	SITE INFORMATION									
	R	eport Type	e: Work P	lan 2	2RP-3820)				
General Site Info	ormation:									
Site:		Cluster State	Com #001H							
Company:		COG Operati								
Section, Townsh	hip and Range		Sec. 16	T 26S	R 27E					
Lease Number:		API No. 30-0	15-37547							
County:		Eddy								
Facility GPS:			32.0486679º N			104.2026672° W				
Release GPS:			32.03728° N			104.21032º W				
Surface Owner:		State								
Mineral Owner: Directions:						IITES CITY RD APPRX 7.8MI, TRN S RD & FOLLOW RD TO GPS.				
Release Data: Date Released:		8/3/2016								
Type Release:		Produced Wa	ter							
Source of Contar	mination:	Damaged Flo								
Fluid Released:		10 bbls	-							
Fluids Recovered	d:	0 bbls								
Official Commun	nication:									
Name:	Robert McNeil				Ike Tavarez	<u>:</u>				
Company:	COG Operating, LI	_C			Tetra Tech					
Address:	One Concho Cente	er			4000 N. Big	Spring				
	600 W. Illinois Ave				Ste 401					
City:	Midland Texas, 79	701			Midland, Te	exas				
Phone number:	(432) 686-3023				(432) 687-8					
Fax:	,				, , , , , ,					
Email:		resources.com			Ike.Tavare	z@tetratech.com				
	(432) 684-7137 rmcneil@concho	resources.com			lke.Tavare	z@tetratech.com				

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	
>100 ft.	0	
WellHead Protection:	Ranking Score	Site Data
Water Source <1,000 ft., Private <200 ft.	20	
Water Source >1,000 ft., Private >200 ft.	0	0
Surface Body of Water:	Ranking Score	Site Data
<200 ft.	20	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0
Total Danking Cooks	40	
Total Ranking Score:	10	_
Acc	eptable Soil RRAL (r	mg/kg)
Benzel		TPH
	50	1,000



October 3, 2016

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

Re: Work Plan for the COG Operating LLC., Cluster State Com #001H, Unit D, Section 16, Township 26 South, Range 27 East, Eddy County, New Mexico. 2RP-3820

Ms. Patterson:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC., (COG) to assess a spill from Cluster State Com #001H, Unit D, Section 16, Township 26 South, Range 27 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.03728°, W 104.21032°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on August 3, 2016, and released approximately ten (10) barrels of produced water due to a damaged flowline. None of the fluids were recovered. The initial C-141 lists the site as being in Section 16, however the release occurred in the pasture in Section 17, and measured approximately 150'x 175 and 50'x 555'. The initial C-141 form is included in Appendix A.

Groundwater

According to the NMOCD groundwater map, the average depth to groundwater in this area is less than 50' below surface. No water wells were listed within Sections 16 or 17. The site location shows an approximate surface elevation of 3305'.

One well in Section 22 is listed on the New Mexico State Engineers Well Report showed a depth to groundwater of 50' below surface and has a surface elevation of approximately 3105'. Additionally, the Geology and Groundwater Resources of Eddy County, NM (Report 3) reported two water wells in Section 5 and 13, Township 26 South, Range 27 East. These wells reported groundwater depths of 12.0' and 35.0', with surface elevations of 3105' and 3068', respectively. The well locations appear to be installed in the draw areas and may be producing from



the shallow alluvium formation. The main aquifer in the area is from the deeper Rustler Formation. Based on relative elevations, the depth to groundwater in this area appears to be greater than 50' 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 September 14, 2016 Tetra Tech personnel were onsite to evaluate and sample the release area. Eight (8) boreholes (BH-1 through BH-8) and one auger hole (AH-1) were installed to depths of 7.5' to 40.0' below surface. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. The borehole drilling logs are included in Appendix C. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix D. The sampling results are summarized in Table 1. The borehole and auger hole locations are shown on Figure 3.

Referring to Table 1, none of the areas sampled showed total TPH or BTEX concentrations above the RRAL's. However, the areas of boreholes (BH-1, BH-2, BH-3 and BH-4) as well as auger hole (AH-1) showed elevated chloride concentrations in the shallow soils.

The area of auger hole (AH-1), showed chloride concentrations that increased with depth to 15,200 mg/kg at 3-3.5' below surface before declining to 3,680 mg/kg at 4-4.5' below surface. Deeper samples were not collected due to a dense formation and the impact area was not vertically defined.

Boreholes (BH-1, BH-2, BH-3 and BH-4) showed chloride highs at 0-1' below surface with concentrations of 30,800 mg/kg, 24,400 mg/kg, 9,060 mg/kg and 13,600 mg/kg, which declined with depth with bottom hole samples of 128 mg/kg at 39-40', 144 mg/kg at 29-30', 128 mg/kg at 29-30' and 576 mg/kg at 14-15', respectively. All of the boreholes were vertically defined or significantly declined with depth. Boreholes (BH-5, BH-6, BH-7 and BH-8) did not show a significant chloride concentrations and do not appear to be an environmental concern.



Based on the results, Tetra Tech returned to the site on September 22, 2016, to confirm and define the extents in the area of auger hole (AH-1) using a stainless steel hand auger. Selected samples were analyzed chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix D. The sampling results are summarized in Table 1. The auger hole location are shown on Figure 3.

Referring to Table 1, the area of auger hole (AH-1) showed chloride concentrations that increased with depth to 12,600 mg/kg at 3-3.5' below surface. However, the chloride impact declined with depth to 37.8 mg/kg at 7-7.5' below surface. The impacted areas was vertically defined.

Work Plan

Based on the results, COG proposes to remove impacted material as highlighted (green) in Table 1 and shown on Figure 4. The areas of borehole (BH-1) and auger hole (AH-1) will be excavated to a depth of approximately 4.0' to 5.0' below surface. The areas of boreholes (BH-3 and BH-4) will be excavated to a depth of approximately 2.0' to 3.0' and 6.0' to 7.0' in the area of borehole (BH-2) to remove the chloride impacted soils. The excavated areas will be backfilled with clean material to surface grade. The excavated material will be transported offsite for proper disposal.

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

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

Respectfully submitted,

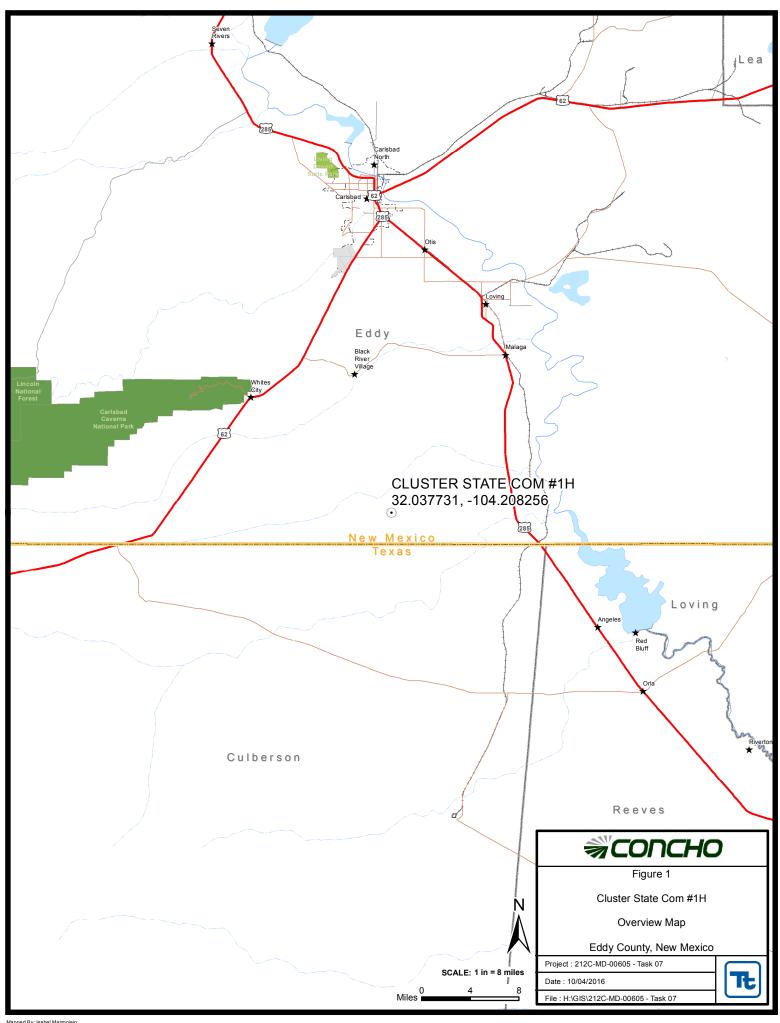
TETRA TECH

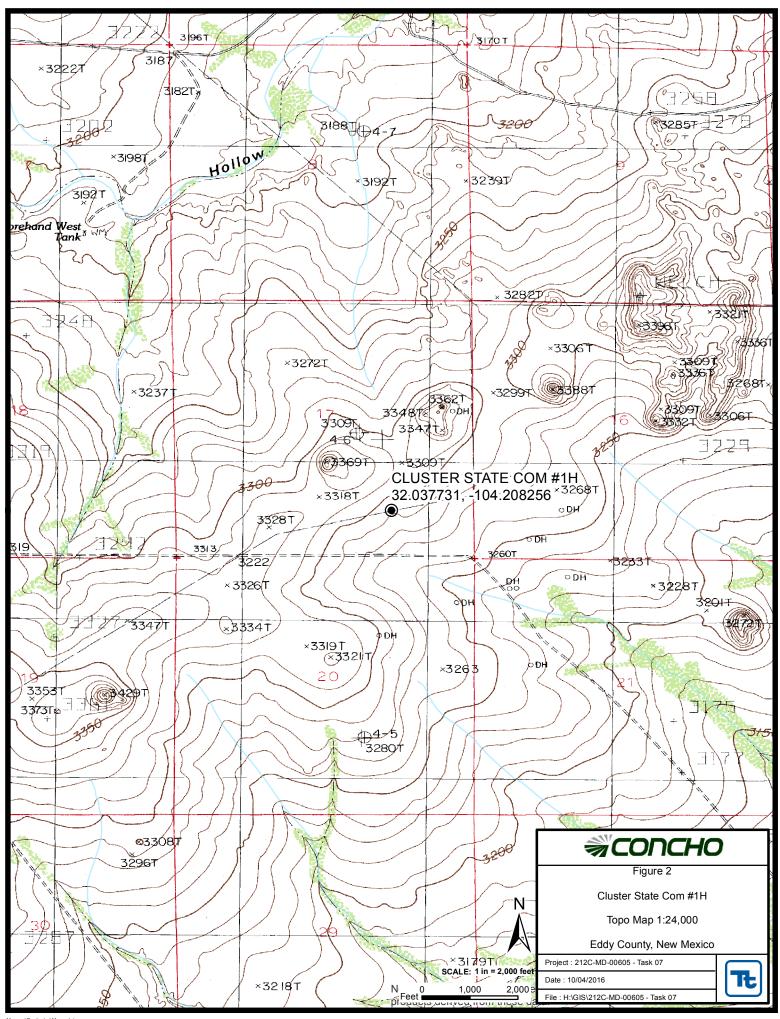
Clair Gonzales, Geologist I Ike Tavarez,

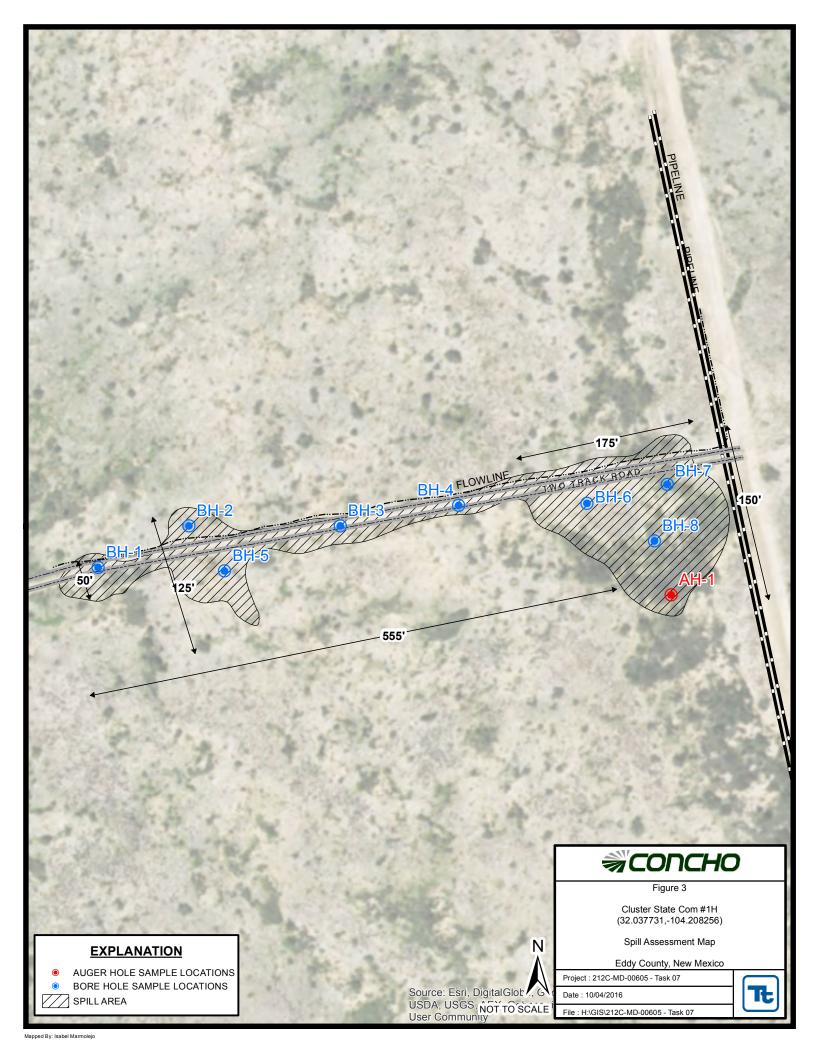
Senior Project Manager, P.G.

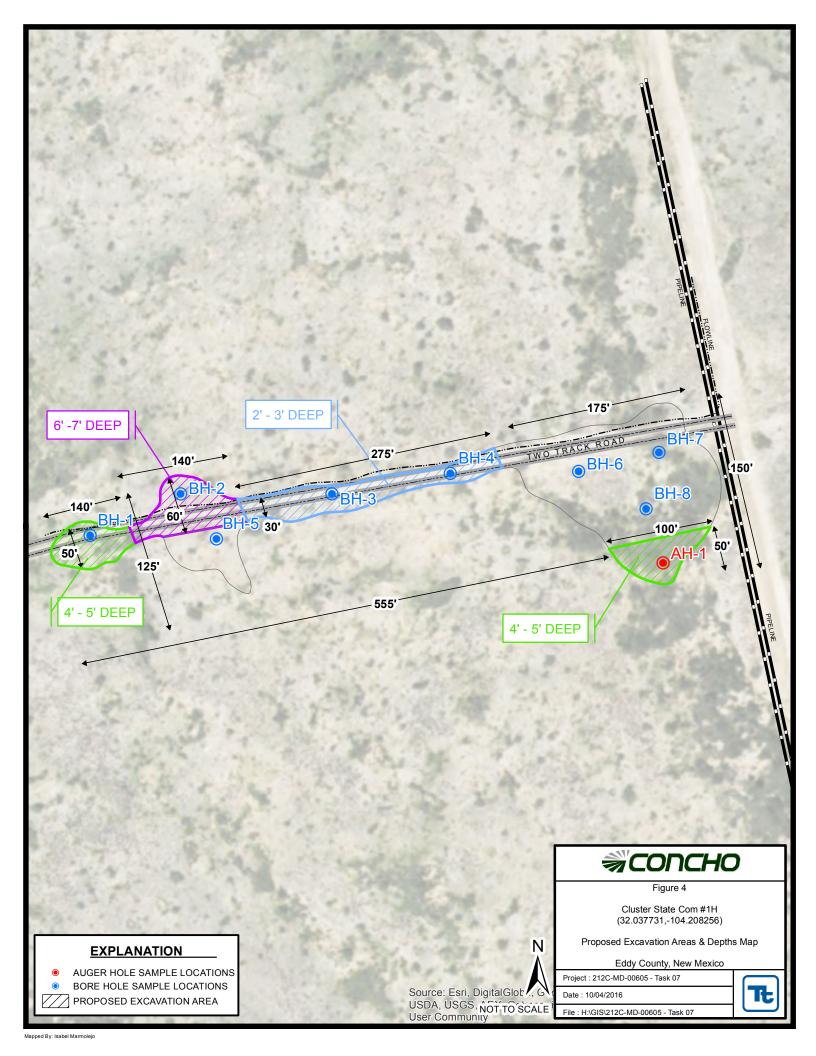
cc: Robert McNeill – COG Dakota Neel – COG

Figures









Tables

Table 1
COG Operating LLC.
Cluster State Commingle #1H
Eddy County, New Mexico

	Sample	Sample	Soil	Status	7	ΓPH (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)
BH-1	9/14/2016	0-1	Χ		<10.0	<10.0	<20.0	<0.050	<0.050	<0.050	<0.150	<0.300	30,800
	"	2-3	Χ			-	-	-	-	-	-	-	17,600
	"	4-5	Х		-	1	-	-	-	ı	-	-	2,560
_	II .	6-7	Χ		-	ı	-	-	-	ı	-	-	544
	"	9-10	Χ		-	-	-	-	-	-	-	-	80.0
	"	14-15	Χ		-	-	-	-	-	-	-	-	48.0
	"	19-20	Χ		-	-	-	-	-	-	-	-	192
	"	24-25	Χ		-	-	-	-	-	-	-	-	144
	"	29-30	Χ		-	-	-	-	-	-	-	-	96.0
	"	39-40	Х		-	-	-	-	-	-	-	-	128
BH-2	9/14/2016	0-1	Х		<10.0	<10.0	<20.0	<0.050	<0.050	<0.050	<0.150	<0.300	24,400
	ıı .	2-3	Χ		-	1	-	-	-	-	-	-	22,800
	II .	4-5	Х		-	-	-	-	-	-	-	-	8,130
	II .	6-7	Х		-	-	-	-	-	-	-	-	2,560
	II .	9-10	Х		-	-	-	-	-	-	-	-	672
	"	14-15	Х		-	-	-	-	-	-	-	-	432
	"	19-20	Х		-	-	-	-	-	-	-	-	320
	II .	24-25	Χ		-	-	-	-	-	-	-	-	272
	"	29-30	Х		-	-	-	-	-	-	-	-	144

Table 1
COG Operating LLC.
Cluster State Commingle #1H
Eddy County, New Mexico

0 1 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)
BH-3	9/14/2016	0-1	X		<10.0	<10.0	<20.0	<0.050	<0.050	<0.050	<0.150	<0.300	9,060
	"	2-3	Χ		ı	1	1	-	-	-	-	-	7,730
	"	4-5	Χ		ı	1	1	-	-	-	-	-	832
	"	6-7	Χ		ı	1	1	-	-	-	-	-	880
	"	9-10	Χ		1	-	-	-	-	-	-	-	352
	"	14-15	Х		1	1	1	-	-	-	-	-	528
	"	19-20	Χ		ı	1	1	-	-	-	-	-	624
	"	24-25	Χ		ı	ı	ı	-	-	-	-	-	288
	"	29-30	Χ		-	-	-	-	-	-	-	-	128
BH-4	9/14/2016	0-1	Х		<10.0	<10.0	<20.0	<0.050	<0.050	<0.050	<0.150	<0.300	13,600
	"	2-3	Х		-	-	-	-	-	-	-	-	12,000
	"	4-5	Χ		-	-	-	-	-	-	-	-	176
	"	6-7	Χ		-	-	-	-	-	-	-	-	160
	"	9-10	Х		-	-	-	-	-	-	-	-	288
	"	14-15	Х		-	-	-	-	-	-	-	-	576
BH-5	9/14/2016	0-1	Х		<10.0	<10.0	<20.0	<0.050	<0.050	<0.050	<0.150	<0.300	48.0
	"	2-3	Χ		1	-	-	-	-	-	-	-	288
	"	4-5	Х		-	-	-	-	-	-	-	-	48.0
	"	6-7	Χ		-	-	-	-	-	-	-	-	144
	"	9-10	Χ		-	-	-	-	-	-	-	-	96.0
	"	14-15	Х		-	-	-	-	-	-	-	-	48.0

Table 1
COG Operating LLC.
Cluster State Commingle #1H
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)		Status Removed	GRO	ГРН (mg/k DRO	g) Total	Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
BH-6	9/14/2016	0-1	Х		<10.0	<10.0	<20.0	<0.050	<0.050	<0.050	<0.150	<0.300	<16.0
	"	2-3	Х		-	-	-	-	-	-	-	-	48.0
	II .	4-5	Х		-	-	-	-	-	-	-	-	48.0
	"	6-7	Х		-	-	-	-	-	-	-	-	<16.0
	"	9-10	Х		-	-	_	-	-	-	-	-	<16.0
	II .	14-15	Х		-	-	-	-	-	-	-	-	48.0
BH-7	9/15/2016	0-1	Х		<10.0	<10.0	<20.0	<0.050	<0.050	<0.050	<0.150	<0.300	64.0
	"	2-3	Х		-	-	-	-	-	-	-	-	64.0
	"	4-5	Х		-	-	-	-	-	-	-	-	32.0
	"	6-7	Х		-	-	_	-	-	-	-	-	32.0
	II .	9-10	Х		-	-	-	-	-	-	-	-	48.0
BH-8	9/15/2016	0-1	Х		<10.0	23.8	23.8	<0.050	<0.050	<0.050	<0.150	<0.300	<16.0
	"	2-3	Х		-	-	-	-	-	-	-	-	<16.0
	II .	4-5	Х		-	-	-	-	-	-	-	-	32.0
	"	6-7	Х		-	-	-	-	-	-	-	-	176
	II .	9-10	Х		-	-	-	-	-	-	-	-	80.0

Table 1
COG Operating LLC.
Cluster State Commingle #1H
Eddy County, New Mexico

Commis ID	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	9/15/2016	0-1	X		<10.0	23.8	23.8	<0.050	<0.050	<0.050	<0.150	<0.300	928
	"	1-1.5	Х		-	-	-	-	-	-	-	-	11,600
	"	2-2.5	Χ		-	-	-	-	-	-	-	-	12,000
	"	3-3.5	Χ		-	-	-	-	-	-	-	-	15,200
	"	4-4.5	Х		-	-	-	-	-	-	-	-	3,680
AH-1	9/22/2016	0-1	Х		-	-	-	_	-	-	-	-	4,120
	"	1-1.5	X		-	-	-	-	-	-	-	-	9,480
	"	2-2.5	Х		-	-	-	-	-	-	-	-	10,800
	11	3-3.5	Х		-	-	-	-	-	-	-	-	12,600
	II .	4-4.5	Χ		-	-	-	-	-	-	-	-	3,040
	"	5-5.5	Х		-	-	-	-	-	-	-	-	665
	"	6-6.5	Χ		-	-	-	-	-	-	-	-	373
	"	7-7.5	Х		-	-	-	-	-	-	-	-	37.8

(-) Not Analyzed Proposed Excavation Depths



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

State of New Mexico **Energy Minerals and Natural Resources**

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

NM OIL CONSERVATION ARTESIA DISTRICT

Form C-141 Revised August 8, 2011

AUG 114 2016 Submit Copy to appropriate District Office in accordance with 19.15.29 NMAC.

RECEIVED

	Release Notification and Corrective Action											
n <i>ABI</i>	4218	3445		4.4.4.		OPERA	ror			l Report		Final Report
Name of Co				ng LLC 8891					bert McNe			
Address:				lland TX 79701		Telephone N			<u>2-683-744.</u>	3		
Facility Nan	ne:	CLUSTER	STATE	COM #001H		Facility Typ	e:		Flowline			
Surface Ow	ner:	State		Mineral Own	ner:				API No	. 30-0	15-375	547
				LOCAT	IOI	OF REI	LEASE					
Unit Letter	Section	Township	Range			/South Line	Feet from the		Vest Line		Count	
D	16	26S	27E	380'		North	330*		Vest		Eddy	<u></u>
				Latitude 32.0486	679	Longitu	ide 104.202667	2				
			<u> </u>	NATU	RE	OF REL						
Type of Relea	ase:	Produced	Water			Volume of	Release: of Produced Wat	er	_ · -	lecovered: bbls of Proc	luced W	/ater
Source of Re	lease:	rioduced	water	·			lour of Occurrence			Hour of Dis		
		Flowli	ne				3/2016 10:30 am	l		08/03/2016	10:30	am
Was Immedia	ate Notice C		Yes 🏻	No ⊠ Not Requ	ired	If YES, To	Whom?			,		
By Whom?				•		Date and F	lour:					
Was a Water	course Reac					If YES, Vo	olume Impacting (he Wat	ercourse.			
If a Watercou	ırse was (m	pacted, Descri	be Fully.									
Describe Cau	ise of Probl	em and Reme	dial Action	n Taken.*								,
		A poly	line was c	lamaged by a vehicle	e or r	oad equipmen	ns. Replaced dama	iged sec	tion of line	•		
Describe Are	a Affected	and Cleanup A	Action Tal	(en.⁴					-			
This releas contamin	e occurred a	on a 4" polylii the release an	ne on the s d we will	side of the road. A sp present a remediation	oill ar n wo	ea of 200'X1 rk plan to the	'. Concho will ha NMOCD for app	ve the s roval pr	pill site san ior to any s	npled to deli ignificant re	ineate a :mediat	ny possible ion work.
I hereby cert	ify that the	information e	ven abny	e is true and complet	e to t	he hest of my	knowledge and u	ındersta	nd that pur	suant to NM	IOCD n	ules and
regulations a	II operators	are required t	o report a	nd/or file certain rele	ase n	notifications a	nd perform corre	ctive ac	tions for rel	eases which	may er	ndanger
public health	or the envi	ronment. The	acceptan	ce of a C-141 report investigate and rem	by th	te NMOCD it	iarked as "Final R	leport"	does not rel	ieve the ope	rator of	Fliability man health
or the enviro	nment. In a	iddition, NMC	OCD accep	otance of a C-141 rep	port d	toes not reliev	e the operator of	respons	sibility for c	ompliance	with an	y other
		ws and/or regi			- 1							
Signature:		7.	ير س				OIL CON	SER	ATION	DIVISI	<u> </u>	
Printed Nam	e.	Rober	t Grubbs .	7		A d lb	. Fi	· •	Hr	6	S	
111111111111111111111111111111111111111		110001	. 6.4000		+	Approved by	Environmental S	pecians		0	<u></u>	
Title:	<u>_</u>	enior Environ	mental Co	pordinator		Approval Da	ie: 010114)	Expiration	Date: N	<u> </u>	
E-mail Addr	ess:	rgrubbs@	concho.c	om		Conditions of	f Approval:			Attache	4 🗖	
Dates	Anoner 4. 1		lhann	422 402 5442		Remedia	tion per O.C.	D. Ru	les & Gu	ıdelines	ئــا ~	
Date: Attach Addi	August 4, 1 itional She	ets If Necess	hone: arv	432-683-7443		LATER T	REMEDIATION HAN:	设門	DEOSAI	NO	700	2.3820
		· · · 	-					للبحر	ν	1	〜✓	- 0060

Appendix B

Water Well Data Average Depth to Groundwater (ft) COG - Cluster State Com #001H Eddy County, New Mexico

	25 Sc	uth	26	East	
6	5	4	3	2	1
			45		
7	8	9 45	10	11	12
60					
18	17	16	15	14	13
19	20	21	22	23	24
			118		
30	29	28	27	26	25
31	32	33	34	35	36

	25 Sc	outh	27	East	
6	5	4	3	2	1
7	8	9	10	11	12 92
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33 19	34	35	36

	25	South	28	B East	
6	5	4 3	5 3 32	2	1
	59				Site
7	8	9	10	11	12
18	17	16	15 48	14	13
67			49		
19	20	21	22	23	24
	96				
30	29	28	27	26 40	25
	15	90			5
31	32	33	34	35	36
					40

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

	26 Sc	outh	27	East	
6	5	4	3	2	1
	12				
7	8	9	10	11	12
18	17	16	15	14	13
	SITE				35
19	20	21	22	23	24
			50		
30	29	28	27	26	25
31	32	33	34	35	36

	26 Sc	uth	28	East	
6	5	4	3	2 120	1
				21	
7	8	9	10	11	12
					100
18	17	16	15	14	13
				120	56
19	20	21	22	23	24
			120		
30	29	28	27	26	25
31	32	33	34	35	36

- 88 New Mexico State Engineers Well Reports
- 105 USGS Well Reports
- 90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)
- 90 Geology and Groundwater Resources of Eddy County, NM (Report 3)
- 34 NMOCD Groundwater Data
- 123 Tetra Tech installed temporary wells and field water level
- 143 NMOCD Groundwater map well location



New Mexico Office of the State Engineer Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced

(R=POD has been replaced, O=orphaned,

closed)

& no longer serves a water right file.)

C=the file is (quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest) (NAD83 UTM in meters)

5 /	,					J	, ,		,	,
	POD Sub-		QQ	Q .					Depth D	epth Water
POD Number	Code basin (County	64 16	4 Sec	Tws	Rng	X	Υ	Well V	Vater Column
C 02218	CUB	ED	4 1 4	07	26S	27E	573039	3546725* 🌑	35	
<u>C 02219</u>	CUB	ED	4 4 4	05	26S	27E	575033	3547948* 🌍	35	
<u>C 02474</u>	CUB	ED	4 3	02	26S	27E	578964	3548029*	100	
C 02475	CUB	ED	2 4	13	26S	27E	581450	3545252* 🌎	100	
C 02476	CUB	ED	4 1	24	26S	27E	580653	3544032*	150	
C 02930	С	ED	2 3 4	22	26S	27E	577938	3543284*	100	50 50

Average Depth to Water: **50 feet**

Minimum Depth: 50 feet

(In feet)

Maximum Depth: 50 feet

Record Count: 6

PLSS Search:

Township: 26S Range: 27E

Appendix C

Client:	cog			
Site Name	Cluster State Com #001H			
Boring/Well:	BH-1			
GPS	32.03728, -104.21032			
Project #:	212C-MD-00605.07			
Total Depth	40'			
Date Installed:	9/14/2016			
	T		Field Chloride	
DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	Field Chloride (mg/kg)	CONDUCTIVITY (ppm)
0-1'	Fine to medium brown sand	No stain or odor	-	12,430
2-3'	Friable caliche & medium brown sand	No stain or odor	-	10,830
4-5'	Gypsum, friable caliche & fine red sand	No stain or odor	-	2,750
6-7'	Gypsum, friable caliche & fine red sand	No stain or odor	-	1,430
9-10'	Gypsum, friable caliche & fine red sand	No stain or odor		1,390
14-15'	Gypsum, friable caliche & fine red sand	No stain or odor	-	1,420
19-20'	Sandy red clay & gypsum (40%)	No stain or odor	-	1,750
24-25'	Sandy red clay & gypsum (40%)	No stain or odor	-	1,770
29-30'	Caliche, gypsum & medium red sand (10%)	No stain or odor	500	1,580
39-40'	Caliche, gypsum & medium red sand (10%)	No stain or odor	400	1710
	7977			

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Client:	cog			
Site Name	Cluster State Com #001H			
Boring/Well:	BH-2			
GPS	32.03741, -104.20970			
Project #:	212C-MD-00605.07			
Total Depth	30'			
Date Installed:	9/14/2016			
DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	Field Chloride (mg/kg)	CONDUCTIVITY (ppm)
0-1'	Red to brown silty sand & caliche	No stain or odor	-	11,440
2-3'	Red to brown silty sand & caliche	No stain or odor	-	9,450
4-5'	Red to brown sand & limestone with caliche	No stain or odor	-	10,460
6-7'	Red to brown sand & limestone with caliche	No stain or odor	-	7,180
9-10'	Red mediums sand, limestone & gypsum (20%)	No stain or odor		2,460
14-15'	Red clay, tan sand & gypsum	No stain or odor	-	1,920
19-20'	Red clay, tan sand & gypsum	No stain or odor	-	1,880
24-25'	Red clay & gypsum	No stain or odor	350	1,910
29-30'	Gypsum	No stain or odor	375	975

Client:	cog			
Site Name	Cluster State Com #001H			
Boring/Well:	ВН-3			
GPS	32.03757, -104.20942			
Project #:	212C-MD-00605.07			
Total Depth	30'			
Date Installed:	9/14/2016			
DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	Field Chloride (mg/kg)	CONDUCTIVITY (ppm)
0-1'	Medium to fine brown sand	No stain or odor	-	6,620
2-3'	Brown sand & friable caliche	No stain or odor	-	5,270
4-5'	Brown sand with caliche (10%)	No stain or odor	-	2,460
6-7'	Red to brown mediums sand with gypsum (10%)	No stain or odor	-	2,950
9-10'	Red clay & gypsum	No stain or odor	-	2,240
14-15'	Red clay, gypsum & limestone	No stain or odor	-	2,530
19-20'	Red clay & gypsum	No stain or odor	300	2,130
24-25'	Red clay & gypsum	No stain or odor	375	1,980
29-30'	Red clay, gypsum & limestone	No stain or odor	250	1,820
				·

	SAIVIP	LE LOG		
Client:	cog			
Site Name	Cluster State Com #001H			
Boring/Well:	BH-4			
GPS	32.03770, -104.20879			
Project #:	212C-MD-00605.07			
Total Depth	15'			
Date Installed:	9/14/2016			
		_		
DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	Field Chloride (mg/kg)	CONDUCTIVITY (ppm)
0-1'	Friable caliche	No stain or odor	-	7,020
2-3'	Friable caliche	No stain or odor	-	9,050
4-5'	Friable caliche & gypsum	No stain or odor	-	1,217
6-7'	Gypsum and fine tan sand	No stain or odor	-	2,160
9-10'	Red to brown sand clay, limestone & gypsum	No stain or odor	250	1,560
14-15'	Red to brown sand clay, limestone & gypsum	No stain or odor	250	1,530

	SAMI	LE LUG		
Client:	cog			
Site Name	Cluster State Com #001H			
Boring/Well:	BH-5			
GPS	32.03729, -104.20988			
Project #:	212C-MD-00605.07			
Total Depth	15'			
Date Installed:	9/14/2016			
DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	Field Chloride (mg/kg)	CONDUCTIVITY (ppm)
0-1'	Friable caliche	No stain or odor	-	851
2-3'	Friable caliche	No stain or odor	-	1,460
4-5'	Gypsum	No stain or odor	400	1,680
6-7'	Gypsum	No stain or odor	-	1,075
9-10'	Red clay & gypsum	No stain or odor	400	2,050
14-15'	Gypsum	No stain or odor	300	1,100

		WIPLE LOG		
Client:	cog			
Site Name	Cluster State Com #001H			
Boring/Well:	BH-6			
GPS	32.03745, -104.20844			
Project #:	212C-MD-00605.07			
Total Depth	15'			
Date Installed:	9/14/2016			
DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	Field Chloride (mg/kg)	CONDUCTIVITY (ppm)
0-1'	Fine tan sand & friable caliche	No stain or odor	-	879
2-3'	Fine tan sand & friable caliche	No stain or odor	-	960
4-5'	Fine tan sand, friable caliche & gypsum	No stain or odor	400	1,320
6-7'	Fine tan sand, friable caliche & gypsum	No stain or odor	-	1,243
9-10'	Fine tan sand, friable caliche & gypsum	No stain or odor	175	1,300
14-15'	Red clay & gypsum	No stain or odor	200	1,470

	SAIVIP	LE LOG		
Client:	cog			
Site Name	Cluster State Com #001H			
Boring/Well:	BH-7			
GPS	32.03736, -104.20829			
Project #:	212C-MD-00605.07			
Total Depth	10'			
Date Installed:	9/15/2016			
DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	Field Chloride (mg/kg)	CONDUCTIVITY (ppm)
0-1'	Friable caliche & tan silt	No stain or odor	-	755
2-3'	Friable caliche & tan silt	No stain or odor	-	1,205
4-5'	Fine brown sand & caliche	No stain or odor	-	1,050
6-7'	Silty sand & caliche	No stain or odor	150	1,500
9-10'	Silty sand & caliche	No stain or odor	150	1,340

	-	PLE LOG		
Client:	COG			
Site Name	Cluster State Com #001H			
Boring/Well:	BH-8			
GPS	32.03768, -104.20845			
Project #:	212C-MD-00605.07			
Total Depth	10'			
Date Installed:	9/15/2016			
DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	Field Chloride (mg/kg)	CONDUCTIVITY (ppm)
0-1'	Caliche & fine brown sand	No stain or odor	-	1,047
2-3'	Caliche	No stain or odor	-	1,159
4-5'	Caliche & fine red to brown sand	No stain or odor	-	1,208
6-7'	Caliche, fine red to brown sand and gypsum	No stain or odor	250	1,510
9-10'	Gypsum	No stain or odor	150	1,470





September 21, 2016

IKE TAVAREZ

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: CLUSTER STATE COM #1H

Enclosed are the results of analyses for samples received by the laboratory on 09/15/16 13:00.

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

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

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

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

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

Method EPA 552.2 Total Haloacetic Acids (HAA-5)

Celey D. Keine

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

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

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

Reported:

21-Sep-16 09:19



Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605 Project Manager: IKE TAVAREZ

Fax To: NONE

ample ID	Laboratory ID	Matrix	Date Sampled	Date Received
H-1 0-1'	H602073-01	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-1 2-3'	H602073-02	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-1 4-5'	H602073-03	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-1 6-7'	H602073-04	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-1 9-10'	H602073-05	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-1 14-15'	H602073-06	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-1 19-20'	H602073-07	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-1 24-25'	H602073-08	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-1 29-30'	H602073-09	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-1 39-40'	H602073-10	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-2 0-1'	H602073-11	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-2 2-3'	H602073-12	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-2 4-5'	H602073-13	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-2 6-7'	H602073-14	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-2 9-10'	H602073-15	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-2 14-15'	H602073-16	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-2 19-20'	H602073-17	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-2 24-25'	H602073-18	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-2 29-30'	H602073-19	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-3 0-1'	H602073-20	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-3 2-3'	H602073-21	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-3 4-5'	H602073-22	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-3 6-7'	H602073-23	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-3 9-10'	H602073-24	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-3 14-15'	H602073-25	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-3 19-20'	H602073-26	Soil	14-Sep-16 00:00	15-Sep-16 13:00
H-3 24-25'	H602073-27	Soil	14-Sep-16 00:00	15-Sep-16 13:00

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210				Reported: 21-Sep-16 09:19
BH-3 29-30'	H602073-28	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-4 0-1'	H602073-29	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-4 2-3'	H602073-30	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-4 4-5'	H602073-31	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-4 6-7'	H602073-32	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-4 9-10'	H602073-33	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-4 14-15'	H602073-34	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-5 0-1'	H602073-35	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-5 2-3'	H602073-36	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-5 4-5'	H602073-37	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-5 6-7'	H602073-38	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-5 9-10'	H602073-39	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-5 14-15'	H602073-40	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-6 0-1'	H602073-41	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-6 2-3'	H602073-42	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-6 4-5'	H602073-43	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-6 6-7'	H602073-44	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-6 9-10'	H602073-45	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-6 14-15'	H602073-46	Soil	14-Sep-16 00:00	15-Sep-16 13:00
BH-7 0-1'	H602073-47	Soil	15-Sep-16 00:00	15-Sep-16 13:00
BH-7 2-3'	H602073-48	Soil	15-Sep-16 00:00	15-Sep-16 13:00
BH-7 4-5'	H602073-49	Soil	15-Sep-16 00:00	15-Sep-16 13:00
BH-7 6-7'	H602073-50	Soil	15-Sep-16 00:00	15-Sep-16 13:00
BH-7 9-10'	H602073-51	Soil	15-Sep-16 00:00	15-Sep-16 13:00
BH-8 0-1'	H602073-52	Soil	15-Sep-16 00:00	15-Sep-16 13:00
BH-8 2-3'	H602073-53	Soil	15-Sep-16 00:00	15-Sep-16 13:00
BH-8 4-5'	H602073-54	Soil	15-Sep-16 00:00	15-Sep-16 13:00
BH-8 6-7'	H602073-55	Soil	15-Sep-16 00:00	15-Sep-16 13:00
BH-8 9-10'	H602073-56	Soil	15-Sep-16 00:00	15-Sep-16 13:00
AH-1 0-1'	H602073-57	Soil	15-Sep-16 00:00	15-Sep-16 13:00

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210		Project: CLUSTER STATE COM #1H Project Number: 212C-MO-00605 Project Manager: IKE TAVAREZ Fax To: NONE					
AH-1 1-1.5'	H602073-58	Soil	15-Sep-16 00:00	15-Sep-16 13:00			
AH-1 2-2.5'	H602073-59	Soil	15-Sep-16 00:00	15-Sep-16 13:00			
AH-1 3-3.5'	H602073-60	Soil	15-Sep-16 00:00	15-Sep-16 13:00			
AH-1 4-4.5'	H602073-61	Soil	15-Sep-16 00:00	15-Sep-16 13:00			

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Reported: 21-Sep-16 09:19

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-1 0-1' H602073-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	30800		16.0	mg/kg	4	6091507	AC	16-Sep-16	4500-Cl-B	
Volatile Organic Compounds by E	PA Method 8	8021								
Benzene*	< 0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Toluene*	< 0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Ethylbenzene*	< 0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Total Xylenes*	< 0.150		0.150	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Total BTEX	< 0.300		0.300	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			98.1 %	73.6-	140	6091601	MS	16-Sep-16	8021B	
Petroleum Hydrocarbons by GC FID										
GRO C6-C10	<10.0		10.0	mg/kg	1	6091504	MS	16-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6091504	MS	16-Sep-16	8015B	
Surrogate: 1-Chlorooctane			35.0 %	35-	147	6091504	MS	16-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			34.9 %	28-	171	6091504	MS	16-Sep-16	8015B	

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Reported: 21-Sep-16 09:19

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-1 2-3' H602073-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes	
Cardinal Laboratories											
Inorganic Compounds											
Chloride	17600		16.0	mg/kg	4	6091507	AC	16-Sep-16	4500-Cl-B		

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager



COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-1 4-5' H602073-03 (Soil)

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

Inorganic Compounds

16.0 6091507 AC 16-Sep-16 4500-Cl-B Chloride 2560 mg/kg

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Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Reported: 21-Sep-16 09:19

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-1 6-7' H602073-04 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardin	al Laborat	tories					
Inorganic Compounds										
Chloride	544		16.0	mg/kg	4	6091507	AC	16-Sep-16	4500-Cl-B	

Cardinal Laboratories *=Accredited Analyte

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Celey D. Keene



COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Reported: 21-Sep-16 09:19

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-1 9-10' H602073-05 (Soil)

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

 Chloride
 80.0
 16.0
 mg/kg
 4
 6091507
 AC
 16-Sep-16
 4500-Cl-B

Cardinal Laboratories *=Accredited Analyte

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48.0

Analytical Results For:

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

Chloride

Project: CLUSTER STATE COM #1H

6091507

AC

16-Sep-16

Reported: 21-Sep-16 09:19

4500-Cl-B

Project Number: 212C-MO-00605

16.0

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-1 14-15'

H602073-06 (Soil)

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

mg/kg

Cardinal Laboratories *=Accredited Analyte

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Celey D. Keine



192

Analytical Results For:

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

Chloride

Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

6091605

AC

16-Sep-16

Reported: 21-Sep-16 09:19

4500-Cl-B

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-1 19-20' H602073-07 (Soil)

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

mg/kg

16.0

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Celey D. Keine



COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-1 24-25'

H602073-08 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardin	al Laborat	ories					

Inorganic Compounds 16.0 6091605 AC 16-Sep-16 4500-Cl-B Chloride mg/kg

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-1 29-30' H602073-09 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Inorganic Compounds			Cardina	al Laborat	ories					

16.0 6091605 AC 16-Sep-16 4500-Cl-B Chloride mg/kg

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Reported: 21-Sep-16 09:19

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-1 39-40' H602073-10 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardin	al Laborat	tories					

 Inorganic Compounds

 Chloride
 128
 16.0
 mg/kg
 4
 6091605
 AC
 16-Sep-16
 4500-Cl-B

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Reported: 21-Sep-16 09:19

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-2 0-1' H602073-11 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborat	ories					
Inorganic Compounds										
Chloride	24400		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
Volatile Organic Compounds by I	EPA Method	8021								
Benzene*	< 0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Toluene*	< 0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Ethylbenzene*	< 0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Total Xylenes*	< 0.150		0.150	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Total BTEX	< 0.300		0.300	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			99.8 %	73.6	-140	6091601	MS	16-Sep-16	8021B	
Petroleum Hydrocarbons by GC	FID									
GRO C6-C10	<10.0		10.0	mg/kg	1	6091504	MS	16-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6091504	MS	16-Sep-16	8015B	
Surrogate: 1-Chlorooctane			89.8 %	35-	147	6091504	MS	16-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			98.2 %	28-	171	6091504	MS	16-Sep-16	8015B	

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-2 2-3' H602073-12 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborat	ories					
Inorganic Compounds										
Chloride	22800		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	

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8130

Analytical Results For:

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

Chloride

Project: CLUSTER STATE COM #1H

6091605

AC

16-Sep-16

4500-Cl-B

TE COM #1H Reported: 05 21-Sep-16 09:19

Project Number: 212C-MO-00605 Project Manager: IKE TAVAREZ

Fax To: NONE

BH-2 4-5' H602073-13 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Inorganic Compounds			Cardin	al Laborat	ories					

mg/kg

16.0

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Reported:

21-Sep-16 09:19



Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-2 6-7' H602073-14 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			6 11							

Cardinal Laboratories

 Inorganic Compounds

 Chloride
 2560
 16.0
 mg/kg
 4
 6091605
 AC
 16-Sep-16
 4500-Cl-B

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19 Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-2 9-10' H602073-15 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes			
	Cardinal Laboratories												
Inorganic Compounds													
Chlorido	672		16.0	ma/ka	1	6001605	۸C	16 San 16	4500 CLB				

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Reported:

4500-Cl-B



432

Analytical Results For:

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

Chloride

Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605 21-Sep-16 09:19

6091605

AC

16-Sep-16

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-2 14-15' H602073-16 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	ıl Laborat	ories					
Inorganic Compounds										

mg/kg

16.0

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Celey D. Keine



COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19 Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-2 19-20' H602073-17 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardin	al Laborat	tories					

Inorganic Compounds 16.0 6091605 AC 16-Sep-16 4500-Cl-B Chloride 320 mg/kg

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Reported: 21-Sep-16 09:19

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-2 24-25' H602073-18 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	al Laborat	ories					
Inorganic Compounds										
Chloride	272		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	

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Reported:

21-Sep-16 09:19



Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-2 29-30' H602073-19 (Soil)

Analyte Result MDL Reporting Units Dilution Batch Analyst Analyzed Method Notes

Cardinal Laboratories

Inorganic Compounds

Chloride 144 16.0 mg/kg 4 6091605 AC 16-Sep-16 4500-Cl-B

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Reported:

21-Sep-16 09:19



Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-3 0-1' H602073-20 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	ıl Laborat	ories					
Inorganic Compounds										
Chloride	9060		16.0	mg/kg	4	6091605	AC	16-Sep-16	4500-Cl-B	
Volatile Organic Compounds	by EPA Method	8021								
Benzene*	< 0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Toluene*	< 0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Ethylbenzene*	< 0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Total Xylenes*	< 0.150		0.150	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Total BTEX	< 0.300		0.300	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID))		99.9 %	73.6	-140	6091601	MS	16-Sep-16	8021B	
Petroleum Hydrocarbons by C	GC FID									
GRO C6-C10	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	
Surrogate: 1-Chlorooctane			91.9 %	35-	147	6091901	MS	19-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			109 %	28-	171	6091901	MS	19-Sep-16	8015B	

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19 Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-3 2-3' H602073-21 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardin	al Laborat	ories					

Inorganic Compounds 16.0 6091605 AC 16-Sep-16 4500-Cl-B Chloride 7730 mg/kg

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19 Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-3 4-5' H602073-22 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborato	ories					

Inorganic Compounds 832 16.0 6091605 AC 16-Sep-16 4500-Cl-B Chloride mg/kg

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

Chloride

Project: CLUSTER STATE COM #1H

6091605

AC

16-Sep-16

4500-Cl-B

Reported: 21-Sep-16 09:19 Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-3 6-7' H602073-23 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Inorganic Compounds			Cardin	al Laborat	tories					

mg/kg

16.0

Cardinal Laboratories *=Accredited Analyte

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Celecy D. Keine



352

Analytical Results For:

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

Chloride

Project: CLUSTER STATE COM #1H

6091605

AC

16-Sep-16

4500-Cl-B

Reported: 21-Sep-16 09:19

Project Number: 212C-MO-00605 Project Manager: IKE TAVAREZ

16.0

Fax To: NONE

BH-3 9-10' H602073-24 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardin	al Labora	tories					
Inorganic Compounds										

mg/kg

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Celey D. Keine



COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Reported: 21-Sep-16 09:19

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-3 14-15' H602073-25 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardin	al Laborat	tories					

 Inorganic Compounds

 Chloride
 528
 16.0
 mg/kg
 4
 6091605
 AC
 16-Sep-16
 4500-Cl-B

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19

Project Number: 212C-MO-00605 Project Manager: IKE TAVAREZ

Fax To: NONE

BH-3 19-20' H602073-26 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	al Laborat	ories					

Inorganic Compounds 16.0 6091605 AC 16-Sep-16 4500-Cl-B Chloride mg/kg

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19 Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-3 24-25' H602073-27 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	al Laborat	tories					

Inorganic Compounds 16.0 6091606 AC 16-Sep-16 4500-Cl-B Chloride 288 mg/kg

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Analytical Results For:

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

Chloride

Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19

4500-Cl-B

Project Number: 212C-MO-00605

16.0

6091606

AC

16-Sep-16

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-3 29-30' H602073-28 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	al Laborat	ories					
Inorganic Compounds										

mg/kg

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Reported:

21-Sep-16 09:19



Analytical Results For:

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

Surrogate: 1-Chlorooctadecane

Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-4 0-1' H602073-29 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	al Laborat	ories					
Inorganic Compounds										
Chloride	13600		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
Volatile Organic Compounds by	EPA Method	8021								
Benzene*	< 0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Toluene*	< 0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Ethylbenzene*	< 0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Total Xylenes*	< 0.150		0.150	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Total BTEX	< 0.300		0.300	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			98.0 %	73.6-	140	6091601	MS	16-Sep-16	8021B	
Petroleum Hydrocarbons by GC	FID									
GRO C6-C10	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	
Surrogate: 1-Chlorooctane			85.5 %	35-1	147	6091901	MS	19-Sep-16	8015B	

28-171

6091901

MS

19-Sep-16

8015B

103 %

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Reported: 21-Sep-16 09:19

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-4 2-3' H602073-30 (Soil)

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

 Inorganic Compounds

 Chloride
 12000
 16.0
 mg/kg
 4
 6091606
 AC
 16-Sep-16
 4500-Cl-B

Cardinal Laboratories *=Accredited Analyte

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Celey D. Keine



COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-4 4-5' H602073-31 (Soil)

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

Inorganic Compounds 16.0 6091606 AC 16-Sep-16 4500-Cl-B Chloride mg/kg

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Analytical Results For:

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

Chloride

Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Reported: 21-Sep-16 09:19

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-4 6-7' H602073-32 (Soil)

Analyte	Result		eporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes		
Cardinal Laboratories												
Inorganic Compounds												
Chloride	160		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B			

mg/kg

16.0

Cardinal Laboratories *=Accredited Analyte

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Celey D. Keene



COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-4 9-10' H602073-33 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	al Lahoraí	ories					

Cardinal Laboratories

Inorganic Compounds 16.0 mg/kg 6091606 AC 16-Sep-16 4500-Cl-B Chloride 288

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Reported: 21-Sep-16 09:19

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-4 14-15' H602073-34 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes		
Cardinal Laboratories												
Inorganic Compounds												
Chloride	576		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B			

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Reported: 21-Sep-16 09:19

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-5 0-1' H602073-35 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes		
Cardinal Laboratories												
Inorganic Compounds												
Chloride	48.0		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B			
Volatile Organic Compounds b	y EPA Method	8021										
Benzene*	< 0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B			
Toluene*	< 0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B			
Ethylbenzene*	< 0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B			
Total Xylenes*	< 0.150		0.150	mg/kg	50	6091601	MS	16-Sep-16	8021B			
Total BTEX	< 0.300		0.300	mg/kg	50	6091601	MS	16-Sep-16	8021B			
Surrogate: 4-Bromofluorobenzene (PID)			98.8 %	73.6	-140	6091601	MS	16-Sep-16	8021B			
Petroleum Hydrocarbons by G	C FID											
GRO C6-C10	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B			
DRO >C10-C28	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B			
Surrogate: 1-Chlorooctane			89.1 %	35-	147	6091901	MS	19-Sep-16	8015B			
Surrogate: 1-Chlorooctadecane			106 %	28-	171	6091901	MS	19-Sep-16	8015B			

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19 Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-5 2-3' H602073-36 (Soil)

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

Inorganic Compounds 16.0 6091606 AC 16-Sep-16 4500-Cl-B Chloride 288 mg/kg

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19 Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-5 4-5' H602073-37 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes		
Cardinal Laboratories												
Inorganic Compounds												
Chloride	48.0		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B			

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Celeg D. Keene



COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

COM #1H Reported: 21-Sep-16 09:19

Project Number: 212C-MO-00605 Project Manager: IKE TAVAREZ

Fax To: NONE

BH-5 6-7' H602073-38 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes		
Cardinal Laboratories												
Inorganic Compounds												
Chlorido	144		16.0	mo/ko	4	6091606	AC	16-Sep-16	4500-Cl-B			

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Reported:

21-Sep-16 09:19



Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-5 9-10' H602073-39 (Soil)

Analyte Result MDL Reporting Units Dilution Batch Analyst Analyzed Method Notes

Cardinal Laboratories

Inorganic Compounds

Chloride 96.0 16.0 mg/kg 4 6091606 AC 16-Sep-16 4500-Cl-B

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19

X 1630 Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-5 14-15' H602073-40 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes				
	Cardinal Laboratories													
Inorganic Compounds														
Chloride	48.0		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B					

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Reported: 21-Sep-16 09:19

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-6 0-1' H602073-41 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborat	ories					
Inorganic Compounds										
Chloride	<16.0		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B	
Volatile Organic Compounds by	EPA Method	8021								
Benzene*	< 0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Toluene*	< 0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Ethylbenzene*	< 0.050		0.050	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Total Xylenes*	< 0.150		0.150	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Total BTEX	< 0.300		0.300	mg/kg	50	6091601	MS	16-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			98.3 %	73.6	-140	6091601	MS	16-Sep-16	8021B	
Petroleum Hydrocarbons by GC	FID									
GRO C6-C10	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	
Surrogate: 1-Chlorooctane			80.3 %	35-	147	6091901	MS	19-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			88.3 %	28-	171	6091901	MS	19-Sep-16	8015B	

Cardinal Laboratories *=Accredited Analyte

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Reported:

21-Sep-16 09:19



Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-6 2-3' H602073-42 (Soil)

The state of the s		Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
--	--	---------	--------	-----	--------------------	-------	----------	-------	---------	----------	--------	-------

Cardinal Laboratories

 Inorganic Compounds

 Chloride
 48.0
 16.0
 mg/kg
 4
 6091606
 AC
 16-Sep-16
 4500-Cl-B

Cardinal Laboratories *=Accredited Analyte

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager



COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-6 4-5' H602073-43 (Soil)

	Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes			
	Cardinal Laboratories													
Iı	norganic Compounds													
C	hloride	48.0		16.0	mg/kg	4	6091606	AC	16-Sep-16	4500-Cl-B				

Cardinal Laboratories *=Accredited Analyte

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Reported: 21-Sep-16 09:19

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-6 6-7' H602073-44 (Soil)

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

Cardinal Laboratories

 Inorganic Compounds

 Chloride
 <16.0</td>
 16.0
 mg/kg
 4
 6091606
 AC
 16-Sep-16
 4500-Cl-B

Cardinal Laboratories *=Accredited Analyte

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Reported:

4500-Cl-B



<16.0

Analytical Results For:

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

Chloride

Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605 21-Sep-16 09:19

6091606

AC

16-Sep-16

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-6 9-10' H602073-45 (Soil)

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

mg/kg

16.0

Cardinal Laboratories *=Accredited Analyte

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48.0

Analytical Results For:

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

Chloride

Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

6091606

AC

16-Sep-16

Reported: 21-Sep-16 09:19

4500-Cl-B

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-6 14-15' H602073-46 (Soil)

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

mg/kg

16.0

Cardinal Laboratories *=Accredited Analyte

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager



COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Reported: 21-Sep-16 09:19

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-7 0-1' H602073-47 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborat	ories					
Inorganic Compounds										
Chloride	64.0		16.0	mg/kg	4	6091607	AC	16-Sep-16	4500-Cl-B	
Volatile Organic Compounds b	y EPA Method	8021								
Benzene*	< 0.050		0.050	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Toluene*	< 0.050		0.050	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Ethylbenzene*	< 0.050		0.050	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Total Xylenes*	< 0.150		0.150	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Total BTEX	< 0.300		0.300	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			99.4 %	73.6	-140	6091906	MS	20-Sep-16	8021B	
Petroleum Hydrocarbons by G	C FID									
GRO C6-C10	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	
Surrogate: 1-Chlorooctane			93.4 %	35-	147	6091901	MS	19-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			113 %	28-	171	6091901	MS	19-Sep-16	8015B	

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64.0

Analytical Results For:

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

Chloride

Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Reported: 21-Sep-16 09:19

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-7 2-3' H602073-48 (Soil)

	Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
				Cardina	ıl Laborat	ories					
1	Inorganic Compounds										
(Chloride	64.0		16.0	mg/kg	4	6091607	AC	16-Sep-16	4500-Cl-B	

mg/kg

16.0

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Celecy D. Keine

Celey D. Keene, Lab Director/Quality Manager

Reported:

21-Sep-16 09:19



Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-7 4-5' H602073-49 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardin	al Laborat	tories					

 Inorganic Compounds
 32.0
 16.0
 mg/kg
 4
 6091607
 AC
 16-Sep-16
 4500-Cl-B

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Reported: 21-Sep-16 09:19

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-7 6-7' H602073-50 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardin	al Laborat	tories					

 Inorganic Compounds

 Chloride
 32.0
 16.0
 mg/kg
 4
 6091607
 AC
 16-Sep-16
 4500-Cl-B

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19

Project Number: 212C-MO-00605 Project Manager: IKE TAVAREZ

Fax To: NONE

BH-7 9-10' H602073-51 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	al Laborat	ories					

 Inorganic Compounds

 Chloride
 48.0
 16.0
 mg/kg
 4
 6091607
 AC
 16-Sep-16
 4500-Cl-B

Cardinal Laboratories *=Accredited Analyte

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Reported:



Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605 21-Sep-16 09:19

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-8 0-1' H602073-52 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborat	ories					
Inorganic Compounds										
Chloride	<16.0		16.0	mg/kg	4	6091607	AC	16-Sep-16	4500-Cl-B	
Volatile Organic Compounds b	y EPA Method	8021								
Benzene*	< 0.050		0.050	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Toluene*	< 0.050		0.050	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Ethylbenzene*	< 0.050		0.050	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Total Xylenes*	< 0.150		0.150	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Total BTEX	< 0.300		0.300	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			99.6 %	73.6	-140	6091906	MS	20-Sep-16	8021B	
Petroleum Hydrocarbons by G	C FID									
GRO C6-C10	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	
DRO >C10-C28	23.8		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	
Surrogate: 1-Chlorooctane			78.1 %	35-	147	6091901	MS	19-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			89.4 %	28-	171	6091901	MS	19-Sep-16	8015B	

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<16.0

Analytical Results For:

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

Chloride

Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19

4500-Cl-B

16-Sep-16

Project Number: 212C-MO-00605

16.0

6091607

AC

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-8 2-3' H602073-53 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborate	ories					
Inorganic Compounds										

mg/kg

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32.0

Analytical Results For:

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

Chloride

Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

Reported: 21-Sep-16 09:19

BH-8 4-5'

H602073-54 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardin	al Laborat	tories					
Inorganic Compounds										
Chloride	32.0		16.0	mg/kg	4	6091607	AC	16-Sep-16	4500-Cl-B	

mg/kg

16.0

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19

O. BOX 1630 Project Nu

Project Number: 212C-MO-00605 Project Manager: IKE TAVAREZ

Fax To: NONE

BH-8 6-7' H602073-55 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborato	ories					

 Inorganic Compounds

 Chloride
 176
 16.0
 mg/kg
 4
 6091607
 AC
 16-Sep-16
 4500-Cl-B

Cardinal Laboratories *=Accredited Analyte

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

BH-8 9-10' H602073-56 (Soil)

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

Cardinal Laboratories

Inorganic Compounds

80.0 16.0 6091607 AC 16-Sep-16 4500-Cl-B Chloride mg/kg

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

Reported: 21-Sep-16 09:19

AH-1 0-1' H602073-57 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborat	ories					
Inorganic Compounds										
Chloride	928		16.0	mg/kg	4	6091607	AC	16-Sep-16	4500-Cl-B	
Volatile Organic Compounds by	EPA Method	8021								
Benzene*	< 0.050		0.050	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Toluene*	< 0.050		0.050	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Ethylbenzene*	< 0.050		0.050	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Total Xylenes*	< 0.150		0.150	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Total BTEX	< 0.300		0.300	mg/kg	50	6091906	MS	20-Sep-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			99.5 %	73.6	-140	6091906	MS	20-Sep-16	8021B	
Petroleum Hydrocarbons by GC	FID									
GRO C6-C10	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6091901	MS	19-Sep-16	8015B	
Surrogate: 1-Chlorooctane			88.2 %	35-	147	6091901	MS	19-Sep-16	8015B	
Surrogate: 1-Chlorooctadecane			103 %	28-	171	6091901	MS	19-Sep-16	8015B	

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19

Project Number: 212C-MO-00605 Project Manager: IKE TAVAREZ

Fax To: NONE

AH-1 1-1.5' H602073-58 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	al Labarat	owies.					

Cardinal Laboratories

 Inorganic Compounds
 11600
 16.0
 mg/kg
 4
 6091607
 AC
 16-Sep-16
 4500-Cl-B

Cardinal Laboratories *=Accredited Analyte

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

AH-1 2-2.5' H602073-59 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	al Laborat	tories					

Inorganic Compounds 12000 16.0 6091607 AC 16-Sep-16 4500-Cl-B Chloride mg/kg

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Reported: 21-Sep-16 09:19

Project Manager: IKE TAVAREZ

Fax To: NONE

AH-1 3-3.5' H602073-60 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardinal	l Laborato	ries					

 Inorganic Compounds

 Chloride
 15200
 16.0
 mg/kg
 4
 6091607
 AC
 16-Sep-16
 4500-Cl-B

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

AH-1 4-4.5' H602073-61 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardin	al Laborat	tories					

 Inorganic Compounds
 Chloride
 3680
 16.0
 mg/kg
 4
 6091607
 AC
 16-Sep-16
 4500-Cl-B

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

Reported: 21-Sep-16 09:19

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6091507 - 1:4 DI Water										
Blank (6091507-BLK1)				Prepared &	z Analyzed:	15-Sep-16				
Chloride	ND	16.0	mg/kg		-					
LCS (6091507-BS1)				Prepared &	Analyzed:	15-Sep-16				
Chloride	432	16.0	mg/kg	400		108	80-120			
LCS Dup (6091507-BSD1)				Prepared &	Analyzed:	15-Sep-16				
Chloride	432	16.0	mg/kg	400		108	80-120	0.00	20	
Duplicate (6091507-DUP1)	Source	e: H602070-	-04	Prepared &	Analyzed:	15-Sep-16				
Chloride	352	16.0	mg/kg	•	352	-		0.00	20	
Matrix Spike (6091507-MS1)	Source	е: Н602070-	-04	Prepared &	Analyzed:	15-Sep-16				
Chloride	800	16.0	mg/kg	400	352	112	80-120			
Batch 6091605 - 1:4 DI Water										
Blank (6091605-BLK1)				Prepared &	Analyzed:	16-Sep-16				
Chloride	ND	16.0	mg/kg		-					
LCS (6091605-BS1)				Prepared &	Analyzed:	16-Sep-16				
Chloride	432	16.0	mg/kg	400	•	108	80-120			
LCS Dup (6091605-BSD1)				Prepared &	Analyzed:	16-Sep-16				
Chloride	432	16.0	mg/kg	400		108	80-120	0.00	20	
Duplicate (6091605-DUP1)	Sourc	е: Н602073-	-07	Prepared &	z Analyzed:	16-Sep-16				
Chloride	224	16.0	mg/kg		192			15.4	20	

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

Reported: 21-Sep-16 09:19

Inorganic Compounds - Quality Control

Cardinal Laboratories

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 6091605 - 1:4 DI Water										
Matrix Spike (6091605-MS1)	Source	е: Н602073-	-07	Prepared &	Analyzed:	16-Sep-16				
Chloride	624	16.0	mg/kg	400	192	108	80-120			
Batch 6091606 - 1:4 DI Water										
Blank (6091606-BLK1)				Prepared &	Analyzed:	16-Sep-16				
Chloride	ND	16.0	mg/kg							
LCS (6091606-BS1)				Prepared &	Analyzed:	16-Sep-16				
Chloride	432	16.0	mg/kg	400		108	80-120			
LCS Dup (6091606-BSD1)				Prepared &	Analyzed:	16-Sep-16				
Chloride	432	16.0	mg/kg	400		108	80-120	0.00	20	
Duplicate (6091606-DUP1)	Source	е: Н602073-	-28	Prepared &	Analyzed:	16-Sep-16				
Chloride	144	16.0	mg/kg		128			11.8	20	
Matrix Spike (6091606-MS1)	Source	е: Н602073-	-28	Prepared &	Analyzed:	16-Sep-16				
Chloride	576	16.0	mg/kg	400	128	112	80-120			
Batch 6091607 - 1:4 DI Water										
Blank (6091607-BLK1)				Prepared &	Analyzed:	16-Sep-16				
Chloride	ND	16.0	mg/kg	·	·	·			·	
LCS (6091607-BS1)				Prepared &	Analyzed:	16-Sep-16				
Chloride	416	16.0	mg/kg	400		104	80-120			

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COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Reported: 21-Sep-16 09:19

Project Number: 212C-MO-00605 Project Manager: IKE TAVAREZ

Fax To: NONE

Inorganic Compounds - Quality Control

Cardinal Laboratories

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 6091607 - 1:4 DI Water										
LCS Dup (6091607-BSD1)				Prepared &	Analyzed:	16-Sep-16				
Chloride	416	16.0	mg/kg	400		104	80-120	0.00	20	
Duplicate (6091607-DUP1)	Sourc	е: Н602073-	48	Prepared &	Analyzed:	16-Sep-16				
Chloride	64.0	16.0	mg/kg		64.0			0.00	20	
Matrix Spike (6091607-MS1)	Sourc	е: Н602073-	48	Prepared &	Analyzed:	16-Sep-16				
Chloride	480	16.0	mg/kg	400	64.0	104	80-120			

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Reported:

21-Sep-16 09:19

RPD



Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Spike

Source

Project Manager: IKE TAVAREZ

Fax To: NONE

Volatile Organic Compounds by EPA Method 8021 - Quality Control

Cardinal Laboratories

Reporting

Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 6091601 - Volatiles										
Blank (6091601-BLK1)				Prepared &	Analyzed:	16-Sep-16	5			
Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	ND		mg/kg	0.0500		98.6	73.6-140			
LCS (6091601-BS1)				Prepared &	Analyzed:	16-Sep-16	5			
Benzene	2.17	0.050	mg/kg	2.00		109	82.6-122			
Toluene	2.22	0.050	mg/kg	2.00		111	72.9-122			
Ethylbenzene	2.13	0.050	mg/kg	2.00		106	65.4-131			
Total Xylenes	6.39	0.150	mg/kg	6.00		107	73.8-125			
Surrogate: 4-Bromofluorobenzene (PID)	0.0495		mg/kg	0.0500		99.1	73.6-140			
LCS Dup (6091601-BSD1)				Prepared &	Analyzed:	16-Sep-16	5			
Benzene	2.21	0.050	mg/kg	2.00		110	82.6-122	1.46	8.23	
Toluene	2.25	0.050	mg/kg	2.00		112	72.9-122	1.09	8.71	
Ethylbenzene	2.15	0.050	mg/kg	2.00		107	65.4-131	1.02	9.46	
Total Xylenes	6.45	0.150	mg/kg	6.00		107	73.8-125	0.838	8.66	
Surrogate: 4-Bromofluorobenzene (PID)	0.0488		mg/kg	0.0500		97.6	73.6-140			
Matrix Spike (6091601-MS1)	Source	ce: H602075	-01	Prepared &	Analyzed:	16-Sep-16	5			
Benzene	2.05	0.050	mg/kg	2.00	0.006	102	66.7-126			
Γoluene	2.11	0.050	mg/kg	2.00	0.037	103	58.1-125			
Ethylbenzene	2.04	0.050	mg/kg	2.00	0.041	99.7	45.6-142			
Total Xylenes	6.09	0.150	mg/kg	6.00	0.022	101	52-138			
Surrogate: 4-Bromofluorobenzene (PID)	0.0502		mg/kg	0.0500		100	73.6-140			

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Celey D. Keene



Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Spike

Source

Project Number: 212C-MO-00605 Project Manager: IKE TAVAREZ

Fax To: NONE

Reported: 21-Sep-16 09:19

RPD

Volatile Organic Compounds by EPA Method 8021 - Quality Control

Cardinal Laboratories

Reporting

		reporting		Брис	Bource		/orthe		IG D	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 6091601 - Volatiles										
Matrix Spike Dup (6091601-MSD1)	Sour	ce: H602075	-01	Prepared &	: Analyzed:	16-Sep-16	,)			
Benzene	2.06	0.050	mg/kg	2.00	0.006	103	66.7-126	0.594	12.2	
Toluene	2.12	0.050	mg/kg	2.00	0.037	104	58.1-125	0.694	18.1	
Ethylbenzene	2.05	0.050	mg/kg	2.00	0.041	100	45.6-142	0.687	33.4	
Total Xylenes	6.12	0.150	mg/kg	6.00	0.022	102	52-138	0.604	36.2	
Surrogate: 4-Bromofluorobenzene (PID)	0.0493		mg/kg	0.0500		98.6	73.6-140			
Batch 6091906 - Volatiles										
Blank (6091906-BLK1)				Prepared: 1	9-Sep-16 A	Analyzed: 2	20-Sep-16			
Benzene	ND	0.050	mg/kg							
Γoluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	ND		mg/kg	0.0500		99.7	73.6-140			
LCS (6091906-BS1)				Prepared: 1	9-Sep-16 A	Analyzed: 2	20-Sep-16			
Benzene	1.95	0.050	mg/kg	2.00		97.5	82.6-122			
Γoluene	1.98	0.050	mg/kg	2.00		99.1	72.9-122			
Ethylbenzene	1.89	0.050	mg/kg	2.00		94.6	65.4-131			
Total Xylenes	5.67	0.150	mg/kg	6.00		94.6	73.8-125			
Surrogate: 4-Bromofluorobenzene (PID)	0.0497		mg/kg	0.0500		99.4	73.6-140			
LCS Dup (6091906-BSD1)				Prepared: 1	9-Sep-16 A	Analyzed: 2	20-Sep-16			
Benzene	2.05	0.050	mg/kg	2.00		102	82.6-122	4.78	8.23	
Γoluene	2.08	0.050	mg/kg	2.00		104	72.9-122	5.01	8.71	
Ethylbenzene	1.99	0.050	mg/kg	2.00		99.6	65.4-131	5.15	9.46	
Total Xylenes	5.97	0.150	mg/kg	6.00		99.4	73.8-125	5.01	8.66	
Surrogate: 4-Bromofluorobenzene (PID)	0.0493		mg/kg	0.0500		98.6	73.6-140			

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Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210 Project: CLUSTER STATE COM #1H

Spike

Source

Project Number: 212C-MO-00605

Reported: 21-Sep-16 09:19

RPD

Project Manager: IKE TAVAREZ

Fax To: NONE

Volatile Organic Compounds by EPA Method 8021 - Quality Control

Cardinal Laboratories

Reporting

		reporting		Spine	Source		, or care		111 2	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 6091906 - Volatiles										
Matrix Spike (6091906-MS1)	Source	се: Н602073-	-47	Prepared: 1	9-Sep-16 A	Analyzed: 2	0-Sep-16			
Benzene	2.18	0.050	mg/kg	2.00	ND	109	66.7-126			
Toluene	2.21	0.050	mg/kg	2.00	0.010	110	58.1-125			
Ethylbenzene	2.13	0.050	mg/kg	2.00	0.012	106	45.6-142			
Total Xylenes	6.45	0.150	mg/kg	6.00	0.017	107	52-138			
Surrogate: 4-Bromofluorobenzene (PID)	0.0504		mg/kg	0.0500		101	73.6-140			
Matrix Spike Dup (6091906-MSD1)	Source	се: Н602073	-47	Prepared: 1	9-Sep-16 A	Analyzed: 2	0-Sep-16			
Benzene	2.17	0.050	mg/kg	2.00	ND	109	66.7-126	0.0729	12.2	
Toluene	2.21	0.050	mg/kg	2.00	0.010	110	58.1-125	0.187	18.1	
Ethylbenzene	2.13	0.050	mg/kg	2.00	0.012	106	45.6-142	0.272	33.4	
Total Xylenes	6.45	0.150	mg/kg	6.00	0.017	107	52-138	0.0453	36.2	
Surrogate: 4-Bromofluorobenzene (PID)	0.0507		mg/kg	0.0500		101	73.6-140			

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Limits

RPD



Analytical Results For:

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

Analyte

Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Spike

Level

Source

Result

%REC

190

28-171

Project Manager: IKE TAVAREZ

Fax To: NONE

Reported: 21-Sep-16 09:19

RPD

Limit

Notes

Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Units

Reporting

Limit

Result

95.1

rinaryte	resur	Limit	Omts	Level	resurt	70TCLC	Lillito	МЪ	Limit	110103
Batch 6091504 - General Prep - Org	anics									
Blank (6091504-BLK1)				Prepared:	15-Sep-16 A	Analyzed:	16-Sep-16			
GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	48.3		mg/kg	50.0		96.7	35-147			
Surrogate: 1-Chlorooctadecane	54.2		mg/kg	50.0		108	28-171			
LCS (6091504-BS1)				Prepared:	15-Sep-16 A	Analyzed:	16-Sep-16			
GRO C6-C10	182	10.0	mg/kg	200		91.0	76.7-115			
DRO >C10-C28	192	10.0	mg/kg	200		95.8	78.3-122			
Total TPH C6-C28	374	10.0	mg/kg	400		93.4	79.8-117			
Surrogate: 1-Chlorooctane	52.8		mg/kg	50.0		106	35-147			
Surrogate: 1-Chlorooctadecane	53.3		mg/kg	50.0		107	28-171			
LCS Dup (6091504-BSD1)				Prepared:	15-Sep-16 A	Analyzed:	16-Sep-16			
GRO C6-C10	192	10.0	mg/kg	200		96.0	76.7-115	5.31	9.42	
DRO >C10-C28	207	10.0	mg/kg	200		104	78.3-122	7.89	13.2	
Total TPH C6-C28	399	10.0	mg/kg	400		99.8	79.8-117	6.64	10.7	
Surrogate: 1-Chlorooctane	55.9		mg/kg	50.0		112	35-147			
Surrogate: 1-Chlorooctadecane	57.0		mg/kg	50.0		114	28-171			
Matrix Spike (6091504-MS1)	Sou	ırce: H602055-	-04	Prepared:	15-Sep-16 A	Analyzed:	16-Sep-16			
GRO C6-C10	170	50.0	mg/kg	200	25.0	72.3	66.4-123			
DRO >C10-C28	4540	50.0	mg/kg	200	4710	NR	67.6-126			QM-07
Total TPH C6-C28	4710	50.0	mg/kg	400	4730	NR	60.8-134			QM-07
Surrogate: 1-Chlorooctane	49.0		mg/kg	50.0		98.0	35-147			

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mg/kg

50.0

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Celey D. Keine

Surrogate: 1-Chlorooctadecane

S-06

Limits

35-147

28-171

RPD



Analytical Results For:

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

Analyte

Project: CLUSTER STATE COM #1H

Spike

Level

50.0

50.0

Source

Result

Project Number: 212C-MO-00605

%REC

189

Reported: 21-Sep-16 09:19

RPD

Limit

Notes

S-06

Project Manager: IKE TAVAREZ

Fax To: NONE

Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Units

Reporting

Limit

Result

50.9

94.4

Batch 6091504 - General Prep - Organics										
Matrix Spike Dup (6091504-MSD1)	Sourc	е: Н602055	-04	Prepared:	15-Sep-16 A	nalyzed:	16-Sep-16			
GRO C6-C10	127	50.0	mg/kg	200	25.0	51.1	66.4-123	34.3	10.2	QM-07, QR-03
DRO >C10-C28	4760	50.0	mg/kg	200	4710	25.1	67.6-126	NR	11.6	QM-07
Total TPH C6-C28	4890	50.0	mg/kg	400	4730	38.1	60.8-134	NR	9.02	QM-07, QR-03

mg/kg

mg/kg

Surrogate: 1-Chlorooctane

Surrogate: 1-Chlorooctadecane

Batch 6091901 - General Prep - Org	anics								
Blank (6091901-BLK1)				Prepared & Anal	lyzed: 19-Sep-16	5			
GRO C6-C10	ND	10.0	mg/kg						
DRO >C10-C28	ND	10.0	mg/kg						
EXT DRO >C28-C35	ND	10.0	mg/kg						
Total TPH C6-C28	ND	10.0	mg/kg						
Surrogate: 1-Chlorooctane	49.0		mg/kg	50.0	98.0	35-147			
Surrogate: 1-Chlorooctadecane	53.2		mg/kg	50.0	106	28-171			
LCS (6091901-BS1)				Prepared & Anal	lyzed: 19-Sep-16	5			
GRO C6-C10	202	10.0	mg/kg	200	101	76.7-115			
DRO >C10-C28	211	10.0	mg/kg	200	106	78.3-122			
Total TPH C6-C28	413	10.0	mg/kg	400	103	79.8-117			
Surrogate: 1-Chlorooctane	50.9		mg/kg	50.0	102	35-147			
Surrogate: 1-Chlorooctadecane	55.3		mg/kg	50.0	111	28-171			
LCS Dup (6091901-BSD1)				Prepared & Anal	lyzed: 19-Sep-16	5			
GRO C6-C10	208	10.0	mg/kg	200	104	76.7-115	2.97	9.42	
DRO >C10-C28	216	10.0	mg/kg	200	108	78.3-122	2.27	13.2	
Total TPH C6-C28	424	10.0	mg/kg	400	106	79.8-117	2.61	10.7	
Surrogate: 1-Chlorooctane	51.7		mg/kg	50.0	103	35-147			
Surrogate: 1-Chlorooctadecane	56.9		mg/kg	50.0	114	28-171			

Cardinal Laboratories *=Accredited Analyte

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

Surrogate: 1-Chlorooctadecane

Project: CLUSTER STATE COM #1H

Project Number: 212C-MO-00605

Project Manager: IKE TAVAREZ

Fax To: NONE

Reported: 21-Sep-16 09:19

Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 6091901 - General Prep - Organics										

Matrix Spike (6091901-MS1)	Source	e: H602073	-20	Prepared &	Analyzed:	19-Sep-16	ó			
GRO C6-C10	173	10.0	mg/kg	200	ND	86.4	66.4-123			
DRO >C10-C28	188	10.0	mg/kg	200	3.73	92.4	67.6-126			
Total TPH C6-C28	361	10.0	mg/kg	400	5.32	89.0	60.8-134			
Surrogate: 1-Chlorooctane	47.1		mg/kg	50.0		94.2	35-147			
Surrogate: 1-Chlorooctadecane	52.4		mg/kg	50.0		105	28-171			
Matrix Spike Dup (6091901-MSD1)	Source	е: Н602073	-20	Prepared &	Analyzed:	19-Sep-16	5			
GRO C6-C10	162	10.0	mg/kg	200	ND	81.0	66.4-123	6.41	10.2	
DRO >C10-C28	173	10.0	mg/kg	200	3.73	84.5	67.6-126	8.82	11.6	
Total TPH C6-C28	335	10.0	mg/kg	400	5.32	82.4	60.8-134	7.69	9.02	
Surrogate: 1-Chlorooctane	43.2		mg/kg	50.0		86.5	35-147			

mg/kg

50.0

95.5

28-171

47.8

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Notes and Definitions

S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or

matrix interference's.

QR-03 The RPD value for the sample duplicate or MS/MSD was outside if QC acceptance limits due to matrix interference. QC batch

accepted based on LCS and/or LCSD recovery and/or RPD values.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS

recovery.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

** Samples not received at proper temperature of 6°C or below.

*** Insufficient time to reach temperature.

- Chloride by SM4500Cl-B does not require samples be received at or below 6°C

Samples reported on an as received basis (wet) unless otherwise noted on report

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Please fill out all copies - Laboratory retainst Yellowsbopy - Return Orginal copy to Tetra Tech - Project N	PHONE: DATE: TIME:	LABORATORY: RECEIVED BY: (Signature)	RECINQUISHED BY: (Signature) Date: RECEIVED BY: (Signature) Time: Time:	Time:	RECEIVED BY: (Signature)	Date: 1/13-/10	1 4 4		8 24-25	7 19-20	24.1	S 9-10 K	4 1 1 1 X	3 4 5	2		LABID. DATE TIME RIX COMAB SAMPLE IDENTIFICATION BERED OF FILTEL SAMPL	COS SITE MANAGER: Ke Taya/07	1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946		Analysis Request of Chain of Custody Record
PH 1KCELDS 100 MG/KG, 13ch 7ch 1KCCEDS PROJECT Manager retains Pinkaboy - Accounting receives Gold copy.	Jeanne Hach RUSH Charges Authorized: Yes No		ON:	FEDEX BUS OTHER:		SAMP(PD) SY: (Print & Initial)) Date: Time:	<	**	8	X	75	70	78	У	*	×(BTEX 8021B TPH 8015 MO PAH 8270 RCRA Metals Ag TCLP Metals Ag TCLP Volatiles TCLP Semi Volati RCI GC.MS Vol. 8240, GC.MS Semi. Vol PCB's 8080/608 Pest. 808/608 Chloride Gamma Spec. Alpha Beta (Air) PLM (Asbestos) Major Anions/Cat	As Ba Co As Ba Co illes	d Cr Pb Hg Se	(Circle or Specify Method No.)	PAGE: OF: 7

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TETRA TECH 1910 N. Big Spring St. Midland, Texas 79705 (42) 882-4559 • Fax (432) 882-3946 STE MANAGER Midland, Texas 79705 (42) 882-4559 • Fax (432) 882-3946 STE MANAGER METHOD THE MANAGER THE THE	SAMPLE CONDITION WHEN RECEIVED:	CONTACT: STATE:	ADDRESS:	RELINQUISHED BY: (Signature)		RELINQUISHED BY: (Signature)	2		R	38	37	36	35	无	33	52	31 9/14	NUMBER ZON	212C-MD-10165		H602073		Analysis R
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Page	Se	35)	RATECH	TET ST		
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OF: 7	PAGE: (0	dy Record	Reguest of Chain of Custody Record	Perilest of (Analysis R	Δna

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Analytical Report 537439

for Tetra Tech- Midland

Project Manager: Ike Tavarez
Cluster State Com #1 H
212c-MD-00605.07
30-SEP-16

Collected By: Client





1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122): Texas (T104704215), Arizona (AZ0765), Florida (E871002), Louisiana (03054) Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295) Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)

Xenco-San Antonio: Texas (T104704534)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757) Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)



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30-SEP-16

Project Manager: **Ike Tavarez Tetra Tech- Midland**4000 N. Big Spring Suite 401
Midland, TX 79705

Reference: XENCO Report No(s): 537439

Cluster State Com #1 H
Project Address: Eddy Co NM

Ike Tavarez:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 537439. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 537439 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Kelsey Brooks

Knis Hoah

Project Manager

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Sample Cross Reference 537439



Tetra Tech- Midland, Midland, TX

Cluster State Com #1 H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH-1	S	09-22-16 00:00	0 - 1	537439-001
AH-1	S	09-22-16 00:00	1 - 1.5	537439-002
AH-1	S	09-22-16 00:00	2 - 2.5	537439-003
AH-1	S	09-22-16 00:00	3 - 3.5	537439-004
AH-1	S	09-22-16 00:00	4 - 4.5	537439-005
AH-1	S	09-22-16 00:00	5 - 5.5	537439-006
AH-1	S	09-22-16 00:00	6 - 6.5	537439-007
AH-1	S	09-22-16 00:00	7 - 7.5	537439-008



CASE NARRATIVE



Client Name: Tetra Tech- Midland Project Name: Cluster State Com #1 H

Project ID: 212c-MD-00605.07 Report Date: 30-SEP-16

Work Order Number(s): 537439 Date Received: 09/23/2016

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analysis Summary 537439

Tetra Tech- Midland, Midland, TX Project Name: Cluster State Com #1 H TNI LABORATORI

Project Id: 212c-MD-00605.07

Contact: Ike Tavarez
Project Location: Eddy Co NM

Date Received in Lab: Fri Sep-23-16 11:55 am

Report Date: 30-SEP-16 **Project Manager:** Kelsey Brooks

	Lab Id:	537439-0	01	537439-0	02	537439-00	03	537439-00)4	537439-0	05	537439-0	06
Analysis Requested	Field Id:	AH-1		AH-1		AH-1		AH-1		AH-1		AH-1	
Anaiysis Requesieu	Depth:	0-1		1-1.5		2-2.5		3-3.5		4-4.5		5-5.5	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Sep-22-16 (00:00	Sep-22-16 (00:00	Sep-22-16 0	0:00	Sep-22-16 0	0:00	Sep-22-16 (00:00	Sep-22-16 0	00:00
Inorganic Anions by EPA 300/300.1	Extracted:	Sep-30-16 (09:00	Sep-30-16 0	9:00	Sep-30-16 0	9:00	Sep-30-16 0	9:00	Sep-30-16 (9:00	Sep-30-16 0	9:00
	Analyzed:	Sep-30-16	11:19	Sep-30-16 1	1:40	Sep-30-16 1	1:47	Sep-30-16 1	1:54	Sep-30-16 1	2:01	Sep-30-16 1	2:22
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		4120	50.0	9480	100	10800	100	12600	250	3040	50.0	665	50.0

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Kelsey Brooks Project Manager

Knis Roah



Certificate of Analysis Summary 537439

Tetra Tech- Midland, Midland, TX Project Name: Cluster State Com #1 H



Project Id: 212c-MD-00605.07

Contact: Ike Tavarez
Project Location: Eddy Co NM

Date Received in Lab: Fri Sep-23-16 11:55 am

Report Date: 30-SEP-16 **Project Manager:** Kelsey Brooks

	Lab Id:	537439-0	07	537439-0	008		
Analysis Requested	Field Id:	AH-1		AH-1			
Anaiysis Requesieu	Depth:	6-6.5		7-7.5			
	Matrix:	SOIL		SOIL			
	Sampled:	Sep-22-16 (00:00	Sep-22-16	00:00		
Inorganic Anions by EPA 300/300.1	Extracted:	Sep-30-16 (09:00	Sep-30-16	09:00		
	Analyzed:	Sep-30-16	12:29	Sep-30-16	12:36		
	Units/RL:	mg/kg	RL	mg/kg	RL		
Chloride		373	50.0	37.8	5.00		

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Kelsey Brooks Project Manager

Knis Roah



Flagging Criteria



- X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- **B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- **D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F RPD exceeded lab control limits.
- J The target analyte was positively identified below the quantitation limit and above the detection limit.
- U Analyte was not detected.
- L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- **H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- **K** Sample analyzed outside of recommended hold time.
- **JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.
- ** Surrogate recovered outside laboratory control limit.
- BRL Below Reporting Limit.
- **RL** Reporting Limit

MDL Method Detection Limit SDL Sample Detection Limit LOD Limit of Detection

PQL Practical Quantitation Limit MQL Method Quantitation Limit LOQ Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

- + NELAC certification not offered for this compound.
- * (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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 1211 W Florida Ave, Midland, TX 79701
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 (432) 563-1713

 2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282
 (602) 437-0330



BS / BSD Recoveries



Project Name: Cluster State Com #1 H

Work Order #: 537439 Project ID: 212c-MD-00605.07

Analyst: MNR Date Prepared: 09/30/2016 Date Analyzed: 09/30/2016

 Lab Batch ID: 3001120
 Sample: 714399-1-BKS
 Batch #: 1
 Matrix: Solid

Units: mg/kg		BLAN	K /BLANK S	SPIKE / 1	BLANK S	SPIKE DUPI	LICATE	RECOVI	ERY STUD	PΥ	
Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes		[B]	[C]	[D]	[E]	Result [F]	[G]				
Chloride	<5.00	250	233	93	250	234	94	0	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)| Blank Spike Recovery [D] = 100*(C)/[B] Blank Spike Duplicate Recovery [G] = 100*(F)/[E] All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries



Project Name: Cluster State Com #1 H

Work Order #: 537439 Project ID: 212c-MD-00605.07

Lab Batch ID: 3001120 **QC- Sample ID:** 536657-006 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	920	250	1160	96	250	1150	92	1	90-110	20	

Lab Batch ID: 3001120 **QC- Sample ID:** 537439-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 09/30/2016 Date Prepared: 09/30/2016 Analyst: MNR

Reporting Units: mg/kg MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	4120	2500	6760	106	2500	6650	101	2	90-110	20	

Ş RUSH Charge Authorized: Results by: Š Major Anions/Cations, pH, TDS Ä AIRBILL #: Please fill out all copies - Laboratory retains Yellow copy - Return Orginal copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy OTHER: PLM (Asbestos) (Circle or Specify Method No.) Alpha Beta (Air) ANALYSIS REQUEST Chloride Pest. 808/608 PCB's 8080/608 TETRA TECH CONTACT PERSON GC.MS Semi. Vol. 8270/625 BUS UPS GC:MS AOI: 8540/8560/654 BCI HAND DELIVERED TCLP Semi Volatiles TCLP Volatiles TCLP Metals Ag As Ba Cd Vr Pd Hg Se RCRA Metals Ag As Ba Cd Cr Pb Hg Se 07S8 HA9 8015 MOD. НДТ (Ext. to C35) **TX1005** BTEX 8021B PRESERVATIVE METHOD NONE Analysis Request of Chain of Custody Record CE Date: Time: Date: Date: Time: Time: **EONH** HCF FILTERED (Y/N) IIME NUMBER OF CONTAINERS Eden CONIN (432) 682-4559 • Fax (432) 682-3946 RECEIVED BY: (Signature) RECEIVED BY: (Signature) SAMPLE IDENTIFICATION State Comment H TOW SEL 1 V N 1910 N. Big Spring St. Midland, Texas 79705 ノン SITE MANAGER: 7 1 C DATE T JS REMARKS: PROJECT NAME: Clusso Date: Time: Date: Time: × 8AA9 Mento COMP **XINTAM** 5 SAMPLE CONDITION WHEN RECEIVED: 712C-MO-001085 NJ TIME RELINQUISHED BY: (Signature) RECEIVING LABORATORY:
ADDRESS:
CITY:
CONTACT: 2016 DATE 21/16 CLIĘNT NAME: LAB I.D. NUMBER



XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: Tetra Tech- Midland

Date/ Time Received: 09/23/2016 11:55:00 AM

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient

Work Order #: 537439

Temperature Measuring device used: R8

	Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?		2.3
#2 *Shipping container in good condition	n?	N/A
#3 *Samples received on ice?		Yes
#4 *Custody Seal present on shipping co	ontainer/ cooler?	N/A
#5 *Custody Seals intact on shipping co		N/A
#6 Custody Seals intact on sample bottle		N/A
#7 *Custody Seals Signed and dated?		N/A
#8 *Chain of Custody present?		Yes
#9 Sample instructions complete on Cha	ain of Custody?	Yes
#10 Any missing/extra samples?		No
#11 Chain of Custody signed when relin	quished/ received?	Yes
#12 Chain of Custody agrees with samp		Yes
#13 Container label(s) legible and intact	?	Yes
#14 Sample matrix/ properties agree wit	h Chain of Custody?	Yes
#15 Samples in proper container/ bottle?	?	Yes
#16 Samples properly preserved?		Yes
#17 Sample container(s) intact?		Yes
#18 Sufficient sample amount for indicat	red test(s)?	Yes
#19 All samples received within hold tim	e?	Yes
#20 Subcontract of sample(s)?		N/A
#21 VOC samples have zero headspace	e (less than 1/4 inch bubble)?	N/A
#22 <2 for all samples preserved with HI		N/A
samples for the analysis of HEM or HEM	-SGT which are verified by the	
analysts. #23 >10 for all samples preserved with N	NaAsO2+NaOH, ZnAc+NaOH?	N/A
	,	
* Must be completed for after-hours de	elivery of samples prior to placing in	the refrigerator
must be completed for after floure de	invery of dampies prior to placing in	the remigerator
Analyst:	PH Device/Lot#:	
	1	
Checklist completed by:	Jessica Vramer	Data: 00/22/2016
	Jessica Kramer	Date: 09/23/2016
Checklist reviewed by:	No. a March -	
	Mus Asah Kelsey Brooks	Date: <u>09/23/2016</u>
	Neisey Diouxs	