

SITE INFORMATION

Report Type: Closure Report

General Site Information:

Site:	Empire Federal SWD #3				
Company:	COG Operating LLC				
Section, Township and Range:	Unit K	Sec 10	T17S	R29E	
Lease Number:	API-30-015-37831				
County:	Eddy County				
GPS:	32.84720° N			104.06456° W	
Surface Owner:	Federa				
Mineral Owner:					
Directions:	West Loco hills at the intersection of Hwy 82 and CR 214 (Barnival Draw), travel north on CR 214 for 1.4 miles, turn right and travel 0.1 miles, turn left and travel 0.3 miles to site.				

Release Data:	1st Spill	2nd Spill	3rd Spill	4th Spill
Date Released:	11/25/2012	12/12/2012	12/14/2012	12/18/2012
Type Release:	Produced Water	Produced Water	Produced Water	Produced Water
Source of Contamination:	Load Line	Load Line	Load Line	Load Line
Fluid Released:	25 bbls	15 bbls	15 bbls	15 bbls
Fluids Recovered:	20 bbls	12 bbls	12 bbls	12 bbls

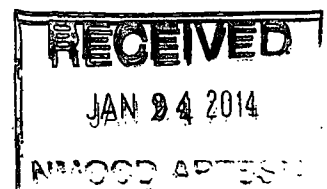
Official Communication:

Name:	Robert McNeill		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:	rmcneill@concho.com		ike.tavarez@tetrattech.com

Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	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:	10	

Acceptable Soil RRAL (mg/kg)		
Benzene	Total BTEX	TPH
10	50	1,000





TETRA TECH

August 30, 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., Empire Federal SWD #3 Releases, Unit K, Section 10, 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 four (4) spills from the Empire Federal SWD #3 located in Unit K, Section 10, Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.84720°, W 104.06456°. The site location is shown on Figures 1 and 2.

Background

1st Spill 11/25/12

According to the State of New Mexico C-141 Initial Report, the leak was discovered on November 25, 2012, and released approximately twenty five (25) barrels of produced water from the SWD load line, due to it being left open. To alleviate the problem, COG personnel closed the valve on the load line. Twenty (20) barrels of standing fluids were recovered. The spill initiated at the load line and stayed on the pad affecting an area 40' X 40' around the well head. The initial C-141 form is enclosed in Appendix A.

2nd Spill 12/12/12

According to the State of New Mexico C-141 Initial Report, the leak was discovered on December 12, 2012, and released approximately fifteen (15) barrels of produced water from the SWD load line, due to it being left open. To alleviate the problem, COG personnel closed the valve on the load line. Twelve (12) barrels of standing fluids were recovered. The spill initiated at the load line and stayed on the

Tetra Tech

1910 North Big Spring, Midland, TX 79705

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com



TETRA TECH

pad. The initial C-141 form is enclosed in Appendix A.

3rd Spill 12/14/12

According to the State of New Mexico C-141 Initial Report, the leak was discovered on December 14, 2012, and released approximately fifteen (15) barrels of produced water from the SWD load line, due to it being left open. To alleviate the problem, COG personnel closed the valve on the load line. Twelve (12) barrels of standing fluids were recovered. The spill initiated at the load line and stayed on the pad. The initial C-141 form is enclosed in Appendix A.

4th Spill 12/18/12

According to the State of New Mexico C-141 Initial Report, the leak was discovered on December 18, 2012, and released approximately fifteen (15) barrels of produced water from the SWD load line, due to it being left open. To alleviate the problem, COG personnel closed the valve on the load line. Twelve (12) barrels of standing fluids were recovered. The spill initiated at the load line and stayed on the pad. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 10. According to the NMOCD groundwater map, the average depth to groundwater in this area is approximately 75' to 100' 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 1,000 mg/kg.

Soil Assessment and Analytical Results

On January 23, 2013, Tetra Tech personnel inspected and sampled the spill area. Five (5) auger holes (AH-1 through AH-5) 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



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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, none of the samples exceeded the RRAL for TPH and BTEX. A shallow chloride impact was detected in the areas of AH-1, AH-2 and AH-4, with concentrations at 0-1' of 4,910 mg/kg, 10,700 mg/kg and 3,990 mg/kg, respectively. The deeper samples significantly declined with depth at 1-1.5' below surface and were all vertically defined. The areas of AH-3 and AH-5 showed a deeper impact to the soils. Auger hole (AH-3) detected elevated chlorides from surface to 3.0' below surface and declined to 624 mg/kg at 4.0' below surface. However, AH-5 was not vertically defined, with a bottom auger hole sample of 2,360 mg/kg at 3-3.5' below surface.

Site Remediation and Conclusion

On June 19, 2013, Tetra Tech personnel supervised the excavation of the impacted soils. The excavated areas and depths are highlighted in Table 1 and shown on Figure 4. In order to remove the chloride impacts, the excavation depths ranged from 1.0' to 5.0' below surface. Once excavated, Tetra Tech collected confirmation samples from the excavation sidewalls and bottoms. The sampling results are shown in Table 1.

Referring to Table 1, the confirmation samples did not show any elevated remaining chlorides in the soils, except for the areas of AH-1 and AH-2 (south sidewalls) showed chlorides of 2,810 mg/kg and 5,120 mg/kg, respectively. These areas were not excavated due to facility or lines in the area. In addition, AH-1 (north sidewall) did show a chloride concentrations slightly above are target level of 1,000 mg/kg.

Approximately 490 cubic yards³ 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.

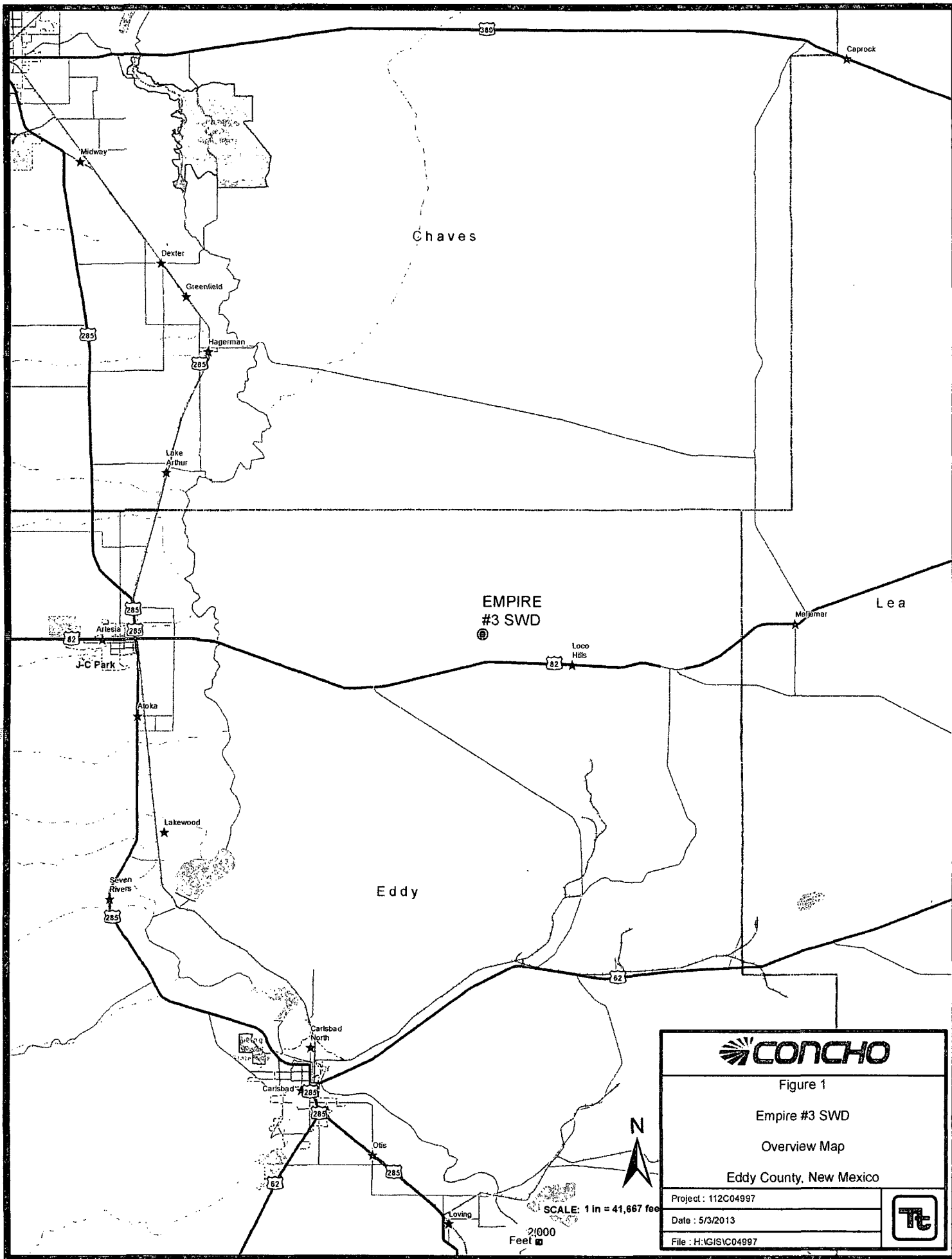
Based on the remediation activities performed at this location, COG requests closure for this site. The C-141's (Finals) are included in Appendix A. If you have any questions or comments concerning the assessment or the remediation activities performed at the site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavarez, PG
Senior Project Manager

cc: Pat Ellis – COG
Jeff Robertson - BLM

Figures



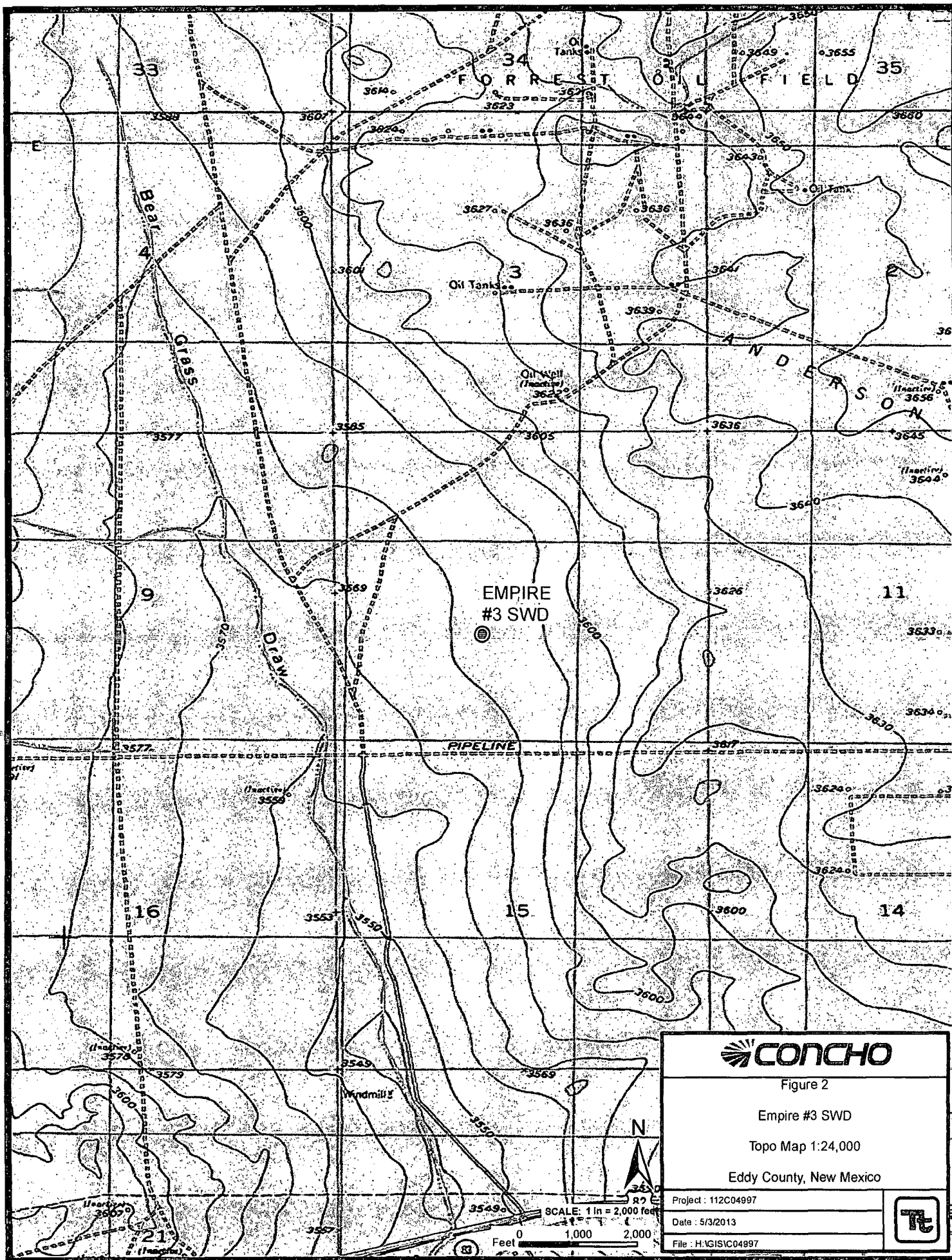


Figure 2

Empire #3 SWD

Topo Map 1:24,000

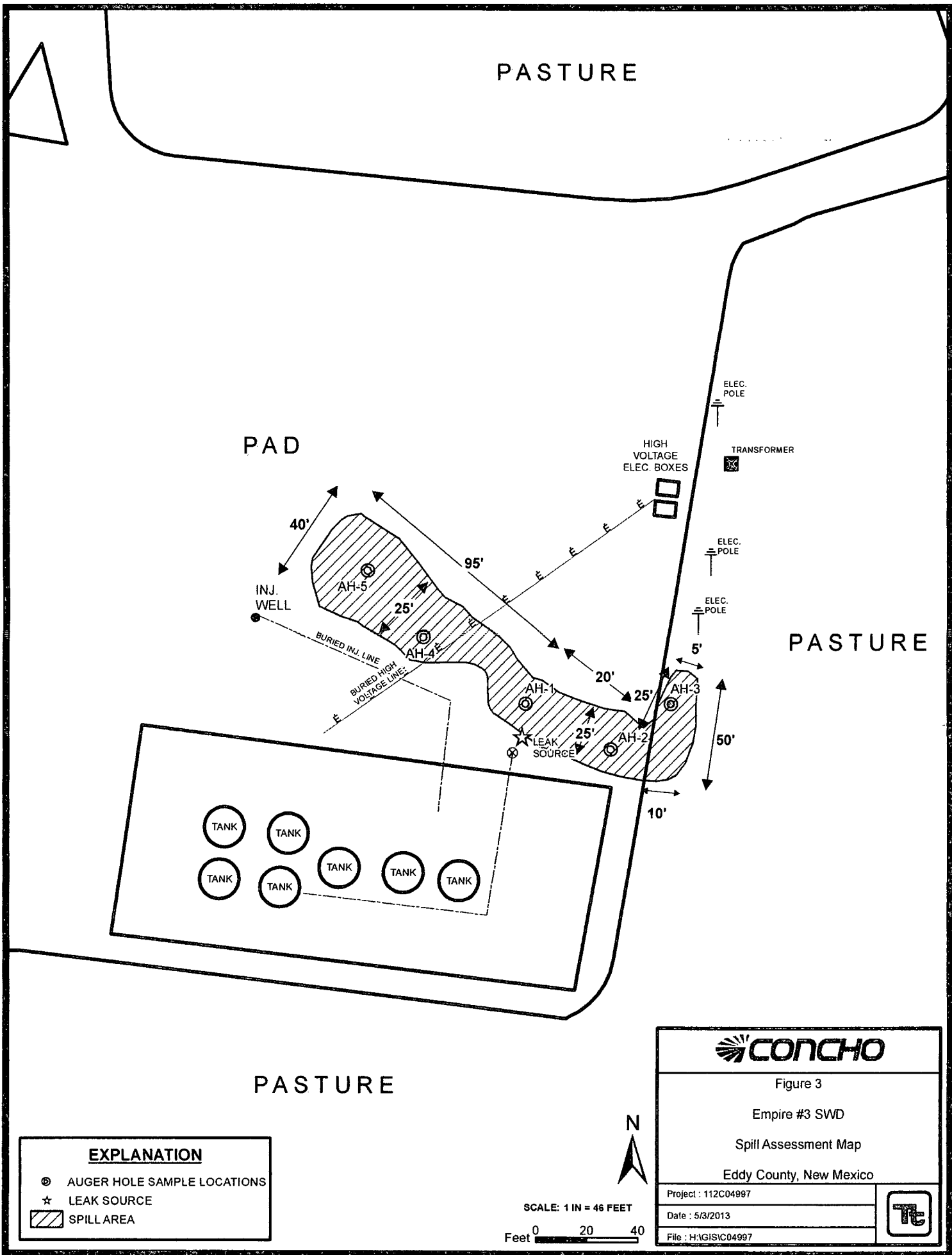
Eddy County, New Mexico

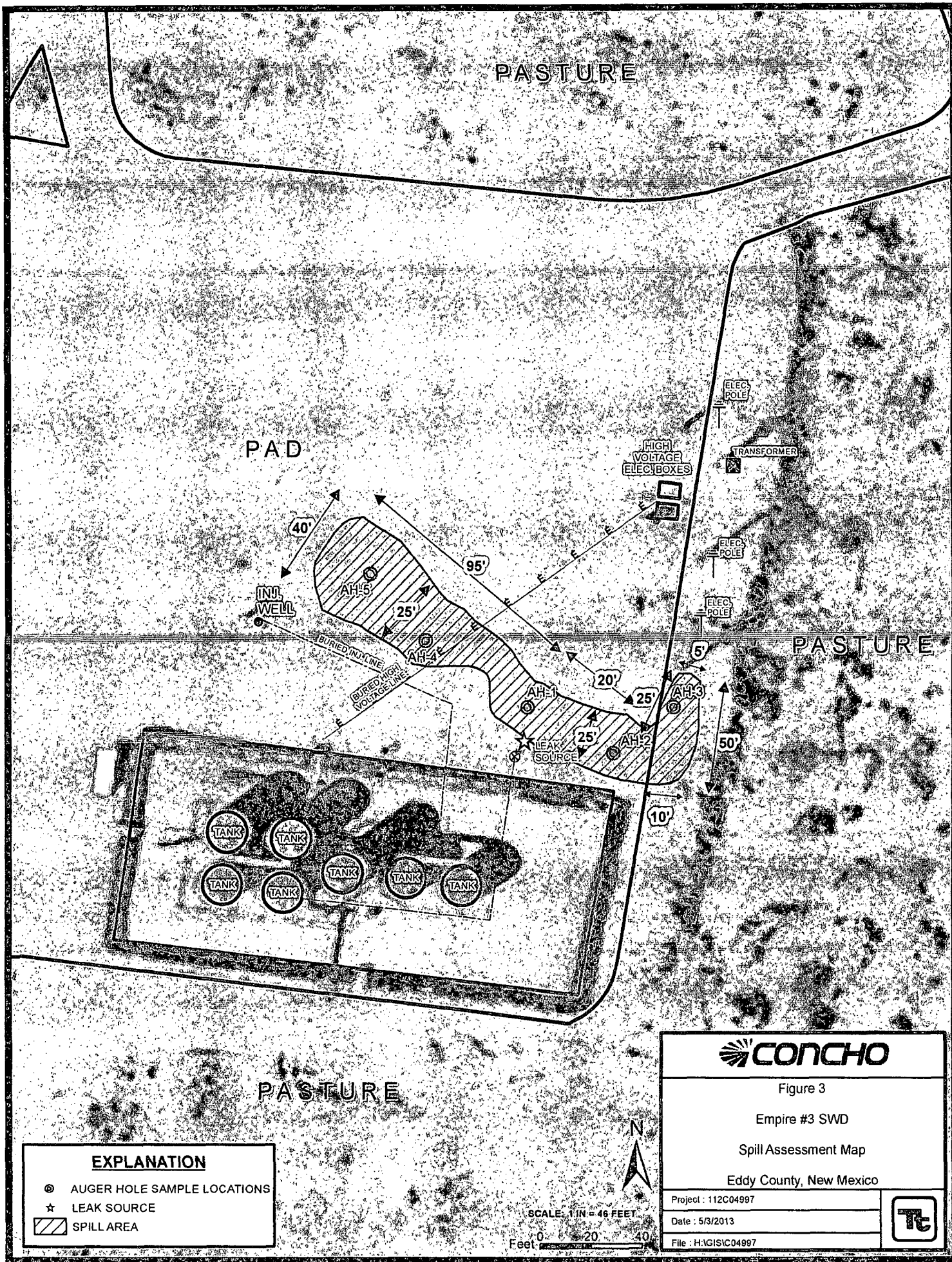
Project : 112C04997

Date : 5/3/2013

File : H:\GISVC04997







PASTURE

PAD

HIGH
VOLTAGE
ELEC. BOXES

ELEC.
POLE

TRANSFORMER

ELEC.
POLE

ELEC.
POLE

PASTURE

PASTURE

EXPLANATION

- ⊙ AUGER HOLE SAMPLE LOCATIONS
- ☒ TRENCH LOCATION
- ☆ LEAK SOURCE
- ⊙ CONFIRMATION SAMPLE LOCATIONS
- ▨ EXCAVATION AREAS



SCALE: 1 IN = 48 FEET

Feet 0 20 40



Figure 4

Empire #3 SWD

Excavation Areas & Depths Map

Eddy County, New Mexico

Project : 112C04997

Date : 5/3/2013

File : H:\GIS\C04997



Tables

Eddy County, New Mexico

[illegible]

Table 1
COG Operating LLC.
Empire Federal Salt Water Disposal #3
Eddy County, New Mexico

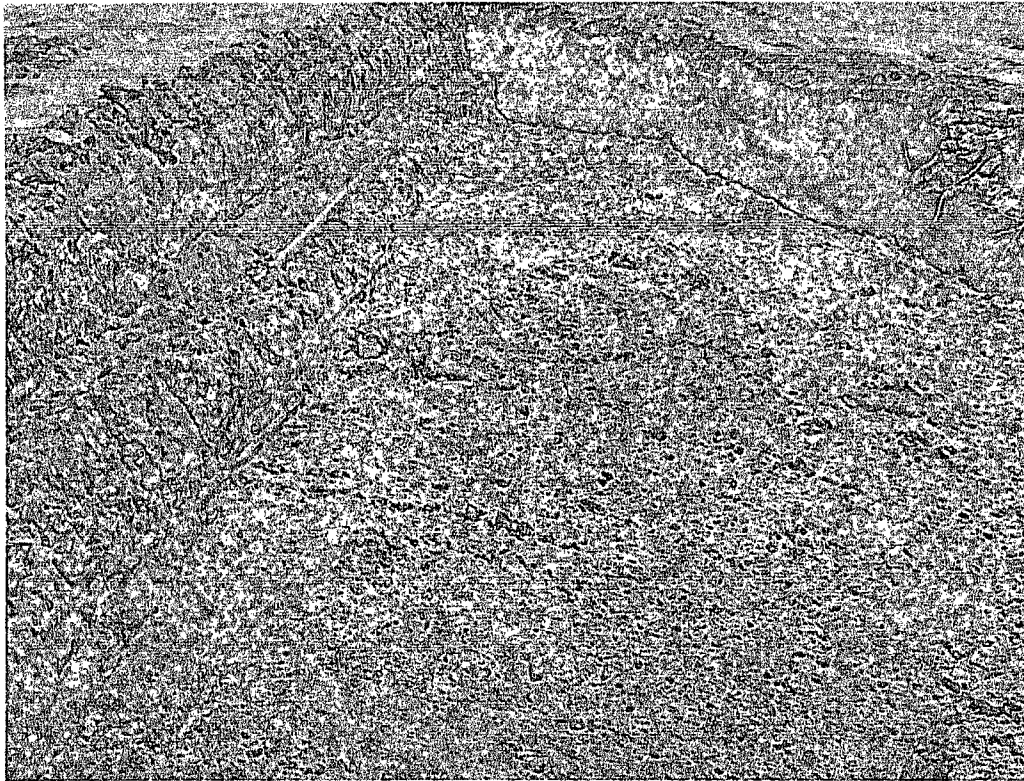
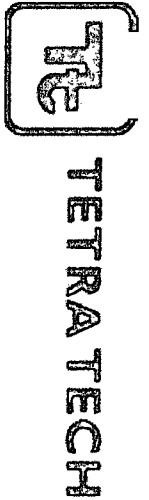
Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-4	1/23/2013	0-1		X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	3,990
	"	1-1.5	X		-	-	-	-	-	-	-	-	795
	"	2-2.5	X		-	-	-	-	-	-	-	-	<20.0
CS-4 NSW	6/25/2013	1	X		-	-	-	-	-	-	-	-	765
CS-4 SSW	"	1	X		-	-	-	-	-	-	-	-	1,070
CS-4 Bottom Hole	"	1	X		-	-	-	-	-	-	-	-	479
AH-5	1/23/2013	0-1		X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	7,990
	"	1-1.5		X									5,520
	"	2-2.5		X									4,090
	"	3-3.5		X									2,360
T-1	6/25/2013	0		X									3,740
	"	2		X									7,580
	"	4		X									1,370
	"	6	X		-	-	-	-	-	-	-	-	<20.0
	"	8	X		-	-	-	-	-	-	-	-	<20.0
	"	10	X		-	-	-	-	-	-	-	-	<20.0
	"	12	X		-	-	-	-	-	-	-	-	55.3
CS-5 NSW	6/25/2013	5	X		-	-	-	-	-	-	-	-	<20.0
CS-5 SSW	"	5	X		-	-	-	-	-	-	-	-	104
CS-5 WSW	"	5	X		-	-	-	-	-	-	-	-	168
CS-5 Bottom Hole	"	5	X		-	-	-	-	-	-	-	-	158

(-) Not Analyzed

Excavated Depths

Photos

COG Operating LLC
Empire Federal SWD #3
Eddy County, New Mexico



View West – Area of AH-5.



Area of Trench-1 in AH-5.

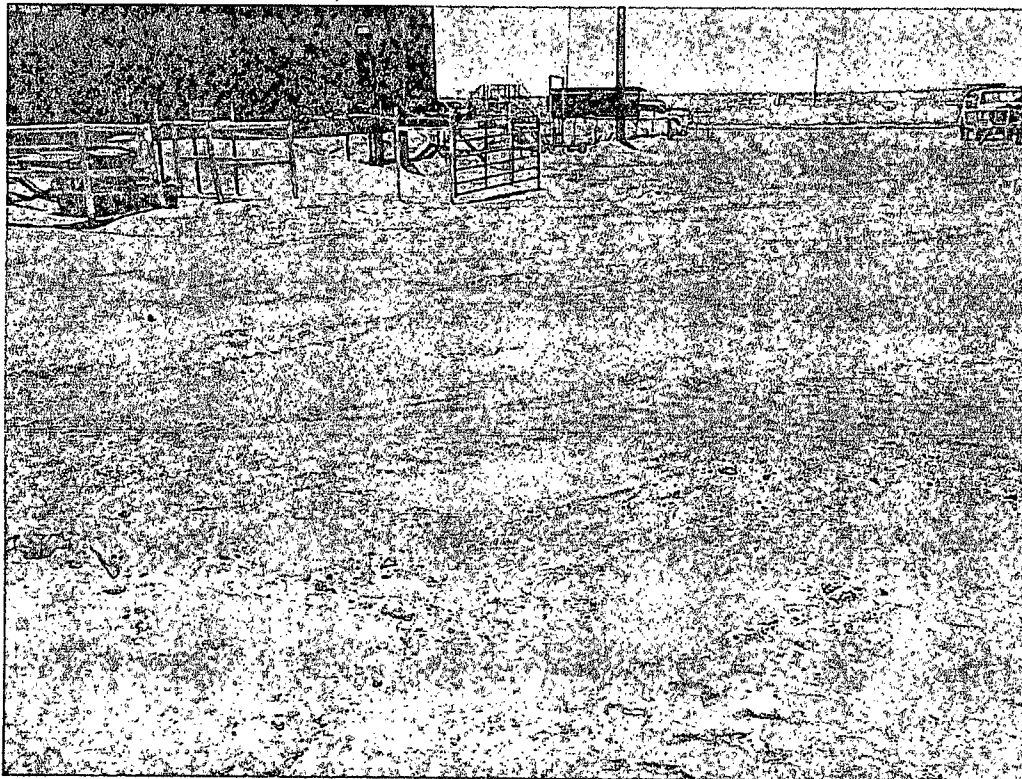
COG Operating LLC
Empire Federal SWD #3
Eddy County, New Mexico



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View Southeast– Backfill



View West – 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

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	Empire Federal SWD #3	Facility Type	SWD

Surface Owner	Federal	Mineral Owner		Lease No. (API#)	30-015-37831
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	10	17S	29E					Eddy

Latitude 32.84736 Longitude 104.06480

NATURE OF RELEASE

Type of Release Produced water		Volume of Release 25bbls	Volume Recovered 20bbls
Source of Release Ball valve on trucking load line		Date and Hour of Occurrence 11/25/2012	Date and Hour of Discovery 11/25/2012 12:30 p.m.
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required		If YES, To Whom? Mike Bratcher-OCD	
By Whom? Michelle Mullins		Date and Hour 11/26/2012 4:27 p.m.	
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.*

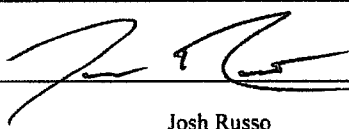
Describe Cause of Problem and Remedial Action Taken.*

The ball valve on the load line was partially left open causing a release of produced water. The ball valve has been closed.

Describe Area Affected and Cleanup Action Taken.*

Initially 25bbls of produced water were released from the ball valve at the load line and we were able to recover 20bbls with a vacuum truck. The entire release remained on the pad location and measured and area of 40' x 40' around the wellhead. The location has been scraped and contaminated caliche has been hauled to disposal. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a 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 <input type="checkbox"/>
Date: 12/06/2012 Phone: 432-212-2399			

* Attach Additional Sheets If Necessary

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Facility Name	Empire Federal SWD #3	Facility Type	SWD
Surface Owner: Federal		Mineral Owner	Lease No. (API#)30-015-37831

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	10	17S	29E					Eddy

Latitude N32.84736° Longitude W104.06480°

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release 25 bbls	Volume Recovered 20 bbls
Source of Release: Ball Valve on trucking load line.	Date and Hour of Occurrence 11/25/2012	Date and Hour of Discovery 11/25/2012 4:27 p.m.
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	
By Whom? Michelle Mullins	Date and Hour 11/26/2012 4:27 p.m.	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

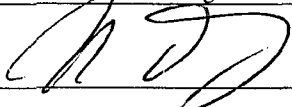
Describe Cause of Problem and Remedial Action Taken.*

The ball valve on the load line was partially left open causing a release of produced water. The ball valve has been closed.

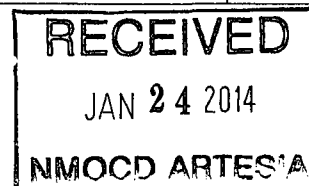
Describe Area Affected and Cleanup Action Taken.*

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 <input type="checkbox"/>
Date: 8/30/13 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary



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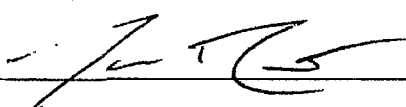
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Surface Owner	Federal	Mineral Owner	
		Lease No. (API#)	30-015-37831

LOCATION OF RELEASE

Unit Letter K	Section 10	Township 17S	Range 29E	Feet from the	North/South Line	Feet from the	East/West Line	County Eddy
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Latitude 32.84736 Longitude 104.06480

NATURE OF RELEASE

Type of Release	Produced water	Volume of Release	15bbls	Volume Recovered	12bbls
Source of Release	Ball valve on trucking load line	Date and Hour of Occurrence	12/12/2012	Date and Hour of Discovery	12/12/2012 7:00 a.m.
Was Immediate Notice Given?	<input type="checkbox"/> Yes <input checked="" 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.*					
The ball valve on the load line was partially left open causing a release of produced water. The ball valve has been closed.					
Describe Area Affected and Cleanup Action Taken.*					
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Signature: 		<u>OIL CONSERVATION DIVISION</u>			
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 <input type="checkbox"/>
Date: 12/27/2012 Phone: 432-212-2399					

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Surface Owner: Federal	Mineral Owner	Lease No. (API#)30-015-37831
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LOCATION OF RELEASE

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------------------	---------------	-----------------	--------------	---------------	------------------	---------------	----------------	----------------

Latitude N32.84736° Longitude W104.06480°

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release 15 bbls	Volume Recovered 12 bbls
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By Whom? Michelle Mullins	Date and Hour	
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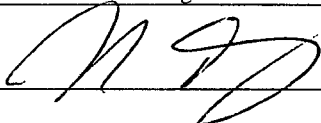
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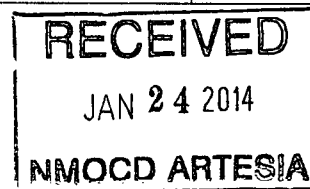
Describe Area Affected and Cleanup Action Taken.*

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.

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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@tetrattech.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 8/30/13 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	Empire Federal SWD #3	Facility Type	SWD

Surface Owner	Federal	Mineral Owner		Lease No. (API#)	30-015-37831
---------------	---------	---------------	--	------------------	--------------

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	10	17S	29E					Eddy

Latitude 32.84736 Longitude 104.06480

NATURE OF RELEASE

Type of Release	Produced water	Volume of Release	15bbls	Volume Recovered	12bbls
Source of Release	Ball valve on trucking load line	Date and Hour of Occurrence	12/14/2012	Date and Hour of Discovery	12/14/2012 7:00 a.m.
Was Immediate Notice Given?	<input type="checkbox"/> Yes <input checked="" 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.*

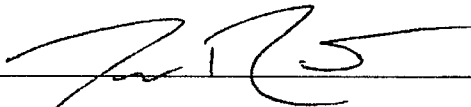
Describe Cause of Problem and Remedial Action Taken.*

The ball valve on the load line was partially left open causing a release of produced water. The ball valve has been closed.

Describe Area Affected and Cleanup Action Taken.*

Initially 15bbls of produced water were released from the ball valve at the load line and we were able to recover 12bbls with a vacuum truck. The location has been scraped and contaminated caliche has been hauled to disposal. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a 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 <input type="checkbox"/>
Date: 12/27/2012 Phone: 432-212-2399			

* Attach Additional Sheets If Necessary

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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	Empire Federal SWD #3	Facility Type	SWD

Surface Owner: Federal	Mineral Owner	Lease No. (API#)30-015-37831
------------------------	---------------	------------------------------

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	10	17S	29E					Eddy

Latitude N32.84736° Longitude W104.06480°

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release 15 bbls	Volume Recovered 12 bbls
Source of Release: Ball Valve on trucking load line.	Date and Hour of Occurrence 12/14/2012	Date and Hour of Discovery 12/14/2012 7:00 a.m.
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom? Michelle Mullins	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

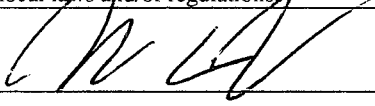
Describe Cause of Problem and Remedial Action Taken.*

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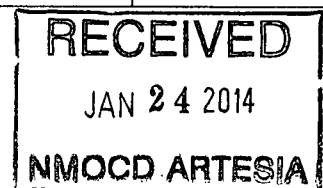
Describe Area Affected and Cleanup Action Taken.*

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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@tetrattech.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 8-30-13 Phone: (432) 682-4559		

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Surface Owner	Federal	Mineral Owner		Lease No. (API#)	30-015-37831
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By Whom?	Date and Hour				
Was a Watercourse Reached?	If YES, Volume Impacting the Watercourse.				
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					

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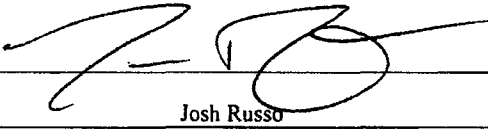
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Signature:				OIL CONSERVATION DIVISION	
Printed Name:	Josh Russo			Approved by District Supervisor:	
Title:	Senior Environmental Coordinator			Approval Date:	Expiration Date:
E-mail Address:	jrusso@concho.com			Conditions of Approval:	Attached <input type="checkbox"/>
Date:	12/27/2012			Phone:	432-212-2399

* Attach Additional Sheets If Necessary

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By Whom? Michelle Mullins	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	

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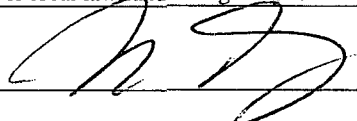
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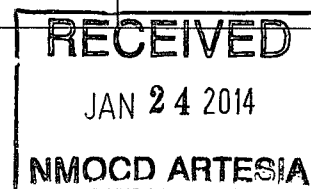
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Signature: 	OIL CONSERVATION DIVISION	
Printed Name: Ike Tavarez (agent for COG)	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@tetrattech.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 8-30-13 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary



Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG-Empire Federal SWD #3
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	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	13
19	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	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	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29 210	28	27	26	25
31	32	33	34	35	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	3	2	1
7	49	8	9	10	11
18	17	16	15	14	13
19	20	21	22	23	24
49	29	28	27	26	25
31	32	33	34	35	36

18 South			29 East		
6	5	4	3	2	1
7	8	9	10	95	11
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

(Corrected Report)

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

Report Date: February 11, 2013

Work Order: 13012803



Project Location: Eddy Co., NM
Project Name: COG/Empire Fed SWD #3
Project Number: 112C04997

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
319460	AH-1 0-1'	soil	2013-01-23	00:00	2013-01-25
319461	AH-1 1-1.5'	soil	2013-01-23	00:00	2013-01-25
319462	AH-1 2-2.5'	soil	2013-01-23	00:00	2013-01-25
319463	AH-1 3-3.5'	soil	2013-01-23	00:00	2013-01-25
319464	AH-1 4-4.5'	soil	2013-01-23	00:00	2013-01-25
319466	AH-2 0-1'	soil	2013-01-23	00:00	2013-01-25
319467	AH-2 1-1.5'	soil	2013-01-23	00:00	2013-01-25
319468	AH-2 2-2.5'	soil	2013-01-23	00:00	2013-01-25
319469	AH-2 3-3.5'	soil	2013-01-23	00:00	2013-01-25
319471	AH-3 0-1'	soil	2013-01-23	00:00	2013-01-25
319472	AH-3 1-1.5'	soil	2013-01-23	00:00	2013-01-25
319473	AH-3 2-2.5'	soil	2013-01-23	00:00	2013-01-25
319474	AH-3 3-3.5'	soil	2013-01-23	00:00	2013-01-25
319475	AH-3 4-4.5'	soil	2013-01-23	00:00	2013-01-25
319476	AH-3 5-5.5'	soil	2013-01-23	00:00	2013-01-25
319477	AH-3 6-6.5'	soil	2013-01-23	00:00	2013-01-25
319479	AH-4 0-1'	soil	2013-01-23	00:00	2013-01-25
319480	AH-4 1-1.5'	soil	2013-01-23	00:00	2013-01-25
319481	AH-4 2-2.5'	soil	2013-01-23	00:00	2013-01-25
319483	AH-5 0-1'	soil	2013-01-23	00:00	2013-01-25
319484	AH-5 1-1.5'	soil	2013-01-23	00:00	2013-01-25
319485	AH-5 2-2.5'	soil	2013-01-23	00:00	2013-01-25
319486	AH-5 3-3.5'	soil	2013-01-23	00:00	2013-01-25

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
319460 - AH-1 0-1'	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<50.0	<4.00 Qs
319466 - AH-2 0-1'	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<50.0	<4.00 Qs
319471 - AH-3 0-1'	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<50.0	<4.00 Qs
319479 - AH-4 0-1'	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<50.0	<4.00 Qs
319483 - AH-5 0-1'	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<0.0200 Qr,Qs	<50.0	<4.00 Qs

Sample: 319460 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		4910	mg/Kg	4

Sample: 319461 - AH-1 1-1.5'

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

Sample: 319462 - AH-1 2-2.5'

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

Sample: 319463 - AH-1 3-3.5'

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

Sample: 319464 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		36.8	mg/Kg	4

Sample: 319466 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		10700	mg/Kg	4

Sample: 319467 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		308	mg/Kg	4

Sample: 319468 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		152	mg/Kg	4

Sample: 319469 - AH-2 3-3.5'

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

Sample: 319471 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		4200	mg/Kg	4

Sample: 319472 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		13900	mg/Kg	4

Sample: 319473 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		10900	mg/Kg	4

Sample: 319474 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		5450	mg/Kg	4

Sample: 319475 - AH-3 4-4.5'

Param	Flag	Result	Units	RL
Chloride		624	mg/Kg	4

Sample: 319476 - AH-3 5-5.5'

Param	Flag	Result	Units	RL
Chloride		213	mg/Kg	4

Sample: 319477 - AH-3 6-6.5'

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

Sample: 319479 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		3990	mg/Kg	4

Sample: 319480 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		795	mg/Kg	4

Sample: 319481 - AH-4 2-2.5'

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

Sample: 319483 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		7990	mg/Kg	4

Sample: 319484 - AH-5 1-1.5'

Param	Flag	Result	Units	RL
Chloride		5520	mg/Kg	4

Sample: 319485 - AH-5 2-2.5'

Param	Flag	Result	Units	RL
Chloride		4090	mg/Kg	4

Sample: 319486 - AH-5 3-3.5'

Param	Flag	Result	Units	RL
Chloride		2360	mg/Kg	4

Summary Report

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

Report Date: July 5, 2013

Work Order: 13062644



Project Location: Eddy Co., NM
Project Name: COG/Empire Fed. SWD #3
Project Number: 112C04997

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
333411	CS 1 (AH-3) 3' NSW	soil	2013-06-25	00:00	2013-06-26
333412	CS 1 (AH-3) 3' ESW	soil	2013-06-25	00:00	2013-06-26
333413	CS 1 (AH-3) 3' SSW	soil	2013-06-25	00:00	2013-06-26
333414	CS 1 (AH-3) 4' BH	soil	2013-06-25	00:00	2013-06-26
333415	CS 2 (AH-2) 2' NSW	soil	2013-06-25	00:00	2013-06-26
333416	CS 2 (AH-2) 2' SSW	soil	2013-06-25	00:00	2013-06-26
333417	CS 2 (AH-2) 2' BH	soil	2013-06-25	00:00	2013-06-26
333418	CS 3 (AH-1) 1' NSW	soil	2013-06-25	00:00	2013-06-26
333419	CS 3 (AH-1) 1' SSW	soil	2013-06-25	00:00	2013-06-26
333420	CS 3 (AH-1) 1' BH	soil	2013-06-25	00:00	2013-06-26
333421	CS 4 (AH-4) 1' NSW	soil	2013-06-25	00:00	2013-06-26
333422	CS 4 (AH-4) 1' SSW	soil	2013-06-25	00:00	2013-06-26
333423	CS 4 (AH-4) 1' BH	soil	2013-06-25	00:00	2013-06-26
333424	CS 5 (AH-5) NSW	soil	2013-06-25	00:00	2013-06-26
333425	CS 5 (AH-5) SSW	soil	2013-06-25	00:00	2013-06-26
333426	CS 5 (AH-5) WSW	soil	2013-06-25	00:00	2013-06-26
333427	CS 5 (AH-5) BH	soil	2013-06-25	00:00	2013-06-26
333428	T1 (AH-5) 0'	soil	2013-06-25	00:00	2013-06-26
333429	T1 (AH-5) 2'	soil	2013-06-25	00:00	2013-06-26
333430	T1 (AH-5) 4'	soil	2013-06-25	00:00	2013-06-26
333431	T1 (AH-5) 6'	soil	2013-06-25	00:00	2013-06-26
333432	T1 (AH-5) 8'	soil	2013-06-25	00:00	2013-06-26
333433	T1 (AH-5) 10'	soil	2013-06-25	00:00	2013-06-26
333434	T1 (AH-5) 12'	soil	2013-06-25	00:00	2013-06-26
333435	CS 1 (AH-3) 4' NSW	soil	2013-06-25	00:00	2013-06-26

Sample: 333411 - CS 1 (AH-3) 3' NSW

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This is only a summary. Please, refer to the complete report package for quality control data.

Param	Flag	Result	Units	RL
Chloride		104	mg/Kg	4

Sample: 333412 - CS 1 (AH-3) 3' ESW

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

Sample: 333413 - CS 1 (AH-3) 3' SSW

Param	Flag	Result	Units	RL
Chloride		404	mg/Kg	4

Sample: 333414 - CS 1 (AH-3) 4' BH

Param	Flag	Result	Units	RL
Chloride		537	mg/Kg	4

Sample: 333415 - CS 2 (AH-2) 2' NSW

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

Sample: 333416 - CS 2 (AH-2) 2' SSW

Param	Flag	Result	Units	RL
Chloride		5120	mg/Kg	4

Sample: 333417 - CS 2 (AH-2) 2' BH

Param	Flag	Result	Units	RL
Chloride		202	mg/Kg	4

Sample: 333418 - CS 3 (AH-1) 1' NSW

Param	Flag	Result	Units	RL
Chloride		1670	mg/Kg	4

Sample: 333419 - CS 3 (AH-1) 1' SSW

Param	Flag	Result	Units	RL
Chloride		2810	mg/Kg	4

Sample: 333420 - CS 3 (AH-1) 1' BH

Param	Flag	Result	Units	RL
Chloride		49.4	mg/Kg	4

Sample: 333421 - CS 4 (AH-4) 1' NSW

Param	Flag	Result	Units	RL
Chloride		765	mg/Kg	4

Sample: 333422 - CS 4 (AH-4) 1' SSW

Param	Flag	Result	Units	RL
Chloride		1070	mg/Kg	4

Sample: 333423 - CS 4 (AH-4) 1' BH

Param	Flag	Result	Units	RL
Chloride		479	mg/Kg	4

Sample: 333424 - CS 5 (AH-5) NSW

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

Sample: 333425 - CS 5 (AH-5) SSW

Param	Flag	Result	Units	RL
Chloride		104	mg/Kg	4

Sample: 333426 - CS 5 (AH-5) WSW

Param	Flag	Result	Units	RL
Chloride		168	mg/Kg	4

Sample: 333427 - CS 5 (AH-5) BH

Param	Flag	Result	Units	RL
Chloride		158	mg/Kg	4

Sample: 333428 - T1 (AH-5) 0'

Param	Flag	Result	Units	RL
Chloride		3740	mg/Kg	4

Sample: 333429 - T1 (AH-5) 2'

Param	Flag	Result	Units	RL
Chloride		7580	mg/Kg	4

Sample: 333430 - T1 (AH-5) 4'

Param	Flag	Result	Units	RL
Chloride		1370	mg/Kg	4

Sample: 333431 - T1 (AH-5) 6'

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

Sample: 333432 - T1 (AH-5) 8'

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

Sample: 333433 - T1 (AH-5) 10'

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

Sample: 333434 - T1 (AH-5) 12'

Param	Flag	Result	Units	RL
Chloride		55.3	mg/Kg	4

Sample: 333435 - CS 1 (AH-3) 4' NSW

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