June 9, 2025

Devon Energy
4134 7 Rivers Highway
Carlsbad, New Mexico, 88220

Attention: Jim Raley

Re: Laguna Salado 22 Federal #005
Incident: nAB1914043668

Mr. Raley,

Vertex Resource Group (Vertex) has prepared a sampling report for the sampling activities for Devon Energy on the Laguna Salado 22 Federal #005 located in Eddy County, New Mexico.

Below is the scope of work, respectively.

- Collected background samples 11/5/2024
- Sample SS23-27 and SS23-28 were collected near point of release 4/4/2025 at 0' and 1' with refusal
- Samples were analyzed by laboratory to provide assurance that the spill occurred in an area with naturally high chloride concentrations.

Closure

All data collected by Vertex is proprietary information of Devon Energy. and will not be shared without express consent of client representatives.

We trust this document meets your present requirements. Should you have any questions regarding its content, please do not hesitate to contact the undersigned at 575.200-6167 or chensley@vertexresource.com.

Sincerely,
Chad Hensley

List of Appendices

Appendix A.	Figures
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Appendix E.	Notifications
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Appendix A.

■ Background Sample ⊗ Point of Release ▣ Surface Sample

VERTEX

0 25 50 100 150 200 ft.

Map Center:
Lat/Long: 32.290662°N, 103.972533°W

NAD 1983 UTM Zone 13N
Date: Jun 09/25

N

Sample Map
Laguna Salado 22 Federal #005H

FIGURE:
1

devon

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Background imagery from Google Earth, 2019. Lease boundary approximated from imagery. Point features from GPS. Vertex Professional Services Ltd., 2022.

VERSATILITY. EXPERTISE.

Document Path: S:\04 - Geomatics\1-Projects\ US PROJECTS\Devon Energy Corporation\2022\22E-01927 - Laguna Salado 22 Federal #005H\Project\22E-01927 Laguna Salado 22 Federal #005.aprx

Appendix B.

Client Name: Devon Energy Company
Site Name: Laguna Salada 22 Federal #005H
NMOCD Tracking #:NAB1914043668
Project #: 22E-01927
Lab Reports: E411152,E504046

Table 1. Initial Characterization Sample and Laboratory Results - Depth to Groundwater <50 feet bgs

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
SS23-27	0	April 4, 2025	ND	ND	ND	ND	ND	ND	ND	**31300**
SS23-27	1R	April 4, 2025	ND	ND	ND	ND	ND	ND	ND	**10,500**
SS23-28	0	April 4, 2025	ND	ND	ND	ND	ND	ND	ND	**45,200**
SS23-28	1R	April 4, 2025	ND	ND	ND	ND	ND	ND	ND	**8,450**
BG24-03	0	November 5, 2024	ND	ND	ND	ND	ND	ND	ND	**67100**
BG24-04	0	November 5, 2024	ND	ND	ND	ND	ND	ND	ND	**54100**
BG24-05	0	November 5, 2024	ND	ND	ND	ND	ND	ND	ND	**63600**
BG24-06	0	November 5, 2024	ND	ND	ND	ND	ND	ND	ND	**28800**
BG24-07	0	November 5, 2024	ND	ND	ND	ND	ND	ND	ND	**32600**
BG24-08	0	November 5, 2024	ND	ND	ND	ND	ND	ND	ND	**26400**

"R" indicates Refusal
"ND" Not Detected at the Reporting Limit
"-" indicates not analyzed/assessed
Bold and green shaded indicates exceedance outside of NM OCD Reclamation Criteria (off-pad)

Appendix C.

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	11/5/2024
Site Location Name:	Laguna Salado 22 Federal #005H	Report Run Date:	4/17/2025 5:53 PM
Client Contact Name:	Jim Raley	API #:	
Client Contact Phone #:	575-748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	11/5/2024 2:10 PM
Departed Site	11/5/2024 4:30 PM

Field Notes

12:53 Background samples collected

12:54 Samples titrated and petro flagged

Next Steps & Recommendations

1 Coc for samples, send to lab for further analysis

Daily Site Visit Report

Site Photos

Viewing Direction: Northwest

BG24-01

Viewing Direction: Southwest

BG24-02

Viewing Direction: West

BG24-04

Viewing Direction: West

BG24-03

Daily Site Visit Report

Viewing Direction: Northwest	**Viewing Direction**: Northwest
	
BG24-05	BG24-06
Viewing Direction: Northwest	**Viewing Direction**: West
	
BG24-07	BG24-08

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Riley Arnold

Signature: 

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	4/4/2025
Site Location Name:	Laguna Salado 22 Federal #005H	Report Run Date:	4/7/2025 1:53 AM
Client Contact Name:	Jim Raley	API #:	
Client Contact Phone #:	575-748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	4/4/2025 9:00 AM
Departed Site	4/4/2025 1:00 PM

Field Notes

9:47 BH23-27 and 28 were collected at surface and 1'/ refusal

Next Steps & Recommendations

1 Coc and send to lab

Daily Site Visit Report

Site Photos

Viewing Direction: West	**Viewing Direction**: Northwest
	
BH23-27 @ 0’ BH23-27 @ 1’/ refusal	BH23-28 @ 0’ BH23-28 @ 1’/ refusal

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Riley Arnold

Signature:

Appendix D.

Report to:

Chad Hensley

5796 U.S. Hwy 64
Farmington, NM 87401

Phone: (505) 632-1881
Envirotech-inc.com

envirotech

Practical Solutions for a Better Tomorrow

Analytical Report

Vertex Resource Services Inc.

Project Name:	Laguna Salado 22 Federal #005H
Work Order:	E411152
Job Number:	01058-0007
Received:	11/15/2024

Revision: 1

Report Reviewed By:

Walter Hinchman
Laboratory Director
11/21/24

Date Reported: 11/21/24

Chad Hensley
3101 Boyd Drive
Carlsbad, NM 88220

Project Name: Laguna Salado 22 Federal #005H
Workorder: E411152
Date Received: 11/15/2024 6:30:37AM

Chad Hensley,

Thank you for choosing Envirotech, Inc. as your analytical testing laboratory for the sample(s) received on, 11/15/2024 6:30:37AM, under the Project Name: Laguna Salado 22 Federal #005H.

The analytical test results summarized in this report with the Project Name: Laguna Salado 22 Federal #005H apply to the individual samples collected, identified and submitted bearing the project name on the enclosed chain-of-custody. Subcontracted sample analyses not conducted by Envirotech, Inc., are attached in full as issued by the subcontract laboratory.

Please review the Chain-of-Custody (COC) and Sample Receipt Checklist (SRC) for any issues reguarding sample receipt temperature, containers, preservation etc. To best understand your test results, review the entire report summarizing your sample data and the associated quality control batch data.

All reported data in this analytical report were analyzed according to the referenced method(s) and are in compliance with the latest NELAC/TNI standards, unless otherwise noted. Samples or analytical quality control parameters not meeting specific QC criteria are qualified with a data flag. Data flag definitions are located in the Notes and Definitions section of this analytical report.

If you have any questions concerning this report, please feel free to contact Envirotech, Inc.

Respectfully,

Walter Hinchman
Laboratory Director
Office: 505-632-1881
Cell: 775-287-1762
whinchman@envirotech-inc.com

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Laboratory Administrator
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mgonzales@envirotech-inc.com

Envirotech Web Address: www.envirotech-inc.com

Table of Contents

Sample Summary

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	**Reported:**
3101 Boyd Drive	Project Number:	01058-0007	
Carlsbad NM, 88220	Project Manager:	Chad Hensley	11/21/24 14:54

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
BG24-01 @ 0'	E411152-01A	Soil	11/5/24	11/15/24	Glass Jar, 2 oz.
BG24-02 @ 0'	E411152-02A	Soil	11/5/24	11/15/24	Glass Jar, 2 oz.
BG24-03 @ 0'	E411152-03A	Soil	11/5/24	11/15/24	Glass Jar, 2 oz.
BG24-04 @ 0'	E411152-04A	Soil	11/5/24	11/15/24	Glass Jar, 2 oz.
BG24-05 @ 0'	E411152-05A	Soil	11/5/24	11/15/24	Glass Jar, 2 oz.
BG24-06 @ 0'	E411152-06A	Soil	11/5/24	11/15/24	Glass Jar, 2 oz.
BG24-07 @ 0'	E411152-07A	Soil	11/5/24	11/15/24	Glass Jar, 2 oz.
BG24-08 @ 0'	E411152-08A	Soil	11/5/24	11/15/24	Glass Jar, 2 oz.

Sample Data

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	
3101 Boyd Drive	Project Number:	01058-0007	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chad Hensley	11/21/2024 2:54:03PM

BG24-01 @ 0'

E411152-01

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2446147
Benzene	ND	0.0250	1	11/15/24	11/20/24	
Ethylbenzene	ND	0.0250	1	11/15/24	11/20/24	
Toluene	ND	0.0250	1	11/15/24	11/20/24	
o-Xylene	ND	0.0250	1	11/15/24	11/20/24	
p,m-Xylene	ND	0.0500	1	11/15/24	11/20/24	
Total Xylenes	ND	0.0250	1	11/15/24	11/20/24	
Surrogate: 4-Bromochlorobenzene-PID		*98.1 %*	*70-130*	*11/15/24*	*11/20/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2446147
Gasoline Range Organics (C6-C10)	ND	20.0	1	11/15/24	11/20/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*89.2 %*	*70-130*	*11/15/24*	*11/20/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: AF			Batch: 2446158
Diesel Range Organics (C10-C28)	ND	25.0	1	11/15/24	11/16/24	
Oil Range Organics (C28-C36)	ND	50.0	1	11/15/24	11/16/24	
Surrogate: n-Nonane		*96.3 %*	*50-200*	*11/15/24*	*11/16/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2447014
Chloride	**33800**	1000	50	11/18/24	11/19/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	
3101 Boyd Drive	Project Number:	01058-0007	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chad Hensley	11/21/2024 2:54:03PM

BG24-02 @ 0'

E411152-02

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2446147
Benzene	ND	0.0250	1	11/15/24	11/20/24	
Ethylbenzene	ND	0.0250	1	11/15/24	11/20/24	
Toluene	ND	0.0250	1	11/15/24	11/20/24	
o-Xylene	ND	0.0250	1	11/15/24	11/20/24	
p,m-Xylene	ND	0.0500	1	11/15/24	11/20/24	
Total Xylenes	ND	0.0250	1	11/15/24	11/20/24	
Surrogate: 4-Bromochlorobenzene-PID		*98.6 %*	*70-130*	*11/15/24*	*11/20/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2446147
Gasoline Range Organics (C6-C10)	ND	20.0	1	11/15/24	11/20/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*89.6 %*	*70-130*	*11/15/24*	*11/20/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: AF			Batch: 2446158
Diesel Range Organics (C10-C28)	ND	25.0	1	11/15/24	11/16/24	
Oil Range Organics (C28-C36)	ND	50.0	1	11/15/24	11/16/24	
Surrogate: n-Nonane		*98.8 %*	*50-200*	*11/15/24*	*11/16/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2447014
Chloride	**4210**	100	5	11/18/24	11/19/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	
3101 Boyd Drive	Project Number:	01058-0007	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chad Hensley	11/21/2024 2:54:03PM

BG24-03 @ 0'

E411152-03

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2446147
Benzene	ND	0.0250	1	11/15/24	11/20/24	
Ethylbenzene	ND	0.0250	1	11/15/24	11/20/24	
Toluene	ND	0.0250	1	11/15/24	11/20/24	
o-Xylene	ND	0.0250	1	11/15/24	11/20/24	
p,m-Xylene	ND	0.0500	1	11/15/24	11/20/24	
Total Xylenes	ND	0.0250	1	11/15/24	11/20/24	
Surrogate: 4-Bromochlorobenzene-PID		*99.3 %*	*70-130*	*11/15/24*	*11/20/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2446147
Gasoline Range Organics (C6-C10)	ND	20.0	1	11/15/24	11/20/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*89.3 %*	*70-130*	*11/15/24*	*11/20/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: AF			Batch: 2446158
Diesel Range Organics (C10-C28)	ND	25.0	1	11/15/24	11/16/24	
Oil Range Organics (C28-C36)	ND	50.0	1	11/15/24	11/16/24	
Surrogate: n-Nonane		*96.8 %*	*50-200*	*11/15/24*	*11/16/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2447014
Chloride	**67100**	2000	100	11/18/24	11/20/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	
3101 Boyd Drive	Project Number:	01058-0007	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chad Hensley	11/21/2024 2:54:03PM

BG24-04 @ 0'

E411152-04

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2446147
Benzene	ND	0.0250	1	11/15/24	11/20/24	
Ethylbenzene	ND	0.0250	1	11/15/24	11/20/24	
Toluene	ND	0.0250	1	11/15/24	11/20/24	
o-Xylene	ND	0.0250	1	11/15/24	11/20/24	
p,m-Xylene	ND	0.0500	1	11/15/24	11/20/24	
Total Xylenes	ND	0.0250	1	11/15/24	11/20/24	
Surrogate: 4-Bromochlorobenzene-PID		*99.5 %*	*70-130*	*11/15/24*	*11/20/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2446147
Gasoline Range Organics (C6-C10)	ND	20.0	1	11/15/24	11/20/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*89.9 %*	*70-130*	*11/15/24*	*11/20/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: AF			Batch: 2446158
Diesel Range Organics (C10-C28)	ND	25.0	1	11/15/24	11/16/24	
Oil Range Organics (C28-C36)	ND	50.0	1	11/15/24	11/16/24	
Surrogate: n-Nonane		*107 %*	*50-200*	*11/15/24*	*11/16/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2447014
Chloride	**54100**	2000	100	11/18/24	11/20/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	
3101 Boyd Drive	Project Number:	01058-0007	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chad Hensley	11/21/2024 2:54:03PM

BG24-05 @ 0'

E411152-05

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2446147
Benzene	ND	0.0250	1	11/15/24	11/20/24	
Ethylbenzene	ND	0.0250	1	11/15/24	11/20/24	
Toluene	ND	0.0250	1	11/15/24	11/20/24	
o-Xylene	ND	0.0250	1	11/15/24	11/20/24	
p,m-Xylene	ND	0.0500	1	11/15/24	11/20/24	
Total Xylenes	ND	0.0250	1	11/15/24	11/20/24	
Surrogate: 4-Bromochlorobenzene-PID		*101 %*	*70-130*	*11/15/24*	*11/20/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2446147
Gasoline Range Organics (C6-C10)	ND	20.0	1	11/15/24	11/20/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*89.6 %*	*70-130*	*11/15/24*	*11/20/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: AF			Batch: 2446158
Diesel Range Organics (C10-C28)	ND	25.0	1	11/15/24	11/16/24	
Oil Range Organics (C28-C36)	ND	50.0	1	11/15/24	11/16/24	
Surrogate: n-Nonane		*99.4 %*	*50-200*	*11/15/24*	*11/16/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2447014
Chloride	**63600**	2000	100	11/18/24	11/20/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	
3101 Boyd Drive	Project Number:	01058-0007	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chad Hensley	11/21/2024 2:54:03PM

BG24-06 @ 0'

E411152-06

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2446147
Benzene	ND	0.0250	1	11/15/24	11/20/24	
Ethylbenzene	ND	0.0250	1	11/15/24	11/20/24	
Toluene	ND	0.0250	1	11/15/24	11/20/24	
o-Xylene	ND	0.0250	1	11/15/24	11/20/24	
p,m-Xylene	ND	0.0500	1	11/15/24	11/20/24	
Total Xylenes	ND	0.0250	1	11/15/24	11/20/24	
Surrogate: 4-Bromochlorobenzene-PID		*100 %*	*70-130*	*11/15/24*	*11/20/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2446147
Gasoline Range Organics (C6-C10)	ND	20.0	1	11/15/24	11/20/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*89.3 %*	*70-130*	*11/15/24*	*11/20/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: AF			Batch: 2446158
Diesel Range Organics (C10-C28)	ND	25.0	1	11/15/24	11/16/24	
Oil Range Organics (C28-C36)	ND	50.0	1	11/15/24	11/16/24	
Surrogate: n-Nonane		*93.6 %*	*50-200*	*11/15/24*	*11/16/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2447014
Chloride	**28800**	1000	50	11/18/24	11/20/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	
3101 Boyd Drive	Project Number:	01058-0007	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chad Hensley	11/21/2024 2:54:03PM

BG24-07 @ 0'

E411152-07

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2446147
Benzene	ND	0.0250	1	11/15/24	11/20/24	
Ethylbenzene	ND	0.0250	1	11/15/24	11/20/24	
Toluene	ND	0.0250	1	11/15/24	11/20/24	
o-Xylene	ND	0.0250	1	11/15/24	11/20/24	
p,m-Xylene	ND	0.0500	1	11/15/24	11/20/24	
Total Xylenes	ND	0.0250	1	11/15/24	11/20/24	
Surrogate: 4-Bromochlorobenzene-PID		*101 %*	*70-130*	*11/15/24*	*11/20/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2446147
Gasoline Range Organics (C6-C10)	ND	20.0	1	11/15/24	11/20/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*89.7 %*	*70-130*	*11/15/24*	*11/20/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: AF			Batch: 2446158
Diesel Range Organics (C10-C28)	ND	25.0	1	11/15/24	11/16/24	
Oil Range Organics (C28-C36)	ND	50.0	1	11/15/24	11/16/24	
Surrogate: n-Nonane		*99.9 %*	*50-200*	*11/15/24*	*11/16/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2447014
Chloride	**32600**	1000	50	11/18/24	11/20/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	
3101 Boyd Drive	Project Number:	01058-0007	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chad Hensley	11/21/2024 2:54:03PM

BG24-08 @ 0'

E411152-08

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2446147
Benzene	ND	0.0250	1	11/15/24	11/20/24	
Ethylbenzene	ND	0.0250	1	11/15/24	11/20/24	
Toluene	ND	0.0250	1	11/15/24	11/20/24	
o-Xylene	ND	0.0250	1	11/15/24	11/20/24	
p,m-Xylene	ND	0.0500	1	11/15/24	11/20/24	
Total Xylenes	ND	0.0250	1	11/15/24	11/20/24	
Surrogate: 4-Bromochlorobenzene-PID		*99.9 %*	*70-130*	*11/15/24*	*11/20/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2446147
Gasoline Range Organics (C6-C10)	ND	20.0	1	11/15/24	11/20/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*90.6 %*	*70-130*	*11/15/24*	*11/20/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: AF			Batch: 2446158
Diesel Range Organics (C10-C28)	ND	25.0	1	11/15/24	11/16/24	
Oil Range Organics (C28-C36)	ND	50.0	1	11/15/24	11/16/24	
Surrogate: n-Nonane		*103 %*	*50-200*	*11/15/24*	*11/16/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2447014
Chloride	**26400**	1000	50	11/18/24	11/20/24	

QC Summary Data

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	**Reported:**
3101 Boyd Drive	Project Number:	01058-0007	
Carlsbad NM, 88220	Project Manager:	Chad Hensley	11/21/2024 2:54:03PM

Volatile Organics by EPA 8021B

Analyst: BA

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2446147-BLK1)									Prepared: 11/15/24 Analyzed: 11/19/24
Benzene	ND	0.0250							
Ethylbenzene	ND	0.0250							
Toluene	ND	0.0250							
o-Xylene	ND	0.0250							
p,m-Xylene	ND	0.0500							
Total Xylenes	ND	0.0250							
Surrogate: 4-Bromochlorobenzene-PID	*7.59*		*8.00*		*94.9*	*70-130*			
LCS (2446147-BS1)									Prepared: 11/15/24 Analyzed: 11/20/24
Benzene	5.37	0.0250	5.00		107	70-130			
Ethylbenzene	5.18	0.0250	5.00		104	70-130			
Toluene	5.29	0.0250	5.00		106	70-130			
o-Xylene	5.19	0.0250	5.00		104	70-130			
p,m-Xylene	10.6	0.0500	10.0		106	70-130			
Total Xylenes	15.7	0.0250	15.0		105	70-130			
Surrogate: 4-Bromochlorobenzene-PID	*8.14*		*8.00*		*102*	*70-130*			
LCS Dup (2446147-BSD1)									Prepared: 11/15/24 Analyzed: 11/19/24
Benzene	5.19	0.0250	5.00		104	70-130	3.38	20	
Ethylbenzene	4.98	0.0250	5.00		99.5	70-130	4.07	20	
Toluene	5.09	0.0250	5.00		102	70-130	3.91	20	
o-Xylene	4.99	0.0250	5.00		99.8	70-130	4.04	20	
p,m-Xylene	10.1	0.0500	10.0		101	70-130	4.11	20	
Total Xylenes	15.1	0.0250	15.0		101	70-130	4.08	20	
Surrogate: 4-Bromochlorobenzene-PID	*7.60*		*8.00*		*95.0*	*70-130*			

QC Summary Data

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	**Reported:**
3101 Boyd Drive	Project Number:	01058-0007	
Carlsbad NM, 88220	Project Manager:	Chad Hensley	11/21/2024 2:54:03PM

Nonhalogenated Organics by EPA 8015D - GRO

Analyst: BA

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2446147-BLK1)									Prepared: 11/15/24 Analyzed: 11/19/24
Gasoline Range Organics (C6-C10)	ND	20.0							
Surrogate: 1-Chloro-4-fluorobenzene-FID	*7.18*		*8.00*		*89.7*	*70-130*			
LCS (2446147-BS2)									Prepared: 11/15/24 Analyzed: 11/21/24
Gasoline Range Organics (C6-C10)	42.1	20.0	50.0		84.2	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	*7.34*		*8.00*		*91.7*	*70-130*			
LCS Dup (2446147-BSD2)									Prepared: 11/15/24 Analyzed: 11/20/24
Gasoline Range Organics (C6-C10)	46.4	20.0	50.0		92.8	70-130	9.72	20	
Surrogate: 1-Chloro-4-fluorobenzene-FID	*7.38*		*8.00*		*92.3*	*70-130*			

QC Summary Data

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	**Reported:**
3101 Boyd Drive	Project Number:	01058-0007	
Carlsbad NM, 88220	Project Manager:	Chad Hensley	11/21/2024 2:54:03PM

Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: AF

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2446158-BLK1)									Prepared: 11/15/24 Analyzed: 11/16/24
Diesel Range Organics (C10-C28)	ND	25.0							
Oil Range Organics (C28-C36)	ND	50.0							
Surrogate: n-Nonane	*54.3*		*50.0*		*109*	*50-200*			
LCS (2446158-BS1)									Prepared: 11/15/24 Analyzed: 11/16/24
Diesel Range Organics (C10-C28)	269	25.0	250		108	38-132			
Surrogate: n-Nonane	*55.8*		*50.0*		*112*	*50-200*			
Matrix Spike (2446158-MS1)				**Source: E411152-04**					Prepared: 11/15/24 Analyzed: 11/16/24
Diesel Range Organics (C10-C28)	274	25.0	250	ND	110	38-132			
Surrogate: n-Nonane	*59.3*		*50.0*		*119*	*50-200*			
Matrix Spike Dup (2446158-MSD1)				**Source: E411152-04**					Prepared: 11/15/24 Analyzed: 11/16/24
Diesel Range Organics (C10-C28)	278	25.0	250	ND	111	38-132	1.30	20	
Surrogate: n-Nonane	*57.7*		*50.0*		*115*	*50-200*			

QC Summary Data

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	**Reported:**
3101 Boyd Drive	Project Number:	01058-0007	
Carlsbad NM, 88220	Project Manager:	Chad Hensley	11/21/2024 2:54:03PM

Anions by EPA 300.0/9056A

Analyst: JM

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2447014-BLK1)									Prepared: 11/18/24 Analyzed: 11/19/24
Chloride	ND	20.0							
LCS (2447014-BS1)									Prepared: 11/18/24 Analyzed: 11/19/24
Chloride	258	20.0	250		103	90-110			
LCS Dup (2447014-BSD1)									Prepared: 11/18/24 Analyzed: 11/19/24
Chloride	257	20.0	250		103	90-110	0.239	20	

QC Summary Report Comment:
Calculations are based off of the raw (non-rounded) data. However, for reporting purposes all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Definitions and Notes

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	
3101 Boyd Drive	Project Number:	01058-0007	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chad Hensley	11/21/24 14:54

ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
RPD	Relative Percent Difference
DNI	Did Not Ignite
DNR	Did not react with the addition of acid or base.

Note (1): Methods marked with ** are non-accredited methods.

Note (2): Soil data is reported on an "as received" weight basis, unless reported otherwise.

Chain of Custody

Client Information	Invoice Information	Lab Use Only	TAT	State
Client: Vertex (bill to Devon)	Company: Devon Energy	Lab WO# E411152	Job Number 0058-0007	1D 2D 3D Std: x	NM CO UT TX: x
Project Name: Laguna Salado 22 Federal #005H	Address: 5315 Buena Vista			
Project Manager: Chad Hensley	City, State, Zip: Carlsbad, NM, 88220			
Address: 3101 Boyd dr.	Phone: 575-689-7597			
City, State, Zip: Carlsbad, NM, 88220	Email: Jim.Raley@dvn.com			
Phone: 575-200-6167	Miscellaneous:			
Email: Rarnold@vertexresource.com, Rplogger@verte				

Sample Information

Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Field Filter	Lab Number	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Chloride 300.0	BGDOC - NM	TCEQ 1005 - TX	RCRA 8 Metals	Cation/Anion Pkg			Remarks
9:00	11.13.24	Soil	1	BG24-01 @ 0'		1	X	x	x		x							
9:15	11.13.24	Soil	1	BG24-02 @ 0'		2	X	x	x		x							
0.6315	11.13.24	Soil	1	BG24-03 @ 0'		3	X	x	x		x							
9:36	11.13.24	Soil	1	BG24-04 @ 0'		4	X	x	x		x							
9:52	11.13.24	Soil	1	BG24-05 @ 0'		5	X	x	x		x							
10:08	11.13.24	Soil	1	BG24-07 @ 0'		6	X	x	x		x							
10:22	11.13.24	Soil	1	BG24-07 @ 0'		7	X	x	x		x							
10:42	11.13.24	Soil	1	BG24-08 @ 0'		8	X	x	x		x							

Analysis and Method

EPA Program

SDWA	CWA	RCRA

Compliance Y or N

PWSID #

Additional Instructions: WO: 22E-01927 Jim Raley

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.

Sampled by: _____

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	11.14.24	10:02	Michelle Gonzales	11-14-24	1002
Michelle Gonzales	11-14-24	1600		11.14.24	1700
	11.14.24	2345		11.15.24	0630

Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.

Lab Use Only

Received on ice: (Y) / N

T1 _____ T2 _____ T3 _____

AVG Temp °C 4

Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other _____

Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA

Note: Samples are discarded 14 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.

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Chain of Custody

Client Information	Invoice Information	Lab Use Only	TAT	State
Client: Vertex (bill to Devon)	Company: Devon Energy	Lab WO# E411152	Job Number 005E-0007	1D 2D 3D Std: x	NM CO UT TX: x
Project Name: Laguna Salado 22 Federal #005H	Address: 5315 Buena Vista			
Project Manager: Chad Hensley	City, State, Zip: Carlsbad , NM, 88220			
Address: 3101 Boyd dr.	Phone: 575-689-7597			
City, State, Zip: Carlsbad, NM, 88220	Email: Jim.Raley@dvn.com			
Phone: 575-200-6167	Miscellaneous:			
Email: Rarnold@vertexresource.com, Rplogger@verte				

Sample Information							Analysis and Method										EPA Program		
Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Field Filter	Lab Number	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Chloride 300.0	BGDOC - NM	TCEQ 1005 - TX	RCRA 8 Metals	Cation/Anion Pkg		SDWA	CWA	RCRA
9:00	11.13.24	Soil	1	BG24-01 @ 0'		1	X	x	x		x						Compliance	Y or N	
9:15	11.13.24	Soil	1	BG24-02 @ 0'		2	X	x	x		x						PWSID #		
~~0.6315~~ 9:22	11.13.24	Soil	1	BG24-03 @ 0'		3	X	x	x		x						Remarks		
9:36	11.13.24	Soil	1	BG24-04 @ 0'		4	X	x	x		x								
9:52	11.13.24	Soil	1	BG24-05 @ 0'		5	X	x	x		x								
10:08	11.13.24	Soil	1	BG24-~~07~~ 06 @ 0'		6	X	x	x		x								
10:22	11.13.24	Soil	1	BG24-07 @ 0'		7	X	x	x		x								
10:42	11.13.24	Soil	1	BG24-08 @ 0'		8	X	x	x		x								

Corrected Sample time And Sample name to match Containers per Client. 11/15/24 CM

Additional Instructions: WO: 22E-01927 Jim Raley

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.
Sampled by: _____

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	11.14.24	10:02	Michelle Gonzales	11-14-24	1002
Michelle Gonzales	11-14-24	1600		11.14.24	1700
	11.14.24	2345	Earth Man	11.15.24	6:30
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.

Lab Use Only
Received on ice: (Y) / N
T1 _____ T2 _____ T3 _____
AVG Temp °C 4

Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other _____
Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA

Note: Samples are discarded 14 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.

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Envirotech Analytical Laboratory

Printed: 11/15/2024 9:56:49AM

Sample Receipt Checklist (SRC)

Instructions: Please take note of any NO checkmarks.
If we receive no response concerning these items within 24 hours of the date of this notice, all the samples will be analyzed as requested.

Client:	Vertex Resource Services Inc.	Date Received:	11/15/24 06:30	Work Order ID:	E411152
Phone:	(575) 748-0176	Date Logged In:	11/14/24 14:30	Logged In By:	Caitlin Mars
Email:	chensley@vertexresources.com	Due Date:	11/21/24 17:00 (4 day TAT)		

Chain of Custody (COC)

1. Does the sample ID match the COC?	No	
2. Does the number of samples per sampling site location match the COC	Yes	
3. Were samples dropped off by client or carrier?	Yes	Carrier: Courier
4. Was the COC complete, i.e., signatures, dates/times, requested analyses?	No	
5. Were all samples received within holding time? Note: Analysis, such as pH which should be conducted in the field, i.e, 15 minute hold time, are not included in this disucssion.	Yes	

Sample Turn Around Time (TAT)

6. Did the COC indicate standard TAT, or Expedited TAT?	Yes	

Sample Cooler

7. Was a sample cooler received?	Yes	
8. If yes, was cooler received in good condition?	Yes	
9. Was the sample(s) received intact, i.e., not broken?	Yes	
10. Were custody/security seals present?	No	
11. If yes, were custody/security seals intact?	NA	
12. Was the sample received on ice? If yes, the recorded temp is 4°C, i.e., 6°±2°C Note: Thermal preservation is not required, if samples are received w/i 15 minutes of sampling	Yes	
13. If no visible ice, record the temperature. Actual sample temperature: 4°C		

Sample Container

14. Are aqueous VOC samples present?	No	
15. Are VOC samples collected in VOA Vials?	NA	
16. Is the head space less than 6-8 mm (pea sized or less)?	NA	
17. Was a trip blank (TB) included for VOC analyses?	NA	
18. Are non-VOC samples collected in the correct containers?	Yes	
19. Is the appropriate volume/weight or number of sample containers collected?	Yes	

Field Label

20. Were field sample labels filled out with the minimum information:		
Sample ID?	Yes	
Date/Time Collected?	Yes	
Collectors name?	No	

Sample Preservation

21. Does the COC or field labels indicate the samples were preserved?	No	
22. Are sample(s) correctly preserved?	NA	
24. Is lab filteration required and/or requested for dissolved metals?	No	

Multiphase Sample Matrix

26. Does the sample have more than one phase, i.e., multiphase?	No	
27. If yes, does the COC specify which phase(s) is to be analyzed?	NA	

Subcontract Laboratory

28. Are samples required to get sent to a subcontract laboratory?	No	
29. Was a subcontract laboratory specified by the client and if so who?	NA	Subcontract Lab: NA

Comments/Resolution

Sampled by not provided on COC.
Sampled time for #3 incorrect. Duplicate sample names for #6 & #7. Corrected both to match containers per client.

Client Instruction

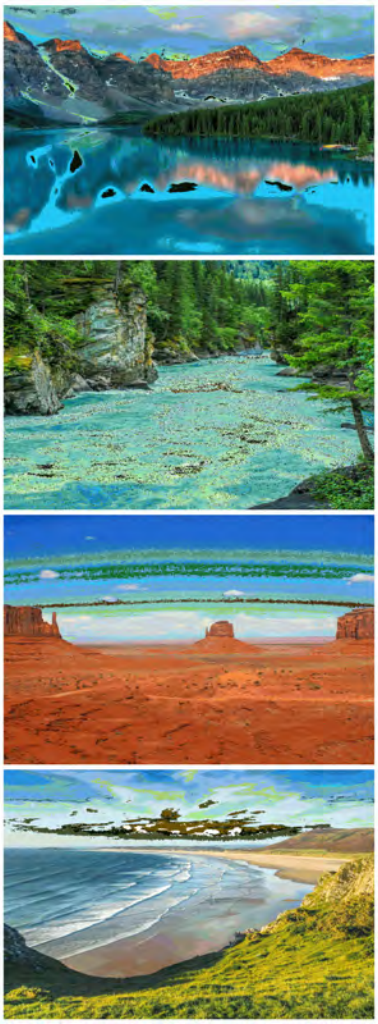
Signature of client authorizing changes to the COC or sample disposition.

Date

envirotech Inc.

Report to:

Chad Hensley



5796 U.S. Hwy 64
Farmington, NM 87401

Phone: (505) 632-1881
Envirotech-inc.com

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Practical Solutions for a Better Tomorrow

Analytical Report

Vertex Resource Services Inc.

Project Name:	Laguna Salado 22 Federal #005H
Work Order:	E504046
Job Number:	01058-0007
Received:	4/8/2025

Revision: 1

Report Reviewed By:

Walter Hinchman
Laboratory Director
4/14/25

Envirotech Inc. certifies the test results meet all requirements of TNI unless noted otherwise.
Statement of Data Authenticity: Envirotech Inc, attests the data reported has not been altered in any way.
Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech Inc.
Envirotech Inc, holds the Utah TNI certification NM00979 for data reported.
Envirotech Inc, holds the Texas TNI certification T104704557 for data reported.

Date Reported: 4/14/25

Chad Hensley
3101 Boyd Drive
Carlsbad, NM 88220

Project Name: Laguna Salado 22 Federal #005H
Workorder: E504046
Date Received: 4/8/2025 8:00:00AM

Chad Hensley,

Thank you for choosing Envirotech, Inc. as your analytical testing laboratory for the sample(s) received on, 4/8/2025 8:00:00AM, under the Project Name: Laguna Salado 22 Federal #005H.

The analytical test results summarized in this report with the Project Name: Laguna Salado 22 Federal #005H apply to the individual samples collected, identified and submitted bearing the project name on the enclosed chain-of-custody. Subcontracted sample analyses not conducted by Envirotech, Inc., are attached in full as issued by the subcontract laboratory.

Please review the Chain-of-Custody (COC) and Sample Receipt Checklist (SRC) for any issues reguarding sample receipt temperature, containers, preservation etc. To best understand your test results, review the entire report summarizing your sample data and the associated quality control batch data.

All reported data in this analytical report were analyzed according to the referenced method(s) and are in compliance with the latest NELAC/TNI standards, unless otherwise noted. Samples or analytical quality control parameters not meeting specific QC criteria are qualified with a data flag. Data flag definitions are located in the Notes and Definitions section of this analytical report.

If you have any questions concerning this report, please feel free to contact Envirotech, Inc.

Respectfully,

Walter Hinchman
Laboratory Director
Office: 505-632-1881
Cell: 775-287-1762
whinchman@envirotech-inc.com

Raina Schwanz
Laboratory Administrator
Office: 505-632-1881
rainaschwanz@envirotech-inc.com

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mgonzales@envirotech-inc.com

Envirotech Web Address: www.envirotech-inc.com

Table of Contents

Sample Summary

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	**Reported:**
3101 Boyd Drive	Project Number:	01058-0007	
Carlsbad NM, 88220	Project Manager:	Chad Hensley	04/14/25 08:24

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
SS23-27 @ 0'	E504046-01A	Soil	04/04/25	04/08/25	Glass Jar, 2 oz.
SS23-27 @ 1' R	E504046-02A	Soil	04/04/25	04/08/25	Glass Jar, 2 oz.
SS23-28 @ 0'	E504046-03A	Soil	04/04/25	04/08/25	Glass Jar, 2 oz.
SS23-28 @ 1' R	E504046-04A	Soil	04/04/25	04/08/25	Glass Jar, 2 oz.

Sample Data

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	
3101 Boyd Drive	Project Number:	01058-0007	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chad Hensley	4/14/2025 8:24:15AM

SS23-27 @ 0'

E504046-01

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2515030
Benzene	ND	0.0250	1	04/08/25	04/09/25	
Ethylbenzene	ND	0.0250	1	04/08/25	04/09/25	
Toluene	ND	0.0250	1	04/08/25	04/09/25	
o-Xylene	ND	0.0250	1	04/08/25	04/09/25	
p,m-Xylene	ND	0.0500	1	04/08/25	04/09/25	
Total Xylenes	ND	0.0250	1	04/08/25	04/09/25	
Surrogate: 4-Bromochlorobenzene-PID		*97.9 %*	*70-130*	*04/08/25*	*04/09/25*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2515030
Gasoline Range Organics (C6-C10)	ND	20.0	1	04/08/25	04/09/25	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*88.0 %*	*70-130*	*04/08/25*	*04/09/25*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2515036
Diesel Range Organics (C10-C28)	ND	25.0	1	04/08/25	04/08/25	
Oil Range Organics (C28-C36)	ND	50.0	1	04/08/25	04/08/25	
Surrogate: n-Nonane		*110 %*	*61-141*	*04/08/25*	*04/08/25*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2515034
Chloride	**31300**	2000	100	04/08/25	04/08/25	

Sample Data

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	
3101 Boyd Drive	Project Number:	01058-0007	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chad Hensley	4/14/2025 8:24:15AM

SS23-27 @ 1' R

E504046-02

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2515030
Benzene	ND	0.0250	1	04/08/25	04/09/25	
Ethylbenzene	ND	0.0250	1	04/08/25	04/09/25	
Toluene	ND	0.0250	1	04/08/25	04/09/25	
o-Xylene	ND	0.0250	1	04/08/25	04/09/25	
p,m-Xylene	ND	0.0500	1	04/08/25	04/09/25	
Total Xylenes	ND	0.0250	1	04/08/25	04/09/25	
Surrogate: 4-Bromochlorobenzene-PID		*98.3 %*	*70-130*	*04/08/25*	*04/09/25*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2515030
Gasoline Range Organics (C6-C10)	ND	20.0	1	04/08/25	04/09/25	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*88.0 %*	*70-130*	*04/08/25*	*04/09/25*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2515036
Diesel Range Organics (C10-C28)	ND	25.0	1	04/08/25	04/08/25	
Oil Range Organics (C28-C36)	ND	50.0	1	04/08/25	04/08/25	
Surrogate: n-Nonane		*109 %*	*61-141*	*04/08/25*	*04/08/25*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2515034
Chloride	**10500**	400	20	04/08/25	04/08/25	

Sample Data

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	
3101 Boyd Drive	Project Number:	01058-0007	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chad Hensley	4/14/2025 8:24:15AM

SS23-28 @ 0'

E504046-03

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2515030
Benzene	ND	0.0250	1	04/08/25	04/09/25	
Ethylbenzene	ND	0.0250	1	04/08/25	04/09/25	
Toluene	ND	0.0250	1	04/08/25	04/09/25	
o-Xylene	ND	0.0250	1	04/08/25	04/09/25	
p,m-Xylene	ND	0.0500	1	04/08/25	04/09/25	
Total Xylenes	ND	0.0250	1	04/08/25	04/09/25	
Surrogate: 4-Bromochlorobenzene-PID		*98.2 %*	*70-130*	*04/08/25*	*04/09/25*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2515030
Gasoline Range Organics (C6-C10)	ND	20.0	1	04/08/25	04/09/25	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*88.3 %*	*70-130*	*04/08/25*	*04/09/25*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2515036
Diesel Range Organics (C10-C28)	ND	25.0	1	04/08/25	04/08/25	
Oil Range Organics (C28-C36)	ND	50.0	1	04/08/25	04/08/25	
Surrogate: n-Nonane		*111 %*	*61-141*	*04/08/25*	*04/08/25*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2515034
Chloride	**45200**	2000	100	04/08/25	04/08/25	

Sample Data

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	
3101 Boyd Drive	Project Number:	01058-0007	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chad Hensley	4/14/2025 8:24:15AM

SS23-28 @ 1' R

E504046-04

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2515030
Benzene	ND	0.0250	1	04/08/25	04/09/25	
Ethylbenzene	ND	0.0250	1	04/08/25	04/09/25	
Toluene	ND	0.0250	1	04/08/25	04/09/25	
o-Xylene	ND	0.0250	1	04/08/25	04/09/25	
p,m-Xylene	ND	0.0500	1	04/08/25	04/09/25	
Total Xylenes	ND	0.0250	1	04/08/25	04/09/25	
Surrogate: 4-Bromochlorobenzene-PID		*98.4 %*	*70-130*	*04/08/25*	*04/09/25*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2515030
Gasoline Range Organics (C6-C10)	ND	20.0	1	04/08/25	04/09/25	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*88.4 %*	*70-130*	*04/08/25*	*04/09/25*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2515036
Diesel Range Organics (C10-C28)	ND	25.0	1	04/08/25	04/08/25	
Oil Range Organics (C28-C36)	ND	50.0	1	04/08/25	04/08/25	
Surrogate: n-Nonane		*109 %*	*61-141*	*04/08/25*	*04/08/25*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2515034
Chloride	**8450**	400	20	04/08/25	04/08/25	

QC Summary Data

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	**Reported:**
3101 Boyd Drive	Project Number:	01058-0007	
Carlsbad NM, 88220	Project Manager:	Chad Hensley	4/14/2025 8:24:15AM

Volatile Organics by EPA 8021B

Analyst: BA

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2515030-BLK1)									Prepared: 04/08/25 Analyzed: 04/08/25
Benzene	ND	0.0250							
Ethylbenzene	ND	0.0250							
Toluene	ND	0.0250							
o-Xylene	ND	0.0250							
p,m-Xylene	ND	0.0500							
Total Xylenes	ND	0.0250							
Surrogate: 4-Bromochlorobenzene-PID	*7.49*		*8.00*		*93.6*	*70-130*			
LCS (2515030-BS1)									Prepared: 04/08/25 Analyzed: 04/08/25
Benzene	4.83	0.0250	5.00		96.5	70-130			
Ethylbenzene	4.85	0.0250	5.00		97.0	70-130			
Toluene	4.92	0.0250	5.00		98.5	70-130			
o-Xylene	4.82	0.0250	5.00		96.5	70-130			
p,m-Xylene	9.84	0.0500	10.0		98.4	70-130			
Total Xylenes	14.7	0.0250	15.0		97.7	70-130			
Surrogate: 4-Bromochlorobenzene-PID	*7.52*		*8.00*		*94.0*	*70-130*			
Matrix Spike (2515030-MS1)				**Source: E504045-05**					Prepared: 04/08/25 Analyzed: 04/08/25
Benzene	5.22	0.0250	5.00	ND	104	70-130			
Ethylbenzene	5.25	0.0250	5.00	ND	105	70-130			
Toluene	5.33	0.0250	5.00	ND	107	70-130			
o-Xylene	5.23	0.0250	5.00	ND	105	70-130			
p,m-Xylene	10.6	0.0500	10.0	ND	106	70-130			
Total Xylenes	15.9	0.0250	15.0	ND	106	70-130			
Surrogate: 4-Bromochlorobenzene-PID	*7.54*		*8.00*		*94.3*	*70-130*			
Matrix Spike Dup (2515030-MSD1)				**Source: E504045-05**					Prepared: 04/08/25 Analyzed: 04/08/25
Benzene	5.10	0.0250	5.00	ND	102	70-130	2.37	27	
Ethylbenzene	5.17	0.0250	5.00	ND	103	70-130	1.42	26	
Toluene	5.23	0.0250	5.00	ND	105	70-130	1.88	20	
o-Xylene	5.15	0.0250	5.00	ND	103	70-130	1.41	25	
p,m-Xylene	10.5	0.0500	10.0	ND	105	70-130	1.35	23	
Total Xylenes	15.6	0.0250	15.0	ND	104	70-130	1.37	26	
Surrogate: 4-Bromochlorobenzene-PID	*7.55*		*8.00*		*94.3*	*70-130*			

QC Summary Data

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	**Reported:**
3101 Boyd Drive	Project Number:	01058-0007	
Carlsbad NM, 88220	Project Manager:	Chad Hensley	4/14/2025 8:24:15AM

Nonhalogenated Organics by EPA 8015D - GRO

Analyst: BA

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2515030-BLK1)									Prepared: 04/08/25 Analyzed: 04/08/25
Gasoline Range Organics (C6-C10)	ND	20.0							
Surrogate: 1-Chloro-4-fluorobenzene-FID	*7.05*		*8.00*		*88.1*	*70-130*			
LCS (2515030-BS2)									Prepared: 04/08/25 Analyzed: 04/08/25
Gasoline Range Organics (C6-C10)	40.6	20.0	50.0		81.3	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	*7.27*		*8.00*		*90.9*	*70-130*			
Matrix Spike (2515030-MS2)				**Source: E504045-05**					Prepared: 04/08/25 Analyzed: 04/08/25
Gasoline Range Organics (C6-C10)	44.3	20.0	50.0	ND	88.5	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	*7.35*		*8.00*		*91.9*	*70-130*			
Matrix Spike Dup (2515030-MSD2)				**Source: E504045-05**					Prepared: 04/08/25 Analyzed: 04/08/25
Gasoline Range Organics (C6-C10)	42.7	20.0	50.0	ND	85.4	70-130	3.58	20	
Surrogate: 1-Chloro-4-fluorobenzene-FID	*7.21*		*8.00*		*90.1*	*70-130*			

QC Summary Data

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	**Reported:**
3101 Boyd Drive	Project Number:	01058-0007	
Carlsbad NM, 88220	Project Manager:	Chad Hensley	4/14/2025 8:24:15AM

Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: NV

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2515036-BLK1)									Prepared: 04/08/25 Analyzed: 04/08/25
Diesel Range Organics (C10-C28)	ND	25.0							
Oil Range Organics (C28-C36)	ND	50.0							
Surrogate: n-Nonane	*54.5*		*50.0*		*109*	*61-141*			
LCS (2515036-BS1)									Prepared: 04/08/25 Analyzed: 04/08/25
Diesel Range Organics (C10-C28)	288	25.0	250		115	66-144			
Surrogate: n-Nonane	*56.7*		*50.0*		*113*	*61-141*			
Matrix Spike (2515036-MS1)				**Source: E504045-04**					Prepared: 04/08/25 Analyzed: 04/08/25
Diesel Range Organics (C10-C28)	298	25.0	250	ND	119	56-156			
Surrogate: n-Nonane	*59.2*		*50.0*		*118*	*61-141*			
Matrix Spike Dup (2515036-MSD1)				**Source: E504045-04**					Prepared: 04/08/25 Analyzed: 04/08/25
Diesel Range Organics (C10-C28)	290	25.0	250	ND	116	56-156	2.55	20	
Surrogate: n-Nonane	*56.9*		*50.0*		*114*	*61-141*			

QC Summary Data

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	**Reported:**
3101 Boyd Drive	Project Number:	01058-0007	
Carlsbad NM, 88220	Project Manager:	Chad Hensley	4/14/2025 8:24:15AM

Anions by EPA 300.0/9056A

Analyst: JM

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2515034-BLK1)									Prepared: 04/08/25 Analyzed: 04/08/25
Chloride	ND	20.0							
LCS (2515034-BS1)									Prepared: 04/08/25 Analyzed: 04/08/25
Chloride	255	20.0	250		102	90-110			
Matrix Spike (2515034-MS1)				**Source: E504034-02**					Prepared: 04/08/25 Analyzed: 04/08/25
Chloride	746	20.0	250	460	114	80-120			
Matrix Spike Dup (2515034-MSD1)				**Source: E504034-02**					Prepared: 04/08/25 Analyzed: 04/08/25
Chloride	606	20.0	250	460	58.3	80-120	20.7	20	M2, R3

QC Summary Report Comment:
Calculations are based off of the raw (non-rounded) data. However, for reporting purposes all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Definitions and Notes

Vertex Resource Services Inc.	Project Name:	Laguna Salado 22 Federal #005H	
3101 Boyd Drive	Project Number:	01058-0007	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chad Hensley	04/14/25 08:24

M2	Matrix spike recovery was outside quality control limits. The associated LCS spike recovery was acceptable.
R3	The RPD exceeded the acceptance limit. LCS spike recovery met acceptance criteria.
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
RPD	Relative Percent Difference
DNI	Did Not Ignite
DNR	Did not react with the addition of acid or base.

Note (1): Methods marked with ** are non-accredited methods.

Note (2): Soil data is reported on an "as received" weight basis, unless reported otherwise.

Chain of Custody

Page 1 of 1

Client Information	Invoice Information	Lab Use Only	TAT	State
Client: Vertex (bill to Devon)	Company: Devon Energy	Lab WO#: E504046	1D / 2D / 3D / Std: x (Std)	NM: x / CO / UT / TX
Project Name: Laguna Salado 22 Federal #005H	Address: 5315 Buena Vista	Job Number: 01058-0007		
Project Manager: Chad Hensley	City, State, Zip: Carlsbad, NM, 88220			
Address: 3101 Boyd dr.	Phone: 575-689-7597			
City, State, Zip: Carlsbad, NM, 88220	Email: Jim.Raley@dvn.com			
Phone: 575-200-6167	Miscellaneous:			
Email: Rarnold@vertexresource.com, Chensley@vert				

EPA Program: SDWA | CWA | RCRA

Compliance: Y or N

PWSID #:

Sample Information

Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Field Filter	Lab Number	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Chloride 300.0	BGDOC - NM	TCEQ 1005 - TX	RCRA 8 Metals	Cation/Anion Pkg			Remarks
9:30	04.04.25	Soil	1	SS23-27 @ 0'		1	X	x	x		x							
9:52	04.04.25	Soil	1	SS23-27 @ 1' R		2	X	x	x		x							
10:15	04.04.25	Soil	1	SS23-28 @ 0'		3	X	x	x		x							
10:50	04.04.25	Soil	1	SS23-28 @ 1' R		4	X	x	x		x							

Additional Instructions: WO: 22E-01927 Jim Raley

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.

Sampled by: Riley Arnold

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	4/7/25	1100	[signature]	4/7/25	1100
[signature]	4.7.25	1830	[signature]	4.7.25	1730
[signature]	4.7.25	2400	[signature]	4.8.25	800

Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.

Lab Use Only

Received on ice: (Y) N

T1 ______ T2 ______ T3 ______

AVG Temp °C 4

Sample Matrix: **S** - Soil, **Sd** - Solid, **Sg** - Sludge, **A** - Aqueous, **O** - Other ______

Container Type: **g** - glass, **p** - poly/plastic, **ag** - amber glass, **v** - VOA

Note: Samples are discarded 14 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.

envirotech

Envirotech Analytical Laboratory

Printed: 4/8/2025 8:43:32AM

Sample Receipt Checklist (SRC)

Instructions: Please take note of any NO checkmarks.
If we receive no response concerning these items within 24 hours of the date of this notice, all the samples will be analyzed as requested.

Client:	Vertex Resource Services Inc.	Date Received:	04/08/25 08:00	Work Order ID:	E504046
Phone:	(575) 748-0176	Date Logged In:	04/07/25 14:01	Logged In By:	Caitlin Mars
Email:	chensley@vertexresources.com	Due Date:	04/14/25 17:00 (4 day TAT)		

Chain of Custody (COC)

1. Does the sample ID match the COC?	Yes	
2. Does the number of samples per sampling site location match the COC	Yes	
3. Were samples dropped off by client or carrier?	Yes	Carrier: Courier
4. Was the COC complete, i.e., signatures, dates/times, requested analyses?	Yes	
5. Were all samples received within holding time? Note: Analysis, such as pH which should be conducted in the field, i.e, 15 minute hold time, are not included in this disucssion.	Yes	

Comments/Resolution

Sample Turn Around Time (TAT)

6. Did the COC indicate standard TAT, or Expedited TAT?	Yes

Sample Cooler

7. Was a sample cooler received?	Yes
8. If yes, was cooler received in good condition?	Yes
9. Was the sample(s) received intact, i.e., not broken?	Yes
10. Were custody/security seals present?	No
11. If yes, were custody/security seals intact?	NA
12. Was the sample received on ice? If yes, the recorded temp is 4°C, i.e., 6°±2°C Note: Thermal preservation is not required, if samples are received w/i 15 minutes of sampling	Yes
13. If no visible ice, record the temperature. Actual sample temperature: 4°C	

Sample Container

14. Are aqueous VOC samples present?	No
15. Are VOC samples collected in VOA Vials?	NA
16. Is the head space less than 6-8 mm (pea sized or less)?	NA
17. Was a trip blank (TB) included for VOC analyses?	NA
18. Are non-VOC samples collected in the correct containers?	Yes
19. Is the appropriate volume/weight or number of sample containers collected?	Yes

Field Label

20. Were field sample labels filled out with the minimum information:	
Sample ID?	Yes
Date/Time Collected?	Yes
Collectors name?	No

Sample Preservation

21. Does the COC or field labels indicate the samples were preserved?	No
22. Are sample(s) correctly preserved?	NA
24. Is lab filtration required and/or requested for dissolved metals?	No

Multiphase Sample Matrix

26. Does the sample have more than one phase, i.e., multiphase?	No
27. If yes, does the COC specify which phase(s) is to be analyzed?	NA

Subcontract Laboratory

28. Are samples required to get sent to a subcontract laboratory?	No	
29. Was a subcontract laboratory specified by the client and if so who?	NA	Subcontract Lab: NA

Client Instruction

Signature of client authorizing changes to the COC or sample disposition.

Date

envirotech Inc.

Appendix E.

From: Wells, Shelly, EMNRD
To: Chad Hensley
Cc: Bratcher, Michael, EMNRD; Raley, Jim
Subject: RE: [EXTERNAL] RE: Laguna Salado 5 nAB1914043668
Date: Thursday, April 3, 2025 3:04:50 PM

> **Caution:** This email is from an external sender. Please take care when clicking links or opening attachments. When in doubt, contact your IT Department

Sounds great Chad!

Shelly Wells * Environmental Specialist-Advanced
Environmental Bureau
EMNRD-Oil Conservation Division
1220 S. St. Francis Drive|Santa Fe, NM 87505
(505)469-7520 Shelly.Wells@emnrd.nm.gov
http://www.emnrd.state.nm.us/OCD/

From: Chad Hensley <CHensley@vertexresource.com>
Sent: Thursday, April 3, 2025 2:46 PM
To: Wells, Shelly, EMNRD <Shelly.Wells@emnrd.nm.gov>
Cc: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Raley, Jim <Jim.Raley@dvn.com>
Subject: RE: [EXTERNAL] RE: Laguna Salado 5 nAB1914043668

I will collect them as close to the POR as possible. I will get that report in as soon as possible.

From: Wells, Shelly, EMNRD <Shelly.Wells@emnrd.nm.gov>
Sent: Thursday, April 3, 2025 2:39 PM
To: Chad Hensley <CHensley@vertexresource.com>
Cc: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Raley, Jim <Jim.Raley@dvn.com>
Subject: RE: [EXTERNAL] RE: Laguna Salado 5 nAB1914043668

> **Caution:** This email is from an external sender. Please take care when clicking links or opening attachments. When in doubt, contact your IT Department

Hi Chad,

I do remember this one. Can you collect the confirmation samples as close to the POR as possible? Or is there a reason you are suggesting they be collected at BG24-07 and BG24-08? They can be discrete samples at surface, then 1', etc until you meet refusal.

Shelly

Shelly Wells * Environmental Specialist-Advanced
Environmental Bureau
EMNRD-Oil Conservation Division
1220 S. St. Francis Drive|Santa Fe, NM 87505
(505)469-7520 Shelly.Wells@emnrd.nm.gov
http://www.emnrd.state.nm.us/OCD/

From: Chad Hensley <CHensley@vertexresource.com>
Sent: Thursday, April 3, 2025 2:29 PM
To: Wells, Shelly, EMNRD <Shelly.Wells@emnrd.nm.gov>
Cc: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Raley, Jim <Jim.Raley@dvn.com>
Subject: [EXTERNAL] RE: Laguna Salado 5 nAB1914043668

My apologies map was not correct on first send off.

From: Chad Hensley
Sent: Thursday, April 3, 2025 2:25 PM
To: 'Wells, Shelly, EMNRD' <Shelly.Wells@emnrd.nm.gov>
Cc: Mike.Bratcher@state.nm.us; Raley, Jim <Jim.Raley@dvn.com>
Subject: Laguna Salado 5 nAB1914043668

Shelly & Mike,

Hello and salutations. I was going to write a work plan for this, but I am requesting that in lieu of a work plan can I just submit a simple closure report due to the nature of where this release took place (chlorides spilled into the brine lake), the location of where the spill happened (narrow strip of lease road surrounded by a brine lake), and the high chlorides throughout the area.

I suggest, if possible, to take confirmation samples at BG24-07 and BG24-08 to 1 foot (refusal is an issue here with a hand auger) and send them off and wrap this incident up if allowed.

From: Wells, Shelly, EMNRD
To: Chad Hensley
Cc: Raley, Jim
Subject: RE: [EXTERNAL] Laguna Salado 5 nAB1914043668 sampling variance.
Date: Friday, April 25, 2025 9:43:09 AM

> **Caution:** This email is from an external sender. Please take care when clicking links or opening attachments. When in doubt, contact your IT Department

Hi Chad,

Your request for a sampling variance to use discrete grab samples collected on 4/4/25 for closure is approved for NAB1914043668 LAGUNA SALADO 22 FEDERAL #005H. Please include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented in the project file.

Kind regards,

Shelly

Shelly Wells * Environmental Specialist-Advanced
Environmental Bureau
EMNRD-Oil Conservation Division
1220 S. St. Francis Drive|Santa Fe, NM 87505
(505)469-7520 Shelly.Wells@emnrd.nm.gov
http://www.emnrd.state.nm.us/OCD/

From: Chad Hensley <CHensley@vertexresource.com>
Sent: Friday, April 25, 2025 9:07 AM
To: Wells, Shelly, EMNRD <Shelly.Wells@emnrd.nm.gov>
Cc: Raley, Jim <jim.raley@dvn.com>
Subject: [EXTERNAL] Laguna Salado 5 nAB1914043668 sampling variance.

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Ms. Wells,

I respectfully request a sampling variance for the Laguna Salado 22 #5 for incident number nAB1914043668 for sampling conducted on April 4^{t}, 2025. A conversation with

you was conducted on April 3rd, 2025, with approval given to gather discrete grab samples closest the point of release. I misunderstood your approval of sampling method as approval to proceed. In error I failed to submit a sampling notice. The variance will not impact any fresh water, public health and the environment due to the proximity of the brine lake and the spill was only of produced water.

Cheers,

Chad Hensley
Senior Project Manager

Vertex Resource Services Inc.

Carlsbad, NM 88220

P
C 575.200.6167
F

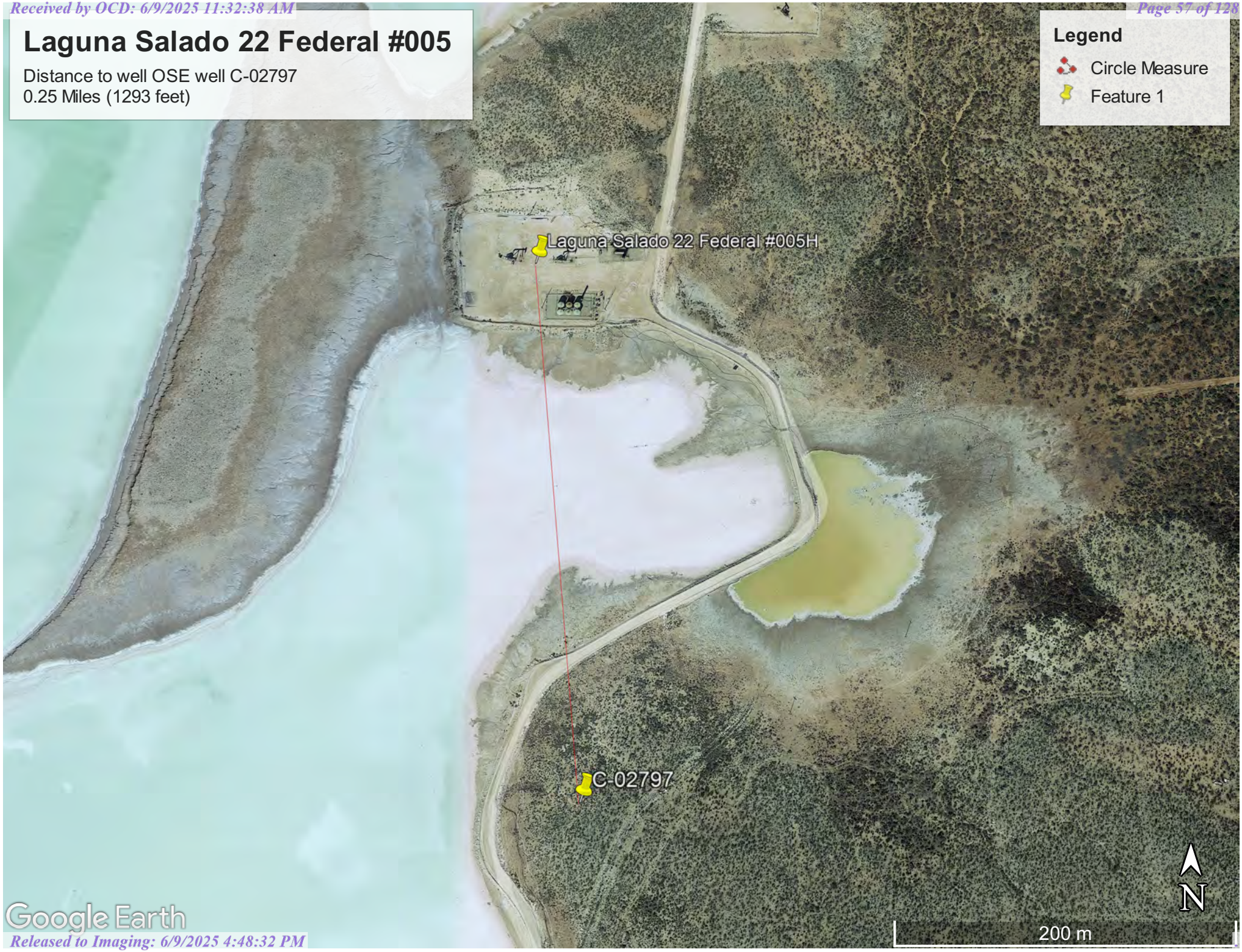
www.vertex.ca

Appendix F.

Closure Criteria Worksheet			
Site Name: LAGUNA SALADO 22 FEDERAL #005H			
Spill Coordinates: 32.290278,-103.973056		X: 596491	Y: 3573292
Site Specific Conditions		Value	Unit
1	Depth to Groundwater	**<50**	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	13,569	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	4,648	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	18,850	feet
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, **or**	1,312	feet
	ii) Within 1000 feet of any fresh water well or spring		feet
6	Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves	No	(Y/N)
7	Within 300 feet of a wetland	13,569	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)	Medium	Critical High Medium Low
10	Within a 100-year Floodplain	500	year
11	Soil Type	Cottonwood-Reeves Loams	100%
12	Ecological Classification	R042XC006NM — Gyp Upland	100%
13	Geology	CR	
	NMAC 19.15.29.12 E (Table 1) Closure Criteria		<50' 51-100' >100'

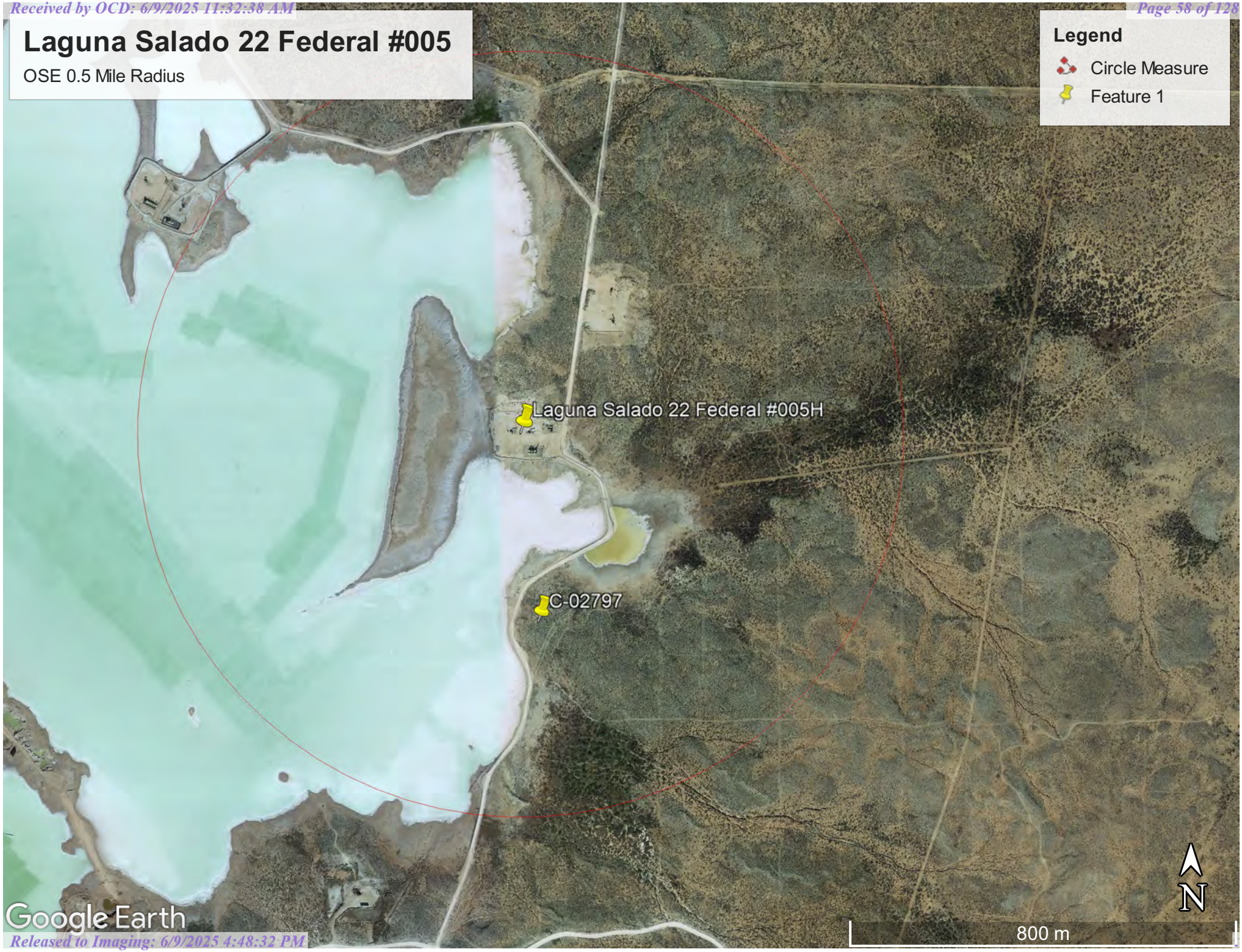
Laguna Salado 22 Federal #005

Distance to well OSE well C-02797
0.25 Miles (1293 feet)



Laguna Salado 22 Federal #005

OSE 0.5 Mile Radius



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

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

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

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 02797	CUB	ED		2	3	22	23S	29E	596540	3572895*	400	200		
C 02716	CUB	ED	4	4	4	16	23S	29E	595818	3574002*	978	400		
C 02715	CUB	ED	4	1	3	15	23S	29E	596221	3574411*	1151	400		
C 02717	CUB	ED	4	2	4	16	23S	29E	595817	3574407*	1302	400		
C 01217 S	CUB	ED	4	1	4	16	23S	29E	595413	3574403*	1548	350		
C 02721	CUB	ED		2	3	21	23S	29E	594915	3572879*	1629	150		
C 02720	CUB	ED		2	1	21	23S	29E	594911	3573690*	1629	150		
C 02718	CUB	ED	4	4	2	16	23S	29E	595816	3574812*	1663	400		
C 02707	C	ED			2	28	23S	29E	595535	3571868*	1715	40	18	22
C 04326 POD14	CUB	ED	4	2	3	23	23S	29E	598191	3572765	1779	58	54	4
C 04326 POD16	CUB	ED	2	4	3	23	23S	29E	598209	3572664	1829	64	54	10
C 03057 EXPLORE	CUB	ED	4	1	1	21	23S	29E	594605	3573586*	1908	150		
C 02808	CUB	ED		2	3	16	23S	29E	594909	3574501*	1991	100		
C 02809	CUB	ED		2	3	16	23S	29E	594909	3574501*	1991	100		
C 02613	CUB	ED	4	4	2	20	23S	29E	594203	3573176*	2290	400		
C 02794	CUB	ED		4	3	10	23S	29E	596518	3575731*	2439	100		
C 02795	CUB	ED		4	3	10	23S	29E	596518	3575731*	2439	200		
C 01627	C	ED	1	4	4	28	23S	29E	595649	3570959*	2480	170		
C 03058 EXPLORE	CUB	ED	4	1	1	16	23S	29E	594605	3575206*	2687	150		
C 02608	CUB	ED	3	1	4	17	23S	29E	593598	3574387*	3093	400		
C 02705	C	ED			2	17	23S	29E	593902	3575093*	3153	68	28	40
C 03059 EXPLORE	CUB	ED	4	1	3	17	23S	29E	592993	3574378*	3662		65	
C 03587 POD1	CUB	ED	1	4	3	29	23S	29E	593338	3570754	4047	99	44	55
C 02806	CUB	ED		1	1	09	23S	29E	594473	3576927*	4157	100		
C 02807	CUB	ED		1	1	09	23S	29E	594473	3576927*	4157	100		
C 02706	C	ED			4	18	23S	29E	592302	3574291*	4306	17	10	7

***UTM location was derived from PLSS - see Help**

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

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

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Sub-basin Code	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 03587 POD2	CUB	ED	1	2	4	19	23S	29E	592213	3572706	4317	77	16	61
C 04472 POD1	CUB	ED	2	2	4	13	23S	29E	600639	3574619	4355		37	
C 02792	CUB	ED		4	3	04	23S	29E	594868	3577336*	4357	200		
C 02793	CUB	ED		4	3	04	23S	29E	594868	3577336*	4357	100		
C 04594 POD2	CUB	ED	4	2	2	13	23S	29E	600604	3575232	4547	42	34	8
C 04594 POD5	CUB	ED	4	2	2	13	23S	29E	600626	3575236	4569	30	30	0
C 04594 POD1	CUB	ED	4	2	2	13	23S	29E	600629	3575241	4574	36	31	5
C 04594 POD7	CUB	ED	4	2	2	13	23S	29E	600659	3575217	4590	34	28	6
C 04594 POD6	CUB	ED	4	2	2	13	23S	29E	600659	3575220	4592	34	28	6
C 04594 POD3	CUB	ED	4	2	2	13	23S	29E	600645	3575280	4605	38	27	11
C 04594 POD4	CUB	ED	4	2	2	13	23S	29E	600704	3575224	4635	45	28	17
C 02182	C	ED			4	30	23S	29E	592328	3571048*	4729	75	30	45
C 02486	C	ED	3	2	3	19	23S	30E	601304	3572832*	4834	350		
C 02804	CUB	ED		2	1	08	23S	29E	593262	3576905*	4845	100		
C 02805	CUB	ED		2	1	08	23S	29E	593262	3576905*	4845	100		
C 02704	C	ED			1	19	23S	29E	591531	3573493*	4964	174		

Average Depth to Water: **33 feet**
Minimum Depth: **10 feet**
Maximum Depth: **65 feet**

Record Count: 42

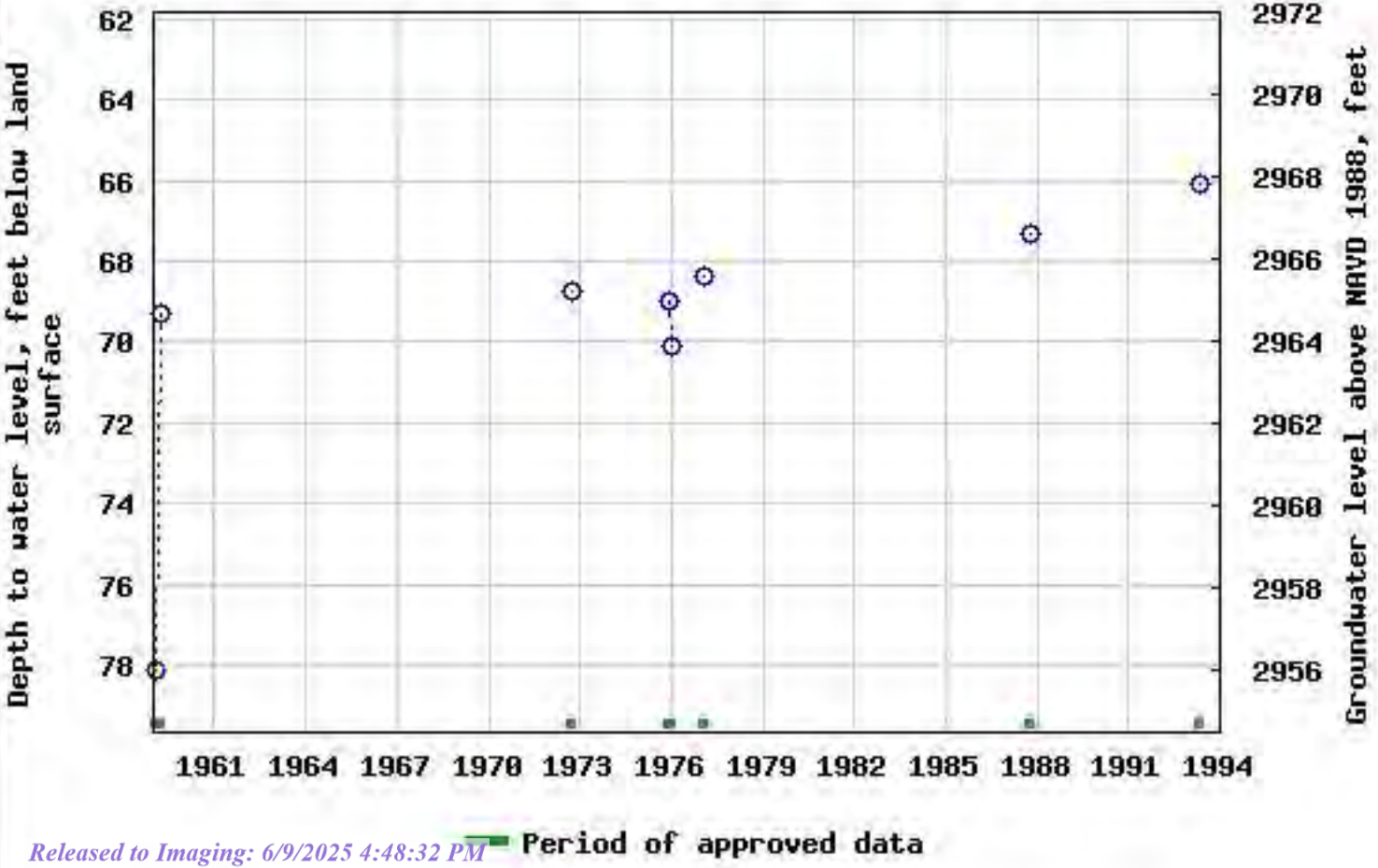
UTMNAD83 Radius Search (in meters):

Easting (X): 596491 **Northing (Y):** 3573292 **Radius:** 5000

***UTM location was derived from PLSS - see Help**

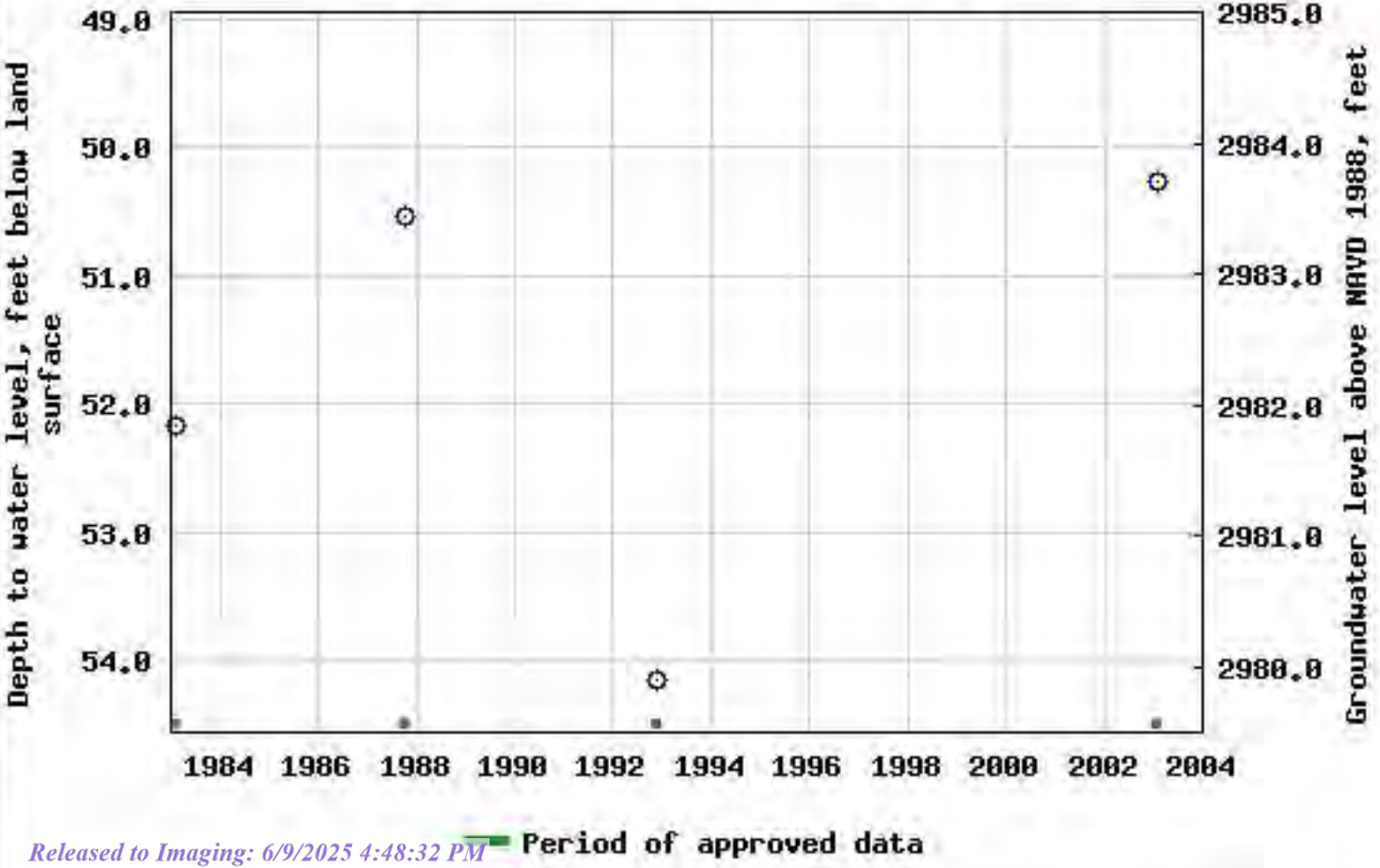
USGS

USGS 321742103552601 23S.30E.19.123421



USGS

USGS 321717103561001 23S.29E.24.41321



U.S. Fish and Wildlife Service
National Wetlands Inventory

LAGUNA SALADO 22 FED #005H Wetland

August 9, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper


U.S. Geological Survey, National Geospatial Technical Operations Center | New Mexico Environment Department Surface Wate...
esri

U.S. Fish and Wildlife Service
National Wetlands Inventory

LAGUNA SALADO 22 FEDERAL #005H La

August 9, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

LAGUNA SALADO 22 FEDERAL #005H

Nearest Residence: 3.57mi (18,849.6ft)

New Mexico Office of the State Engineer

Currently Active Points of Diversion

(with Well Drill Dates & Depths)

(acre ft per annum) (quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) (NAD83 UTM in meters) (in feet)

WR File Nbr	Sub basin	Use	Diversion	County	POD Number	Well Tag	Grant	Source	q 6416	q 4	q Sec	Tws	Rng	X	Y	Distance	Start Date	Finish Date	Depth Well	Depth Water
C 02797	CUB	MON	0	ED	C 02797				2	3	22	23S	29E	596540	3572895*	400			200	
C 02716	CUB	MON	0	ED	C 02716				4	4	4 16	23S	29E	595818	3574002*	978			400	
C 04326	CUB	MON	0	ED	C 04326 POD49	NA			2	4	3 23	23S	29E	597378	3572591	1130				
C 02715	CUB	MON	0	ED	C 02715				4	1	3 15	23S	29E	596221	3574411*	1151			400	
C 02717	CUB	MON	0	ED	C 02717				4	2	4 16	23S	29E	595817	3574407*	1302			400	
C 01217	CUB	COM	150	ED	C 01217 S			Shallow	4	1	4 16	23S	29E	595413	3574403*	1548	12/21/1998	01/12/1999	350	
C 02622	CUB	COM	0	ED	C 01217 S			Shallow	4	1	4 16	23S	29E	595413	3574403*	1548	12/21/1998	01/12/1999	350	
C 04326	CUB	MON	0	ED	C 04326 POD50	NA			3	2	3 23	23S	29E	597992	3572782	1585				

Record Count: 8

UTMNAD83 Radius Search (in meters):

Easting (X): 596491 **Northing (Y):** 3573292 **Radius:** 1610

Sorted by: Distance

***UTM location was derived from PLSS - see Help**

U.S. Fish and Wildlife Service
National Wetlands Inventory

LAGUNA SALADO 22 FED #005H Wetland

August 9, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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National Flood Hazard Layer FIRMette

FEMA

103°58'49"W 32°17'47"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

103°58'12"W 32°17'17"N

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

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
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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 8/9/2022 at 3:42 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.

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

August 15, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

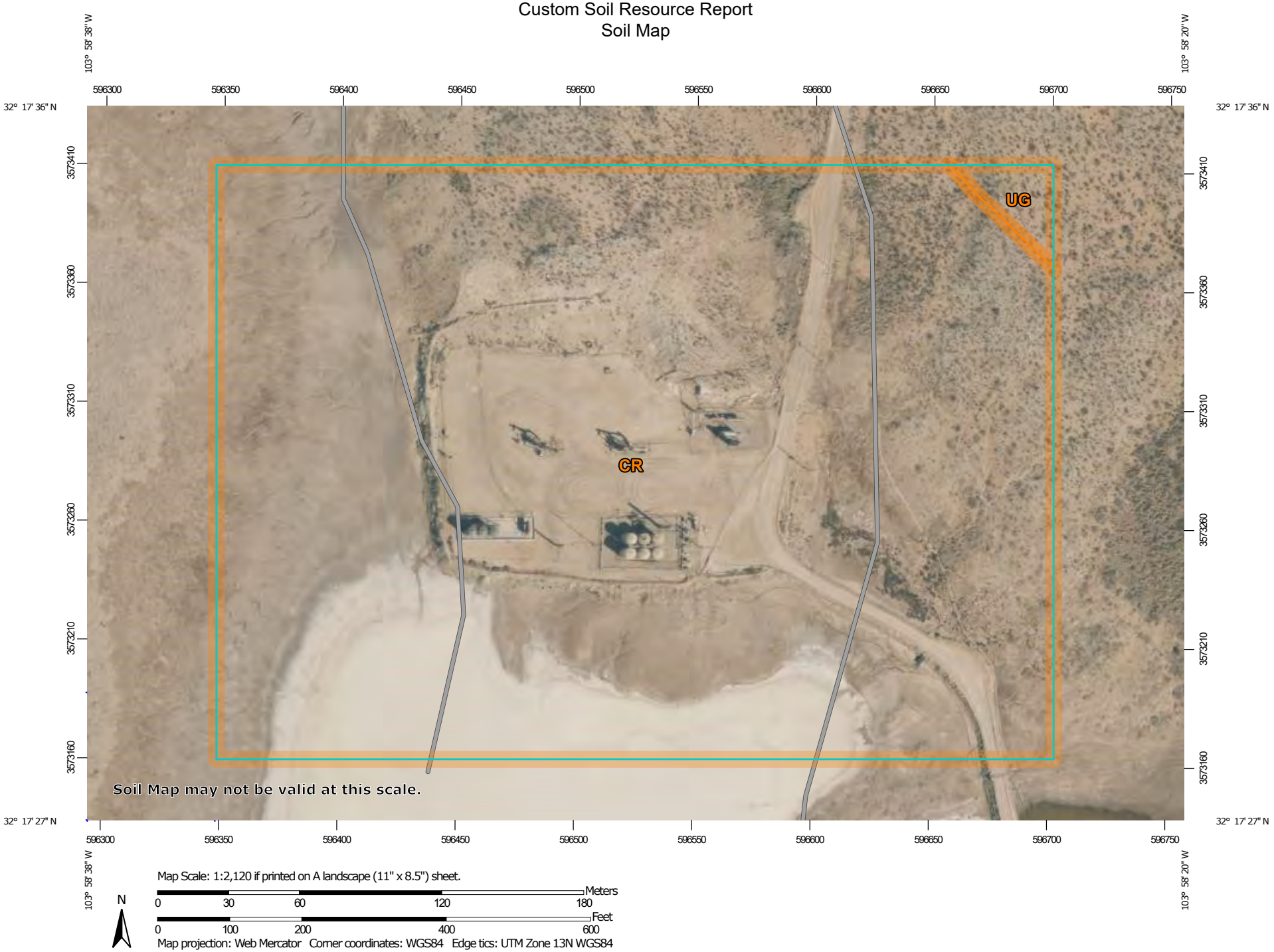
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

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 17, Sep 12, 2021

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CR	Cottonwood-Reeves loams, overflow, 0 to 3 percent slopes	21.7	98.9%
UG	Upton gravelly loam, 0 to 9 percent slopes	0.2	1.1%
Totals for Area of Interest		**21.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the

development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Eddy Area, New Mexico

CR—Cottonwood-Reeves loams, overflow, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 1w47
Elevation: 3,000 to 4,300 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 60 to 64 degrees F
Frost-free period: 200 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Cottonwood and similar soils: 60 percent
Reeves and similar soils: 35 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cottonwood

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Side slope, crest, nose slope, head slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Residuum weathered from gypsum

Typical profile

H1 - 0 to 9 inches: loam
H2 - 9 to 60 inches: bedrock

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 3 to 12 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 20 percent
Maximum salinity: Moderately saline to strongly saline (8.0 to 16.0 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): 6s
Hydrologic Soil Group: D
Ecological site: R042XC006NM - Gyp Upland
Hydric soil rating: No

Description of Reeves

Setting

Landform: Plains, ridges, hills
Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Side slope, head slope, nose slope, crest
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Residuum weathered from gypsum

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 32 inches: clay loam
H3 - 32 to 60 inches: gypsiferous material

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Gypsum, maximum content: 20 percent
Maximum salinity: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: B
Ecological site: R042XC006NM - Gyp Upland
Hydric soil rating: No

Minor Components

Unnamed soils

Percent of map unit: 5 percent
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
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: R042XC025NM - Shallow
Hydric soil rating: No

Minor Components

Atoka

Percent of map unit: 1 percent
Ecological site: R042XC007NM - Loamy
Hydric soil rating: No

Reagan

Percent of map unit: 1 percent
Ecological site: R042XC007NM - Loamy

Hydric soil rating: No

Upton

Percent of map unit: 1 percent
Ecological site: R042XC025NM - Shallow
Hydric soil rating: No

Atoka

Percent of map unit: 1 percent
Ecological site: R042XC007NM - Loamy
Hydric soil rating: No

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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

August 9, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

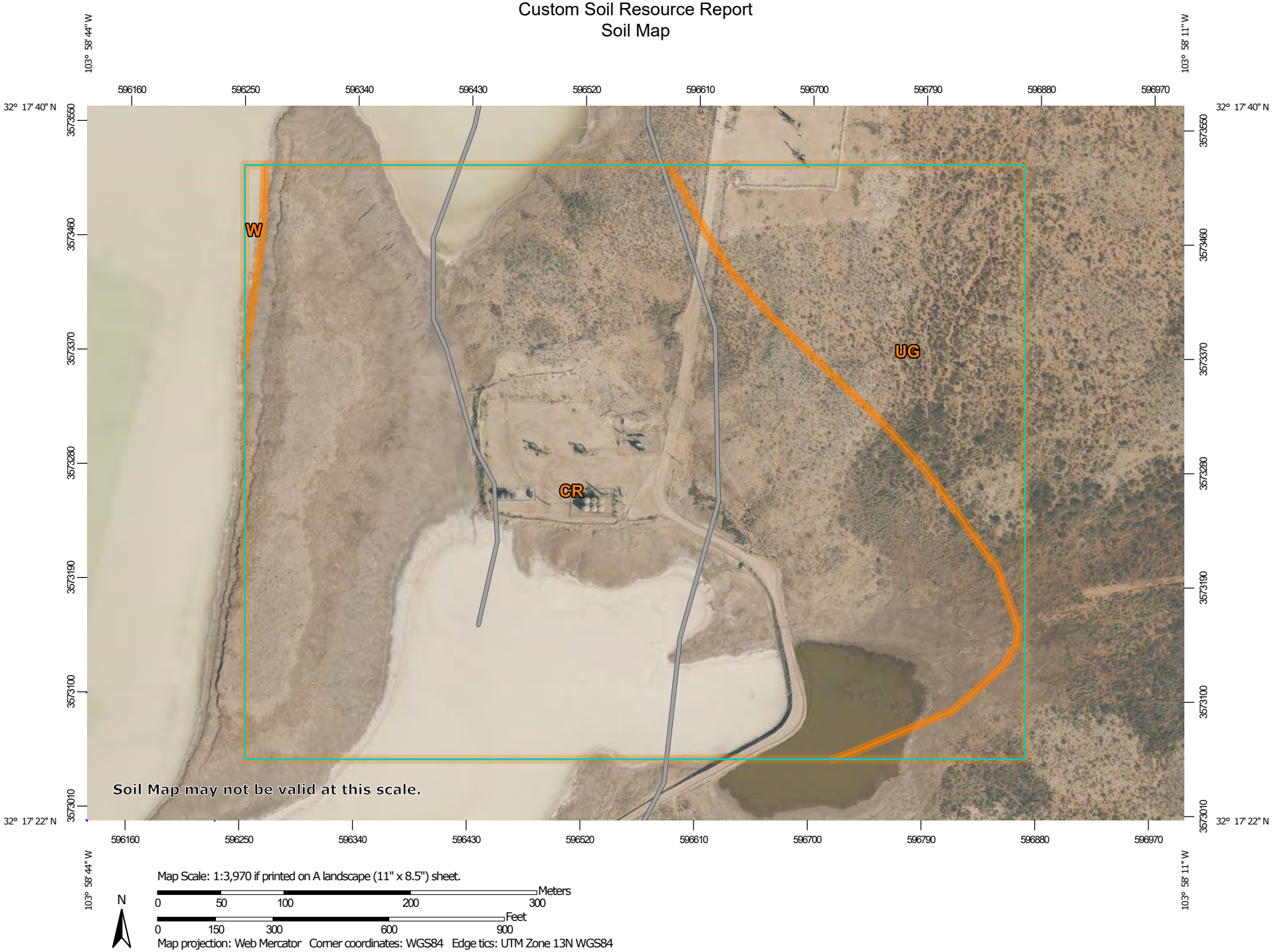
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

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 17, Sep 12, 2021

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CR	Cottonwood-Reeves loams, overflow, 0 to 3 percent slopes	57.4	80.1%
UG	Upton gravelly loam, 0 to 9 percent slopes	13.9	19.4%
W	Water	0.4	0.5%
Totals for Area of Interest		**71.7**	**100.0%**

Map Unit Descriptions

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Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

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Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Eddy Area, New Mexico

CR—Cottonwood-Reeves loams, overflow, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 1w47
Elevation: 3,000 to 4,300 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 60 to 64 degrees F
Frost-free period: 200 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Cottonwood and similar soils: 60 percent
Reeves and similar soils: 35 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cottonwood

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Side slope, crest, nose slope, head slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Residuum weathered from gypsum

Typical profile

H1 - 0 to 9 inches: loam
H2 - 9 to 60 inches: bedrock

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 3 to 12 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 20 percent
Maximum salinity: Moderately saline to strongly saline (8.0 to 16.0 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): 6s
Hydrologic Soil Group: D
Ecological site: R042XC006NM - Gyp Upland
Hydric soil rating: No

Description of Reeves

Setting

Landform: Plains, ridges, hills
Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Side slope, head slope, nose slope, crest
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Residuum weathered from gypsum

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 32 inches: clay loam
H3 - 32 to 60 inches: gypsiferous material

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Gypsum, maximum content: 20 percent
Maximum salinity: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: B
Ecological site: R042XC006NM - Gyp Upland
Hydric soil rating: No

Minor Components

Unnamed soils

Percent of map unit: 5 percent
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
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: R042XC025NM - Shallow
Hydric soil rating: No

Minor Components

Atoka

Percent of map unit: 1 percent
Ecological site: R042XC007NM - Loamy
Hydric soil rating: No

Reagan

Percent of map unit: 1 percent
Ecological site: R042XC007NM - Loamy

Hydric soil rating: No

Upton

Percent of map unit: 1 percent
Ecological site: R042XC025NM - Shallow
Hydric soil rating: No

Atoka

Percent of map unit: 1 percent
Ecological site: R042XC007NM - Loamy
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

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UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site Name: Gyp Upland (SD-3, SD-2)

Site ID: R042XC006NM

Major Land Resource Area: 042 - Southern Desertic Basins, Plains, and Mountains

Physiographic Features

This site occurs on plains and terraces between desert drainageways. Slopes range from level to gently sloping, usually less than 9 percent. Direction of slope varies and is usually not significant. Elevations range from 2,500 to 3,800 feet.

Land Form:
(1) Valley side
(2) Plain
(3) Terrace

	Minimum	Maximum
Elevation (feet):	2500	3800
Slope (percent):	1	9
Water Table Depth (inches):	N//A	N/A
Flooding:		
Frequency:	None	None
Duration:	None	None
Ponding:		
Depth (inches):	N/A	N/A
Frequency:	None	None
Duration:	None	None
Runoff Class:	Low	High
Aspect:		

Climatic Features

Climatic Features

Narrative:

The climate of the area is “semi-arid continental”. The average annual precipitation ranges from 8 to 13 inches. Variations of 5 inches, more or less, are common. Over 80 percent of the precipitation falls from April through October. Most of the summer precipitation comes in the form of high intensity – short duration thunderstorms.

Temperatures are characterized by distinct seasonal changes and large annual and diurnal temperature changes. The average annual temperature is 61 degrees with extremes of 25 degrees below zero in the winter to 112 degrees in the summer.

The average frost free season is 207 to 220 days. The last killing frost is late March or early April, and the first killing frost is in late October or early November.

Temperature and rainfall both favor warm season perennial plant growth. In years of abundant spring moisture, annual forbs and cool season grasses can make up an important component of this site. The vegetation on this site can take advantage of moisture at any time of year or amount of precipitation. Because of the soil texture and profile, water cannot be stored for long periods of time. Strong winds from the southwest blow from January through June which accelerates soil drying at a critical time for cool season plant growth.

	Minimum	Maximum
Frost-free period (days):	180	221
Freeze-free period (days):	199	240
Mean annual precipitation (inches):	10.0	13.0

Monthly moisture (inches) and temperature (^{0}F) distribution:

	Precip. Min.	Precip. Max.	Temp. Min.	Temp. Max.
January	0.40	0.42	20.6	59.7
February	0.40	0.41	25.2	65.6
March	0.41	0.43	31.4	72.7
April	0.58	0.63	40.4	81.5
May	1.28	1.35	49.6	88.7
June	1.40	1.46	59.1	95.4
July	1.62	1.64	63.3	96.4
August	1.79	1.84	61.6	94.8
September	1.81	2.20	54.1	88.5
October	1.16	1.41	40.7	80.4
November	0.43	0.47	28.4	68.7
December	0.48	0.51	20.9	61.1

Climate Stations:

(1) NM0600, Artesia, NM - Period of record 1961 - 1990
(2) NM0992, Bitter Lakes WL Refuge, NM - Period of record 1961 - 1990
(3) NM1469, Carlsbad, NM - Period of record 1961 - 1990
(4) NM293792, Hagerman, NM - Period of record 1961 - 1990
(5) NM299563, Waste Isolation Plant, NM - Period of record 1961 - 1990
(2) NM4346, Jal, NM - Period of record 1961 - 1990

Influencing Water Features

This site is not influenced by water from wetlands or streams.

Wetland Description:	System	Subsystem	Class
(Cowardin System)			

Representative Soil Features

The soils of this site are very shallow and well drained. The surface layers are loam and fine sandy loam overlying dense layers of soft or cemented gypsum material and gypsiferous earth at depths less than 8 inches. The gypsum materials commonly outcrop to the surface as inclusions of raw gypsumland, which are void of vegetation and not part of the ecological site. In the lower part of the profile the semi indurated gypsum and caliche make up about 75 percent of the mass and are restrictive to root development. The soils have moderate permeability. Water holding capacity is very low. The plant, soil, air, water relationship is poor. The site has a droughty appearance because of the soils inability to support a dense stand of vegetation. If unprotected by plant cover or organic residue, the soil becomes easily wind blown and water eroded.

Predominant Parent Materials:
Kind: Marine deposits
Origin: Gypsum

Surface Texture:	(1)	Gypsiferous Fine sandy loam
	(2)	Loam
Subsurface Texture Group:		Loamy
Surface Fragments <=3" (% Cover):		1
Surface Fragments > 3" (% Cover):		1
Subsurface Fragments <=3" (% Volume):		8
Subsurface Fragments > 3" (% Cover):		0
Drainage Class:		Moderately well drained To Well drained
Permeability Class:		Moderately slow To Moderate

	Minimum	Maximum
Depth (inches):	25	72
Electrical Conductivity (mmhos/cm):	2	16
Sodium Absorption Ratio:	0	0
Calcium Carbonate Equivalent (percent):	0	0
Soil Reaction (1:1 Water):	7.4	8.4
Soil Reaction (0.01M CaCl2):	N/A	N/A
Available Water Capacity (inches):	4.0	8.0

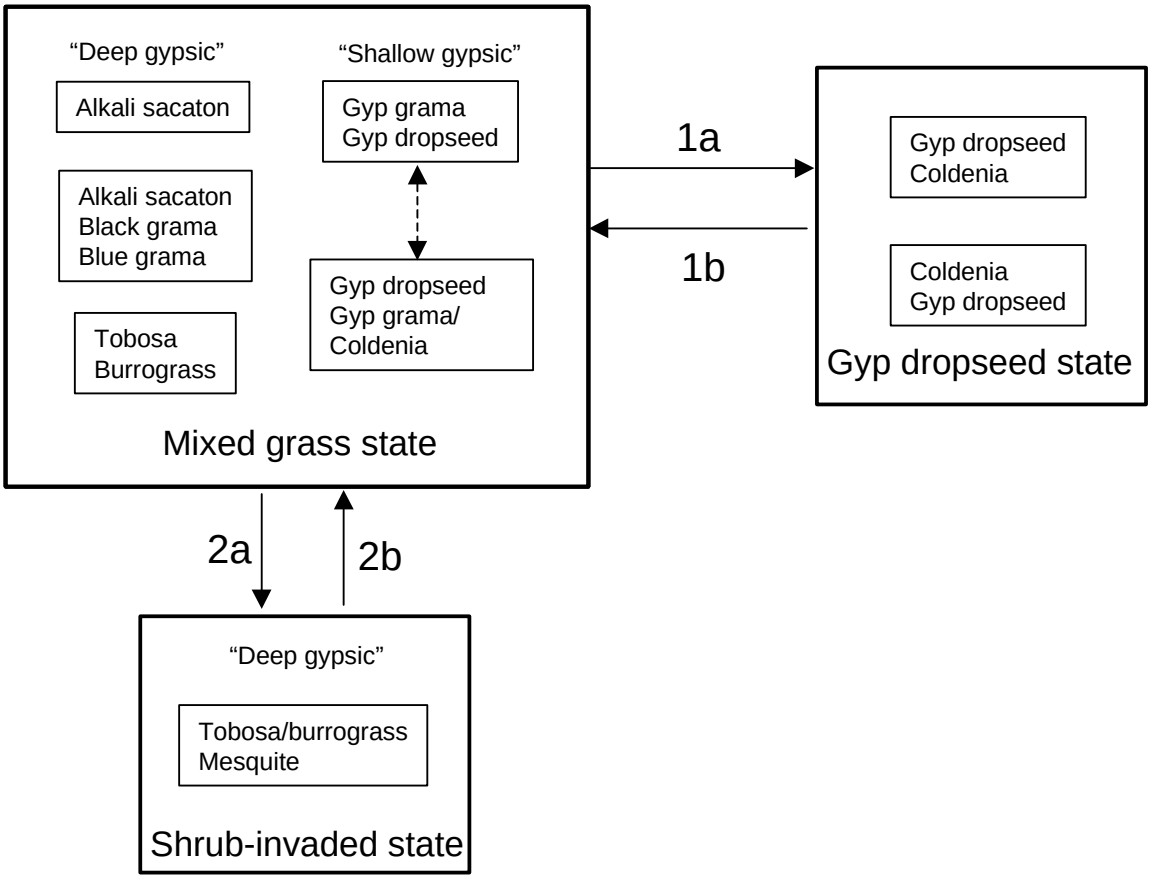
Plant Communities

Ecological Dynamics of the Site

Overview

The vegetation of this site often intergrades with that of Loamy sites, depending on the amounts of gypsum, soil texture, and depths of gypsic horizons. Low-lying areas where run-in water occurs behave like draws. Areas where gypsum outcrops are exposed harbor little vegetation. Gyp Uplands may intergrade with the Salt Flats site depending on salinity levels. Thus, the vegetation of this site is very patchy, variable, and difficult to characterize. The historic plant community types that are likely to be associated with the gyp uplands site include 1) an alkali sacaton (*Sporobolus airoides*) and black grama (*Bouteloua eriopoda*) or blue grama (*B. gracilis*)-dominated community associated with soils having relatively deep (> 10 “) gypsic horizons and 2) a gyp grama (*Bouteloua breviseta*) and gyp dropseed (*Sporobolus nealleyi*)-dominated community on soils with shallow (< 10”) gypsic horizons. Tobosa (*Pleuraphis mutica*), burrograss (*Scleropogon brevifolius*), and/or saltbush (*Atriplex canescens*) may also dominate depending on texture, land-use history, or other features. The subshrub Coldenia (*Coldenia* spp) increasingly dominates sites with very shallow gypsic horizons as grasses decline. Gyp upland sites are susceptible to erosion when vegetation cover is reduced due to drought and overgrazing. Mesquite (*Prosopis glandulosa*) may invade soils with deeper gypsic horizons within the site that are dominated by tobosa or burrograss. Erosion of A horizons bring gypsic horizons closer to the surface and can shift community composition to dominance by gyp dropseed, coldenia, and bare soil.

State-Transition model: MLRA 42, SD-2 & 3, Gyp Upland



1a. Erosion and loss of soil fertility
1b. Soil addition
2a. Reduced fire or heavy grazing with shrub seed addition
2b. Shrub removal

MLRA 42; SD-2 and 3; Gyp Upland

Mixed grass state


•Gyp grama, gyp dropseed
•Alkali sacaton and other grasses absent, may be degraded community
•Normally has patches of open ground, often covered with lichen crust
•Hollomex-Milner-Reeves association, Chaves Co. NM

Mixed grass state-run-in setting


•Alkali sacaton, silver bluestem
•Draw-like setting, abundant cover and litter
•Hollomex-Milner-Reeves association, Chaves Co. NM

Gyp dropseed state


•Gyp dropseed, coldenia, gyp grama, small patches of alkali sacaton and tobosa in depressions.
•Similar ground cover to communities With more palatable grasses
•Hollomex-Milner-Reeves association, Chaves Co. NM

Gypsum outcrop


• Coldenia, gyp dropseed
• Very low vegetative cover, note high cover of biological crust
• Inclusion within Malargo series
Otero Co. NM

Plant Community Name: Historic Climax Plant Community

Plant Community Sequence Number: 1 Narrative Label: HCPC

Plant Community Narrative:

State Containing Historic Climax Plant Community
Mixed grassland State: Alkali sacaton, black grama, and blue grama (only in SD-3) dominate soils that have relatively deep gypsic horizons that are deeper than 10" (e.g. Reeves series). Saltbush may be an abundant shrub. Alkali sacaton cover may be continuous in run-in settings surrounded by sparsely vegetated areas (alkali sacaton community). On fine-silty or fine loamy calcareous gypsid soils (e.g. Milner or Reeves series), tobosa or burrograss may be dominant. Dominance by burrograss or tobosa might represent grazing-induced retrogression from an alkali sacaton-grama community type on these soils, but this has not been confirmed. In some cases, saltbush may be extremely dominant, (e.g. Malargo series) but it is not clear why. Gyp grama, black grama, and gyp dropseed dominate soils with shallow gypsic horizons and gyp dropseed, mormon tea (*Ephedra* spp.), and coldenia tend to dominate where the gypsic horizon is shallowest (< 3"). These communities exhibit low production, perhaps due to the comparatively shallow infiltration in gypsic soil and other chemical properties (Campbell and Campbell 1938). Outcrops of gypsum, often revealing a whitish floury mass at the surface, may be devoid of vegetation. Heavy grazing may reduce grama grasses and increase the dominance of gyp dropseed and coldenia, but it is important to recognize that these plants may dominate some patches without heavy grazing. Soil degradation due to surface compaction and reduced infiltration may be important on this site and result in reduced grass cover. Slight variations in the depth to the gypsic horizon, whether human induced or not, exert a powerful control on plant community composition. Where gypsic horizons are deep, soil texture or soil chemistry may govern composition.

Diagnosis: Soils with deeper gypsic horizons should have continuous grass cover with a high representation of alkali sacaton and black grama. Shallower soils should have gyp grama and black grama but gyp outcrops will be dominated by gyp dropseeds or coldenia. Depending upon the depths to a gypsic horizon, large (< 1 m) bare patches may be common but they should not be common where the depth to gypsic horizon is greater than 5".
This site has a grassland aspect with patches of bare or lichen covered soil surface exposed between patches of vegetation. The potential plant community is dominated by alkali sacaton, short and mid grass perennials and forbs, with half shrubs and shrubs sparsely and evenly distributed.

Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	25
Bare ground	57
Surface gravel	1
Surface cobble and stone	1
Litter (percent)	16
Litter (average depth in cm.)	1

Plant Community Annual Production (by plant type):

	Annual Production (lbs/ac)		
Plant Type	Low	RV	High
Grass/Grasslike	300	470	640
Forb	45	71	96
Tree/Shrub/Vine	30	47	64
Lichen			
Moss			
Microbiotic Crusts			
Totals	375	588	800

Mixed Grassland Plant Species Composition: Plant species are grouped by annual production **not** by functional groups.

Group	Grass/Grasslike Common Name	Scientific Name	Annual Production in Pounds Per Acre Low	 High
1	alkali sacaton	*Sporobolus airoides*	266	323
2	black grama	*Bouteloua eriopoda*	29	88
3	gypsum grama	*Bouteloua breviseta*	6	59
4	bush muhly bristle panicum plains bristlegrass	*Muhlenbergia porteri* Setaria ramisetum *Setaria vulpiseta*	18	88
5	gyp dropseed	*Sporobolus nealleyi*	6	18
6	sand dropseed	*Sporobolus cryptandrus*		
7	blue grama	*Bouteloua gracilis*		
8	threeawn fluffgrass ear muhly burrograss	*Aristida* *Dasyochloa pulchella* *Muhlenbergia arenacea* Scleropogon brevifolius	18	88

Group	Shrub/Vine Common Name	Scientific Name	Annual Production in Pounds Per Acre Low	 High
9	fourwing saltbush Morman-tea littleleaf sumac	*Atriplex canescens* *Ephedra* *Rhus microphylla*	18	41
10	javelin bush knifeleaf condalia (squawbush) crown of thorns	*Condalia ericoides* *Condalia spathulata* *Koeberlinia spinosa*	6	18
11	pricklypear yucca	*Opuntia* *Yucca*	6	18

Group	Forb Common Name	Scientific Name	Annual Production in Pounds Per Acre Low	 High
12	Coldenia	*Condalia*	29	59
13	Forb, annual trailing four-oçlock daisy golden tickseed leatherweed gyp wild buckwheat woolly gaura blazingstar fiddleleaf whitest evening-primrose beardtongue scoprionweed white milkwort devils claw whitestem paperflower threadleaf ragwort Hopi tea greenthread	 *Allionia incarnata* *Chrysanthemum* *Coreopsis tinctoria* *Croton pottsii var. pottsii* *Eriogonum gypsophilum* *Gaura villosa* *Mentzelia* *Nama* *Oenothera albicaulis* *Penstemon* *Phacelia integrifolia var. texana* *Polygala alba* *Proboscidea althaeifolia* *Psilostrophe cooperi* *Senecio flaccidus var. flaccidus* *Thelesperma megapotamicum*	6	88

Plant Growth Curve:
Growth Curve Number: NM2806
Growth Curve Name: Historic Climax Plant Community
Growth Curve Description: SD-3 Warm Season Plant Community

Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	10	10	25	30	15	5	0	0

Additional States:

Transition to gyp dropseed state (1a): Reduced grass cover caused by poor grazing management and/or drought may result in erosion of surface horizons. As the depth to the gypsic horizon decreases, plant communities will become increasingly dominated by gyp dropseed and/or coldenia. Mechanical disturbance of the soil surface and soil degradation may contribute to this effect.

Key indicators of approach to transition: Increased bare ground, pedestalling, water flow patterns, blowouts, and eventually the loss of the A horizon.

Transition to shrub-invaded state (2a): Reduced grass cover in deep gypsic soils may result in mesquite invasion.

Key indicators of approach to transition: Increasing bare ground, presence of mesquite seedlings.

Shrub-invaded: On deep gypsic soils and soils with less strong gypsic horizons (i.e. have a lower percentage of gypsum) within this site, mesquite may invade and cause some reduction in grass cover due to competition with grasses. These communities are dominated by tobosa or burrograss. Saltbush may also be an important component. It is not known if shrub presence and resulting erosion may result in the loss of dominant perennial grasses across broad areas on gypsic soils. As soil characteristics grade toward those of the loamy ecological site, widespread grass loss may be increasingly probable.

Diagnosis: Moderate densities of mesquite, bare ground patches associated with mesquite patches.

Transition to mixed grassland (2b): Shrub removal may result in the eventually recovery of perennial grasses.

Gyp dropseed: These communities are dominated by gyp dropseed or coldenia, and often exhibit high amounts of bare ground and exposed gypsum at the surface. Gyp grama, black grama, and alkali sacaton may persist in small patches, especially in low-lying spots receiving run-in water and/or in which soils are protected from erosion. The frequency with which these community types represent degradation from mixed grassland due to poor management versus “natural” is unknown. The conditions under which gyp dropseed and coldenia dominate are unknown.

Diagnosis: Dominance by gyp dropseed or coldenia, high amounts of bare ground, sometimes associated with a high cover of microbiotic crusts.

Transition to mixed grassland (1b): Restoration or recovery of a non-gypsic A horizon would be required.

Information sources and theoretical background: Communities, states, and transitions are based upon information in the ecological site description and observations by Brandon Bestelmeyer, Jornada Experimental Range and David Trujillo, NRCS. Information on the the role of gypsum in concert with soil chemical features in determining plant composition is sorely needed.

Ecological Site Interpretations

Animal Community:
This site provides habitats which support a resident animal community that is characterized by coyote, hooded skunk, desert cottontail, whitethroated woodrat, sparrow hawk, cactus wern, scaled quail, logggerhead shrike, mourning dove, Texas horned lizard, lesser earless lizard, and western diamondback rattlesnake.

Fourwing saltbush, littleleaf sumac, spiny allthorn, common javilinabush, and knifeleaf condalia provide protective cover for scaled quail. Seed, green herbage and fruit from a variety of grasses, forbs and shrubs provide food for a number of birds and mamals, including scaled and Gambel's quail, mourning dove and prairie dogs. The fruit of tesajo cactus is relished by quail.

Hydrology Functions:

The runoff curve numbers are determined by field investigations using hydraulic cover conditions and hydrologic soil groups.

Hydrologic Interpretations	
Soil Series	Hydrologic Group
Cottonwood	C
Holloman	C
McCarran	C
Yesum	B
Alamogordo	B

Recreational Uses:
This site offers recreation potential for hiking, horseback riding, rock, gem, and mineral collecting, nature observation and photography, relic hunting, and quail, dove, and predator hunting.
During years of abundant moisture, a colorful array of wildflowers can be observed from spring through fall.

Wood Products:
This site provides little or no wood products other than curiosities and small furniture which can be made from the roots and stems of mesquite where it has invaded the site. The woody pods of devils claw are also used in curiosities.

Other Products:

This site is suitable for grazing during all seasons of the year. Care must be taken to leave enough vegetation cover for soil protection during windy and rainy periods or severe soil erosion will result. About 300 pounds per acre of total vegetation and litter is minimal for soil protection. This site is best suited and most efficiently utilized by cattle. It can also be utilized by small numbers of goats and sheep in combination with cattle where control or protection from predators can be provided.

Other Information:

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month	
Similarity Index	Ac/AUM
100 - 76	5.5 – 8.0
75 – 51	7.5 – 11.0
50 – 26	11.0 – 15.0
25 – 0	25.0 +

Plant Preference by Animal Kind:

	Code	Species Preference	Code
Stems	S	None Selected	N/S
Leaves	L	Preferred	P
Flowers	F	Desirable	D
Fruit/Seeds	F/S	Undesirable	U
Entire Plant	EP	Not Consumed	NC
Underground Parts	UP	Emergency	E
		Toxic	T

Animal Kind: Livestock

Animal Type: Cattle

Common Name	***Scientific Name***	***Plant Part***	***Forage Preferences***											
			J	F	M	A	M	J	J	A	S	O	N	D
Alkali Sacaton	Sporobolus airoides	EP	U	U	U	D	D	D	P	P	D	D	U	U
fourwing saltbush	Atriplex canescens	EP	P	P	P	P	P	D	D	D	D	D	P	P
gyp grama	Bouteloua breviseta	EP	N/S	N/S	N/S	N/S	N/S	D	D	D	D	D	N/S	N/S
black grama	Bouteloua eriopoda	EP	P	P	P	D	D	D	D	D	D	D	P	P
blue grama	Bouteloua gracilis	EP	D	D	D	D	D	P	P	P	P	P	D	D
redstem stork's bill	Erodium cicutarium	EP	N/S	P	P	P	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
winterfat	Krascheninnikovia lanata	P	P	P	P	P	P	D	D	D	D	P	P	P
bush muhly	Muhlenbergia porteri	EP	P	P	P	P	P	P	P	P	P	P	P	P
plains bristlegrass	Setaria vulpiseta	EP	D	D	D	D	D	P	P	P	P	D	D	D
Mormon tea	*Ephedra spp.*	D	D	D	D	D	N/S	N/S	N/S	N/S	N/S	D	D	D
soaptree yucca	*Yucca elata*	F	N/S	N/S	N/S	N/S	P	P	N/S	N/S	N/S	N/S	N/S	N/S

Supporting Information

Associated Sites:

Site Name	Site ID	Site Narrative

Similiar Sites:

Site Name	Site ID	Site Narrative

State Correlation:
This site has been correlated with the following states: Texas

Data Source	Number of Records	Sample Period	State	County

Type Locality:
Eddy County, New Mexico – center of N.W. ¼, Sec. 27, T. 26 S., R. 24 E., NMPM. 2 ½ miles N. E. of the Texas – New Mexico State line, on the west side of Highway 180. A. M. Leeman Ranch. GC Mapping Unit, Cottonwood component. Map Sheet 148 insert, Eddy Area New Mexico Soil Survey Report.

Relationship to Other Established Classifications:

Other References:
Data collection for this site was done in conjunction with the progressive soil surveys within the Southern Desertic Basins, Plains and Mountains, Major Land Resource Areas of New Mexico. This site has been mapped and correlated with soils in the following soil surveys. Eddy County, Lea County, and Chaves County.
Characteristic soils are:
Cottonwood loam, very shallow, less than 8 inches thick
Holloman loam, very shallow, less than 8 inches thick
McCarran loam, very shallow, less than 8 inches thick
Yesum fine sandy loam, less than 8 inches thick
Alamogordo fine sandy loam, less than 8 inches thick

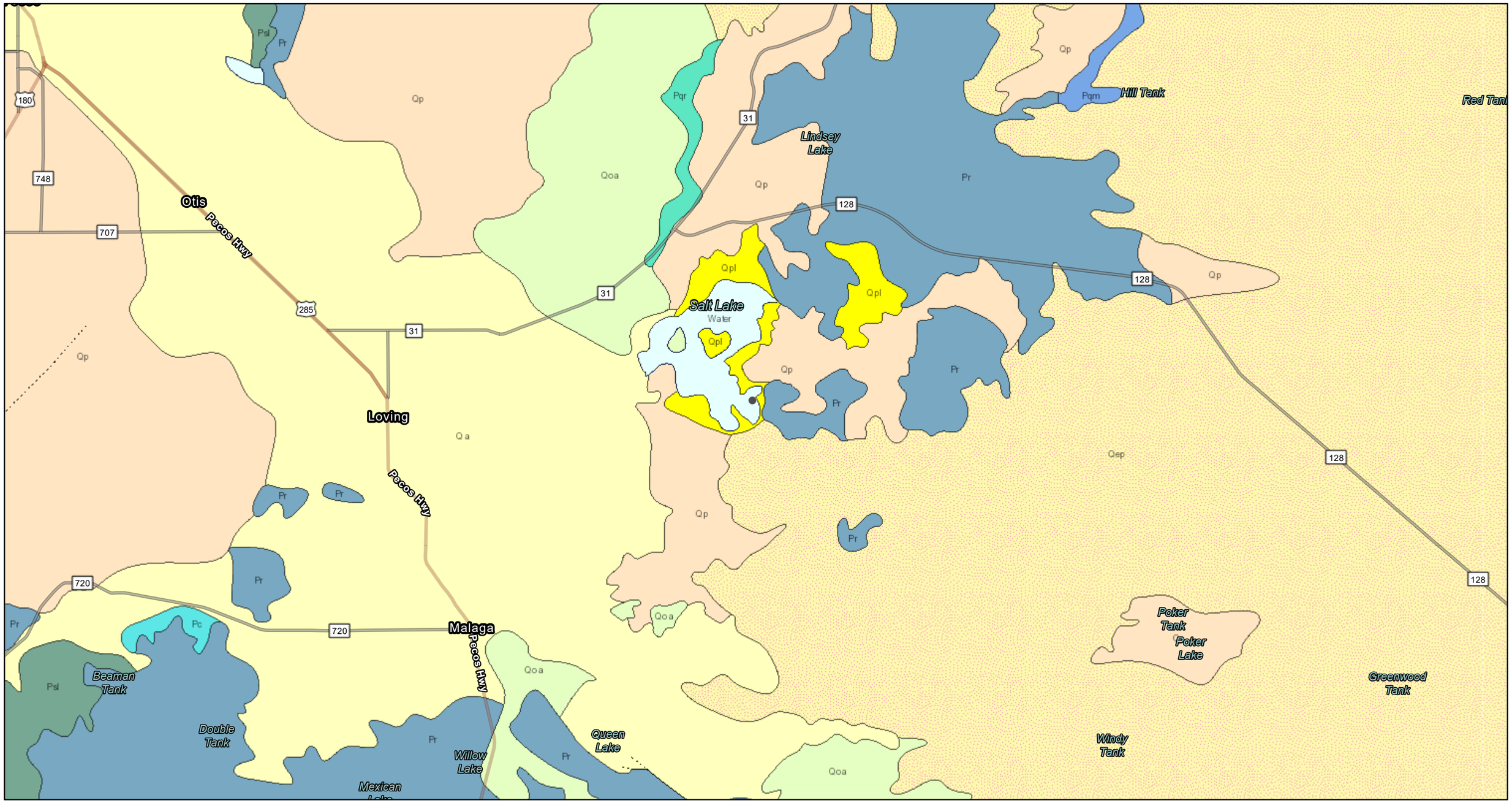
Site Description Approval:

Author	Date	Approval	Date
Don Sylvester	07/12/1979	Don Sylvester	07/12/1979

Site Description Revision:

Author	Date	Approval	Date
Dr. Brandon Bestelmeyer	02/27/03	George Chavez	02/27/03
George Chavez	02/27/03		

Laguna Salado 22 Federal #005H



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Lithologic Units

- Playa—Alluvium and evaporite deposits (Holocene)
- Water—Perenial standing water
- Qa—Alluvium (Holocene to upper Pleistocene)
- Ql—Landslide deposits and colluvium (Holocene to Pleistocene) — Landslide deposits on western flanks of Socorro Mountains not shown for clarity
- Qpl—Lacustrine and playa deposits (Holocene) — Includes associated alluvial and eolian deposits of major lake basins
- Qp—Piedmont alluvial deposits (Holocene to lower Pleistocene)
- Qe—Eolian deposits (Holocene to middle Pleistocene)
- Qeg—Gypsiferous eolian deposits (Holocene to middle Pleistocene)

0 1.5 3 6 mi

0 2.5 5 10 km

Earthstar Geographics, New Mexico State University, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, NMBGMR

ArcGIS Web AppBuilder

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QUESTIONS

Action 472085

QUESTIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 472085
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nAB1914043668**
Incident Name	**NAB1914043668 LAGUNA SALADO 22 FEDERAL #005H @ 30-015-36738**
Incident Type	**Produced Water Release**
Incident Status	**Remediation Closure Report Received**
Incident Well	**[30-015-36738] LAGUNA SALADO 22 FEDERAL #005H**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	LAGUNA SALADO 22 FEDERAL #005H
Date Release Discovered	04/27/2019
Surface Owner	Private

Incident Details	
Please answer all the questions in this group.	
Incident Type	Produced Water Release
Did this release result in a fire or is the result of a fire	No
Did this release result in any injuries	No
Has this release reached or does it have a reasonable probability of reaching a watercourse	No
Has this release endangered or does it have a reasonable probability of endangering public health	No
Has this release substantially damaged or will it substantially damage property or the environment	No
Is this release of a volume that is or may with reasonable probability be detrimental to fresh water	No

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	*Not answered.*
Produced Water Released (bbls) Details	Cause: Equipment Failure | Pump | Produced Water | Released: 11 BBL | Recovered: 11 BBL | Lost: 0 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	Yes
Condensate Released (bbls) Details	*Not answered.*
Natural Gas Vented (Mcf) Details	*Not answered.*
Natural Gas Flared (Mcf) Details	*Not answered.*
Other Released Details	*Not answered.*
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	*Not answered.*

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QUESTIONS (continued)

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QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	**No, according to supplied volumes this does not appear to be a "gas only" report.**
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	**No**
Reasons why this would be considered a submission for a notification of a major release	*Unavailable.*
With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.	

Initial Response	
The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury.	
The source of the release has been stopped	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	*Not answered.*
Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.	

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.

I hereby agree and sign off to the above statement	Name: James Raley Title: EHS Professional Email: jim.raley@dvn.com Date: 06/09/2025

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QUESTIONS (continued)

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	Action Number: 472085
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Site Characterization	
Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). 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 in feet below ground surface (ft bgs)	Between 26 and 50 (ft.)
What method was used to determine the depth to ground water	Estimate or Other
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Greater than 5 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between 1 and 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Between 1 and 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between 1 and 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Between 1 and 5 (mi.)
A wetland	Between 1 and 5 (mi.)
A subsurface mine	Between 1 and 5 (mi.)
An (non-karst) unstable area	Between ½ and 1 (mi.)
Categorize the risk of this well / site being in a karst geology	Medium
A 100-year floodplain	Zero feet, overlying, or within area
Did the release impact areas not on an exploration, development, production, or storage site	Yes

Remediation Plan	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
Requesting a remediation plan approval with this submission	Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	45200
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	0
GRO+DRO (EPA SW-846 Method 8015M)	0
BTEX (EPA SW-846 Method 8021B or 8260B)	0
Benzene (EPA SW-846 Method 8021B or 8260B)	0
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
On what estimated date will the remediation commence	04/01/2025
On what date will (or did) the final sampling or liner inspection occur	04/01/2025
On what date will (or was) the remediation complete(d)	04/01/2025
What is the estimated surface area (in square feet) that will be reclaimed	0
What is the estimated volume (in cubic yards) that will be reclaimed	0
What is the estimated surface area (in square feet) that will be remediated	0
What is the estimated volume (in cubic yards) that will be remediated	0
These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.	
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

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	Action Number: 472085
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Remediation Plan (continued)	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
(Select all answers below that apply.)	
(Ex Situ) Excavation and **off-site** disposal (i.e. dig and haul, hydrovac, etc.)	No
(Ex Situ) Excavation and **on-site** remediation (i.e. On-Site Land Farms)	*Not answered.*
(In Situ) Soil Vapor Extraction	*Not answered.*
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	*Not answered.*
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	*Not answered.*
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	*Not answered.*
Ground Water Abatement pursuant to 19.15.30 NMAC	*Not answered.*
OTHER (Non-listed remedial process)	Yes
Other Non-listed Remedial Process. Please specify	Soils to be left in place
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
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.	
I hereby agree and sign off to the above statement	Name: James Raley Title: EHS Professional Email: jim.raley@dvn.com Date: 06/09/2025
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

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	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Deferral Requests Only *Only answer the questions in this group if seeking a deferral upon approval this submission. Each of the following items must be confirmed as part of any request for deferral of remediation.*	
Requesting a deferral of the remediation closure due date with the approval of this submission	No

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QUESTIONS (continued)

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	Action Number: 472085
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	**472092**
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	**04/04/2025**
What was the (estimated) number of samples that were to be gathered	**0**
What was the sampling surface area in square feet	**0**

Remediation Closure Request	
Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.	
Requesting a remediation closure approval with this submission	Yes
Have the lateral and vertical extents of contamination been fully delineated	**Yes**
Was this release entirely contained within a lined containment area	**No**
All areas reasonably needed for production or subsequent drilling operations have been stabilized, returned to the sites existing grade, and have a soil cover that prevents ponding of water, minimizing dust and erosion	Yes
What was the total surface area (in square feet) remediated	0
What was the total volume (cubic yards) remediated	0
All areas not reasonably needed for production or subsequent drilling operations have been reclaimed to contain a minimum of four feet of non-waste contain earthen material with concentrations less than 600 mg/kg chlorides, 100 mg/kg TPH, 50 mg/kg BTEX, and 10 mg/kg Benzene	Yes
What was the total surface area (in square feet) reclaimed	0
What was the total volume (in cubic yards) reclaimed	0
Summarize any additional remediation activities not included by answers (above)	Remediation Complete

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 (in .pdf format) 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.

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.

I hereby agree and sign off to the above statement	Name: James Raley Title: EHS Professional Email: jim.raley@dvn.com Date: 06/09/2025

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QUESTIONS (continued)

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	Action Number: 472085
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Reclamation Report	
Only answer the questions in this group if all reclamation steps have been completed.	
Requesting a reclamation approval with this submission	No

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CONDITIONS

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CONDITIONS

Created By	Condition	Condition Date
scwells	None	6/9/2025