AE Order Number Banner

Application Number: pMSG2420358227

SWD-2626

LeaCo Operating, LLC [331439]

ALL CONSULTING
GOVERNMENT RELATIONS · ENERGY · PLANNING · TECHNOLOGY
ENGINEERING · ENVIRONMENTAL

5/22/2024

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

Subject: LeaCo Operating, LLC (OGRID No. 331439)
Application for Authorization Inject – Crawford SWD #1

To Whom it May Concern,

On behalf of LeaCo Operating, LLC, ALL Consulting, LLC is submitting the enclosed Application for Authorization to Inject for the Crawford SWD #1, a proposed saltwater disposal well, in Lea County, NM.

Should you have any questions regarding the enclosed application, please contact Oliver Seekins at (918) 382-7581 or oseekins@all-llc.com.

Sincerely,
ALL Consulting, LLC

Oliver Seekins
Project Manager/Regulatory Specialist

Revised March 23, 2017

RECEIVED:	REVIEWER:	TYPE:	APP NO:

ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
- Geological & Engineering Bureau –
1220 South St. Francis Drive, Santa Fe, NM 87505

ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Applicant: _____ **OGRID Number:** _____
Well Name: _____ **API:** _____
Pool: _____ **Pool Code:** _____

SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED BELOW

1) **TYPE OF APPLICATION:** Check those which apply for [A]
A. Location – Spacing Unit – Simultaneous Dedication
☐ NSL ☐ NSP (PROJECT AREA) ☐ NSP (PRORATION UNIT) ☐ SD

B. Check one only for [I] or [II]
[I] Commingling – Storage – Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM
[II] Injection – Disposal – Pressure Increase – Enhanced Oil Recovery
☐ WFX ☐ PMX ☐ SWD ☐ IPI ☐ EOR ☐ PPR

FOR OCD ONLY
☐ Notice Complete
☐ Application Content Complete

2) **NOTIFICATION REQUIRED TO:** Check those which apply.
A. ☐ Offset operators or lease holders
B. ☐ Royalty, overriding royalty owners, revenue owners
C. ☐ Application requires published notice
D. ☐ Notification and/or concurrent approval by SLO
E. ☐ Notification and/or concurrent approval by BLM
F. ☐ Surface owner
G. ☐ For all of the above, proof of notification or publication is attached, and/or,
H. ☐ No notice required

3) **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

_____ Date

_____ Print or Type Name

_____ Phone Number

_____ Signature

_____ e-mail Address

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

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

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____Secondary Recovery _____Pressure Maintenance __X__Disposal _____Storage
Application qualifies for administrative approval? _____Yes _____No

II. OPERATOR: LeaCo Operating, LLC

ADDRESS: 2121 Sage Road, Suite 325, Houston, TX 77056

CONTACT PARTY: Joshua Batchelor PHONE: 713-294-4753

III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? _____Yes __X__No
If yes, give the Division order number authorizing the project: _____

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).

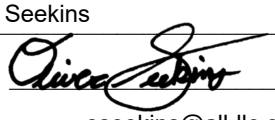
*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

NAME: Oliver Seekins TITLE: Project Manager / Regulatory Specialist

SIGNATURE:  DATE: 5/22/2024

E-MAIL ADDRESS: oseekins@all-llc.com

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office

Application for Authorization to Inject
Well Name: Crawford SWD #1

III – Well Data (*The wellbore diagram is included as **Attachment 1***)

A.

(1) General Well Information:

Operator: LeaCo Operating, LLC (OGRID No. 331439)
Lease Name & Well Number: Crawford SWD #1
Location Footage Calls: 584' FSL & 531' FEL
Legal Location: UL P, Sec 5. T24S, R36E
Ground Elevation: 3,414.2'
Proposed Injection Interval: 5,550' – 6,750'
County: Lea

(2) Casing Information:

Type	Hole Size	Casing Size	Casing Weight	Setting Depth	Sacks of Cement	Estimated TOC	Method Determined
Surface	24"	20"	94.0 lb/ft	1,225'	1,115	Surface	Circulation
Intermediate 1	17-1/2"	13-3/8"	54.5 lb/ft	3,270'	2,150	Surface	Circulation
Intermediate 2	12-1/4"	9-5/8"	43.0 lb/ft	4,600'	1,365	Surface	Circulation
Production Casing	8-3/4"	7"	26.0 lb/ft	6,850'	1,000	Surface	CBL
Tubing	N/A	4-1/2"	11.6 lb/ft	5,530'	N/A	N/A	N/A

DV tool set at 3,500'

(3) Tubing Information:

4-1/2" (11.6 lb/ft) ceramic-coated tubing with setting depth of 5,530'

(4) Packer Information: Baker Hughes Horner or equivalent packer set at 5,530'

B.

(1) Injection Formation Name: San Andres Formation & Glorieta Sandstone
Pool Name: SWD;San Andres-Glorieta
Pool Code: 96127
(2) Injection Interval: Perforated injection between 5,550'-6,750'
(3) Drilling Purpose: New drill for saltwater disposal
(4) Other Perforated Intervals: No other perforated intervals exist.
(5) Overlying Oil and Gas Zones: Below are the approximate formation tops for known oil and gas producing zones in the area.

- Yates (3,490')
- Seven Rivers (3,740')

Underlying Oil and Gas Zones: Below are the approximate formation tops for known oil and gas producing zones in the area.

- Drinkard (7,100')
- Tubb (9,310')
- Morrow (12,550')

V – Well and Lease Details

The following maps and documents are included in ***Attachment 2***:

- 2-mile Oil & Gas Well Map
- ½-mile AOR Well Table
- 2-Mile Lease Map
- 2-Mile Mineral Ownership Map
- 2-Mile Surface Ownership Map
- Potash Lease Map

VI – AOR Well List

A list of the wells within the 1/2-mile AOR is included in ***Attachment 2***.

There is one (1) well in the ½-mile AOR which penetrates the San Andres-Glorieta formation, however, it has been properly plugged and abandoned to isolate the injection zone.

VII – Proposed Operation

(1) **Proposed Maximum Injection Rate:** 20,000 bpd
Proposed Average Injection Rate: 15,000 bpd

(2) A **closed-loop system** will be used.

(3) **Proposed Maximum Injection Pressure**: 1,110 psi (surface)
Proposed Average Injection Pressure: approximately 832 psi (surface)

(4) **Source Water Analysis:** It is expected that the injectate will consist of produced water from production wells completed in the Seven Rivers, Queen, Grayburg, Wolfcamp and Morrow Formations. Analysis of water from these formations is included as ***Attachment 3***.

(5) **Injection Formation Water Analysis:** The proposed SWD will be injecting water into the San-Andres Formation and Glorieta Sandstone, which are non-productive zones known to be compatible with formation water from the Seven Rivers, Queen, Grayburg, Wolfcamp and Morrow Formations. Water analyses from the San Andres Formation and Glorieta Sandstone in the area are included as ***Attachment 4*.**

VIII – Geologic Description

The proposed injection interval is in the San Andres Formation and Glorieta Sandstone from 5,550' – 6,750'. The San Andres is a massive carbonate formation composed of predominantly dolomite and limestone, with secondary porosity development associated with the dolomitization and fractures. The Permian-aged Glorieta Sandstone is a fine grained and well-to-moderately sorted quartz arenite sandstone that occurs directly below the San Andres Formation. There are multiple zones of high porosity and low resistivity that makes this sandstone a viable injection zone in this area.

The base of the USDW is the Rustler Formation, at a depth of approximately 1,200 ft. The depth of the nearest water well in the area is 260 feet below ground surface (BGS), with an approximate static water level depth of 180 ft BGS.

IX – Proposed Stimulation Program

A small cleanup acid job may be used to remove mud and drill cuttings from the formation. However, no other formation stimulation is currently planned.

X – Logging and Test Data

Logs will be submitted to the Division upon completion of the well.

XI – Fresh Groundwater Samples

Based on a review of data from the New Mexico Office of the State Engineer, there are 11 points of diversion (PODs) within 1-mile of the proposed SWD location, however after conversations with the surface owner, it was determined only one (1) POD represented an active freshwater well. As such, one (1) additional active water well, located 1.1 miles away, was sampled to support this C-108 application. Sampling of both wells occurred on April 25, 2024.

A water well map and tabular data, sampling rationale, and analytical results are included in ***Attachment 5***.

XII – No Hydrologic Connection Statement

No publicly known faulting is present in the area that would provide a hydrologic connection between the injection interval and overlying USDWs. Additionally, the casing program has been designed to ensure there will be no hydrologic connection between the injection interval and overlying USDWs.

A signed *No Hydrologic Connection Statement* is included as ***Attachment 6.***

In addition, a *Seismic Potential Letter* detailing the minimal risk of injection-induced seismicity associated with the proposed SWD is included as ***Attachment 7***.

XIII – Proof of Notice

A Public Notice was filed with the Hobbs News-Sun newspaper and an affidavit is included in ***Attachment 8***.

A copy of the application was mailed to the OCD district office, surface owner, and all identified affected parties. A list of the recipients, as well as delivery confirmations, are included in ***Attachment 8.***

Attachments

Attachment 1:

- C-102
- Wellbore Diagram
- Packer Diagram

Attachment 2: Area of Review Information:

- 2-Mile Oil & Gas Well Map
- 1/2-Mile AOR Well Table
- 2-Mile Lease Map
- 2-Mile Mineral Ownership Map
- 2-Mile Surface Ownership Map
- Potash Lease Map

Attachment 3: Source Water Analysis

Attachment 4: Injection Formation Water Analysis

Attachment 5: Water Well Map, Sampling Rationale and Analytical Results

Attachment 6: No Hydrologic Connection Statement

Attachment 7: Seismic Potential Letter

Attachment 8: Public Notice Affidavit and Notice of Application Confirmations

Attachment 1

- C-102
- Wellbore Diagram
- Packer Diagram

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
	96127	SWD; SAN ANDRES-GLORIETA

Property Code	Property Name	Well Number
	CRAWFORD SWD	1

OGRID No.	Operator Name	Elevation
331439	LeaCo Operating, LLC	3414.2'

Surface Location

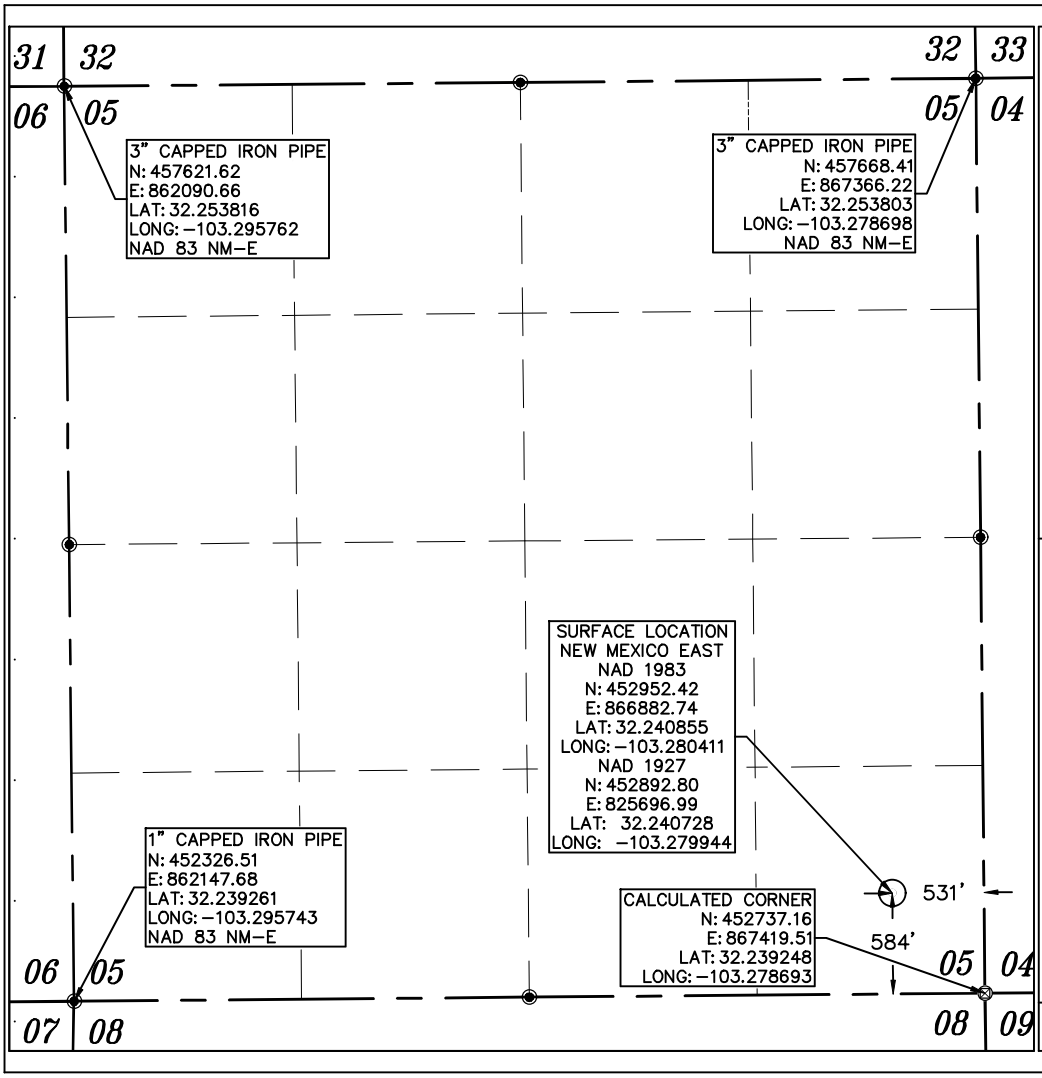
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	05	24 S	36 E		584'	SOUTH	531'	EAST	LEA

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature — Date: 5/22/2024

Oliver Seekins
Printed Name

Oseekins@all-llc.com
E-mail Address

SURVEYOR CERTIFICATION

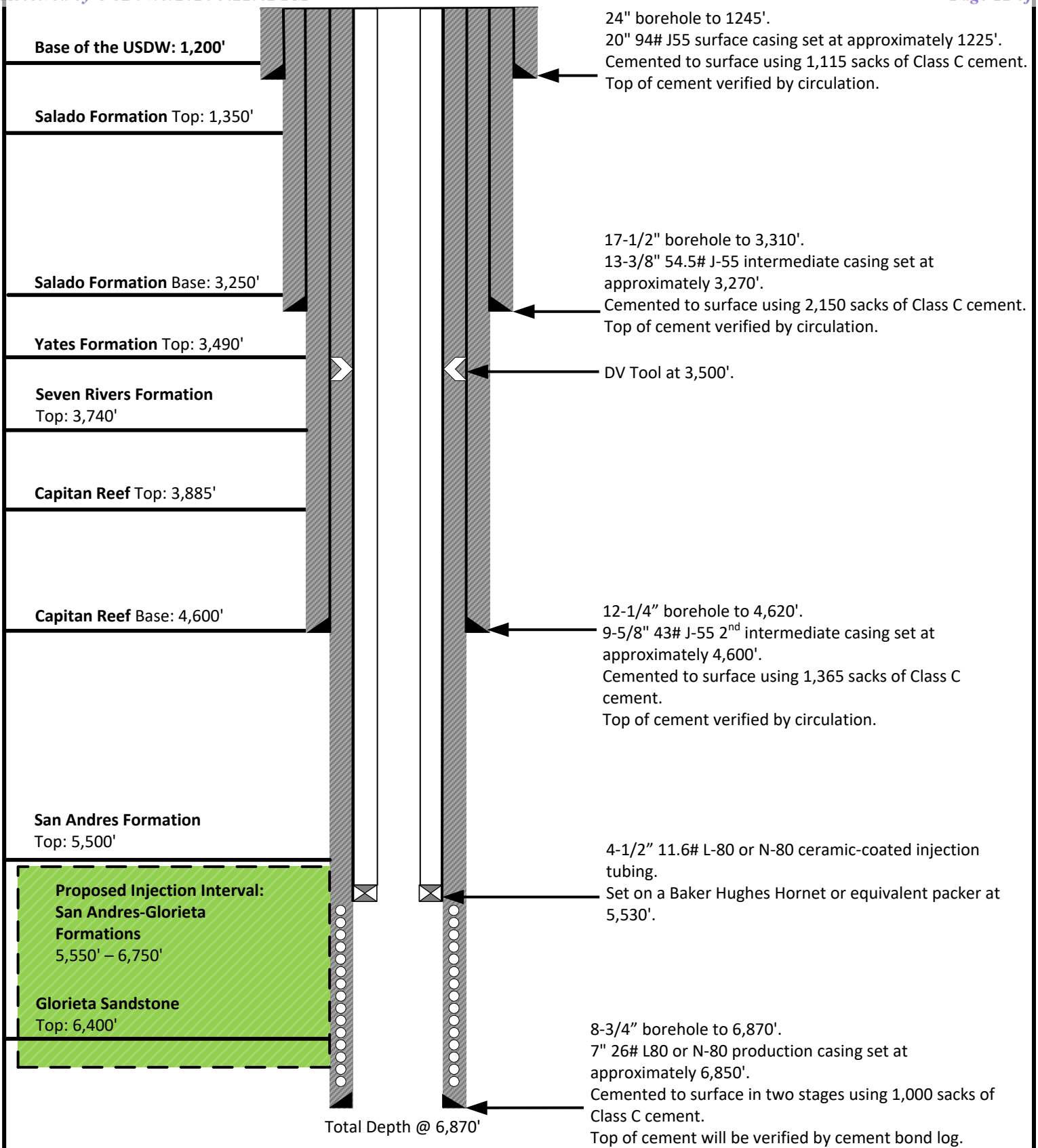
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

04/22/2024
Date of Survey

Signature and Seal of Professional Surveyor:

TYLER J. WILLIS
NEW MEXICO
25344
4-22-24
LICENSED PROFESSIONAL SURVEYOR

Certificate Number
25344
TYLER J. WILLIS



All cement calculations have an additional 25% excess cement to each job.

NOT TO SCALE

Prepared by:
ALL CONSULTING
Prepared for:
LeaCo Operating, LLC

Drawn by: Gavin James

Project Manager: Oliver Seekins

Date: 7/3/2024

Crawford SWD #1
LeaCo Operating, LLC
Sec. 5 Town. 24S Rng. 36E
Lat: 32.240855° Long: -103.280411° (NAD 83)

Baker Hughes

Hornet packer

Product family H64682

Hornet EL packer

Product family H64683

Applications

- Fracturing and stimulation completions

Features and Benefits

- Upper slip assembly
  - Slip-wicker configuration provides bi-directional-load support with solid upper cone to reinforce highest tensile loads
  - Staged-release action eliminates high overpull
  - Minimal set-down weight required to anchor slips allows packer to be run in shallow set applications
- Internal bypass seal
  - Durable bypass seal design provides sealing after unloading allowing the packer to be reset
- Packing element system
  - High-performance, three-piece element system provides a reliable seal against the casing
- Lower slip and jay assembly
  - One-quarter-turn right setting and releasing action simplifies running and retrieval operations
  - Ability to packoff of packing elements with applied tension or compression ensures packer can be fully set regardless of application

The mechanically set **HORNET™ tubing retrievable production packer** offers ease of operation with quarter-turn right to set and release. Converting it for wireline-setting applications is simple and inexpensive. The HORNET packer provides for landing in compression, tension, or neutral positions. Every component from the jay track, to the internal bypass, to the packing-element system and the upper slip assembly has been developed to ensure the packer's setting and releasing reliability.

The **HORNET EL tubing retrievable production packer** is run and set on electric line using an **E-4™ setting tool** (Product family No. H43702) with a slow-set power charge or a **J™ hydraulic setting tool** (Product family No. H41371) and a special wireline adapter kit. An **L-10™ type on/off seal nipple** is run on top of the packer to connect the tubing to the packer and to house a blanking plug when the packer is used as a temporary bridge plug.

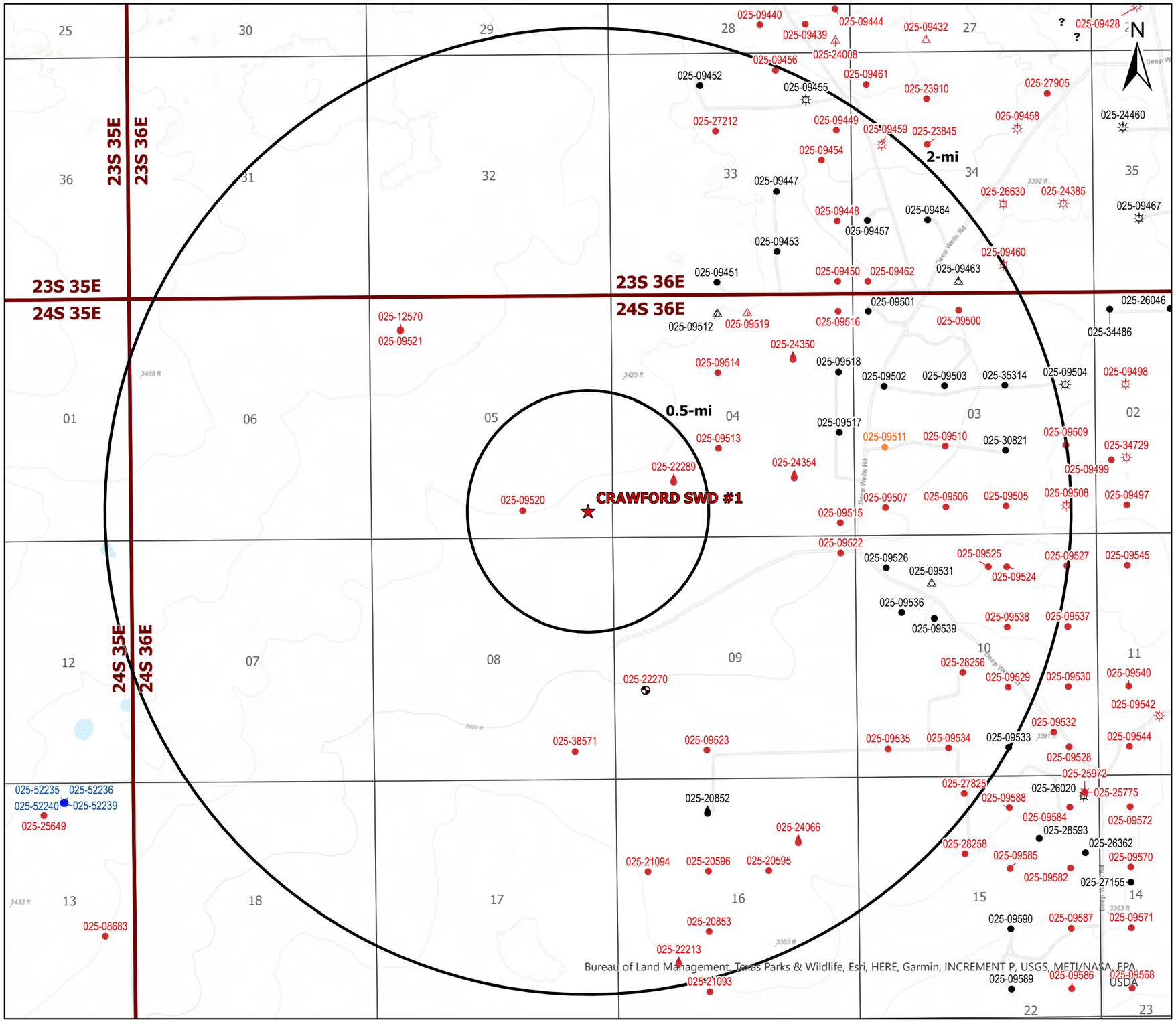
The Hornet AND Hornet EL packers have been thoroughly tested to API 11D1 V3 standards as well as being tested across API minimum and maximum casing inside diameter (ID) range for each casing weight, for setting and releasing reliability.

Hornet packer Hornet EL packer

Attachment 2

Area of Review Information:

- 2-mile Oil & Gas Well Map
- 1/2-Mile AOR Well Table
- 2-mile Lease Map
- 2-mile Mineral Ownership Map
- 2-mile Surface Ownership Map
- Potash Lease Map



Legend

- Proposed SWD
- Miscellaneous (1)
- Gas, Active (5)
- Gas, Plugged (11)
- Oil, Active (24)
- Oil, New (4)
- Oil, Plugged (67)
- Oil, Temporarily Abandoned (1)
- Salt Water Disposal, Active (3)
- Salt Water Disposal, Plugged (3)
- Water, Active (1)
- Water, Plugged (5)
- Undefined (2)

Source Info: NMOCD O&G Wells updated 4/11/2024 (https://ocd-hub-nm-emnrd.hub.arcgis.com/search)

2-mile Oil & Gas Well AOR

CRAWFORD SWD #1

LEA COUNTY, NEW MEXICO

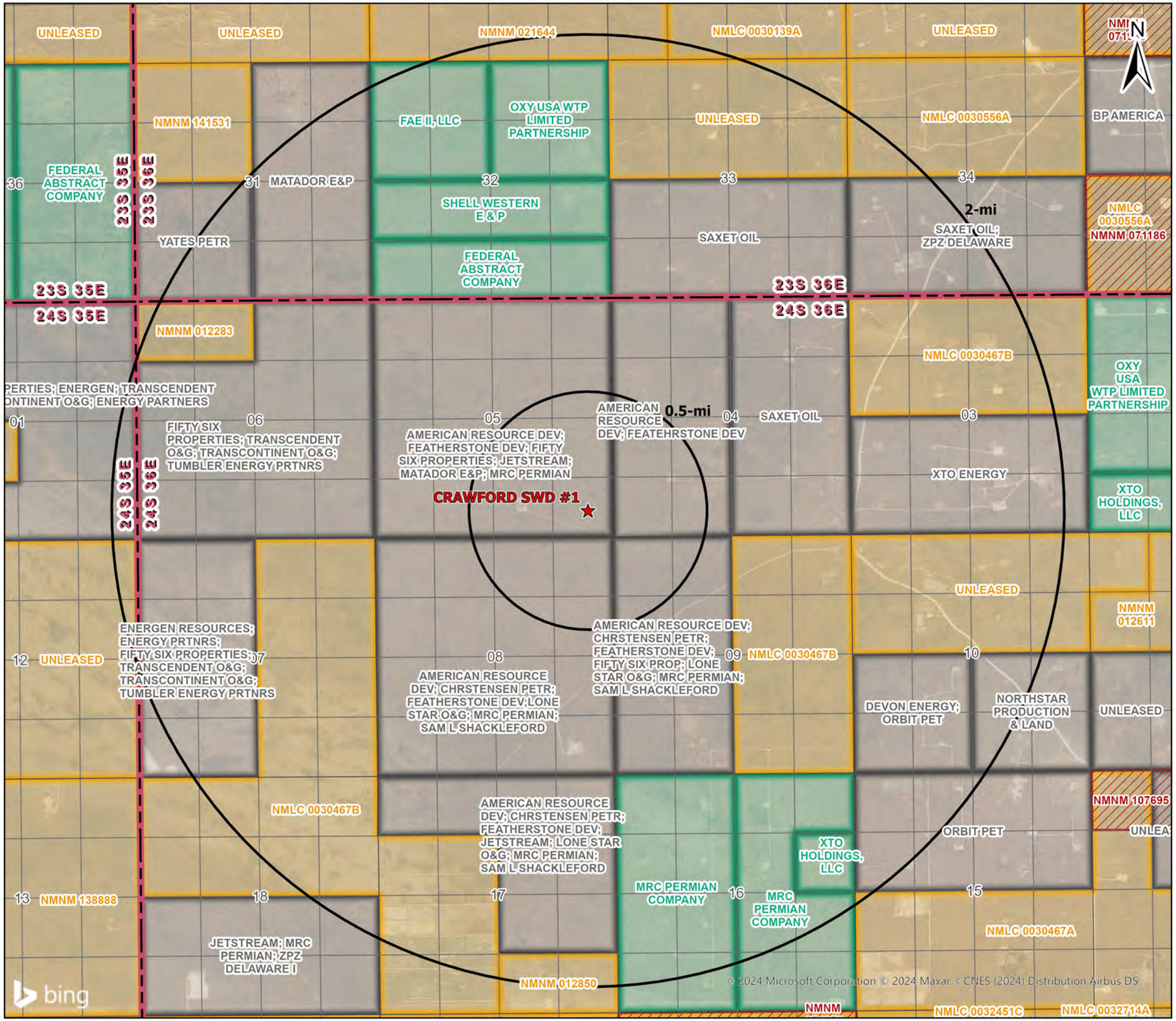
Proj Mgr: Oliver Seekins	April 19, 2024	Mapped by: Ben Bockelmann

Prepared for: LeaCo Operating, LLC

Prepared by: ALL CONSULTING

1/2-Mile AOR Well Table for Crawford SWD #1 (Top of Injection Interval: 5,550')							
Well Name	**API#**	**Well Type**	**Operator**	**Spud Date**	**Location (Sec., Tn., Rng.)**	**Total Vertical Depth (feet)**	**Penetrate Inj. Zone?**
JAL WATER SYSTEM #003	30-025-22289	PLUGGED	CHEVRON U S A INC	1/30/1968	Sec. 4, 24S-36E	4500	No
WHITTEN 1	30-025-09520	PLUGGED	GRAHAM PAIGE CO. OF TEXAS	10/13/1958	Sec. 5, 24S-36E	14112	Yes
Note: One (1) well within the ½-mile AOR penetrates the proposed injection zone, but it has been appropriately plugged and abandoned to isolate the proposed injection zone.							

Casing/Plugging Information for Well Penetrating the Crawford SWD #1 Injection Zone							
Well Name	**Type**	**Set Depth**	**Casing Size**	**TOC**	**TOC Method Determined**	**Sks of Cement**	**Hole Size**
WHITTEN 1	Surface	316'	20"	Surface	Calculated	500	24"
	Intermediate	3,872'	13.375"	Surface	Calculated	2620	17.5"
	Production	7,810'	9.625"	3,200'	Temperature survey	1140	12.5"
	Liner	7,760' - 10,570'	7"	7,497'	Calculated	350	8.75"
	Plugging Details: CIBP set @ 3,830', cut 9.625" prod. casing and pulled 3,310'; plug @ 3,780' (50sx); plug @ 3,310' (25sx); plug @ surface (10sx)						
Note: ALL calculated top of cement for the surface, intermediate, and liner casing strings. As the well files did not indicate the exact class of cement used while drilling this well, Class C cement, with a yield of 1.32 cubic feet, was used for these calculations.							



Legend

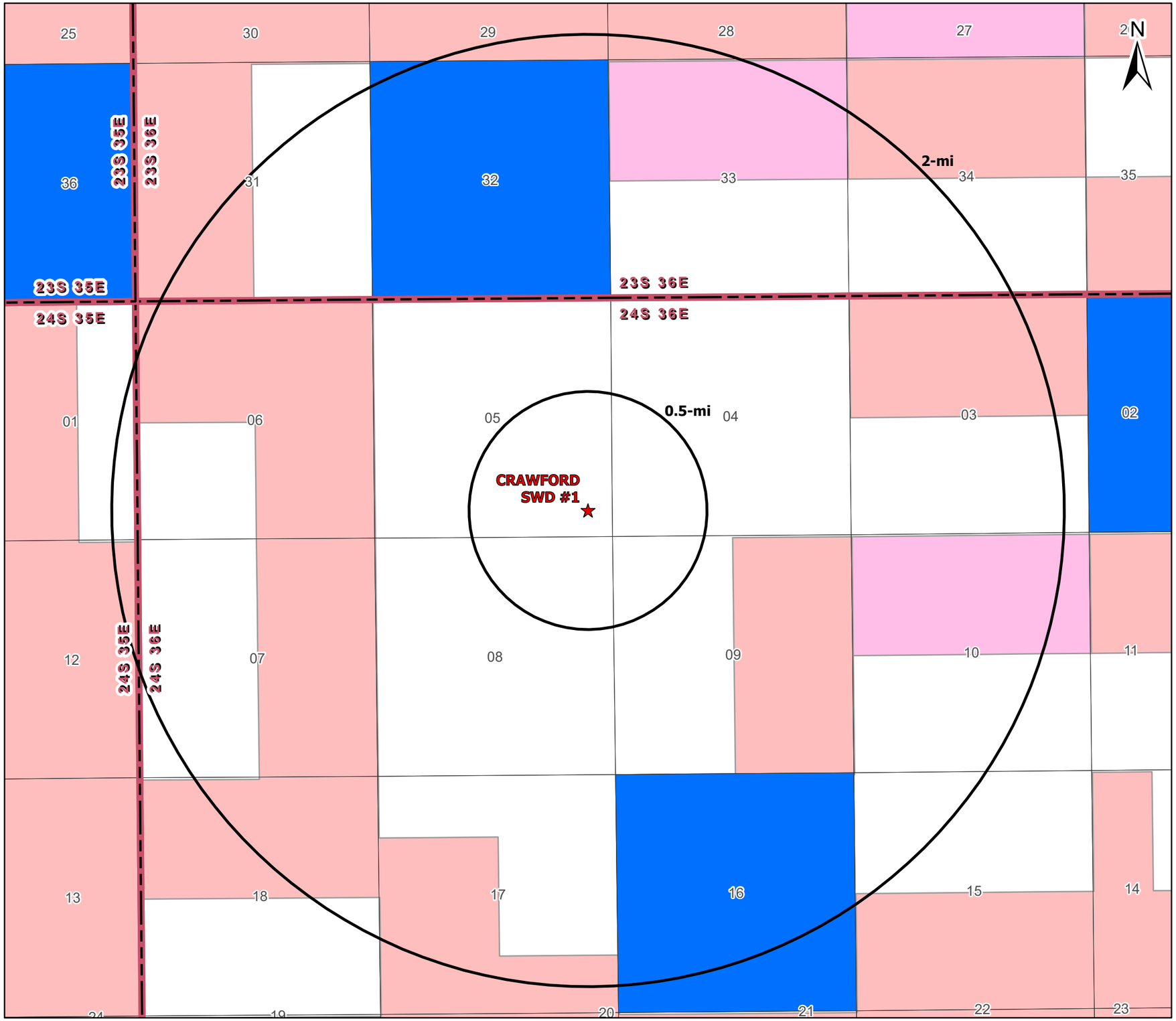
- Proposed SWD
- BLM Communitization Units
- NMSLO Mineral Leases
- Private Mineral Leases
- BLM Authorized O&G Leases

1/2-mile AOR Lessees/Unit Operators

- American Resource Development Upstream (Private Lessee)
- Christensen Petr (Private Lessee)
- Featherstone Development (Private Lessee)
- Fifty Six Properties (Private Lessee)
- Jetstream (Private Lessee)
- Matatdor E&P (Private Lessee)
- MRC Permian (Private Lessee)
- Sam L Shackleford (Private Lessee)

Source Info: BLM Mineral Leases (https://catalog.data.gov/dataset/blm-new-mexico-mineral-ownership) & NMSLO O&G Leases (http://www.nmstatelands.org/maps-gis/gis-data-download/)

2-mile Mineral Lease AOR		
CRAWFORD SWD #1 LEA COUNTY, NEW MEXICO		
Proj Mgr: Oliver Seekins	May 02, 2024	Mapped by: Ben Bockelmann
Prepared for: **LeaCo Operating, LLC**	*Prepared by:* ALL CONSULTING	



Legend

- Proposed SWD
- Private minerals
- Subsurface minerals (NMSLO)
- Surface and Subsurface minerals (NMSLO)
- All minerals are owned by U.S. (BLM)
- Other minerals are owned by the U.S. (BLM)

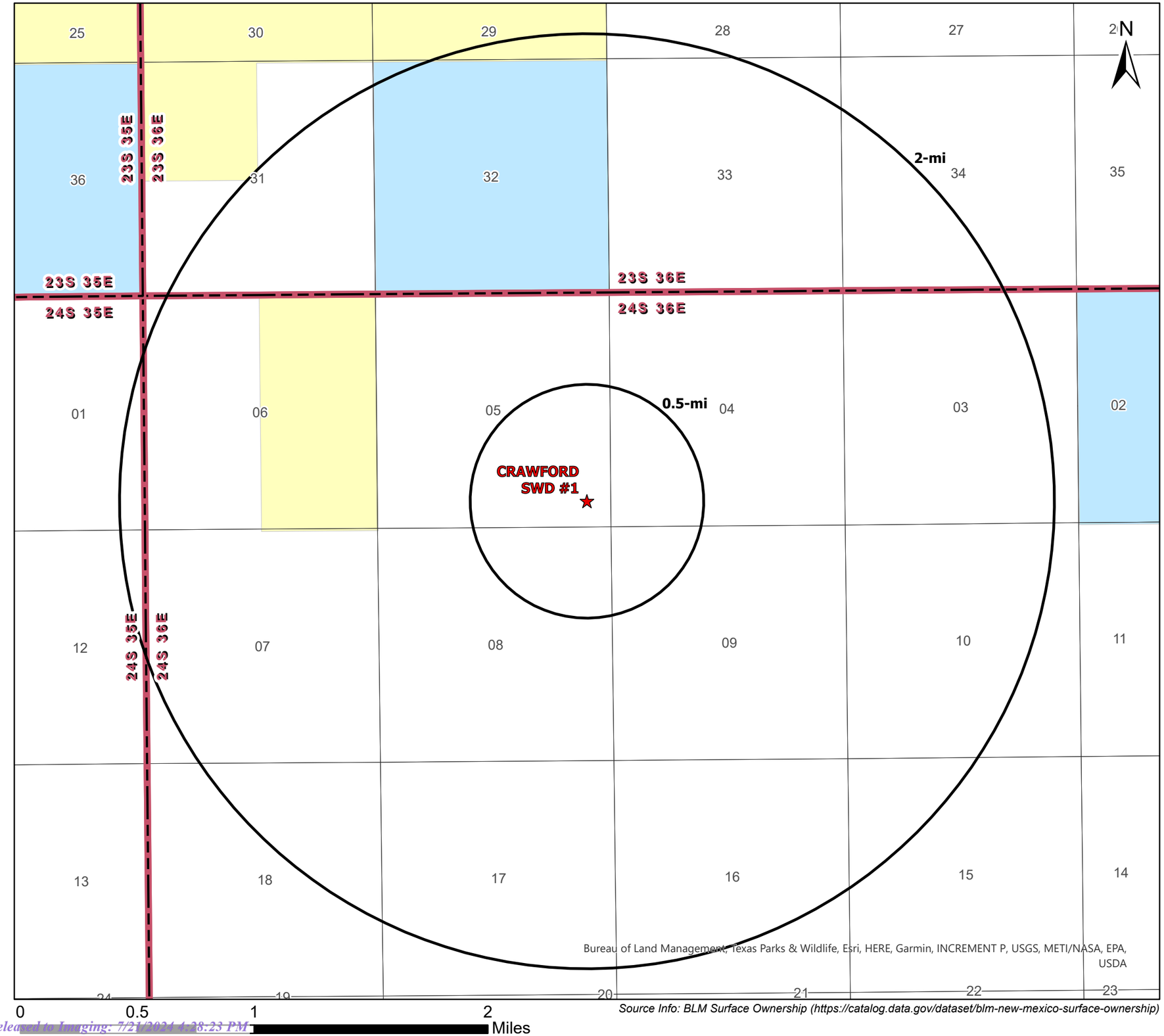
Source Info: BLM Surface Ownership (https://catalog.data.gov/dataset/blm-new-mexico-surface-ownership)

2-mile Mineral Ownership AOR

CRAWFORD SWD #1

LEA COUNTY, NEW MEXICO

Proj Mgr: Oliver Seekins	April 19, 2024	Mapped by: Ben Bockelmann
Prepared for: **LeaCo Operating, LLC**	*Prepared by:* ALL CONSULTING	



Legend

- Proposed SWD

Surface Ownership

- BLM
- Private
- State

Source Info: BLM Surface Ownership (https://catalog.data.gov/dataset/blm-new-mexico-surface-ownership)

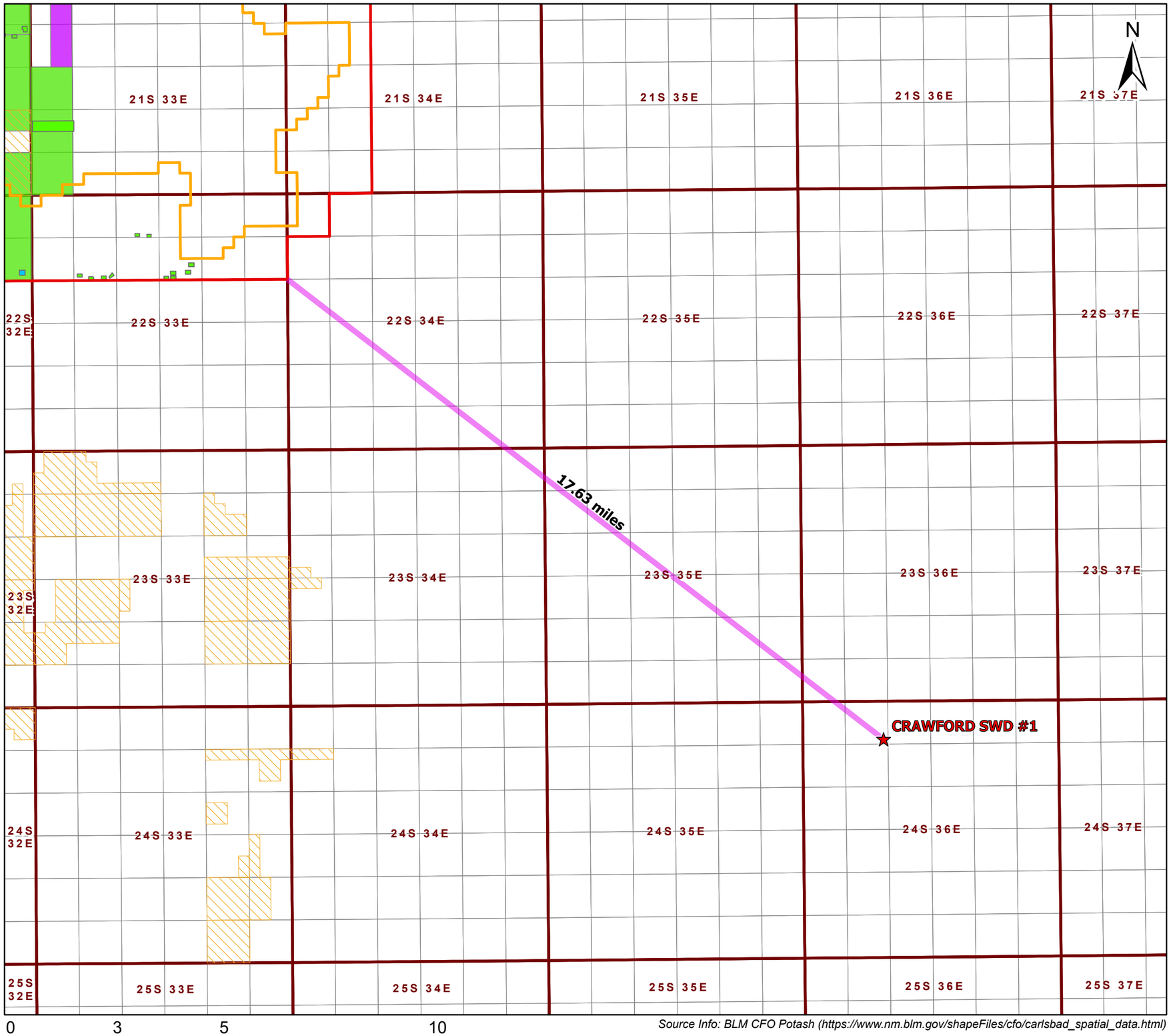
2-mile Surface Ownership AOR

CRAWFORD SWD #1

LEA COUNTY, NEW MEXICO

Proj Mgr: Oliver Seekins	April 19, 2024	Mapped by: Ben Bockelmann

Prepared for:	*Prepared by:*
LeaCo Operating, LLC	ALL CONSULTING



Legend

- Proposed SWD
- Known Potash Leasing Area
- SOPA_1986
- Potash Leases

Drill Islands (4/16/2024)

Status, Depth Buffer

- Approved, Half Mile
- Nominated,Half Mile

Development Areas (4/16/2024)

Status

- Approved
- Pending

Source Info: BLM CFO Potash (https://www.nm.blm.gov/shapeFiles/cfo/carlsbad_spatial_data.html)

Potash Lease AOR

CRAWFORD SWD #1

LEA COUNTY, NEW MEXICO

Proj Mgr: Oliver Seekins	April 19, 2024	Mapped by: Ben Bockelmann

Prepared for: LeaCo Operating, LLC

Prepared by: ALL CONSULTING

Attachment 3

Source Water Analysis

Source Water Analysis

LeaCo Operating, LLC_Crawford SWD #1 - Seven Rivers, Queen, Grayburg, Wolfcamp and Morrow Formations

Well Name	API	Latitude	Longitude	Section	Township	Range	Unit	Ftgns	Ftgew	County	State	Formation	Tds (mg/L)	Chloride (mg/L)	Bicarbonate (mg/L)	Sulfate (mg/L)
ARROWHEAD GRAYBURG UNIT #133	3002504939	32.433533	-103.225334	36	21S	36E	L	1980S	660W	LEA	NM	GRAYBURG	8,156	3,276	1,431	746
W W WEATHERLY #001	3002506644	32.477100	-103.187210	17	21S	37E	K	1980S	1980W	LEA	NM	GRAYBURG	11,484	4,241	2,880	466
V M HENDERSON #001	3002506907	32.450771	-103.194679	30	21S	37E	H	2319N	330E	LEA	NM	GRAYBURG	12,182	3,794	2,785	1,574
EUNICE KING #003	3002506839	32.451675	-103.170082	28	21S	37E	F	1980N	1980W	LEA	NM	GRAYBURG	14,405	6,347	1,614	959
WEST BLINEBRY DRINKARD UNIT #072	3002506645	32.477093	-103.182945	17	21S	37E	J	1980S	1980E	LEA	NM	GRAYBURG	15,453	7,280	1,958	630
H S TURNER #002	3002506884	32.443535	-103.192528	29	21S	37E	M	330S	330W	LEA	NM	GRAYBURG	15,574	7,136	2,488	395
EUNICE KING #001	3002506837	32.451675	-103.174362	28	21S	37E	E	1980N	660W	LEA	NM	GRAYBURG	16,028	6,881	3,007	479
H T MATTERN NCT C #001	3002506657	32.477108	-103.195770	18	21S	37E	I	1980S	660E	LEA	NM	GRAYBURG	23,006	10,150	2,040	2,517
TURNER #004	3002506746	32.458927	-103.158325	22	21S	37E	M	660S	330W	LEA	NM	GRAYBURG	95,429	59,121	861	3,066
TURNER #011	3002506753	32.459629	-103.154045	22	21S	37E	N	915S	1650W	LEA	NM	GRAYBURG	106,450	67,814	525	2,271
ARGO A #008	3002506740	32.468903	-103.156197	22	21S	37E	D	990N	990W	LEA	NM	GRAYBURG	118,524	76,444	275	1,602
ARGO #007	3002509915	32.477970	-103.156204	15	21S	37E	L	2310S	990W	LEA	NM	GRAYBURG	123,162	75,000	153	1,138
L G WARLICK B #001	3002506665	32.466221	-103.195755	19	21S	37E	H	1980N	660E	LEA	NM	GRAYBURG	134,673	79,530	791	3,055
LOCKHART A 17 #002	3002506637	32.477089	-103.178665	17	21S	37E	I	1980S	660E	LEA	NM	GRAYBURG	147,051	89,860	88	1,325
ARGO A #007	3002506739	32.466454	-103.156937	22	21S	37E	E	1880N	760W	LEA	NM	GRAYBURG	238,149	166,197	295	1,829
ARROWHEAD GRAYBURG UNIT #159	3002508723	32.422646	-103.221046	1	22S	36E	F	1980N	1980W	LEA	NM	GRAYBURG	7,382	2,849	1,555	481
ARROWHEAD GRAYBURG UNIT #149	3002508733	32.426277	-103.225327	1	22S	36E	D	660N	660W	LEA	NM	GRAYBURG	250,367	160,700	322	3,495
OXY STATE N #002	3002508744	32.419926	-103.237045	2	22S	36E	K	2310S	2310W	LEA	NM	GRAYBURG	16,557	8,195	2,328	161
STATE J 2 #008	3002508747	32.422634	-103.237061	2	22S	36E	F	1980N	2310W	LEA	NM	GRAYBURG	7,810	3,073	1,852	255
ARROWHEAD GRAYBURG UNIT #156	3002508748	32.422638	-103.233879	2	22S	36E	G	1980N	1980E	LEA	NM	GRAYBURG	6,894	3,076	1,854	256
R L BRUNSON TR 2 #005	3002509974	32.419338	-103.152985	3	22S	37E	K	2080S	1980W	LEA	NM	GRAYBURG	18,329	7,714	3,593	406
SOUTH PENROSE SKELLY #181	3002510119	32.400906	-103.187180	8	22S	37E	N	660S	1980W	LEA	NM	GRAYBURG	16,937	8,600	1,870	500
GREENWOOD #007	3002510128	32.404552	-103.165817	9	22S	37E	J	1980S	1980E	LEA	NM	GRAYBURG	11,135	3,820	1,460	2,050
LOU WORTHAM #003	3002510197	32.411808	-103.136482	11	22S	37E	C	660N	1800W	LEA	NM	GRAYBURG	7,402	4,398	14	149
LOU WORTHAM #002	3002510200	32.409088	-103.141243	11	22S	37E	E	1650N	330W	LEA	NM	GRAYBURG	14,288	8,611	23	158
R L BRUNSON TR 2 #002	3002510029	32.418152	-103.162605	4	22S	37E	I	1650S	990E	LEA	NM	GRAYBURG	62,738	37,366	370	2,521
CHRISTMAS C #001	3002510340	32.393658	-103.178619	17	22S	37E	H	1980N	660E	LEA	NM	GRAYBURG	148,536	87,593	587	5,532
HUGH COI #009	3002522393	32.398216	-103.141251	14	22S	37E	D	330N	330W	LEA	NM	GRAYBURG	20,091	10,211	2,600	67
HUGH COI #011	3002522625	32.394589	-103.136566	14	22S	37E	F	1650N	1775W	LEA	NM	GRAYBURG	25,638	13,356	2,981	89
HUGH COI #012	3002522910	32.398216	-103.136971	14	22S	37E	C	330N	1650W	LEA	NM	GRAYBURG	24,590	12,485	3,043	165
SOUTH JUSTIS UNIT #018	3002511565	32.124863	-103.118782	13	25S	37E	N	660S	1980W	LEA	NM	GRAYBURG	56,479	31,702	1,326	1,782
SWEET THING FEDERAL UNIT #001	3001528130	32.508919	-104.744667	6	21S	22E	F	1980N	1320W	EDDY	NM	MORROW	50,770	32,175	104	32
WILSON DEEP UNIT #001	3002520461	32.480583	-103.425339	13	21S	34E	F	2080N	2080W	LEA	NM	MORROW	11,648	566	2,161	5,252
NORTH INDIAN BASIN UNIT #015	3001528305	32.509445	-104.575714	2	21S	23E	F	1980N	1830W	EDDY	NM	MORROW	7,221	2,513	643	1,584
HAT MESA #001	3002524403	32.480682	-103.639076	14	21S	32E	H	1980N	660E	LEA	NM	MORROW	271,555	199,015	289	529
LITTLE BOX CANYON AOX FEDERAL #001	3001524747	32.487557	-104.743752	7	21S	22E	N	800S	1600W	EDDY	NM	MORROW	108,615	66,030	293	25
LITTLE BOX CANYON AOX FEDERAL #001	3001524747	32.487557	-104.743752	7	21S	22E	N	800S	1600W	EDDY	NM	MORROW	65,017	39,618	390	25
LITTLE BOX CANYON AOX FEDERAL #001	3001524747	32.487557	-104.743752	7	21S	22E	N	800S	1600W	EDDY	NM	MORROW	71,051	43,452	146	250
LITTLE BOX CANYON AOX FEDERAL #001	3001524747	32.487557	-104.743752	7	21S	22E	N	800S	1600W	EDDY	NM	MORROW	75,303	46,008	195	50
LITTLE BOX CANYON AOX FEDERAL #001	3001524747	32.487557	-104.743752	7	21S	22E	N	800S	1600W	EDDY	NM	MORROW	145,427	88,608	146	50
LITTLE BOX CANYON AOX FEDERAL #001	3001524747	32.487557	-104.743752	7	21S	22E	N	800S	1600W	EDDY	NM	MORROW	71,232	43,452	427	25
MIDWEST L FEDERAL GAS COM #001	3001520828	32.346603	-104.283043	34	22S	26E	K	1980S	1980W	EDDY	NM	MORROW	179,513	109,000	161	1,800
MIDWEST L FEDERAL GAS COM #001	3001520828	32.346603	-104.283043	34	22S	26E	K	1980S	1980W	EDDY	NM	MORROW	180,083	109,000	210	1,900
WEAVER FED #001	3001500039	32.426094	-104.637390	6	22S	23E	B	660N	1980E	EDDY	NM	MORROW	94,780	57,244	205	716
CARNERO PEAK UT #001	3001510053	32.353401	-104.428116	31	22S	25E	A	660N	660E	EDDY	NM	MORROW	73,321	42,080	590	505
HARROUN OPER AREA #001	3001520157	32.364510	-104.121140	30	22S	28E	H	2310N	990E	EDDY	NM	MORROW	53,480	32,300	476	58
VILLA A COM #001	3001522886	32.317143	-104.111633	8	23S	28E	K	1650S	1980W	EDDY	NM	MORROW	27,040	16,624	40	147
OPUNTIA DRAW ATG STATE COM #001	3001530757	32.271091	-104.423134	29	23S	25E	M	1090S	660W	EDDY	NM	MORROW	128,779	68,586	207	100
BIG FREDDY AVQ FEDERAL #002	3001510054	32.320358	-104.693283	10	23S	22E	F	1980N	1980W	EDDY	NM	MORROW	119,365	72,846	122	3
TELEDYNE 17 #001	3001522553	32.299664	-104.009087	17	23S	29E	N	660S	1980W	EDDY	NM	MORROW	62,523	37,600	142	810
BRANTLEY #001	3001522677	32.288635	-104.077049	22	23S	28E	K	1880S	2080W	EDDY	NM	MORROW	278,468	166,000	78	3,400
LANGLIE MATTIX PENROSE SAND UNIT #001	3002510265	32.385529	-103.141029	14	22S	37E	M	330S	400W	LEA	NM	QUEEN	287,873	201,076	341	6,644
LANGLIE MATTIX PENROSE SAND UNIT #044	3002524033	32.380085	-103.156609	22	22S	37E	E	1650N	860W	LEA	NM	QUEEN	36,781	17,711	1,278	5,498
LANGLIE MATTIX PENROSE SAND UNIT #032	3002510417	32.379177	-103.148758	22	22S	37E	G	1980N	1980E	LEA	NM	QUEEN	36,874	18,134	1,643	4,539
LANGLIE MATTIX PENROSE SAND UNIT #034	3002510419	32.382805	-103.144470	22	22S	37E	A	660N	660E	LEA	NM	QUEEN	37,197	18,380	1,264	4,803
LANGLIE MATTIX PENROSE SAND UNIT #042	3002510407	32.375565	-103.152977	22	22S	37E	K	1980S	1980W	LEA	NM	QUEEN	36,866	17,805	1,205	5,560
LANGLIE MATTIX PENROSE SAND UNIT #512	3002510397	32.382805	-103.152985	22	22S	37E	C	660N	1980W	LEA	NM	QUEEN	36,140	17,466	1,551	4,887
LANGLIE MATTIX PENROSE SAND UNIT #262	3002523617	32.363773	-103.164726	28	22S	37E	G	2310N	1650E	LEA	NM	QUEEN	129,432	76,665	815	9,771
LANGLIE MATTIX PENROSE SAND UNIT #241	3002510495	32.362015	-103.160446	28	22S	37E	I	2310S	330E	LEA	NM	QUEEN	49,747	25,420	661	6,937
CONE BUTTE UT #001	3001510007	32.382496	-104.544060	19	22S	24E	D	400N	400W	EDDY	NM	WOLFCAMP	4,104	932	420	1,540
MAHUN STATE #001	3001520138	32.393398	-104.710342	16	22S	22E	F	1800N	1980W	EDDY	NM	WOLFCAMP	35,495	19,000	830	2,500

NOTES: NO GO-TECH WATER QUALITY DATA IS AVAILABLE FOR THE SEVEN RIVERS FORMATION WITHIN 100 MI^2 OF THE PROPOSED SURFACE HOLE LOCATION.

Attachment 4

Injection Formation Water Analysis

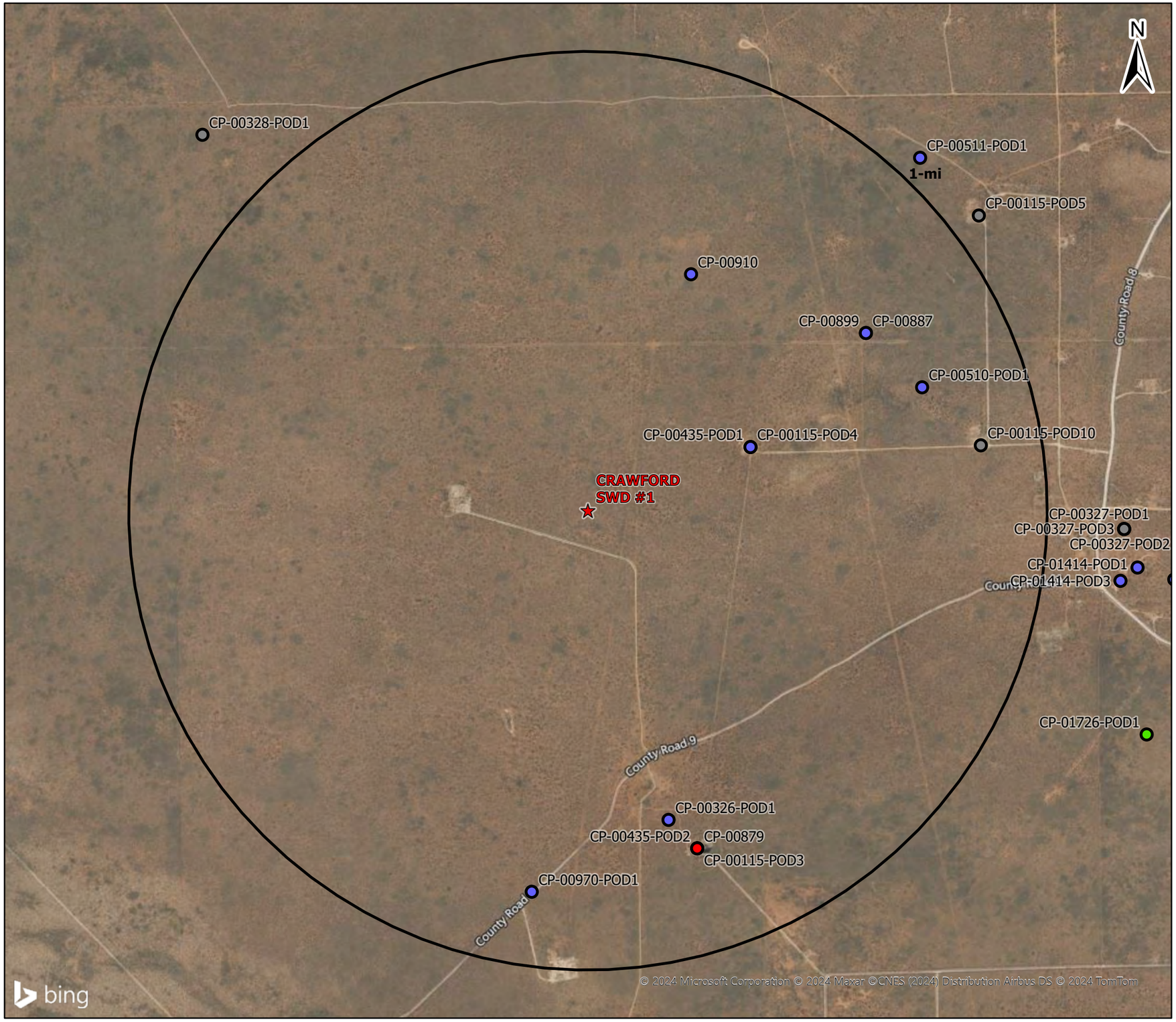
Injection Formation Water Analysis

LeaCo Operating, LLC - Crawford SWD #1 - San Andres Formation & Glorieta Sandstone Water Samples

Well Name	API	Latitude	Longitude	Section	Township	Range	Unit	Ftgns	Ftgew	County	State	Formation	Tds (mg/L)	Chloride (mg/L)	Bicarbonate (mg/L)	Sulfate (mg/L)
EUNICE KING #024	3002506864	32.451386	-103.174034	28	21S	37E	E	2086N	760W	LEA	NM	SAN ANDRES	97871	57350	223	3405
V M HENDERSON #002	3002506908	32.455330	-103.195747	30	21S	37E	A	660N	660E	LEA	NM	GLORIETA	138153	81610	744	2735
SIMMONS #001	3002510070	32.423267	-103.182198	5	22S	37E	G	1760N	1760E	LEA	NM	SAN ANDRES	78653	46510	580	2184
C P FALBY B FEDERAL #004	3002510106	32.404530	-103.191460	8	22S	37E	L	1980S	660W	LEA	NM	SAN ANDRES	80540	43500	755	5950
C P FALBY A FEDERAL #004	3002510120	32.408134	-103.191467	8	22S	37E	E	1980N	660W	LEA	NM	SAN ANDRES	10925	5312	1620	201
PENROSE #002	3002510146	32.407871	-103.173981	9	22S	37E	E	2086N	776W	LEA	NM	SAN ANDRES	64895	38010	488	2100
LOU WORTHAM #020	3002510216	32.411808	-103.140175	11	22S	37E	D	660N	660W	LEA	NM	SAN ANDRES	10947	6527	20	236
LOU WORTHAM #005	3002523606	32.410900	-103.136963	11	22S	37E	C	990N	1650W	LEA	NM	SAN ANDRES	18587	9460	13	2518
LOU WORTHAM #006	3002523756	32.407272	-103.141083	11	22S	37E	E	2310N	380W	LEA	NM	SAN ANDRES	14868	9040	24	112
HUGH COI #013	3002523275	32.398216	-103.139664	14	22S	37E	D	330N	820W	LEA	NM	SAN ANDRES	14215	6495	2529	191
C C FRISTOE B FEDERAL NCT 2 #009	3002520930	32.178730	-103.136925	35	24S	37E	C	852N	1650W	LEA	NM	GLORIETA	94935	56550	985	2360
LEARCY MCBUFFINGTON #007	3002511568	32.124863	-103.121979	13	25S	37E	M	660S	990W	LEA	NM	GLORIETA	55190	31603	1158	1804
CARLSON FEDERAL #001	3002511574	32.133018	-103.119843	13	25S	37E	F	1650N	1650W	LEA	NM	GLORIETA	113731	67250	280	3013
LANGLIE FEDERAL #001	3002511592	32.129394	-103.127304	14	25S	37E	I	2310S	660E	LEA	NM	GLORIETA	113937	67370	280	3018

Attachment 5

Water Well Map, Sampling Rationale and Analytical Results



Legend

- Proposed SWD

OSE PODs

- Active (11)
- Inactive (0)
- Pending (2)
- Changed Location of Well (0)
- Capped (0)
- Plugged (1)
- Unknown (8)

SourceInfo: ttps://gis.ose.state.nm.us/arcgis/rest/services/WatersPod/OSE_PODs/MapServer/0

1-mile Water Well AOR

CRAWFORD SWD #1

LEA COUNTY, NEW MEXICO

Proj Mgr: Oliver Seekins	April 19, 2024	Mapped by: Ben Bockelmann

Prepared for:	*Prepared by:*
LeaCo Operating, LLC	ALL CONSULTING

Water Well Sampling Rationale

LeaCo Operating, LLC - Crawford SWD #1

Water Wells	Owner	Available Contact Information	Use	Available for sampling?	Producing freshwater well?	Sampled on	Notes
CP-00910	RRR Land & Cattle Company	T. Richard Crawford P.O. Box 157 Jal, NM 88252 915-559-6779	Livestock watering	No	No	N/A	Conversation with surface owner indicated that the well is no longer active or producing.
CP-00970-POD1	Lonestar Oil and Gas	Terry Garret P.O. Box 2735 Midland, TX 79702 432-254-5656	Prospecting or development of natural resource	No	No	N/A	Unable to reach well owner after multiple attempts.
CP-00435-POD2	Skelly Oil Company	H.E. Aab	Secondary recovery of oil	No	No	N/A	P&A'd 8/15/1979
CP-00326-POD1	Charles Whitten Estate	WILLIE P. WHITTEN P.O. Box 233 Jal, NM 88252	Commercial	No	Unknown	N/A	Unable to contact water well owner to obtain permission to sample or confirm presence of actual wellbore.
CP-00879	Don Whitten	P.O. Box 1713 Oracle, AZ 85623	Domestic	No	No	N/A	Permit status is expired.
CP-00115-POD3	Skelly Oil Company	H.E. Aab	Oil production/waterflooding	No	No	N/A	Declaration of water rights; not representative of an active fresh water well.
CP-00115-POD4	Skelly Oil Company	H.E. Aab	Oil production/waterflooding	No	No	N/A	Declaration of water rights; not representative of an active fresh water well.
CP-00899	RRR Land & Cattle Company	T. Richard Crawford P.O. Box 157 Jal, NM 88252 915-559-6779	Livestock watering	No	No	N/A	Conversation with surface owner indicated that the well is no longer active or producing.
CP-00887	RRR Land & Cattle Company	Glenn's Water Well Service	Livestock watering	No	No	N/A	Conversation with surface owner indicated that the well is no longer active or producing.
CP-00510-POD1	Skelly Oil Company	H.E. Aab	Secondary recovery of oil	No	No	N/A	Not an active freshwater well.
CP-00115-POD10	T. Richard Crawford	T. Richard Crawford P.O. Box 157 Jal, NM 88252 915-559-6779	Domestic livestock watering	Yes	Yes	4/25/2024	Sample ID: Crawford WW #2
CP-01414-POD 3	RRR Cattle Company	T. Richard Crawford P.O. Box 157 Jal, NM 88252 915-559-6779	Exploration	Yes	Yes	4/25/2024	Sample ID: Crawford WW #1

Summary: Based on a review of the data from the New Mexico Office of the State Engineer, and conversations with the surface owner, it was determined there are 11 points of diversion (PODs) within one 1-mile of the proposed SHL location. However, only CP-00115-POD 10 represents an active water well. As such CP-01414-POD 3, located 1.1 miles away from the propopsed SHL, was also sampled in support of this C-108 application.

CARDINAL Laboratories

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

May 08, 2024

OLIVER SEEKINS

ALL CONSULTING, LLC

1718 S. CHEYENNE AVE.

TULSA, OK 74119

RE: CRAWFORD

Enclosed are the results of analyses for samples received by the laboratory on 04/25/24 16:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-23-16. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ALL CONSULTING, LLC 1718 S. CHEYENNE AVE. TULSA OK, 74119	Project: CRAWFORD Project Number: NOT GIVEN Project Manager: OLIVER SEEKINS Fax To: NA	Reported: 08-May-24 13:45

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
CRAWFORD WW #1	H242233-01	Water	25-Apr-24 14:47	25-Apr-24 16:00
CRAWFORD WW #2	H242233-02	Water	25-Apr-24 15:10	25-Apr-24 16:00

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ALL CONSULTING, LLC 1718 S. CHEYENNE AVE. TULSA OK, 74119	Project: CRAWFORD Project Number: NOT GIVEN Project Manager: OLIVER SEEKINS Fax To: NA	Reported: 08-May-24 13:45

CRAWFORD WW #1

H242233-01 (Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Alkalinity, Bicarbonate	**195**		5.00	mg/L	1	4041619	CT	30-Apr-24	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	4041619	CT	30-Apr-24	310.1	
Chloride*	**192**		4.00	mg/L	1	4042301	AC	29-Apr-24	4500-Cl-B	
Conductivity*	**993**		1.00	umhos/cm @ 25°C	1	4042624	CT	29-Apr-24	120.1	
pH*	**7.18**		0.100	pH Units	1	4042624	CT	29-Apr-24	150.1	
Temperature °C	**16.8**			pH Units	1	4042624	CT	29-Apr-24	150.1	
Resistivity	**10.1**			Ohms/m	1	4042624	CT	29-Apr-24	120.1	
Sulfate*	**68.6**		25.0	mg/L	2.5	4050114	CT	01-May-24	375.4	QM-07
TDS*	**611**		5.00	mg/L	1	4042436	CT	01-May-24	160.1	
Alkalinity, Total*	**160**		4.00	mg/L	1	4041619	CT	30-Apr-24	310.1	
TSS*	**8.00**		2.00	mg/L	1	4050227	AC	04-May-24	160.2	
Green Analytical Laboratories										
Total Recoverable Metals by ICP (E200.7)										
Barium*	**0.058**		0.050	mg/L	1	B241051	AWG	06-May-24	EPA200.7	
Calcium*	**104**		0.200	mg/L	1	B241051	AWG	06-May-24	EPA200.7	
Hardness as CaCO3	**324**		0.911	mg/L	1	[CALC]	AWG	06-May-24	2340 B	
Iron*	**0.080**		0.050	mg/L	1	B241051	AWG	06-May-24	EPA200.7	
Magnesium*	**15.8**		0.100	mg/L	1	B241051	AWG	06-May-24	EPA200.7	
Potassium*	**3.17**		1.00	mg/L	1	B241051	AWG	06-May-24	EPA200.7	
Sodium*	**68.6**		1.00	mg/L	1	B241051	AWG	06-May-24	EPA200.7	
Strontium*	**1.08**		0.100	mg/L	1	B241051	AWG	06-May-24	EPA200.7	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ALL CONSULTING, LLC 1718 S. CHEYENNE AVE. TULSA OK, 74119	Project: CRAWFORD Project Number: NOT GIVEN Project Manager: OLIVER SEEKINS Fax To: NA	Reported: 08-May-24 13:45

CRAWFORD WW #2

H242233-02 (Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Alkalinity, Bicarbonate	**83.0**		5.00	mg/L	1	4041619	CT	30-Apr-24	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	4041619	CT	30-Apr-24	310.1	
Chloride*	**84.0**		4.00	mg/L	1	4042901	AC	29-Apr-24	4500-Cl-B	
Conductivity*	**501**		1.00	umhos/cm @ 25°C	1	4042624	CT	29-Apr-24	120.1	
pH*	**9.06**		0.100	pH Units	1	4042624	CT	29-Apr-24	150.1	
Temperature °C	**16.7**			pH Units	1	4042624	CT	29-Apr-24	150.1	
Resistivity	**20.0**			Ohms/m	1	4042624	CT	29-Apr-24	120.1	
Sulfate*	**72.0**		10.0	mg/L	1	4050114	CT	01-May-24	375.4	
TDS*	**318**		5.00	mg/L	1	4042436	CT	01-May-24	160.1	
Alkalinity, Total*	**68.0**		4.00	mg/L	1	4041619	CT	30-Apr-24	310.1	
TSS*	**11.0**		2.00	mg/L	1	4050227	AC	04-May-24	160.2	
Green Analytical Laboratories										
Total Recoverable Metals by ICP (E200.7)										
Barium*	<0.050		0.050	mg/L	1	B241051	AWG	06-May-24	EPA200.7	
Calcium*	**37.7**		0.200	mg/L	1	B241051	AWG	06-May-24	EPA200.7	
Hardness as CaCO3	**134**		0.911	mg/L	1	[CALC]	AWG	06-May-24	2340 B	
Iron*	**0.105**		0.050	mg/L	1	B241051	AWG	06-May-24	EPA200.7	
Magnesium*	**9.55**		0.100	mg/L	1	B241051	AWG	06-May-24	EPA200.7	
Potassium*	**2.95**		1.00	mg/L	1	B241051	AWG	06-May-24	EPA200.7	
Sodium*	**50.3**		1.00	mg/L	1	B241051	AWG	06-May-24	EPA200.7	
Strontium*	**0.537**		0.100	mg/L	1	B241051	AWG	06-May-24	EPA200.7	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

ALL CONSULTING, LLC 1718 S. CHEYENNE AVE. TULSA OK, 74119	Project: CRAWFORD Project Number: NOT GIVEN Project Manager: OLIVER SEEKINS Fax To: NA	Reported: 08-May-24 13:45

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4041619 - General Prep - Wet Chem										
Blank (4041619-BLK1)				Prepared & Analyzed: 16-Apr-24						
Alkalinity, Carbonate	ND	1.00	mg/L							
Alkalinity, Bicarbonate	5.00	5.00	mg/L							
Alkalinity, Total	4.00	4.00	mg/L							
LCS (4041619-BS1)				Prepared & Analyzed: 16-Apr-24						
Alkalinity, Carbonate	ND	2.50	mg/L				80-120			
Alkalinity, Bicarbonate	292	12.5	mg/L				80-120			
Alkalinity, Total	240	10.0	mg/L	250		96.0	80-120			
LCS Dup (4041619-BSD1)				Prepared & Analyzed: 16-Apr-24						
Alkalinity, Carbonate	ND	2.50	mg/L				80-120		20	
Alkalinity, Bicarbonate	305	12.5	mg/L				80-120	4.18	20	
Alkalinity, Total	250	10.0	mg/L	250		100	80-120	4.08	20	
Batch 4042301 - General Prep - Wet Chem										
Blank (4042301-BLK1)				Prepared: 23-Apr-24 Analyzed: 24-Apr-24						
Chloride	ND	4.00	mg/L							
LCS (4042301-BS1)				Prepared: 23-Apr-24 Analyzed: 24-Apr-24						
Chloride	100	4.00	mg/L	100		100	80-120			
LCS Dup (4042301-BSD1)				Prepared: 23-Apr-24 Analyzed: 24-Apr-24						
Chloride	104	4.00	mg/L	100		104	80-120	3.92	20	
Batch 4042436 - Filtration										
Blank (4042436-BLK1)				Prepared: 24-Apr-24 Analyzed: 26-Apr-24						
TDS	ND	5.00	mg/L							

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

ALL CONSULTING, LLC 1718 S. CHEYENNE AVE. TULSA OK, 74119	Project: CRAWFORD Project Number: NOT GIVEN Project Manager: OLIVER SEEKINS Fax To: NA	Reported: 08-May-24 13:45

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4042436 - Filtration										
LCS (4042436-BS1)				Prepared: 24-Apr-24 Analyzed: 26-Apr-24						
TDS	802		mg/L	1000		80.2	80-120			
Duplicate (4042436-DUP1)		**Source: H242081-04**		Prepared: 24-Apr-24 Analyzed: 26-Apr-24						
TDS	652	5.00	mg/L		622			4.71	20	
Batch 4042624 - General Prep - Wet Chem										
LCS (4042624-BS1)				Prepared: 26-Apr-24 Analyzed: 29-Apr-24						
Conductivity	513		uS/cm	500		103	80-120			
pH	7.11		pH Units	7.00		102	90-110			
Duplicate (4042624-DUP1)		**Source: H242233-01**		Prepared: 26-Apr-24 Analyzed: 29-Apr-24						
pH	7.22	0.100	pH Units		7.18			0.556	20	
Conductivity	1000	1.00	umhos/cm @ 25°C		993			0.702	20	
Resistivity	10.0		Ohms/m		10.1			0.702	20	
Temperature °C	16.9		pH Units		16.8			0.593	200	
Batch 4042901 - General Prep - Wet Chem										
Blank (4042901-BLK1)				Prepared & Analyzed: 29-Apr-24						
Chloride	ND	4.00	mg/L							
LCS (4042901-BS1)				Prepared & Analyzed: 29-Apr-24						
Chloride	96.0	4.00	mg/L	100		96.0	80-120			
LCS Dup (4042901-BSD1)				Prepared & Analyzed: 29-Apr-24						
Chloride	100	4.00	mg/L	100		100	80-120	4.08	20	

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Celey D. Keene, Lab Director/Quality Manager

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Analytical Results For:

ALL CONSULTING, LLC 1718 S. CHEYENNE AVE. TULSA OK, 74119	Project: CRAWFORD Project Number: NOT GIVEN Project Manager: OLIVER SEEKINS Fax To: NA	Reported: 08-May-24 13:45

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4050114 - General Prep - Wet Chem										
Blank (4050114-BLK1)				Prepared & Analyzed: 01-May-24						
Sulfate	ND	10.0	mg/L							
LCS (4050114-BS1)				Prepared & Analyzed: 01-May-24						
Sulfate	17.3	10.0	mg/L	20.0		86.5	80-120			
LCS Dup (4050114-BSD1)				Prepared & Analyzed: 01-May-24						
Sulfate	18.2	10.0	mg/L	20.0		90.9	80-120	4.96	20	
Batch 4050227 - Filtration										
Blank (4050227-BLK1)				Prepared: 02-May-24 Analyzed: 04-May-24						
TSS	ND	2.00	mg/L							
Duplicate (4050227-DUP1)		**Source: H242233-01**		Prepared: 02-May-24 Analyzed: 04-May-24						
TSS	8.00	2.00	mg/L		8.00			0.00	52.7	

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Analytical Results For:

ALL CONSULTING, LLC 1718 S. CHEYENNE AVE. TULSA OK, 74119	Project: CRAWFORD Project Number: NOT GIVEN Project Manager: OLIVER SEEKINS Fax To: NA	Reported: 08-May-24 13:45

Total Recoverable Metals by ICP (E200.7) - Quality Control

Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B241051 - Total Recoverable by ICP										
Blank (B241051-BLK1)				Prepared: 02-May-24 Analyzed: 06-May-24						
Magnesium	ND	0.100	mg/L							
Barium	ND	0.050	mg/L							
Strontium	ND	0.100	mg/L							
Calcium	ND	0.200	mg/L							
Sodium	ND	1.00	mg/L							
Iron	ND	0.050	mg/L							
Potassium	ND	1.00	mg/L							
LCS (B241051-BS1)				Prepared: 02-May-24 Analyzed: 06-May-24						
Strontium	2.04	0.100	mg/L	2.00		102	85-115			
Sodium	1.61	1.00	mg/L	1.62		99.3	85-115			
Potassium	4.03	1.00	mg/L	4.00		101	85-115			
Magnesium	10.3	0.100	mg/L	10.0		103	85-115			
Iron	2.02	0.050	mg/L	2.00		101	85-115			
Calcium	2.02	0.200	mg/L	2.00		101	85-115			
Barium	1.01	0.050	mg/L	1.00		101	85-115			
LCS Dup (B241051-BSD1)				Prepared: 02-May-24 Analyzed: 06-May-24						
Magnesium	10.2	0.100	mg/L	10.0		102	85-115	0.810	20	
Strontium	2.00	0.100	mg/L	2.00		100	85-115	2.03	20	
Potassium	3.97	1.00	mg/L	4.00		99.2	85-115	1.68	20	
Calcium	1.99	0.200	mg/L	2.00		99.4	85-115	1.51	20	
Sodium	1.59	1.00	mg/L	1.62		98.0	85-115	1.26	20	
Barium	1.02	0.050	mg/L	1.00		102	85-115	1.09	20	
Iron	1.98	0.050	mg/L	2.00		99.2	85-115	1.98	20	

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Notes and Definitions

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

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: All Consulting
Project Manager: Oliver Seekins
Address:
City: State: Zip:
Phone #: Fax #:
Project #: Project Owner:
Project Name:
Project Location:
Sampler Name: Oliver Seekins

BILL TO
P.O. #:
Company:
Attn:
Address:
City:
State: Zip:
Phone #:
Fax #:

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	Cations/anions	Resistivity	TSS	Metals. BxFe, Sr 4/24/24	total hardness
H242233-1	Crawford ww #1	G	2	X						X	X		4/25/24	1447	X	X	X	X	X
-2	Crawford ww #2	G	2	X						X	X		4/25/24	1510	X	X	X	X	X

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Date: 4/25/24 Time: 1600 Received By: S Rodriguez
Relinquished By: Date: Time: Received By:

Verbal Result: ☐ Yes ☐ No Add'l Phone #:
All Results are emailed. Please provide Email address: OSEEKINS@ALL-LLC.com.
REMARKS:

Delivered By: (Circle One) Sampler - UPS - Bus - Other:
Observed Temp. °C 17.1 Corrected Temp. °C
Sample Condition: Cool ☐ Yes ☐ No Intact ☐ Yes ☐ No
CHECKED BY: (Initials) SR

Turnaround Time: Standard ☑ Rush ☐
Thermometer ID #140
Correction Factor 0°C
Bacteria (only) Sample Condition: Cool ☐ Yes ☐ No Intact ☐ Yes ☐ No Observed Temp. °C Corrected Temp. °C

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

FORM-006 R 3.4 07/11/23

Attachment 6

No Hydrologic Connection Statement

ALL CONSULTING

RE: LeaCo Operating LLC – Crawford SWD #1 application, Lea County, New Mexico

ALL Consulting LLC (ALL) has performed a thorough hydrologic investigation related to the one saltwater disposal well (SWD) listed above. The investigation was conducted to determine if there were any existing or potential connections between the proposed injection intervals in the San Andres Formation - Glorieta Sandstone and the deepest underground source of drinking water (USDW).

ALL performed an assessment and analysis of the subsurface geophysical log data along with published documents on the groundwater in this vicinity of Lea County, New Mexico. The surficial geology is Quaternary alluvial deposits consisting predominantly of Holocene and Middle Pleistocene eolian and piedmont deposits. This area is south of the High Plains Aquifer and depths to potable water ranges from 30 to 142 feet below the surface. The USDW is the Rustler Formation and the base of the USDW ranges from about 1,100 to 1,200 feet below the surface. This proposed SWD is within the Capitan Reef and is near old Jal Water System water supply wells drilled into the reef for make-up water for waterflooding operations. A four-string casing and cementing program will be implemented to include isolation of the USDW with surface casing, a 1st intermediate casing set through the base of the Salado evaporites, and a 2nd intermediate casing string set through the base of the Capitan Reef, and production casing set through the injection interval. All casing strings will be cemented back to the surface.

Based on ALL's assessment and analysis there is containment through multiple confining zones in the parts of the San Andres Formation and Salado evaporite deposits above the San Andres - Glorieta Injection Interval and the USDW. There is over 4,350 feet of vertical separation between the base of the USDW and the top of the injection interval and 950 feet of vertical separation between the base of the Capitan Reef and the top of the San Andres – Glorieta injection interval. Additionally, there is no evidence of faults that would allow for communication between the USDW or the Capitan Reef and the San Andres - Glorieta injection interval.

Tom Tomastik 5/8/2024

Tom Tomastik Date

Chief Geologist and Regulatory Specialist

ALL Consulting LLC

CERTIFIED PETROLEUM GEOLOGIST
Thomas E. Tomastik
6354

Attachment 7

Seismic Potential Letter

ALL CONSULTING
GOVERNMENT RELATIONS · ENERGY · PLANNING · TECHNOLOGY
ENGINEERING · ENVIRONMENTAL

May 29, 2024

PN 1905.SWD.01

Mr. Phillip Goetze, P.G.
NM EMNRD – Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Subject: **LeaCo Operating, LLC**
Crawford SWD #1 - Seismic Potential Letter

Dear Mr. Goetze,

At the request of LeaCo Operating, LLC (LeaCo), ALL Consulting, LLC (ALL) has assessed the potential injection-induced seismicity risks in the vicinity of LeaCo's Crawford SWD #1, a proposed saltwater disposal (SWD) facility in Lea County, New Mexico, and summarized the findings in this letter. This assessment used publicly available data to identify the proximity and characteristics of seismic events and known faults to evaluate the potential for the proposed operation of the Crawford SWD #1 to contribute to seismic activity in the area.

Geologic Evaluation

The Crawford SWD #1 is requesting a permit to inject into the Permian San Andres carbonates and Glorieta Sandstone (Glorieta) at a depth of 5,550-6,750 feet below ground surface (bgs). The San Andres Formation is a carbonate formation composed of dolomite and limestone and contains significant secondary porosity development associated with dolomitization and fractures. The proposed injection zone is overlain by approximately 35 feet of low porosity carbonate rocks, within the upper San Andres Formation, which would prevent the upward migration of injection fluid and serve as the upper confining zone (see **Attachment 1**). The Glorieta primarily consists of Permian-age sandstone and approximately 50 feet of low porosity rocks underlie the injection zone, within the Glorieta and upper Yeso Group, which would prevent the downward migration of injection fluid and serve as the lower confining zone (see **Attachment 1**). A stratigraphic chart depicting the geologic setting is included as **Figure 1**.[1]

Seismic Events and Fault Data

A review of United States Geological Survey (USGS) and New Mexico Tech Seismological Observatory (NMTSO) earthquake catalogues determined that twenty-six (26) seismic events have been recorded within a 100 square mile area [9.08-kilometer (km) radius] around the

[1] Yang, K.-M., & Dorobek, S. L. (1995). The Permian Basin of west Texas and New Mexico: Tectonic history of a "composite" Foreland Basin and its effects on stratigraphic development. *Stratigraphic Evolution of Foreland Basins*, 149–174. https://doi.org/10.2110/pec.95.52.0149

Subject SWD. The closest recorded seismic event was a M1.79 that occurred on September 23, 2023, and was located approximately 1.26 miles west of the Crawford SWD #1 (see **Attachment 2**). Fault data from NMTSO indicates that these seismic events have occurred in the Precambrian basement, far below the proposed injection zone.

Figure 1 – Delaware Basin Stratigraphic Chart (Adapted from Yang and Dorobek 1995)

SYSTEM	SERIES/ STAGE	CENTRAL BASIN PLATFORM	DELAWARE BASIN
PERMIAN	OCHOAN	DEWEY LAKE RUSTLER SALADO	DEWEY LAKE RUSTLER SALADO CASTILE
	GUADALUPIAN	TANSILL YATES SEVEN RIVERS QUEEN GRAYBURG SAN ANDRES GLORIETA CLEAR FORK	DELAWARE MT GROUP BELL CANYON CHERRY CANYON BRUSHY CANYON
	LEONARDIAN	WICHITA	BONE SPRING
	WOLFCAMPIAN	WOLFCAMP	WOLFCAMP
PENNSYLVANIAN	VIRGILIAN	CISCO	CISCO
	MISSOURIAN	CANYON	CANYON
	DESMOINESIAN	STRAWN	STRAWN
	ATOKAN	ATOKA — BEND	ATOKA — BEND
	MORROWAN	(ABSENT)	MORROW
MISSISSIPPIAN	CHESTERIAN MERAMECIAN OSAGEAN	CHESTER MERAMEC OSAGE "BARNETT"	CHESTER MERAMEC OSAGE "BARNETT"
	KINDERHOOKIAN	KINDERHOOK WOODFORD	KINDERHOOK WOODFORD
DEVONIAN		DEVONIAN	DEVONIAN
SILURIAN		SILURIAN SHALE FUSSELMAN	MIDDLE SILURIAN FUSSELMAN
ORDOVICIAN	UPPER	MONTOYA	SYLVAN MONTOYA
	MIDDLE	SIMPSON	SIMPSON
	LOWER	ELLENBURGER	ELLENBURGER
CAMBRIAN	UPPER	CAMBRIAN	CAMBRIAN
PRECAMBRIAN			

Fault data from United States Geological Survey (USGS), the Texas Bureau of Economic Geology (BEG)[2], and Sourcewater[3] indicates that the closest known fault in the sedimentary column is located approximately 4.78 miles east of the Crawford SWD #1 (see **Attachment 2**). This identified fault penetrates the Canyon, Cisco, and Wolfcamp formations which begin approximately 3,000 feet below the proposed injection interval. As previously discussed, there are confining barriers beneath the proposed injection interval which will prevent the downward migration of fluids into such faults. Other identified faults within the area of review are within the Precambrian basement, which is approximately 8,250 feet below the proposed injection interval.[4] A map of the seismic events and faults within 9.08 km (100 square miles) of the Crawford SWD #1 is included as **Attachment 2.**

Seismic Potential Evaluation

Experience in evaluating induced seismic events indicates that most injection-induced seismicity throughout the U.S. (e.g., Oklahoma, Ohio, Texas, New Mexico, and Colorado) occurs as a result of injection into Precambrian basement rock, into overlying formations that are in hydraulic communication with the Precambrian basement rock, or as a result of injection near critically stressed and optimally oriented faults. Seismicity at basement depths occurs because critically stressed faults generally originate in crystalline basement rock and may also extend into overlying sedimentary formations. [5]

---

[2] Horne E. A. Hennings P. H., and Zahm C. K. 2021. Basement structure of the Delaware Basin, in The Geologic Basement of Texas: A Volume in Honor of Peter Flawn, Callahan O. A., and Eichubl P., The University of Texas at Austin, Bureau of Economic Geology.

[3] Formation of Occurrence, Strike, Dip, and Length Interpreted by (Cortina, J. E. and Lemons, C. R. 2019. Houston, TX: Sourcewater, Inc.)

[4] G. Randy Keller, J. M. Hills &; Rabah Djeddi, A regional geological and geophysical study of the Delaware Basin, New Mexico and West Texas, Trans Pecos Region (West Texas) (1980).

[5] Ground Water Protection Council and Interstate Oil and Gas Compact Commission. *Potential Injection-Induced Seismicity Associated with Oil & Gas Development: A Primer on Technical and Regulatory Considerations Informing Risk Management and Mitigation.* 2015. 141 pages.

Injection into either the Precambrian basement rock or its overlying formations that are hydraulically connected to the basement rock through faulting or fracture networks can increase the pore pressure and may lead to the fault slipping, resulting in a seismic event.[4] As such, the vertical distance between the injection formation and Precambrian basement rock and the presence or lack of faulting within the injection interval are major considerations when determining the risk of injection-induced seismicity.

Geophysical logs from nearby well records show at least 8,250 feet of vertical separation between the proposed injection interval and the Precambrian basement.[3] In addition, injection-induced seismicity is not typically associated with shallow disposal wells in the Central Basin Platform and Delaware Basin areas, such as the Crawford SWD #1.

For injection into the San Andres Formation and Glorieta Sandstone to contribute to seismic activity, one of two hypothetical geologic scenarios must exist:[6]

1. Scenario #1: Earthquake hypocenters would need to be significantly shallower (several kilometers) than initially identified by the USGS and NMTSO seismic monitoring networks, and thus placing seismic activity high in the sedimentary column, rather than in the Precambrian basement.
2. Scenario #2: This scenario would require that both of the following conditions are met:
    a. Fault Transmissivity: High permeability and transmissive conduits from fault-damaged zones would need to be present below the Glorieta, allowing fluid to migrate through the underlying Tubb Formation and through significantly deeper confining intervals, and eventually into the Precambrian basement.
    b. Pore Pressure: The injection fluids and bottom hole pressures in the San Andres and Glorieta would need to exceed existing hydrostatic pressures within the deeper geologic formation in order for injection fluids to migrate downward.

There are no publications or geologic data that suggest either of these scenarios to be true for the area around the Crawford SWD#1.

Formation Parting Pressure

Class II SWDs in New Mexico are administratively permitted with a maximum pressure gradient of 0.2 psi/ft. Review of New Mexico Oil Conservation Division (OCD) Order IP-459 submitted by BC Operating, Inc. in support of the South Denton 6 State Well #2, which is located approximately 51 miles northeast of the Crawford SWD #1, determined the fracture gradient of the San Andres-Glorieta injection interval to be 0.45 psi/ft from approved step-rate testing. Typical SWD permitting standards in New Mexico, and the requested operating parameters of the Crawford SWD #1, would indicate that formation parting pressure would not be exceeded by the Crawford SWD #1.

[6] Skoumal, Robert J., et al. “Induced Seismicity in the Delaware Basin, Texas.” *Journal of Geophysical Research: Solid Earth*, vol. 125, no. 1, 2020, doi:10.1029/2019jb018558.

Conclusion

As an expert on the issue of induced seismicity, seismic monitoring, and mitigation, it is my opinion that the potential for the Crawford SWD #1 to cause injection-induced seismicity is expected to be minimal, at best. This conclusion assumes the Crawford SWD #1 will be operated below formation parting pressure and is based on:

1. The presence of numerous confining layers above and below the injection interval;
2. Significant vertical distance between the injection zone and identified Precambrian basement rock in which faults have been identified; and
3. Vertical distance from, and lack of historic seismicity on, identified shallow faults in the area of review.

Sincerely,
ALL Consulting

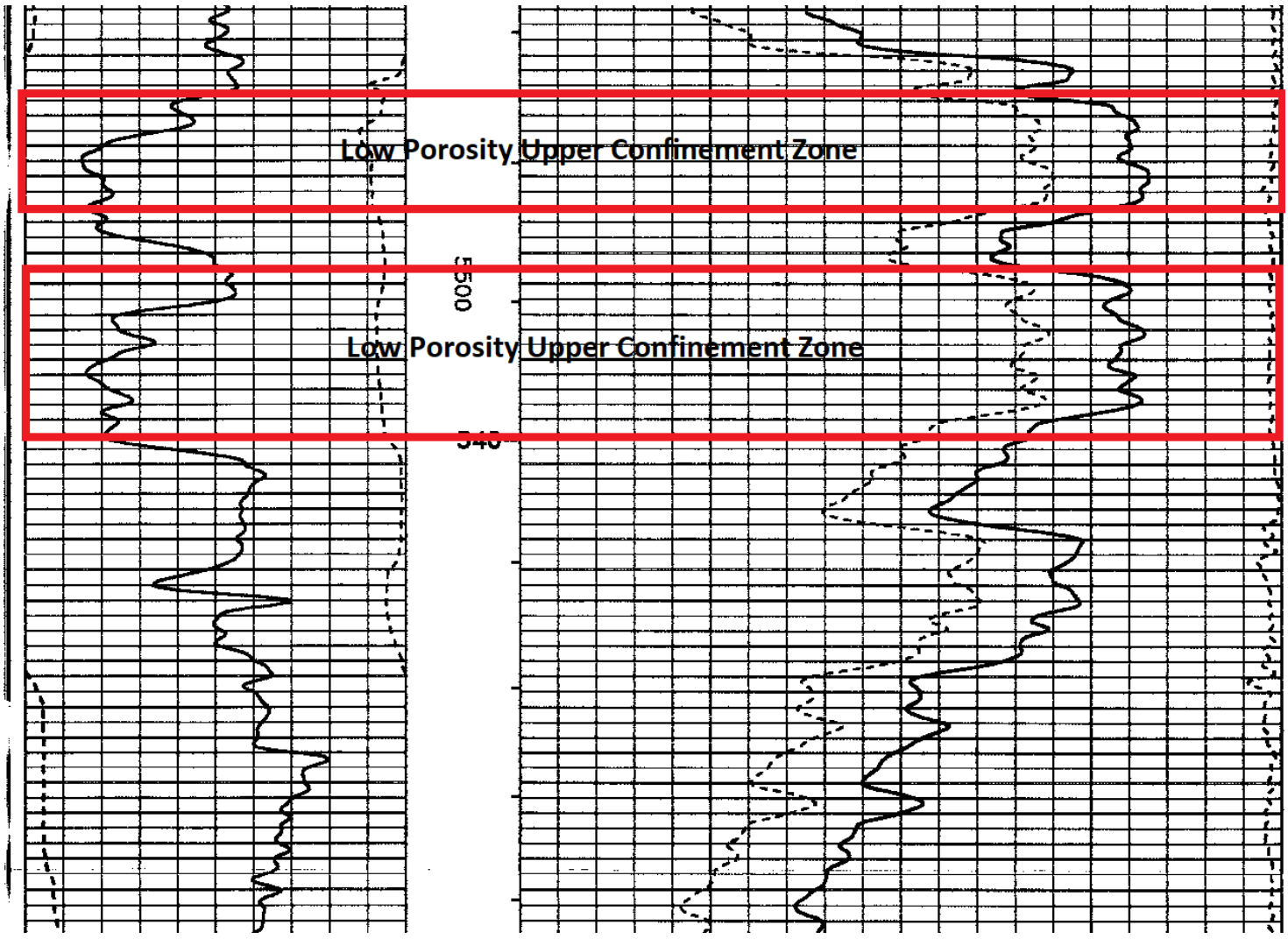
Reed Davis
Geophysicist

LeaCo Operating, LLC
Crawford SWD #1 Seismic Information
May 29, 2024

Attachment 1
Upper and Lower Confining Zones

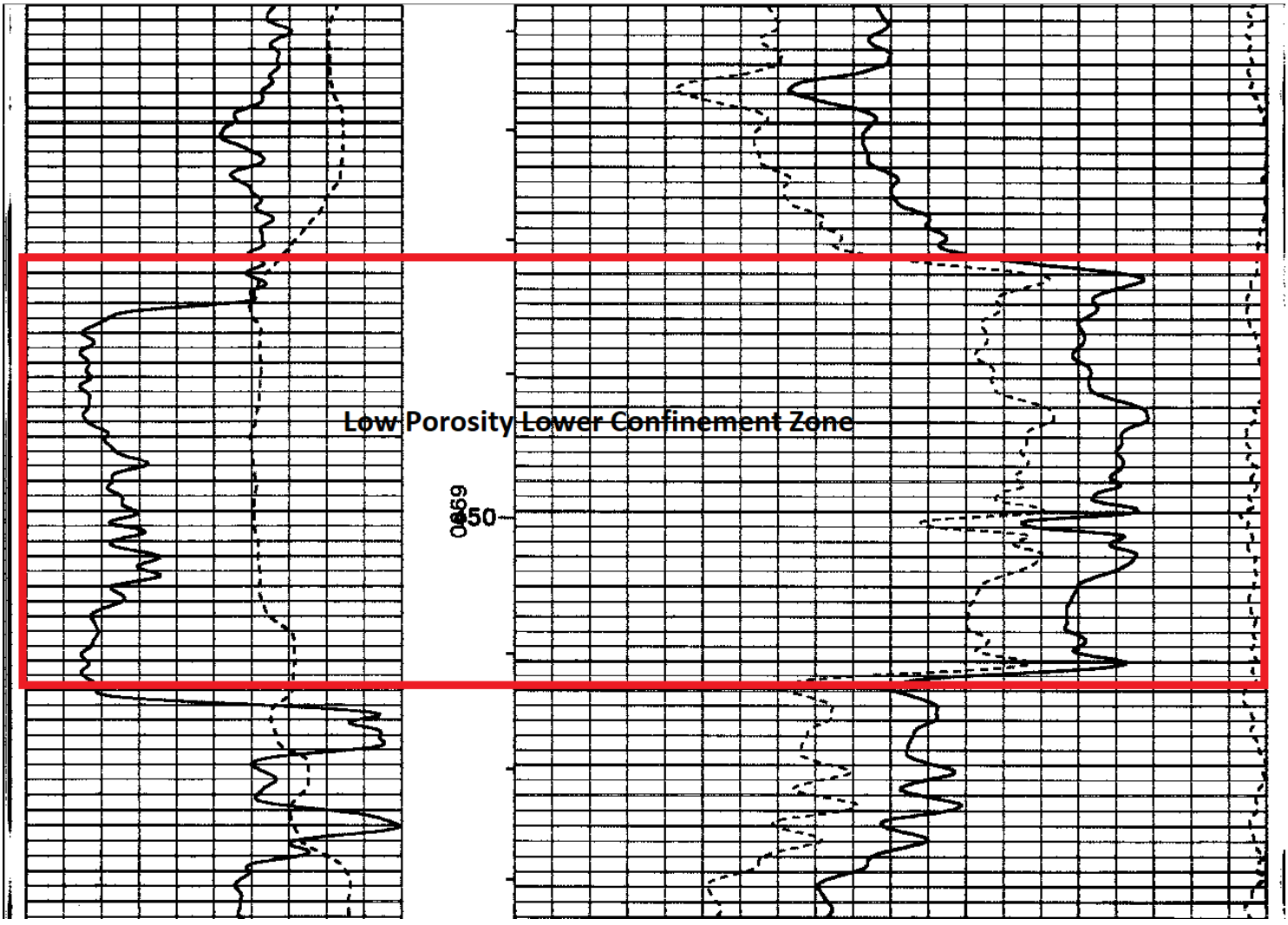
LeaCo Operating, LLC
Crawford SWD #1 Seismic Information
May 29, 2024

San Andres Formation Upper Confining Zone from API No. 025-38571



LeaCo Operating, LLC
Crawford SWD #1 Seismic Information
May 29, 2024

Yeso Group Lower Confining Zone from API No. 025-38571

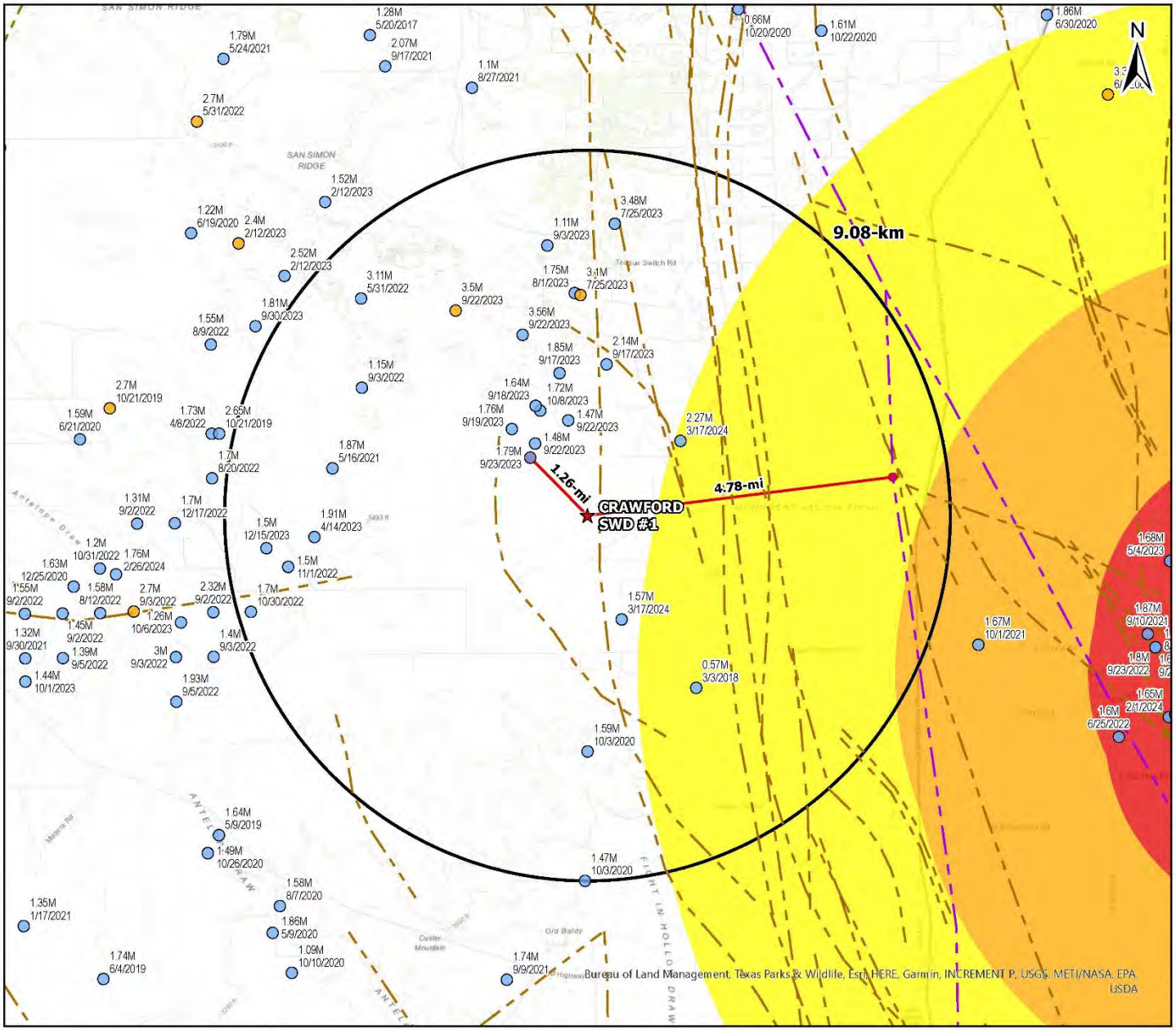


LeaCo Operating, LLC
Crawford SWD #1 Seismic Information
May 29, 2024

Attachment 2
Seismic Event Map

LeaCo Operating, LLC
Crawford SWD #1 Seismic Information
May 29, 2024

Crawford SWD #1 Nearby Seismic Events and Faults



Legend

- Proposed SWD
- USGS Seismic Events (1/29/24)
- NMTSO Seismic Events (5/3/24)
- Shallow Faults
- Deep Faults

Induced Seismicity Buffers

distance

- 0 - 3 mi
- 3 - 6 mi
- 6 - 10 mi

Seismic Analysis Map		
CRAWFORD SWD #1 LEA COUNTY, NEW MEXICO		
Proj Mgr: Oliver Seekins	May 06, 2024	Mapped by: Ben Bockelmann
Prepared for: LeaCo Operating, LLC	Prepared by: ALL CONSULTING	

Attachment 8

Public Notice Affidavit and Notice of Application Confirmations

APPLICATION FOR AUTHORIZATION TO INJECT

NOTICE IS HEREBY GIVEN: That **LeaCo Operating, LLC** of **2121 Sage Road Suite 325 Houston, TX 77056**, is requesting that the New Mexico Oil Conservation Division administratively approve the APPLICATION FOR AUTHORIZATION TO INJECT as follows:

PURPOSE: The intended purpose of the injection well is to dispose of salt water produced from permitted oil and gas wells.

WELL NAME AND LOCATION: Crawford SWD #1
Located 10.26 miles northwest of Jal, NM
SE ¼ SE ¼, Lot P, Section 5, Township 24S, Range 36E
584' FSL & 531' FEL
Lea County, NM

NAME AND DEPTH OF DISPOSAL ZONE: SWD; San Andres-Glorieta (5,550' – 6,750')
EXPECTED MAXIMUM INJECTION RATE: 20,000 bbls/day
EXPECTED MAXIMUM INJECTION PRESSURE: 1,110 psi (surface)

Objections or requests for hearing must be filed with the New Mexico Oil Conservation Division within fifteen (15) days. Any objection or request for hearing should be mailed to the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505.

Additional information may be obtained by contacting Oliver Seekins at 918-382-7581.

Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA

I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

Beginning with the issue dated
May 07, 2024
and ending with the issue dated
May 07, 2024.

Publisher

Sworn and subscribed to before me this 7th day of May 2024.

Business Manager

My commission expires
January 29, 2027

(Seal) STATE OF NEW MEXICO
NOTARY PUBLIC
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COMMISSION # 1087526
COMMISSION EXPIRES 01/29/2027

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said publication has been made.

LEGAL LEGAL

LEGAL NOTICE
May 7, 2024

APPLICATION FOR AUTHORIZATION TO INJECT

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Additional information may be obtained by contacting Oliver Seekins at 918-382-7581.
#00290101

67115320 00290101

DANIEL ARTHUR
ALL CONSULTING
1718 S. CHEYENNE AVE.
TULSA, OK 74119

LeaCo Operating, LLC_Crawford SWD #1 - Notice of Application Recipients						
Affected Party Classification	**Entity - Proof of Notice**	**Entity - As Mapped/Exhibited**	**Address**	**City**	**State**	**Zip Code**
Surface Owner/Mineral Owner	RRR Land & Cattle Company	N/A	P.O. Box 157	Jal	NM	88252
NMOCD District Office	New Mexico Oil Conservation District 1	N/A	1625 N. French Dr	Hobbs	NM	88240
Lessee - Private	Ameredev II, LLC	American Resourc Dev	2901 Via Fortuna, Suite 600	Austin	TX	78746
Lessee - Private	Christensen Petroleum Inc	Christensen Petr	306 W Wall St.	Midland	TX	79701
Lessee - Private	Featherstone Development Corp	Featherstone Dev	1801 W 2nd St.	Roswell	NM	88201
Lessee - Private	Fifty-Six Properties, LP	Fifty Six Prop	1006 Shirley Lane	Midland	TX	79705
Lessee - Private	Jetstream Oil and Gas Partners, LP	Jetstream	101 Nursery Lane, Suite 312	Ft. Worth	TX	76114
Lessee - Private	Matador Resources Company	Matador E&P	5400 LBJ Freeway, Suite 1500	Dallas	TX	75240
Lessee - Private	Matador Resources Company	MRC Permian	5400 LBJ Freeway, Suite 1500	Dallas	TX	75240
Lessee - Private	Sam L. Shackleford	Sam L. Shackleford	1096 Mechem Dr. Suite G-16	Ruidoso	NM	88345
Note: The affected parties above received notification of this C-108 application.						

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FT WORTH TX 76114-4342

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PO BOX 157
JAL NM 88252-0157

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District II
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Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 361090

CONDITIONS

Operator: LeaCo Operating, LLC 2121 Sage Road Houston, TX 77056	OGRID: 331439
	Action Number: 361090
	Action Type: [C-108] Fluid Injection Well (C-108)

CONDITIONS

Created By	Condition	Condition Date
mgebremichael	None	7/21/2024