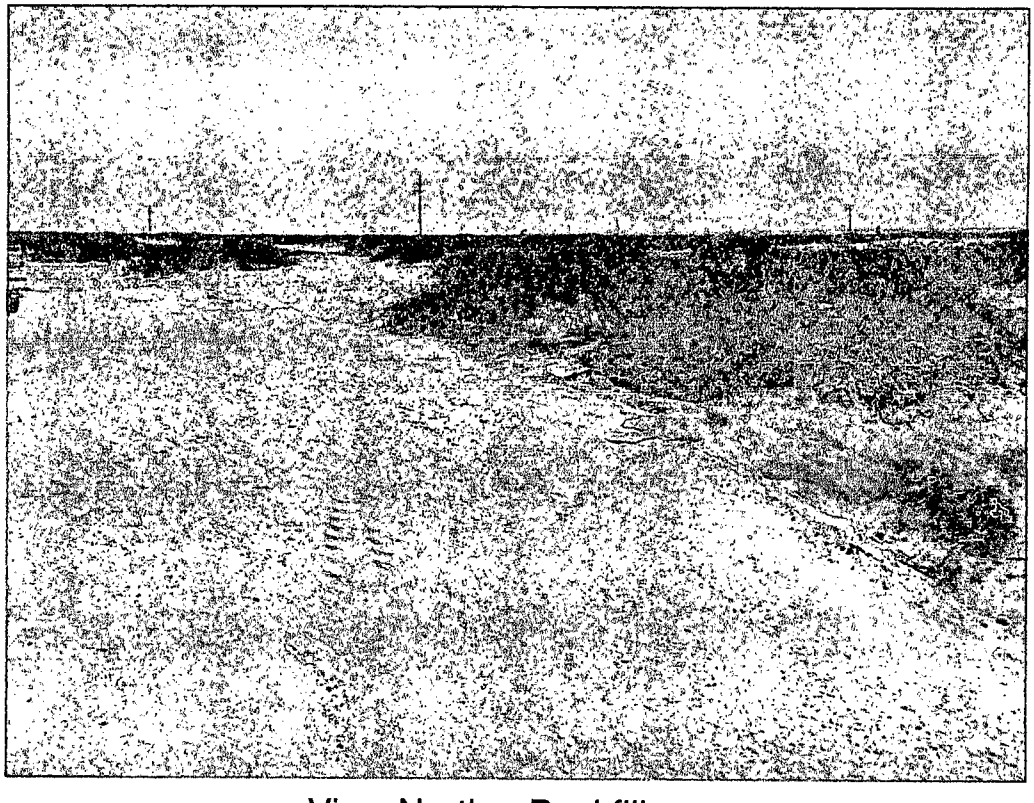
View East – Area of AH-7

COG Operating LLC
Dodd Federal Unit #128
Eddy County, New Mexico

TETRA TECH



View South – Backfill



View North – Backfill

Appendix A

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, 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
AUG 23 2013
NMOCD ARTESIA

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company	**COG Operating LLC**	Contact	**Pat Ellis**
Address	**600 West Illinois Avenue, Midland, TX 79701**	Telephone No.	**(432) 230-0077**
Facility Name	**Dodd Federal Unit #128**	Facility Type	**Well Location**

Surface Owner: Federal	Mineral Owner	Lease No. (API#)30-015-36157

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	11	17S	29E					Eddy

Latitude N32.84810 ° **Longitude** W104.03795 °

NATURE OF RELEASE

Type of Release: Oil	Volume of Release 22 bbls	Volume Recovered 18 bbls
Source of Release: Mobile Storage Tank	Date and Hour of Occurrence 12/23/2012	Date and Hour of Discovery 13/23/2012 5:00 a.m.
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Mobile storage tank overflowed due to the increased production from the well. Oil from the mobile tank has been pulled to lower the tank level and prevent reoccurrence.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech personnel inspected the site and collected samples to define the spill extents. Soil that exceeded the RRAL was removed and hauled away for proper disposal. The site was then brought up to surface grade with clean backfill material. Tetra Tech prepared a closure report and submitted it to NMOCD for review.

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: Ike Tavarez (agent for COG)	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike Tavarez@tetratech.com	Conditions of Approval:	Attached ☐
Date: 5-15-13 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, 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 October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	COG OPERATING LLC	Contact	Pat Ellis
Address	600 West Illinois Avenue, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	Dodd Federal Unit #128	Facility Type	Well location

Surface Owner Federal	Mineral Owner	Lease No. (API#) 30-015-36157

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
J	11	17S	29E					Eddy

Latitude 32.84810 **Longitude** 104.03795

NATURE OF RELEASE

Type of Release Oil	Volume of Release 22bbls	Volume Recovered 18bbls
Source of Release Mobile storage tank	Date and Hour of Occurrence 12/23/2012	Date and Hour of Discovery 12/23/2012 5:00 a.m.
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

*If a Watercourse was Impacted, Describe Fully.**

Describe Cause of Problem and Remedial Action Taken.*

Mobile storage tank overflowed due to increased production from well. Oil from the mobile tank has been pulled to lower the tank level and prevent reoccurrence.

Describe Area Affected and Cleanup Action Taken.*

Initially 22bbls were released from the tank and we were able to recover 18bbls with a vacuum truck. The release traveled from the tank and streamed off location into the pasture. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD/BLM 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: Josh Russo	Approved by District Supervisor:	
Title: Senior Environmental Coordinator	Approval Date:	Expiration Date:
E-mail Address: jrusso@concho.com	Conditions of Approval:	Attached ☐
Date: 01/07/2013 Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG-Dodd Federal #128
Eddy County, New Mexico

16 South 28 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21 61	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

16 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14 220 dry	13
19 110	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

16 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
31	32	33	34	35	36

17 South 28 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22 79	23	24
30	29	28	27	26	25
31	32	33	34	35 258	36

17 South 29 East

6	5	4	3	2	1
7	8	9	10	11 SITE	12
18	17	16	15	14	13
19	20	21	22 80	23	24
30	29 210 208'	28	27	26	25
31	32	33	34	35 153	36

17 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
31	32	33	34	35	36

18 South 28 East

6	5	4 108	3	2	1
7 49	8 69	9	10	11	12
18	17	16	15	14	13
19	20	21 226	22	23	24
49	29	28	27	26	25
31	32	33	34	35 65	36

18 South 29 East

6	5	4	3	2	1
7	8	9	10 95	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

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	24
30	29	28	27	26	25
31	32	33	34	35	36

- New Mexico State Engineers Well Reports
- USGS Well Reports
- Geology and Groundwater Conditions in Southern Eddy, County, NM
- NMOCD - Groundwater Data
- Field water level
- New Mexico Water and Infrastructure Data System

Appendix C

Summary Report

Ike Tavarez
Tetra Tech
1910 N. Big Spring Street
Midland, TX 79705

Report Date: February 4, 2013

Work Order: 13012801

Project Location: Eddy Co., NM
Project Name: COG/Dodd Fed. #128
Project Number: 112C04998

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
319415	AH-1 0-1' 1' BEB	soil	2013-01-23	00:00	2013-01-25
319416	AH-1 1-1.5' 1' BEB	soil	2013-01-23	00:00	2013-01-25
319417	AH-2 0-1'	soil	2013-01-23	00:00	2013-01-25
319418	AH-2 1-1.5'	soil	2013-01-23	00:00	2013-01-25
319419	AH-3 0-1' 1' BEB	soil	2013-01-23	00:00	2013-01-25
319420	AH-3 1-1.5' 1' BEB	soil	2013-01-23	00:00	2013-01-25
319421	AH-4 0-1'	soil	2013-01-23	00:00	2013-01-25
319422	AH-4 1-1.5'	soil	2013-01-23	00:00	2013-01-25
319423	AH-4 2-2.5'	soil	2013-01-23	00:00	2013-01-25
319424	AH-5 0-1'	soil	2013-01-23	00:00	2013-01-25
319425	AH-5 1-1.5'	soil	2013-01-23	00:00	2013-01-25
319426	AH-6 0-1'	soil	2013-01-23	00:00	2013-01-25
319427	AH-6 1-1.5'	soil	2013-01-23	00:00	2013-01-25
319428	AH-6 2-2.5'	soil	2013-01-23	00:00	2013-01-25
319429	AH-6 2.5-3'	soil	2013-01-23	00:00	2013-01-25
319430	AH-7 0-1'	soil	2013-01-23	00:00	2013-01-25
319431	AH-7 1-1.5'	soil	2013-01-23	00:00	2013-01-25
319432	AH-7 2-2.5'	soil	2013-01-23	00:00	2013-01-25
319433	AH-7 3-3.5'	soil	2013-01-23	00:00	2013-01-25

Sample - Field Code	BTEX Benzene (mg/Kg)	BTEX Toluene (mg/Kg)	BTEX Ethylbenzene (mg/Kg)	BTEX Xylene (mg/Kg)	TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
319415 - AH-1 0-1' 1' BEB	<0.0200 $Q_{R,S}$	<0.0200 $Q_{R,S}$	<0.0200 $Q_{R,S}$	<0.0200 $Q_{R,S}$	**92.6**	**5.81** Q_S
319417 - AH-2 0-1'	**87.6** Q_S	**425** Q_S	**312** Q_S	**323** Q_S	**14600**	**11200** Q_S
319418 - AH-2 1-1.5'	**103** Q_R	**533** Q_R	**332** Q_R	**339** Q_R	**12600** Q_S	**8780** Q_S
319419 - AH-3 0-1' 1' BEB	<0.0200 $Q_{R,S}$	<0.0200 $Q_{R,S}$	<0.0200 $Q_{R,S}$	<0.0200 $Q_{R,S}$	**62.7**	**9.67** Q_S
319421 - AH-4 0-1'	**41.2** Q_S	**313** Q_S	**252** Q_S	**292** Q_S	**12300**	**6920** Q_S

continued ...

... continued

Sample - Field Code	BTEX Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
319422 - AH-4 1-1.5'	<0.0200 Qs	**0.0864** Qs	<0.0200 Qs	**0.121** Qs	**337** Qs	**7.28** Qs
319424 - AH-5 0-1'	**17.2** Qs	**241** Qs	**224** Qs	**248** Qs	**10300**	**2990** Qs
319425 - AH-5 1-1.5'	<0.0200 Qr	<0.0200 Qr	<0.0200 Qr	<0.0200 Qr	<50.0 Qs	<4.00 Qs
319426 - AH-6 0-1'	**1.79** Qs	**50.0** Qs	**53.3** Qs	**57.6** Qs	**2780**	**1450** Qs
319427 - AH-6 1-1.5'	<0.0200 Qr	<0.0200 Qr	<0.0200 Qr	<0.0200 Qr		
319430 - AH-7 0-1'	**11.7** Qs	**170** Qs	**141** Qs	**147** Qs	**7750**	**4310** Qs
319431 - AH-7 1-1.5'	<0.0200 Qr	<0.0200 Qr	<0.0200 Qr	<0.0200 Qr	<50.0 Qs	<4.00 Qs

Sample: 319415 - AH-1 0-1' 1' BEB

Param	Flag	Result	Units	RL
Chloride		**113**	mg/Kg	4

Sample: 319416 - AH-1 1-1.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 319417 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 319418 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 319419 - AH-3 0-1' 1' BEB

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 319420 - AH-3 1-1.5' 1' BEB

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 319421 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 319422 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 319423 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**22.7**	mg/Kg	4

Sample: 319424 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 319425 - AH-5 1-1.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 319426 - AH-6 0-1'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 319427 - AH-6 1-1.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 319428 - AH-6 2-2.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 319429 - AH-6 2.5-3'

Param	Flag	Result	Units	RL
Chloride		**36.8**	mg/Kg	4

Sample: 319430 - AH-7 0-1'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 319431 - AH-7 1-1.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 319432 - AH-7 2-2.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 319433 - AH-7 3-3.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Summary Report

Ike Tavarez
Tetra Tech
1910 N. Big Spring Street
Midland, TX 79705

Report Date: May 9, 2013

Work Order: 13050801

Project Location: Eddy Co., NM
Project Name: COG/Dodd Fed. #128
Project Number: 112C04998

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
328293	CS-1 (AH-2) 2'	soil	2013-05-07	00:00	2013-05-07
328294	CS-1 (AH-2) 3'	soil	2013-05-07	00:00	2013-05-07
328295	CS-1 (AH-2) 4'	soil	2013-05-07	00:00	2013-05-07

	BTEX				TPH DRO - NEW	TPH GRO
	Benzene	Toluene	Ethylbenzene	Xylene	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
328293 - CS-1 (AH-2) 2'	**0.265** Qs	**21.1** Jc,Qs	**35.8** Jc	**28.0**	**607** Qs	**1560**
328294 - CS-1 (AH-2) 3'	<0.0400 [1] Qs	<0.0400 Qs	<0.0400	<0.0400	<50.0	**16.3** [2]
328295 - CS-1 (AH-2) 4'	<0.0400 Qs	<0.0400 Qs	<0.0400	<0.0400	**64.1**	**15.9** [3]

[1] Dilution due to turbidity.
[2] Dilution due to turbidity.
[3] Dilution due to turbidity.

TRACEANALYSIS, INC.

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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Ike Tavarez
Tetra Tech
1910 N. Big Spring Street
Midland, TX, 79705

Report Date: May 9, 2013

Work Order: 13050801

Project Location: Eddy Co., NM
Project Name: COG/Dodd Fed. #128
Project Number: 112C04998

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
328293	CS-1 (AH-2) 2'	soil	2013-05-07	00:00	2013-05-07
328294	CS-1 (AH-2) 3'	soil	2013-05-07	00:00	2013-05-07
328295	CS-1 (AH-2) 4'	soil	2013-05-07	00:00	2013-05-07

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Dr. Blair Leftwich, Director
Dr. Michael Abel, Project Manager

Report Contents

Case Narrative

Samples for project COG/Dodd Fed. #128 were received by TraceAnalysis, Inc. on 2013-05-07 and assigned to work order 13050801. Samples for work order 13050801 were received intact at a temperature of 4.8 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	85768	2013-05-09 at 08:52	101195	2013-05-09 at 08:53
TPH DRO - NEW	S 8015 D	85763	2013-05-08 at 09:00	101190	2013-05-09 at 08:05
TPH DRO - NEW	S 8015 D	85765	2013-05-08 at 10:00	101192	2013-05-09 at 08:30
TPH GRO	S 8015 D	85766	2013-05-09 at 08:30	101193	2013-05-09 at 08:31

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 13050801 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 328293 - CS-1 (AH-2) 2'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	101195	Date Analyzed:	2013-05-09	Analyzed By:	AH
Prep Batch:	85768	Sample Preparation:	2013-05-08	Prepared By:	AH

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	Qs	1	**0.265**	mg/Kg	2	0.0200
Toluene	Je,Qs	1	**21.1**	mg/Kg	2	0.0200
Ethylbenzene	Je	1	**35.8**	mg/Kg	2	0.0200
Xylene		1	**28.0**	mg/Kg	2	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			3.78	mg/Kg	2	4.00	94	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	6.10	mg/Kg	2	4.00	152	70 - 130

Sample: 328293 - CS-1 (AH-2) 2'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	101190	Date Analyzed:	2013-05-09	Analyzed By:	CW
Prep Batch:	85763	Sample Preparation:	2013-05-08	Prepared By:	CW

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Qs	1	**607**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	188	mg/Kg	1	100	188	70 - 130

Sample: 328293 - CS-1 (AH-2) 2'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	101193	Date Analyzed:	2013-05-09	Analyzed By:	AH
Prep Batch:	85766	Sample Preparation:	2013-05-08	Prepared By:	AH

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**1560**	mg/Kg	10	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			16.8	mg/Kg	10	20.0	84	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	41.6	mg/Kg	10	20.0	208	70 - 130

Sample: 328294 - CS-1 (AH-2) 3'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	101195	Date Analyzed:	2013-05-09	Analyzed By:	AH
Prep Batch:	85768	Sample Preparation:	2013-05-08	Prepared By:	AH

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Qs,U	1	<0.0400	mg/Kg	2	0.0200
Toluene	Qs,U	1	<0.0400	mg/Kg	2	0.0200
Ethylbenzene	U	1	<0.0400	mg/Kg	2	0.0200
Xylene	U	1	<0.0400	mg/Kg	2	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			3.70	mg/Kg	2	4.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)			3.87	mg/Kg	2	4.00	97	70 - 130

Sample: 328294 - CS-1 (AH-2) 3'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	101192	Date Analyzed:	2013-05-09	Analyzed By:	CW
Prep Batch:	85765	Sample Preparation:	2013-05-08	Prepared By:	CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			103	mg/Kg	1	100	103	70 - 130

Sample: 328294 - CS-1 (AH-2) 3'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	101193	Date Analyzed:	2013-05-09	Analyzed By:	AH
Prep Batch:	85766	Sample Preparation:	2013-05-08	Prepared By:	AH

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO [2]	B	1	**16.3**	mg/Kg	2	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			3.24	mg/Kg	2	4.00	81	70 - 130
4-Bromofluorobenzene (4-BFB)			3.53	mg/Kg	2	4.00	88	70 - 130

Sample: 328295 - CS-1 (AH-2) 4'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	101195	Date Analyzed:	2013-05-09	Analyzed By:	AH
Prep Batch:	85768	Sample Preparation:	2013-05-08	Prepared By:	AH

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	Qs,U	1	<0.0400	mg/Kg	2	0.0200
Toluene	Qs,U	1	<0.0400	mg/Kg	2	0.0200
Ethylbenzene	U	1	<0.0400	mg/Kg	2	0.0200
Xylene	U	1	<0.0400	mg/Kg	2	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			3.87	mg/Kg	2	4.00	97	70 - 130
4-Bromofluorobenzene (4-BFB)			3.96	mg/Kg	2	4.00	99	70 - 130

Sample: 328295 - CS-1 (AH-2) 4'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	101192	Date Analyzed:	2013-05-09	Analyzed By:	CW
Prep Batch:	85765	Sample Preparation:	2013-05-08	Prepared By:	CW

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
DRO		1	**64.1**		mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			84.3	mg/Kg	1	100	84	70 - 130

Sample: 328295 - CS-1 (AH-2) 4'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	101193	Date Analyzed:	2013-05-09	Analyzed By:	AH
Prep Batch:	85766	Sample Preparation:	2013-05-08	Prepared By:	AH

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
GRO [3]	B	1	**15.9**		mg/Kg	2	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			3.40	mg/Kg	2	4.00	85	70 - 130
4-Bromofluorobenzene (4-BFB)			3.54	mg/Kg	2	4.00	88	70 - 130

Method Blanks

Method Blank (1) QC Batch: 101190

QC Batch:	101190	Date Analyzed:	2013-05-09	Analyzed By:	CW
Prep Batch:	85763	QC Preparation:	2013-05-08	Prepared By:	CW

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	10.9	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			109	mg/Kg	1	100	109	70 - 130

Method Blank (1) QC Batch: 101192

QC Batch:	101192	Date Analyzed:	2013-05-09	Analyzed By:	CW
Prep Batch:	85765	QC Preparation:	2013-05-08	Prepared By:	CW

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<6.88	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			108	mg/Kg	1	100	108	70 - 130

Method Blank (1) QC Batch: 101193

QC Batch:	101193	Date Analyzed:	2013-05-09	Analyzed By:	AH
Prep Batch:	85766	QC Preparation:	2013-05-09	Prepared By:	AH

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	2.52	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.69	mg/Kg	1	2.00	84	70 - 130
4-Bromofluorobenzene (4-BFB)			1.68	mg/Kg	1	2.00	84	70 - 130

Method Blank (1) QC Batch: 101195

QC Batch:	101195	Date Analyzed:	2013-05-09	Analyzed By:	AH
Prep Batch:	85768	QC Preparation:	2013-05-09	Prepared By:	AH

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00810	mg/Kg	0.02
Toluene		1	<0.00750	mg/Kg	0.02
Ethylbenzene		1	<0.00730	mg/Kg	0.02
Xylene		1	<0.00700	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.91	mg/Kg	1	2.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			1.87	mg/Kg	1	2.00	94	70 - 130

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 101190 | Date Analyzed: 2013-05-09 | Analyzed By: CW
Prep Batch: 85763 | QC Preparation: 2013-05-08 | Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	260	mg/Kg	1	250	10.9	100	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	255	mg/Kg	1	250	10.9	98	70 - 130	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	120	116	mg/Kg	1	100	120	116	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 101192 | Date Analyzed: 2013-05-09 | Analyzed By: CW
Prep Batch: 85765 | QC Preparation: 2013-05-08 | Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	261	mg/Kg	1	250	<6.88	104	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	253	mg/Kg	1	250	<6.88	101	70 - 130	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	120	120	mg/Kg	1	100	120	120	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 101193 | Date Analyzed: 2013-05-09 | Analyzed By: AH
Prep Batch: 85766 | QC Preparation: 2013-05-09 | Prepared By: AH

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	17.8	mg/Kg	1	20.0	2.52	89	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	18.6	mg/Kg	1	20.0	2.52	93	70 - 130	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.76	1.76	mg/Kg	1	2.00	88	88	70 - 130
4-Bromofluorobenzene (4-BFB)	1.78	1.80	mg/Kg	1	2.00	89	90	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 101195 | Date Analyzed: 2013-05-09 | Analyzed By: AH
Prep Batch: 85768 | QC Preparation: 2013-05-09 | Prepared By: AH

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.06	mg/Kg	1	2.00	<0.00810	103	70 - 130
Toluene		1	2.01	mg/Kg	1	2.00	<0.00750	100	70 - 130
Ethylbenzene		1	2.00	mg/Kg	1	2.00	<0.00730	100	70 - 130
Xylene		1	5.85	mg/Kg	1	6.00	<0.00700	98	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.06	mg/Kg	1	2.00	<0.00810	103	70 - 130	0	20
Toluene		1	2.01	mg/Kg	1	2.00	<0.00750	100	70 - 130	0	20
Ethylbenzene		1	2.00	mg/Kg	1	2.00	<0.00730	100	70 - 130	0	20
Xylene		1	5.87	mg/Kg	1	6.00	<0.00700	98	70 - 130	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

continued ...

control spikes continued ...

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.90	1.90	mg/Kg	1	2.00	95	95	70 - 130
4-Bromofluorobenzene (4-BFB)	1.97	1.92	mg/Kg	1	2.00	98	96	70 - 130

Matrix Spike (MS-1) Spiked Sample: 328063

QC Batch: 101190 | Date Analyzed: 2013-05-09 | Analyzed By: CW
Prep Batch: 85763 | QC Preparation: 2013-05-08 | Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	Qs	Qs	1	3170	mg/Kg	5	250	3530	-144	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	Qs	Qs	1	3370	mg/Kg	5	250	3530	-64	70 - 130	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate			MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	Qsr	Qsr	554	639	mg/Kg	5	100	554	639	70 - 130

Matrix Spike (xMS-1) Spiked Sample: 328086

QC Batch: 101192 | Date Analyzed: 2013-05-09 | Analyzed By: CW
Prep Batch: 85765 | QC Preparation: 2013-05-08 | Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	763	mg/Kg	1	250	489	110	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	756	mg/Kg	1	250	489	107	70 - 130	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate			MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	Qsr	Qsr	185	178	mg/Kg	1	100	185	178	70 - 130

Matrix Spike (MS-1) Spiked Sample: 328094

QC Batch: 101193 | Date Analyzed: 2013-05-09 | Analyzed By: AH
Prep Batch: 85766 | QC Preparation: 2013-05-09 | Prepared By: AH

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	14.2	mg/Kg	1	20.0	7.56	33	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	16.6	mg/Kg	1	20.0	7.56	45	70 - 130	16	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.62	1.60	mg/Kg	1	2	81	80	70 - 130
4-Bromofluorobenzene (4-BFB)	1.84	1.78	mg/Kg	1	2	92	89	70 - 130

Matrix Spike (MS-1) Spiked Sample: 328094

QC Batch: 101195 | Date Analyzed: 2013-05-09 | Analyzed By: AH
Prep Batch: 85768 | QC Preparation: 2013-05-09 | Prepared By: AH

Param		F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	Qs	Qs	1	1.38	mg/Kg	1	2.00	<0.00810	69	70 - 130
Toluene	Qs	Qs	1	1.39	mg/Kg	1	2.00	<0.00750	70	70 - 130
Ethylbenzene			1	1.43	mg/Kg	1	2.00	<0.00730	72	70 - 130
Xylene			1	4.22	mg/Kg	1	6.00	<0.00700	70	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

continued ...

matrix spikes continued ...

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.50	mg/Kg	1	2.00	<0.00810	75	70 - 130	8	20
Toluene		1	1.50	mg/Kg	1	2.00	<0.00750	75	70 - 130	8	20
Ethylbenzene		1	1.55	mg/Kg	1	2.00	<0.00730	78	70 - 130	8	20
Xylene		1	4.55	mg/Kg	1	6.00	<0.00700	76	70 - 130	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.87	1.87	mg/Kg	1	2	94	94	70 - 130
4-Bromofluorobenzene (4-BFB)	1.93	1.88	mg/Kg	1	2	96	94	70 - 130

Calibration Standards

Standard (CCV-1)

QC Batch: 101190 | Date Analyzed: 2013-05-09 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	254	102	80 - 120	2013-05-09

Standard (CCV-2)

QC Batch: 101190 | Date Analyzed: 2013-05-09 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	251	100	80 - 120	2013-05-09

Standard (CCV-3)

QC Batch: 101190 | Date Analyzed: 2013-05-09 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	246	98	80 - 120	2013-05-09

Standard (CCV-4)

QC Batch: 101190 | Date Analyzed: 2013-05-09 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	238	95	80 - 120	2013-05-09

Standard (CCV-1)

QC Batch: 101192 Date Analyzed: 2013-05-09 Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	252	101	80 - 120	2013-05-09

Standard (CCV-2)

QC Batch: 101192 Date Analyzed: 2013-05-09 Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	266	106	80 - 120	2013-05-09

Standard (CCV-3)

QC Batch: 101192 Date Analyzed: 2013-05-09 Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	279	112	80 - 120	2013-05-09

Standard (CCV-1)

QC Batch: 101193 Date Analyzed: 2013-05-09 Analyzed By: AH

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.904	90	80 - 120	2013-05-09

Standard (CCV-2)

QC Batch: 101193 Date Analyzed: 2013-05-09 Analyzed By: AH

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.910	91	80 - 120	2013-05-09

Standard (CCV-3)

QC Batch: 101193 Date Analyzed: 2013-05-09 Analyzed By: AH

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.898	90	80 - 120	2013-05-09

Standard (CCV-1)

QC Batch: 101195 Date Analyzed: 2013-05-09 Analyzed By: AH

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.102	102	80 - 120	2013-05-09
Toluene		1	mg/kg	0.100	0.0988	99	80 - 120	2013-05-09
Ethylbenzene		1	mg/kg	0.100	0.0974	97	80 - 120	2013-05-09
Xylene		1	mg/kg	0.300	0.284	95	80 - 120	2013-05-09

Standard (CCV-2)

QC Batch: 101195 Date Analyzed: 2013-05-09 Analyzed By: AH

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0961	96	80 - 120	2013-05-09
Toluene		1	mg/kg	0.100	0.0932	93	80 - 120	2013-05-09
Ethylbenzene		1	mg/kg	0.100	0.0915	92	80 - 120	2013-05-09
Xylene		1	mg/kg	0.300	0.269	90	80 - 120	2013-05-09

Standard (CCV-3)

QC Batch: 101195 | Date Analyzed: 2013-05-09 | Analyzed By: AH

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0986	99	80 - 120	2013-05-09
Toluene		1	mg/kg	0.100	0.0962	96	80 - 120	2013-05-09
Ethylbenzene		1	mg/kg	0.100	0.0948	95	80 - 120	2013-05-09
Xylene		1	mg/kg	0.300	0.278	93	80 - 120	2013-05-09

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Mininum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-12-4	Midland

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Result Comments

1 Dilution due to turbidity.
2 Dilution due to turbidity.
3 Dilution due to turbidity.

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

13050801

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 1

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: COG

SITE MANAGER: IKE TAVAREZ

PROJECT NO.: 112C04998

PROJECT NAME: COG-Dodd Federal #128 Eddy Co, NM

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	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 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
328293	5/7		S		X	CS-1 (AH-2) 2'	1				X		X	X														
294	5/7		S		X	CS-1 (AH-2) 3'	1				X		X	X														
295	5/7		S		X	CS-1 (AH-2) 4'	1				X		X	X														

RELINQUISHED BY: (Signature) Date: 5-7-13 Time: 1315

RECEIVED BY: (Signature) Date: May 7, 2013 Time: 1445

RELINQUISHED BY: (Signature) Date: May 7, 2013 Time: 1645

RECEIVED BY: (Signature) Date: 5/7/13 Time: 16:45

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

SAMPLED BY: (Print & Initial) Maren Kinsolving / MK Date: Time:

SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS

AIRBILL #:

OTHER:

RECEIVING LABORATORY: TRACE

ADDRESS:

CITY: MIDLAND STATE: TX ZIP:

CONTACT: PHONE:

RECEIVED BY: (Signature)

DATE: TIME:

TETRA TECH CONTACT PERSON: IKE TAVAREZ

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 4.8°

REMARKS: RUSH needs Thurs AM 5/9/13 Midland - acl

Please fill out all copies - Laboratory retains Yellow copy - Return Orginal copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.