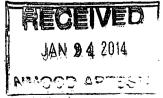
#### SITE INFORMATION Report Type: Closure Report General Site Information: Site: Empire Federal SWD #3 Company: COG Operating LLC Section, Township and Range Unit K T17S R29E Sec 10 Lease Number: API-30-015-37831 County: **Eddy County** GPS: 32.84720° N 104.06456° W Surface Owner: Federa Mineral Owner: West oco ills at the intersection of Hwy 82 and CR 214 (Barnival Draw), travel north on CR 214 for Directions: 3, 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 COG Operating, LLC Company: 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 (432) 684-7137 Fax: rmcneill@concho.com Email: ike.tavarez@tetratech.com

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

Accep	table Soil RRAL (n	ng/kg) 🔑 💮
Benzene	Total BTEX	TPH
10	50	1,000





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

1<sup>st</sup> 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.

2<sup>nd</sup> 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

Tel 432.682.4559



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

3<sup>rd</sup> 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.

4<sup>th</sup> 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



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 yards<sup>3</sup> 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.

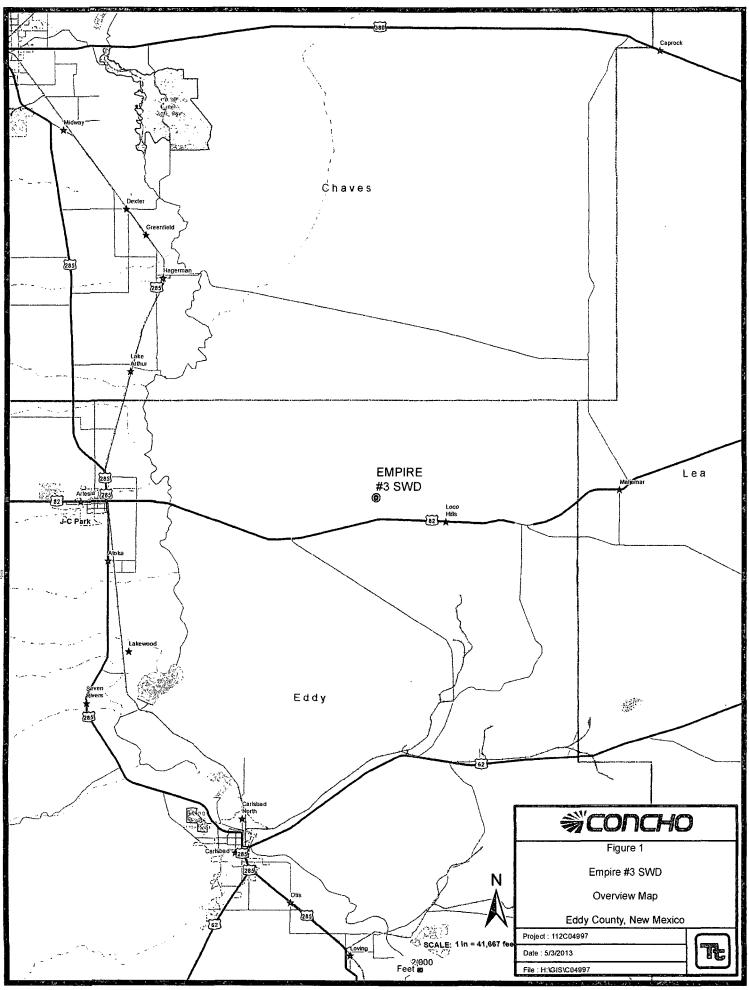
Respectfully submitted, TETRA/TECH?

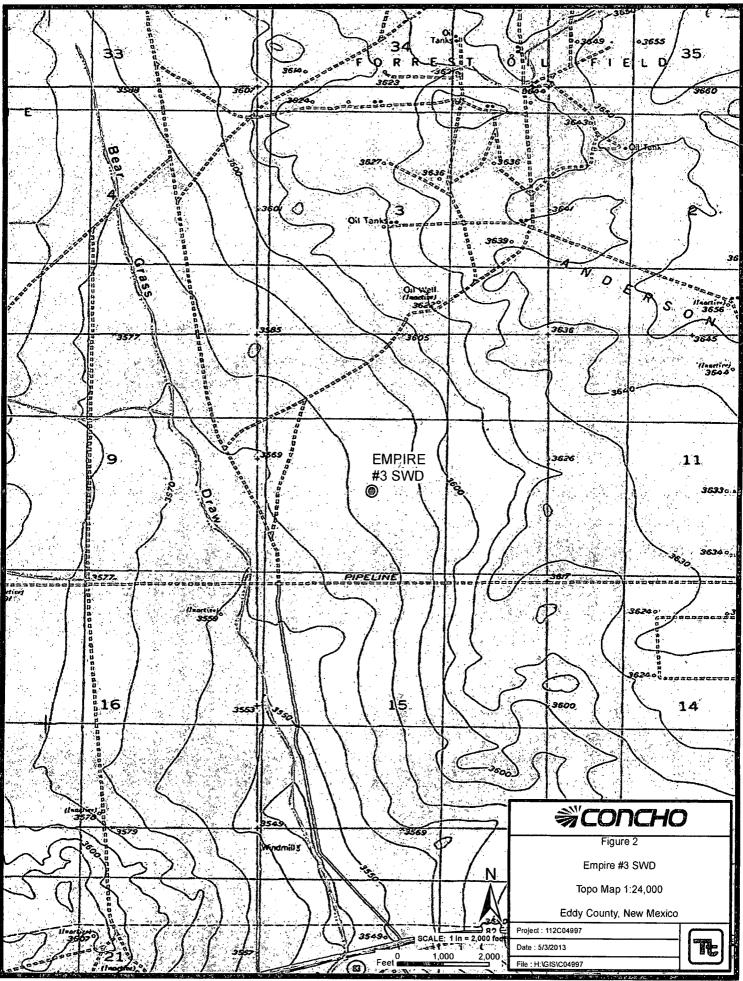
Ike Tavarez PG

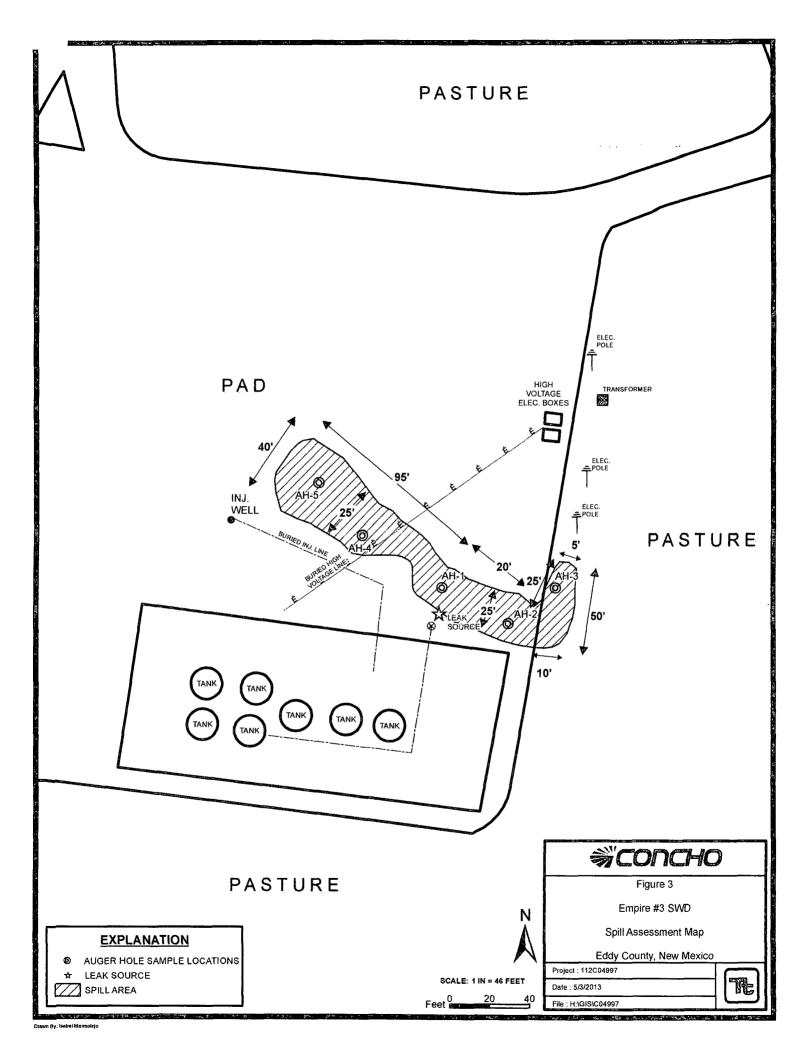
Senior Project Manager

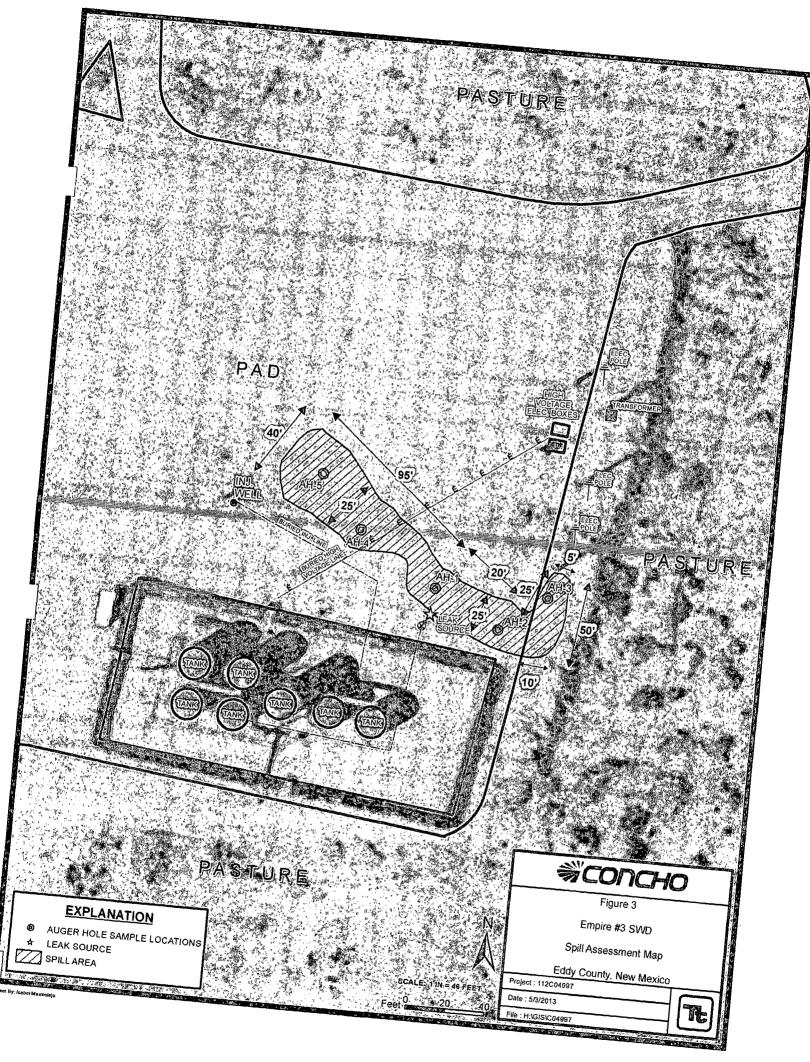
cc: Pat Ellis – COG Jeff Robertson - BLM

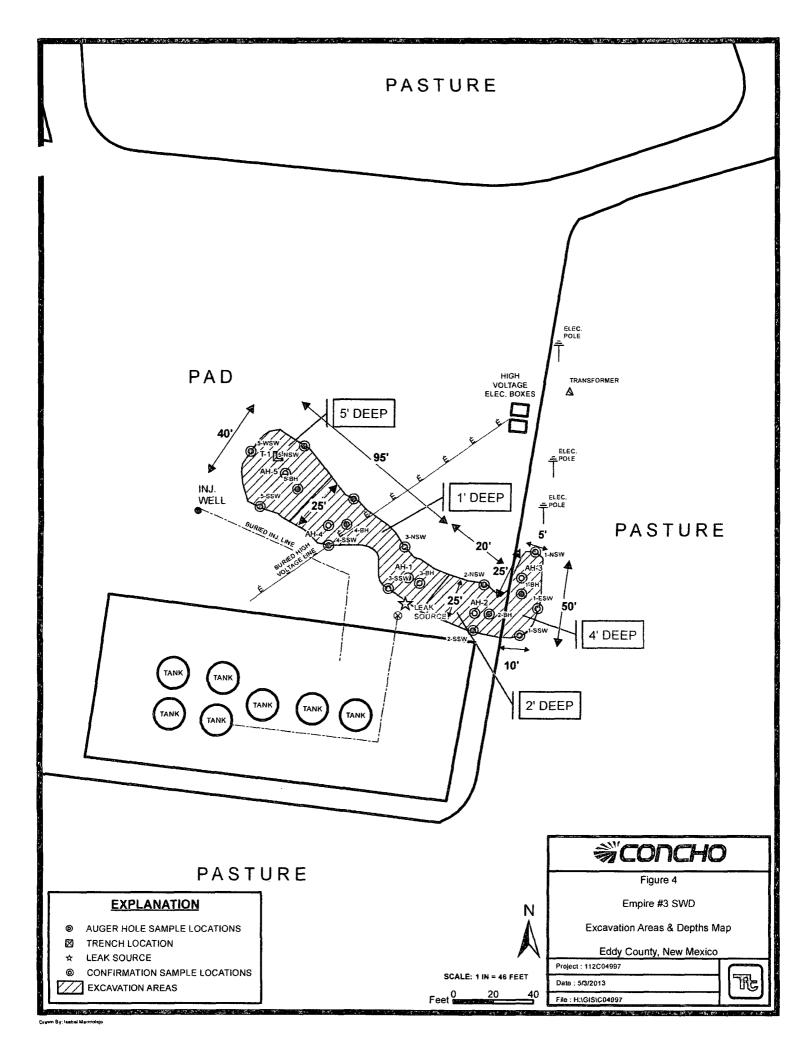
# Figures











# Tables

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

01-15	Sample	Sample	Soil	Status		ГРН (mg/k	g)	Benzene	Toluene	Ethlybenzene	Xylene	Total	Chloride
Sample ID	Date	Depth (ft)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	BTEX (mg/kg)	(mg/kg)
AH-1	1/23/2013	0-1		X	<b>&lt;4</b> .00	<50:0÷	ं<50.0	<0:0200	<0.0200	<0.0200	<0.0200	<0.0200	4,910
	<b>31</b>	1-1.5	Х		-	-	-	-	-	-	-	-	<20.0
	11	2-2.5	Х		-		-	-	-	-	-	-	<20.0
	"	3-3.5	Х		-	-	-	-	-	1	-	-	<20.0
		4-4.5	Х		-	-	-	-	-	-	-	-	36.8
CS-3 NSW	6/25/2013	1	Х		-	-	-	-	_	-	-	-	1,670
CS-3 SSW	11	1	Х		-	-	-	-	-	-	-	_	2,810
CS-3 Bottom Hole	,,	1	Х		-	-	-		-	-	-	-	49.4
AH-2	1/23/2013	3,0-1,	Jan Jan	X	<b>&lt;4.00</b>	<50.0%	*<50.0	√<0.0200	<0.0200	<0.0200	<u></u> ₹0.0200	<0.0200	:10,700
	11	<b>]</b> 1-1.5		X							<b>第二起</b>		308:0
	61	2-2.5	Х		-	-	-	-	-	-	-		152
	11	3-3.5	х		-	-	-	-	-	-	-	-	<20.0
CS-2 NSW	6/25/2013	2	Х		-	-	-	-	-	-	-	-	<20.0
CS-2 SSW	11	2	Х		-		-	-	-	-	-	-	5,120
CS-2 Bottom Hole	11	2	Х		-	-	-		-	•		-	202
AH-3	1/23/2013	0-1	E. C.	X	<sub>*</sub> <4.00 .	<b>\$50.0</b> .	<b>\$</b> <50.0	<0.0200	<0.0200	∂ <0.0200 ≥	<0.0200	<0:0200	4,200
	'n	1-1.5		<b>X</b> :			19 A	<b>3</b> 55.2555					13,900
	"	2-2.5	数线边	. X					第二章				10,900
	11	3-3.5		<b>X Y</b>		77.	通过法	2711	公司中		17.		5,450
	н	4-4.5	Х		-	-	-	-	-	-	-	-	624
	"	5-5.5	Х		-	-	-	-	-	-	-	-	213
· .	,,	6-6.5	Х		-	-	-	-	-	~		-	<20.0
CS-1 NSW	6/25/2013	4	Х		-	-	T -	-	-	-	-	-	104
CS-1 NSW	"	4	Х		-	_	-	-	-	-	-	_	<20.0
CS-1 ESW	11	4	Х		-	-	-	-	-	-	-	-	<20.0
CS-1 SSW	н	4	Х			-	-	-	-	-	-	-	404
CS-1 Bottom Hole	)1	4	Х		-	-	-	-	-	+	-	-	537

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

CS-4 NSW 6/25/2 CS-4 SSW "	2013	0-1	X X X	Removed	GRO <4:00* - -	DRO - <50.0 ₪ -	Total 2 < 50 .0	Benzene (mg/kg)	(mg/kg) <0.0200	(mg/kg)	(mg/kg)	BTEX (mg/kg) <0.0200	(mg/kg)
CS-4 NSW 6/25/ CS-4 SSW	2013	1-1.5 2-2.5	X	X		-	made CV. T	22		2 V . S. C		Lacinia variable	
CS-4 NSW 6/25/ CS-4 SSW "	2013	2-2.5	X				-	-	_				
CS-4 NSW 6/25/ CS-4 SSW "	2013	1	Х		-				! I	-	_	-	795
CS-4 SSW							-	-	-	-	-	-	<20.0
C3-4 33VV		1		1 1	-	-	-	-	-	-	_	-	765
CS 4 Bottom Holo	•		Х		-	-		-	-	-	-	-	1,070
C3-4 BOLIOIII HOIE		1	Х		-	-	-	-	-	-			479
AH-5 1/23/	2013	0-1		· , X	<4:00	<50.0·	<50.0 ·.	<0.0200	<0!0200	~ <0.0200	<b>≤</b> 0.0200	<0.0200	7,990
"		1-1.5		X									5,520.
"	"	2-2.5	À	X								\$4.25°	4,090
"	. 5	3-3.5		X		9 9 9							2,360
T-1 6/25/	2013	.0.		X	78 4 28 5 4 4			San Day	3		<b>建</b> 设 15000000000000000000000000000000000000		3,740
,,	· 55.	2 🚁		<b>X</b> .							Program		7,580
"	· 3	4		X									-1,370
11		6	Х		-	-	-	-	-	-	-	-	<20.0
"	•	8	Х		-	-	-	-	-	-	-	-	<20.0
11	r	10	Х		-	-	-	-		-	-	-	<20.0
"		12	Х			-	-	<u>-</u>	-	-	-	•	55.3
CS-5 NSW 6/25/2	2013	5	Х		- 1	-	-	-	-	-	-	-	<20.0
CS-5 SSW "	'	5	X			-	-	-	-	-	-	. 1	104
CS-5 WSW		5	Х		-	-	-	-	-	-	-	-	168
CS-5 Bottom Hole "		5	Х		-	-	-	-	-	-	-	-	158

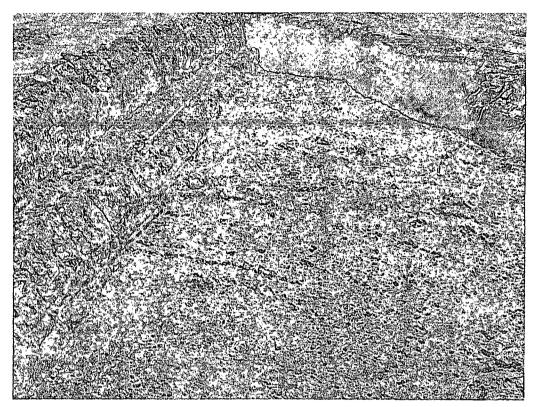
( - ) Not Analyzed

Excavated Depths

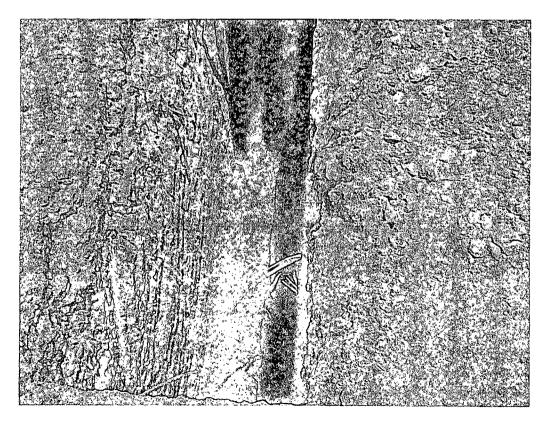
# Photos

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





View West - Area of AH-5.



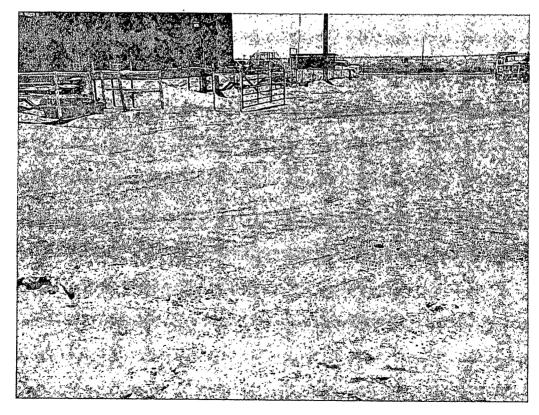
Area of Trench-1 in AH-5.

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





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

**OPERATOR** 

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

side of form

Form C-141 Revised October 10, 2003

Final Report

#### **Release Notification and Corrective Action**

Name of Company COG OPERATING LLC	Contact		at Ellis								
Address 600 West Illinois Avenue, Midland, TX 79701	Telephone N		230-0077								
Facility Name Empire Federal SWD #3	Facility Typ	e :	SWD								
Surface Owner Federal Mineral Owner			Lea	se No. (API#) 30-015-37831							
Surface Owner Teachar Printeral Owner			Lea	ac 140. (Al 1#) 50-013-57651							
LOCATIO	ON OF REI	LEASE									
Unit Letter Section Township Range Feet from the Nor K 10 17S 29E	th/South Line	Feet from the	East/West Li	ne County Eddy							
Latitude 32.8473	6 Longitu	ide 104.06480									
	E OF REL										
Type of Release Produced water		Release 25bbls		me Recovered 20bbls							
Source of Release Ball valve on trucking load line	Date and H	our of Occurrence		and Hour of Discovery							
Was Immediate Notice Given?	If YES, To		11/23	5/2012 12:30 p.m.							
✓ Yes ☐ No ☐ Not Require		Whom:	Mike Bratche	er-OCD							
By Whom? Michelle Mullins	Date and H	lour 11/26/2012	4:27 p.m.								
Was a Watercourse Reached?	If YES, Vo	lume Impacting t	he Watercours	e.							
☐ Yes ☒ No											
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 a release remained on the pad location and measured and area of 40' x 40 been hauled to disposal. Tetra Tech will sample the spill site area to de to the NMOCD/BLM for approval prior to any significant remediation	o' around the we lineate any poss	llhead. The locat	tion has been s	craped and contaminated caliche has							
I hereby certify that the information given above is true and complete to regulations all operators are required to report and/or file certain release public health or the environment. The acceptance of a C-141 report by should their operations have failed to adequately investigate and remedi or the environment. In addition, NMOCD acceptance of a C-141 report federal, state, or local laws and/or regulations.	notifications and the NMOCD mainted	nd perform correct arked as "Final Roon that pose a three the operator of a	etive actions fo eport" does no eat to ground v responsibility t	r releases which may endanger t relieve the operator of liability vater, surface water, human health for compliance with any other							
		OIL CON	SERVATIO	ON DIVISION							
Signature:		•		1							
Printed Name: Josh Russo	Approved by	District Supervise	or:								
Title: Senior Environmental Coordinator	Approval Dat	e:	Expirat	ion Date:							
E-mail Address: jrusso@concho.com	E-mail Address: jrusso@concho.com Conditions of Approval: Attached										
				Attached							

<u>District I</u> 1625 N. French Dr., Hobbs, NM 88240 <u>District II</u>

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**

_						OPERAT	TOR		☐ Initia	al Report	$\boxtimes$	Final Report
Name of Co			Operati			Contact		at Ellis				
Address				Midland, TX 797		Telephone N		230-007	77			
Facility Nan	ne	Emp	oire Fede	eral SWD #3		Facility Typ	e SWD					
Surface Ow	ner: Federa	al		Mineral Ov	vner				Lease N	No. (API#)	30-015	-37831
_				LOCA	rioi	N OF REI	LEASE					
Unit Letter K	Section 10	Township 17S	Range 29E	Feet from the	North	/South Line	Feet from the	East/W	est Line	County	Eddy	
				Latitude N32.84		•		)°				
Type of Relea	nse: Produce	ed Water		NAIC	JKE	OF RELI Volume of	Release 25 bbls		Volume F	Recovered	20 bbls	
Source of Rel	ease: Ball	Valve on truck	king load	line.	,	Date and H	our of Occurrenc	e		Hour of Dis		
Was Immedia	ite Notice G		Yes [	No Not Req	uired	If YES, To			-Ti./L	<b>.</b>		
By Whom? I							our 11/26/2012					
Was a Watero	course Reac	hed?	Yes 🛚	No		If YES, Vo N/A	lume Impacting t	he Water	rcourse.			į
If a Watercou	rse was Imp	oacted, Descri	be Fully.*			<u> </u>	•••					
Describe Cau	se of Proble	m and Remed	lial Action	Taken.*								
The ball valve	on the load	d line was part	tially left	open causing a rele	ase of	produced wat	er. The ball valve	e has bee	en closed.			
Describe Area	Affected a	nd Cleanup A	ction Tak	en.*								
Tetra Tech pe proper dispos NMOCD for a	al. The site	pected the site was then brou	and colle ght up to	cted samples to def surface grade with	ine the	e spill extents backfill mater	. Soil that exceed ial. Tetra Tech pr	led the R epared a	RAL was closure re	removed an eport and sul	d hauled omitted	I away for it to
regulations all public health should their o	operators a or the environer perations ha ment. In ac	are required to conment. The a ve failed to a dittion, NMO	report an acceptanc dequately CD accept	is true and comple d/or file certain rele e of a C-141 report investigate and ren tance of a C-141 re	ease no by the nediate	otifications and NMOCD made contamination	d perform correct arked as "Final Re on that pose a thre	tive action eport" do eat to gro	ons for rele ses not reli ound water	eases which eve the oper , surface wa	may end ator of ter, hun	danger liability nan health
Signature:							OIL CONS	SERV.	ATION	DIVISIO	<u>N</u>	
Printed Name	: Ike Tavare	ez (agent for C	COG)		Approved by District Supervisor:							
Title: Project	Manager					Approval Date:			Expiration Date:			
E-mail Addres	ss: Ike Tava	rez@tetratech	.com		(	Conditions of	Approval:			Attached		
Date: S	/30/	13	Phone:	(432) 682-4559				_				

\* Attach Additional Sheets If Necessary

RECEIVED
JAN 2 4 2014

NMOCD ARTESIA

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1800 Bis Parage Band Artes NM 87410 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

**OPERATOR** 

Form C-141 Revised October 10, 2003

Final Report

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

Initial Report

#### Release Notification and Corrective Action

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 SWD #3 Facility Type SWD  Lease No. (API#) 30-015-37831  Lease No. (API#) 30-015-37831  Location OF RELEASE  Unit Letter Section Township Range 175 Peet from the North/South Line Feet from the East/West Line County Eddy  Latitude 32.84736 Longitude 104.06480  NATURE OF RELEASE  Volume of Release 15bbls Volume Recovered 12bbls Obscure of Release Ball valve on trucking load line Date and Hour of Occurrence 12/12/2012 7:00 a.m.  Was Immediate Notice Given? Swaltercourse Reached? Swaltercourse Reached? Swaltercourse Reached? Swaltercourse Reached? Swaltercourse 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. Terra Tech will sample the spill stear tera to delineate any possible contamination from the release and we will present a work plan to the NMOCD/BLM for approval prior to any spillineat 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 nonflications and perform corrective action work.  OLL CONSERVATION DIVISION  Approved by District Supervisor:  OLL CONSERVATION DIVISION	Name of Cor	mpany	COG OP	ERATIN	G LLC	Contact Pat Ellis					
Lase No. (API#) 30-015-37831   LOCATION OF RELEASE						)1			230-007	7	
LOCATION OF RELEASE  Unit Letter K Section 178 Range 178 Peet from the North/South Line Feet from the East/West Line County Eddy  Latitude 32.84736 Longitude 104.06480  NATURE OF RELEASE  Volume of Release 15bbls Volume Recovered 12bbls  Source of Release Ball valve on trucking load line Date and Hour of Occurrence 12/12/2012 12/12/2012 7:00 a.m.  Was Immediate Notice Given?  Yes No Not Required  By Whom?  Date and Hour of Occurrence 12/12/2012 12/12/2012 7:00 a.m.  If YES, To Whom?  Date and Hour of Watercourse Reached?  If YES, Volume Impacting the Watercourse.  If YES, Volume Impacting the Watercourse.  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 stee are to delineate any possible contamination from the release and we will present a work plan to the NMOCD/DBLM 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 on NMOCD acceptance of a C-141 report by the NMOCD marked as "Final Report actions for releases which may endanger public health on NMOCD acceptance of a C-141 report by the NMOCD 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.	Facility Nam	ne	Empire F	ederal S	WD #3		Facility Typ	e	SWD_		
LOCATION OF RELEASE  Unit Letter K Section 178 Range 178 Peet from the North/South Line Feet from the East/West Line County Eddy  Latitude 32.84736 Longitude 104.06480  NATURE OF RELEASE  Volume of Release 15bbls Volume Recovered 12bbls  Source of Release Ball valve on trucking load line Date and Hour of Occurrence 12/12/2012 12/12/2012 7:00 a.m.  Was Immediate Notice Given?  Yes No Not Required  By Whom?  Date and Hour of Occurrence 12/12/2012 12/12/2012 7:00 a.m.  If YES, To Whom?  Date and Hour of Watercourse Reached?  If YES, Volume Impacting the Watercourse.  If YES, Volume Impacting the Watercourse.  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 stee are to delineate any possible contamination from the release and we will present a work plan to the NMOCD/DBLM 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 on NMOCD acceptance of a C-141 report by the NMOCD marked as "Final Report actions for releases which may endanger public health on NMOCD acceptance of a C-141 report by the NMOCD 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.	Surface Owr	ner Feder	ral		Mineral O	wner				Lease N	No. (API#) 30-015-37831
Unit Letter K Section 10 Township 17S 29E Feet from the North/South Line Feet from the East/West Line County Eddy  Latitude 32.84736 Longitude 104.06480  NATURE OF RELEASE  Volume of Release 15bbls Volume Recovered 12bbls  Date and Hour of Occurrence 12/12/2012 7:00 a.m.  Was Immediate Notice Given? Yes No Not Required  By Whom?  Date and Hour of Occurrence 12/12/2012 7:00 a.m.  If YES, To Whom?  Date and Hour of Discovery 12/12/2012 7:00 a.m.  If YES, Volume Impacting the Watercourse.  If YES, Volume Impacting the Watercourse.  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 15bb 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. In addition, NMOCD acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.  OIL CONSERVATION DIVISION  Approved by District Supervisor:									1		
Latitude 32.84736 Longitude 104.06480  NATURE OF RELEASE  Type of Release Produced water Volume of Release 13bbls Volume Recovered 12bbls  Source of Release Ball valve on trucking load line Date and Hour of Occurrence 12/12/2012 12/12/2012 7:00 a.m. If YES, To Whom?  Was Immediate Notice Given? Yes No Not Required  By Whom?  Date and Hour of Occurrence 12/12/2012 7:00 a.m. If YES, To Whom?  If YES, To Whom?  Date and Hour  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 upravant 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 for compliance with any other federal, state, or local laws and/or regulations.  OIL CONSERVATION DIVISION	[ * Y (A Y - A) - [	0-4	C						F -401/	T !	
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Source of Release Ball valve on trucking load line    Date and Hour of Occurrence   12/12/2012   12/12/2012   7:00 a.m.					NAT	URE	OF REL	EASE			
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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.  OIL CONSERVATION DIVISION  Signature:  Approved by District Supervisor:											
Signature:  Printed Name:  Josh Russo  OIL CONSERVATION DIVISION  Approved by District Supervisor:	should their or	perations h	ave failed to a	dequately	investigate and re	emedia	te contaminati	on that pose a thr	eat to grou	and water	, surface water, human health
Signature:  Printed Name:  Josh Russo  OIL CONSERVATION DIVISION  Approved by District Supervisor.					tance of a C-141 r	report o	loes not reliev	e the operator of	responsibi	ility for c	ompliance with any other
Signature:  Printed Name: Josh Russo  Approved by District Supervisor:	iedeiai, state, d	or local lav	vs and/or regu	nations.				OIL CON	SERVA	TION	DIVISION
Printed Name: Josh Russo Approved by District Supervisor:	I		7 -			ł		OIL COIN	SLICYA	111014	DIVISION
Printed Name: Josh Russo	Signature:	_/	<u> </u>	(	5						
	Printed Name		Inch	Russo	_		Approved by	District Supervis	or:		
mid O I E I I I I I I I I I I I I I I I I I	Timed Ivanie.	<u>'</u>	70311	114330					<u></u>	·····	
Title: Senior Environmental Coordinator Approval Date: Expiration Date:	Title:		Senior Enviro	nmental C	oordinator		Approval Dat	e:	Ex	piration l	Date:
E-mail Address: jrusso@concho.com Conditions of Approval:	E-mail Addres	ss:	jrusso@c	oncho.com	n		Conditions of	Approval:			Attached [7]
Attached Attached	- 15	105/0010		420	212 2222						Attached [
Date: 12/27/2012 Phone: 432-212-2399 Attach Additional Sheets If Necessary					212-2399					<del></del>	1

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

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NMOCD ARTESIA

#### **Release Notification and Corrective Action**

					OPERATOR Initial Report						Final Report	
Name of Co			Operati			Contact		at Ellis				
Address	600 We			Midland, TX 797	701	Telephone N	No. (432)	230-00	77			
Facility Nar	ne	Em	pire Fede	eral SWD #3		Facility Typ	e SWD	) ————				
Surface Ow	ner: Federa	al		Mineral Ov	wner				Lease N	lo. (API#)	30-015	-37831
				LOCA	TION	OF REI	LEASE					
Unit Letter K	Section 10	Township 17S	Range 29E	Feet from the		South Line	Feet from the	East/\	West Line	County	Eddy	4
				Latitude N32.84	4736°	Longitud	e W 104.06480	)°				
				NATU	URE	OF RELI	EASE					
Type of Rele	ase: Produc	ed Water				Volume of	Release 15 bbls	3	Volume F	Recovered	12 bbls	3
Source of Re	lease: Ball	Valve on truc	king load	line.		Date and H	lour of Occurrence	e		Hour of Dis		
Was Immedia	ate Notice C		Vac ▽	No 🛛 Not Rec	mirad	If YES, To			12/12/20	12 1.00 a.III	•	
By Whom?	Michalla Mi		163 2	1 140 🔯 1405 Kec	lunea	Date and H	lour				***	-
Was a Water					***		olume Impacting t	he Wate	ercourse.			
			Yes 🛚	No		N/A	, ,					
If a Watercou	ırse was Imp	pacted, Descr	ibe Fully.*	*		<u> </u>						
Describe Cau	se of Proble	em and Reme	dial Action	n Taken.*	<del></del>							
The ball valv	e on the load	d line was par	tially left	open causing a rele	ase of	produced was	ter. The ball valv	e has be	en closed.			
Describe Are	a Affected a	and Cleanup A	Action Tak	en.*								
	al. The site			ected samples to des surface grade with								
regulations al public health should their o	I operators a or the enviruperations had nment. In ac	are required to conment. The ave failed to a ddition, NMC	report an acceptance dequately acceptance of the control of the co	is true and comple ad/or file certain rel te of a C-141 report investigate and rer tance of a C-141 re	ease no t by the nediate	otifications ar NMOCD ma contamination	nd perform correct arked as "Final Re on that pose a thre	tive acti eport" d eat to gr	ons for rele oes not reli ound water	eases which eve the oper , surface wa	may en rator of iter, hui	ndanger Tiability man health
Signature:		119	7	Ž			OIL CONS	SERV	ATION	DIVISIO	<u>N</u>	
Printed Name	: Ike Tavar	ez (agent for	.OG)		/	Approved by District Supervisor:						
Title: Project	Manager				Approval Date: Expiration Date:							
	E-mail Address: Ike Tavarez@tetratech.com						Conditions of Approval:  Attached					
Date: Attach Addit				(+32) 002-4339								

District 1
1625 N. French Dr., Hobbs, NM 88240
District II
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### 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

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Final Report

#### Release Notification and Corrective Action

**OPERATOR** 

Name of Co		COG OP			Contact Pat Ellis						
Address				idland, TX 7970	)1	Telephone l		230-007	7		
Facility Nat	me	Empire F	ederal S	<i>N</i> D #3		Facility Typ	e S	SWD			
Surface Ow	ner Fede	ral		Mineral O	wner				Lease N	No. (API#) 30-015-37831	
				LOCA	TIO	N OF RE	LEASE				
Unit Letter	Section	Township	Range	Feet from the	North	/South Line	Feet from the	East/W	est Line	County	
K	10	17S	29E							Eddy	
L	1		<u> </u>	Latitude 32.8	84736	Longitu	ıde 104.06480	1		L	
				NAT	URE	OF REL	EASE				
Type of Rele							Release 15bbls			Recovered 12bbls	
Source of Re	lease Ball	valve on truck	ing load l	ine			lour of Occurrenc			Hour of Discovery	
Was Immedia	ate Notice (	Given?				12/14/2012 If YES, To			12/14/201	2 7:00 a.m.	
			Yes 🛭	No 🔀 Not Re	quired						
By Whom?						Date and F	lour	<del></del>			
Was a Water	course Read					If YES, Vo	lume Impacting t	he Water	course.		
		L	Yes 🗵	No							
If a Watercou	ırse was İm	pacted, Descri	be Fully.*								
Describe Cau	ise of Probl	em and Remed	dial Action	Taken.*							
The ball valve on the load line was partially left open causing a rele						f produced wa	ter. The ball valve	e has beer	n closed.		
						- F					
Describe Are	а Апестев а	and Cleanup A	Action Tak	en.*							
										n a vacuum truck. The location	
				een hauled to disp to the NMOCD/E						te any possible contamination	
i itom me rere	ase and we	wiii present a	work plan	to the NIVIOCD/E	DLIVI IC	or approvati bri	or to any significa	am remec	nation wo	rk.	
I hereby certi	fy that the i	nformation gi	ven above	is true and compl	ete to	the best of my	knowledge and u	nderstand	d that purs	uant to NMOCD rules and	
regulations a	ll operators	are required to	report an	d/or file certain re	lease	notifications a	nd perform correc	tive actio	ons for rele	eases which may endanger	
should their of	or the envir	ronment. The	acceptanc dequately	e of a C-141 repor	rt by th media	ne NMOCD m te contaminati	arked as "Final Ri	eport" do	es not reli	eve the operator of liability , surface water, human health	
or the environ	nment. In a	ddition, NMO	CD accep	tance of a C-141 r	eport	does not reliev	e the operator of i	responsib	oility for co	ompliance with any other	
		vs and/or regu			·						
			7				OIL CON	<u>SERVA</u>	<u>ATION</u>	DIVISION	
Signature:											
						Approved by	District Supervise	or:			
Printed Name: Josh Russo								<del>-</del>		~	
Title:	Title: Senior Environmental Coordinator					Approval Date: Ex			Expiration Date:		
E-mail Addre	ess:	jrusso@c	oncho.cor	n		Conditions of	Approval:			Attached	
Date: 1	2/27/2012	Phone:	432-2	212-2399							

<sup>\*</sup> 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

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#### **Release Notification and Corrective Action**

	OPERATOR Initial Report							Final Report			
Name of Company COG Operating LLC		Contact		at Ellis							
Address 600 West Illinois Avenue, Midland, TX 7970		elephone N		230-00	77						
Facility Name Empire Federal SWD #3	F	acility Typ	e SWD	)							
Surface Owner: Federal Mineral Own	ner				Lease N	lo. (API#):	30-015	-37831			
LOCAT	ION	OF REI	LEASE								
Unit Letter Section Township Range Feet from the N 10 17S 29E	North/	South Line	Feet from the	East/V	Vest Line	County	Eddy	7			
Latitude N32.847	736°	Longitud	e W 104.06480	)°							
NATU	RE (	OF RELI	EASE								
Type of Release: Produced Water		Volume of	Release 15 bbls	;	Volume R	Recovered	12 bbls	3			
Source of Release: Ball Valve on trucking load line.		Date and H	our of Occurrence	e		Hour of Dis 2 7:00 a.m.					
Was Immediate Notice Given?		If YES, To			12/14/201	2 7.00 a.m.					
☐ Yes ☒ No ☒ Not Requ	ired										
By Whom? Michelle Mullins		Date and H									
Was a Watercourse Reached? ☐ Yes ☑ No		N/A	lume Impacting t	the Wate	rcourse.						
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	se of p	produced wat	er. The ball valv	e has be	en closed.			:			
Describe Area Affected and Cleanup Action Taken.*	-,				· · · · · · · · · · · · · · · · · · ·						
Tetra Tech personnel inspected the site and collected samples to defin proper disposal. The site was then brought up to surface grade with continuous for review.	lean b	ackfill mater	ial. Tetra Tech pr	epared a	closure re	port and sub	mitted	it to			
I hereby certify that the information given above is true and complete regulations all operators are required to report and/or file certain release public health or the environment. The acceptance of a C-141 report is should their operations have failed to adequately investigate and remove the environment. In addition, NMOCD acceptance of a C-141 reported the environment of the environment of a C-141 reported that is a property of the environment of the environment.	ase no by the ediate	tifications an NMOCD macontamination	d perform correct wked as "Final Roon that pose a three	tive action eport" do eat to gro	ons for rele bes not relic ound water	ases which eve the oper surface wa	may end ator of ter, hun	danger liability nan health			
1/1////			OIL CONS	SERV	ATION	DIVISIO	N				
Signature: U // U	_										
Printed Name: Ike Tavarez (agent for COG)	A	pproved by	District Superviso	or:							
Title: Project Manager	A	pproval Date	e:	E	xpiration I	Date:					
E-mail Address: Ike Tavarez@tetratech.com	c	onditions of	Approval:			Attachad					
Date: 8-70-13 Phone: (432) 682-4559						Attached	Ч				

\* Attach Additional Sheets If Necessary

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NMOCD ARTESIA

District I
1625 N. French Dr., Hobbs, NM 88240
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Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

#### Release Notification and Corrective Action

	✓ Initia	l Report	□ F	inal Report								
Name of Co		COG OP	·			Contact		at Ellis		***************************************		
Address				idland, TX 7970		Telephone 1		230-00	77			
Facility Nar	ne	Empire F	ederal S	WD #3		Facility Typ	e S	SWD				
Surface Ow	ner Fede	ral		Mineral O	wner				Lease N	lo. (API#)	30-015-	-37831
						OF RE	LEASE	• • • • • • • • • • • • • • • • • • • •				
Unit Letter K.	Section 10	Township 17S	Range 29E	Feet from the	North/	South Line	Feet from the	East/V	Vest Line	County	Eddy	
				Latitude 32.8	34736	Longitu	ıde 104.06480					
	·····			NAT	URE	OF REL						
Type of Rele							Release 15bbls			Recovered		
Source of Re	lease Ball	valve on truck	ting load	ine		12/18/2012	lour of Occurrenc	e i		Hour of Dis 2 7:00 a.r		
Was Immedia	ate Notice (		Yes 🔯	No ⊠ Not Re	quired	If YES, To	Whom?					
By Whom?						Date and I-	lour					
Was a Water	course Read	ched?	Yes 🔀	] No		If YES, Vo	olume Impacting t	he Wate	crcourse.			
If a Watercou	ırse was Im	pacted, Descr	ibe Fully.	*								
Describe Cause of Problem and Remedial Action Taken.*									-			
The ball valv	e on the loa	ıd line was pa	tially left	open causing a rel	ease of	produced wa	ter. The ball valve	e has be	en closed.			
Describe Are	a Affected	and Cleanup	Action Tal	cen.*								
Initially 15bb	ols of produ	ced water wer	e released	from the ball valv	e at the	load line and	we were able to	recover	12bbls witi	h a vacuum	truck. Tl	he location
has been scra	ped and co	ntaminated ca	liche has t	een hauled to disp	osal. T	etra Tech wil	I sample the spill	site are	a to delinea	ite any possi	ible conta	mination
from the rele	ase and we	will present a	work plar	to the NMOCD/B	ILM for	r approval pri	or to any significa	ant reme	diation wo	rk.		
regulations at public health should their or or the environ	II operators or the envi operations h nment. In a	are required to ronment. The nave failed to a	o report an acceptant idequately ICD accep	e is true and completed in the control of the certain receive of a C-141 report investigate and restance of a C-141 received.	lease no rt by the mediate	otifications as NMOCD m contaminati	nd perform correct arked as "Final Ro on that pose a thre	tive acti eport" d eat to gr	ons for rele oes not reli ound water	eases which eve the ope , surface wa	may end rator of li iter, hum	anger ability an health
				2_	-		OIL CON	SERV	ATION	DIVISIO	<u>N</u>	
Signature:		<u>/ (</u>	1									
Printed Name	e: <i>C</i>	Josh	Russo			Approved by	District Supervise	or:				
Title:		Senior Enviro	nmental C	oordinator	Approval Date: Expiration Date:							
E-mail Addre	ess:	jrusso@c	oncho.co	m		Conditions of	Approval:			Attached		
Date:	2/27/2012	Phone	432-	212-2399	/ Madaled _						-	

<sup>\*</sup> Attach Additional Sheets If Necessary

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**NMOCD ARTESIA** 

#### **Release Notification and Corrective Action**

										inal Report	
Name of Company	COG	<b>Operati</b>	ng LLC		Contact	P	at Ellis	3			
Address 600	West Illinois A	Avenue, I	Midland, TX 79	701	Telephone I	No. (432)	230-00	)77			
Facility Name	Em	pire Fed	eral SWD #3		Facility Typ	e SWD	)				
Surface Owner: Fed	leral		Mineral O	wner				Lease N	No. (API#):	30-015-3	7831
			LOCA	TIO	N OF REI	FASE					
Unit Letter Section	n Township	Range	Feet from the		/South Line	Feet from the	East/	West Line	County		
K 10	17S	29E			, , , , , , , , , , , , , , , , , , , ,		240			Eddy	
	f <u>-</u> .	.1	Latitude N32.8	4736°	Congitud	e W104.06480	)°			· · · · · · · · · · · · · · · · · · ·	
			NAT	URE	OF REL	EASE					
Type of Release: Prod	luced Water				Volume of	Release 15 bbls	5	Volume F	Recovered	12 bbls	
Source of Release: B	all Valve on truc	king load	line.		Date and F	lour of Occurrence	ce		Hour of Dis 12 7:00 a.m		
Was Immediate Notic	e Given?				If YES, To			12/10/201	12 7.00 4.111	·	
		] Yes 🛚	No 🛛 Not Re	quired							
By Whom? Michelle	Mullins				Date and I	lour					
Was a Watercourse R						olume Impacting	the Wat	ercourse.			
	Ĺ_	Yes 🗵	] No		N/A						
If a Watercourse was	Impacted, Descr	ibe Fully.*	*	····	<u> </u>						
Describe Cause of Pro	blem and Reme	dial Action	n Taken.*				· · · · · · · · · · · · · · · · · · ·				
The ball valve on the	load line was pa	rtially left	open causing a rel	ease of	produced wa	ter. The ball valv	e has be	een closed.			
Describe Area Affecte	ed and Cleanup	Action Tak	cen.*								
Tetra Tech personnel proper disposal. The s											
I hereby certify that the regulations all operated public health or the er should their operation or the environment. I federal, state, or local	rs are required to vironment. The shave failed to a addition, NMC	o report ar acceptancadequately OCD accep	nd/or file certain re ce of a C-141 report investigate and re	lease n it by th mediat	otifications a e NMOCD m e contaminati	nd perform correct arked as "Final R on that pose a thr	ctive act deport" of reat to gr	ions for rele loes not reli round water	eases which eve the oper , surface wa	may enda ator of lia ter, huma	nger bility n health
	h	/	<b>.</b> }			OIL CON	SER <sub>V</sub>	'ATION	DIVISIO	<u>N</u>	
Signature: $\angle$		//									
Printed Name: Ike Ta	arez (agent for	COG)			Approved by	District Supervis	or:				
Title: Project Manage	er		<u> </u>		Approval Da	e:		Expiration	Date:		
E-mail Address: Ike T	avarez@tetratec	h.com			Conditions of	Approval:			Attached	П	
Data:	70-10	DL	(432) 682-4559								_
Date: O C			. (432) 002-4339				·····	TRE	CEIV	'FD	1

# Appendix B

# Water Well Data Average Depth to Groundwater (ft) COG-Empire Federal SWD #3 Eddy County, New Mexico

	16 \$	South		28 East			16 S	outh	29	East			16	South		30 East	
6	5	4	3	2	1	6	5	4	3	2	1	6	5	4	3	2	1
	8	9	10	11	12	7	8	9	10	11	12	7	8	9	10	11	1
18	17	16	15	14	13	18	17	16	15	14 220	13	18	17	16	15	14	4
			$oldsymbol{ol}}}}}}}}}}}}}}}}}$							dry							
19	20	21	22	23	24	19	20	21	22	23	24	19	20	21	22	23	2
30	29	61 28	27	26	25	110 30	29	28	27	26	25	30	29	28	27	26	- 2
31	32	33	34	35	36	31	32	33	34	35	36	31	32	33	34	35	- 3
) i	32	33		33	36	31	32	33	34	35	30	3'	32	33	34	33	ľ
	17 5	South		28 East			17 Sc	outh	29	East			17	South		30 East	i
6	5	4	3	2	1	6	5	4	3	2	1	6	5	4	3	2	1
7	8	9	10	11	12	7	8	9	10	11	12	7	8	9	10	11	1
18	17	16	15	14	13	18	17	16	SITE 15	14	13	18	17	16	15	14	1
19	20	21	22	23	24	19	20	21	22	23	24	19	20	21	22	23	12
30	29	28	<b>79</b>	26	25	30	29 210	28	80 27	26	25	30	29	28	27	26	-
30	123	20	'	]20	23	30	29 210	20	2'	20	25	30	129	20	21	20	ľ
31	32	33	34	35 <b>258</b>	36	31	32	33	34	35	36	31	32	33	34	35	3
								<u> </u>		153						ــــــــــــــــــــــــــــــــــــــ	
	18 5	South	;	28 East			18 Sc	outh	29	East			18	South	;	30 East	<u> </u>
5	5	4	3	2	1	6	5	4	3	2	1	6	5	4	3	2	1
7 49	8	108 9	10	11	12	7	8	9	10 95	11	12	7	8	9	10	11	1:
	69	1		1		ľ			" "	''		ľ	ľ		"	1	-   "
18	17	16	15	14	13	18	17	16	15	14	13	18	17	16	15	14	1
9	20	21	22	23	24	19	20	21	22	23	24	19	20	21	22	23	2
19	29	226 28	27	26	25	30	29	28	27	26	25	30	29	28	27	26	2
31	32	33	34	35	36	31	32	33	34	35	36	31	32	33	34	35	3
	1			65		<u> </u>		I -				Ι	1	1	1		ľ

55.75	New Mexico	State	Engineers	Well	Reports
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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

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	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

		BTEX				TPH GRO
	Benzene	Toluene	Ethylbenzene	Xylene	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(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	$< 4.00   \mathrm{Qs}$
319471 - AH-3 0-1'	<0.0200 Qr,Qs	<0.0200 Qr,Qs	< 0.0200 Qr,Qs	<0.0200 Qr,Qa	< 50.0	$< 4.00 \ Q_8$
319479 - AH-4 0-1'	<0.0200 Qr,Qs	$< 0.0200 \; _{Qr,Qs}$	<0.0200 Qr,Qs	<0.0200 Qr,Qe	< 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'

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Param	Flag	Result	Units	RL
Chloride		308	mg/Kg	4
Sample: 319468 - A	AH-2 2-2.5'			
Param	Flag	Result	Units	RL
Chloride		152	mg/Kg	4
Sample: 319469 - A	AH-2 3-3.5'			
Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4
Sample: 319471 - A	AH-3 0-1'			
Param	Flag	Result	Units	RL
Chloride		4200	mg/Kg	4
Sample: 319472 - A	AH-3 1-1.5'			
Param	Flag	Result	Units	RL
Chloride		13900	mg/Kg	4
Sample: 319473 - A	AH-3 2-2.5'			
Param	Flag	Result	Units	RL
Chloride		10900	mg/Kg	4
Sample: 319474 - A	AH-3 3-3.5'			
Param	Flag	Result	Units	RL
Chloride		5450	mg/Kg	4
Sample: 319475 - A	AH-3 4-4.5'			
Param	Flag	Result	Units	RL
Chloride		624	mg/Kg	4

Report Date: February 11, 2013	Work Order: 130128	03 Page	Number: 4 of 5
Sample: 319476 - AH-3 5-5.5	,		
Param Fla	ng Result	Units	RL
Chloride	213	mg/Kg	4
Sample: 319477 - AH-3 6-6.5	,		
Param Fla	ng Result	Units	RL
Chloride	<20.0	mg/Kg	4
Sample: 319479 - AH-4 0-1'			
Param Fla	ng Result	Units	RL
Chloride	3990	mg/Kg	4
Sample: 319480 - AH-4 1-1.5	,		
Param Fla		Units	RL
Chloride	795	mg/Kg	4
Sample: 319481 - AH-4 2-2.5	,		
Param Fla	g Result	Units	RL
Chloride	<20.0	mg/Kg	4
Sample: 319483 - AH-5 0-1'			
Param Fla	g Result	Units	RL
Chloride	7990	mg/Kg	4
Sample: 319484 - AH-5 1-1.5			
Param Fla	g Result	Units	RL
Chloride	5520	mg/Kg	4
Sample: 319485 - AH-5 2-2.5			
Param Fla	g Result	Units	RL
Chloride	4090	mg/Kg	4

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Sample: 319486 - AH-5 3-3.5'

Param	Flag	Result	Units	RL
Chloride		2360	mg/Kg	4

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### **Summary Report**

Ike Tavarez 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

			Date	$\operatorname{Time}$	Date
$_{ m Sample}$	Description	Matrix	Taken	$\operatorname{Taken}$	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

Report Date: July 5, 2013		Work Order: 13062644	Page Number: 2 of 5	
Param	Flag	Result	Units	RL
Chloride		104	mg/Kg	4
Sample: 333412 - CS	1 (AH-3) 3' ESW			
Param	Flag	Result	Units	RL
Chloride	1 1005	<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	71.06	537	mg/Kg	4
Sample: 333415 - CS				
Param Chloride	Flag	Result <20.0	Units mg/Kg	$\frac{RL}{4}$
Sample: 333416 - CS	2 (AH-2) 2' SSW	2010	116/116	
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	nig/Kg	4

Report Date: July 5, 2013		Work Order: 13062644	Page Number: 3 of 5	
Sample: 333419 - C	S 3 (AH-1) 1' SSV	W		
Param	Flag	Result	Units	RL
Chloride		2810	mg/Kg	4
Sample: 333420 - C	S 3 (AH-1) 1' BH			
Param	Flag	Result	Units	RL
Chloride		49.4	mg/Kg	4
Sample: 333421 - C	'S 4 (AH-4) 1' NS	w		
Param	Flag	Result	Units	RL
Chloride		765	mg/Kg	4
Sample: 333422 - C	, ,		** ·	
Param Chloride	Flag	Result 1070	Units mg/Kg	R.L 4
Sample: 333423 - C	'S 4 (AH-4) 1' BH			
Param	Flag	Result	Units	RL
Chloride	1105	479	mg/Kg	4
Sample: 333424 - C	S 5 (AH-5) NSW			
Param	Flag	Result	Units	RL
Chloride	<u> </u>	<20.0	mg/Kg	4
Sample: 333425 - C	S 5 (AH-5) SSW			
Param	Flag	Result	Units	RL
Chloride		104	mg/Kg	4
Sample: 333426 - C	S 5 (AH-5) WSW			
Param	Flag	Result	Units	RL
Chloride		168	mg/Kg	4

Report Date: July 5, 2013	Work Order: 13062644	Page Number: 4 of 5	
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	R.L
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

 Report Date: July 5, 2013
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 Sample: 333435 - CS 1 (AH-3) 4' NSW

 Param
 Flag
 Result
 Units
 RL

 Chloride
 <20.0</th>
 mg/Kg
 4