



SITE INFORMATION

Closure Report
Gadwall 18 Fed Com #1
Incident #nAB1628854271
Eddy County, New Mexico
Unit C Sec 18 T25S R37E
32.13486°, -104.23313°

Oil Release
Point of Release: Hole in Oil Tank
Release Date: 10.12.2016
Volume Released: 200 Barrels of Oil
Volume Recovered: 70 Barrels of Oil

CARMONA RESOURCES



Prepared for:
Cimarex Energy Co. of Colorado
600 N. Marienfeld Street
Suite 600
Midland, TX 79701

Prepared by:
Carmona Resources, LLC
310 West Wall Street
Suite 415
Midland, Texas 79701

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November 15, 2022

Mike Bratcher
District Supervisor
Oil Conservation Division, District 2
811 S. First Street
Artesia, NM 88210

**Re: Closure Report
Gadwall 18 Fed Com #1
Cimarex Energy Co. of Colorado
Site Location: Unit C, S18, T25S, R27E
(Lat 32.13486°, Long -104.23313°)
Eddy County, New Mexico**

Mr. Bratcher:

On behalf of Cimarex Energy Co. of Colorado (Cimarex), Carmona Resources, LLC has prepared this letter to document site activities for Gadwall 18 Fed Com #1. The site is located at 32.13486°, -104.23313° within Unit C, S18, T25S, R27E, in Eddy County, New Mexico (Figures 1 and 2).

1.0 Site information and Background

Based on the initial C-141 obtained from the New Mexico Oil Conservation Division (NMOCD), the leak was discovered on October 12, 2016, due to corrosion, causing a hole to develop in an oil tank. It resulted in approximately two hundred (200) barrels of oil, and seventy (70) barrels of oil were recovered. The impacted area is located inside a lined facility and is shown on Figure 3. The initial C-141 form is attached in Appendix C.

2.0 Site Characterization and Groundwater

The site is located within a high karst area. Based on a review of the New Mexico Office of State Engineers and USGS databases, no known water sources are within a 0.50-mile radius of the location. The nearest well is located approximately 0.57 miles Southwest of the site in S13, T25S, R26E and was drilled in 1987. The well has a reported depth to groundwater of 8.21' feet below ground surface (ft bgs). A copy of the summary report is attached in Appendix D.

3.0 NMAC Regulatory Criteria

Per the NMOCD regulatory criteria established in 19.15.29.12 NMAC, the following criteria were utilized in assessing the site.

- Benzene: 10 milligrams per kilogram (mg/kg).
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg.

- TPH: 100 mg/kg (GRO + DRO + MRO).
- Chloride: 600 mg/kg

4.0 Site Assessment Activities

Initial Assessment

On November 14, 2016, a third-party company was onsite to collect soil samples from the release area to evaluate soil impact. One (1) auger hole (AH-1) was installed in the area of the torn liner, and two (2) additional auger holes (AH-2 and AH-3) were installed to evaluate the horizontal extents. The auger holes were installed to a depth of 0.5' below the surface. The samples were analyzed for total petroleum hydrocarbons (TPH) by EPA method 8015, modified benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix E. Refer to Table 1 and Figure 3.

Additional Sampling

Based on the laboratory results, the third-party company returned to the site on September 5, 2017, to define the impact vertically. Two (2) boreholes (BH-1 and BH-2) were installed inside the bermed facility to depths of 16'-17' and 19'-20' below the surface. The samples were analyzed for total petroleum hydrocarbons (TPH) by EPA method 8015, modified benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix E. Refer to Table 1 and Figure 3.

Cimarex pulled the liner in the areas of boreholes (BH-1 and BH-2) to remove 2.0'-3.0' of the impacted material. After the area was excavated to the maximum extent possible and backfilled with clean material, the liner was replaced and repaired. Due to access issues and equipment inside the facility, the remaining impacted areas were deferred until abandonment. Refer to Figure 4.

Borehole Sampling

The site was plugged and abandoned on July 7, 2019. During plugging and abandonment activities, approximately 200 cubic yards of soil were removed from under the containment area. On October 24, 2022, Carmona Resources, LLC performed site assessment activities to evaluate soil impacts stemming from the release. Five (5) boreholes were advanced to depths ranging from the surface to 20.0' below the surface inside the release area to assess the vertical extent. See Figure 3 for the sample locations. For chemical analysis, the soil samples were collected and placed directly into laboratory-provided sample containers, stored on ice, and transported under the proper chain-of-custody protocol to Cardinal Laboratories in Hobbs, New Mexico. The samples were analyzed for total petroleum hydrocarbons (TPH) by EPA method 8015, modified benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B, and chloride by EPA method 4500. The laboratory reports, including analytical methods, results, and chain-of-custody documents, are attached in Appendix E.

All samples collected during this site assessment were below the regulatory requirements for TPH, BTEX, and chloride. Refer to Table 2 and Figure 5.

5.0 Conclusion

Based on the assessment results and the analytical data, no further actions are required at the site. The final C-141 is attached, and Cimarex formally requests closure of the spill. If you have any



questions regarding this report or need additional information, please get in touch with us at 432-813-1992.

Sincerely,
Carmona Resources, LLC

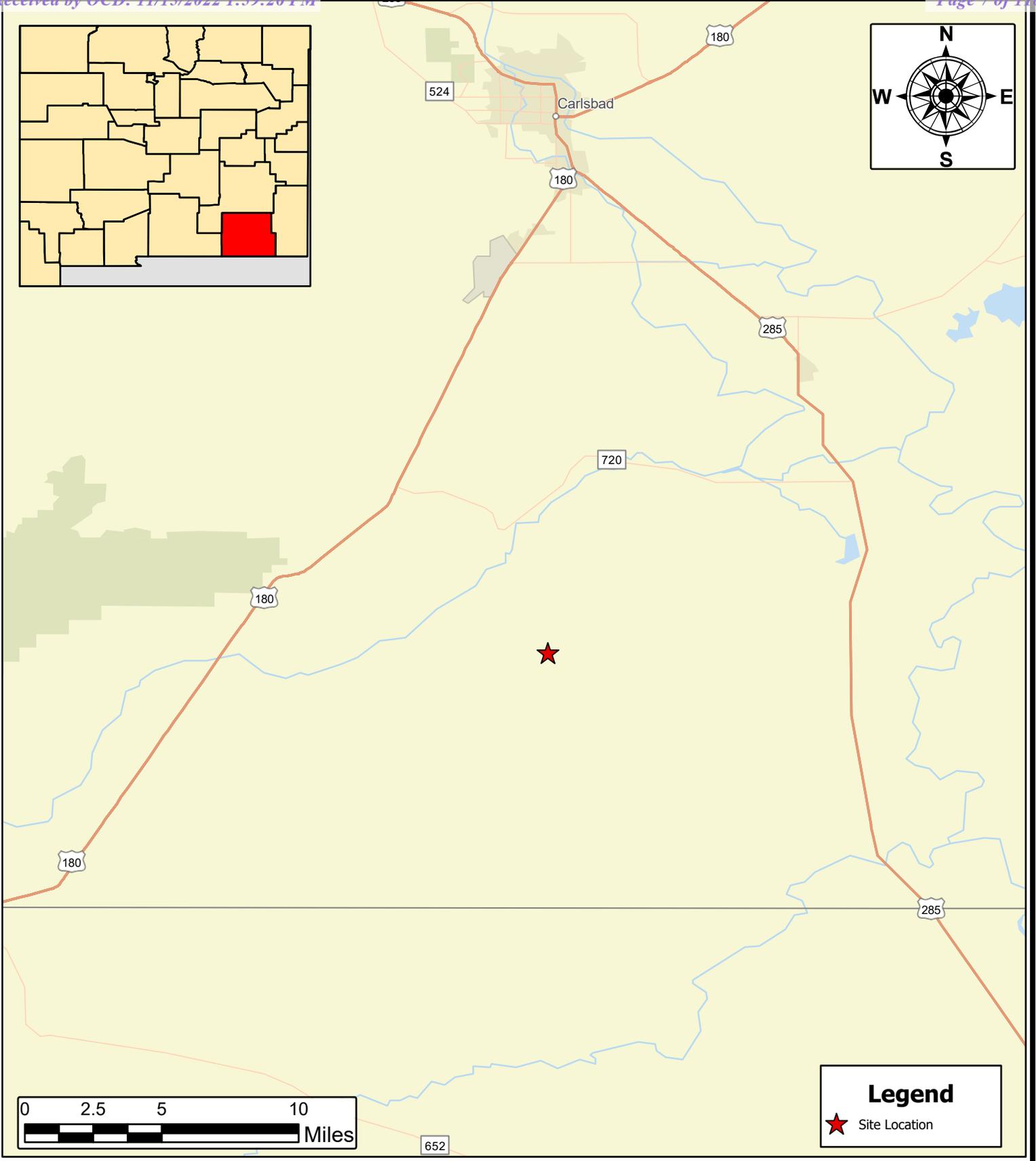
Mike Carmona
Environmental Manager

Ashton Thielke
Sr. Project Manager

FIGURES

CARMONA RESOURCES





OVERVIEW MAP
CIMAREX ENERGY CO. OF COLORADO
 GADWALL 18 FED COM #001
 EDDY COUNTY, NEW MEXICO
 32.13486, -104.23313

SCALE: As Shown Date: 11/2/2022

CARMONA RESOURCES 

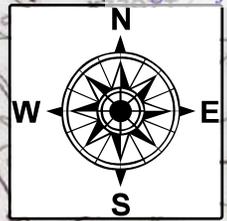
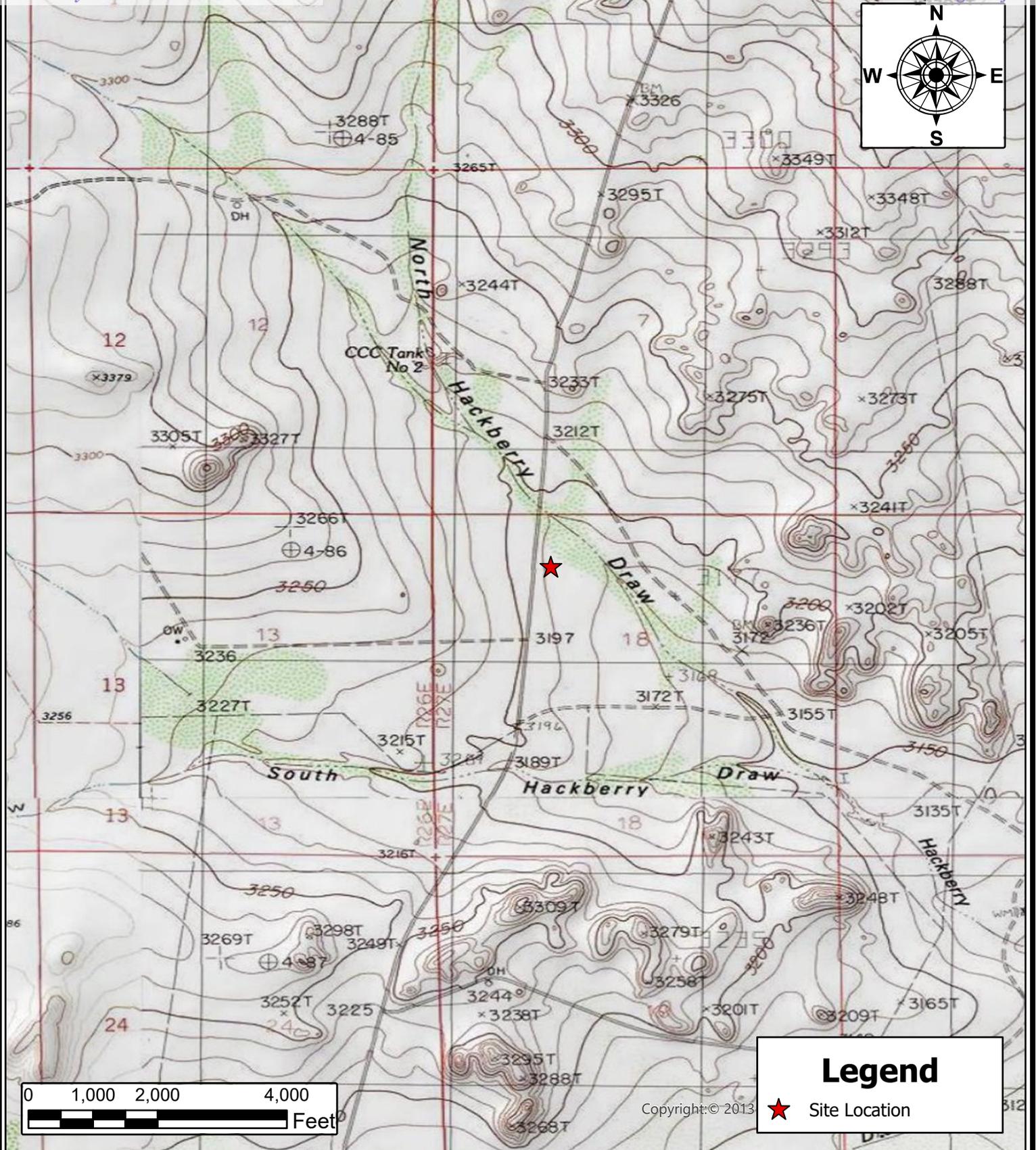
Carmona Resources
 310 West Wall Street, Suite 415
 Midland, Texas 79701

NOTES:

1. Base Image: ESRI Maps & Data 2022
2. Map Projection: WGS84

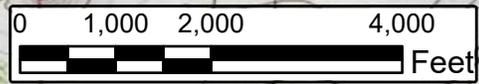
DRAWING NUMBER:
FIGURE 1

SHEET NUMBER:
1 of 1



Legend

★ Site Location



TOPOGRAPHIC MAP
CIMAREX ENERGY CO. OF COLORADO
 GADWALL 18 FED COM #001
 EDDY COUNTY, NEW MEXICO
 32.13486, -104.23313

CARMONA RESOURCES 

Carmona Resources
 310 West Wall Street, Suite 415
 Midland, Texas 79701

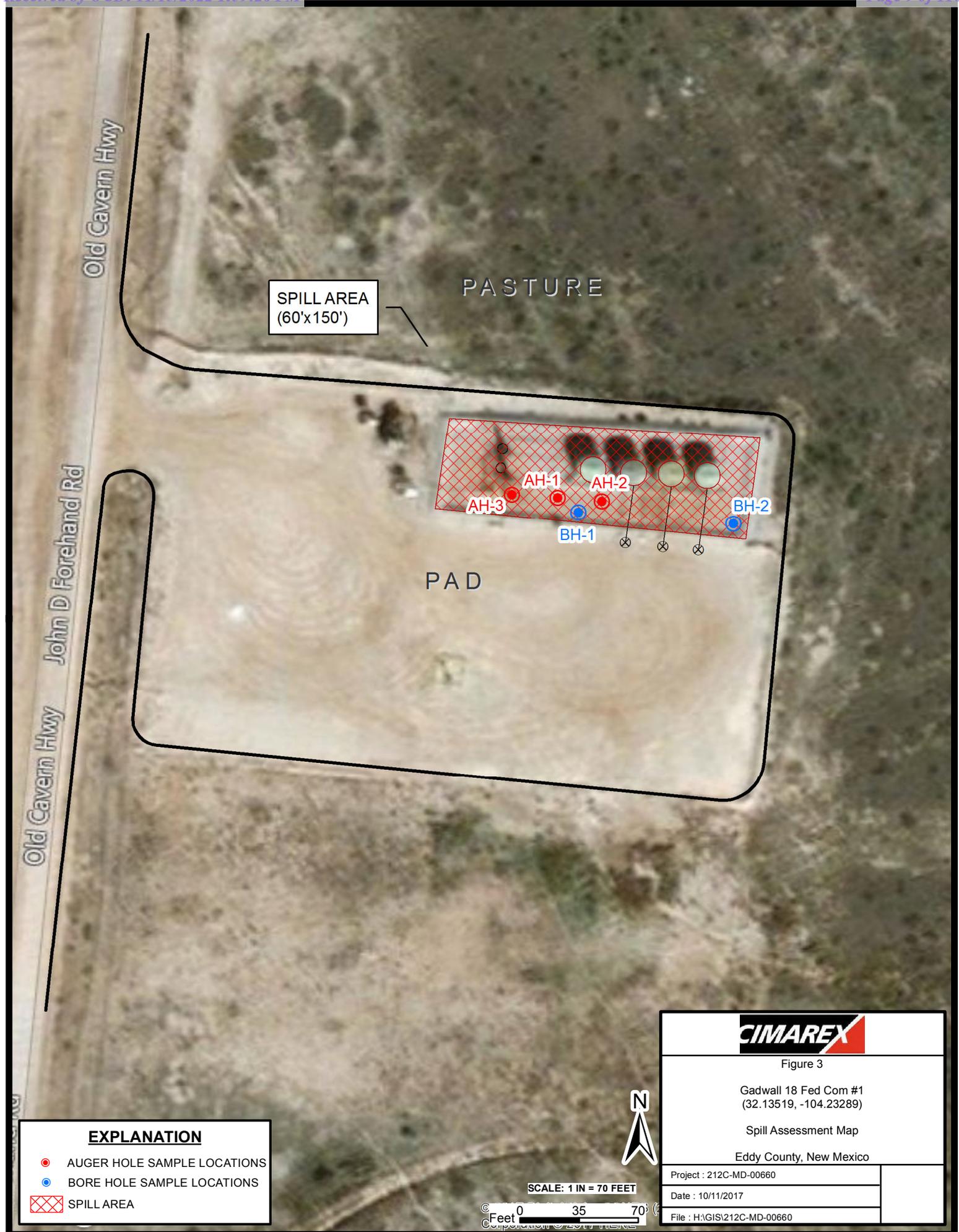
NOTES:

1. Base Image: ESRI Maps & Data 2022
2. Map Projection: WGS84

DRAWING NUMBER:
FIGURE 2

SHEET NUMBER:
1 of 1

SCALE: As Shown Date: 11/2/2022



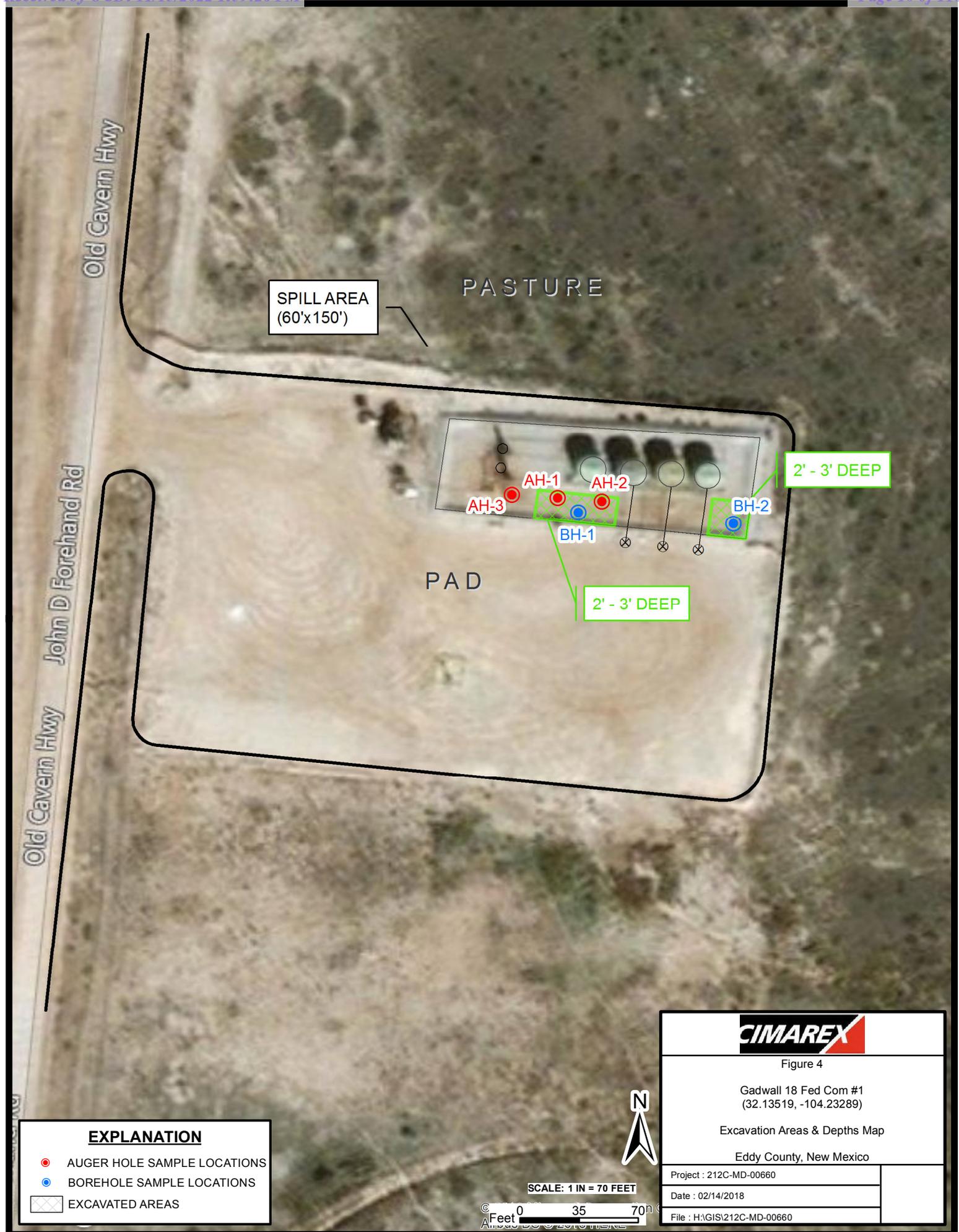
EXPLANATION	
●	AUGER HOLE SAMPLE LOCATIONS
●	BORE HOLE SAMPLE LOCATIONS
	SPILL AREA



SCALE: 1 IN = 70 FEET



CIMAREX	
Figure 3	
Gadwall 18 Fed Com #1 (32.13519, -104.23289)	
Spill Assessment Map	
Eddy County, New Mexico	
Project : 212C-MD-00660	
Date : 10/11/2017	
File : H:\GIS\212C-MD-00660	



SPILL AREA
(60'x150')

PASTURE

PAD

2' - 3' DEEP

2' - 3' DEEP

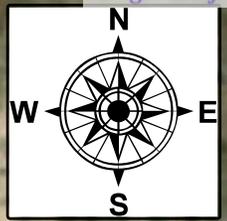
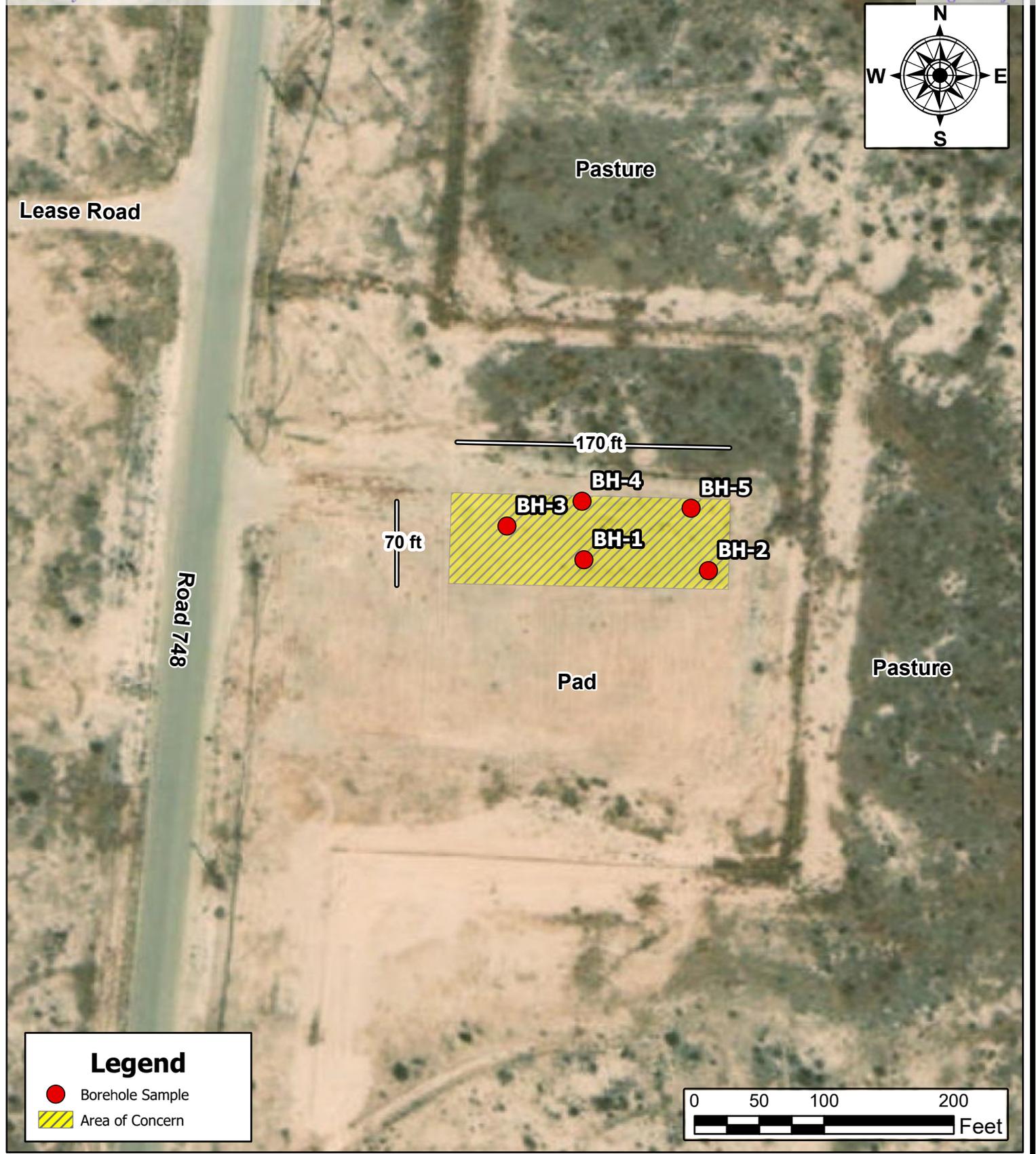
EXPLANATION	
	AUGER HOLE SAMPLE LOCATIONS
	BOREHOLE SAMPLE LOCATIONS
	EXCAVATED AREAS



SCALE: 1 IN = 70 FEET

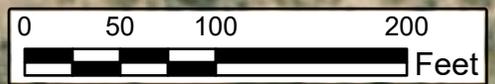


CIMAREX	
Figure 4	
Gadwall 18 Fed Com #1 (32.13519, -104.23289)	
Excavation Areas & Depths Map	
Eddy County, New Mexico	
Project : 212C-MD-00660	
Date : 02/14/2018	
File : H:\GIS\212C-MD-00660	



Legend

- Borehole Sample
- Area of Concern



SAMPLE LOCATION MAP
CIMAREX ENERGY CO. OF COLORADO
 GADWALL 18 FED COM #001
 EDDY COUNTY, NEW MEXICO
 32.13486, -104.23313


Carmona Resources
 310 West Wall Street, Suite 415
 Midland, Texas 79701

NOTES:

1. Base Image: ESRI Maps & Data 2022
2. Map Projection: WGS84

DRAWING NUMBER:
FIGURE 5
 SHEET NUMBER:
1 of 1

SCALE: As Shown Date: 11/2/2022

APPENDIX A

CARMONA RESOURCES



Table 1
Cimarex Energy Co. of Colorado
Gadwall 18 Federal Com #001
Eddy County, New Mexico

Sample ID	Date	Depth (ft)	TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			GRO	DRO	Total						
AH-1	11/14/2016	0-0.5	562	614	1,180	<0.106	3.30	0.302	14.5	18.1	-
AH-2	11/14/2016	0-0.5	928	1,370	2,300	0.128	3.79	2.69	21.9	28.5	-
BH-1	9/5/2017	0-1	242	562	804	<0.00201	0.0264	<0.00201	0.248	0.275	-
	"	2-3	1,530	1,830	3,390	<0.500	35.0	24.1	216	275	-
	"	4-5	<24.9	<24.9	<24.9	<0.00200	0.0259	<0.00200	0.151	0.177	-
	"	16-17	<25.0	<25.0	<25.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	-
AH-3	11/14/2016	0-0.5	1,130	658	1,790	0.326	8.55	0.714	30.9	40.5	-
BH-2	9/5/2017	0-1	220	3,240	3,460	0.00954	0.0855	0.0308	0.278	0.0404	-
	"	2-3	110	1,390	1,500	0.00517	0.0114	0.0381	0.392	0.549	-
	"	4-5	92.8	345	438	<0.00364	0.213	0.0431	0.958	1.21	-
	"	6-7	32.7	404	437	<0.00394	0.0297	0.0105	0.163	0.203	-
	"	9-10	<25.0	157	157	-	-	-	-	-	-
	"	14-15	<24.9	120	120	-	-	-	-	-	-
	"	19-20	<24.9	95.0	95.0	<0.00200	<0.00200	<0.00200	0.0120	0.0120	-
Regulatory Criteria^A					100 mg/kg	10 mg/kg	-	-	-	50 mg/kg	600 mg/kg

 Exceeds

(-) Not Analyzed

^A – Table 1 - 19.15.29 NMAC
 mg/kg - milligram per kilogram

TPH - Total Petroleum Hydrocarbons
 ft - feet

(AH) Augerhole Sample

(BH) Borehole Sample

Table 2
Cimarex Energy Co. of Colorado
Gadwall 18 Federal Com #001
Eddy County, New Mexico

Sample ID	Date	Depth (ft)	TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			GRO	DRO	MRO	Total						
BH-1	10/24/2022	0-5	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	48.0
	"	5-10	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	16.0
	"	10-15	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	128
	"	15-20	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	112
BH-2	10/24/2022	0-5	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	208
	"	5-10	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	96.0
	"	10-15	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	64.0
	"	15-20	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	48.0
BH-3	10/24/2022	0-5	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	32.0
	"	5-10	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	32.0
	"	10-15	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	16.0
	"	15-20	<10.0	11.1	<10.0	11.1	<0.050	<0.050	<0.050	<0.150	<0.300	16.0
BH-4	10/24/2022	0-5	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	32.0
	"	5-10	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	48.0
	"	10-15	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	128
	"	15-20	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	80.0
BH-5	10/24/2022	0-5	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	32.0
	"	5-10	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	<16.0
	"	10-15	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	48.0
	"	15-20	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	80.0
Regulatory Criteria^A						100 mg/kg	10 mg/kg	-	-	-	50 mg/kg	600 mg/kg

(-) Not Analyzed

^A – Table 1 - 19.15.29 NMAC

mg/kg - milligram per kilogram

TPH - Total Petroleum Hydrocarbons

ft - feet

(BH) Borehole Sample

APPENDIX B

CARMONA RESOURCES



PHOTOGRAPHIC LOG

Cimarex

Photograph No. 1

Facility: Gadwall 18 Federal Com #001

County: Eddy County, New Mexico

Description:
View North, area of AH-1. (11/16/2016)



Photograph No. 2

Facility: Gadwall 18 Federal Com #001

County: Eddy County, New Mexico

Description:
View North, Area of AH-2. (11/16/2016)



Photograph No. 3

Facility: Gadwall 18 Federal Com #001

County: Eddy County, New Mexico

Description:
View West, Area of AH-3. (11/16/2016)



PHOTOGRAPHIC LOG

Cimarex

Photograph No. 4

Facility: Gadwall 18 Federal Com #001

County: Eddy County, New Mexico

Description:
View Northeast, Area of Reclaimed Pad.



Photograph No. 5

Facility: Gadwall 18 Federal Com #001

County: Eddy County, New Mexico

Description:
View East, Area of Reclaimed Pad.



Photograph No. 6

Facility: Gadwall 18 Federal Com #001

County: Eddy County, New Mexico

Description:
View of BH-1, 10.21.2022.



PHOTOGRAPHIC LOG

Cimarex

Photograph No. 7

Facility: Gadwall 18 Federal Com #001

County: Eddy County, New Mexico

Description:
View of BH-2, 10.21.2022.



Photograph No. 8

Facility: Gadwall 18 Federal Com #001

County: Eddy County, New Mexico

Description:
View of BH-3, 10.21.2022.



Photograph No. 9

Facility: Gadwall 18 Federal Com #001

County: Eddy County, New Mexico

Description:
View of BH-4 & BH-5, 10.21.2022.



APPENDIX C

CARMONA RESOURCES



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

ARTESIA DISTRICT

OCT 13 2016

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

NAB1628854271

OPERATOR

Initial Report Final Report

Name of Company <i>Cimarex Energy 1621083</i>	Contact <i>Christine Alderman</i>
Address <i>600 N Marienfeld Ste 600 Midland TX</i>	Telephone No. <i>432-853-7059</i>
Facility Name <i>Gadwall 18 Fed Com 1</i>	Facility Type <i>production</i>

Surface Owner <i>Fed</i>	Mineral Owner	API No. <i>30-015-33496</i>
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
<i>C</i>	<i>18</i>	<i>25S</i>	<i>27E</i>	<i>850</i>	<i>N</i>	<i>1490</i>	<i>W</i>	<i>Eddy</i>

Latitude *32.13486* Longitude *-104.23313*

NATURE OF RELEASE

Type of Release <i>crude oil</i>	Volume of Release <i>200 bbls</i>	Volume Recovered <i>70 bbls</i>
Source of Release <i>tank</i>	Date and Hour of Occurrence <i>10/12/2016</i>	Date and Hour of Discovery <i>10/12/2016</i>
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? <i>Shelly Tucker/Heather Patterson</i>	
By Whom? <i>Christine Alderman</i>	Date and Hour <i>10/13/2016</i>	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.

Describe Cause of Problem and Remedial Action Taken.
Tank developed corrosion hole. Fluid released into a lined, gravel filled containment.

Describe Area Affected and Cleanup Action Taken.
Once fluids were recovered it was noted that there was a hole in the liner, therefore 130 bbls were lost to the soils. We will delineate to determine depth of contamination.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	OIL CONSERVATION DIVISION	
Printed Name: <i>Christine Alderman</i>	Signed By: <i>[Signature]</i> Approved by Environmental Specialist:	
Title: <i>ESH Supervisor</i>	Approval Date: <i>10/14/16</i>	Expiration Date: <i>N/A</i>
E-mail Address: <i>calderman@cimarex.com</i>	Conditions of Approval: Remediation per O.C.D. Rules & Guidelines Attached <input type="checkbox"/> SUBMIT REMEDIATION PROPOSAL NO	
Date: <i>10/13/2016</i> Phone: <i>432-853-7059</i>	LATER THAN: <i>11/14/16</i>	

* Attach Additional Sheets If Necessary

ARP-3939

Bratcher, Mike, EMNRD

From: Christine Alderman <calderman@cimarex.com>
Sent: Thursday, October 13, 2016 9:25 AM
To: Patterson, Heather, EMNRD; Bratcher, Mike, EMNRD; stucker@blm.gov; Price, Henryetta
Subject: RE: Gadwall 18 Fed Com 1 (API 30-015-33496)
Attachments: Gadwall18FedCom1.doc

Corrected form.

Christine Alderman

Cimarex Energy Co.



ESH Supervisor – Permian Basin
Midland TX
Cell – 432.853.7059

From: Christine Alderman
Sent: Thursday, October 13, 2016 10:13 AM
To: Patterson, Heather, EMNRD (Heather.Patterson@state.nm.us) <Heather.Patterson@state.nm.us>;
mike.bratcher@state.nm.us; stucker@blm.gov; 'Price, Henryetta' <hprice@blm.gov>
Subject: RE: Gadwall 18 Fed Com 1 (API 30-015-33496)

Correction on C-141. I put produced water, and it was oil. I will send corrected C-141 shortly.

Christine Alderman

Cimarex Energy Co.



ESH Supervisor – Permian Basin
Midland TX
Cell – 432.853.7059

From: Christine Alderman
Sent: Thursday, October 13, 2016 9:53 AM
To: Patterson, Heather, EMNRD (Heather.Patterson@state.nm.us) <Heather.Patterson@state.nm.us>;
mike.bratcher@state.nm.us; stucker@blm.gov; 'Price, Henryetta' <hprice@blm.gov>
Subject: Gadwall 18 Fed Com 1 (API 30-015-33496)

All,

Yesterday we had a spill at the above mentioned lease. A corrosion hole developed in the oil stock tank. 200 bbls of oil was released into a lined, gravel filled containment. As the fluids were being recovered, a hole in the poly liner was discovered. Approximately 130 bbls of oil were lost to the soils under the battery.

We will delineate to determine depth of impact.

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	_____ (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: Each of the following items must be included in the report.

- Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- Field data
- Data table of soil contaminant concentration data
- Depth to water determination
- Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- Boring or excavation logs
- Photographs including date and GIS information
- Topographic/Aerial maps
- Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Page 4

Incident ID	
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: _____ Title: _____

Signature: *Jac. Harimon* Date: _____

email: _____ Telephone: _____

OCD Only

Received by: Jocelyn Harimon Date: 11/15/2022

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: *Each of the following items must be included in the closure report.*

- A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: _____ Title: _____
 Signature: *Jac. Lj* Date: _____
 email: _____ Telephone: _____

OCD Only

Received by: Jocelyn Harimon Date: 11/15/2022

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: *Brittany Hall* Date: 11/16/2022
 Printed Name: Brittany Hall Title: Environmental Specialist

APPENDIX D

CARMONA RESOURCES

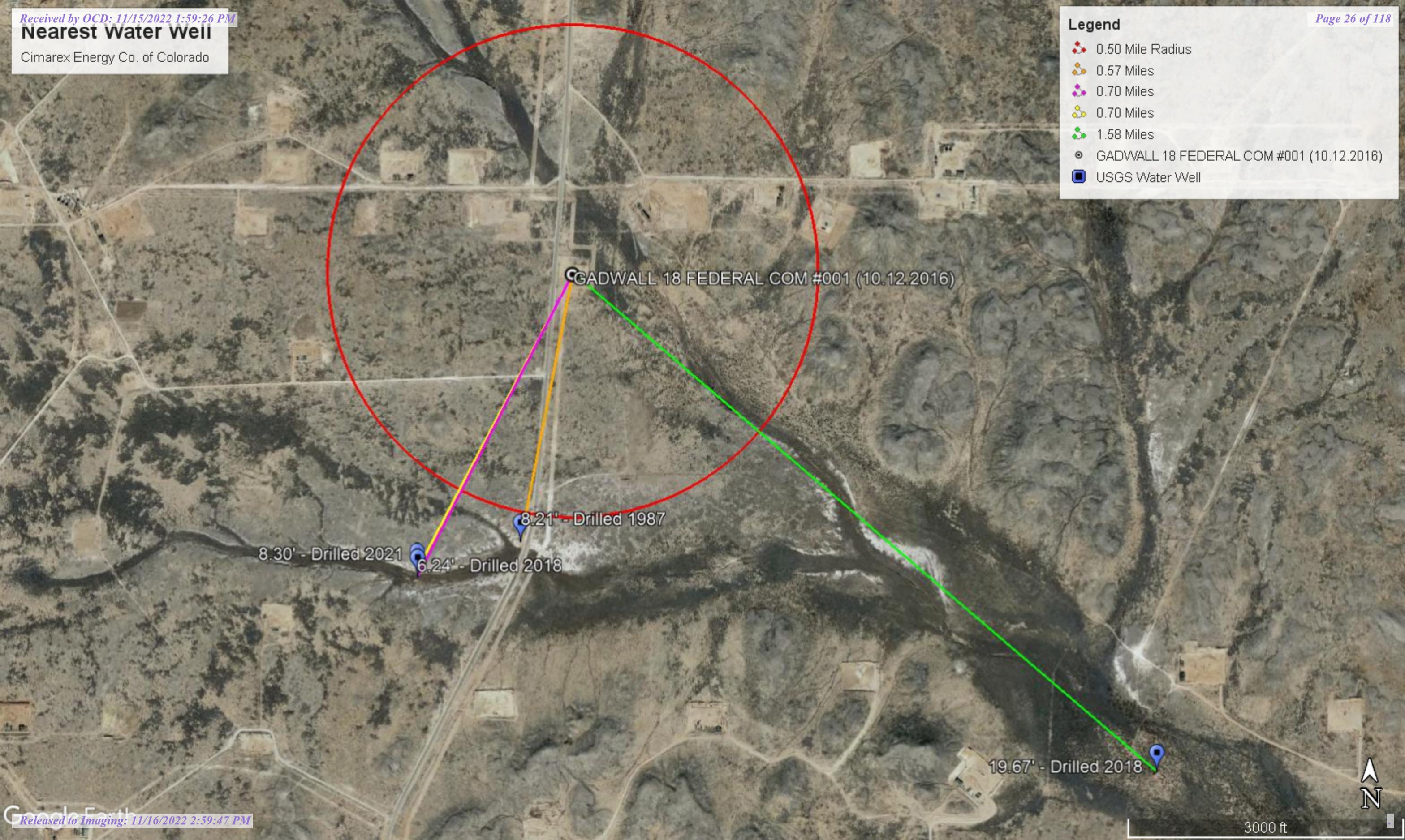


Nearest Water Well

Cimarex Energy Co. of Colorado

Legend

-  0.50 Mile Radius
-  0.57 Miles
-  0.70 Miles
-  0.70 Miles
-  1.58 Miles
-  GADWALL 18 FEDERAL COM #001 (10.12.2016)
-  USGS Water Well



High Karst
Cimarex Energy Co. of Colorado

Legend

-  High
-  Medium
-  GADWALL 18 FEDERAL COM #001 (10.12.2016)

GADWALL 18 FEDERAL COM #001 (10.12.2016)

3 mi





New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 03261 POD1	CUB	ED		3	2	1	20	25S	27E	574007	3554006*	2347	351		
C 03654 POD1	CUB	ED		2	3	1	24	25S	26E	570654	3553773	2510			
C 03569 POD1	CUB	ED		2	1	1	14	25S	26E	568862	3555746	3467	30	0	30
C 02221	CUB	ED		4	3	2	25	25S	26E	571412	3551961*	3796	35		
C 01013	C	ED					4	25	25S	26E	571505	3551456*	4269	245	
C 02220	CUB	ED		3	1	2	26	25S	26E	569598	3552352*	4277	35		
C 03655 POD3	CUB	ED		1	4	4	22	25S	26E	568458	3553019	4676			
C 04329 POD1	C	ED		2	2	2	27	25S	26E	568577	3552567	4852	57	14	43
C 01368	C	ED			1	1	22	25S	26E	567261	3554059*	5308	143	118	25
C 03200 POD1	C	ED		2	3	4	34	24S	26E	568206	3559349	5541	80	52	28
C 01089	C	ED		3	4	1	03	25S	26E	567505	3558398*	5552	96	45	51
C 03262 POD1	CUB	ED		2	1	2	22	25S	27E	577837	3554244*	5685	75		
C 00819	C	ED			4	4	26	24S	26E	570022	3560935*	5770	62	42	20
C 04586 POD1	C	ED		4	1	1	35	24S	26E	568993	3560476	5869	150		

Average Depth to Water: **45 feet**
 Minimum Depth: **0 feet**
 Maximum Depth: **118 feet**

Record Count: 14

UTMNAD83 Radius Search (in meters):

Easting (X): 572327.29

Northing (Y): 3555645.52

Radius: 6000

*UTM location was derived from PLSS - see Help

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



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Groundwater levels for New Mexico

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Search Results -- 1 sites found

Agency code = usgs
site_no list =

- 320737104140602

Minimum number of levels = 1
[Save file of selected sites](#) to local disk for future upload

USGS 320737104140602 25S.26E.13.44222 A

Eddy County, New Mexico
Latitude 32°07'37", Longitude 104°14'06" NAD27
Land-surface elevation 3,198 feet above NAVD88
This well is completed in the Other aquifers (N9999OTHER) national aquifer.
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period

Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Status	? Method of measurement	? Measuring agency	? Source measu
1983-02-01			D 62610		3187.92	NGVD29	1		Z	
1983-02-01			D 62611		3189.58	NAVD88	1		Z	
1983-02-01			D 72019	8.42			1		Z	
1987-10-08			D 62610		3188.13	NGVD29	1		Z	
1987-10-08			D 62611		3189.79	NAVD88	1		Z	
1987-10-08			D 72019	8.21			1		Z	

Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Parameter code	62610	Groundwater level above NGVD 1929, feet

Section	Code	Description
Parameter code	62611	Groundwater level above NAVD 1988, feet
Parameter code	72019	Depth to water level, feet below land surface
Referenced vertical datum	NAVD88	North American Vertical Datum of 1988
Referenced vertical datum	NGVD29	National Geodetic Vertical Datum of 1929
Status	1	Static
Method of measurement	Z	Other.
Measuring agency		Not determined
Source of measurement		Not determined
Water-level approval status	A	Approved for publication -- Processing and review completed.

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Title: Groundwater for New Mexico: Water Levels

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 site_no list =

- 320737104140601

Minimum number of levels = 1
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USGS 320737104140601 25S.26E.13.44222

Eddy County, New Mexico
 Latitude 32°07'33.9", Longitude 104°14'19.1" NAD83
 Land-surface elevation 3,205.00 feet above NGVD29
 This well is completed in the Other aquifers (N9999OTHER) national aquifer.
 This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period

Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Status	? Method of measurement	? Measuring agency	? Source measu
1983-02-01			D 62610		3196.58	NGVD29	1		Z	
1983-02-01			D 62611		3198.24	NAVD88	1		Z	
1983-02-01			D 72019	8.42			1		Z	
1987-10-08			D 62610		3196.87	NGVD29	1		Z	
1987-10-08			D 62611		3198.53	NAVD88	1		Z	
1987-10-08			D 72019	8.13			1		Z	
1992-11-04			D 62610		3196.06	NGVD29	1		S	
1992-11-04			D 62611		3197.72	NAVD88	1		S	
1992-11-04			D 72019	8.94			1		S	
1998-01-07			D 62610		3193.54	NGVD29	1		S	
1998-01-07			D 62611		3195.20	NAVD88	1		S	
1998-01-07			D 72019	11.46			1		S	
2003-02-10			D 62610		3191.53	NGVD29	1		S	USGS

Date	Time	Water-level date-time accuracy	Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	Status	Method of measurement	Measuring agency	Source measu
2003-02-10			D 62611		3193.19	NAVD88	1	S	USGS	
2003-02-10			D 72019	13.47			1	S	USGS	
2013-01-09	23:00 UTC		m 62610		3192.19	NGVD29	P	S	USGS	
2013-01-09	23:00 UTC		m 62611		3193.85	NAVD88	P	S	USGS	
2013-01-09	23:00 UTC		m 72019	12.81			P	S	USGS	
2018-02-01	20:30 UTC		m 62610		3198.76	NGVD29	1	S	USGS	
2018-02-01	20:30 UTC		m 62611		3200.42	NAVD88	1	S	USGS	
2018-02-01	20:30 UTC		m 72019	6.24			1	S	USGS	

Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Water-level date-time accuracy	m	Date is accurate to the Minute
Parameter code	62610	Groundwater level above NGVD 1929, feet
Parameter code	62611	Groundwater level above NAVD 1988, feet
Parameter code	72019	Depth to water level, feet below land surface
Referenced vertical datum	NAVD88	North American Vertical Datum of 1988
Referenced vertical datum	NGVD29	National Geodetic Vertical Datum of 1929
Status	1	Static
Status	P	Pumping
Method of measurement	S	Steel-tape measurement.
Method of measurement	Z	Other.
Measuring agency		Not determined
Measuring agency	USGS	U.S. Geological Survey
Source of measurement		Not determined
Source of measurement	S	Measured by personnel of reporting agency.
Water-level approval status	A	Approved for publication -- Processing and review completed.

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URL: <https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?>



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Agency code = usgs
site_no list =

- 320737104140602

Minimum number of levels = 1
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USGS 320737104140602 25S.26E.13.44222 A

Eddy County, New Mexico
Latitude 32°07'37", Longitude 104°14'06" NAD27
Land-surface elevation 3,198 feet above NAVD88
This well is completed in the Other aquifers (N9999OTHER) national aquifer.
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period

Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Status	? Method of measurement	? Measuring agency	? Source measu
1983-02-01			D 62610		3187.92	NGVD29	1		Z	
1983-02-01			D 62611		3189.58	NAVD88	1		Z	
1983-02-01			D 72019	8.42			1		Z	
1987-10-08			D 62610		3188.13	NGVD29	1		Z	
1987-10-08			D 62611		3189.79	NAVD88	1		Z	
1987-10-08			D 72019	8.21			1		Z	

Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Parameter code	62610	Groundwater level above NGVD 1929, feet

Section	Code	Description
Parameter code	62611	Groundwater level above NAVD 1988, feet
Parameter code	72019	Depth to water level, feet below land surface
Referenced vertical datum	NAVD88	North American Vertical Datum of 1988
Referenced vertical datum	NGVD29	National Geodetic Vertical Datum of 1929
Status	1	Static
Method of measurement	Z	Other.
Measuring agency		Not determined
Source of measurement		Not determined
Water-level approval status	A	Approved for publication -- Processing and review completed.

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Search Results -- 1 sites found

Agency code = usgs
 site_no list =

- 320711104122701

Minimum number of levels = 1
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USGS 320711104122701 25S.27E.20.21344

Eddy County, New Mexico
 Latitude 32°07'12.5", Longitude 104°12'45.6" NAD83
 Land-surface elevation 3,125.10 feet above NGVD29
 This well is completed in the Other aquifers (N9999OTHER) national aquifer.
 This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period

Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Status	? Method of measurement	? Measuring agency	? Source measu
1983-02-02			D 62610		3106.22	NGVD29	1		Z	
1983-02-02			D 62611		3107.86	NAVD88	1		Z	
1983-02-02			D 72019	18.88			1		Z	
1987-10-09			D 62610		3109.96	NGVD29	1		Z	
1987-10-09			D 62611		3111.60	NAVD88	1		Z	
1987-10-09			D 72019	15.14			1		Z	
1992-11-20			D 62610		3106.49	NGVD29	1		S	
1992-11-20			D 62611		3108.13	NAVD88	1		S	
1992-11-20			D 72019	18.61			1		S	
1998-01-07			D 62610		3104.23	NGVD29	1		S	
1998-01-07			D 62611		3105.87	NAVD88	1		S	
1998-01-07			D 72019	20.87			1		S	
2003-01-29			D 62610		3102.27	NGVD29	1		S	USGS

Date	Time	Water-level date-time accuracy	Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	Status	Method of measurement	Measuring agency	Source measu
2003-01-29		D	62611		3103.91	NAVD88	1	S	USGS	
2003-01-29		D	72019	22.83			1	S	USGS	
2013-01-09	23:30 UTC	m	62610		3101.48	NGVD29	1	S	USGS	
2013-01-09	23:30 UTC	m	62611		3103.12	NAVD88	1	S	USGS	
2013-01-09	23:30 UTC	m	72019	23.62			1	S	USGS	
2018-01-09	23:24 UTC	m	62610		3105.43	NGVD29	1	V	USGS	
2018-01-09	23:24 UTC	m	62611		3107.07	NAVD88	1	V	USGS	
2018-01-09	23:24 UTC	m	72019	19.67			1	V	USGS	

Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Water-level date-time accuracy	m	Date is accurate to the Minute
Parameter code	62610	Groundwater level above NGVD 1929, feet
Parameter code	62611	Groundwater level above NAVD 1988, feet
Parameter code	72019	Depth to water level, feet below land surface
Referenced vertical datum	NAVD88	North American Vertical Datum of 1988
Referenced vertical datum	NGVD29	National Geodetic Vertical Datum of 1929
Status	1	Static
Method of measurement	S	Steel-tape measurement.
Method of measurement	V	Calibrated electric-tape measurement.
Method of measurement	Z	Other.
Measuring agency		Not determined
Measuring agency	USGS	U.S. Geological Survey
Source of measurement		Not determined
Source of measurement	S	Measured by personnel of reporting agency.
Water-level approval status	A	Approved for publication -- Processing and review completed.

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Title: Groundwater for New Mexico: Water Levels

URL: <https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?>

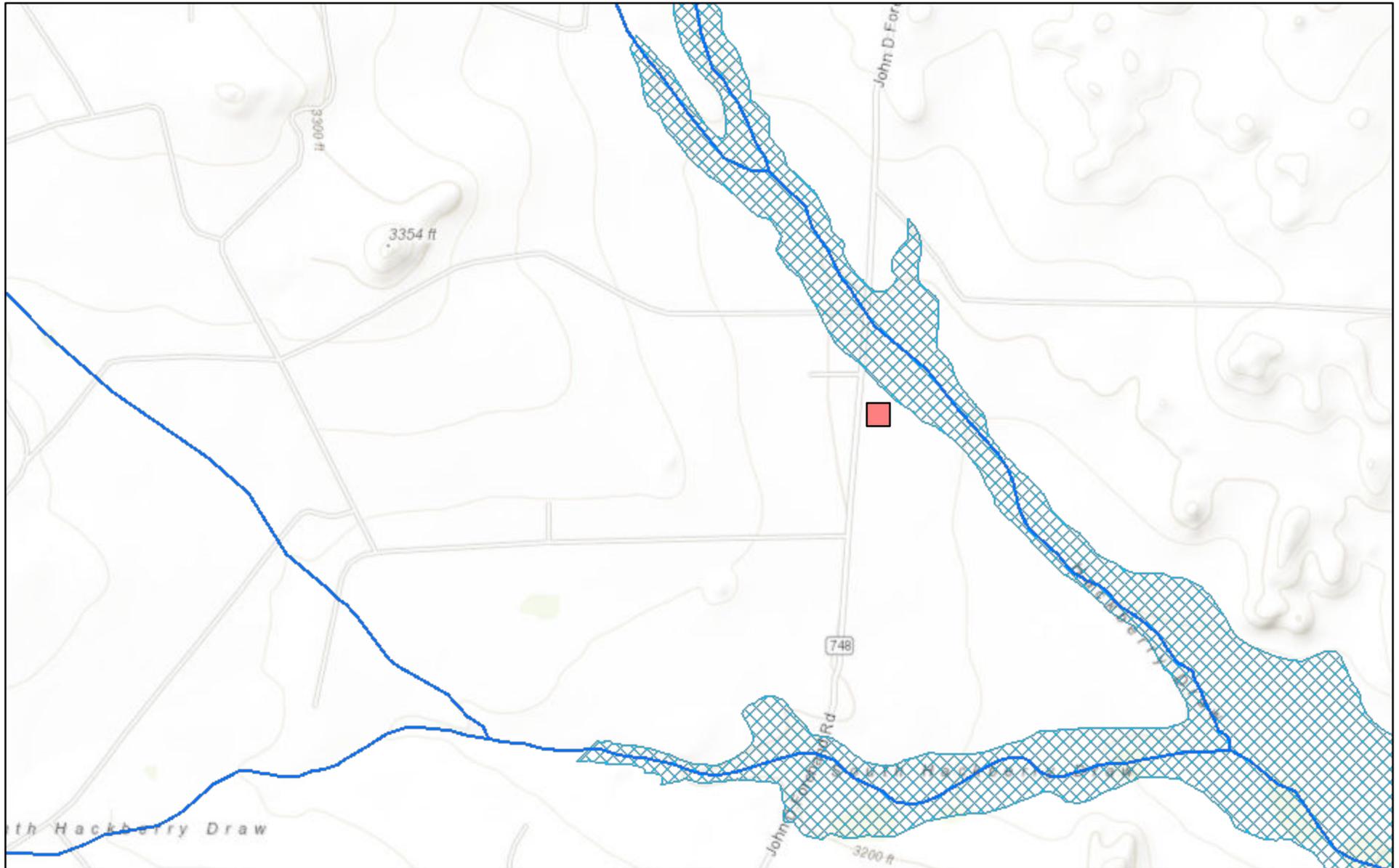


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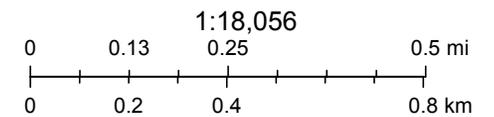
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0.31 0.26 nadww01

New Mexico NFHL Data



November 2, 2022



FEMA, Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey,

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APPENDIX E

CARMONA RESOURCES





TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9	Lubbock, Texas 79424	800-378-1296	806-794-1296	FAX 806-794-1298
200 East Sunset Road, Suite E	El Paso, Texas 79922		915-585-3443	FAX 915-585-4944
5002 Basin Street, Suite A1	Midland, Texas 79703		432-689-6301	FAX 432-689-6313
(BioAquatic) 2501 Mayes Rd., Suite 100	Carrollton, Texas 75006		972-242-7750	
E-Mail: lab@traceanalysis.com		WEB: www.traceanalysis.com		

Certifications

WBE HUB NCTRCA DBE NELAP Kansas Oklahoma

Analytical and Quality Control Report

(Corrected Report)

Ike Tavarez
 Tetra Tech
 4000 N. Big Spring
 Ste. 401
 Midland, TX, 79705

Report Date: November 23, 2016

Work Order: 16111603



Project Location: Eddy Co, NM
 Project Name: Cimarex-Gadwall 18
 Project Number: 212C-MD-00660

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
432040	AH-1 (0-6")	soil	2016-11-14	00:00	2016-11-15
432041	AH-2 (0-6")	soil	2016-11-14	00:00	2016-11-15
432042	AH-3 (0-6")	soil	2016-11-14	00:00	2016-11-15

Report Corrections (Work Order 16111603)

- 11/23/16: Added Project Number to report.

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

TraceAnalysis, Inc. uses the attached chain of custody (COC) as the laboratory check-in documentation which includes sample receipt, temperature, sample preservation method and condition, collection date and time, testing requested, company, sampler, contacts and any special remarks.

This report consists of a total of 21 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.



Dr. Blair Leftwich, Director
James Taylor, Assistant Director
Johnny Grindstaff, Operations Manager

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Case Narrative

Samples for project Cimarex-Gadwall 18 were received by TraceAnalysis, Inc. on 2016-11-15 and assigned to work order 16111603. Samples for work order 16111603 were received intact at a temperature of 4.4 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	113525	2016-11-16 at 08:09	133915	2016-11-18 at 08:09
TPH DRO	S 8015 D	113536	2016-11-17 at 16:00	133927	2016-11-18 at 11:21
TPH GRO	S 8015 D	113525	2016-11-16 at 08:09	133916	2016-11-18 at 08:12
TPH GRO	S 8015 D	113566	2016-11-19 at 15:00	133964	2016-11-21 at 12:48

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 16111603 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

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Analytical Report

Sample: 432040 - AH-1 (0-6")

Laboratory: Midland	Analytical Method: S 8021B	Prep Method: S 5035
Analysis: BTEX	Date Analyzed: 2016-11-18	Analyzed By: AK
QC Batch: 133915	Sample Preparation: 2016-11-16	Prepared By: AK
Prep Batch: 113525		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	1	3	<0.106	mg/Kg	5.3	0.0200
Toluene		3	3.30	mg/Kg	5.3	0.0200
Ethylbenzene		3	0.302	mg/Kg	5.3	0.0200
Xylene		3	14.5	mg/Kg	5.3	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			9.48	mg/Kg	5.3	10.0	95	70 - 130
4-Bromofluorobenzene (4-BFB)			13.0	mg/Kg	5.3	10.0	130	70 - 130

Sample: 432040 - AH-1 (0-6")

Laboratory: Lubbock	Analytical Method: S 8015 D	Prep Method: N/A
Analysis: TPH DRO	Date Analyzed: 2016-11-18	Analyzed By: HJ
QC Batch: 133927	Sample Preparation: 2016-11-17	Prepared By: HJ
Prep Batch: 113536		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1,2	614	mg/Kg	10	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Q _{sr}	Q _{sr}	65.8	mg/Kg	10	20.0	329	70 - 130

Sample: 432040 - AH-1 (0-6")

Laboratory: Midland	Analytical Method: S 8015 D	Prep Method: S 5035
Analysis: TPH GRO	Date Analyzed: 2016-11-18	Analyzed By: AK
QC Batch: 133916	Sample Preparation: 2016-11-16	Prepared By: AK
Prep Batch: 113525		

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qr	3	562	mg/Kg	5.3	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			9.58	mg/Kg	5.3	10.0	96	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	15.9	mg/Kg	5.3	10.0	159	70 - 130

Sample: 432041 - AH-2 (0-6")

Laboratory: Midland
Analysis: BTEX
QC Batch: 133915
Prep Batch: 113525

Analytical Method: S 8021B
Date Analyzed: 2016-11-18
Sample Preparation: 2016-11-16

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		3	0.128	mg/Kg	5.3	0.0200
Toluene		3	3.79	mg/Kg	5.3	0.0200
Ethylbenzene		3	2.69	mg/Kg	5.3	0.0200
Xylene		3	21.9	mg/Kg	5.3	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			9.43	mg/Kg	5.3	10.0	94	70 - 130
4-Bromofluorobenzene (4-BFB)			17.0	mg/Kg	5.3	10.0	170	70 - 130

Sample: 432041 - AH-2 (0-6")

Laboratory: Lubbock
Analysis: TPH DRO
QC Batch: 133927
Prep Batch: 113536

Analytical Method: S 8015 D
Date Analyzed: 2016-11-18
Sample Preparation: 2016-11-17

Prep Method: N/A
Analyzed By: HJ
Prepared By: HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1,2	1370	mg/Kg	10	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	116	mg/Kg	10	20.0	580	70 - 130

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Sample: 432041 - AH-2 (0-6")

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 133964 Date Analyzed: 2016-11-21 Analyzed By: AK
Prep Batch: 113566 Sample Preparation: 2016-11-19 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		3	928	mg/Kg	53	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			98.6	mg/Kg	53	100	99	70 - 130
4-Bromofluorobenzene (4-BFB)			107	mg/Kg	53	100	107	70 - 130

Sample: 432042 - AH-3 (0-6")

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 133915 Date Analyzed: 2016-11-18 Analyzed By: AK
Prep Batch: 113525 Sample Preparation: 2016-11-16 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		3	0.326	mg/Kg	5.3	0.0200
Toluene		3	8.55	mg/Kg	5.3	0.0200
Ethylbenzene		3	0.714	mg/Kg	5.3	0.0200
Xylene		3	30.9	mg/Kg	5.3	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			9.04	mg/Kg	5.3	10.0	90	70 - 130
4-Bromofluorobenzene (4-BFB)			15.0	mg/Kg	5.3	10.0	150	70 - 130

Sample: 432042 - AH-3 (0-6")

Laboratory: Lubbock
Analysis: TPH DRO Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 133927 Date Analyzed: 2016-11-18 Analyzed By: HJ
Prep Batch: 113536 Sample Preparation: 2016-11-17 Prepared By: HJ

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1,2	658	mg/Kg	10	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Q _{sr}	Q _{sr}	62.2	mg/Kg	10	20.0	311	70 - 130

Sample: 432042 - AH-3 (0-6")

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 133964
Prep Batch: 113566

Analytical Method: S 8015 D
Date Analyzed: 2016-11-21
Sample Preparation: 2016-11-19

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		3	1130	mg/Kg	53	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			97.8	mg/Kg	53	100	98	70 - 130
4-Bromofluorobenzene (4-BFB)			105	mg/Kg	53	100	105	70 - 130

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Method Blanks

Method Blank (1) QC Batch: 133915

QC Batch: 133915 Date Analyzed: 2016-11-18 Analyzed By: AK
Prep Batch: 113525 QC Preparation: 2016-11-16 Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		3	<0.0106	mg/Kg	0.02
Toluene		3	<0.0165	mg/Kg	0.02
Ethylbenzene		3	<0.0160	mg/Kg	0.02
Xylene		3	<0.00456	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.04	mg/Kg	1.06	2.00	102	70 - 130
4-Bromofluorobenzene (4-BFB)			1.89	mg/Kg	1.06	2.00	94	70 - 130

Method Blank (1) QC Batch: 133916

QC Batch: 133916 Date Analyzed: 2016-11-18 Analyzed By: AK
Prep Batch: 113525 QC Preparation: 2016-11-16 Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		3	<1.86	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.17	mg/Kg	1.06	2.00	108	70 - 130
4-Bromofluorobenzene (4-BFB)			1.79	mg/Kg	1.06	2.00	90	70 - 130

Method Blank (1) QC Batch: 133927

QC Batch: 133927 Date Analyzed: 2016-11-18 Analyzed By: HJ
Prep Batch: 113536 QC Preparation: 2016-11-17 Prepared By: HJ

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Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1,2	<8.47	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			16.6	mg/Kg	1	20.0	83	70 - 130

Method Blank (1) QC Batch: 133964

QC Batch: 133964
Prep Batch: 113566

Date Analyzed: 2016-11-21
QC Preparation: 2016-11-19

Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		3	<1.86	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.05	mg/Kg	1.06	2.00	102	70 - 130
4-Bromofluorobenzene (4-BFB)			1.79	mg/Kg	1.06	2.00	90	70 - 130

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 133915
Prep Batch: 113525

Date Analyzed: 2016-11-18
QC Preparation: 2016-11-16

Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		3	1.86	mg/Kg	1.06	2.00	<0.0106	93	70 - 130
Toluene		3	1.95	mg/Kg	1.06	2.00	<0.0165	98	70 - 130
Ethylbenzene		3	1.99	mg/Kg	1.06	2.00	<0.0160	100	70 - 130
Xylene		3	6.00	mg/Kg	1.06	6.00	<0.00456	100	70 - 130

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		3	1.98	mg/Kg	1.06	2.00	<0.0106	99	70 - 130	6	20
Toluene		3	1.86	mg/Kg	1.06	2.00	<0.0165	93	70 - 130	5	20
Ethylbenzene		3	1.85	mg/Kg	1.06	2.00	<0.0160	92	70 - 130	7	20
Xylene		3	5.57	mg/Kg	1.06	6.00	<0.00456	93	70 - 130	7	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.02	1.92	mg/Kg	1.06	2.00	101	96	70 - 130
4-Bromofluorobenzene (4-BFB)	2.05	1.96	mg/Kg	1.06	2.00	102	98	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 133916
Prep Batch: 113525

Date Analyzed: 2016-11-18
QC Preparation: 2016-11-16

Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		3	20.7	mg/Kg	1	20.0	<1.76	104	70 - 130

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

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control spikes continued . . .

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		3	22.0	mg/Kg	1	20.0	<1.76	110	70 - 130	6	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.05	2.03	mg/Kg	1	2.00	102	102	70 - 130
4-Bromofluorobenzene (4-BFB)	1.86	1.88	mg/Kg	1	2.00	93	94	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 133927
Prep Batch: 113536

Date Analyzed: 2016-11-18
QC Preparation: 2016-11-17

Analyzed By: HJ
Prepared By: HJ

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2	116	mg/Kg	1	100	<8.47	116	68.5 - 136

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1,2	109	mg/Kg	1	100	<8.47	109	68.5 - 136	6	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
n-Tricosane	20.9	20.0	mg/Kg	1	20.0	104	100	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 133964
Prep Batch: 113566

Date Analyzed: 2016-11-21
QC Preparation: 2016-11-19

Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		3	18.8	mg/Kg	1.06	20.0	<1.86	94	70 - 130

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		3	19.5	mg/Kg	1.06	20.0	<1.86	98	70 - 130	4	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.01	1.99	mg/Kg	1.06	2.00	100	100	70 - 130
4-Bromofluorobenzene (4-BFB)	1.80	1.82	mg/Kg	1.06	2.00	90	91	70 - 130

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Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 432013

QC Batch: 133915
Prep Batch: 113525

Date Analyzed: 2016-11-18
QC Preparation: 2016-11-16

Analyzed By: AK
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		3	1.81	mg/Kg	1.06	2.00	<0.0106	90	70 - 130
Toluene		3	1.80	mg/Kg	1.06	2.00	<0.0165	90	70 - 130
Ethylbenzene		3	1.88	mg/Kg	1.06	2.00	<0.0160	94	70 - 130
Xylene		3	5.63	mg/Kg	1.06	6.00	<0.00456	94	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		3	1.75	mg/Kg	1.06	2.00	<0.0106	88	70 - 130	3	20
Toluene		3	1.76	mg/Kg	1.06	2.00	<0.0165	88	70 - 130	2	20
Ethylbenzene		3	1.91	mg/Kg	1.06	2.00	<0.0160	96	70 - 130	2	20
Xylene		3	5.84	mg/Kg	1.06	6.00	<0.00456	97	70 - 130	4	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.09	1.99	mg/Kg	1.06	2	104	100	70 - 130
4-Bromofluorobenzene (4-BFB)	2.01	2.08	mg/Kg	1.06	2	100	104	70 - 130

Matrix Spike (MS-1) Spiked Sample: 432013

QC Batch: 133916
Prep Batch: 113525

Date Analyzed: 2016-11-18
QC Preparation: 2016-11-16

Analyzed By: AK
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		3	17.0	mg/Kg	1	20.0	<1.76	85	70 - 130

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

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matrix spikes continued . . .

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit	
Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit	
GRO	Qr	Qr	3	20.8	mg/Kg	1	20.0	<1.76	104	70 - 130	20	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.97	2.02	mg/Kg	1	2	98	101	70 - 130
4-Bromofluorobenzene (4-BFB)	1.85	1.88	mg/Kg	1	2	92	94	70 - 130

Matrix Spike (MS-1) Spiked Sample: 432013

QC Batch: 133927
Prep Batch: 113536

Date Analyzed: 2016-11-18
QC Preparation: 2016-11-17

Analyzed By: HJ
Prepared By: HJ

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2	125	mg/Kg	1	100	<8.47	125	49.3 - 138

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1,2	125	mg/Kg	1	100	<8.47	125	49.3 - 138	0	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	23.0	23.2	mg/Kg	1	20	115	116	70 - 130

Matrix Spike (xMS-1) Spiked Sample: 432013

QC Batch: 133964
Prep Batch: 113566

Date Analyzed: 2016-11-21
QC Preparation: 2016-11-19

Analyzed By: AK
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		3	15.0	mg/Kg	1	20.0	<1.76	75	70 - 130

Report Date: November 23, 2016
212C-MD-00660

Work Order: 16111603
Cimarex-Gadwall 18

Page Number: 16 of 21
Eddy Co, NM

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		3	13.9	mg/Kg	1	20.0	<1.76	70	70 - 130	8	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.94	1.88	mg/Kg	1	2	97	94	70 - 130
4-Bromofluorobenzene (4-BFB)	1.83	1.82	mg/Kg	1	2	92	91	70 - 130

Report Date: November 23, 2016
212C-MD-00660

Work Order: 16111603
Cimarex-Gadwall 18

Page Number: 17 of 21
Eddy Co, NM

Calibration Standards

Standard (CCV-2)

QC Batch: 133915

Date Analyzed: 2016-11-18

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		3	mg/kg	0.100	0.105	105	80 - 120	2016-11-18
Toluene		3	mg/kg	0.100	0.0991	99	80 - 120	2016-11-18
Ethylbenzene		3	mg/kg	0.100	0.0982	98	80 - 120	2016-11-18
Xylene		3	mg/kg	0.300	0.295	98	80 - 120	2016-11-18

Standard (CCV-3)

QC Batch: 133915

Date Analyzed: 2016-11-18

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		3	mg/kg	0.100	0.103	103	80 - 120	2016-11-18
Toluene		3	mg/kg	0.100	0.104	104	80 - 120	2016-11-18
Ethylbenzene		3	mg/kg	0.100	0.0994	99	80 - 120	2016-11-18
Xylene		3	mg/kg	0.300	0.296	99	80 - 120	2016-11-18

Standard (CCV-2)

QC Batch: 133916

Date Analyzed: 2016-11-18

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		3	mg/Kg	1.00	0.990	99	80 - 120	2016-11-18

Standard (CCV-3)

QC Batch: 133916

Date Analyzed: 2016-11-18

Analyzed By: AK

Report Date: November 23, 2016
212C-MD-00660

Work Order: 16111603
Cimarex-Gadwall 18

Page Number: 19 of 21
Eddy Co, NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		3	mg/Kg	1.00	1.09	109	80 - 120	2016-11-21

Report Date: November 23, 2016
212C-MD-00660

Work Order: 16111603
Cimarex-Gadwall 18

Page Number: 20 of 21
Eddy Co, NM

Appendix

Report Definitions

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

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	Kansas	Kansas E-10317	Lubbock
2	NELAP	T104704219-16-13	Lubbock
3	NELAP	T104704392-14-8	Midland

Standard Flags

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

Report Date: November 23, 2016
212C-MD-00660

Work Order: 16111603
Cimarex-Gadwall 18

Page Number: 21 of 21
Eddy Co, NM

Result Comments

- 1 Dilution due to excessive hydrocarbons.

Attachments

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

16111603

Analysis Request of Chain of Custody Record



TETRA TECH

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

CLIENT NAME: Cimarex
 PROJECT NAME: Cimarex - Gadsden 11 18 Edds Co NM
 SITE MANAGER: Ike Tawarez

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS				PRESERVATIVE METHOD			
							NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE		
432040	2016	11.14	S	X	X	AH-1 (0-6")	1	N	X	X	X	X	X	X
041	11.14		S	X	X	AH-2 (0-6")	1	N	X	X	X	X	X	X
042	11.14		S	X	X	AH-3 (0-6")	1	N	X	X	X	X	X	X

RELINQUISHED BY: (Signature) Clint Smith Date: 11.15 Time: 11:53
 RECEIVED BY: (Signature) Ike Tawarez Date: 11.14 Time: 11.14
 RELINQUISHED BY: (Signature) _____ Date: _____ Time: _____
 RECEIVED BY: (Signature) _____ Date: _____ Time: _____
 RELINQUISHED BY: (Signature) _____ Date: _____ Time: _____
 RECEIVED BY: (Signature) _____ Date: _____ Time: _____
 RECEIVING LABORATORY: Trace
 ADDRESS: _____
 CITY: Midland STATE: Tx ZIP: _____ PHONE: _____
 CONTACT: _____ DATE: 11/15/16 TIME: 11:53
 TETRA TECH CONTACT PERSON: Ike Tawarez
 FEDEX _____ BUS _____
 HAND DELIVERED _____ UPS _____
 AIRBILL #: _____
 OTHER: _____
 Results by: _____
 RUSH Charges Authorized: _____ Yes _____ No _____

REMARKS: Temp 4.4
9:40 25 24 39086
208/29
11/17/16
 Please fill out all copies - Laboratory retains Yellow copy - Return Original copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

PAGE: 1 OF: 1

ANALYSIS REQUEST (Circle or Specify Method No.)

TPH 8015 MOD. TX1005 (Ext. to C35)	
BTEX 8021B	X
PAH 8270	
RCRA Metals Ag As Ba Cd Cr Pb Hg Se	
TCLP Metals Ag As Ba Cd Vr Pd Hg Se	
TCLP Volatiles	
TCLP Semi Volatiles	
RCI	
GC/MS Vol. 8240/8260/624	
GC/MS Semi. Vol. 8270/625	
PCB's 8080/608	
Pest. 808/608	
Chloride	
Gamma Spec.	
Alpha Beta (Air)	
PLM (Asbestos)	
Major Anions/Cations, pH, TDS	

Analytical Report 562130

for
Tetra Tech- Midland

Project Manager: Ike Tavarez

Cimarex- Gadwall 18 Federal com #1

212C-MD-00660

28-SEP-17

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)



28-SEP-17

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

Reference: XENCO Report No(s): **562130**
Cimarex- Gadwall 18 Federal com #1
Project Address: Eddy County, New Mexico

Ike Tavaréz:

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) 562130. 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. 562130 will be filed for 45 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

Project Manager

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Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America



Sample Cross Reference 562130

Tetra Tech- Midland, Midland, TX

Cimarex- Gadwall 18 Federal com #1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH #1 (0-1')	S	09-05-17 00:00		562130-001
BH #1 (2-3')	S	09-05-17 00:00		562130-002
BH #1 (4-5')	S	09-05-17 00:00		562130-003
BH #1 (16-17')	S	09-05-17 00:00		562130-006
BH #2 (0-1')	S	09-05-17 00:00		562130-007
BH #2 (2-3')	S	09-05-17 00:00		562130-008
BH #2 (4-5')	S	09-05-17 00:00		562130-009
BH #2 (6-7')	S	09-05-17 00:00		562130-010
BH #2 (9-10')	S	09-05-17 00:00		562130-011
BH #2 (14-15')	S	09-05-17 00:00		562130-012
BH #2 (19-20')	S	09-05-17 00:00		562130-013
BH #1 (6-7')	S	09-05-17 00:00		Not Analyzed
BH #1 (11-12')	S	09-05-17 00:00		Not Analyzed



CASE NARRATIVE

Client Name: Tetra Tech- Midland

Project Name: Cimarex- Gadwall 18 Federal com #1

Project ID: 212C-MD-00660
Work Order Number(s): 562130

Report Date: 28-SEP-17
Date Received: 09/06/2017

Sample receipt non conformances and comments:

562130-002, -008 released from hold for TPH 09/12 per COC instructions-- KB

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3027189 BTEX by EPA 8021B

Lab Sample ID 562130-006 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Benzene, Ethylbenzene, Toluene recovered below QC limits in the Matrix Spike. m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 562130-001, -006, -007, -013.

The Laboratory Control Sample for Toluene, Benzene, m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3027465 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3027595 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3028038 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3028130 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.



Certificate of Analysis Summary 562130

Tetra Tech- Midland, Midland, TX

Project Name: Cimarex- Gadwall 18 Federal com #1

Project Id: 212C-MD-00660
Contact: Ike Tavarez
Project Location: Eddy County, New Mexico

Date Received in Lab: Wed Sep-06-17 01:51 pm
Report Date: 28-SEP-17
Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	562130-001	562130-002	562130-003	562130-006	562130-007	562130-008
	Field Id:	BH #1 (0-1')	BH #1 (2-3')	BH #1 (4-5')	BH #1 (16-17')	BH #2 (0-1')	BH #2 (2-3')
	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Sep-05-17 00:00	Sep-05-17 00:00	Sep-05-17 00:00	Sep-05-17 00:00	Sep-05-17 00:00	Sep-05-17 00:00
BTEX by EPA 8021B	Extracted:	Sep-08-17 08:30	Sep-13-17 08:00	Sep-13-17 13:00	Sep-08-17 08:30	Sep-08-17 08:30	Sep-13-17 08:00
	Analyzed:	Sep-08-17 12:21	Sep-13-17 19:02	Sep-14-17 01:18	Sep-08-17 09:50	Sep-08-17 11:43	Sep-13-17 18:43
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00201 0.00201	<0.500 0.500	<0.00200 0.00200	<0.00200 0.00200	0.00954 0.00202	0.00517 0.00345
Toluene		0.0264 0.00201	35.0 0.500	0.0259 0.00200	<0.00200 0.00200	0.0855 0.00202	0.114 0.00345
Ethylbenzene		<0.00201 0.00201	24.1 0.500	<0.00200 0.00200	<0.00200 0.00200	0.0308 0.00202	0.0381 0.00345
m,p-Xylenes		0.193 0.00402	189 1.00	0.103 0.00399	<0.00399 0.00399	0.241 0.00403	0.347 0.00690
o-Xylene		0.0552 0.00201	26.8 0.500	0.0484 0.00200	<0.00200 0.00200	0.0371 0.00202	0.0452 0.00345
Total Xylenes		0.248 0.00201	216 0.500	0.151 0.00200	<0.00200 0.00200	0.278 0.00202	0.392 0.00345
Total BTEX		0.275 0.00201	275 0.500	0.177 0.00200	<0.00200 0.00200	0.404 0.00202	0.549 0.00345
TPH by Texas1005	Extracted:	Sep-07-17 15:00	Sep-14-17 14:00	Sep-16-17 15:00	Sep-07-17 15:00	Sep-07-17 15:00	Sep-14-17 14:00
	Analyzed:	Sep-08-17 03:22	Sep-15-17 03:10	Sep-16-17 21:38	Sep-08-17 03:45	Sep-08-17 04:07	Sep-15-17 03:33
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C12 Range Hydrocarbons		242 25.0	1530 24.9	<24.9 24.9	<25.0 25.0	220 24.9	110 25.0
C12-C28 Range Hydrocarbons		562 25.0	1830 24.9	<24.9 24.9	<25.0 25.0	3240 24.9	1390 25.0
C28-C35 Range Hydrocarbons		<25.0 25.0	29.4 24.9	<24.9 24.9	<25.0 25.0	<24.9 24.9	<25.0 25.0
Total TPH		804 25.0	3390 24.9	<24.9 24.9	<25.0 25.0	3460 24.9	1500 25.0

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



Certificate of Analysis Summary 562130

Tetra Tech- Midland, Midland, TX

Project Name: Cimarex- Gadwall 18 Federal com #1

Project Id: 212C-MD-00660
Contact: Ike Tavarez
Project Location: Eddy County, New Mexico

Date Received in Lab: Wed Sep-06-17 01:51 pm
Report Date: 28-SEP-17
Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	562130-009	562130-010	562130-011	562130-012	562130-013	
	Field Id:	BH #2 (4-5')	BH #2 (6-7')	BH #2 (9-10)	BH #2 (14-15')	BH #2 (19-20')	
	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	
	Sampled:	Sep-05-17 00:00	Sep-05-17 00:00	Sep-05-17 00:00	Sep-05-17 00:00	Sep-05-17 00:00	
BTEX by EPA 8021B	Extracted:	Sep-18-17 14:16	Sep-19-17 15:00			Sep-08-17 08:30	
	Analyzed:	Sep-19-17 03:32	Sep-20-17 10:49			Sep-08-17 12:02	
	Units/RL:	mg/kg RL	mg/kg RL			mg/kg RL	
Benzene		<0.00364 0.00364	<0.00394 0.00394			<0.00200 0.00200	
Toluene		0.213 0.00364	0.0297 K 0.00394			<0.00200 0.00200	
Ethylbenzene		0.0431 0.00364	0.0105 K 0.00394			<0.00200 0.00200	
m,p-Xylenes		0.694 0.00727	0.122 K 0.00787			0.00661 0.00401	
o-Xylene		0.264 0.00364	0.0408 K 0.00394			0.00542 0.00200	
Total Xylenes		0.958 0.00364	0.163 K 0.00394			0.0120 0.00200	
Total BTEX		1.21 0.00364	0.203 K 0.00394			0.0120 0.00200	
TPH by Texas1005	Extracted:	Sep-16-17 15:00	Sep-20-17 17:00	Sep-21-17 17:00	Sep-21-17 17:00	Sep-07-17 15:00	
	Analyzed:	Sep-16-17 22:01	Sep-21-17 04:35	Sep-22-17 13:05	Sep-22-17 13:30	Sep-08-17 04:31	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
C6-C12 Range Hydrocarbons		92.8 24.9	32.7 K 25.0	<25.0 25.0	<24.9 24.9	<24.9 24.9	
C12-C28 Range Hydrocarbons		345 24.9	404 K 25.0	157 K 25.0	120 K 24.9	95.0 24.9	
C28-C35 Range Hydrocarbons		<24.9 24.9	<25.0 25.0	<25.0 25.0	<24.9 24.9	<24.9 24.9	
Total TPH		438 24.9	437 K 25.0	157 K 25.0	120 K 24.9	95.0 24.9	

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



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
 2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282

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(281) 240-4200	(281) 240-4280
(214) 902 0300	(214) 351-9139
(210) 509-3334	(210) 509-3335
(432) 563-1800	(432) 563-1713
(602) 437-0330	



Form 2 - Surrogate Recoveries

Project Name: Cimarex- Gadwall 18 Federal com #1

Work Orders : 562130,

Project ID: 212C-MD-00660

Lab Batch #: 3027213

Sample: 562130-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/08/17 03:22

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	56.1	50.0	112	70-130	
1-Chlorooctane	102	100	102	70-130	

Lab Batch #: 3027213

Sample: 562130-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/08/17 03:45

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	50.7	50.0	101	70-130	
1-Chlorooctane	95.1	99.9	95	70-130	

Lab Batch #: 3027213

Sample: 562130-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/08/17 04:07

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	62.8	49.9	126	70-130	
1-Chlorooctane	95.7	99.7	96	70-130	

Lab Batch #: 3027213

Sample: 562130-013 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/08/17 04:31

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	52.6	49.9	105	70-130	
1-Chlorooctane	97.4	99.7	98	70-130	

Lab Batch #: 3027189

Sample: 562130-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/08/17 09:50

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0299	0.0300	100	80-120	
4-Bromofluorobenzene	0.0255	0.0300	85	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Cimarex- Gadwall 18 Federal com #1

Work Orders : 562130,

Project ID: 212C-MD-00660

Lab Batch #: 3027189

Sample: 562130-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/08/17 11:43

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0315	0.0300	105	80-120	
4-Bromofluorobenzene	0.0332	0.0300	111	80-120	

Lab Batch #: 3027189

Sample: 562130-013 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/08/17 12:02

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0277	0.0300	92	80-120	
4-Bromofluorobenzene	0.0262	0.0300	87	80-120	

Lab Batch #: 3027189

Sample: 562130-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/08/17 12:21

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0260	0.0300	87	80-120	
4-Bromofluorobenzene	0.0338	0.0300	113	80-120	

Lab Batch #: 3027465

Sample: 562130-008 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/13/17 18:43

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0253	0.0300	84	80-120	
4-Bromofluorobenzene	0.0301	0.0300	100	80-120	

Lab Batch #: 3027465

Sample: 562130-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/13/17 19:02

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0245	0.0300	82	80-120	
4-Bromofluorobenzene	0.0289	0.0300	96	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Cimarex- Gadwall 18 Federal com #1

Work Orders : 562130,

Project ID: 212C-MD-00660

Lab Batch #: 3027595

Sample: 562130-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/14/17 01:18

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0305	0.0300	102	80-120	
4-Bromofluorobenzene	0.0248	0.0300	83	80-120	

Lab Batch #: 3027741

Sample: 562130-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/15/17 03:10

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	63.5	49.9	127	70-130	
1-Chlorooctane	129	99.7	129	70-130	

Lab Batch #: 3027741

Sample: 562130-008 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/15/17 03:33

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	64.8	50.0	130	70-130	
1-Chlorooctane	103	99.9	103	70-130	

Lab Batch #: 3027920

Sample: 562130-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/16/17 21:38

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	51.9	49.9	104	70-130	
1-Chlorooctane	93.8	99.7	94	70-130	

Lab Batch #: 3027920

Sample: 562130-009 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/16/17 22:01

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	53.6	49.9	107	70-130	
1-Chlorooctane	95.2	99.7	95	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Cimarex- Gadwall 18 Federal com #1

Work Orders : 562130,

Project ID: 212C-MD-00660

Lab Batch #: 3028038

Sample: 562130-009 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/19/17 03:32

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0288	0.0300	96	80-120	
4-Bromofluorobenzene	0.0352	0.0300	117	80-120	

Lab Batch #: 3028130

Sample: 562130-010 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/20/17 10:49

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0266	0.0300	89	80-120	
4-Bromofluorobenzene	0.0254	0.0300	85	80-120	

Lab Batch #: 3028282

Sample: 562130-010 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/21/17 04:35

SURROGATE RECOVERY STUDY

TPH by Texas1005	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
o-Terphenyl	56.3	50.0	113	70-130	
1-Chlorooctane	97.0	100	97	70-130	

Lab Batch #: 3028552

Sample: 562130-011 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/22/17 13:05

SURROGATE RECOVERY STUDY

TPH by Texas1005	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
o-Terphenyl	55.6	49.9	111	70-130	
1-Chlorooctane	96.0	99.8	96	70-130	

Lab Batch #: 3028552

Sample: 562130-012 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/22/17 13:30

SURROGATE RECOVERY STUDY

TPH by Texas1005	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
o-Terphenyl	52.3	49.9	105	70-130	
1-Chlorooctane	94.5	99.7	95	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Cimarex- Gadwall 18 Federal com #1

Work Orders : 562130,

Project ID: 212C-MD-00660

Lab Batch #: 3027213

Sample: 730676-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/07/17 20:36

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	52.9	50.0	106	70-130	
1-Chlorooctane	98.4	100	98	70-130	

Lab Batch #: 3027189

Sample: 730642-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/08/17 09:26

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0281	0.0300	94	80-120	
4-Bromofluorobenzene	0.0241	0.0300	80	80-120	

Lab Batch #: 3027465

Sample: 730828-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/13/17 09:42

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0290	0.0300	97	80-120	
4-Bromofluorobenzene	0.0242	0.0300	81	80-120	

Lab Batch #: 3027595

Sample: 730911-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/13/17 21:13

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0274	0.0300	91	80-120	
4-Bromofluorobenzene	0.0246	0.0300	82	80-120	

Lab Batch #: 3027741

Sample: 730997-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/14/17 18:56

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	59.8	50.0	120	70-130	
1-Chlorooctane	107	100	107	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Cimarex- Gadwall 18 Federal com #1

Work Orders : 562130,

Project ID: 212C-MD-00660

Lab Batch #: 3027920

Sample: 731086-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/16/17 18:26

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	50.0	50.0	100	70-130	
1-Chlorooctane	89.7	100	90	70-130	

Lab Batch #: 3028038

Sample: 731191-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/19/17 01:54

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0277	0.0300	92	80-120	
4-Bromofluorobenzene	0.0288	0.0300	96	80-120	

Lab Batch #: 3028282

Sample: 731327-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/20/17 23:38

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	56.3	50.0	113	70-130	
1-Chlorooctane	101	100	101	70-130	

Lab Batch #: 3028552

Sample: 731371-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/22/17 02:47

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	54.9	50.0	110	70-130	
1-Chlorooctane	98.6	100	99	70-130	

Lab Batch #: 3027213

Sample: 730676-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/07/17 21:00

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	56.9	50.0	114	70-130	
1-Chlorooctane	106	100	106	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Cimarex- Gadwall 18 Federal com #1

Work Orders : 562130,

Project ID: 212C-MD-00660

Lab Batch #: 3027189

Sample: 730642-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/08/17 07:50

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0281	0.0300	94	80-120	
4-Bromofluorobenzene	0.0249	0.0300	83	80-120	

Lab Batch #: 3027465

Sample: 730828-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/13/17 07:46

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	80-120	
4-Bromofluorobenzene	0.0266	0.0300	89	80-120	

Lab Batch #: 3027595

Sample: 730911-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/13/17 19:40

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0270	0.0300	90	80-120	
4-Bromofluorobenzene	0.0259	0.0300	86	80-120	

Lab Batch #: 3027741

Sample: 730997-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/14/17 19:20

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	64.1	50.0	128	70-130	
1-Chlorooctane	124	100	124	70-130	

Lab Batch #: 3027920

Sample: 731086-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/16/17 18:49

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	59.1	50.0	118	70-130	
1-Chlorooctane	107	100	107	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Cimarex- Gadwall 18 Federal com #1

Work Orders : 562130,

Project ID: 212C-MD-00660

Lab Batch #: 3028038

Sample: 731191-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/19/17 00:14

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0314	0.0300	105	80-120	
4-Bromofluorobenzene	0.0315	0.0300	105	80-120	

Lab Batch #: 3028130

Sample: 731230-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/19/17 22:51

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0268	0.0300	89	80-120	
4-Bromofluorobenzene	0.0268	0.0300	89	80-120	

Lab Batch #: 3028282

Sample: 731327-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/21/17 00:03

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	57.9	50.0	116	70-130	
1-Chlorooctane	110	100	110	70-130	

Lab Batch #: 3028552

Sample: 731371-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/22/17 03:12

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	58.7	50.0	117	70-130	
1-Chlorooctane	110	100	110	70-130	

Lab Batch #: 3027213

Sample: 730676-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/07/17 21:25

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	57.9	50.0	116	70-130	
1-Chlorooctane	110	100	110	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Cimarex- Gadwall 18 Federal com #1

Work Orders : 562130,

Project ID: 212C-MD-00660

Lab Batch #: 3027189

Sample: 730642-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/08/17 08:09

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0263	0.0300	88	80-120	

Lab Batch #: 3027465

Sample: 730828-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/13/17 08:05

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0292	0.0300	97	80-120	
4-Bromofluorobenzene	0.0269	0.0300	90	80-120	

Lab Batch #: 3027595

Sample: 730911-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/13/17 19:58

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0275	0.0300	92	80-120	
4-Bromofluorobenzene	0.0259	0.0300	86	80-120	

Lab Batch #: 3027741

Sample: 730997-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/14/17 19:44

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	59.7	50.0	119	70-130	
1-Chlorooctane	112	100	112	70-130	

Lab Batch #: 3027920

Sample: 731086-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/16/17 19:15

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	58.3	50.0	117	70-130	
1-Chlorooctane	108	100	108	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Cimarex- Gadwall 18 Federal com #1

Work Orders : 562130,

Project ID: 212C-MD-00660

Lab Batch #: 3028038

Sample: 731191-1-BSD / BSD

Batch: 1 **Matrix:** Solid

Units: mg/kg

Date Analyzed: 09/19/17 00:35

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0318	0.0300	106	80-120	
4-Bromofluorobenzene	0.0297	0.0300	99	80-120	

Lab Batch #: 3028130

Sample: 731230-1-BSD / BSD

Batch: 1 **Matrix:** Solid

Units: mg/kg

Date Analyzed: 09/19/17 23:10

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0267	0.0300	89	80-120	
4-Bromofluorobenzene	0.0261	0.0300	87	80-120	

Lab Batch #: 3028282

Sample: 731327-1-BSD / BSD

Batch: 1 **Matrix:** Solid

Units: mg/kg

Date Analyzed: 09/21/17 00:28

SURROGATE RECOVERY STUDY					
TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	58.0	50.0	116	70-130	
1-Chlorooctane	108	100	108	70-130	

Lab Batch #: 3028552

Sample: 731371-1-BSD / BSD

Batch: 1 **Matrix:** Solid

Units: mg/kg

Date Analyzed: 09/22/17 03:35

SURROGATE RECOVERY STUDY					
TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	59.0	50.0	118	70-130	
1-Chlorooctane	110	100	110	70-130	

Lab Batch #: 3027213

Sample: 561981-001 S / MS

Batch: 1 **Matrix:** Soil

Units: mg/kg

Date Analyzed: 09/07/17 22:12

SURROGATE RECOVERY STUDY					
TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	54.7	50.0	109	70-130	
1-Chlorooctane	105	100	105	70-130	

* Surrogate outside of Laboratory QC limits
 ** Surrogates outside limits; data and surrogates confirmed by reanalysis
 *** Poor recoveries due to dilution
 Surrogate Recovery [D] = 100 * A / B
 All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Cimarex- Gadwall 18 Federal com #1

Work Orders : 562130,

Project ID: 212C-MD-00660

Lab Batch #: 3027189

Sample: 562130-006 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/08/17 08:28

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0292	0.0300	97	80-120	
4-Bromofluorobenzene	0.0265	0.0300	88	80-120	

Lab Batch #: 3027465

Sample: 562479-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/13/17 08:24

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0347	0.0300	116	80-120	
4-Bromofluorobenzene	0.0251	0.0300	84	80-120	

Lab Batch #: 3027595

Sample: 562531-004 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/13/17 20:16

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0285	0.0300	95	80-120	
4-Bromofluorobenzene	0.0268	0.0300	89	80-120	

Lab Batch #: 3027741

Sample: 562537-006 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/15/17 01:14

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	61.8	50.0	124	70-130	
1-Chlorooctane	114	100	114	70-130	

Lab Batch #: 3027920

Sample: 562930-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/16/17 20:01

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	61.1	49.9	122	70-130	
1-Chlorooctane	113	99.8	113	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Cimarex- Gadwall 18 Federal com #1

Work Orders : 562130,

Project ID: 212C-MD-00660

Lab Batch #: 3028038

Sample: 562914-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/19/17 00:56

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0358	0.0300	119	80-120	
4-Bromofluorobenzene	0.0320	0.0300	107	80-120	

Lab Batch #: 3028130

Sample: 563090-005 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/19/17 23:29

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0277	0.0300	92	80-120	
4-Bromofluorobenzene	0.0275	0.0300	92	80-120	

Lab Batch #: 3028282

Sample: 563148-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/21/17 01:17

SURROGATE RECOVERY STUDY

TPH by Texas1005	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
o-Terphenyl	52.7	50.0	105	70-130	
1-Chlorooctane	103	99.9	103	70-130	

Lab Batch #: 3028552

Sample: 563550-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/22/17 06:50

SURROGATE RECOVERY STUDY

TPH by Texas1005	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
o-Terphenyl	58.1	49.9	116	70-130	
1-Chlorooctane	108	99.8	108	70-130	

Lab Batch #: 3027213

Sample: 561981-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/07/17 22:37

SURROGATE RECOVERY STUDY

TPH by Texas1005	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
o-Terphenyl	55.0	50.0	110	70-130	
1-Chlorooctane	109	99.9	109	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Cimarex- Gadwall 18 Federal com #1

Work Orders : 562130,

Project ID: 212C-MD-00660

Lab Batch #: 3027189

Sample: 562130-006 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/08/17 08:47

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	80-120	
4-Bromofluorobenzene	0.0265	0.0300	88	80-120	

Lab Batch #: 3027465

Sample: 562479-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/13/17 09:05

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0299	0.0300	100	80-120	
4-Bromofluorobenzene	0.0276	0.0300	92	80-120	

Lab Batch #: 3027595

Sample: 562531-004 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/13/17 20:35

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0308	0.0300	103	80-120	
4-Bromofluorobenzene	0.0255	0.0300	85	80-120	

Lab Batch #: 3027741

Sample: 562537-006 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/15/17 01:37

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	62.9	50.0	126	70-130	
1-Chlorooctane	118	99.9	118	70-130	

Lab Batch #: 3027920

Sample: 562930-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/16/17 20:26

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	58.5	50.0	117	70-130	
1-Chlorooctane	108	100	108	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Cimarex- Gadwall 18 Federal com #1

Work Orders : 562130,

Project ID: 212C-MD-00660

Lab Batch #: 3028038

Sample: 562914-001 SD / MSD

Batch: 1 **Matrix:** Soil

Units: mg/kg

Date Analyzed: 09/19/17 01:16

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0247	0.0300	82	80-120	
4-Bromofluorobenzene	0.0344	0.0300	115	80-120	

Lab Batch #: 3028130

Sample: 563090-005 SD / MSD

Batch: 1 **Matrix:** Soil

Units: mg/kg

Date Analyzed: 09/19/17 23:47

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0306	0.0300	102	80-120	
4-Bromofluorobenzene	0.0252	0.0300	84	80-120	

Lab Batch #: 3028282

Sample: 563148-001 SD / MSD

Batch: 1 **Matrix:** Soil

Units: mg/kg

Date Analyzed: 09/21/17 01:42

SURROGATE RECOVERY STUDY					
TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	53.0	50.0	106	70-130	
1-Chlorooctane	103	99.9	103	70-130	

Lab Batch #: 3028552

Sample: 563550-001 SD / MSD

Batch: 1 **Matrix:** Soil

Units: mg/kg

Date Analyzed: 09/22/17 07:14

SURROGATE RECOVERY STUDY					
TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	56.5	50.0	113	70-130	
1-Chlorooctane	104	100	104	70-130	

* Surrogate outside of Laboratory QC limits
 ** Surrogates outside limits; data and surrogates confirmed by reanalysis
 *** Poor recoveries due to dilution
 Surrogate Recovery [D] = 100 * A / B
 All results are based on MDL and validated for QC purposes.



BS / BSD Recoveries



Project Name: Cimarex- Gadwall 18 Federal com #1

Work Order #: 562130

Project ID: 212C-MD-00660

Analyst: ALJ

Date Prepared: 09/08/2017

Date Analyzed: 09/08/2017

Lab Batch ID: 3027189

Sample: 730642-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Benzene	<0.00200	0.100	0.119	119	0.101	0.108	107	10	70-130	35	
Toluene	<0.00200	0.100	0.110	110	0.101	0.101	100	9	70-130	35	
Ethylbenzene	<0.00200	0.100	0.107	107	0.101	0.0984	97	8	71-129	35	
m,p-Xylenes	<0.00401	0.200	0.208	104	0.202	0.191	95	9	70-135	35	
o-Xylene	<0.00200	0.100	0.0995	100	0.101	0.0920	91	8	71-133	35	

Analyst: ALJ

Date Prepared: 09/13/2017

Date Analyzed: 09/13/2017

Lab Batch ID: 3027465

Sample: 730828-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Benzene	<0.00199	0.0996	0.106	106	0.100	0.106	106	0	70-130	35	
Toluene	<0.00199	0.0996	0.0996	100	0.100	0.0991	99	1	70-130	35	
Ethylbenzene	<0.00199	0.0996	0.0972	98	0.100	0.0972	97	0	71-129	35	
m,p-Xylenes	<0.00398	0.199	0.188	94	0.200	0.189	95	1	70-135	35	
o-Xylene	<0.00199	0.0996	0.0908	91	0.100	0.0913	91	1	71-133	35	

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



BS / BSD Recoveries



Project Name: Cimarex- Gadwall 18 Federal com #1

Work Order #: 562130

Project ID: 212C-MD-00660

Analyst: ALJ

Date Prepared: 09/13/2017

Date Analyzed: 09/13/2017

Lab Batch ID: 3027595

Sample: 730911-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Benzene	<0.00202	0.101	0.104	103	0.100	0.100	100	4	70-130	35	
Toluene	<0.00202	0.101	0.0996	99	0.100	0.0952	95	5	70-130	35	
Ethylbenzene	<0.00202	0.101	0.0994	98	0.100	0.0948	95	5	71-129	35	
m,p-Xylenes	<0.00403	0.202	0.194	96	0.201	0.184	92	5	70-135	35	
o-Xylene	<0.00202	0.101	0.0938	93	0.100	0.0890	89	5	71-133	35	

Analyst: ALJ

Date Prepared: 09/18/2017

Date Analyzed: 09/19/2017

Lab Batch ID: 3028038

Sample: 731191-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Benzene	<0.00201	0.100	0.0796	80	0.101	0.0830	82	4	70-130	35	
Toluene	<0.00201	0.100	0.0918	92	0.101	0.0867	86	6	70-130	35	
Ethylbenzene	<0.00201	0.100	0.0933	93	0.101	0.0882	87	6	71-129	35	
m,p-Xylenes	<0.00402	0.201	0.180	90	0.202	0.170	84	6	70-135	35	
o-Xylene	<0.00201	0.100	0.0888	89	0.101	0.0835	83	6	71-133	35	

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



BS / BSD Recoveries



Project Name: Cimarex- Gadwall 18 Federal com #1

Work Order #: 562130

Project ID: 212C-MD-00660

Analyst: ALJ

Date Prepared: 09/19/2017

Date Analyzed: 09/19/2017

Lab Batch ID: 3028130

Sample: 731230-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Benzene	0.0998	0.101	0.0998	99	0.100	0.100	100	0	70-130	35	
Toluene	0.102	0.101	0.102	101	0.100	0.0977	98	4	70-130	35	
Ethylbenzene	0.0969	0.101	0.0969	96	0.100	0.0960	96	1	71-129	35	
m,p-Xylenes	0.196	0.202	0.196	97	0.200	0.191	96	3	70-135	35	
o-Xylene	0.0944	0.101	0.0944	93	0.100	0.0919	92	3	71-133	35	

Analyst: ARM

Date Prepared: 09/07/2017

Date Analyzed: 09/07/2017

Lab Batch ID: 3027213

Sample: 730676-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
C6-C12 Range Hydrocarbons	<25.0	1000	979	98	1000	966	97	1	75-125	25	
C12-C28 Range Hydrocarbons	<25.0	1000	957	96	1000	976	98	2	75-125	25	

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



BS / BSD Recoveries



Project Name: Cimarex- Gadwall 18 Federal com #1

Work Order #: 562130

Project ID: 212C-MD-00660

Analyst: ARM

Date Prepared: 09/14/2017

Date Analyzed: 09/14/2017

Lab Batch ID: 3027741

Sample: 730997-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
C6-C12 Range Hydrocarbons	<25.0	1000	995	100	1000	938	94	6	75-125	25	
C12-C28 Range Hydrocarbons	<25.0	1000	1030	103	1000	945	95	9	75-125	25	

Analyst: ARM

Date Prepared: 09/16/2017

Date Analyzed: 09/16/2017

Lab Batch ID: 3027920

Sample: 731086-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
C6-C12 Range Hydrocarbons	<25.0	1000	956	96	1000	943	94	1	75-125	25	
C12-C28 Range Hydrocarbons	<25.0	1000	971	97	1000	989	99	2	75-125	25	

Analyst: ARM

Date Prepared: 09/20/2017

Date Analyzed: 09/21/2017

Lab Batch ID: 3028282

Sample: 731327-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
C6-C12 Range Hydrocarbons	<25.0	1000	986	99	1000	967	97	2	75-125	25	
C12-C28 Range Hydrocarbons	<25.0	1000	1010	101	1000	1010	101	0	75-125	25	

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



BS / BSD Recoveries



Project Name: Cimarex- Gadwall 18 Federal com #1

Work Order #: 562130

Project ID: 212C-MD-00660

Analyst: ARM

Date Prepared: 09/21/2017

Date Analyzed: 09/22/2017

Lab Batch ID: 3028552

Sample: 731371-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
C6-C12 Range Hydrocarbons	<25.0	1000	1010	101	1000	1000	100	1	75-125	25	
C12-C28 Range Hydrocarbons	<25.0	1000	1010	101	1000	1010	101	0	75-125	25	

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: Cimarex- Gadwall 18 Federal com #1

Work Order # : 562130

Project ID: 212C-MD-00660

Lab Batch ID: 3027189

QC- Sample ID: 562130-006 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 09/08/2017

Date Prepared: 09/08/2017

Analyst: ALJ

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B 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
Benzene	<0.00200	0.0998	0.0668	67	0.0994	0.0830	84	22	70-130	35	X
Toluene	<0.00200	0.0998	0.0614	62	0.0994	0.0756	76	21	70-130	35	X
Ethylbenzene	<0.00200	0.0998	0.0581	58	0.0994	0.0702	71	19	71-129	35	X
m,p-Xylenes	<0.00399	0.200	0.114	57	0.199	0.137	69	18	70-135	35	X
o-Xylene	<0.00200	0.0998	0.0559	56	0.0994	0.0669	67	18	71-133	35	X

Lab Batch ID: 3027465

QC- Sample ID: 562479-001 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 09/13/2017

Date Prepared: 09/13/2017

Analyst: ALJ

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B 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
Benzene	<0.00202	0.101	0.124	123	0.100	0.107	107	15	70-130	35	
Toluene	<0.00202	0.101	0.0959	95	0.100	0.0983	98	2	70-130	35	
Ethylbenzene	<0.00202	0.101	0.0771	76	0.100	0.0910	91	17	71-129	35	
m,p-Xylenes	<0.00404	0.202	0.124	61	0.200	0.165	83	28	70-135	35	X
o-Xylene	<0.00202	0.101	0.0734	73	0.100	0.0848	85	14	71-133	35	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries



Project Name: Cimarex- Gadwall 18 Federal com #1

Work Order # : 562130

Project ID: 212C-MD-00660

Lab Batch ID: 3027595

QC- Sample ID: 562531-004 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 09/13/2017

Date Prepared: 09/13/2017

Analyst: ALJ

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B 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
Benzene	<0.00201	0.100	0.0756	76	0.0998	0.0806	81	6	70-130	35	
Toluene	<0.00201	0.100	0.0705	71	0.0998	0.0675	68	4	70-130	35	X
Ethylbenzene	<0.00201	0.100	0.0680	68	0.0998	0.0617	62	10	71-129	35	X
m,p-Xylenes	<0.00402	0.201	0.131	65	0.200	0.114	57	14	70-135	35	X
o-Xylene	<0.00201	0.100	0.0675	68	0.0998	0.0569	57	17	71-133	35	X

Lab Batch ID: 3028038

QC- Sample ID: 562914-001 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 09/19/2017

Date Prepared: 09/18/2017

Analyst: ALJ

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B 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
Benzene	<0.00201	0.100	0.0671	67	0.0998	0.0566	57	17	70-130	35	X
Toluene	<0.00201	0.100	0.0650	65	0.0998	0.0605	61	7	70-130	35	X
Ethylbenzene	<0.00201	0.100	0.0657	66	0.0998	0.0612	61	7	71-129	35	X
m,p-Xylenes	<0.00402	0.201	0.128	64	0.200	0.0964	48	28	70-135	35	X
o-Xylene	<0.00201	0.100	0.0644	64	0.0998	0.0560	56	14	71-133	35	X

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*((C-F)/(C+F))

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries



Project Name: Cimarex- Gadwall 18 Federal com #1

Work Order # : 562130

Project ID: 212C-MD-00660

Lab Batch ID: 3028130

QC- Sample ID: 563090-005 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 09/19/2017

Date Prepared: 09/19/2017

Analyst: ALJ

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B 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
Benzene	<0.00348	0.174	0.122	70	0.177	0.0907	51	29	70-130	35	X
Toluene	<0.00348	0.174	0.108	62	0.177	0.144	81	29	70-130	35	X
Ethylbenzene	<0.00348	0.174	0.0930	53	0.177	0.0825	47	12	71-129	35	X
m,p-Xylenes	<0.00697	0.348	0.198	57	0.353	0.255	72	25	70-135	35	X
o-Xylene	<0.00348	0.174	0.102	59	0.177	0.0736	42	32	71-133	35	X

Lab Batch ID: 3027213

QC- Sample ID: 561981-001 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 09/07/2017

Date Prepared: 09/07/2017

Analyst: ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 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
C6-C12 Range Hydrocarbons	<25.0	1000	925	93	999	929	93	0	75-125	25	
C12-C28 Range Hydrocarbons	<25.0	1000	901	90	999	931	93	3	75-125	25	

Lab Batch ID: 3027741

QC- Sample ID: 562537-006 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 09/15/2017

Date Prepared: 09/14/2017

Analyst: ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 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
C6-C12 Range Hydrocarbons	<25.0	1000	986	99	999	991	99	1	75-125	25	
C12-C28 Range Hydrocarbons	<25.0	1000	997	100	999	971	97	3	75-125	25	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries



Project Name: Cimarex- Gadwall 18 Federal com #1

Work Order # : 562130

Project ID: 212C-MD-00660

Lab Batch ID: 3027920

QC- Sample ID: 562930-001 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 09/16/2017

Date Prepared: 09/16/2017

Analyst: ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 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
C6-C12 Range Hydrocarbons	41.7	998	995	96	1000	967	93	3	75-125	25	
C12-C28 Range Hydrocarbons	79.9	998	1050	97	1000	1040	96	1	75-125	25	

Lab Batch ID: 3028282

QC- Sample ID: 563148-001 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 09/21/2017

Date Prepared: 09/20/2017

Analyst: ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 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
C6-C12 Range Hydrocarbons	<25.0	999	918	92	999	927	93	1	75-125	25	
C12-C28 Range Hydrocarbons	<25.0	999	947	95	999	977	98	3	75-125	25	

Lab Batch ID: 3028552

QC- Sample ID: 563550-001 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 09/22/2017

Date Prepared: 09/21/2017

Analyst: ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 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
C6-C12 Range Hydrocarbons	<25.0	998	988	99	1000	997	100	1	75-125	25	
C12-C28 Range Hydrocarbons	200	998	1150	95	1000	1180	98	3	75-125	25	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(C-F)/(C+F)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Analysis Request of Chain of Custody Record



Tetra Tech, Inc.

4000 N. Big Spring Street, Ste 401
Midland, Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

5102130

Client Name: Cimarex

Site Manager: Ike Tavaraz

Project Name: Gadwall 18 Federal Corn #1

Project Location: (county, state) Eddy County, New Mexico

Project #:

212C-MD-00660

Invoice to: Cimarex

Receiving Laboratory: Xenco Midland TX

Sampler Signature: Mike Carmona

Comments: Run deeper samples if TPH exceeds 100 mg/kg, if Benzene exceeds 10 mg/kg, BTEX exceeds 50 mg/kg

LAB USE ONLY

SAMPLE IDENTIFICATION

LAB #	DATE	TIME	MATRIX		PRESERVATIVE METHOD				# CONTAINERS	FILTERED (Y/N)
			WATER	SOIL	HCL	HNO ₃	ICE	None		
BH #1 (0-1)	9/5/2017		X					X	1	N
BH #1 (2-3)	9/5/2017		X					X	1	N
BH #1 (4-5)	9/5/2017		X					X	1	N
BH #1 (6-7)	9/5/2017		X					X	1	N
BH #1 (11-12)	9/5/2017		X					X	1	N
BH #1 (16-17)	9/5/2017		X					X	1	N
BH #2 (0-1)	9/5/2017		X					X	1	N
BH #2 (2-3)	9/5/2017		X					X	1	N
BH #2 (4-5)	9/5/2017		X					X	1	N
BH #2 (6-7)	9/5/2017		X					X	1	N

Received by: *Mike Carmona* Date: 9-6-17 Time: 1350

Received by: *Mike Carmona* Date: 9/6/17 Time: 13:51

Received by: _____ Date: _____ Time: _____

IR ID: R-8

ORIGINAL COPY

ANALYSIS REQUEST (Circle or Specify Method No.)

BTEX 8021B BTEX 8260B

TPH TX1005 (Ext to C35)

TPH 8015M (GRO - DRO - ORO - MRO)

PAH 8270C

Total Metals Ag As Ba Cd Cr Pb Se Hg

TCLP Metals Ag As Ba Cd Cr Pb Se Hg

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8260B / 624

GC/MS Semi. Vol. 8270C/625

PCB's 8082 / 608

NORM

PLM (Asbestos)

Chloride

Chloride Sulfate TDS

General Water Chemistry (see attached list)

Anion/Cation Balance

Hold

REMARKS:

STANDARD

RUSH: Same Day 24 hr 48 hr 72 hr

Rush Charges Authorized

Special Report Limits or TRRP Report

LAB USE ONLY

Sample Temperature

RECEIVED BY: _____ DATE: _____ TIME: _____

Analysis Request of Chain of Custody Record



Tetra Tech, Inc.

4000 N. Big Spring Street, Ste 401
Midland, Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

Client Name:

Cimarex

Site Manager:

Ike Tavaroz

Project Name:

Gadwall 18 Federal Com #1

ANALYSIS REQUEST

Project Location: (county, state) Eddy County, New Mexico

Project #:

212C-MD-00660

Invoice to:

Cimarex

Receiving Laboratory:

Xenco Midland TX

Sampler Signature:

Mike Carrmona

Comments:

Run deeper samples if TPH exceeds 100 mg/kg, if Benzene exceeds 10 mg/kg, BTEX exceeds 50 mg/kg

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION		SAMPLING		MATRIX			PRESERVATIVE METHOD			# CONTAINERS	FILTERED (Y/N)
	BH #2 (9-10)	BH #2 (14-15)	DATE	TIME	WATER	SOIL	HCL	HNO ₃	ICE	None		
	BH #2 (9-10)	BH #2 (14-15)	9/5/2017		X	X		X			1 N	
	BH #2 (14-15)	BH #2 (19-20)	9/5/2017		X	X		X			1 N	
	BH #2 (19-20)		9/5/2017		X			X			1 N	

Hold

Inquired by:	Date:	Time:	Received by:	Date:	Time:
Mike Carrmona	9-6-17	1350	Mike Carrmona	9/6/17	13:51
Inquired by:	Date:	Time:	Received by:	Date:	Time:
Inquired by:	Date:	Time:	Received by:	Date:	Time:

LAB USE ONLY

REMARKS:

STANDARD

RUSH: Same Day 24 hr 48 hr 72 hr

Push Charges Authorized

Special Report Limits or TRRP Report

Sample Temperature

ANALYSIS REQUEST (Circle or Specify Method No.)

BTEX 8021B BTEX 8260B

TPH TX1005 (Ext to C35)

TPH 8015M (GRO - DRO - ORO - MRO)

PAH 8270C

Total Metals Ag As Ba Cd Cr Pb Se Hg

TCLP Metals Ag As Ba Cd Cr Pb Se Hg

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8260B / 624

GC/MS Semi. Vol. 8270C/625

PCB's 8082 / 608

NORM

PLM (Asbestos)

Chloride

Chloride Sulfate TDS

General Water Chemistry (see attached list)

Anion/Cation Balance

5102130

Temp: 3.6
CF: (0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 3.4

IR ID: R-8

ORIGINAL COPY

(Circle) GRAND DELIVERED FEDEX UPS Tracking #:



XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In

Client: Tetra Tech- Midland

Date/ Time Received: 09/06/2017 01:51:00 PM

Work Order #: 562130

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	3.4
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6*Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by:

Shawnee Smith

Date: 09/07/2017

Checklist reviewed by:

Kelsey Brooks

Date: 09/07/2017



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

October 31, 2022

MICHAEL COLLIER
H & R ENTERPRISES
1010 GAMBLIN ROAD
HOBBS, NM 88240

RE: GADWALL 18 FED #001 (GADWALL)

Enclosed are the results of analyses for samples received by the laboratory on 10/24/22 12:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-22-15. 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/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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,

A handwritten signature in black ink that reads "Celey D. Keene".

Celey D. Keene
Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	10/24/2022	Sampling Date:	10/24/2022
Reported:	10/31/2022	Sampling Type:	Soil
Project Name:	GADWALL 18 FED #001 (GADWALL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX - EDDY COUNTY, NM		

Sample ID: BH - 1 0-5' (H224987-01)

BTEX 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/30/2022	ND	1.93	96.5	2.00	9.60	
Toluene*	<0.050	0.050	10/30/2022	ND	2.16	108	2.00	9.73	
Ethylbenzene*	<0.050	0.050	10/30/2022	ND	1.99	99.4	2.00	6.07	
Total Xylenes*	<0.150	0.150	10/30/2022	ND	6.11	102	6.00	8.91	
Total BTEX	<0.300	0.300	10/30/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	10/27/2022	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/28/2022	ND	168	83.9	200	2.31	
DRO >C10-C28*	<10.0	10.0	10/28/2022	ND	176	88.0	200	4.72	
EXT DRO >C28-C36	<10.0	10.0	10/28/2022	ND					

Surrogate: 1-Chlorooctane 86.7 % 45.3-161

Surrogate: 1-Chlorooctadecane 93.8 % 46.3-178

Cardinal Laboratories

* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	10/24/2022	Sampling Date:	10/24/2022
Reported:	10/31/2022	Sampling Type:	Soil
Project Name:	GADWALL 18 FED #001 (GADWALL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX - EDDY COUNTY, NM		

Sample ID: BH - 1 5-10' (H224987-02)

BTEX 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/30/2022	ND	1.93	96.5	2.00	9.60	
Toluene*	<0.050	0.050	10/30/2022	ND	2.16	108	2.00	9.73	
Ethylbenzene*	<0.050	0.050	10/30/2022	ND	1.99	99.4	2.00	6.07	
Total Xylenes*	<0.150	0.150	10/30/2022	ND	6.11	102	6.00	8.91	
Total BTEX	<0.300	0.300	10/30/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.7 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	10/27/2022	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/28/2022	ND	168	83.9	200	2.31	
DRO >C10-C28*	<10.0	10.0	10/28/2022	ND	176	88.0	200	4.72	
EXT DRO >C28-C36	<10.0	10.0	10/28/2022	ND					

Surrogate: 1-Chlorooctane 75.1 % 45.3-161

Surrogate: 1-Chlorooctadecane 81.2 % 46.3-178

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	10/24/2022	Sampling Date:	10/24/2022
Reported:	10/31/2022	Sampling Type:	Soil
Project Name:	GADWALL 18 FED #001 (GADWALL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX - EDDY COUNTY, NM		

Sample ID: BH - 1 10-15' (H224987-03)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/30/2022	ND	1.93	96.5	2.00	9.60		
Toluene*	<0.050	0.050	10/30/2022	ND	2.16	108	2.00	9.73		
Ethylbenzene*	<0.050	0.050	10/30/2022	ND	1.99	99.4	2.00	6.07		
Total Xylenes*	<0.150	0.150	10/30/2022	ND	6.11	102	6.00	8.91		
Total BTEX	<0.300	0.300	10/30/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.6 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	128	16.0	10/27/2022	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	10/28/2022	ND	168	83.9	200	2.31		
DRO >C10-C28*	<10.0	10.0	10/28/2022	ND	176	88.0	200	4.72		
EXT DRO >C28-C36	<10.0	10.0	10/28/2022	ND						

Surrogate: 1-Chlorooctane 83.3 % 45.3-161

Surrogate: 1-Chlorooctadecane 87.1 % 46.3-178

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	10/24/2022	Sampling Date:	10/24/2022
Reported:	10/31/2022	Sampling Type:	Soil
Project Name:	GADWALL 18 FED #001 (GADWALL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX - EDDY COUNTY, NM		

Sample ID: BH - 1 15-20' (H224987-04)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/30/2022	ND	1.93	96.5	2.00	9.60		
Toluene*	<0.050	0.050	10/30/2022	ND	2.16	108	2.00	9.73		
Ethylbenzene*	<0.050	0.050	10/30/2022	ND	1.99	99.4	2.00	6.07		
Total Xylenes*	<0.150	0.150	10/30/2022	ND	6.11	102	6.00	8.91		
Total BTEX	<0.300	0.300	10/30/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.8 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	112	16.0	10/27/2022	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	10/28/2022	ND	168	83.9	200	2.31		
DRO >C10-C28*	<10.0	10.0	10/28/2022	ND	176	88.0	200	4.72		
EXT DRO >C28-C36	<10.0	10.0	10/28/2022	ND						

Surrogate: 1-Chlorooctane 87.5 % 45.3-161

Surrogate: 1-Chlorooctadecane 95.2 % 46.3-178

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* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	10/24/2022	Sampling Date:	10/24/2022
Reported:	10/31/2022	Sampling Type:	Soil
Project Name:	GADWALL 18 FED #001 (GADWALL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX - EDDY COUNTY, NM		

Sample ID: BH - 2 0-5' (H224987-05)

BTEX 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/30/2022	ND	1.93	96.5	2.00	9.60	
Toluene*	<0.050	0.050	10/30/2022	ND	2.16	108	2.00	9.73	
Ethylbenzene*	<0.050	0.050	10/30/2022	ND	1.99	99.4	2.00	6.07	
Total Xylenes*	<0.150	0.150	10/30/2022	ND	6.11	102	6.00	8.91	
Total BTEX	<0.300	0.300	10/30/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	208	16.0	10/27/2022	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/28/2022	ND	168	83.9	200	2.31	
DRO >C10-C28*	<10.0	10.0	10/28/2022	ND	176	88.0	200	4.72	
EXT DRO >C28-C36	<10.0	10.0	10/28/2022	ND					

Surrogate: 1-Chlorooctane 89.6 % 45.3-161

Surrogate: 1-Chlorooctadecane 96.5 % 46.3-178

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* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	10/24/2022	Sampling Date:	10/24/2022
Reported:	10/31/2022	Sampling Type:	Soil
Project Name:	GADWALL 18 FED #001 (GADWALL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX - EDDY COUNTY, NM		

Sample ID: BH - 2 5-10' (H224987-06)

BTEX 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/30/2022	ND	1.93	96.5	2.00	9.60	
Toluene*	<0.050	0.050	10/30/2022	ND	2.16	108	2.00	9.73	
Ethylbenzene*	<0.050	0.050	10/30/2022	ND	1.99	99.4	2.00	6.07	
Total Xylenes*	<0.150	0.150	10/30/2022	ND	6.11	102	6.00	8.91	
Total BTEX	<0.300	0.300	10/30/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	10/27/2022	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/28/2022	ND	168	83.9	200	2.31	
DRO >C10-C28*	<10.0	10.0	10/28/2022	ND	176	88.0	200	4.72	
EXT DRO >C28-C36	<10.0	10.0	10/28/2022	ND					

Surrogate: 1-Chlorooctane 88.8 % 45.3-161

Surrogate: 1-Chlorooctadecane 95.1 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	10/24/2022	Sampling Date:	10/24/2022
Reported:	10/31/2022	Sampling Type:	Soil
Project Name:	GADWALL 18 FED #001 (GADWALL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX - EDDY COUNTY, NM		

Sample ID: BH - 2 10-15' (H224987-07)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/30/2022	ND	1.93	96.5	2.00	9.60		
Toluene*	<0.050	0.050	10/30/2022	ND	2.16	108	2.00	9.73		
Ethylbenzene*	<0.050	0.050	10/30/2022	ND	1.99	99.4	2.00	6.07		
Total Xylenes*	<0.150	0.150	10/30/2022	ND	6.11	102	6.00	8.91		
Total BTEX	<0.300	0.300	10/30/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.3 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	10/27/2022	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	10/28/2022	ND	168	83.9	200	2.31		
DRO >C10-C28*	<10.0	10.0	10/28/2022	ND	176	88.0	200	4.72		
EXT DRO >C28-C36	<10.0	10.0	10/28/2022	ND						

Surrogate: 1-Chlorooctane 85.8 % 45.3-161

Surrogate: 1-Chlorooctadecane 91.8 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	10/24/2022	Sampling Date:	10/24/2022
Reported:	10/31/2022	Sampling Type:	Soil
Project Name:	GADWALL 18 FED #001 (GADWALL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX - EDDY COUNTY, NM		

Sample ID: BH - 2 15-20' (H224987-08)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/30/2022	ND	1.99	99.7	2.00	9.67		
Toluene*	<0.050	0.050	10/30/2022	ND	2.14	107	2.00	9.54		
Ethylbenzene*	<0.050	0.050	10/30/2022	ND	2.11	106	2.00	9.76		
Total Xylenes*	<0.150	0.150	10/30/2022	ND	6.33	106	6.00	9.70		
Total BTEX	<0.300	0.300	10/30/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 90.8 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	10/27/2022	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	10/28/2022	ND	168	83.9	200	2.31		
DRO >C10-C28*	<10.0	10.0	10/28/2022	ND	176	88.0	200	4.72		
EXT DRO >C28-C36	<10.0	10.0	10/28/2022	ND						

Surrogate: 1-Chlorooctane 80.4 % 45.3-161

Surrogate: 1-Chlorooctadecane 87.9 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	10/24/2022	Sampling Date:	10/24/2022
Reported:	10/31/2022	Sampling Type:	Soil
Project Name:	GADWALL 18 FED #001 (GADWALL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX - EDDY COUNTY, NM		

Sample ID: BH - 3 0-5' (H224987-09)

BTEX 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/30/2022	ND	1.99	99.7	2.00	9.67	
Toluene*	<0.050	0.050	10/30/2022	ND	2.14	107	2.00	9.54	
Ethylbenzene*	<0.050	0.050	10/30/2022	ND	2.11	106	2.00	9.76	
Total Xylenes*	<0.150	0.150	10/30/2022	ND	6.33	106	6.00	9.70	
Total BTEX	<0.300	0.300	10/30/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 91.5 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	10/27/2022	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/28/2022	ND	168	83.9	200	2.31	
DRO >C10-C28*	<10.0	10.0	10/28/2022	ND	176	88.0	200	4.72	
EXT DRO >C28-C36	<10.0	10.0	10/28/2022	ND					

Surrogate: 1-Chlorooctane 84.3 % 45.3-161

Surrogate: 1-Chlorooctadecane 91.1 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	10/24/2022	Sampling Date:	10/24/2022
Reported:	10/31/2022	Sampling Type:	Soil
Project Name:	GADWALL 18 FED #001 (GADWALL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX - EDDY COUNTY, NM		

Sample ID: BH - 3 5-10' (H224987-10)

BTEX 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/30/2022	ND	1.99	99.7	2.00	9.67	
Toluene*	<0.050	0.050	10/30/2022	ND	2.14	107	2.00	9.54	
Ethylbenzene*	<0.050	0.050	10/30/2022	ND	2.11	106	2.00	9.76	
Total Xylenes*	<0.150	0.150	10/30/2022	ND	6.33	106	6.00	9.70	
Total BTEX	<0.300	0.300	10/30/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 93.0 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	10/27/2022	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/28/2022	ND	168	83.9	200	2.31	
DRO >C10-C28*	<10.0	10.0	10/28/2022	ND	176	88.0	200	4.72	
EXT DRO >C28-C36	<10.0	10.0	10/28/2022	ND					

Surrogate: 1-Chlorooctane 89.3 % 45.3-161

Surrogate: 1-Chlorooctadecane 98.9 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	10/24/2022	Sampling Date:	10/24/2022
Reported:	10/31/2022	Sampling Type:	Soil
Project Name:	GADWALL 18 FED #001 (GADWALL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX - EDDY COUNTY, NM		

Sample ID: BH - 3 10-15' (H224987-11)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/30/2022	ND	1.99	99.7	2.00	9.67		
Toluene*	<0.050	0.050	10/30/2022	ND	2.14	107	2.00	9.54		
Ethylbenzene*	<0.050	0.050	10/30/2022	ND	2.11	106	2.00	9.76		
Total Xylenes*	<0.150	0.150	10/30/2022	ND	6.33	106	6.00	9.70		
Total BTEX	<0.300	0.300	10/30/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.1 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	10/27/2022	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	10/28/2022	ND	168	83.9	200	2.31		
DRO >C10-C28*	<10.0	10.0	10/28/2022	ND	176	88.0	200	4.72		
EXT DRO >C28-C36	<10.0	10.0	10/28/2022	ND						

Surrogate: 1-Chlorooctane 86.3 % 45.3-161

Surrogate: 1-Chlorooctadecane 93.4 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	10/24/2022	Sampling Date:	10/24/2022
Reported:	10/31/2022	Sampling Type:	Soil
Project Name:	GADWALL 18 FED #001 (GADWALL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX - EDDY COUNTY, NM		

Sample ID: BH - 3 15-20' (H224987-12)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/30/2022	ND	1.99	99.7	2.00	9.67		
Toluene*	<0.050	0.050	10/30/2022	ND	2.14	107	2.00	9.54		
Ethylbenzene*	<0.050	0.050	10/30/2022	ND	2.11	106	2.00	9.76		
Total Xylenes*	<0.150	0.150	10/30/2022	ND	6.33	106	6.00	9.70		
Total BTEX	<0.300	0.300	10/30/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 90.3 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	10/27/2022	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	10/28/2022	ND	168	83.9	200	2.31		
DRO >C10-C28*	11.1	10.0	10/28/2022	ND	176	88.0	200	4.72		
EXT DRO >C28-C36	<10.0	10.0	10/28/2022	ND						

Surrogate: 1-Chlorooctane 85.5 % 45.3-161

Surrogate: 1-Chlorooctadecane 93.6 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	10/24/2022	Sampling Date:	10/24/2022
Reported:	10/31/2022	Sampling Type:	Soil
Project Name:	GADWALL 18 FED #001 (GADWALL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX - EDDY COUNTY, NM		

Sample ID: BH - 4 0-5' (H224987-13)

BTEX 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/30/2022	ND	1.99	99.7	2.00	9.67	
Toluene*	<0.050	0.050	10/30/2022	ND	2.14	107	2.00	9.54	
Ethylbenzene*	<0.050	0.050	10/30/2022	ND	2.11	106	2.00	9.76	
Total Xylenes*	<0.150	0.150	10/30/2022	ND	6.33	106	6.00	9.70	
Total BTEX	<0.300	0.300	10/30/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 92.2 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	10/27/2022	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/28/2022	ND	168	83.9	200	2.31	
DRO >C10-C28*	<10.0	10.0	10/28/2022	ND	176	88.0	200	4.72	
EXT DRO >C28-C36	<10.0	10.0	10/28/2022	ND					

Surrogate: 1-Chlorooctane 82.8 % 45.3-161

Surrogate: 1-Chlorooctadecane 89.3 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	10/24/2022	Sampling Date:	10/24/2022
Reported:	10/31/2022	Sampling Type:	Soil
Project Name:	GADWALL 18 FED #001 (GADWALL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX - EDDY COUNTY, NM		

Sample ID: BH - 4 5-10' (H224987-14)

BTEX 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/30/2022	ND	1.99	99.7	2.00	9.67	
Toluene*	<0.050	0.050	10/30/2022	ND	2.14	107	2.00	9.54	
Ethylbenzene*	<0.050	0.050	10/30/2022	ND	2.11	106	2.00	9.76	
Total Xylenes*	<0.150	0.150	10/30/2022	ND	6.33	106	6.00	9.70	
Total BTEX	<0.300	0.300	10/30/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 91.5 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	10/27/2022	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/28/2022	ND	201	100	200	0.488	
DRO >C10-C28*	<10.0	10.0	10/28/2022	ND	177	88.5	200	2.47	
EXT DRO >C28-C36	<10.0	10.0	10/28/2022	ND					

Surrogate: 1-Chlorooctane 105 % 45.3-161

Surrogate: 1-Chlorooctadecane 114 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	10/24/2022	Sampling Date:	10/24/2022
Reported:	10/31/2022	Sampling Type:	Soil
Project Name:	GADWALL 18 FED #001 (GADWALL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX - EDDY COUNTY, NM		

Sample ID: BH - 4 10-15' (H224987-15)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/30/2022	ND	1.99	99.7	2.00	9.67		
Toluene*	<0.050	0.050	10/30/2022	ND	2.14	107	2.00	9.54		
Ethylbenzene*	<0.050	0.050	10/30/2022	ND	2.11	106	2.00	9.76		
Total Xylenes*	<0.150	0.150	10/30/2022	ND	6.33	106	6.00	9.70		
Total BTEX	<0.300	0.300	10/30/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.0 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	128	16.0	10/27/2022	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	10/28/2022	ND	201	100	200	0.488		
DRO >C10-C28*	<10.0	10.0	10/28/2022	ND	177	88.5	200	2.47		
EXT DRO >C28-C36	<10.0	10.0	10/28/2022	ND						

Surrogate: 1-Chlorooctane 88.0 % 45.3-161

Surrogate: 1-Chlorooctadecane 95.5 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	10/24/2022	Sampling Date:	10/24/2022
Reported:	10/31/2022	Sampling Type:	Soil
Project Name:	GADWALL 18 FED #001 (GADWALL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX - EDDY COUNTY, NM		

Sample ID: BH - 4 15-20' (H224987-16)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/30/2022	ND	1.99	99.7	2.00	9.67		
Toluene*	<0.050	0.050	10/30/2022	ND	2.14	107	2.00	9.54		
Ethylbenzene*	<0.050	0.050	10/30/2022	ND	2.11	106	2.00	9.76		
Total Xylenes*	<0.150	0.150	10/30/2022	ND	6.33	106	6.00	9.70		
Total BTEX	<0.300	0.300	10/30/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.1 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	10/27/2022	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	10/28/2022	ND	201	100	200	0.488		
DRO >C10-C28*	<10.0	10.0	10/28/2022	ND	177	88.5	200	2.47		
EXT DRO >C28-C36	<10.0	10.0	10/28/2022	ND						

Surrogate: 1-Chlorooctane 94.8 % 45.3-161

Surrogate: 1-Chlorooctadecane 102 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	10/24/2022	Sampling Date:	10/24/2022
Reported:	10/31/2022	Sampling Type:	Soil
Project Name:	GADWALL 18 FED #001 (GADWALL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX - EDDY COUNTY, NM		

Sample ID: BH - 5 0-5' (H224987-17)

BTEX 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/30/2022	ND	1.99	99.7	2.00	9.67	
Toluene*	<0.050	0.050	10/30/2022	ND	2.14	107	2.00	9.54	
Ethylbenzene*	<0.050	0.050	10/30/2022	ND	2.11	106	2.00	9.76	
Total Xylenes*	<0.150	0.150	10/30/2022	ND	6.33	106	6.00	9.70	
Total BTEX	<0.300	0.300	10/30/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 92.2 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	10/27/2022	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/28/2022	ND	201	100	200	0.488	
DRO >C10-C28*	<10.0	10.0	10/28/2022	ND	177	88.5	200	2.47	
EXT DRO >C28-C36	<10.0	10.0	10/28/2022	ND					

Surrogate: 1-Chlorooctane 96.6 % 45.3-161

Surrogate: 1-Chlorooctadecane 102 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	10/24/2022	Sampling Date:	10/24/2022
Reported:	10/31/2022	Sampling Type:	Soil
Project Name:	GADWALL 18 FED #001 (GADWALL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX - EDDY COUNTY, NM		

Sample ID: BH - 5 5-10' (H224987-18)

BTEX 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/30/2022	ND	1.99	99.7	2.00	9.67	
Toluene*	<0.050	0.050	10/30/2022	ND	2.14	107	2.00	9.54	
Ethylbenzene*	<0.050	0.050	10/30/2022	ND	2.11	106	2.00	9.76	
Total Xylenes*	<0.150	0.150	10/30/2022	ND	6.33	106	6.00	9.70	
Total BTEX	<0.300	0.300	10/30/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 92.0 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	10/27/2022	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/28/2022	ND	201	100	200	0.488	
DRO >C10-C28*	<10.0	10.0	10/28/2022	ND	177	88.5	200	2.47	
EXT DRO >C28-C36	<10.0	10.0	10/28/2022	ND					

Surrogate: 1-Chlorooctane 92.8 % 45.3-161

Surrogate: 1-Chlorooctadecane 99.9 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	10/24/2022	Sampling Date:	10/24/2022
Reported:	10/31/2022	Sampling Type:	Soil
Project Name:	GADWALL 18 FED #001 (GADWALL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX - EDDY COUNTY, NM		

Sample ID: BH - 5 10-15' (H224987-19)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/30/2022	ND	1.99	99.7	2.00	9.67		
Toluene*	<0.050	0.050	10/30/2022	ND	2.14	107	2.00	9.54		
Ethylbenzene*	<0.050	0.050	10/30/2022	ND	2.11	106	2.00	9.76		
Total Xylenes*	<0.150	0.150	10/30/2022	ND	6.33	106	6.00	9.70		
Total BTEX	<0.300	0.300	10/30/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 91.8 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	10/27/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	10/28/2022	ND	201	100	200	0.488		
DRO >C10-C28*	<10.0	10.0	10/28/2022	ND	177	88.5	200	2.47		
EXT DRO >C28-C36	<10.0	10.0	10/28/2022	ND						

Surrogate: 1-Chlorooctane 94.5 % 45.3-161

Surrogate: 1-Chlorooctadecane 101 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	10/24/2022	Sampling Date:	10/24/2022
Reported:	10/31/2022	Sampling Type:	Soil
Project Name:	GADWALL 18 FED #001 (GADWALL)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX - EDDY COUNTY, NM		

Sample ID: BH - 5 15-20' (H224987-20)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/30/2022	ND	1.99	99.7	2.00	9.67		
Toluene*	<0.050	0.050	10/30/2022	ND	2.14	107	2.00	9.54		
Ethylbenzene*	<0.050	0.050	10/30/2022	ND	2.11	106	2.00	9.76		
Total Xylenes*	<0.150	0.150	10/30/2022	ND	6.33	106	6.00	9.70		
Total BTEX	<0.300	0.300	10/30/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 89.7 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	10/27/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	10/28/2022	ND	201	100	200	0.488		
DRO >C10-C28*	<10.0	10.0	10/28/2022	ND	177	88.5	200	2.47		
EXT DRO >C28-C36	<10.0	10.0	10/28/2022	ND						

Surrogate: 1-Chlorooctane 94.1 % 45.3-161

Surrogate: 1-Chlorooctadecane 103 % 46.3-178

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

- 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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Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: H&R Enterprises

BILL TO

ANALYSIS REQUEST

Project Manager: Michael Collier	P.O. #:	
Address:	Company: Cimarex Energy	
City:	Attn: Laci Luing	
State:	Address:	
Zip:	City:	
Phone #:	Project Owner: Cimarex Energy	
Fax #:	State:	
	Zip:	
Project #: _____	Phone #:	
Project Name: Gadwall 18 Fed #001 (Gadwall)	Fax #:	
Project Location: Eddy County, NM		
Sampler Name: Roy Ball		

Lab I.D.	Depth	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX							DATE	TIME	BTEX	TPH	Chlorides
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER: ACID/BASE:	ICE / COOL					
H24987	BH-1 0-5'	C	1			X						X	X	X	
	BH-1 5-10'														
	BH-1 10-15'														
	BH-1 15-20'														
	BH-2 0-5'														
	BH-2 5-10'														
	BH-2 10-15'														
	BH-2 15-20'														
	BH-3 0-5'														
	BH-3 5-10'														

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Relinquished By: _____	Date: 10/24/22	Received By: _____	Time: 12:25
Relinquished By: _____	Date: _____	Received By: _____	Time: _____
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Observed Temp. °C: 38 Corrected Temp. °C: 3.2	Sample Condition: Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/> No <input type="checkbox"/> No <input type="checkbox"/>	CHECKED BY: (Initials) J.P.
	Thermometer ID #113 Correction Factor -0.3°C	Standard <input checked="" type="checkbox"/> Bacteria (only) Sample Condition Cool Intact <input checked="" type="checkbox"/> Observed Temp. °C	Add'l Phone #: _____
	Thermometer ID #113 Correction Factor -0.3°C	Standard <input checked="" type="checkbox"/> Bacteria (only) Sample Condition Cool Intact <input checked="" type="checkbox"/> Observed Temp. °C	Add'l Phone #: _____

FORM-006 R 3.2 10/07/21
† Cardinal cannot accept verbal changes. Please email changes to celey.keene@cardinalabsnm.com



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: H&R Enterprises

BILL TO

ANALYSIS REQUEST

Project Manager: Michael Collier
 Address: _____ State: _____ Zip: _____
 City: _____
 Phone #: _____ Fax #: _____
 Project #: _____ Project Owner: Cimarex Energy
 Project Name: Gaddwall 18 Fed #001 (Gaddwall) State: _____ Zip: _____
 Project Location: Eddy County, NM Phone #: _____
 Sampler Name: Roy Bell Fax #: _____

FOR LAB USE ONLY
 Lab I.D. _____

Lab I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	BTEX	TPH	Chlorides
			GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER : ACID/BASE:					
H224987	C	1			X				10/24/22	X	X	X	
11	BH-3 10-15'												
12	BH-3 15-20'												
13	BH-4 0-5'												
14	BH-4 5-10'												
15	BH-4 10-15'												
16	BH-4 15-20'												
17	BH-5 0-5'												
18	BH-5 5-10'												
19	BH-5 10-15'												
20	BH-5 15-20'												

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Relinquished By: _____ Date: 10/24/22
 Received By: _____
 Date: 10/24/22
 Time: _____
 Observed Temp. °C: 35
 Corrected Temp. °C: 32
 Sample Condition: Cool Impact
 Checked By: (Initials) TO
 Turnaround Time: Standard Bacteria (only) Sample Condition
 Thermometer ID #113
 Correction Factor -0.1°C
 Verbal Result: Yes No
 All Results are emailed. Please provide Email address:
 REMARKS: PG 2 of 2
 Add'l Phone #: _____
 Corrected Temp. °C: _____

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District I
 1625 N. French Dr., Hobbs, NM 88240
 Phone:(575) 393-6161 Fax:(575) 393-0720

District II
 811 S. First St., Artesia, NM 88210
 Phone:(575) 748-1283 Fax:(575) 748-9720

District III
 1000 Rio Brazos Rd., Aztec, NM 87410
 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV
 1220 S. St Francis Dr., Santa Fe, NM 87505
 Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 159023

CONDITIONS

Operator: CIMAREX ENERGY CO. OF COLORADO 600 N. Marienfeld Street Midland, TX 79701	OGRID: 162683
	Action Number: 159023
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
bhall	None	11/16/2022