



September 24, 2019

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

**SC4NN-190924-C-1410**

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

**Deferral Request**  
**Reposado 2 State #001H**  
**API#: 30-015-36774**  
**RP#: 2RP-5580**  
**DOR: July 19, 2019**  
**GPS: 32.0780182 -103.9527893**  
**Unit Letter B, Section 2, Township 26 South, Range 29 East**  
**Eddy County, New Mexico**

Mr. Bratcher/Mr. Mann,

COG Production, LLC (COG) is pleased to submit the following deferral request in response to a release that occurred at the Reposado 2 State #001H. The release is located in Unit Letter B, Section 2, Township 26 South and Range 29 East in Eddy County, New Mexico. More specifically the latitude and longitude for the release are 32.0780182 North and -103.9527893 West.

## **BACKGROUND**

The release was discovered on July 19, 2019. A C-141 initial report was submitted to the New Mexico Oil Conservation Division (NMOCD) and the New Mexico State Land Office (NMSLO). The C-141 is presented in Appendix A. A line on the free water knockout failed resulting in the release of approximately one (1) barrel (bbl) of produced water and five (5) bbls of oil. A vacuum truck was utilized to recover freestanding fluid. All of the fluid was contained within the earthen berms of the unlined tank battery.

## GROUNDWATER AND REGULATORY FRAMEWORK

According to the United States Geological Survey (USGS) the nearest water well (320301103572201) indicates that groundwater in the project vicinity is approximately one-hundred and twenty-one (121) feet below ground surface (BGS). 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 site is located within a medium cave karst potential area. 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.)
Medium Karst Potential	>100 feet

### DELINEATION AND CLOSURE CRITERIA:

Recommended Remedial Action Levels (RRALs)	
Chlorides	600 mg/kg
TPH (GRO and DRO and MRO)	100 mg/kg
TPH (GRO and DRO)	N/A
Benzene	10 mg/kg
Total BTEX	50 mg/kg

### REMEDIAL ACTIONS

- The impacted area was excavated to a depth of two (2) feet BGS.
- All of the excavated material was hauled to an NMOCD approved solid waste disposal facility.
- Confirmation soil samples were taken from the bottom and sidewalls of the excavation per NMAC 19.15.29.
- No further excavation or mechanical delineation activities are possible without threatening the structural integrity of the surrounding infrastructure.

## DEFERRAL REQUEST

Due to the infrastructure present at this location further excavation and soil assessment activities are not feasible without threatening the structural integrity of the surrounding equipment and the safety of personnel. COG Operating, LLC respectfully requests that any further remedial activities be deferred until abandonment of the facility.

Should you have any questions or concerns please do not hesitate to contact me.

Sincerely,



Sheldon L. Hitchcock  
HSE Coordinator  
[shitchcock@concho.com](mailto:shitchcock@concho.com)

# FIGURES

# Reposado 2 State #001H

**Legend**

- ⊙ Confirmation Sample Location
- Excavated Area



# TABLES

**Table 1**  
**COG Operating LLC.**  
**Reposado 2 St. #001H**  
**Eddy County, New Mexico**

Sample ID	Sample Depth (ft)	Sample Date	Soil Status		TPH (mg/kg)						Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	
			In-Situ	Removed	GRO	DRO	MRO	Total	GRO	DRO				Total
<b>NMOCD RRAL Limits (mg/kg)</b>					-	-	-	2,500	-	-	1,000	10	50	20,000
SW-1			X		<10.0	<10.0	<10.0	0.0	<10.0	<10.0	0.0	<0.050	<0.300	2,280.0
SW-2			X		<10.0	<10.0	<10.0	0.0	<10.0	<10.0	0.0	<0.050	<0.300	32.0
SW-3					<10.0	<10.0	<10.0	0.0	<10.0	<10.0	0.0	<0.050	<0.300	32.0
SW-4					<10.0	<10.0	<10.0	0.0	<10.0	<10.0	0.0	<0.050	<0.300	160.0
BTTM-1	2				<10.0	488	100	588.0	<10.0	488	488.0	<0.050	<0.300	368.0
BTTM-2	2				<10.0	<10.0	<10.0	0.0	<10.0	<10.0	0.0	<0.050	<0.300	896.0
BTTM-3	2				<10.0	198	38.3	236.3	<10.0	198	198.0	<0.050	<0.300	784.0
BTTM-4	2				<10.0	49.6	13.4	63.0	<10.0	49.6	49.6	<0.050	<0.300	80.0

# 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>Sheldon Nitam</u> Date: _____ email: _____ Telephone: _____
<b><u>OCD Only</u></b> Received by: _____ Date: _____

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 <b>not</b> 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.

<p><b><u>Characterization Report Checklist:</u> Each of the following items must be included in the report.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.</li> <li><input type="checkbox"/> Field data</li> <li><input type="checkbox"/> Data table of soil contaminant concentration data</li> <li><input type="checkbox"/> Depth to water determination</li> <li><input type="checkbox"/> Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release</li> <li><input type="checkbox"/> Boring or excavation logs</li> <li><input type="checkbox"/> Photographs including date and GIS information</li> <li><input type="checkbox"/> Topographic/Aerial maps</li> <li><input type="checkbox"/> Laboratory data including chain of custody</li> </ul>
--

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	
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: Sheldon Nitan Date: \_\_\_\_\_

email: \_\_\_\_\_ Telephone: \_\_\_\_\_

**OCD Only**

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

Incident ID	
District RP	
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: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: Sheldon Nitan Date: \_\_\_\_\_

email: \_\_\_\_\_ Telephone: \_\_\_\_\_

**OCD Only**

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

- Approved     
  Approved with Attached Conditions of Approval     
  Denied     
  Deferral Approved

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

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: Sheldon Hittman Date: \_\_\_\_\_

email: \_\_\_\_\_ Telephone: \_\_\_\_\_

**OCD Only**

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

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

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

# APPENDIX B

Legend

Flood Hazard Zones

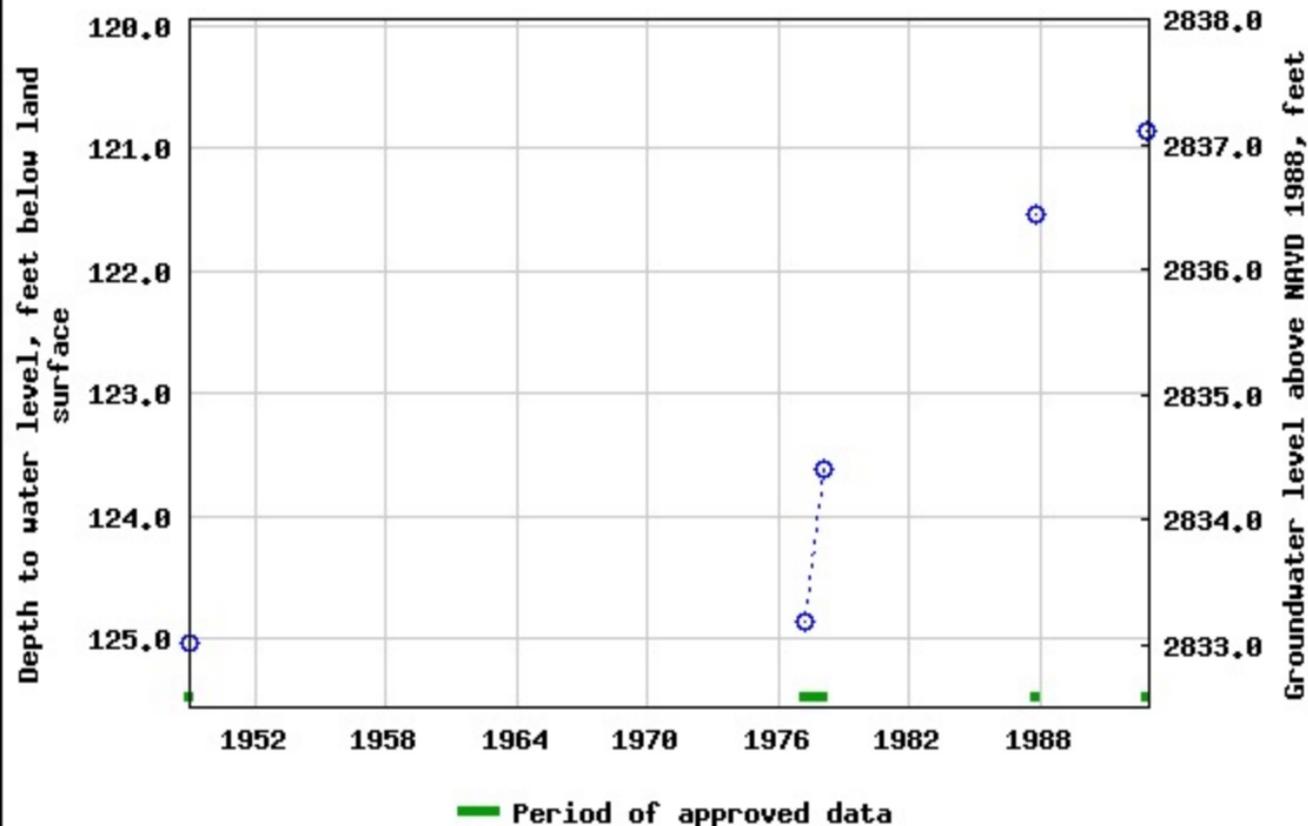
- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee
- Mine Workings

Karst Occurance Areas

- High
- Low
- Medium



USGS 320301103572201 26S.29E.16.213241



# APPENDIX C



August 09, 2019

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

RE: REPOSADO 2 ST. #1H

Enclosed are the results of analyses for samples received by the laboratory on 08/08/19 15:10.

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 "Mike Snyder". The signature is fluid and cursive.

Mike Snyder For Celey D. Keene  
Lab Director/Quality Manager

**Analytical Results For:**

 COG OPERATING  
 SHELDON HITCHCOCK  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

 Received: 08/08/2019  
 Reported: 08/09/2019  
 Project Name: REPOSADO 2 ST. #1H  
 Project Number: NONE GIVEN  
 Project Location: EDDY CO NM

 Sampling Date: 08/08/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SW - 1 (H902730-01)**

BTEX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/08/2019	ND	2.05	103	2.00	0.688		
Toluene*	<0.050	0.050	08/08/2019	ND	2.14	107	2.00	3.54		
Ethylbenzene*	<0.050	0.050	08/08/2019	ND	2.01	101	2.00	2.38		
Total Xylenes*	<0.150	0.150	08/08/2019	ND	6.03	101	6.00	2.52		
Total BTEX	<0.300	0.300	08/08/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.2 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2280	16.0	08/09/2019	ND	432	108	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	08/08/2019	ND	198	99.2	200	1.61		
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	194	96.9	200	4.22		
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND						

Surrogate: 1-Chlorooctane 100 % 41-142

Surrogate: 1-Chlorooctadecane 103 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 COG OPERATING  
 SHELDON HITCHCOCK  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

 Received: 08/08/2019  
 Reported: 08/09/2019  
 Project Name: REPOSADO 2 ST. #1H  
 Project Number: NONE GIVEN  
 Project Location: EDDY CO NM

 Sampling Date: 08/08/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SW - 2 (H902730-02)**

BTEX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/08/2019	ND	2.05	103	2.00	0.688		
Toluene*	<0.050	0.050	08/08/2019	ND	2.14	107	2.00	3.54		
Ethylbenzene*	<0.050	0.050	08/08/2019	ND	2.01	101	2.00	2.38		
Total Xylenes*	<0.150	0.150	08/08/2019	ND	6.03	101	6.00	2.52		
Total BTEX	<0.300	0.300	08/08/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 96.8 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>32.0</b>	16.0	08/09/2019	ND	432	108	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	08/08/2019	ND	198	99.2	200	1.61		
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	194	96.9	200	4.22		
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND						

Surrogate: 1-Chlorooctane 80.6 % 41-142

Surrogate: 1-Chlorooctadecane 83.5 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 COG OPERATING  
 SHELDON HITCHCOCK  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

 Received: 08/08/2019  
 Reported: 08/09/2019  
 Project Name: REPOSADO 2 ST. #1H  
 Project Number: NONE GIVEN  
 Project Location: EDDY CO NM

 Sampling Date: 08/08/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SW - 3 (H902730-03)**

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/08/2019	ND	2.05	103	2.00	0.688	
Toluene*	<0.050	0.050	08/08/2019	ND	2.14	107	2.00	3.54	
Ethylbenzene*	<0.050	0.050	08/08/2019	ND	2.01	101	2.00	2.38	
Total Xylenes*	<0.150	0.150	08/08/2019	ND	6.03	101	6.00	2.52	
Total BTEX	<0.300	0.300	08/08/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.9 % 73.3-129

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	08/09/2019	ND	432	108	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	08/08/2019	ND	198	99.2	200	1.61	
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	194	96.9	200	4.22	
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane 94.3 % 41-142

Surrogate: 1-Chlorooctadecane 99.3 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 COG OPERATING  
 SHELDON HITCHCOCK  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

 Received: 08/08/2019  
 Reported: 08/09/2019  
 Project Name: REPOSADO 2 ST. #1H  
 Project Number: NONE GIVEN  
 Project Location: EDDY CO NM

 Sampling Date: 08/08/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SW - 4 (H902730-04)**

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/08/2019	ND	2.05	103	2.00	0.688	
Toluene*	<0.050	0.050	08/08/2019	ND	2.14	107	2.00	3.54	
Ethylbenzene*	<0.050	0.050	08/08/2019	ND	2.01	101	2.00	2.38	
Total Xylenes*	<0.150	0.150	08/08/2019	ND	6.03	101	6.00	2.52	
Total BTEX	<0.300	0.300	08/08/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.5 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	08/09/2019	ND	432	108	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	08/08/2019	ND	198	99.2	200	1.61	
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	194	96.9	200	4.22	
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane 98.5 % 41-142

Surrogate: 1-Chlorooctadecane 104 % 37.6-147

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 COG OPERATING  
 SHELDON HITCHCOCK  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

 Received: 08/08/2019  
 Reported: 08/09/2019  
 Project Name: REPOSADO 2 ST. #1H  
 Project Number: NONE GIVEN  
 Project Location: EDDY CO NM

 Sampling Date: 08/08/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: BOTTOM - 1 2' (H902730-05)**

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/08/2019	ND	2.05	103	2.00	0.688	
Toluene*	<0.050	0.050	08/08/2019	ND	2.14	107	2.00	3.54	
Ethylbenzene*	<0.050	0.050	08/08/2019	ND	2.01	101	2.00	2.38	
Total Xylenes*	<0.150	0.150	08/08/2019	ND	6.03	101	6.00	2.52	
Total BTEX	<0.300	0.300	08/08/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 95.0 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>368</b>	16.0	08/09/2019	ND	432	108	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	08/08/2019	ND	198	99.2	200	1.61	
<b>DRO &gt;C10-C28*</b>	<b>488</b>	10.0	08/08/2019	ND	194	96.9	200	4.22	
<b>EXT DRO &gt;C28-C36</b>	<b>100</b>	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane 97.6 % 41-142

Surrogate: 1-Chlorooctadecane 105 % 37.6-147

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 COG OPERATING  
 SHELDON HITCHCOCK  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

 Received: 08/08/2019  
 Reported: 08/09/2019  
 Project Name: REPOSADO 2 ST. #1H  
 Project Number: NONE GIVEN  
 Project Location: EDDY CO NM

 Sampling Date: 08/08/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: BOTTOM - 2 2' (H902730-06)**

BTEX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/09/2019	ND	2.05	103	2.00	0.688		
Toluene*	<0.050	0.050	08/09/2019	ND	2.14	107	2.00	3.54		
Ethylbenzene*	<0.050	0.050	08/09/2019	ND	2.01	101	2.00	2.38		
Total Xylenes*	<0.150	0.150	08/09/2019	ND	6.03	101	6.00	2.52		
Total BTEX	<0.300	0.300	08/09/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.0 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>896</b>	16.0	08/09/2019	ND	432	108	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	08/08/2019	ND	198	99.2	200	1.61		
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	194	96.9	200	4.22		
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND						

Surrogate: 1-Chlorooctane 95.1 % 41-142

Surrogate: 1-Chlorooctadecane 106 % 37.6-147

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\*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 COG OPERATING  
 SHELDON HITCHCOCK  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

 Received: 08/08/2019  
 Reported: 08/09/2019  
 Project Name: REPOSADO 2 ST. #1H  
 Project Number: NONE GIVEN  
 Project Location: EDDY CO NM

 Sampling Date: 08/08/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: BOTTOM - 3 2' (H902730-07)**

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/09/2019	ND	2.05	103	2.00	0.688	
Toluene*	<0.050	0.050	08/09/2019	ND	2.14	107	2.00	3.54	
Ethylbenzene*	<0.050	0.050	08/09/2019	ND	2.01	101	2.00	2.38	
Total Xylenes*	<0.150	0.150	08/09/2019	ND	6.03	101	6.00	2.52	
Total BTEX	<0.300	0.300	08/09/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 96.0 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>784</b>	16.0	08/09/2019	ND	432	108	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	08/08/2019	ND	198	99.2	200	1.61	
<b>DRO &gt;C10-C28*</b>	<b>198</b>	10.0	08/08/2019	ND	194	96.9	200	4.22	
<b>EXT DRO &gt;C28-C36</b>	<b>38.3</b>	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane 98.6 % 41-142

Surrogate: 1-Chlorooctadecane 102 % 37.6-147

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\*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 COG OPERATING  
 SHELDON HITCHCOCK  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

 Received: 08/08/2019  
 Reported: 08/09/2019  
 Project Name: REPOSADO 2 ST. #1H  
 Project Number: NONE GIVEN  
 Project Location: EDDY CO NM

 Sampling Date: 08/08/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: BOTTOM - 4 2' (H902730-08)**

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/09/2019	ND	2.05	103	2.00	0.688	
Toluene*	<0.050	0.050	08/09/2019	ND	2.14	107	2.00	3.54	
Ethylbenzene*	<0.050	0.050	08/09/2019	ND	2.01	101	2.00	2.38	
Total Xylenes*	<0.150	0.150	08/09/2019	ND	6.03	101	6.00	2.52	
Total BTEX	<0.300	0.300	08/09/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 96.3 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>80.0</b>	16.0	08/09/2019	ND	432	108	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	08/08/2019	ND	198	99.2	200	1.61	
<b>DRO &gt;C10-C28*</b>	<b>49.6</b>	10.0	08/08/2019	ND	194	96.9	200	4.22	
<b>EXT DRO &gt;C28-C36</b>	<b>13.4</b>	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane 99.1 % 41-142

Surrogate: 1-Chlorooctadecane 106 % 37.6-147

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

### 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



---

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analysis Request of Chain of Custody Record



One Concho Center/600 Illinois Avenue/Midland, Texas Tel (432) 683-7443

Client Name: COG-Artesia Site Manager: Sheldon Hitchcock

Project Name: Repossado 2 St. #1H Project #: Project Location: (county, state) Edray, NM

Invoice to: Sheldon Hitchcock Receiving Laboratory: Cardinal Sampler Name: Sheldon Hitchcock

Comments: Rubin

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD		# CONTAINERS	(C)omposite/(G)rab	TPH 8015M ( GRO - DRO - MRO)	BTEX 8021B	Chloride	REMARKS:
		DATE	TIME	WATER	SOIL	HCL	HNO <sub>3</sub>						
1	SW-1	8/8	11:25	X				1	C	X	X	X	
2	SW-2		11:30										
3	SW-3		11:35										
4	SW-4		11:40										
5	Btm-1 2'		11:45										
6	Btm-2 2'		11:50										
7	Btm-3 2'		11:55										
8	Btm-4 2'		12:00										

Relinquished by: [Signature] Date: [Blank] Time: [Blank] Received by: [Signature] Date: 8/8/19 Time: 15:10

LAB USE ONLY  
 Sample Temperature: 3.1°C  
 Controlled #97  
 3.5°C  
 REMARKS:  
 RUSH: Same Day 24 hr 48 hr 72 hr  
 Rush Charges Authorized  
 Special Report Limits or TRRP Report

ORIGINAL COPY

ANALYSIS REQUEST  
 (Circle or Specify Method No.)

# APPENDIX D

SE

S

SW

150

180

210

240

☉ 196°S (T) ● 32°4.664', -103°57.172' ±32.8ft ▲ 3030ft

 **CORCHO**

COG Production LLC

REPOSADO "2" STATE #1H  
UNIT B, SEC.02-T26S-R29E  
330' FNL & 1980' FEL  
EDDY CO., NEW MEXICO  
API #30-015-36774

S

180

SW

210

240

W

270

300

☉ 239°SW (T) ● 32°4.663', -103°57.187' ±32.8ft ▲ 2988ft



08 Aug 2019, 10:43:26

SW

N

NW

210

240

70

300

330

☉ 268°W (T) ● 32°4.664', -103°57.185' ±32.8ft ▲ 3001ft



08 Aug 2019, 10:43:57