

Incident ID	nAPP2229333053
District RP	
Facility ID	E-32-24S-29E ON OE
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: Arsenio Jones Title: Regulatory Environmental and Safety Specialist

Signature:  Date: 11/30/2022

email: arsenio.jones@matadorresources.com Telephone: 575-361-4333

OCD Only

Received by: Jocelyn Harimon Date: 12/06/2022

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: Robert Hamlet Date: 4/25/2023

Printed Name: Robert Hamlet Title: Environmental Specialist - Advanced

Closure Report

Emerald 32 Federal #001H
Eddy County, New Mexico
Incident #nAPP2229333053
F-32-24S-29E

Type text here

Prepared For:

Matador Production Company
One Lincoln Center
Dallas, TX 75240

Prepared By:

R&R Environmental
1505 W. Bullock Avenue
Artesia, NM 88210

ENVIRONMENTAL REMEDIATION & RECLAMATION SERVICES

November 14, 2022



Mike Bratcher
NMOCD
506 W. Texas
Artesia, NM 88210

Subject: **Closure Report**
Emerald 32 Federal #001H
Eddy County, NM
F-32-24S-29E

Dear Mr. Bratcher,

Matador Production Company contracted R&R Environmental to perform soil assessment and remediation services at the above referenced location. The incident description, soil sampling results, remedial actions and closure request is presented herein.

Site Information

The Emerald 32 Federal #001H is located approximately 5 miles southeast of Malaga New Mexico. The legal description for the site of release is Unit Letter F, Section 32, Township 24 South and Range 29 East in Eddy County, New Mexico. More specifically the latitude and longitude for the release are 32.1756248, -104.0103683. A Site Location Map is presented in [Appendix II](#).

According to the soil survey provided by the United States Department of Agriculture National resources Conservation Services, the soil in this area is made up of Pajarito-Dune land complex, with 0 to 3 percent slopes, and a depth to restrictive feature of more than 80 inches. The referred soil data is presented in [Appendix III](#). Per the New Mexico Bureau of Geology and Mineral Resources, the local geology consists of Eolian and piedmont deposits, Holocene to Middle Pleistocene in age, composed of interlayed eolian sands and piedmont-slope deposits. Drainage courses in this area are typically well drained.

Ground Water and Site Characterization

The New Mexico Office of the State Engineer Database indicates the nearest reported depth to groundwater is 39 feet below ground surface (bgs). See [Appendix III](#) for the referenced groundwater depth. Further research of the Bureau of Land Management Karst data indicates that this site is located within a medium range potential Karst area.

Incident Description

On September 7, 2022, Matador Representatives found staining on the west side of the pad area. The cause of this staining was unknown and appears to be an illegal dump on the pad area. Matador contacted an environmental company to assess the site in order to determine the spill footprint and contaminants.

Site Assessment

On September 7, 2022, a third-party consultant was contacted to do an initial site assessment of the spill area by Matador. Reports from the assessment were given to R&R Environmental personnel to begin the excavation process. The results from the sampling event are presented on the following data table.

Table 1

9/7/2022 Soil Sample Laboratory Results

Sample ID	Sample Date	Depth (BGS)	BTEX mg/kg	Benzene mg/kg	GRO mg/kg	DRO mg/kg	MRO mg/kg	Total TPH mg/kg	Chlorides mg/kg
NMOCD Table 1 Closure Criteria 19.15.29 NMAC			50 mg/kg	10 mg/kg	GRO + DRO + MRO combined = 100 mg/kg			100 mg/kg	600 mg/kg
S-1	9/7/2022	0-1' R	ND	ND	ND	24.8	ND	24.8	4510
S-2	9/7/2022	0-1' R	0.00248	ND	ND	40.4	ND	40.4	15000
S-3	9/7/2022	0-1' R	ND	ND	ND	65.6	18.7	84.3	12200
BG-1	9/7/2022	0-1' R	ND	ND	ND	19.5	ND	19.5	1040
R = Refusal with hand auger ND = Analyte not detected									

Scope of Work

On October 17, 2022, based on the laboratory results from the initial site assessment and upon client authorization, R&R Environmental personnel and equipment were mobilized to the site in order to commence remediation of the impacted area. A Hydro-vac was dispatched to expose electrical lines in the area requiring excavation. A test trench was utilized to determine the depth of clean-up. Field titration data was used to guide the clean-up efforts. All samples were properly packaged, preserved, and transported to Cardinal Laboratories via chain of custody for analysis of Total Chlorides (Method SM4500Cl-B), TPH (EPA Method 8015M), and BTEX (EPA Method 8021B) in order to confirm that NMOCD clean-up criteria had been achieved in accordance with Table 1 standards. The confirmation results from the laboratory are tabulated below. Confirmation sample locations are illustrated in [Appendix II](#).

Table II

10/17/22 Sample Laboratory results

Sample ID	Sample Date	Depth (BGS)	BTEX mg/kg	Benzene mg/kg	GRO mg/kg	DRO mg/kg	MRO mg/kg	Total TPH mg/kg	Chlorides mg/kg	Chlorides mg/kg
NMOCD Table 1 Closure Criteria 19.15.29 NMAC			50 mg/kg	10 mg/kg	GRO + DRO + MRO combined = 100 mg/kg			100 mg/kg	600 mg/kg	Field Titration
S-1A	10/19/2022	4'	ND	ND	ND	ND	ND	-	9330	
		6'								>3000
		8'								>3000
		10'								2481.5
		12'								1772.5
	10/31/2022	15'	ND	ND	ND	ND	ND	-	16	
S-2A	10/19/2022	4'	ND	ND	ND	ND	ND	-	960	
		6'								>3000
		10'								1063.5
		12'								702
	10/31/2022	15'	ND	ND	ND	ND	ND	-	32	
S-3A	10/17/2022	5'	ND	ND	ND	ND	ND	-	7600	>3000
	10/17/2022	6'	ND	ND	ND	ND	ND	-	11200	>3000
	10/17/2022	8'	ND	ND	ND	ND	ND	-	4400	>3000
	10/17/2022	10'	ND	ND	ND	ND	ND	-	4240	>3000
	10/17/2022	12'	ND	ND	ND	ND	ND	-	3200	>3000
	10/17/2022	14'	ND	ND	ND	ND	ND	-	1100	1205.3
	10/17/2022	15'	ND	ND	ND	ND	ND	-	240	
S-4A	10/31/2022	15'	ND	ND	ND	ND	ND	-	16	
S-5A	10/31/2022	15'	ND	ND	ND	ND	ND	-	ND	
S-6A	10/31/2022	15'	ND	ND	ND	ND	ND	-	ND	
SW-1	10/19/2022		ND	ND	ND	ND	ND	-	64	
SW-2	10/19/2022		ND	ND	ND	ND	ND	-	32	
SW-3	10/19/2022		ND	ND	ND	ND	ND	-	ND	
SW-4	10/19/2022		ND	ND	ND	ND	ND	-	16	
ND = Analyte Not Detected SW = Sidewall Sample										

See Appendix V for the complete report of laboratory results

Remedial Actions

- The spill footprint of the impacted area was excavated to depths of 15 feet bgs (below ground surface), and the horizontal extent that all surface staining, TPH, and chlorides were removed.
- Sidewall samples were obtained in order to confirm horizontal delineation/remediation.
- The excavated area was backfilled with clean caliche, compacted, and restored to grade. Caliche was brought in from a private landowner, Onsurez.
- All contaminated soil was transported to R360 Environmental Solutions, an NMOCD approved disposal facility.

Closure

Based on this site characterization, remedial actions completed, and analytical results we request that no further actions be required, and that closure with regard to the attached incident be granted.

Should you have any questions or if further information is required, please do not hesitate to contact us at 575-441-0980.

Respectfully submitted,

R&R Environmental

James W. Carnes
Environmental Scientist

Rebecca S. Pons
Project Manager

Attachments:

Appendix I	NMOCD
Appendix II	Site Maps
Appendix III	Groundwater Data, Soil Survey, & Wetlands Map
Appendix IV	Photographic Documentation
Appendix V	Laboratory Data



Appendix I

NMOCD

C-141

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

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

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

Incident ID	nAPP2229333053
District RP	
Facility ID	E-32-24S-29E ON OE
Application ID	

Release Notification

Responsible Party

Responsible Party: Matador Production Company	OGRID: 228937
Contact Name: Arsenio T. Jones	Contact Telephone: 575-361-4333
Contact email: arsenio.jones@matadorresources.com	Incident # (assigned by OCD): nAPP2229333053
Contact mailing address: One Lincoln Centre Dallas, TX 75240	

Location of Release Source

Latitude 32.175625 Longitude -104.010368 (location of source)
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Emerald 32 Federal #001H	Site Type: Production Battery
Date Release Discovered: 10/20/22	API# (if applicable) E-32-24S-29E ON OE

Unit Letter	Section	Township	Range	County
E	32	24S	29E	Eddy

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 checked="" type="checkbox"/> Produced Water	Volume Released (bbls) Unknown	Volume Recovered (bbls) None
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input checked="" 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)

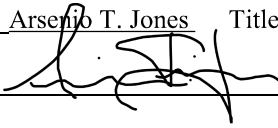
Cause of Release: Unknown-Illegal dump on pad area. Environmental Company will assess and remediate at time of P&A.

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Was this a major release as defined by 19.15.29.7(A) NMAC? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? The Release was > 50bbl
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Notification was provided to the NMOCD on 10/20/22 by Arsenio Jones of Matador (online).	

Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped.	
<input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment.	
<input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.	
<input checked="" 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: <u>Arsenio T. Jones</u>	Title: <u>Regulatory, Environmental and Safety Specialist</u>
Signature: 	Date: <u>10/20/22</u>
email: <u>arsenio.jones@matadorresources.com</u>	Telephone: <u>575-361-4333</u>
<u>OCD Only</u>	
Received by: <u>Type text here</u>	Date: _____

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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?	<u>39</u> (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
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 type="checkbox"/> Yes <input checked="" 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 not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" 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.

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Printed Name: Arsenio Jones Title: Regulatory Environmental and Safety Specialist

Signature:  Date: 11/30/2022

email: arsenio.jones@matadorresources.com Telephone: 575-361-4333

OCD Only

Received by: Jocelyn Harimon Date: 12/06/2022

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Remediation Plan

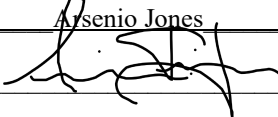
Remediation Plan Checklist: *Each of the following items must be included in the plan.*

- ☒ 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.

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Signature:  Date: 11/30/2022
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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

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Printed Name: Arsenio Jones Title: Regulatory Environmental and Safety Specialist

Signature:  Date: 11/30/2022

email: arsenio.jones@matadorresources.com Telephone: 575-361-4333

OCD Only

Received by: Jocelyn Harimon Date: 12/06/2022

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: _____ Date: _____

Printed Name: _____ Title: _____

From: james.carnes@aol.com,
To: enviro.ocd@state.nm.us, arsenio.jones@matadorresources.com,
Subject: 48 hour confirmation notification
Date: Thu, Oct 27, 2022 12:32 pm

This is a 48 hour notification of confirmation sampling to take place at the Emerald 32 Federal #001H incident #nAPP2229333053. Confirmation sampling will be completed on Monday 10/31/22 at 8:00 AM.

Thank you,


James Carnes
Environmental Scientist
R&R Environmental





Appendix II

Site Maps

Legend

 Emerald 32

 Impacted Area

 Sample Position





Emerald 32 Fed well #001H

Legend

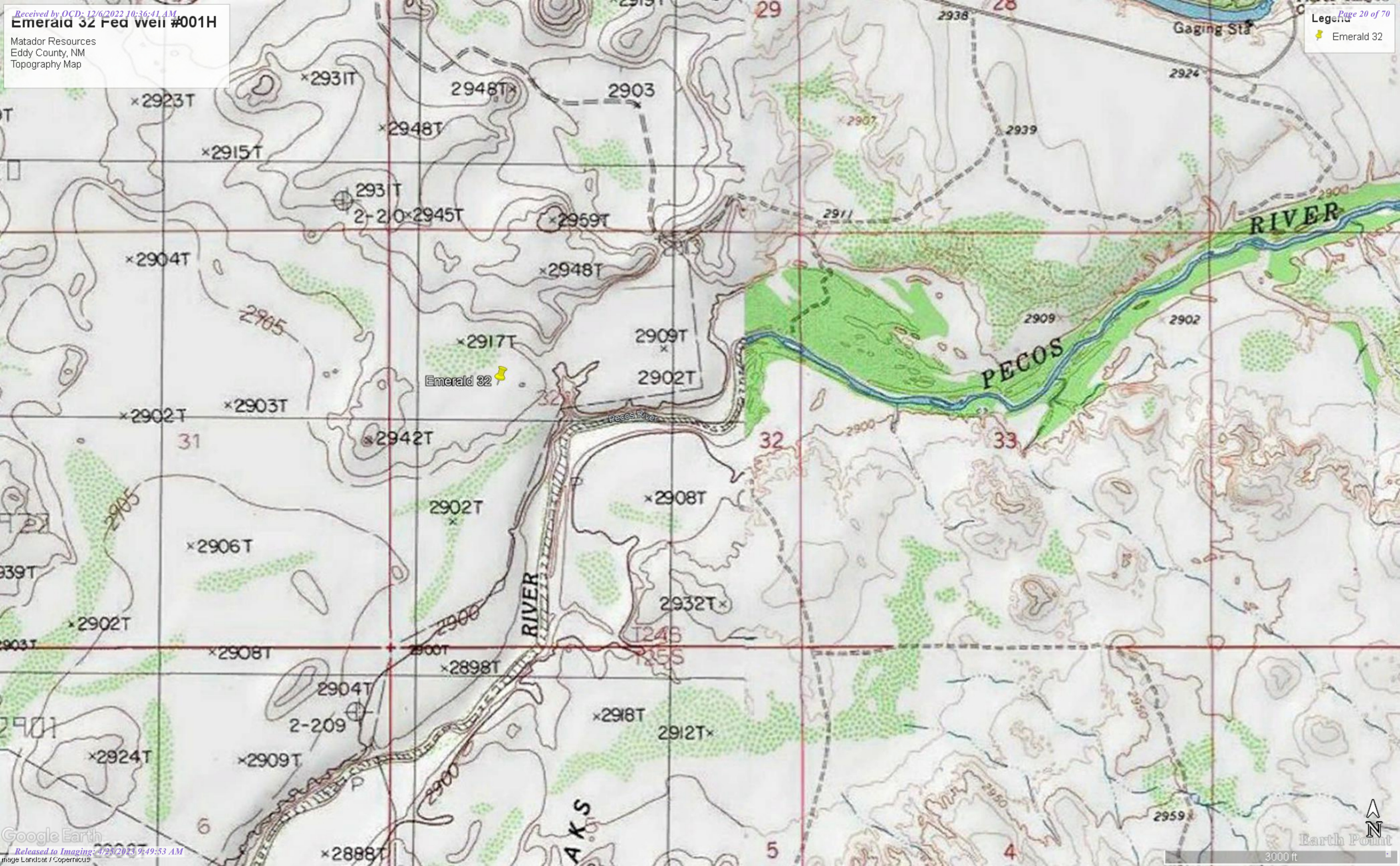
Matador Resources
Eddy County, NM
Site Map

★ Emerald 32



Emerald 32







Emerald 32 Fed well #001H

Matador Resources
Eddy County, NM
Karst Map

Legend


-  Emerald 32
-  Medium





Emerald 32 Fed Well #001H

Matador Resources
Eddy County, NM
Confirmation Sample Map

Legend

 Emerald 32

 Excavation

 Sample Position





Appendix III

Groundwater Data, Soil Survey, & Wetlands Map



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	Distance	DepthWell	DepthWater	Water Column
C_00856		CUB	ED	1	2	4	30	24S	29E	592538	3561644*	1496	380		
C_00862		CUB	ED	1	2	4	30	24S	29E	592538	3561644*	1496	155		
C_00857		CUB	ED	3	1	4	30	24S	29E	592135	3561440*	1581	306		
C_01880		C	ED	3	3	2	06	25S	29E	592161	3558605*	2058	85	40	45
C_04493 POD1		CUB	ED	4	4	4	06	25S	29E	592760	3557765	2622	57	39	18
C_04324 POD8		CUB	ED	4	4	4	05	25S	29E	594442	3557807	2789	69	65	4
C_04324 POD6		CUB	ED	1	1	1	09	25S	29E	594538	3557657	2965	62	61	1
C_04324 POD12		CUB	ED	2	2	2	08	25S	29E	594476	3557627	2967	65	60	5
C_04324 POD9		CUB	ED	1	1	1	09	25S	29E	594590	3557676	2970	72	62	10

Average Depth to Water: 54 feet
Minimum Depth: 39 feet
Maximum Depth: 65 feet

Record Count: 9

UTMNAD83 Radius Search (in meters):

Easting (X): 593270.28 Northing (Y): 3560338.65 Radius: 3000


*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.



New Mexico Office of the State Engineer

Point of Diversion Summary

		(quarters are 1=NW 2=NE 3=SW 4=SE)					
		(quarters are smallest to largest)		(NAD83 UTM in meters)			
Well Tag	POD Number	Q64	Q16	Q4	Sec Tws Rng	X	Y
NA	C 04493 POD1	4	4	4	06 25S 29E	592760	3557765 
<hr/>							
Driller License: 1249		Driller Company: ATKINS ENGINEERING ASSOC. INC.					
Driller Name: JACKIE D ATKINS							
Drill Start Date: 11/18/2020		Drill Finish Date: 11/18/2020		Plug Date: 11/23/2020			
Log File Date: 12/17/2020		PCW Rev Date:		Source: Shallow			
Pump Type:		Pipe Discharge Size:		Estimated Yield: 0 GPM			
Casing Size:		Depth Well: 57 feet		Depth Water: 39 feet			
<hr/>							
Water Bearing Stratifications:		Top	Bottom	Description			
		29	57	Sandstone/Gravel/Conglomerate			
<hr/>							

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.

10/19/22 2:10 PM

POINT OF DIVERSION SUMMARY



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Eddy Area, New Mexico

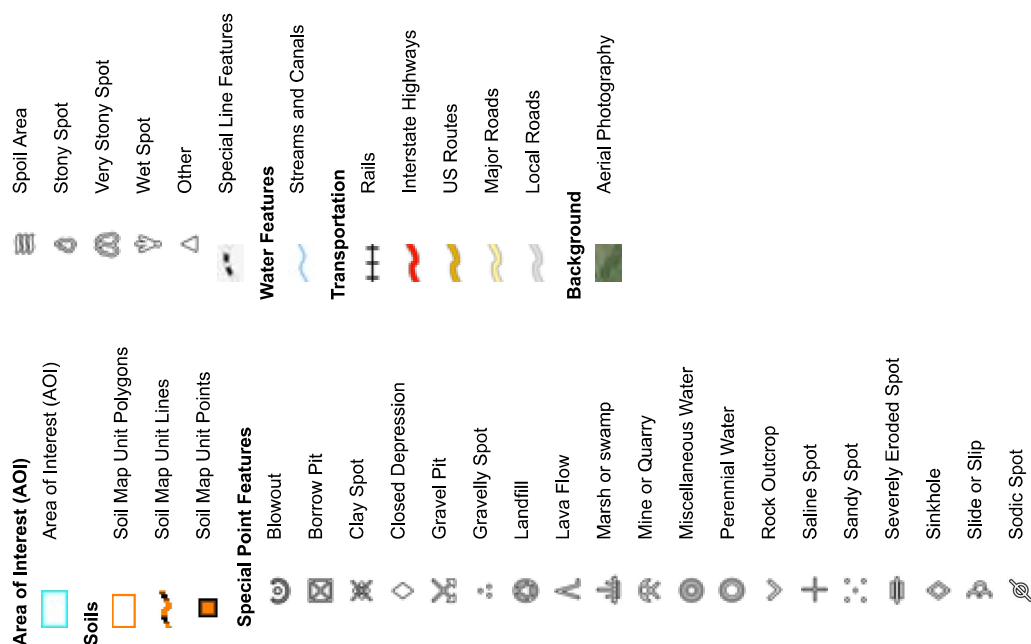


October 19, 2022



Custom Soil Resource Report

MAP LEGEND



MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 18, Sep 8, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 7, 2020—May 12, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Custom Soil Resource Report

Eddy Area, New Mexico**PD—Pajarito-Dune land complex, 0 to 3 percent slopes****Map Unit Setting**

National map unit symbol: 1w55
Elevation: 3,000 to 5,000 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 60 to 64 degrees F
Frost-free period: 190 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Pajarito and similar soils: 46 percent
Dune land: 45 percent
Minor components: 9 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pajarito**Setting**

Landform: Plains, interdunes, dunes
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 9 inches: fine sandy loam
H2 - 9 to 36 inches: fine sandy loam
H3 - 36 to 72 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R070BD003NM - Loamy Sand
Hydric soil rating: No

Custom Soil Resource Report

Description of Dune Land**Setting***Landform:* Dune fields*Landform position (two-dimensional):* Shoulder, backslope, footslope*Landform position (three-dimensional):* Talf*Down-slope shape:* Convex, linear*Across-slope shape:* Convex, linear*Parent material:* Mixed alluvium and/or eolian sands**Typical profile***H1 - 0 to 6 inches:* sandy loam*H2 - 6 to 60 inches:* sandy loam**Interpretive groups***Land capability classification (irrigated):* None specified*Ecological site:* R070BD003NM - Loamy Sand*Hydric soil rating:* No**Minor Components****Rock outcrop***Percent of map unit:* 5 percent*Hydric soil rating:* No**Largo***Percent of map unit:* 4 percent*Ecological site:* R070BC007NM - Loamy*Hydric soil rating:* No**UG—Upton gravelly loam, 0 to 9 percent slopes****Map Unit Setting***National map unit symbol:* 1w64*Elevation:* 1,100 to 4,400 feet*Mean annual precipitation:* 7 to 15 inches*Mean annual air temperature:* 60 to 70 degrees F*Frost-free period:* 200 to 240 days*Farmland classification:* Not prime farmland**Map Unit Composition***Upton and similar soils:* 96 percent*Minor components:* 4 percent*Estimates are based on observations, descriptions, and transects of the mapunit.***Description of Upton****Setting***Landform:* Ridges, fans*Landform position (three-dimensional):* Side slope, rise

Custom Soil Resource Report

Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from limestone

Typical profile

H1 - 0 to 9 inches: gravelly loam
H2 - 9 to 13 inches: gravelly loam
H3 - 13 to 21 inches: cemented
H4 - 21 to 60 inches: very gravelly loam

Properties and qualities

Slope: 0 to 9 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high
(0.01 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 75 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R070BC025NM - Shallow
Hydric soil rating: No

Minor Components**Reagan**

Percent of map unit: 1 percent
Ecological site: R070BC007NM - Loamy
Hydric soil rating: No

Atoka

Percent of map unit: 1 percent
Ecological site: R070BC007NM - Loamy
Hydric soil rating: No

Atoka

Percent of map unit: 1 percent
Ecological site: R070BC007NM - Loamy
Hydric soil rating: No

Upton

Percent of map unit: 1 percent
Ecological site: R070BC025NM - Shallow
Hydric soil rating: No

National Flood Hazard Layer FIRMette



104°0'57"W 32°10'48"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped
		The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.



This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **10/19/2022 at 4:05 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



Appendix IV

Photographic Documentation

Closure Report
Matador Resources, Emerald 32 Federal #001H**Photograph No.1 Description:**

Impacted area, view north.

**Photograph No.2 Description:**

Impacted area, view south.

**Photograph No.3 Description:**

Excavation north side.

**Photograph No.4 Description:**

Excavation south side

Closure Report
Matador Resources, Emerald 32 Federal #001H



Photograph No.5 Description:

Backfill to grade.



Photograph No.6 Description:

Backfill to grade.



Appendix V

Laboratory Data



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

October 19, 2022

JAMES CARNES

BDS

1705 GREENE

CARLSBAD, NM 88220

RE: EMERALD 32

Enclosed are the results of analyses for samples received by the laboratory on 10/17/22 16:50.

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". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

BDS
 JAMES CARNES
 1705 GREENE
 CARLSBAD NM, 88220
 Fax To:

Received: 10/17/2022
 Reported: 10/19/2022
 Project Name: EMERALD 32
 Project Number: NONE GIVEN
 Project Location: EDDY

Sampling Date: 10/17/2022
 Sampling Type: Soil
 Sampling Condition: ** (See Notes)
 Sample Received By: Tamara Oldaker

Sample ID: S - 3A 5' (H224869-01)

BTX 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	10/18/2022	ND	2.17	108	2.00	0.818	QR-03
Toluene*	<0.050	0.050	10/18/2022	ND	2.05	103	2.00	0.488	QR-03
Ethylbenzene*	<0.050	0.050	10/18/2022	ND	1.96	97.8	2.00	0.834	QR-03
Total Xylenes*	<0.150	0.150	10/18/2022	ND	5.91	98.6	6.00	0.968	QR-03
Total BTX	<0.300	0.300	10/18/2022	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 88.5 % 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	7600	16.0	10/18/2022	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	10/18/2022	ND	197	98.7	200	2.71	
DRO >C10-C28*	<10.0	10.0	10/18/2022	ND	196	98.2	200	2.22	
EXT DRO >C28-C36	<10.0	10.0	10/18/2022	ND					

Surrogate: 1-Chlorooctane 93.5 % 45.3-161

Surrogate: 1-Chlorooctadecane 108 % 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:

BDS
JAMES CARNES
1705 GREENE
CARLSBAD NM, 88220
Fax To:

Received: 10/17/2022
Reported: 10/19/2022
Project Name: EMERALD 32
Project Number: NONE GIVEN
Project Location: EDDY

Sampling Date: 10/17/2022
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Tamara Oldaker

Sample ID: S - 3A 6' (H224869-02)

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	10/18/2022	ND	2.17	108	2.00	0.818	
Toluene*	<0.050	0.050	10/18/2022	ND	2.05	103	2.00	0.488	
Ethylbenzene*	<0.050	0.050	10/18/2022	ND	1.96	97.8	2.00	0.834	
Total Xylenes*	<0.150	0.150	10/18/2022	ND	5.91	98.6	6.00	0.968	
Total BTEX	<0.300	0.300	10/18/2022	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 85.4 % 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	11200	16.0	10/18/2022	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	10/18/2022	ND	197	98.7	200	2.71	
DRO >C10-C28*	<10.0	10.0	10/18/2022	ND	196	98.2	200	2.22	
EXT DRO >C28-C36	<10.0	10.0	10/18/2022	ND					

Surrogate: 1-Chlorooctane 75.4 % 45.3-161

Surrogate: 1-Chlorooctadecane 89.7 % 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:

BDS
JAMES CARNES
1705 GREENE
CARLSBAD NM, 88220
Fax To:

Received: 10/17/2022
Reported: 10/19/2022
Project Name: EMERALD 32
Project Number: NONE GIVEN
Project Location: EDDY

Sampling Date: 10/17/2022
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Tamara Oldaker

Sample ID: S - 3A 8' (H224869-03)

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	10/18/2022	ND	2.17	108	2.00	0.818	
Toluene*	<0.050	0.050	10/18/2022	ND	2.05	103	2.00	0.488	
Ethylbenzene*	<0.050	0.050	10/18/2022	ND	1.96	97.8	2.00	0.834	
Total Xylenes*	<0.150	0.150	10/18/2022	ND	5.91	98.6	6.00	0.968	
Total BTEX	<0.300	0.300	10/18/2022	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 88.1 % 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	4400	16.0	10/18/2022	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	10/18/2022	ND	197	98.7	200	2.71	
DRO >C10-C28*	<10.0	10.0	10/18/2022	ND	196	98.2	200	2.22	
EXT DRO >C28-C36	<10.0	10.0	10/18/2022	ND					

Surrogate: 1-Chlorooctane 102 % 45.3-161

Surrogate: 1-Chlorooctadecane 118 % 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:

BDS
JAMES CARNES
1705 GREENE
CARLSBAD NM, 88220
Fax To:

Received: 10/17/2022
Reported: 10/19/2022
Project Name: EMERALD 32
Project Number: NONE GIVEN
Project Location: EDDY

Sampling Date: 10/17/2022
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Tamara Oldaker

Sample ID: S - 3A 10' (H224869-04)

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	10/18/2022	ND	2.17	108	2.00	0.818	
Toluene*	<0.050	0.050	10/18/2022	ND	2.05	103	2.00	0.488	
Ethylbenzene*	<0.050	0.050	10/18/2022	ND	1.96	97.8	2.00	0.834	
Total Xylenes*	<0.150	0.150	10/18/2022	ND	5.91	98.6	6.00	0.968	
Total BTEX	<0.300	0.300	10/18/2022	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 87.0 % 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	4240	16.0	10/18/2022	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	10/18/2022	ND	197	98.7	200	2.71	
DRO >C10-C28*	<10.0	10.0	10/18/2022	ND	196	98.2	200	2.22	
EXT DRO >C28-C36	<10.0	10.0	10/18/2022	ND					

Surrogate: 1-Chlorooctane 106 % 45.3-161

Surrogate: 1-Chlorooctadecane 122 % 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:

BDS
JAMES CARNES
1705 GREENE
CARLSBAD NM, 88220
Fax To:

Received: 10/17/2022
Reported: 10/19/2022
Project Name: EMERALD 32
Project Number: NONE GIVEN
Project Location: EDDY

Sampling Date: 10/17/2022
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Tamara Oldaker

Sample ID: S - 3A 12' (H224869-05)

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	10/18/2022	ND	2.17	108	2.00	0.818	
Toluene*	<0.050	0.050	10/18/2022	ND	2.05	103	2.00	0.488	
Ethylbenzene*	<0.050	0.050	10/18/2022	ND	1.96	97.8	2.00	0.834	
Total Xylenes*	<0.150	0.150	10/18/2022	ND	5.91	98.6	6.00	0.968	
Total BTEX	<0.300	0.300	10/18/2022	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 84.6 % 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	3200	16.0	10/18/2022	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	10/18/2022	ND	197	98.7	200	2.71	
DRO >C10-C28*	<10.0	10.0	10/18/2022	ND	196	98.2	200	2.22	
EXT DRO >C28-C36	<10.0	10.0	10/18/2022	ND					

Surrogate: 1-Chlorooctane 92.5 % 45.3-161

Surrogate: 1-Chlorooctadecane 117 % 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:

BDS
 JAMES CARNES
 1705 GREENE
 CARLSBAD NM, 88220
 Fax To:

Received: 10/17/2022
 Reported: 10/19/2022
 Project Name: EMERALD 32
 Project Number: NONE GIVEN
 Project Location: EDDY

Sampling Date: 10/17/2022
 Sampling Type: Soil
 Sampling Condition: ** (See Notes)
 Sample Received By: Tamara Oldaker

Sample ID: S - 3A 14' (H224869-06)

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	10/18/2022	ND	2.17	108	2.00	0.818	
Toluene*	<0.050	0.050	10/18/2022	ND	2.05	103	2.00	0.488	
Ethylbenzene*	<0.050	0.050	10/18/2022	ND	1.96	97.8	2.00	0.834	
Total Xylenes*	<0.150	0.150	10/18/2022	ND	5.91	98.6	6.00	0.968	
Total BTEX	<0.300	0.300	10/18/2022	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 87.0 % 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	1100	16.0	10/18/2022	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	10/18/2022	ND	197	98.7	200	2.71	
DRO >C10-C28*	<10.0	10.0	10/18/2022	ND	196	98.2	200	2.22	
EXT DRO >C28-C36	<10.0	10.0	10/18/2022	ND					

Surrogate: 1-Chlorooctane 105 % 45.3-161

Surrogate: 1-Chlorooctadecane 123 % 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

Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
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

*=Accredited Analyte

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A handwritten signature in black ink, appearing to read "Celey D. Keene", is written over a horizontal line.

Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: BDS		P.O. #:		BILL TO		ANALYSIS REQUEST	
Project Manager: JAMES CAWON		Company:					
Address: 1705 C. CAWON ST.		Attn:					
City: CALSBAD		Address:					
State: NM		City:					
Phone #: 575-247-1164		Fax #:					
Project #:		State:					
Project Name: ENHANCED 32		City:					
Project Location: EDDY		State:					
Sample Name: A. PAKIA		Phone #:					
Fax #:							

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	TDR	CL	BTEX
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:					
H224869	5-3A 5'		1							12:00	1:00			
	53A 6'		1							1:30	1:30			
	53A 8'		1							4:35	4:35			
	53A 10'		1							1:45	1:45			
	53A 12'		1											
	53A 14'		1											

Relinquished By:	Date: 12-17-22	Received By:	Date: 12-17-22
Relinquished By:	Date:	Received By:	Date:

Delivered By: (Circle One)	Observed Temp. °C	Sample Condition	CHECKED BY: (Initials)
Sampler - UPS - Bus - Other:	Corrected Temp. °C	Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	JD
Turnaround Time:	Thermometer ID #113	Standard <input checked="" type="checkbox"/> Rush <input type="checkbox"/>	
	Correction Factor -0.6°C	Bacteria (only) Sample Condition <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

REMARKS: **JAMES CAWON 12/17/22**
2 RUSH

Verbal Result: ☐ Yes ☐ No Add'l Phone #:

All Results are emailed. Please provide Email address: **Report**



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

October 19, 2022

JAMES CARNES

BDS

1705 GREENE

CARLSBAD, NM 88220

RE: EMERALD 32

Enclosed are the results of analyses for samples received by the laboratory on 10/17/22 16:50.

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". The signature is fluid and cursive, with the first name "Celey" and last name "Keene" clearly distinguishable.

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

BDS
JAMES CARNES
1705 GREENE
CARLSBAD NM, 88220
Fax To:

Received: 10/17/2022
Reported: 10/19/2022
Project Name: EMERALD 32
Project Number: NONE GIVEN
Project Location: EDDY

Sampling Date: 10/17/2022
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Tamara Oldaker

Sample ID: S - 3A 15' (H224868-01)

BTX 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	10/18/2022	ND	2.17	108	2.00	0.818	
Toluene*	<0.050	0.050	10/18/2022	ND	2.05	103	2.00	0.488	
Ethylbenzene*	<0.050	0.050	10/18/2022	ND	1.96	97.8	2.00	0.834	
Total Xylenes*	<0.150	0.150	10/18/2022	ND	5.91	98.6	6.00	0.968	
Total BTX	<0.300	0.300	10/18/2022	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 88.1 % 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	240	16.0	10/18/2022	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	10/18/2022	ND	197	98.7	200	2.71	
DRO >C10-C28*	<10.0	10.0	10/18/2022	ND	196	98.2	200	2.22	
EXT DRO >C28-C36	<10.0	10.0	10/18/2022	ND					

Surrogate: 1-Chlorooctane 99.4 % 45.3-161

Surrogate: 1-Chlorooctadecane 114 % 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

Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
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

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A handwritten signature in black ink, appearing to read "C. D. Keene".

Celey D. Keene, Lab Director/Quality Manager



Company Name: **BDS**
Project Manager: **James Caruso**

BILL TO
P.O. #:

ANALYSIS REQUEST

Page 4 of 4

† Cardinal cannot accept verbal changes. Please email changes to reley.keene@cardinallabsnm.com



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

October 20, 2022

JAMES CARNES

BDS

1705 GREENE

CARLSBAD, NM 88220

RE: EMERALD 32

Enclosed are the results of analyses for samples received by the laboratory on 10/19/22 14:15.

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". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

BDS
 JAMES CARNES
 1705 GREENE
 CARLSBAD NM, 88220
 Fax To:

Received: 10/19/2022
 Reported: 10/20/2022
 Project Name: EMERALD 32
 Project Number: NOT GIVEN
 Project Location: EDDY

Sampling Date: 10/19/2022
 Sampling Type: Soil
 Sampling Condition: ** (See Notes)
 Sample Received By: Tamara Oldaker

Sample ID: S - 1A 4' (H224913-01)

BTX 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	10/19/2022	ND	1.99	99.3	2.00	3.10	
Toluene*	<0.050	0.050	10/19/2022	ND	2.01	100	2.00	2.27	
Ethylbenzene*	<0.050	0.050	10/19/2022	ND	1.98	99.1	2.00	3.69	
Total Xylenes*	<0.150	0.150	10/19/2022	ND	6.03	100	6.00	3.89	
Total BTX	<0.300	0.300	10/19/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	9330	16.0	10/20/2022	ND	416	104	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	10/20/2022	ND	204	102	200	6.00	
DRO >C10-C28*	<10.0	10.0	10/20/2022	ND	205	102	200	6.02	
EXT DRO >C28-C36	<10.0	10.0	10/20/2022	ND					

Surrogate: 1-Chlorooctane 95.3 % 45.3-161

Surrogate: 1-Chlorooctadecane 102 % 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:

BDS
 JAMES CARNES
 1705 GREENE
 CARLSBAD NM, 88220
 Fax To:

Received: 10/19/2022
 Reported: 10/20/2022
 Project Name: EMERALD 32
 Project Number: NOT GIVEN
 Project Location: EDDY

Sampling Date: 10/19/2022
 Sampling Type: Soil
 Sampling Condition: ** (See Notes)
 Sample Received By: Tamara Oldaker

Sample ID: S - 2A 4' (H224913-02)

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	10/19/2022	ND	1.99	99.3	2.00	3.10	
Toluene*	<0.050	0.050	10/19/2022	ND	2.01	100	2.00	2.27	
Ethylbenzene*	<0.050	0.050	10/19/2022	ND	1.98	99.1	2.00	3.69	
Total Xylenes*	<0.150	0.150	10/19/2022	ND	6.03	100	6.00	3.89	
Total BTEX	<0.300	0.300	10/19/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 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	960	16.0	10/20/2022	ND	416	104	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	10/20/2022	ND	204	102	200	6.00	
DRO >C10-C28*	<10.0	10.0	10/20/2022	ND	205	102	200	6.02	
EXT DRO >C28-C36	<10.0	10.0	10/20/2022	ND					

Surrogate: 1-Chlorooctane 86.2 % 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

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

Cardinal Laboratories

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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

October 20, 2022

JAMES CARNES

BDS

1705 GREENE

CARLSBAD, NM 88220

RE: EMERALD 32

Enclosed are the results of analyses for samples received by the laboratory on 10/19/22 14:15.

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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". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

BDS
 JAMES CARNES
 1705 GREENE
 CARLSBAD NM, 88220
 Fax To:

Received: 10/19/2022
 Reported: 10/20/2022
 Project Name: EMERALD 32
 Project Number: NOT GIVEN
 Project Location: EDDY

Sampling Date: 10/19/2022
 Sampling Type: Soil
 Sampling Condition: ** (See Notes)
 Sample Received By: Tamara Oldaker

Sample ID: SW - 1 (H224912-01)

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	10/19/2022	ND	1.99	99.3	2.00	3.10		
Toluene*	<0.050	0.050	10/19/2022	ND	2.01	100	2.00	2.27		
Ethylbenzene*	<0.050	0.050	10/19/2022	ND	1.98	99.1	2.00	3.69		
Total Xylenes*	<0.150	0.150	10/19/2022	ND	6.03	100	6.00	3.89		
Total BTEX	<0.300	0.300	10/19/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	64.0	16.0	10/20/2022	ND	416	104	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	10/20/2022	ND	204	102	200	6.00	
DRO >C10-C28*	<10.0	10.0	10/20/2022	ND	205	102	200	6.02	
EXT DRO >C28-C36	<10.0	10.0	10/20/2022	ND					

Surrogate: 1-Chlorooctane 91.6 % 45.3-161

Surrogate: 1-Chlorooctadecane 96.9 % 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:

BDS
 JAMES CARNES
 1705 GREENE
 CARLSBAD NM, 88220
 Fax To:

Received: 10/19/2022
 Reported: 10/20/2022
 Project Name: EMERALD 32
 Project Number: NOT GIVEN
 Project Location: EDDY

Sampling Date: 10/19/2022
 Sampling Type: Soil
 Sampling Condition: ** (See Notes)
 Sample Received By: Tamara Oldaker

Sample ID: SW - 2 (H224912-02)

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	10/19/2022	ND	1.99	99.3	2.00	3.10	
Toluene*	<0.050	0.050	10/19/2022	ND	2.01	100	2.00	2.27	
Ethylbenzene*	<0.050	0.050	10/19/2022	ND	1.98	99.1	2.00	3.69	
Total Xylenes*	<0.150	0.150	10/19/2022	ND	6.03	100	6.00	3.89	
Total BTEX	<0.300	0.300	10/19/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 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	10/20/2022	ND	416	104	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	10/20/2022	ND	204	102	200	6.00	
DRO >C10-C28*	<10.0	10.0	10/20/2022	ND	205	102	200	6.02	
EXT DRO >C28-C36	<10.0	10.0	10/20/2022	ND					

Surrogate: 1-Chlorooctane 93.1 % 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:

BDS
 JAMES CARNES
 1705 GREENE
 CARLSBAD NM, 88220
 Fax To:

Received: 10/19/2022
 Reported: 10/20/2022
 Project Name: EMERALD 32
 Project Number: NOT GIVEN
 Project Location: EDDY

Sampling Date: 10/19/2022
 Sampling Type: Soil
 Sampling Condition: ** (See Notes)
 Sample Received By: Tamara Oldaker

Sample ID: SW - 3 (H224912-03)

BTX 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	10/19/2022	ND	1.99	99.3	2.00	3.10	
Toluene*	<0.050	0.050	10/19/2022	ND	2.01	100	2.00	2.27	
Ethylbenzene*	<0.050	0.050	10/19/2022	ND	1.98	99.1	2.00	3.69	
Total Xylenes*	<0.150	0.150	10/19/2022	ND	6.03	100	6.00	3.89	
Total BTX	<0.300	0.300	10/19/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	10/20/2022	ND	416	104	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	10/20/2022	ND	204	102	200	6.00	
DRO >C10-C28*	<10.0	10.0	10/20/2022	ND	205	102	200	6.02	
EXT DRO >C28-C36	<10.0	10.0	10/20/2022	ND					

Surrogate: 1-Chlorooctane 89.8 % 45.3-161

Surrogate: 1-Chlorooctadecane 94.5 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

BDS
JAMES CARNES
1705 GREENE
CARLSBAD NM, 88220
Fax To:

Received: 10/19/2022
Reported: 10/20/2022
Project Name: EMERALD 32
Project Number: NOT GIVEN
Project Location: EDDY

Sampling Date: 10/19/2022
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Tamara Oldaker

Sample ID: SW - 4 (H224912-04)

BTX 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	10/19/2022	ND	1.99	99.3	2.00	3.10	
Toluene*	<0.050	0.050	10/19/2022	ND	2.01	100	2.00	2.27	
Ethylbenzene*	<0.050	0.050	10/19/2022	ND	1.98	99.1	2.00	3.69	
Total Xylenes*	<0.150	0.150	10/19/2022	ND	6.03	100	6.00	3.89	
Total BTX	<0.300	0.300	10/19/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	10/20/2022	ND	416	104	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	10/20/2022	ND	204	102	200	6.00	
DRO >C10-C28*	<10.0	10.0	10/20/2022	ND	205	102	200	6.02	
EXT DRO >C28-C36	<10.0	10.0	10/20/2022	ND					

Surrogate: 1-Chlorooctane 90.5 % 45.3-161

Surrogate: 1-Chlorooctadecane 96.0 % 46.3-178

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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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A handwritten signature in black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: BDS Project Manager: James Caves Address: 1705 E. Cline City: Calisbad State: Nm Zip: 88220 Phone #: 575 247-1104 Fax #: _____ Project #: _____ Project Owner: _____ Project Name: ENEELD 33 Project Location: EDDY Sample Name: A. Packer FOR LAB USE ONLY				BILL TO P.O. #: _____ Company: _____ Attn: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone #: _____ Fax #: _____			
Lab I.D. _____ Sample I.D. _____ H224912 1 500.1 2 500.2 3 500.3 4 500.4		(G)RAB OR (C)OMP. _____ # CONTAINERS _____ MATRIX: GROUNDWATER _____ WASTEWATER _____ SOIL _____ OIL _____ SLUDGE _____ OTHER: _____ ACID/BASE: _____ ICE / COOL _____ OTHER: _____		DATE _____ TIME _____ 10/19 11:00 11:05 11:10 11:15			
Relinquished By: _____ Relinquished By: _____ Delivered By: (Circle One) _____ Sampler - UPS - Bus - Other: _____		Observed Temp. °C 34.3 Corrected Temp. °C 33.7 Sample Condition: Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/> Checked By: _____ (Initials) AO		Turnaround Time: _____ Standard <input checked="" type="checkbox"/> Rush <input type="checkbox"/> Thermometer ID #113 _____ Correction Factor -0.6°C _____ Bacteria (only) Sample Condition: Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/> Corrected Temp. °C _____			
REMARKS: JAMES CAVES AO 11:00 1 made & put in net / Packer's signature							



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

November 02, 2022

JAMES CARNES

BDS

1705 GREENE

CARLSBAD, NM 88220

RE: EMERALD

Enclosed are the results of analyses for samples received by the laboratory on 11/01/22 9:53.

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". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

BDS
JAMES CARNES
1705 GREENE
CARLSBAD NM, 88220
Fax To:

Received: 11/01/2022
Reported: 11/02/2022
Project Name: EMERALD
Project Number: 30000.003
Project Location: EDDY

Sampling Date: 10/31/2022
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: S 1 A 15' (H225126-01)

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	11/01/2022	ND	1.85	92.5	2.00	3.86		
Toluene*	<0.050	0.050	11/01/2022	ND	2.05	102	2.00	3.67		
Ethylbenzene*	<0.050	0.050	11/01/2022	ND	2.04	102	2.00	6.08		
Total Xylenes*	<0.150	0.150	11/01/2022	ND	6.19	103	6.00	6.62		
Total BTEx	<0.300	0.300	11/01/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 86.2 % 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	11/01/2022	ND	416	104	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	11/02/2022	ND	201	101	200	2.46	
DRO >C10-C28*	<10.0	10.0	11/02/2022	ND	214	107	200	4.48	
EXT DRO >C28-C36	<10.0	10.0	11/02/2022	ND					

Surrogate: 1-Chlorooctane 92.5 % 45.3-161

Surrogate: 1-Chlorooctadecane 101 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

BDS
JAMES CARNES
1705 GREENE
CARLSBAD NM, 88220
Fax To:

Received: 11/01/2022
Reported: 11/02/2022
Project Name: EMERALD
Project Number: 30000.003
Project Location: EDDY

Sampling Date: 10/31/2022
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: S 2 A 15' (H225126-02)

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	11/01/2022	ND	1.85	92.5	2.00	3.86		
Toluene*	<0.050	0.050	11/01/2022	ND	2.05	102	2.00	3.67		
Ethylbenzene*	<0.050	0.050	11/01/2022	ND	2.04	102	2.00	6.08		
Total Xylenes*	<0.150	0.150	11/01/2022	ND	6.19	103	6.00	6.62		
Total BTEX	<0.300	0.300	11/01/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 88.3 % 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	32.0	16.0	11/01/2022	ND	416	104	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	11/02/2022	ND	201	101	200	2.46	
DRO >C10-C28*	<10.0	10.0	11/02/2022	ND	214	107	200	4.48	
EXT DRO >C28-C36	<10.0	10.0	11/02/2022	ND					

Surrogate: 1-Chlorooctane 100 % 45.3-161

Surrogate: 1-Chlorooctadecane 111 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

BDS
JAMES CARNES
1705 GREENE
CARLSBAD NM, 88220
Fax To:

Received: 11/01/2022
Reported: 11/02/2022
Project Name: EMERALD
Project Number: 30000.003
Project Location: EDDY

Sampling Date: 10/31/2022
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: S 4 A 15' (H225126-03)

BTX 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	11/01/2022	ND	1.85	92.5	2.00	3.86		
Toluene*	<0.050	0.050	11/01/2022	ND	2.05	102	2.00	3.67		
Ethylbenzene*	<0.050	0.050	11/01/2022	ND	2.04	102	2.00	6.08		
Total Xylenes*	<0.150	0.150	11/01/2022	ND	6.19	103	6.00	6.62		
Total BTX	<0.300	0.300	11/01/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 88.5 % 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	11/01/2022	ND	416	104	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	11/02/2022	ND	201	101	200	2.46	
DRO >C10-C28*	<10.0	10.0	11/02/2022	ND	214	107	200	4.48	
EXT DRO >C28-C36	<10.0	10.0	11/02/2022	ND					

Surrogate: 1-Chlorooctane 101 % 45.3-161

Surrogate: 1-Chlorooctadecane 111 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

BDS
JAMES CARNES
1705 GREENE
CARLSBAD NM, 88220
Fax To:

Received: 11/01/2022
Reported: 11/02/2022
Project Name: EMERALD
Project Number: 30000.003
Project Location: EDDY

Sampling Date: 10/31/2022
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: S 5 A 15' (H225126-04)

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	11/01/2022	ND	1.85	92.5	2.00	3.86		
Toluene*	<0.050	0.050	11/01/2022	ND	2.05	102	2.00	3.67		
Ethylbenzene*	<0.050	0.050	11/01/2022	ND	2.04	102	2.00	6.08		
Total Xylenes*	<0.150	0.150	11/01/2022	ND	6.19	103	6.00	6.62		
Total BTEX	<0.300	0.300	11/01/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 85.5 % 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	<16.0	16.0	11/01/2022	ND	416	104	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	11/02/2022	ND	201	101	200	2.46	
DRO >C10-C28*	<10.0	10.0	11/02/2022	ND	214	107	200	4.48	
EXT DRO >C28-C36	<10.0	10.0	11/02/2022	ND					

Surrogate: 1-Chlorooctane 101 % 45.3-161

Surrogate: 1-Chlorooctadecane 112 % 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:

BDS
JAMES CARNES
1705 GREENE
CARLSBAD NM, 88220
Fax To:

Received: 11/01/2022
Reported: 11/02/2022
Project Name: EMERALD
Project Number: 30000.003
Project Location: EDDY

Sampling Date: 10/31/2022
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: S 6 A 15' (H225126-05)

BTX 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	11/01/2022	ND	1.85	92.5	2.00	3.86		
Toluene*	<0.050	0.050	11/01/2022	ND	2.05	102	2.00	3.67		
Ethylbenzene*	<0.050	0.050	11/01/2022	ND	2.04	102	2.00	6.08		
Total Xylenes*	<0.150	0.150	11/01/2022	ND	6.19	103	6.00	6.62		
Total BTX	<0.300	0.300	11/01/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 89.4 % 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	11/01/2022	ND	416	104	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	11/02/2022	ND	201	101	200	2.46	
DRO >C10-C28*	<10.0	10.0	11/02/2022	ND	214	107	200	4.48	
EXT DRO >C28-C36	<10.0	10.0	11/02/2022	ND					

Surrogate: 1-Chlorooctane 76.3 % 45.3-161

Surrogate: 1-Chlorooctadecane 84.3 % 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

Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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A handwritten signature in black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

BILL TO

ANALYSIS REQUEST

Company Name: BDS (Bartlett & Smith)

Project Manager: JAMES KEENE

Address: 1705 Green St.

City: Calydon State: Zip:

Phone #: 575 341-1104 Fax #:

Project #: 30000.003 Project Owner:

Project Name: EMed.

Project Location: EDDY

Sampler Name: APRIL

P.O. #:

Company:

Attn:

Address:

City:

State: Zip:

Phone #:

Fax #:

FOR LAB USE ONLY

Lab I.D.

Sample I.D.

(G)RAB OR (C)OMP.

CONTAINERS

GROUNDWATER

WASTEWATER

SOIL

OIL

SLUDGE

OTHER :

ACID/BASE:

ICE / COOL

OTHER :

DATE

TIME

BT

TPH

CL

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Relinquished By:

Date: 11/11/22

Received By:

Signature: James Keene

Relinquished By:

Date: 11/11/22

Received By:

Signature: James Keene

Delivered By: (Circle One)

Observed Temp. °C

Sample Condition

CHECKED BY: (Initials)

Turnaround Time:

Standard

☒ Rush

Bacteria (only) Sample Condition

Observed Temp. °C

Sampler - UPS - Bus - Other:

Corrected Temp. °C

☒ Yes ☐ No

AP

Thermometer ID #113

Correction Factor -0.6°C

☐ Yes ☐ No

Corrected Temp. °C

FORM 006 R 03/07/16/22

† Cardinal cannot accept verbal changes. Please email changes to celey.keene@cardinallabsnm.com

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 164382

CONDITIONS

Operator: MATADOR PRODUCTION COMPANY One Lincoln Centre Dallas, TX 75240	OGRID: 228937
	Action Number: 164382
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	We have received your closure report and final C-141 for Incident #NAPP2229333053 EMERALD 32 FEDERAL #001H, thank you. This closure is approved. For future reference, some of the Chain of Custody and Analysis Request forms showed samples not received at proper temperature of 6 deg. Celsius or below. If samples are improperly cared for again on future remediation projects, the report will be immediately denied.	4/25/2023