



December 10, 2018

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

Ryan Mann  
New Mexico State Land Office  
1001 S. Atkinson  
Roswell, NM 88230

**Re: Work Plan  
Diamondback 22 State Com 5H (9/19/18)  
API #: 30-015-42432  
RP#: 2RP-4985  
GPS: 32.03482 -104.06966  
Unit Letter A, Section 22, Township 25 South, Range 28 East  
Eddy County, New Mexico**

Mr. Bratcher and Mr. Mann,

COG Operating, LLC (COG) is pleased to submit the following work plan in response to a release that occurred at the Diamondback 22 State Com 5H located in Unit Letter A, Section 22 Township 25 South and Range 28 East in Eddy County, New Mexico.

## **BACKGROUND**

The release was discovered on September 19, 2018 and a C-141 initial report was submitted and approved by the New Mexico Oil Conservation Division (NMOCD). The initial C-141 is shown in Appendix A. The release was caused by a 3<sup>rd</sup> party driver that did not secure the valve load line. Approximately fifteen (15) barrels of produced water were released and recovered ten (10) barrels of fluids. All of the fluids remained on the pad.

## **GROUNDWATER AND REGULATORY FRAMEWORK**

According to the New Mexico Office of the State Engineer (NMOSE), a water well was reported in Section 22 with a depth of 120 feet below surface. In addition, the USGS showed a depth to water <50 feet below surface. In addition, the Chevron Trend Map show depth to groundwater in the area <50 feet below surface for the area. The water well information is shown in Appendix B.

A risk based evaluation and site determinations were performed in accordance to the New Mexico Oil Conservation Division (NMOCD) Rule (Title 19 Chapter 15 Part 29) for releases on oil and gas development and production in New Mexico (effective August 14, 2018). According to the site characterization evaluation, the area is high karst and no other receptors (water wells, playas, water course, lake beds or ordinance boundaries) were located within each specific boundaries or distance from the site. The groundwater data and the site characterization evaluation data is summarized in Appendix B. The delineation and closure criteria are listed below:

**General Site Characterization and Groundwater:**

Site Characterization	Average Groundwater Depth (ft.)
Karst Area	<50 feet

**Delineation and Closure Criteria:**

Remedial Action Levels (RALs)	
Chlorides	600 mg/kg
TPH (GRO and DRO and MRO)	100 mg/kg
TPH (GRO and DRO)	NA
Benzene	10 mg/kg
Total BTEX	50 mg/kg

**PROPOSED WORK PLAN**

- The areas of S-1, S-2, S-4 and S-7 will be excavated to a depth of approximately 0.5’ to 1.0’ below surface to remove all of the chloride impacted soil above the RAL.
- All of the excavated material will be hauled to an NMOCD approved solid waste disposal facility.
- The excavation will be backfilled with clean backfilled material.

**SAMPLING PLAN**

Once the excavation is complete, soil confirmation samples will be collected from the excavated areas for the constituents of concern. To collect representative samples, composite samples (5-point composite) will be collected every 200 square feet for the final confirmation sampling for the constituents of concern. Discrete soil samples will be collected from the excavation if any “hot spots” are encountered during the excavation.

**REMEDATION TIMEFRAME AND ESTIMATED VOLUME**

The remediation will be performed 90 days after the work plan has been approved. Approximately 230 cubic yards of soil will be excavated and hauled offsite for proper disposal.

## **SITE RECLAMATION AND RESTORATION**

The spill remained on the pad and no reclamation activities will be required at the site.

Once the proposed remediation is performed, COG will prepare a closure report. Should you have any questions or concerns on the proposed remediation activities, please do not hesitate to contact me.

Sincerely,  
Concho Operating, LLC



Ike Tavaréz, P. G.  
Senior HSE Supervisor  
[itavarez@concho.com](mailto:itavarez@concho.com)

cc: file

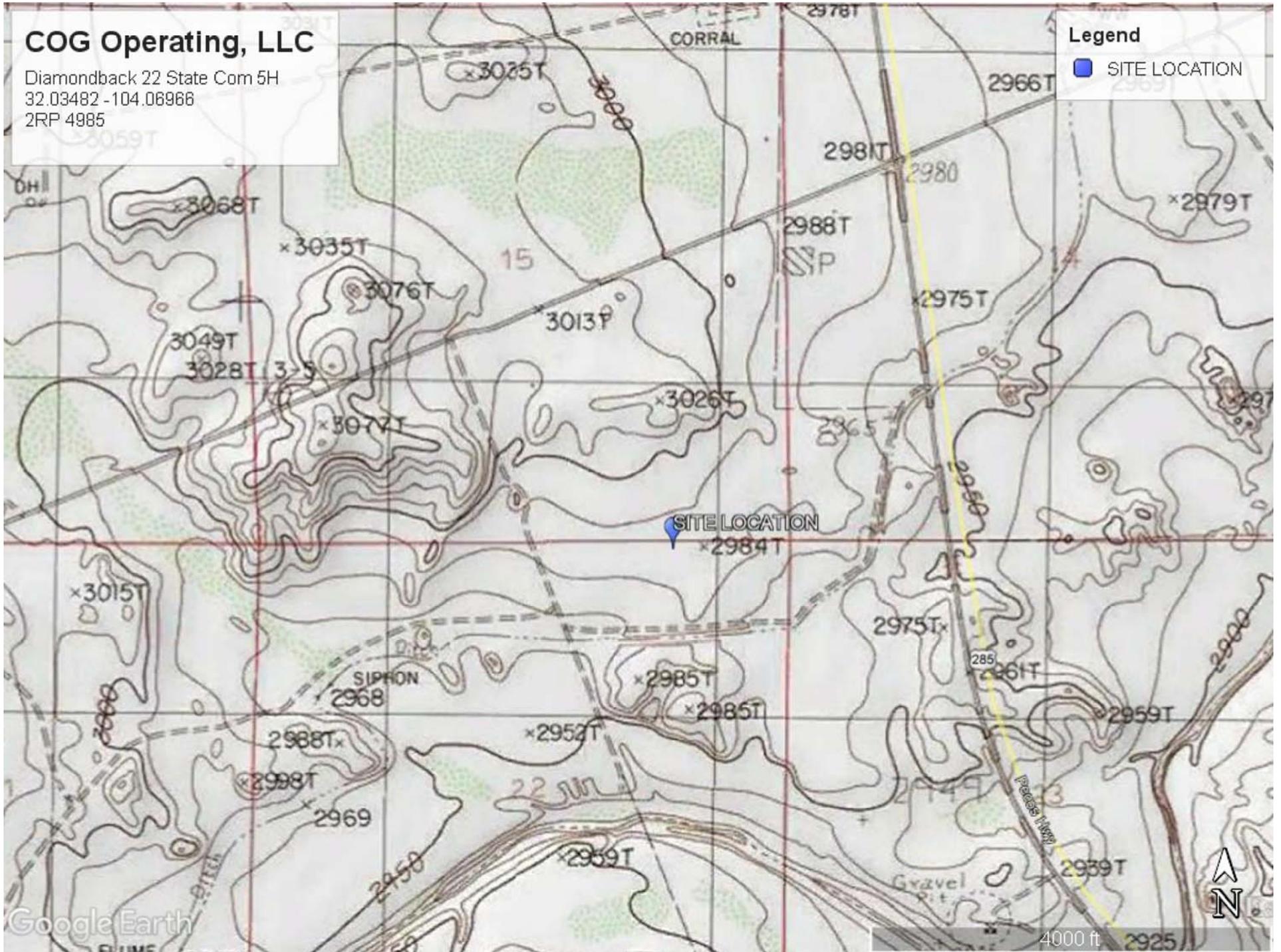
## Figures

# COG Operating, LLC

Diamondback 22 State Com 5H  
32.03482 -104.06966  
2RP 4985

## Legend

 SITE LOCATION



Google Earth

4000 ft



# COG Operating, LLC

Diamondback 22 State Com 5H  
32.03482 -104.06966  
2RP 4985

## Legend

-  Battery
-  Electric
-  Sample Locations
-  Spill Area

Tank Battery

CS-4

S3

S2

S1

S5

S6

S7

Google Earth



100 ft

# COG Operating

Diamondback 22 State Com 5H  
32.03482 - 104.6966

Proposed Excavation

## Legend

-  Battery
-  Spill Area
-  Electric
-  Proposed Excavation (0.5-1.0')
-  Sample Location
-  SITE LOCATION
-  Tank Battery

SITE LOCATION

Tank Battery

S-4

S3

S2

CS5

CS1

S6

CS7

Google Earth

© 2018 Google



100 ft

# Tables

**Table 1  
COG Operating LLC.  
Diamondback 22 State Com 5H  
Eddy County, New Mexico**

Sample ID	Sample GPS	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	MRO	Total			
<b>Average Depth to Groundwater (ft)</b>				<b>&gt;50'</b>								
<b>NMOCD RAL Limits (mg/kg)</b>						<b>-</b>	<b>-</b>	<b>-</b>	<b>100</b>	<b>10</b>	<b>50</b>	<b>600</b>
S-1	32.034859° -104.070027°	11/19/2018	Surface	X		<10.0	<10.0	<10.0	<10.0	<0.025	<0.15	<b>1,790</b>
S-1		11/19/2018	1	X		<10.0	<10.0	<10.0	<10.0	<0.025	<0.15	352
S-2	32.034913° -104.070060°	11/19/2018	Surface	X		<10.0	<10.0	<10.0	<10.0	<0.025	<0.15	<b>656</b>
S-2		11/19/2018	1	X		<10.0	<10.0	<10.0	<10.0	<0.025	<0.15	432
S-3	32.034961° -104.070152°	11/19/2018	Surface	X		<10.0	<10.0	<10.0	<10.0	<0.025	<0.15	496
S-4	32.034950° -104.070289°	11/19/2018	Surface	X		<10.0	83.5	80	<b>163.5</b>	<0.025	<0.15	<b>1,680</b>
S-4		11/19/2018	1	X		<10.0	<10.0	<10.0	<10.0	<0.025	<0.15	176
S-5	32.034884° -104.070254°	11/19/2018	Surface	X		<10.0	<10.0	<10.0	<10.0	<0.025	<0.15	336
S-6	32.034774° -104.070331°	11/19/2018	Surface	X		<10.0	<10.0	<10.0	<10.0	<0.025	<0.15	496
S-7	32.034615° -104.070355°	11/19/2018	Surface	X		<10.0	<10.0	<10.0	<10.0	<0.025	<0.15	<b>1,490</b>
S-7		11/19/2018	Surface	X		<10.0	<10.0	<10.0	<10.0	<0.025	<0.15	224

  Proposed Excavation Depth

( - ) Not Analyzed

# Appendix A

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 Department

Form C-141  
Revised August 24, 2018  
Submit to appropriate OCD District office

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

Incident ID	
District RP	
Facility ID	
Application ID	

## Release Notification

### Responsible Party

Responsible Party	OGRID
Contact Name	Contact Telephone
Contact email	Incident # (assigned by OCD)
Contact mailing address	

### Location of Release Source

Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Site Type
Date Release Discovered	API# (if applicable)

Unit Letter	Section	Township	Range	County

Surface Owner:  State  Federal  Tribal  Private (Name: \_\_\_\_\_)

### Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC?  <input type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

### Initial Response

*The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury*

<input type="checkbox"/> The source of the release has been stopped. <input type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.
If all the actions described above have <u>not</u> been undertaken, explain why:
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.
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: <u>Delann Grant</u> Date: _____ email: _____ Telephone: _____
<b><u>OCD Only</u></b> Received by: _____ Date: _____

Incident ID	
District RP	2RP 4985
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?	≥100 (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" 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 checked="" 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 checked="" 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 checked="" type="checkbox"/> No
515 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 checked="" 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 checked="" 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 checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input checked="" 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.

<b><u>Characterization Report Checklist:</u> Each of the following items must be included in the report.</b>
<input checked="" type="checkbox"/> Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
<input type="checkbox"/> Field data
<input checked="" type="checkbox"/> Data table of soil contaminant concentration data
<input checked="" type="checkbox"/> Depth to water determination
<input checked="" type="checkbox"/> Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
<input type="checkbox"/> Boring or excavation logs
<input type="checkbox"/> Photographs including date and GIS information
<input checked="" type="checkbox"/> Topographic/Aerial maps
<input checked="" type="checkbox"/> 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.

Incident ID	
District RP	2RP 4985
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: Ike Tavaréz Title: Senior HSE Supervisor  
 Signature: \_\_\_\_\_ Date: 10/24/18  
 email: itavarez@concho.com Telephone: 432-683-7443

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Incident ID	
District RP	2RP 4985
Facility ID	
Application ID	

## Remediation Plan

**Remediation Plan Checklist:** *Each of the following items must be included in the plan.*

- Detailed description of proposed remediation technique
- Scaled sitemap with GPS coordinates showing delineation points
- Estimated volume of material to be remediated
- Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

**Deferral Requests Only:** *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- Extents of contamination must be fully delineated.
- Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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: Ike Tavarez Title: Senior HSE Supervisor

Signature:  Date: 12/7/18

email: itavarez@concho.com Telephone: 432-683-7443

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

- Approved     
  Approved with Attached Conditions of Approval     
  Denied     
  Deferral Approved

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## Appendix B

# COG Operating, LLC

Diamondback 22 State Com 5H  
32.03482 - 104.06966  
2RP 4985

## Legend

- High
- Low
- Medium
- SITE LOCATION

SITE LOCATION

285

Peecos-Hwy



1 mi

Google Earth

Image Landsat / Copernicus

bing maps

NM 88256, US

Type your notes here.





# 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	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column	
<a href="#">C_01668</a>		CUB	ED	3	3	12	26S	28E		589957	3546554*	<input type="checkbox"/>	250	100	150
<a href="#">C_02160</a>		CUB	ED	4	1	2	14	26S	28E	589243	3546044*	<input type="checkbox"/>	300	120	180
<a href="#">C_02160.S</a>		CUB	ED	1	1	2	14	26S	28E	589043	3546244*	<input type="checkbox"/>	300	120	180
<a href="#">C_02160.S2</a>		CUB	ED	1	1	2	14	26S	28E	589043	3546244*	<input type="checkbox"/>	300	120	180
<a href="#">C_02160.S3</a>		CUB	ED	2	2	1	14	26S	28E	588834	3546241*	<input type="checkbox"/>	300	120	180
<a href="#">C_02160.S4</a>		CUB	ED	2	2	1	14	26S	28E	588834	3546241*	<input type="checkbox"/>	300	120	180
<a href="#">C_02160.S5</a>		CUB	ED	1	1	1	14	26S	28E	588225	3546237*	<input type="checkbox"/>	300	120	180
<a href="#">C_02160.S6</a>		CUB	ED	3	3	1	14	26S	28E	588232	3545635*	<input type="checkbox"/>	300	120	180
<a href="#">C_02160.S7</a>		CUB	ED	3	3	1	22	26S	28E	586638	3543998*	<input type="checkbox"/>	300	120	180
<a href="#">C_02160.S8</a>		CUB	ED	2	3	3	12	26S	28E	590056	3546653*	<input type="checkbox"/>	200	120	80
<a href="#">C_02160.S9</a>		CUB	ED	3	3	2	02	26S	28E	589020	3548868*	<input type="checkbox"/>	300	120	180
<a href="#">C_02477</a>		CUB	ED	1	1	03	26S	28E		586687	3549347*	<input type="checkbox"/>	150		
<a href="#">C_02478</a>		CUB	ED	2	1	05	26S	28E		583848	3549325*	<input type="checkbox"/>	100		
<a href="#">C_02479</a>		CUB	ED	4	4	10	26S	28E		587909	3546534*	<input type="checkbox"/>	200		
<a href="#">C_02480</a>		CUB	ED	4	4	10	26S	28E		587909	3546534*	<input type="checkbox"/>	150		
<a href="#">C_02481</a>		CUB	ED	1	1	14	26S	28E		588326	3546138*	<input type="checkbox"/>	200		
<a href="#">C_02894</a>		C	ED	2	2	3	12	26S	28E	590458	3547061*	<input type="checkbox"/>	240		
<a href="#">C_02924</a>		C	ED	1	3	2	11	26S	28E	589032	3547451*	<input type="checkbox"/>			
<a href="#">C_04022.POD1</a>		CUB	ED	4	4	2	15	26S	28E	588082	3545647	<input type="checkbox"/>	220	175	45
<a href="#">C_04022.POD2</a>		CUB	ED	2	2	2	27	26S	28E	588106	3543082	<input type="checkbox"/>	250	145	105

Average Depth to Water: **124 feet**  
 Minimum Depth: **100 feet**  
 Maximum Depth: **175 feet**

**Record Count:** 20

**PLSS Search:**

**Township:** 26S    **Range:** 28E

\*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.

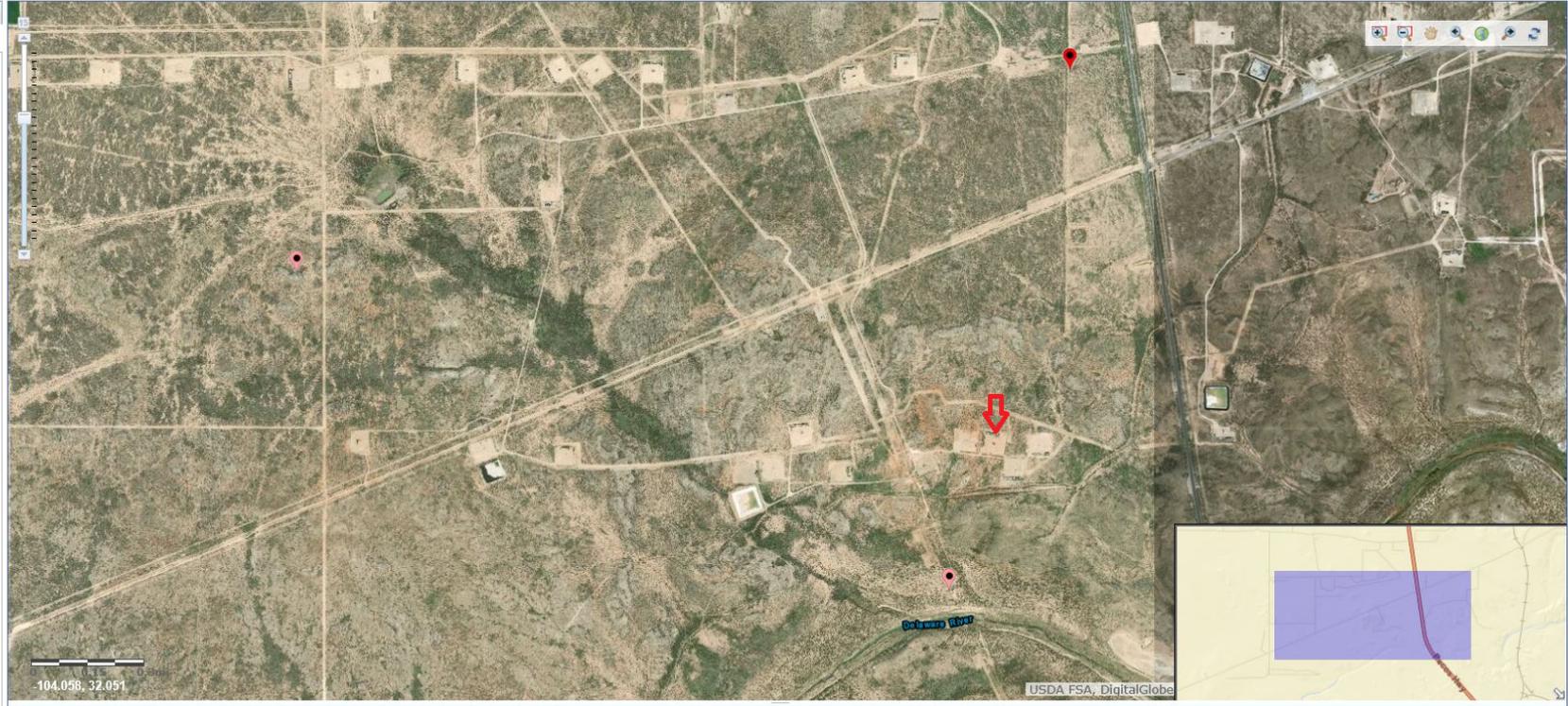


Sites Map

Map Layers

Base Map

- Imagery
- Imagery with Labels
- Streets
- Topographic
- Dark Gray Canvas
- Light Gray Canvas



Site Information

USDA FSA, DigitalGlobe



USGS Home  
 Contact USGS  
 Search USGS

National Water Information System: Web Interface

[USGS Water Resources](#)

Data Category:  Geographic Area:

Click to hideNews Bulletins

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Groundwater levels for the Nation

Search Results -- 1 sites found

site\_no list = 

- 320145104041701

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

USGS 320145104041701 26S.28E.22.234431

Available data for this site

Eddy County, New Mexico

Hydrologic Unit Code 13060011

Latitude 32°01'45", Longitude 104°04'17" NAD27

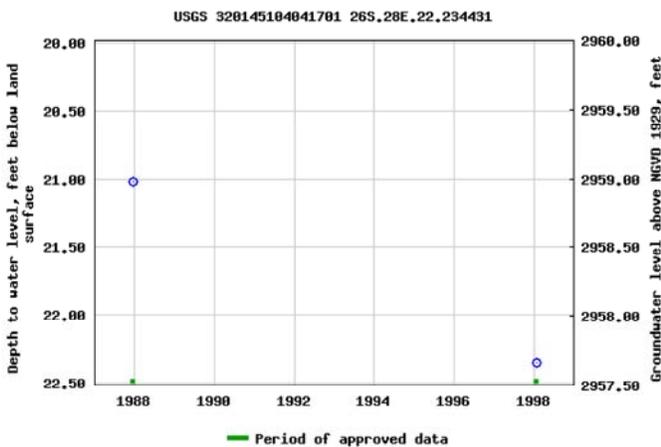
Land-surface elevation 2,980 feet above NGVD29

The depth of the well is 23.00 feet below land surface.

This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

<a href="#">Table of data</a>
<a href="#">Tab-separated data</a>
<a href="#">Graph of data</a>
<a href="#">Reselect period</a>



Breaks in the plot represent a gap of at least one year between field measurements.

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[U.S. Department of the Interior](#) | [U.S. Geological Survey](#)

Title: Groundwater for USA: Water Levels

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





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National Water Information System: Web Interface

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Groundwater levels for the Nation

Search Results -- 1 sites found

site\_no list = 

- 320230104060601

Minimum number of levels = 1

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USGS 320230104060601 26S.28E.18.33111

Available data for this site

Eddy County, New Mexico

Hydrologic Unit Code --

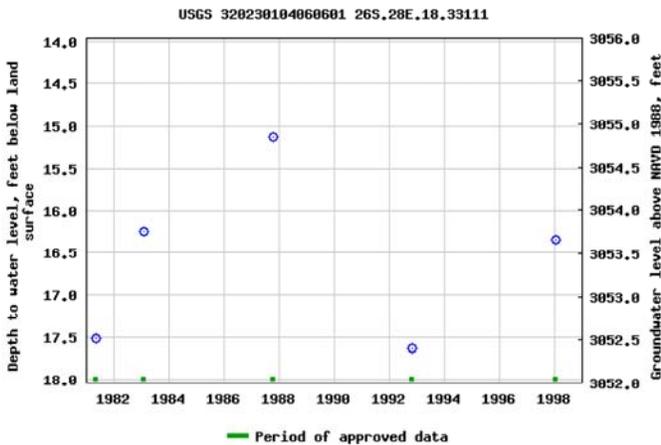
Latitude 32°02'30", Longitude 104°06'06" NAD27

Land-surface elevation 3,070 feet above NAVD88

This well is completed in the Castile Gypsum (312CSTL) local aquifer.

Output formats

<a href="#">Table of data</a>
<a href="#">Tab-separated data</a>
<a href="#">Graph of data</a>
<a href="#">Reselect period</a>



Breaks in the plot represent a gap of at least one year between field measurements.

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[U.S. Department of the Interior](#) | [U.S. Geological Survey](#)

Title: Groundwater for USA: Water Levels

URL: [https://nwis.waterdata.usgs.gov/nwis/gwlevels?site\\_no=320230104060601](https://nwis.waterdata.usgs.gov/nwis/gwlevels?site_no=320230104060601)





USGS Home  
 Contact USGS  
 Search USGS

National Water Information System: Web Interface

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Data Category:  Geographic Area:

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Groundwater levels for the Nation

Search Results -- 1 sites found

site\_no list = 

- 320309104020401

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

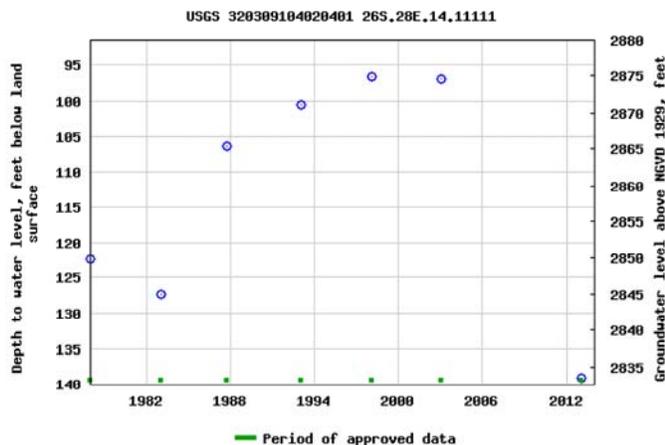
USGS 320309104020401 26S.28E.14.11111

Available data for this site

Eddy County, New Mexico  
 Hydrologic Unit Code 13060011  
 Latitude 32°02'59.0", Longitude 104°03'58.7" NAD83  
 Land-surface elevation 2,972.00 feet above NGVD29  
 This well is completed in the Rustler Formation (312RSLR) local aquifer.

Output formats

<a href="#">Table of data</a>
<a href="#">Tab-separated data</a>
<a href="#">Graph of data</a>
<a href="#">Reselect period</a>



Breaks in the plot represent a gap of at least one year between field measurements.

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- [Subscribe for system changes](#)
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Accessibility Plug-Ins FOIA Privacy Policies and Notices

[U.S. Department of the Interior](#) | [U.S. Geological Survey](#)

Title: Groundwater for USA: Water Levels

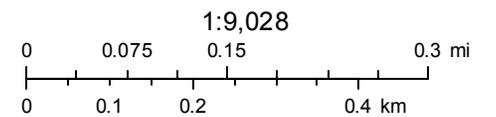
URL: [https://nwis.waterdata.usgs.gov/nwis/gwlevels?site\\_no=320309104020401](https://nwis.waterdata.usgs.gov/nwis/gwlevels?site_no=320309104020401)



# New Mexico NFHL Data



December 7, 2018



FEMA  
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS,

nmfood.org is made possible through a collaboration with NMDHSEM, EDAC, and FEMA  
This is a non-regulatory product for informational use only. Please consult your local floodplain administrator for further information.

# Appendix C



November 29, 2018

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

RE: DIAMONDBACK 22 STATE COM #5H

Enclosed are the results of analyses for samples received by the laboratory on 11/20/18 11:20.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. 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](http://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

**Analytical Results For:**

 COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received:	11/20/2018	Sampling Date:	11/19/2018
Reported:	11/29/2018	Sampling Type:	Soil
Project Name:	DIAMONDBACK 22 STATE COM #5H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: S1 - SURFACE (H803394-01)**

BTEX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	11/28/2018	ND	2.10	105	2.00	1.01		
<b>Toluene*</b>	<b>0.109</b>	0.025	11/28/2018	ND	2.26	113	2.00	2.25		
Ethylbenzene*	<0.025	0.025	11/28/2018	ND	2.19	110	2.00	2.77		
Total Xylenes*	<0.075	0.075	11/28/2018	ND	7.26	121	6.00	2.37		
Total BTEX	<0.150	0.150	11/28/2018	ND						

Surrogate: Dibromofluoromethane 102 % 90.4-111

Surrogate: Toluene-d8 101 % 85.3-114

Surrogate: 4-Bromofluorobenzene 93.8 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>1790</b>	16.0	11/26/2018	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	11/24/2018	ND	209	104	200	3.03		
DRO >C10-C28*	<10.0	10.0	11/24/2018	ND	217	109	200	3.50		
EXT DRO >C28-C36	<10.0	10.0	11/24/2018	ND						

Surrogate: 1-Chlorooctane 89.8 % 41-142

Surrogate: 1-Chlorooctadecane 104 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received:	11/20/2018	Sampling Date:	11/19/2018
Reported:	11/29/2018	Sampling Type:	Soil
Project Name:	DIAMONDBACK 22 STATE COM #5H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: S1 - 1' (H803394-02)**

BTEX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	11/28/2018	ND	2.10	105	2.00	1.01		
Toluene*	<0.025	0.025	11/28/2018	ND	2.26	113	2.00	2.25		
Ethylbenzene*	<0.025	0.025	11/28/2018	ND	2.19	110	2.00	2.77		
Total Xylenes*	<0.075	0.075	11/28/2018	ND	7.26	121	6.00	2.37		
Total BTEX	<0.150	0.150	11/28/2018	ND						

Surrogate: Dibromofluoromethane 103 % 90.4-111

Surrogate: Toluene-d8 98.4 % 85.3-114

Surrogate: 4-Bromofluorobenzene 80.3 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>352</b>	16.0	11/26/2018	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	11/24/2018	ND	209	104	200	3.03		
DRO >C10-C28*	<10.0	10.0	11/24/2018	ND	217	109	200	3.50		
EXT DRO >C28-C36	<10.0	10.0	11/24/2018	ND						

Surrogate: 1-Chlorooctane 93.0 % 41-142

Surrogate: 1-Chlorooctadecane 102 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received:	11/20/2018	Sampling Date:	11/19/2018
Reported:	11/29/2018	Sampling Type:	Soil
Project Name:	DIAMONDBACK 22 STATE COM #5H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: S2 - SURFACE (H803394-06)**

BTEX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	11/28/2018	ND	2.10	105	2.00	1.01		
Toluene*	<0.025	0.025	11/28/2018	ND	2.26	113	2.00	2.25		
Ethylbenzene*	<0.025	0.025	11/28/2018	ND	2.19	110	2.00	2.77		
Total Xylenes*	<0.075	0.075	11/28/2018	ND	7.26	121	6.00	2.37		
Total BTEX	<0.150	0.150	11/28/2018	ND						

Surrogate: Dibromofluoromethane      103 %      90.4-111

Surrogate: Toluene-d8      99.9 %      85.3-114

Surrogate: 4-Bromofluorobenzene      82.5 %      80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>656</b>	16.0	11/26/2018	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	11/25/2018	ND	209	104	200	3.03		
DRO >C10-C28*	<10.0	10.0	11/25/2018	ND	217	109	200	3.50		
EXT DRO >C28-C36	<10.0	10.0	11/25/2018	ND						

Surrogate: 1-Chlorooctane      84.4 %      41-142

Surrogate: 1-Chlorooctadecane      90.9 %      37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received:	11/20/2018	Sampling Date:	11/19/2018
Reported:	11/29/2018	Sampling Type:	Soil
Project Name:	DIAMONDBACK 22 STATE COM #5H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: S2 - 1' (H803394-07)**

BTEX 8260B		mg/kg		Analyzed By: ms				S-04		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	11/28/2018	ND	2.10	105	2.00	1.01		
Toluene*	<0.025	0.025	11/28/2018	ND	2.26	113	2.00	2.25		
Ethylbenzene*	<0.025	0.025	11/28/2018	ND	2.19	110	2.00	2.77		
Total Xylenes*	<0.075	0.075	11/28/2018	ND	7.26	121	6.00	2.37		
Total BTEX	<0.150	0.150	11/28/2018	ND						

Surrogate: Dibromofluoromethane 108 % 90.4-111

Surrogate: Toluene-d8 98.4 % 85.3-114

Surrogate: 4-Bromofluorobenzene 79.5 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>432</b>	16.0	11/26/2018	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	11/25/2018	ND	209	104	200	3.03		
DRO >C10-C28*	<10.0	10.0	11/25/2018	ND	217	109	200	3.50		
EXT DRO >C28-C36	<10.0	10.0	11/25/2018	ND						

Surrogate: 1-Chlorooctane 88.2 % 41-142

Surrogate: 1-Chlorooctadecane 95.1 % 37.6-147

Cardinal Laboratories

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received:	11/20/2018	Sampling Date:	11/19/2018
Reported:	11/29/2018	Sampling Type:	Soil
Project Name:	DIAMONDBACK 22 STATE COM #5H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: S3 - SURFACE (H803394-10)**

BTEX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	11/28/2018	ND	2.10	105	2.00	1.01		
Toluene*	<0.025	0.025	11/28/2018	ND	2.26	113	2.00	2.25		
Ethylbenzene*	<0.025	0.025	11/28/2018	ND	2.19	110	2.00	2.77		
Total Xylenes*	<0.075	0.075	11/28/2018	ND	7.26	121	6.00	2.37		
Total BTEX	<0.150	0.150	11/28/2018	ND						

Surrogate: Dibromofluoromethane 106 % 90.4-111

Surrogate: Toluene-d8 100 % 85.3-114

Surrogate: 4-Bromofluorobenzene 83.4 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>496</b>	16.0	11/26/2018	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	11/25/2018	ND	209	104	200	3.03		
DRO >C10-C28*	<10.0	10.0	11/25/2018	ND	217	109	200	3.50		
EXT DRO >C28-C36	<10.0	10.0	11/25/2018	ND						

Surrogate: 1-Chlorooctane 88.0 % 41-142

Surrogate: 1-Chlorooctadecane 96.3 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received:	11/20/2018	Sampling Date:	11/19/2018
Reported:	11/29/2018	Sampling Type:	Soil
Project Name:	DIAMONDBACK 22 STATE COM #5H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: S4 - SURFACE (H803394-15)**

BTEX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	11/28/2018	ND	2.10	105	2.00	1.01		
Toluene*	<0.025	0.025	11/28/2018	ND	2.26	113	2.00	2.25		
Ethylbenzene*	<0.025	0.025	11/28/2018	ND	2.19	110	2.00	2.77		
Total Xylenes*	<0.075	0.075	11/28/2018	ND	7.26	121	6.00	2.37		
Total BTEX	<0.150	0.150	11/28/2018	ND						

Surrogate: Dibromofluoromethane 108 % 90.4-111

Surrogate: Toluene-d8 98.7 % 85.3-114

Surrogate: 4-Bromofluorobenzene 82.0 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>1680</b>	16.0	11/26/2018	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	11/25/2018	ND	209	104	200	3.03		
<b>DRO &gt;C10-C28*</b>	<b>83.5</b>	10.0	11/25/2018	ND	217	109	200	3.50		
<b>EXT DRO &gt;C28-C36</b>	<b>80.0</b>	10.0	11/25/2018	ND						

Surrogate: 1-Chlorooctane 88.4 % 41-142

Surrogate: 1-Chlorooctadecane 96.3 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received:	11/20/2018	Sampling Date:	11/19/2018
Reported:	11/29/2018	Sampling Type:	Soil
Project Name:	DIAMONDBACK 22 STATE COM #5H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: S4 - 1' (H803394-16)**

BTEX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	11/28/2018	ND	2.10	105	2.00	1.01		
Toluene*	<0.025	0.025	11/28/2018	ND	2.26	113	2.00	2.25		
Ethylbenzene*	<0.025	0.025	11/28/2018	ND	2.19	110	2.00	2.77		
Total Xylenes*	<0.075	0.075	11/28/2018	ND	7.26	121	6.00	2.37		
Total BTEX	<0.150	0.150	11/28/2018	ND						

Surrogate: Dibromofluoromethane 106 % 90.4-111

Surrogate: Toluene-d8 102 % 85.3-114

Surrogate: 4-Bromofluorobenzene 87.2 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>176</b>	16.0	11/26/2018	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	11/25/2018	ND	209	104	200	3.03		
DRO >C10-C28*	<10.0	10.0	11/25/2018	ND	217	109	200	3.50		
EXT DRO >C28-C36	<10.0	10.0	11/25/2018	ND						

Surrogate: 1-Chlorooctane 89.4 % 41-142

Surrogate: 1-Chlorooctadecane 95.2 % 37.6-147

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received:	11/20/2018	Sampling Date:	11/19/2018
Reported:	11/29/2018	Sampling Type:	Soil
Project Name:	DIAMONDBACK 22 STATE COM #5H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: S5 - SURFACE (H803394-20)**

BTEX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	11/28/2018	ND	2.12	106	2.00	0.901		
Toluene*	<0.025	0.025	11/28/2018	ND	2.31	116	2.00	2.16		
Ethylbenzene*	<0.025	0.025	11/28/2018	ND	2.19	110	2.00	1.36		
Total Xylenes*	<0.075	0.075	11/28/2018	ND	7.42	124	6.00	2.17		
Total BTEX	<0.150	0.150	11/28/2018	ND						

Surrogate: Dibromofluoromethane 102 % 90.4-111

Surrogate: Toluene-d8 99.8 % 85.3-114

Surrogate: 4-Bromofluorobenzene 83.5 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>336</b>	16.0	11/26/2018	ND	432	108	400	3.77		

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	11/25/2018	ND	208	104	200	1.61		
DRO >C10-C28*	<10.0	10.0	11/25/2018	ND	218	109	200	0.748		
EXT DRO >C28-C36	<10.0	10.0	11/25/2018	ND						

Surrogate: 1-Chlorooctane 86.5 % 41-142

Surrogate: 1-Chlorooctadecane 93.4 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received:	11/20/2018	Sampling Date:	11/19/2018
Reported:	11/29/2018	Sampling Type:	Soil
Project Name:	DIAMONDBACK 22 STATE COM #5H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: S6 - SURFACE (H803394-23)**

BTEX 8260B		mg/kg		Analyzed By: ms				S-04		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	11/28/2018	ND	2.12	106	2.00	0.901		
Toluene*	<0.025	0.025	11/28/2018	ND	2.31	116	2.00	2.16		
Ethylbenzene*	<0.025	0.025	11/28/2018	ND	2.19	110	2.00	1.36		
Total Xylenes*	<0.075	0.075	11/28/2018	ND	7.42	124	6.00	2.17		
Total BTEX	<0.150	0.150	11/28/2018	ND						

Surrogate: Dibromofluoromethane 103 % 90.4-111

Surrogate: Toluene-d8 99.9 % 85.3-114

Surrogate: 4-Bromofluorobenzene 79.2 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>496</b>	16.0	11/26/2018	ND	432	108	400	3.77		

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	11/25/2018	ND	208	104	200	1.61		
DRO >C10-C28*	<10.0	10.0	11/25/2018	ND	218	109	200	0.748		
EXT DRO >C28-C36	<10.0	10.0	11/25/2018	ND						

Surrogate: 1-Chlorooctane 89.1 % 41-142

Surrogate: 1-Chlorooctadecane 96.3 % 37.6-147

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received:	11/20/2018	Sampling Date:	11/19/2018
Reported:	11/29/2018	Sampling Type:	Soil
Project Name:	DIAMONDBACK 22 STATE COM #5H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: S7 - SURFACE (H803394-26)**

BTEX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	11/28/2018	ND	2.12	106	2.00	0.901		
Toluene*	<0.025	0.025	11/28/2018	ND	2.31	116	2.00	2.16		
Ethylbenzene*	<0.025	0.025	11/28/2018	ND	2.19	110	2.00	1.36		
Total Xylenes*	<0.075	0.075	11/28/2018	ND	7.42	124	6.00	2.17		
Total BTEX	<0.150	0.150	11/28/2018	ND						

Surrogate: Dibromofluoromethane      104 %      90.4-111

Surrogate: Toluene-d8      101 %      85.3-114

Surrogate: 4-Bromofluorobenzene      82.3 %      80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>1490</b>	16.0	11/26/2018	ND	432	108	400	3.77		

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	11/25/2018	ND	208	104	200	1.61		
DRO >C10-C28*	<10.0	10.0	11/25/2018	ND	218	109	200	0.748		
EXT DRO >C28-C36	<10.0	10.0	11/25/2018	ND						

Surrogate: 1-Chlorooctane      75.0 %      41-142

Surrogate: 1-Chlorooctadecane      81.9 %      37.6-147

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 COG OPERATING  
 DAKOTA NEEL  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received:	11/20/2018	Sampling Date:	11/19/2018
Reported:	11/29/2018	Sampling Type:	Soil
Project Name:	DIAMONDBACK 22 STATE COM #5H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: S7 - 1' (H803394-27)**

BTEX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	11/28/2018	ND	2.12	106	2.00	0.901		
Toluene*	<0.025	0.025	11/28/2018	ND	2.31	116	2.00	2.16		
Ethylbenzene*	<0.025	0.025	11/28/2018	ND	2.19	110	2.00	1.36		
Total Xylenes*	<0.075	0.075	11/28/2018	ND	7.42	124	6.00	2.17		
Total BTEX	<0.150	0.150	11/28/2018	ND						

Surrogate: Dibromofluoromethane 104 % 90.4-111

Surrogate: Toluene-d8 102 % 85.3-114

Surrogate: 4-Bromofluorobenzene 85.9 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>224</b>	16.0	11/26/2018	ND	432	108	400	3.77		

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	11/25/2018	ND	208	104	200	1.61		
DRO >C10-C28*	<10.0	10.0	11/25/2018	ND	218	109	200	0.748		
EXT DRO >C28-C36	<10.0	10.0	11/25/2018	ND						

Surrogate: 1-Chlorooctane 81.8 % 41-142

Surrogate: 1-Chlorooctadecane 89.9 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- BS1 Blank spike recovery above laboratory acceptance criteria. Results for analyte potentially biased high.
- 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







# CARDINAL Laboratories

2084

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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: <b>COG</b>		P.O. #:		<b>BILL TO</b>		<b>ANALYSIS REQUEST</b>					
Project Manager:		Company: <b>COG</b>									
Address:		Attn: <b>Alister</b>		Address:							
City:		State:		City:							
Phone #:		Fax #:		Address:							
Project #:		Project Owner:		City:							
Project Name: <b>Diamondback 22 State Cor #54</b>		State:		State:							
Project Location:		Zip:		City:							
Sampler Name: <b>Lyle Carrasco</b>		Phone #:		City:							
FOR LAB USE ONLY		Fax #:		City:							
Lab I.D.		Sample I.D.		PRESERV		SAMPLING					
11803394		53 - Surface		(G)RAB OR (C)OMP.		# CONTAINERS					
11		53-1'		GROUNDWATER		WASTEWATER					
12		53-2'		SOIL		OIL					
13		53-3'		SLUDGE		OTHER:					
14		53-4'		ACID/BASE:		ICE / COOL					
15		54 - Surface		OTHER:		DATE					
16		54-1'		DATE		TIME					
17		54-2'		TIME		BTX					
18		54-3'		BTX		TPH					
19		54-4'		Chlorides							

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Relinquished By: *[Signature]* Date: **11/19/08** Received By: *[Signature]* Date: **11/20/08**

Delivered By: (Circle One) **UPS** **4.12** **#97** Sample Condition:  Cool  Intact  Res  No

Checked By: *[Signature]* (Initials) **TS**

REMARKS:



# CARDINAL Laboratories

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

3 of 4

### BILL TO

### ANALYSIS REQUEST

Company Name: <u>COG</u>		P.O. #:									
Project Manager:		Company: <u>COG</u>									
Address:		Attn: <u>Dakota</u>									
City:		Address:									
State:		City:									
Zip:		State:									
Phone #:		Address:									
Fax #:		City:									
Project #:		State:									
Project Name: <u>Diamondback 22 State Com #54</u>		Zip:									
Project Location:		Phone #:									
Sampler Name: <u>Lyga Carrasco</u>		Fax #:									
FOR LAB USE ONLY											
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	DATE	TIME	BTEX	TPH	Chlorides				
		# CONTAINERS									
<u>HS03394</u>	<u>35 - Surface</u>	GROUNDWATER	<u>11/29/19</u>		<u>X</u>	<u>X</u>	<u>X</u>				
		WASTEWATER									
<u>20</u>	<u>55 - 1'</u>	SOIL			<u>X</u>	<u>X</u>	<u>X</u>				
<u>21</u>	<u>55 - 2'</u>	OIL			<u>X</u>	<u>X</u>	<u>X</u>				
<u>22</u>	<u>55 - 2'</u>	SLUDGE			<u>X</u>	<u>X</u>	<u>X</u>				
<u>23</u>	<u>56 - Surface</u>	OTHER:			<u>X</u>	<u>X</u>	<u>X</u>				
<u>24</u>	<u>56 - 1'</u>	ACID/BASE:			<u>X</u>	<u>X</u>	<u>X</u>				
<u>25</u>	<u>56 - 2'</u>	ICE / COOL			<u>X</u>	<u>X</u>	<u>X</u>				
		OTHER:									

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Relinquished By: [Signature] Date: 11/29/19 Received By: [Signature] Date: 11/29/19

Relinquished By: [Signature] Date: 11/29/19 Received By: [Signature] Date: 11/29/19

Delivered By: (Circle One) UPS - Bus - Other: 418 #497

Sample Condition: Cool  Intact  Yes  No  Yes  No

CHECKED BY: [Signature] (Initials) TP

REMARKS:

Phone Result:  Yes  No  Add'l Phone #:

Fax Result:  Yes  No  Add'l Fax #:

2 of 4

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

**BILL TO**

**ANALYSIS REQUEST**

Company Name: <u>COB</u>		P.O. #:	
Project Manager:		Company: <u>COB</u>	
Address:		Attn: <u>Dakota</u>	
City:		Address:	
State:		City:	
Zip:		State:	
Phone #:		Zip:	
Fax #:		Phone #:	
Project #:		Fax #:	
Project Name: <u>Diamondback 22 State Court #574</u>		PROJECT PRESERVATION	
Project Location: <u>Lyle Carrasco</u>		ACID/BASE:	
Sampler Name: <u>Lyle Carrasco</u>		ICE / COOL:	
FOR LAB USE ONLY		OTHER:	
Lab I.D.	Sample I.D.	DATE	TIME
<u>HSD03941</u>		<u>11/16/18</u>	
<u>26</u>	<u>57 - Surface</u>		
<u>27</u>	<u>57 - 1'</u>		
<u>28</u>	<u>57 - 2'</u>		
<u>29</u>	<u>57 - 3'</u>		
<u>30</u>	<u>57 - 4'</u>		
<u>31</u>	<u>57 - 6'</u>		

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Relinquished By: \_\_\_\_\_ Date: 11/16/18 Received By: Juanita Alabaz Date: 11/16/18 Time: 11:22am

Delivered By: (Circle One) UPS Sample Condition: Cool  Intact  Yes  No  Yes  No

Sampler - UPS - Bus - Other: 4110 #97 CHECKED BY: JP

REMARKS:

Phone Result:  Yes  No Add'l Phone #: \_\_\_\_\_  
Fax Result:  Yes  No Add'l Fax #: \_\_\_\_\_