Additional Information

Raybah Regulator 29 SWD#1 (SWD-2607)

Rec'd April 25, 2024

From: Jack Carter
To: Harris, Anthony, EMNRD
Cc: Nancy Winn (nwinn@sbcglobal.net); Tom Campbell; Goetze, Phillip, EMNRD; Gebremichael, Million, EMNRD; "nate.alleman@aceadvisors.com"
Subject: RE: [EXTERNAL] RE: Inj Permit: Raybah Regulator 29 SWD#1 API 30-015-41034
Date: Thursday, April 25, 2024 12:38:03 PM
Attachments: 3001541034 Raybaw - Regulator 29 SWD #1 - OCD Response Package.pdf

Tony Harris:
Good afternoon. Please find attached the additional information requested (per directive email of 2/20/2024 and 2/28/2024) on Raybaw Operating, LLC's C-108 application for re-authorization of produced water disposal into the Raybaw Operating Regulator 29 SWD #1 (30-015-41034). I regret the time delay in providing the material. The services of ACE Energy Advisors were instrumental in helping us address several of the issues. Appreciate your proceeding with the review of our request under the existing application. Please don't hesitate to contact me if additional information is necessary to complete the re-authorization. Thank you for your time.
Jack

Flint Oak Energy/Raybaw Operating
Jack Carter
VP Land/Advisor
21123 Eva Street, Suite 200
Montgomery, Texas 77356
Direct Phone: 281-387-6515

From: Harris, Anthony, EMNRD [mailto:Anthony.Harris@emnrd.nm.gov]
Sent: Wednesday, February 28, 2024 4:39 PM
To: Jack Carter
Cc: Nancy Winn (nwinn@sbcglobal.net); Tom Campbell; Goetze, Phillip, EMNRD; Gebremichael, Million, EMNRD
Subject: RE: [EXTERNAL] RE: Inj Permit: Raybah Regulator 29 SWD#1 API 30-015-41034

Hi Jack

I checked the system and noted that the C-108 was submitted. So it should not be necessary to re-submit.

For the items outlined in my Feb 20 e-mail (see snapshot below), I suggest compiling all items into a single document and send it via e-mail. We will then incorporate it with your existing application and proceed with our review.

1. A new permit must be obtained.
    a. Please submit a revised C-108 (ie. incorporating the additional items listed below) via the e-permitting portal
2. For Devonian wells, the Area of Review (AOR) must be 1 mile.
    a. Please update the application (C-108 item VI) to include all wells within 1 mile.
    b. Proof of Notice (C-108 item XIII) must also be revised to one mile
3. Include a chemical analysis for fresh water wells within the 1 mile AOR (C-108 Item XI)
    a. Cursory review shows multiple water wells (RA 04160, RA08976,RA02786,RA13336 and RA13308) within a 1 mile radius
4. Further to item 3, an affirmative statement (C-108 item XII) by qualified professional is required
5. The subject well is completed in the Devonian and is approximately 4 miles North-East of a Magnitude 3.3 Seismic event.
    a. An assessment of potential for Induced Seismicity mut be included with the application
    b. Refer to attached example that can be used as a guideline

Best Regards

Regards
Tony Harris
Petroleum Specialist
Anthony.harris@emnrd.nm.gov
505 549 8131.

From: Jack Carter <jack@oaknrg.com>
Sent: Wednesday, February 28, 2024 2:38 PM
To: Harris, Anthony, EMNRD <Anthony.Harris@emnrd.nm.gov>

Cc: Nancy Winn (nwinn@sbcglobal.net) <nwinn@sbcglobal.net>; Tom Campbell <tom@oaknrg.com>; Goetze, Phillip, EMNRD <phillip.goetze@emnrd.nm.gov>; Gebremichael, Million, EMNRD <Million.Gebremichael@emnrd.nm.gov>
Subject: RE: [EXTERNAL] RE: Inj Permit: Raybah Regulator 29 SWD#1 API 30-015-41034

Tony:
Appreciate your taking the time to evaluate and review.
Thank you
Jack

From: Harris, Anthony, EMNRD [mailto:Anthony.Harris@emnrd.nm.gov]
Sent: Wednesday, February 28, 2024 3:36 PM
To: Jack Carter
Cc: Nancy Winn (nwinn@sbcglobal.net); Tom Campbell; Goetze, Phillip, EMNRD; Gebremichael, Million, EMNRD
Subject: RE: [EXTERNAL] RE: Inj Permit: Raybah Regulator 29 SWD#1 API 30-015-41034

Good Afternoon, Jack

Please allow some time for me to check /confirm and I will get back to you. Our UIC group is out of the office this week, so please bear me and I will get back to you ASAP with a definitive answer.

Regards
Tony

From: Jack Carter <jack@oaknrg.com>
Sent: Wednesday, February 28, 2024 2:07 PM
To: Harris, Anthony, EMNRD <Anthony.Harris@emnrd.nm.gov>
Cc: Nancy Winn (nwinn@sbcglobal.net) <nwinn@sbcglobal.net>; Tom Campbell <tom@oaknrg.com>; Goetze, Phillip, EMNRD <phillip.goetze@emnrd.nm.gov>; Gebremichael, Million, EMNRD <Million.Gebremichael@emnrd.nm.gov>
Subject: RE: [EXTERNAL] RE: Inj Permit: Raybah Regulator 29 SWD#1 API 30-015-41034

Tony:
Good afternoon. I believe I may have been unclear in my question. Raybaw filed a new application for the Regulator 29 SWD #1 on January 31, 2024. Certain deficiencies were noted in the filing and stated were requirements that need to be met. Instead of filing for a New Permit and paying an additional Permit fee, May we not work with you to submit the requested additional material and revised exhibits under the existing permit filed in January 2024?
Thanks
Jack

From: Harris, Anthony, EMNRD [mailto:Anthony.Harris@emnrd.nm.gov]
Sent: Wednesday, February 28, 2024 12:43 PM
To: Jack Carter
Cc: Nancy Winn (nwinn@sbcglobal.net); Tom Campbell; Goetze, Phillip, EMNRD; Gebremichael, Million, EMNRD
Subject: RE: [EXTERNAL] RE: Inj Permit: Raybah Regulator 29 SWD#1 API 30-015-41034

Good morning

The disposal permit expired Ipso Facto after one year without injection. You have to start from the beginning.

> The disposal authority granted herein shall terminate two years after the effective date of this order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto*. The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

Regards
Tony Harris
Petroleum Specialist
Anthony.harris@emnrd.nm.gov
505 549 8131.

From: Jack Carter <jack@oaknrg.com>
Sent: Wednesday, February 28, 2024 9:38 AM
To: Harris, Anthony, EMNRD <Anthony.Harris@emnrd.nm.gov>
Cc: Nancy Winn (nwinn@sbcglobal.net) <nwinn@sbcglobal.net>; Tom Campbell <tom@oaknrg.com>
Subject: RE: [EXTERNAL] RE: Inj Permit: Raybah Regulator 29 SWD#1 API 30-015-41034

Anthony:
Good morning. Very much appreciate your time to respond and the clarification. One additional question. In your initial review and response to our C-108 filing indicated was the need to obtain a new Permit. Instead of filing for a New Permit and paying an additional Permit fee, May we not submit the requested additional material and revised exhibits under the existing permit?
Thanks
Jack

From: Harris, Anthony, EMNRD [mailto:Anthony.Harris@emnrd.nm.gov]
Sent: Wednesday, February 28, 2024 8:25 AM
To: Jack Carter
Subject: RE: [EXTERNAL] RE: Inj Permit: Raybah Regulator 29 SWD#1 API 30-015-41034

Good morning, Jack.

The C-108 does specify a ½ mile AOR. However, for wells that inject into the Devonian, the required AOR is 1 mile. My understanding is that specific requirement came from an Oil Conservation Commission ruling.
Unfortunately, the C-108 has not yet been updated to reflect the expanded AOR requirement.

Hope this helps.

Regards
Tony Harris
Petroleum Specialist
Anthony.harris@emnrd.nm.gov
505 549 8131.

From: Jack Carter <jack@oaknrg.com>
Sent: Tuesday, February 27, 2024 8:31 AM
To: Harris, Anthony, EMNRD <Anthony.Harris@emnrd.nm.gov>
Subject: [EXTERNAL] RE: Inj Permit: Raybah Regulator 29 SWD#1 API 30-015-41034

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.
New Mexico State
Oil Conservation Division
Tony Harris

Petroleum Specialist

RE: Permit Application for re-instatement of Permit to inject Lease Water into the Regulator 29 SWD #1

Anthony:
Good morning. Appreciate your response with required need corrections to our request for the reinstatement of the permit for salt water disposal in the Regulator Well of Raybaw's lease produced water. Attempted to reach by the phone number provided below but the voice response indicated the mail box had not been activated. I am involved with revising our submissions and am working toward a timely re submission. Would note that the Form C-108 Revised June 10, 2003 in paragraph V sets out an "one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review" (AOR). By your email this AOR is now 1 mile. Is there a revised more current Form C-108 that we should be using? In advance thank you for your time and assistance.
Thank you
Jack

Flint Oak Energy/Raybaw Operating
Jack Carter
VP Geology & Land/Advisor
21123 Eva Street, Suite 200
Montgomery, Texas 77356
Direct Phone: 281-387-6515

From: Harris, Anthony, EMNRD [mailto:Anthony.Harris@emnrd.nm.gov]
Sent: Tuesday, February 20, 2024 4:45 PM
To: nwinn@sbcglobal.ne
Cc: Gebremichael, Million, EMNRD; Goetze, Phillip, EMNRD
Subject: RE: [EXTERNAL] Re: Inj Permit: Raybah Regulator 29 SWD#1 API 30-015-41034

Good Afternoon, Nancy

With respect to the subject well, and the expired SWD permit, please note the following:

1. A new permit must be obtained.
    a. Please submit a revised C-108 (ie. incorporating the additional items listed below) via the e-permitting portal
2. For Devonian wells, the Area of Review (AOR) must be 1 mile.
    a. Please update the application (C-108 item VI) to include all wells within 1 mile.
    b. Proof of Notice (C-108 item XIII) must also be revised to one mile
3. Include a chemical analysis for fresh water wells within the 1 mile AOR (C-108 Item XI)
    a. Cursory review shows multiple water wells (RA 04160, RA08976,RA02786,RA13336 and RA13308) within a 1 mile radius
4. Further to item 3, an affirmative statement (C-108 item XII) by qualified professional is required
5. The subject well is completed in the Devonian and is approximately 4 miles North-East of a Magnitude 3.3 Seismic event.
    a. An assessment of potential for Induced Seismicity mut be included with the application
    b. Refer to attached example that can be used as a guideline

Feel free to contact me if you have any questions or require clarification

Regards
Tony Harris
Petroleum Specialist
Anthony.harris@emnrd.nm.gov
505 549 8131.

From: Nancy Winn <nwinn@sbcglobal.net>

Sent: Wednesday, January 31, 2024 7:01 AM
To: Goetze, Phillip, EMNRD <phillip.goetze@emnrd.nm.gov>
Cc: Wrinkle, Justin, EMNRD <Justin.Wrinkle@emnrd.nm.gov>; Gebremichael, Million, EMNRD <Million.Gebremichael@emnrd.nm.gov>; Harris, Anthony, EMNRD <Anthony.Harris@emnrd.nm.gov>; Chavez, Carl, EMNRD <Carlj.Chavez@emnrd.nm.gov>
Subject: Re: [EXTERNAL] Re: Inj Permit

Phillip,

Having never tried to file for an Injection Permit, I was hoping someone could give me a little guidance regarding the process. I believe we have all of the required documents (file attached). They are combined into one PDF file. Will they have to be separated out into individual files, or can it be uploaded as one file with tags added?

Please advise. Any assistance is appreciated.

Regards,

Nancy

Nancy J. Winn
Geoscience Analyst
Raybaw Operating, LLC
281-793-5452 (cell)

On Thursday, December 14, 2023 at 04:50:21 PM CST, Goetze, Phillip, EMNRD <phillip.goetze@emnrd.nm.gov> wrote:

Nancy, your request was noted among many others with a reply provided in the order it was received. To the basic question, the rules are specific. Since the well has lost its injection authority due to abandonment, then a new permit must be obtained. This means a new C-108 application for the well by the operator of record.

My observations: The ability of a new UIC permit for the well seems reasonable but would be dependent on Raybaw's proposed operation. The operation of the well for disposal of Raybaw produced water only would be preferable since this well design is from an earlier time where the Mississippian was included with injection in formations below the Woodford. This configuration is no longer approved. Also, OCD has been working with NMBGMR on regional mapping of the Devonian and Montoya. Since this well predates this effort, selection of the original depths for the formations would be required. If a new correlation of the stratigraphic units shows the well was drilled deeper than originally interpreted, then there may be a requirement in any new permit to plugback as to increase the vertical section that isolates the Precambrian. Please contact me with any questions you may have concerning the process or content of this e-mail. PRG

From: Nancy Winn <nwinn@sbcglobal.net>
Sent: Thursday, December 14, 2023 3:08 PM
To: Goetze, Phillip, EMNRD <phillip.goetze@emnrd.nm.gov>
Subject: [EXTERNAL] Re: Inj Permit

Sorry to bug you again, Phil, but I was hoping you could let me know about how to reactivate a disposal well that has not had any injection in over 12 months. See email below.

Any information you can provide will be greatly appreciated.

Thank you!

Nancy

Nancy J. Winn

Geoscience Analyst
Raybaw Operating, LLC
281-793-5452 (cell)

On Tuesday, December 12, 2023 at 09:45:19 AM CST, Nancy Winn <nwinn@sbcglobal.net> wrote:

Phil,

Raybaw Operating acquired a SWD (Effective 3/24/2023) in Eddy County that has had no injection volumes since Jan of 2020. I looked up the rules regarding disposal/injection permits and found that the permit would have automatically been terminated after 12 months of non-injection.

The well in question is the Regulator 29 SWD #1 (API 30-015-41034).

If we choose to reactivate this disposal well, as opposed to plugging it, what process would we need to go through? I was unable to find this online.

Thank you!

Nancy

Nancy J. Winn
Geoscience Analyst
Raybaw Operating, LLC
281-793-5452 (cell)

ACE Energy Advisors

April 25, 2024

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

Subject: Raybaw Operating, LLC
Response to Request for Additional Information
Regulator 29 SWD #1

OCD Engineering Team,

The purpose of this letter is to provide the additional information the New Mexico Oil Conservation Division (OCD) after a technical review of Raybaw Operating, LLC's (Raybaw) Application for Authorization to Inject (Form C-108) for their Regulator 29 SWD #1 (API # 30-015-41034; Order # SWD-2607; App # pMSG2411448586). The Regulator 29 SWD #1 is an existing saltwater disposal whose previous injection authority (Order # SWD-1393-A approved May 6, 2013) has been lost due to inactivity. The purpose of Raybaw's recent C-108 application (pMSG2411448586) is to request reauthorization for the Regulator 29 SWD #1 to inject saltwater from their nearby leases into the Devonian formation in Eddy County, NM.

Below are the requests from OCD along with descriptions of the documents that have been prepared (and attached to this letter in response to OCD's requests:

- **OCD Requests:**
  - Request 1: Increase AOR from ½-mile to 1-mile
  - Request 2: Identification and Notification of Affected Parties within 1-mile AOR
  - Request 3: Chemical Analysis for Fresh Water Wells within 1-mile
  - Request 4: Affirmative Statement by Qualified Professional (C-108 item XII)
  - Request 5: Induced Seismicity Assessment
- **Prepared Response Documents (attached):**
  - Attachment 1: 1-mile AOR Well Map, 1-mile Well Detail List, & 1-mile Leaseholder Map
  - Attachment 2: Updated Statement of Notification & Certified Mailing Receipts
  - Attachment 3: 1-mile Water Well Map, Water Well Details List, and Water Sample Analysis
  - Attachment 4: Affirmative Statement by Qualified Professional
  - Attachment 5: Induced Seismicity Assessment & Fault Slip Potential Model

Questions regarding this letter can be directed to Nate Alleman (Raybaw Regulator Advisor Contractor) via telephone at 918-237-0559 or via email at nate.alleman@aceadvisors.com.

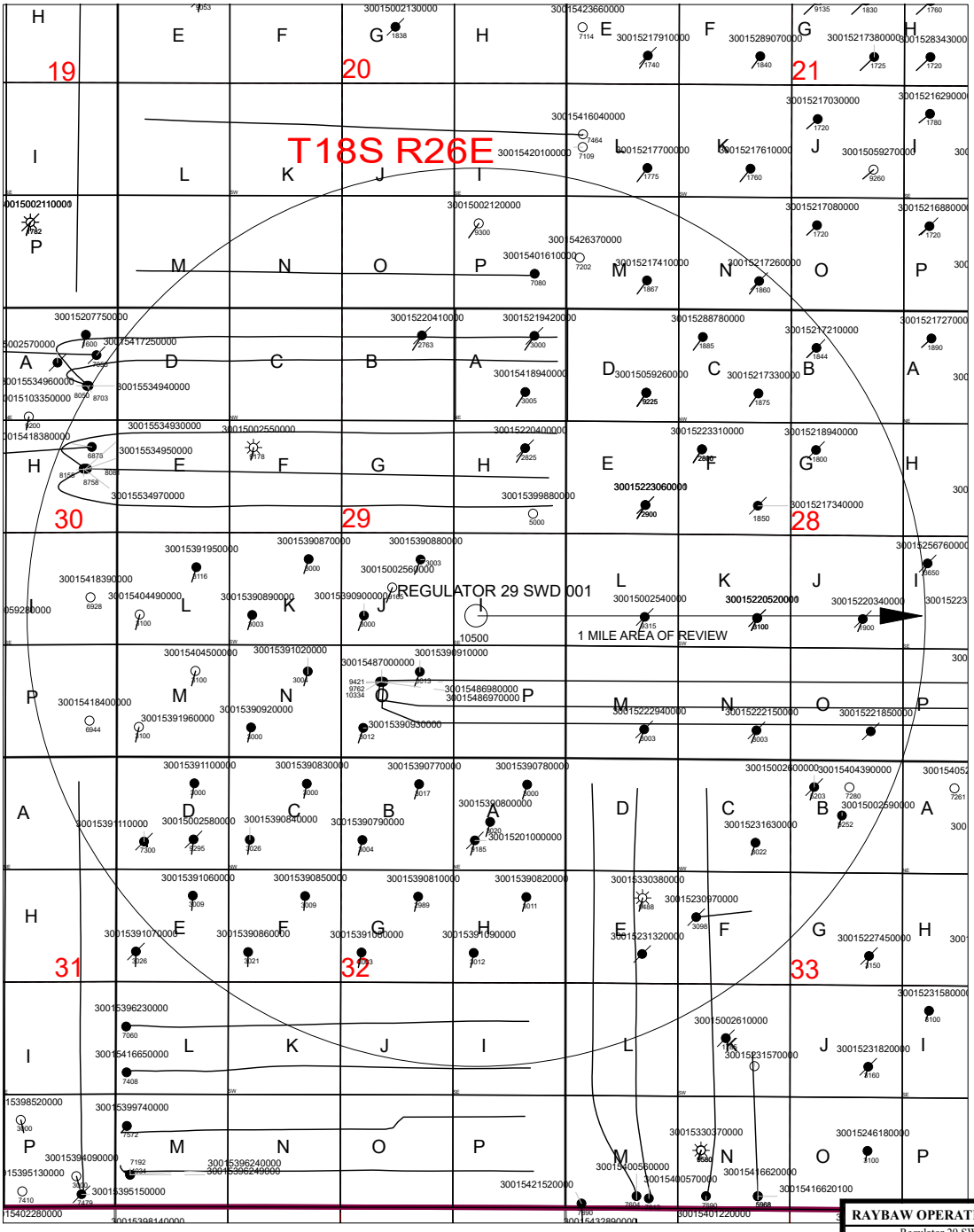
Sincerely,

Nathan Alleman

Nate Alleman
Chief Regulatory Advisor
Ace Energy Advisors

Attachment 1

1-mile AOR Well Map, 1-mile Well Detail List, & 1-mile Leaseholder Map



1 inch = 2000 feet

2000 0 2000 4000 ft

RAYBAW OPERATING, LLC

Regulator 29 SWD #1
Eddy Co., New Mexico

OFFST WELL DATA
T. 18 S. R. 26 E.

Sec 20
Unit Letters M, N, O, P
Sec 21
Unit Letters M, N
Sec28
Unit Letters B, C, D, E, F, G, J, K, L, M, N, O
Sec 29
Unit Letters A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P
Sec 30
Unit Letters A, E, F, G, H, I, J, K, L, M, N, O, P
Sec 32
Unit Letters A, B, C, D, E, F, G, H, I, J, K, L
Sec 33
Unit Letters B, C, D, E, F, K, L, M

Posted Well Data
Well Number

Geol: **Date:** 26 March, 2024

Geoph: **Scale:** 1"= 2,000'

REGULATOR 29 SWD #1

AREA OF REVIEW - OFFSET WELLS

Section 20 Township 18 South Range 26 East									
Unit Letter	API #	Type	Lease Name	Operator	MD	TVD	Class	Status	Penetrates Injection Interval
P-O-N-M	3001540161	H	Kent BSK #01H	Silverback Operating II	7080	2598	Oil	Active	NO
P	3001500212	V	Ethel V Noel #01	Silverback Operating II	9300	9300	Gas	Active	NO
Section 21 Township 18 South Range 26 East									
Unit Letter	API #	Type	Lease Name	Operator	MD	TVD	Class	Status	Penetrates Injection Interval
M	3001542637	H	Dayton EY #003H	EOG Resources	7202	5064	Oil	Cancelled	NO
M	3001521741	V	Dayton FT #01	Silverback Operating II	1867	1867	Oil	Active	NO
N	3001521726	V	Dayton FH #01	EOG Resources	1860	1860	Oil	P&A	NO

Section 28 Township 18 South Range 26 East									
Unit Letter	API #	Type	Lease Name	Operator	MD	TVD	Class	Status	Penetrates Injection Interval
B	3001521721	V	Dayton FG #01	EOG Resources	1844	1844	Oil	P&A	NO
C	3001528878	V	Dayton FN #02	Silverback Operating II	1885	1885	Oil	Active	NO
C	3001521733	V	Dayton FN #1	Silverback Operating II	1875	1875	Oil	Active	NO
D	3001505926	V	Len Mayer #01	Silverback Operating II	9225	9225	Oil	Active	NO
E	3001522306	V	Yates IQ #1	EOG Resources	2900	2900	Oil	P&A	NO
F	3001522331	V	Dayton FO #002	Silverback Operating II	2800	2800	Oil	Active	NO
F	3001521734	V	Dayton FO #1	Citgo	1850	1850	Oil	P&A	NO
G	3001521894	V	E.C. Higgins Est #001	Gulf Energy & Minerals	1800	1800	Oil	P&A	NO
J	3001522034	V	Gulf HI	EOG Resources	1900	1900	Oil	P&A	NO
K	3001522052	V	Mallard HM #2	EOG Resources	3100	3100	Oil	P&A	NO
L	3001500254	V	Mallard HM #1	EOG Resources	9315	9313	Oil	P&A	NO
M	3001522294	V	Ferguson IF #2	EOG Resources	3003	3003	Oil	P&A	NO
N	3001522215	V	Ferguson IF #001	EOG Resources	3003	3003	Oil	P&A	NO
O	3001522185	V	Humphrey IH #001	EOG Resources	3100	3100	Oil	P&A	NO

REGULATOR 29 SWD #1

AREA OF REVIEW - OFFSET WELLS

Section 29 Township 18 South Range 26 East									
Unit Letter	API #	Type	Lease Name	Operator	MD	TVD	Class	Status	Penetrates Injection Interval
A	3001521942	V	Andrew Arnquist Est #002	Revenir Energy	3000	3000	Oil	P&A	NO
A	3001541894	V	Andrew Arnquist Est #005	Extex Operating	3005	3005	Oil	Active	NO
B	3001522041	V	Andrew Arnquist Est #003	Revenir Energy	2763	2367	Oil	P&A	NO
D-C-B-A	3001553496	H	Stros 29 #006H	Spur Energy Partners	8703	3197	Oil	Active	NO
D-C-B-A	3001553494	H	Stros 29 #020H	Spur Energy Partners	8050	2739	Oil	Active	NO
E-F-G-H	3001553497	H	Stos 29 #61H	Spur Energy Partners	8758	6364	Oil	Active	NO
E-F-G-H	3001553493	H	Stros 29 #10H	Spur Energy Partners	8081	2678	Oil	Active	NO
E-F-G-H	3001553495	H	Stros 29 #21H	Spur Energy Partners	8155	2762	Oil	Active	NO
F	3001500255	V	Andrew Arnquist Est #001	Extex Operating	9178	9178	Gas	Active	NO
H	3001522040	V	A Arniquist Estate #4	Revenir Energy	2825	2825	Oil	P&A	NO
H	3001539988	H	Requlator #1H	Nadel and Gussman	5000	4036	Oil	Permit	NO
I	**3001541034**	**V**	**Regulator 29 SWD #1**	**Raybaw Operating**	**10500**	**10476**	**SWD**	**SI**	**YES - Rquest**
J	3001539088	V	Alaska 29 Fee #2	Spur Energy Partners	3003	2996	Oil	Active	NO
J	3001500256	V	Ralph NX #1	Chi Energy	9165	9162	Gas	P&A	NO
J	3001539090	V	Alaska 29 Fee #4	Spur Energy Partners	3000	2993	Oil	Active	NO
K	3001539087	V	Alaska 29 Fee #1	Spur Energy Partners	3000	2993	Oil	Active	NO
K	3001539089	V	Alaska 29 Fee #3	Spur Energy Partners	3003	2996	Oil	Active	NO
L	3001539195	V	California 29 Fee #001	Spur Energy Partners	3116	3116	Oil	Active	NO
L	3001540449	V	California 29 Fee #002	Coterra Energy	3100	3100	Oil	Cancelled	NO
M	3001540450	V	California 29 Fee #003	Coterra Energy	3100	3100	Oil	Cancelled	NO
M	3001539196	V	California 29 Fee #004	Coterra Energy	3100	3100	Oil	Cancelled	NO
N	3001539092	V	Alaska 29 Fee #007	Spur Energy Partners	3000	3000	Oil	Active	NO
N	3001539102	V	Alaska 29 Fee #5	Spur Energy Partners	3004	2998	Oil	Active	NO
O	3001539091	V	Alaska 29 Fee #6	Spur Energy Partners	3013	3006	Oil	Active	NO
O	3001539093	V	Alaska 29 Fee #8	Spur Energy Partners	3012	3005	Oil	Active	NO
O-P	3001548700	H	Nirvana #2H	Spur Energy Partners	9421	4709	Oil	Active	NO
O-P	3001548697	H	Nirvana #3H	Spur Energy Partners	10334	6390	Oil	Active	NO
O-P	3001548698	H	Nirvana #1H	Spur Energy Partners	9762	5399	Oil	Active	NO
O	3001547254	H	Nirvana #2H	Spur Energy Partners	9712	5223	Oil	Cancelled	NO

REGULATOR 29 SWD #1

AREA OF REVIEW - OFFSET WELLS

Section 30 Township 18 South Range 26 East									
Unit Letter	API #	Type	Lease Name	Operator	MD	TVD	Class	Status	Penetrates Injection Interval
A	3001553494	H	Stros 29 #020H	Spur Energy Partners	8050	2739	Oil	Active	NO
A	3001553496	H	Stros 29 #060H	Spur Energy Partners	8703	3197	Oil	Active	NO
H	3001553493	H	Stros 29 #010H	Spur Energy Partners	8081	2678	Oil	Active	NO
H	3001553495	H	Stros 29 #021H	Spur Energy Partners	8155	2762	Oil	Active	NO
H	3001553497	H	Stros 29 #061H	Spur Energy Partners	8758	6364	Oil	Active	NO
H-G-F-E	3001541838	H	Nickson BM #006H	EOG Resources	6878	4599	Oil	Active	NO
I-J-K-L	3001541839	H	Nickson BM #007H	EOG Resources	6928	4660	Oil	Permit	NO
P-O-N-M	3001541840	H	Nickson BM #008H	EOG Resources	6944	4710	Oil	Permit	NO
Section 32 Township 18 South Range 26 East									
Unit Letter	API #	Type	Lease Name	Operator	MD	TVD	Class	Status	Penetrates Injection Interval
A	3001539078	V	Oklahoma 32 Fee #2	Spur Energy Partners	3000	2993	Oil	Active	NO
A	3001539080	V	Oklahoma 32 Fee #4	Spur Energy Partners	3020	3013	Oil	Active	NO
A	3001520100	V	McDonald JB #1	Spur Energy Partners	9185	9185	Oil	P&A	NO
B	3001539077	V	Oklahoma 32 Fee #1	Spur Energy Partners	3017	3010	Oil	Active	NO
B	3001539079	V	Oklahoma 32 Fee #003	Spur Energy Partners	3004	3004	Oil	Active	NO
C	3001539083	V	Texas 32 Fee #002	Spur Energy Partners	3000	3000	Oil	Active	NO
C	3001539084	V	Texas 32 Fee #004	Spur Energy Partners	3026	3026	Oil	Active	NO
D	3001500258	V	Nix Curtis J F #1	EOG Resources	9295	9295	Oil	P&A	NO
D	3001539110	V	Texas 32 Fee #001	Spur Energy Partners	3000	3000	Oil	Active	NO
D	3001539111	V	Tesas 32 Fee #003	Coterra Energy	7300	7300	Oil	P&A	NO
E	3001539106	V	Texas 32 Fee #005	Spur Energy Partners	3009	3009	Oil	Active	NO
F	3001539085	V	Texas 32 Fee #006	Spur Energy Partners	3009	3009	Oil	Active	NO
F	3001539086	V	Texas 32 Fee #008	Spur Energy Partners	3021	3021	Oil	Active	NO
G	3001539081	V	Oklahoma 32 Fee #005	Spur Energy Partners	2989	2989	Oil	Active	NO
G	3001539108	V	Oklahoma 32 Fee #007	Spur Energy Partners	3003	3003	Oil	Active	NO
H	3001539082	V	Oklahoma 32 Fee #006	Spur Energy Partners	3011	3011	Oil	Active	NO
H	3001539109	V	Oklahoma 32 Fee #008	Spur Energy Partners	3012	3012	Oil	Active	NO
L-K-J-I	3001539623	H	Paint 32 Fee #001H	Spur Energy Partners	7060	2664	Oil	Active	NO

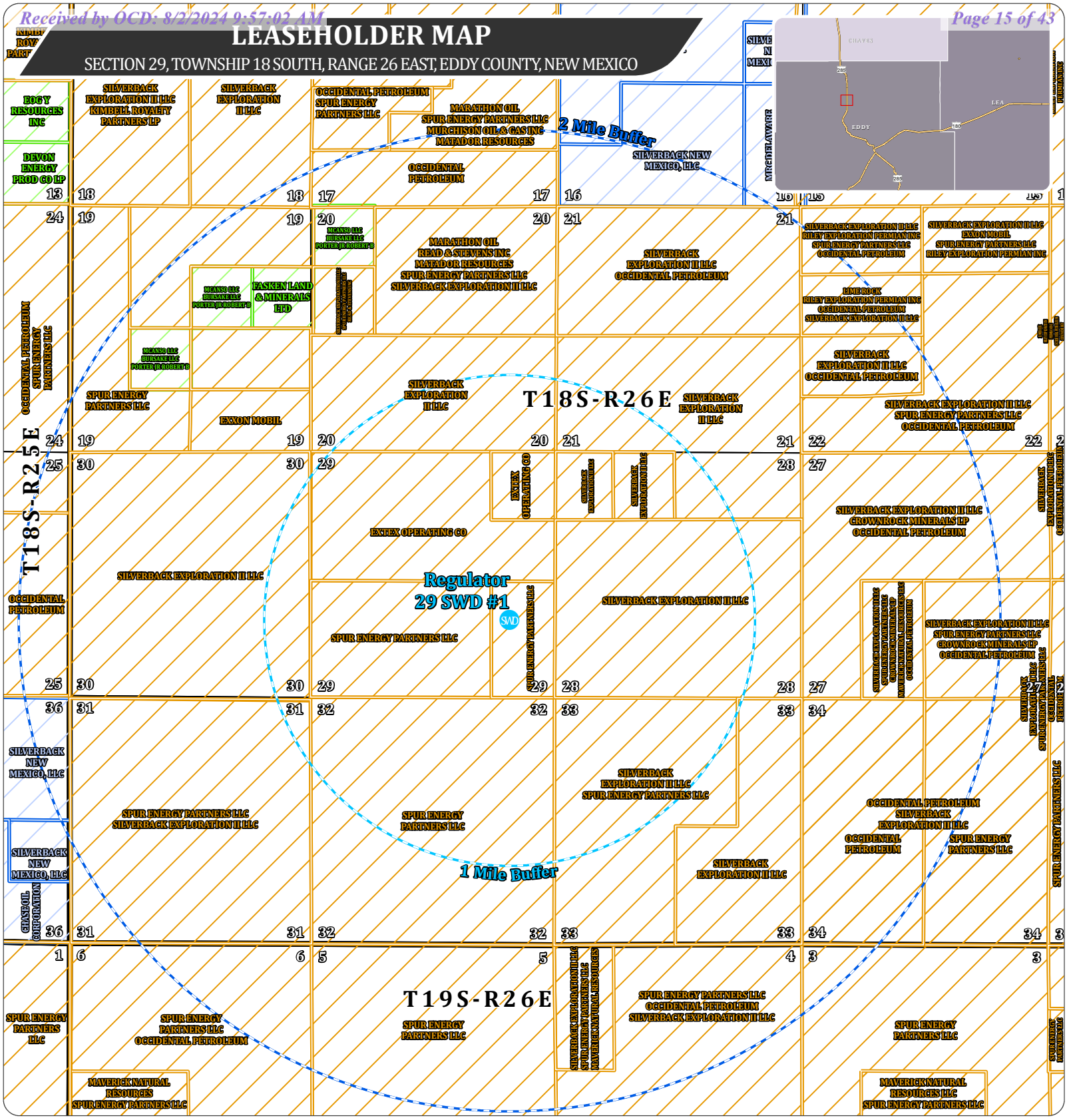
REGULATOR 29 SWD #1

AREA OF REVIEW - OFFSET WELLS

Section 33 Township 18 South Range 26 East									
Unit Letter	API #	Type	Lease Name	Operator	MD	TVD	Class	Status	Penetrates Injection Interval
B	3001500259	V	Cleaveland #001	Silverback Operating II	9252	9252	Oil	Active	NO
B	3001500260	V	Cleaveland #002	EOG Resources	5203	5203	Oil	P&A	NO
B	3001540439	H	Dowell MV #004H	EOG Resources	7280	7280	Oil	Cancelled	NO
C	3001523163	V	Eddie NE #001	Silverback Operating II	3022	3022	Oil	Active	NO
E	3001533038	V	Ribbon BDR	Silverback Operating II	9488	9488	Gas	Active	NO
E	3001523132	V	Lewis MW	EOG Resources	3100	3100	Oil	P&A	NO
F	3001523097	V	Bryan ME	EOG Resources	3098	3098	Oil	P&A	NO
M-L-E-D	3001540056	H	Tarpan 33 Fee #1H	Spur Energy Partners	7604	2617	Oil	Active	NO
M-L-E-D	3001500570	H	Tarpan 33 Fee #002H	Spur Energy Partners	7612	2956	Oil	Active	NO
N-K-F-C	3001540122	H	Tarpan 33 Fee #003H	Spur Energy Partners	7690	2940	Oil	Active	NO

LEASEHOLDER MAP

SECTION 29, TOWNSHIP 18 SOUTH, RANGE 26 EAST, EDDY COUNTY, NEW MEXICO



1:33,000

0 2,000 4,000 6,000 Feet

Project Managed By:
ACE Energy Advisors
(918) 237-0559
nate.alleman@aceadvisors.com
Map Prepared By:
COOSA CONSULTING
(432) 631-4738
info@coosaconsulting.com

Coordinate System:
NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
Projection: Transverse Mercator
Datum: North American 1983
False Easting: 541,337.5000
False Northing: 0.0000
Central Meridian: -104.3333
Scale Factor: 0.9999
Latitude Of Origin: 31.0000
Units: Foot US

Rev: 0

Legend

- Proposed SWD
- 1 Mile Buffer
- 2 Mile Buffer
- BLM Mineral Leases
- NMSLO Mineral
- Private Mineral

Regulator 29 SWD #1

OPERATOR:
RAYBAW OPERATING, LLC

Attachment 2
Updated Statement of Notification & Certified Mailing Receipts

Statement of Affected Person Notification

A copy of the C-108 application has been provided to the following Affected Persons as notification of the subject Application for Authorization to Inject (C-108).

Entity Name	Entity Address	Mailing Date
Site Surface Owner		
Raybaw Operating, LLC	Khanie Nomichit – Land Department 2626 Cole Avenue, Suite 3300 Dallas, TX 75204	01/5/2024
Well Operators		
Silverback Exploration/Operating	19701 IH West, Suite 201 San Antonio, TX 78257	01/5/2024
Extex Operating	1616 S. Voss Road, Suite 400 Houston, TX 77057	04/23/2024
EOG Resources	5509 Champions Drive Midland, TX 79706	04/23/2024
Leaseholders		
Silverback Exploration/Operating	19701 IH West, Suite 201 San Antonio, TX 78257	01/5/2024
Spur Energy Partners	9655 Katy Freeway, Suite 500 Houston, TX 77024	01/5/2024
Extex Operating	1616 S. Voss Road, Suite 400 Houston, TX 77057	04/23/2024

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OFFICIAL USE

Certified Mail Fee $4.35
Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $
- Return Receipt (electronic) $
- Certified Mail Restricted Delivery $ $0.00
- Adult Signature Required $ $0.00
- Adult Signature Restricted Delivery $

Postage $2.07
Total Postage and Fees $9.42

Postmark Here
MONTGOMERY POST OFFICE
JAN - 4 2024
MONTGOMERY TX 77356

Sent To: SILVERBACK EXPLORATION
Street: LAND DEPARTMENT
19707 IH 10 WEST, SUITE 201
City: SAN ANTONIO, TEXAS 78257

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7022 0410 0001 1511 5259

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Certified Mail Fee $4.35
Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $
- Return Receipt (electronic) $
- Certified Mail Restricted Delivery $ $0.00
- Adult Signature Required $
- Adult Signature Restricted Delivery $

Postage $2.55
Total Postage and Fees $10.47

Postmark Here
MONTGOMERY POST OFFICE
JAN - 4 2024
MONTGOMERY TX 77356

Sent To: RAYBAW OPERATING
Street: KHANIE NOMICHIT
LAND DEPARTMENT
2626 COLE AVENUE, SUITE 1300
City: DALLAS, TEXAS 75204

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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Certified Mail Fee $4.35
Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $
- Return Receipt (electronic) $
- Certified Mail Restricted Delivery $ $0.00
- Adult Signature Required $ $0.00
- Adult Signature Restricted Delivery $

Postage $2.07
Total Postage and Fees $9.42

Postmark Here
MONTGOMERY POST OFFICE
JAN - 4 2024
MONTGOMERY TX 77356

Sent To: SPUR ENERGY PARTNERS
Street: LAND DEPARTMENT
9655 KATY FREEWAY, SUITE 500
City: HOUSTON, TEXAS 77024

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7021 1970 0002 2263 0053

U.S. Postal Service™
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OFFICIAL USE

Certified Mail Fee $3.65
Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $
- Return Receipt (electronic) $
- Certified Mail Restricted Delivery $ $0.00
- Adult Signature Required $ $0.00
- Adult Signature Restricted Delivery $

Postage $0.75
Total Postage and Fees $8.73

0356
04

Postmark Here
MONTGOMERY POST OFFICE
APR 23 2024
MONTGOMERY TX 77356

04/23/2024

Sent To: EOG Resources
Street: Land Department
5509 Champions Drive
City: Midland, Texas 79706
(Notice Regulator 29 SWD)

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7021 1970 0002 2263 0046

U.S. Postal Service™
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For delivery information, visit our website at *www.usps.com®*.

OFFICIAL USE

Certified Mail Fee $3.65
Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $
- Return Receipt (electronic) $ $0.00
- Certified Mail Restricted Delivery $
- Adult Signature Required $ $0.00
- Adult Signature Restricted Delivery $

Postage $0.75
Total Postage and Fees $8.73

0356
04

Postmark Here
MONTGOMERY POST OFFICE
APR 23 2024
MONTGOMERY TX 77356

04/23/2024

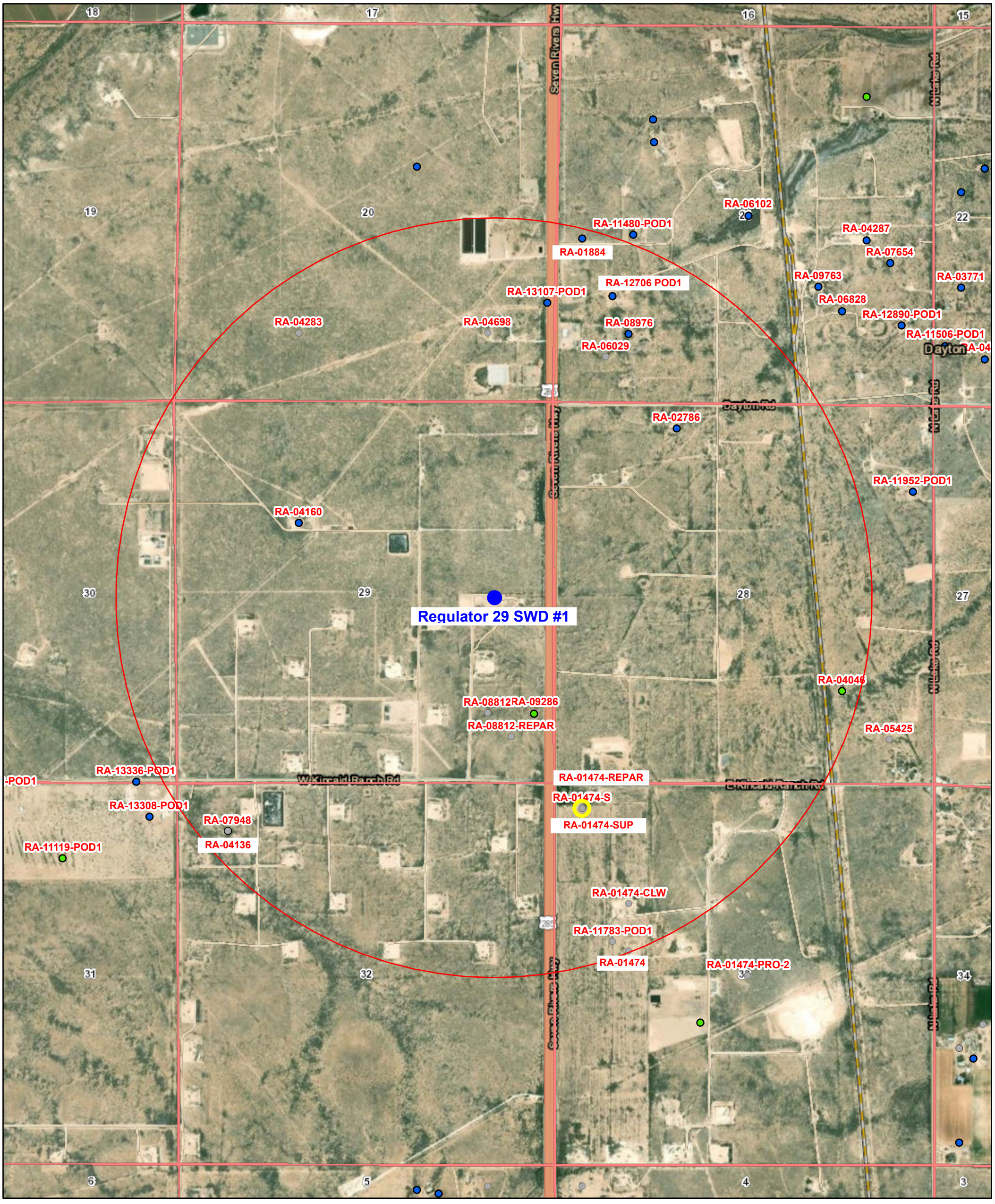
Sent To: Extex Operating
Street: Land Department
1616 S. Voss Road, Suite 400
City: Houston, Texas 77057
(Notice Regulator 29 SWD)

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

Attachment 3

1-mile Water Well Map, Water Well Details List, and Water Sample Analysis

1.0-mile Water Well Map



3/14/2024, 8:48:13 AM

GIS WATERS PODs

- Active
- Pending
- Sections

1:18,056

0 0.17 0.35 0.7 mi

0 0.28 0.55 1.1 km

Esri, HERE, iPC, OSE SLO, Esri, HERE, Garmin, iPC, Maxar

Online web user

This is an unofficial map from the OSE's online application.

Water Well Sampling Table					
Water Well ID	**Status**	**Owner**	**Available Contact Information**	**Use**	**Notes**
RA 13107 POD1	Active	Bien Nacido	Po Box 627 Artesia, NM	Monitoring	Monitoring use - not fresh water supply well
RA 09286	Pending	Clifford W. Nelson	Po Box 2 Lakewood, NM 88254	Domestic	Landowner confirmed water well is not in use.
RA 08976	Active	Joe and Teresa Lemon	42 #2 Dayton Road Artesia,, NM 88210	Domestic	**Sample collected 03/27/2024.**
RA 04698	null	Great Western Drilling Co	Po Box 1659 Midland, TX	Prospecting	O&G Prospecting - not fresh water supply well
RA 04283	null	Great Western Drilling Co	Po Box 1659 Midland, TX	Observation	Observation use - not fresh water supply well
RA 11783 POD1	null	Grr, Inc Cimarex Energy Co	1108 W Pierce Carlsbad, NM 88220	Prospecting	O&G Prospecting - not fresh water supply well
RA 01474 SUP	null	Irvin L. & Darlene N. Smith	P.o. Box 728 Artesia, NM 88210	Irrigation	Field visit confirmed water well is not in use.
RA 01474 REPAR	null	Irvin L. & Darlene N. Smith	P.o. Box 728 Artesia, NM 88210	Irrigation	Field visit confirmed water well is not in use.
RA 01474 CLW	null	Irvin L. & Darlene N. Smith	P.o. Box 728 Artesia, NM 88210	Irrigation	Field visit confirmed water well is not in use.
RA 01474	null	Irvin L. & Darlene N. Smith	P.o. Box 728 Artesia, NM 88210	Irrigation	Field visit confirmed water well is not in use.
RA 01474 S	null	Irvin L. & Darlene N. Smith	P.o. Box 728 Artesia, NM 88210	Irrigation	Field visit confirmed water well is not in use.
RA 01884	Active	Lacy Wilson or Servando & April Bustillos	343 S 13TH STREET, ARTESIA, NM 88210	Domestic	Landowner confirmed water well is not in use.
RA 06029	null	Melanie Waybourn	P.o. Box 767 Flora Vista, NM 87415	Domestic	Field visit confirmed water well is not in use.
RA 08812	null	Nelson Clifford	2408 Iowa Carlsbad, NM 88220	Livestock watering	Landowner confirmed water well is not in use.
RA 08812 REPAR	null	Nelson Clifford	2408 Iowa Carlsbad, NM 88220	Livestock watering	Landowner confirmed water well is not in use.
RA 04160	Active	Noble Drilling Company	Drawer 550 Midland, TX	Observation	Observation use - not fresh water supply well
RA 02786	Active	Pecos Valley Conservancy District	Box 1243 Roswell, NM 88201	Observation	Observation use - not fresh water supply well
RA 07948	null	Dave or Wanda Wilson	361 W KINCAID RANCH ROAD, ARTESIA, NM 88	Livestock watering	Landowner confirmed water well is not in use.
RA 04046	Pending	Raul Canul	Box 427 Lovington, NM	Domestic	Field visit confirmed water well is not in use.
RA 12706 POD1	Active	Lacy Wilson or Servando & April Bustillos	343 S 13TH STREET, ARTESIA, NM 88210	Domestic & Livestock	Landowner confirmed water well is not in use.
RA 04136	Active	Dave or Wanda Wilson	361 W KINCAID RANCH ROAD, ARTESIA, NM 88	Domestic	Landowner confirmed water well is not in use.
Notes:					

CARDINAL Laboratories

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

April 11, 2024

NATE ALLEMAN

ACE ENERGY ADVISORS

501 E. FRANK PHILLIPS BLVD. SUITE 201

BARTLESVILLE, OK 74003

RE: REGULATOR

Enclosed are the results of analyses for samples received by the laboratory on 03/27/24 12:26.

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:

ACE ENERGY ADVISORS 501 E. FRANK PHILLIPS BLVD. SUITE 201 BARTLESVILLE OK, 74003	Project: REGULATOR Project Number: NONE GIVEN Project Manager: NATE ALLEMAN Fax To:	Reported: 11-Apr-24 11:37

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
8976	H241598-01	Water	27-Mar-24 10:00	27-Mar-24 12:26

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:

ACE ENERGY ADVISORS 501 E. FRANK PHILLIPS BLVD. SUITE 201 BARTLESVILLE OK, 74003	Project: REGULATOR Project Number: NONE GIVEN Project Manager: NATE ALLEMAN Fax To:	Reported: 11-Apr-24 11:37

8976

H241598-01 (Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Alkalinity, Bicarbonate	**215**		5.00	mg/L	1	4031332	AC	28-Mar-24	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	4031332	AC	28-Mar-24	310.1	
Chloride*	**28.0**		4.00	mg/L	1	4032702	AC	28-Mar-24	4500-Cl-B	
Conductivity*	**1270**		1.00	umhos/cm @ 25°C	1	4032803	AC	28-Mar-24	120.1	
pH*	**7.08**		0.100	pH Units	1	4032803	AC	28-Mar-24	150.1	
Temperature °C	**18.8**			pH Units	1	4032803	AC	28-Mar-24	150.1	
Resistivity	**7.87**			Ohms/m	1	4032803	AC	28-Mar-24	120.1	
Sulfate*	**439**		83.3	mg/L	8.33	4040105	AC	01-Apr-24	375.4	
TDS*	**958**		5.00	mg/L	1	4040106	AC	02-Apr-24	160.1	
Alkalinity, Total*	**176**		4.00	mg/L	1	4031332	AC	28-Mar-24	310.1	
TSS*	<2.00		2.00	mg/L	1	4032832	AC	02-Apr-24	160.2	
Green Analytical Laboratories										
Total Recoverable Metals by ICP (E200.7)										
Barium*	<0.050		0.050	mg/L	1	B240758	AWG	09-Apr-24	EPA200.7	
Calcium*	**190**		0.200	mg/L	1	B240758	AWG	09-Apr-24	EPA200.7	
Hardness as CaCO3	**661**		0.911	mg/L	1	[CALC]	AWG	09-Apr-24	2340 B	
Iron*	**0.064**		0.050	mg/L	1	B240758	AWG	10-Apr-24	EPA200.7	
Magnesium*	**45.5**		0.100	mg/L	1	B240758	AWG	09-Apr-24	EPA200.7	
Potassium*	**1.17**		1.00	mg/L	1	B240758	AWG	09-Apr-24	EPA200.7	
Sodium*	**21.6**		1.00	mg/L	1	B240758	AWG	09-Apr-24	EPA200.7	
Strontium*	**2.58**		0.100	mg/L	1	B240758	AWG	09-Apr-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:

ACE ENERGY ADVISORS 501 E. FRANK PHILLIPS BLVD. SUITE 201 BARTLESVILLE OK, 74003	Project: REGULATOR Project Number: NONE GIVEN Project Manager: NATE ALLEMAN Fax To:	Reported: 11-Apr-24 11:37

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4031332 - General Prep - Wet Chem										
Blank (4031332-BLK1)				Prepared & Analyzed: 13-Mar-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 (4031332-BS1)				Prepared & Analyzed: 13-Mar-24						
Alkalinity, Carbonate	ND	2.50	mg/L				80-120			
Alkalinity, Bicarbonate	318	12.5	mg/L				80-120			
Alkalinity, Total	260	10.0	mg/L	250		104	80-120			
LCS Dup (4031332-BSD1)				Prepared & Analyzed: 13-Mar-24						
Alkalinity, Carbonate	ND	2.50	mg/L				80-120		20	
Alkalinity, Bicarbonate	330	12.5	mg/L				80-120	3.86	20	
Alkalinity, Total	270	10.0	mg/L	250		108	80-120	3.77	20	
Batch 4032702 - General Prep - Wet Chem										
Blank (4032702-BLK1)				Prepared & Analyzed: 27-Mar-24						
Chloride	ND	4.00	mg/L							
LCS (4032702-BS1)				Prepared & Analyzed: 27-Mar-24						
Chloride	100	4.00	mg/L	100		100	80-120			
LCS Dup (4032702-BSD1)				Prepared & Analyzed: 27-Mar-24						
Chloride	104	4.00	mg/L	100		104	80-120	3.92	20	
Batch 4032803 - General Prep - Wet Chem										
LCS (4032803-BS1)				Prepared & Analyzed: 28-Mar-24						
pH	7.10		pH Units	7.00		101	90-110			

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:

ACE ENERGY ADVISORS 501 E. FRANK PHILLIPS BLVD. SUITE 201 BARTLESVILLE OK, 74003	Project: REGULATOR Project Number: NONE GIVEN Project Manager: NATE ALLEMAN Fax To:	Reported: 11-Apr-24 11:37

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4032803 - General Prep - Wet Chem										
Duplicate (4032803-DUP1)		**Source: H241596-01**		Prepared & Analyzed: 28-Mar-24						
Conductivity	3470	1.00	umhos/cm @ 25°C		3350			3.52	20	
pH	7.08	0.100	pH Units		6.97			1.57	20	
Resistivity	2.88		Ohms/m		2.99			3.52	20	
Temperature °C	19.0		pH Units		18.9			0.528	200	
Batch 4032832 - Filtration										
Blank (4032832-BLK1)				Prepared & Analyzed: 02-Apr-24						
TSS	ND	2.00	mg/L							
Duplicate (4032832-DUP1)		**Source: H241570-02**		Prepared & Analyzed: 02-Apr-24						
TSS	ND	2.00	mg/L		ND				52.7	
Batch 4040105 - General Prep - Wet Chem										
Blank (4040105-BLK1)				Prepared & Analyzed: 01-Apr-24						
Sulfate	ND	10.0	mg/L							
LCS (4040105-BS1)				Prepared & Analyzed: 01-Apr-24						
Sulfate	18.9	10.0	mg/L	20.0		94.4	80-120			
LCS Dup (4040105-BSD1)				Prepared & Analyzed: 01-Apr-24						
Sulfate	17.5	10.0	mg/L	20.0		87.4	80-120	7.76	20	
Batch 4040106 - Filtration										
Blank (4040106-BLK1)				Prepared: 01-Apr-24 Analyzed: 02-Apr-24						
TDS	ND	5.00	mg/L							

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:

ACE ENERGY ADVISORS 501 E. FRANK PHILLIPS BLVD. SUITE 201 BARTLESVILLE OK, 74003	Project: REGULATOR Project Number: NONE GIVEN Project Manager: NATE ALLEMAN Fax To:	Reported: 11-Apr-24 11:37

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4040106 - Filtration										
LCS (4040106-BS1)				Prepared: 01-Apr-24 Analyzed: 02-Apr-24						
TDS	896		mg/L	1000		89.6	80-120			
Duplicate (4040106-DUP1)		**Source: H241596-02**		Prepared: 01-Apr-24 Analyzed: 02-Apr-24						
TDS	599	5.00	mg/L		631			5.20	20	

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:

ACE ENERGY ADVISORS 501 E. FRANK PHILLIPS BLVD. SUITE 201 BARTLESVILLE OK, 74003	Project: REGULATOR Project Number: NONE GIVEN Project Manager: NATE ALLEMAN Fax To:	Reported: 11-Apr-24 11:37

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 B240758 - Total Recoverable by ICP										
Blank (B240758-BLK1)				Prepared: 03-Apr-24 Analyzed: 08-Apr-24						
Magnesium	ND	0.100	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							
Barium	ND	0.050	mg/L							
LCS (B240758-BS1)				Prepared: 03-Apr-24 Analyzed: 08-Apr-24						
Strontium	1.98	0.100	mg/L	2.00		98.8	85-115			
Sodium	1.80	1.00	mg/L	1.62		111	85-115			
Potassium	4.03	1.00	mg/L	4.00		101	85-115			
Barium	1.01	0.050	mg/L	1.00		101	85-115			
Iron	1.96	0.050	mg/L	2.00		98.2	85-115			
Calcium	1.98	0.200	mg/L	2.00		99.2	85-115			
Magnesium	10.3	0.100	mg/L	10.0		103	85-115			
LCS Dup (B240758-BSD1)				Prepared: 03-Apr-24 Analyzed: 08-Apr-24						
Magnesium	10.2	0.100	mg/L	10.0		102	85-115	0.568	20	
Iron	1.93	0.050	mg/L	2.00		96.7	85-115	1.58	20	
Potassium	4.03	1.00	mg/L	4.00		101	85-115	0.0152	20	
Calcium	1.98	0.200	mg/L	2.00		98.8	85-115	0.435	20	
Sodium	1.76	1.00	mg/L	1.62		109	85-115	2.34	20	
Barium	0.982	0.050	mg/L	1.00		98.2	85-115	2.49	20	
Strontium	1.95	0.100	mg/L	2.00		97.3	85-115	1.51	20	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

101 East Marland, Hobbs, NM 88240
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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name:	Ace Energy Advisors
Project Manager:	Nate Alleman
Address:	501 SE Frank Phillips Blvd
City:	Bartlesville State: OK Zip: 74003
Phone #:	918-237-0559 Fax #:
Project #:	Reg Project Owner: Nate Alleman
Project Name:	Regulator
Project Location:	
Sampler Name:	Nate Alleman

BILL TO

P.O. #:	
Company:	Ace Energy Advisors
Attn:	Nate Alleman
Address:	"
City:	"
State:	OK Zip: 74003
Phone #:	918-237-0559
Fax #:	

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	ANALYSIS REQUEST: metals	cations/anions, resistivity	TSS/TDS
H24598-1	8976	C	2	G						X	X		3/27/24	1000	1	1	1

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 consequental 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: 3/27/24	Received By:	Verbal Result: ☐ Yes ☐ No Add'l Phone #:
Nate Allan	Time: ~~1415~~	SRodriguez	All Results are emailed. Please provide Email address:
Relinquished By:	Date: 12Z6	Received By:	REMARKS:
	Time: 8Z		

Delivered By: (Circle One)	Observed Temp. °C	Sample Condition: Cool ☐ Yes ☐ No / Intact ☐ Yes ☐ No	CHECKED BY: (Initials)	Turnaround Time: Standard ☐ Rush ☐
Sampler - UPS - Bus - Other:	Corrected Temp. °C 8.1			Thermometer ID #140 Correction Factor 0°C

Bacteria (only) Sample Condition: Cool ☐ Yes ☐ No / Intact ☐ Yes ☐ No — Observed Temp. °C — Corrected Temp. °C

FORM-006 R 3.4 07/11/23

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

Attachment 4
Affirmative Statement by Qualified Professional

ACE Energy Advisors

Subject C-108 Application for Authorization to inject.
Raybaw Operating, LLC
Regulator 29 SWD #1
1650 FSL 19 & 990 FEL, Sec 29 T18S R26E,
Eddy County, New Mexico

Ace Energy Advisors, LLC has examined available geological and engineering data and finds no evidence of open faults or any other hydrological connection between the disposal zone and any underground sources of drinking water.

Jason Currie
Geologist. TXBG-PG Lic# 10329
Ace Energy Advisors, LLC.

Date 4/18/2024

Attachment 5

Induced Seismicity Assessment & Fault Slip Potential Model

ACE Energy Advisors

SEISMIC RISK ASSESSMENT

Well Information
Regulator 29 SWD #1
Raybaw Operating, LLC
API # 30-015-41034

Well Location
1650 FSL & 990 FEL
Sec 29 Township 18S Range 26 E
Eddy County, New Mexico

Evaluation Performed By:
Jason Currie
Geologist. TXBG-PG Lic# 10329
Ace Energy Advisors, LLC

April 18, 2024

OVERVIEW

GENERAL INFOMRATION

Raybaw Operating, LLC's (Raybaw) Regulator 29 SWD #1 (Subject SWD) is located in Section 29 Township 18 South, Range 26 East in Eddy County, NM, approximately 8 miles south of Artesia, NM. Raybaw proposes open-hole injection of produced water for disposal within the Devonian-Silurian Formation at depths of 9,838 to 10,476 feet (ft) below the ground surface (bgs) at a maximum injection rate of 10,000 barrels (bbls) per day (bpd).

This report provides a description of the Subject SWD and proposed injection formation, existing groundwater sources, geologic isolation to prevent vertical migration of fluids, and assesses the potential for operation of the Subject SWD to result in induced seismicity based on the proximity and characteristics of known faulting and seismicity in the area.

GROUNDWATER SOURCES

Two main aquifer systems, the Pecos Valley Aquifer System (PVAS) and Permian Aquifer System (PAS) act as the principal aquifers in the general region (Cikoski et al., 2020). The base of the lowermost underground source of drinking water (USDW) was previously identified in the original C-108 application as the base of the Grayburg formation, at a depth of approximately 750 ft. A review of New Mexico Office of State Engineer (OSE) water well data indicates that total depths of the water wells within a mile of the Subject SWD range from 125 – 350 ft bgs.

VERTICAL MIGRATION OF FLUIDS

Overlying geologic confinement for the proposed Devonian-Silurian injection interval is provided by the low permeability Woodford Shale (approx. 50 ft thick). The top of the injection interval (9,838 ft bgs) is separated from base of freshwater, identified as the base of the Grayburg formation, by approximately 9,088 ft of rock.

Underlying geologic confinement is provided by the low permeability Ordovician aged Montoya-Simpson Group (approx. 100 ft thick). The Subject SWD will terminate in the Devonian-Silurian formation at a depth of 10,476 ft and the upper and middle Ordovician-aged Montoya and Simpson formations will provide a barrier to ensure that injectate does not communicate with the lower Ordovician-aged Ellenburger, Cambrian, or Precambrian basement rock below. In this area, Precambrian basement rock is expected to occur at a depth of approximately 11,230 ft bgs (see Figure 1, Precambrian contour data source: Ruppel, 2009). Therefore, the proposed injection zone lies approximately 754 ft above the Precambrian basement.

SEISMIC RISK ASSESSMENT

Historical Seismicity

Review of the USGS and New Mexico Tech earthquake catalogs identified 26 seismic events ≥M2.0 within the Seismic Area of Interest ("Seismic AOI"), which includes a 6-mile radius around the Subject SWD. (*Exhibit* 1 & 2)

The seismic events recorded within the Seismic AOI occurred between November 2021 and April 2024 and ranged in Magnitude from M2.0 – M3.93. The events were recorded at depths ranging from 2.03 – 12.42 km (6,660 – 40,748 ft) with 4 events being recorded at a depth range of 2.03 - 2.62 km (6,660 – 8,596 ft), twelve events being recorded with a depth of 5.0 km (16,404 ft) (the default depth used when the depth was not determined), and the remaining 10 events being recorded at depths ranging from 5.99

– 12.42 km (19,652 - 40,748 ft). The events (22 of 26) recorded at depths of 5+ km (16,404+ ft) are deep enough to have occurred in the Precambrian basement.

Of the four events recorded shallower than 5 km (16,404 ft), one had a depth error of 6.1 km (20,013 ft) and one had a latitude and longitude error of 4.09 km (13,419 ft), and the other two did not have latitude/longitude or depth errors determined. The large uncertainties in depth and location, as well as the lack of error values casts significant doubt on the accuracy of the depth and location of these four shallower events.

Additionally, for two events (M2.33 and M3.5) within the Seismic AOI, the recorded locations are within 1-mile of the Subject SWD. However, the locations of these events is called into question because the depth listed for the M2.33 event is the default depth of 5 km (16,404 ft) and no error values were determined for the location or depth. Meanwhile, for the M3.5 event, a latitude/longitude error of 4.09 km (13,419 ft) was calculated. The assignment of default depths, lack of location or depth error values being determined, and large location error values casts doubt that these events occurred in the locations listed, indicating that they likely occurred further away from the Subject SWD than listed in the data.

Faults and Subsurface Conditions

As shown in *Exhibit 3*, the nearest known faults in the proximity of the Subject SWD are basement-rooted fault inferred by Horne et al (2021) located approximately 20 miles to the north, south, and southwest. Information about known nearby faults based on data from Horne et al. (2021) is listed in *Exhibits 4 and 5*. Although there are no publicly known faults present within the Seismic AOI a Fault Slip Potential Model was performed for the Subject SWD (below) based on the three nearest faults.

Snee and Zoback (2020) states, “The profound rotation of SHmax within the Delaware subbasin and Northwest shelf could be an expression of a transition from dominantly approximately north–south SHmax orientations around the Rio Grande Rift (RGF) to approximately east–west and east-northeast–west-southwest orientations that reflect the general state of stress in the central United States.” Around the Subject SWD, Snee and Zoback indicate a SHmax direction of S165°E and an Aφ of 0.75, indicating an extensional (normal) stress regime.

Fault Slip Potential (FSP) Modeling

Induced seismicity is a growing concern of deep SWD wells. Software developed by the Stanford Center for Induced and Triggered Seismicity allows for the probabilistic screening of deeply penetrating faults near the proposed injection zone (Walsh et al., 2016; Walsh et al., 2017). This software uses parameters such as stress orientations, fault strike/dip, injection rates, fault friction coefficients, etc. to estimate the potential for fault slip.

Using the best available data as input parameters (*Exhibit* 4) including the Subject SWD injecting at the proposed maximum of 10,000 bbls/day and all other existing SWDs within a 6 mile radius (3 total SWDs) injecting at their individual historical peak annual volume, ***the model resulted in a FSP value of 0.001 for each of the three modeled faults as inferred by Horne et al. (2021), indicating an extremely low chance of slip through the year 2044 (see Exhibits 3 & 5).***

This model also suggests that at maximum injection of all SWDs within the Seismic AOI, including the Subject SWD, over 20 years would result in no pore pressure increase on these three closest faults (Exhibits 3, 5, & 6). Geomechanical modeling indicates that Faults 1, 2, and 3 would require a pore pressure increase of approximately 2,000 psi, 1,500 psi, and 300 psi to reach even a 50% probability of slip. With an expected pore pressure increase of 0 psi over 20 years, the likelihood of operation of the Subject SWD resulting in fault slippage and associated seismicity is minimal, at best (*Exhibit 6*).

CONCLUDING STATEMENTS

The Devonian-Silurian sequence is well suited as a disposal interval because, 1) the Woodford shale formation provides a low permeability shale barrier overlying the injection interval to prevent upward migration into overlying formations and USDW's, 2) a low permeability carbonate barrier underlying the injection interval prevents downward fluid migration which could result in hydrologic communication with Precambrian basement rock, 3) sufficient permeabilities and porosities in the injection zone over an injection interval thickness of 638 ft should allow for low injection pressures at high injection rates, and 4) Fault Slip Potential and Pore Pressure Modeling demonstrates that the likelihood of operation of the Subject SWD contributing to seismicity in the areas is minimal, at best.

After examination of publicly available geologic and engineering data, there is no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

Exhibit 1. Seismic Event Map (Map and Seismic Data Source: B3 Insights)

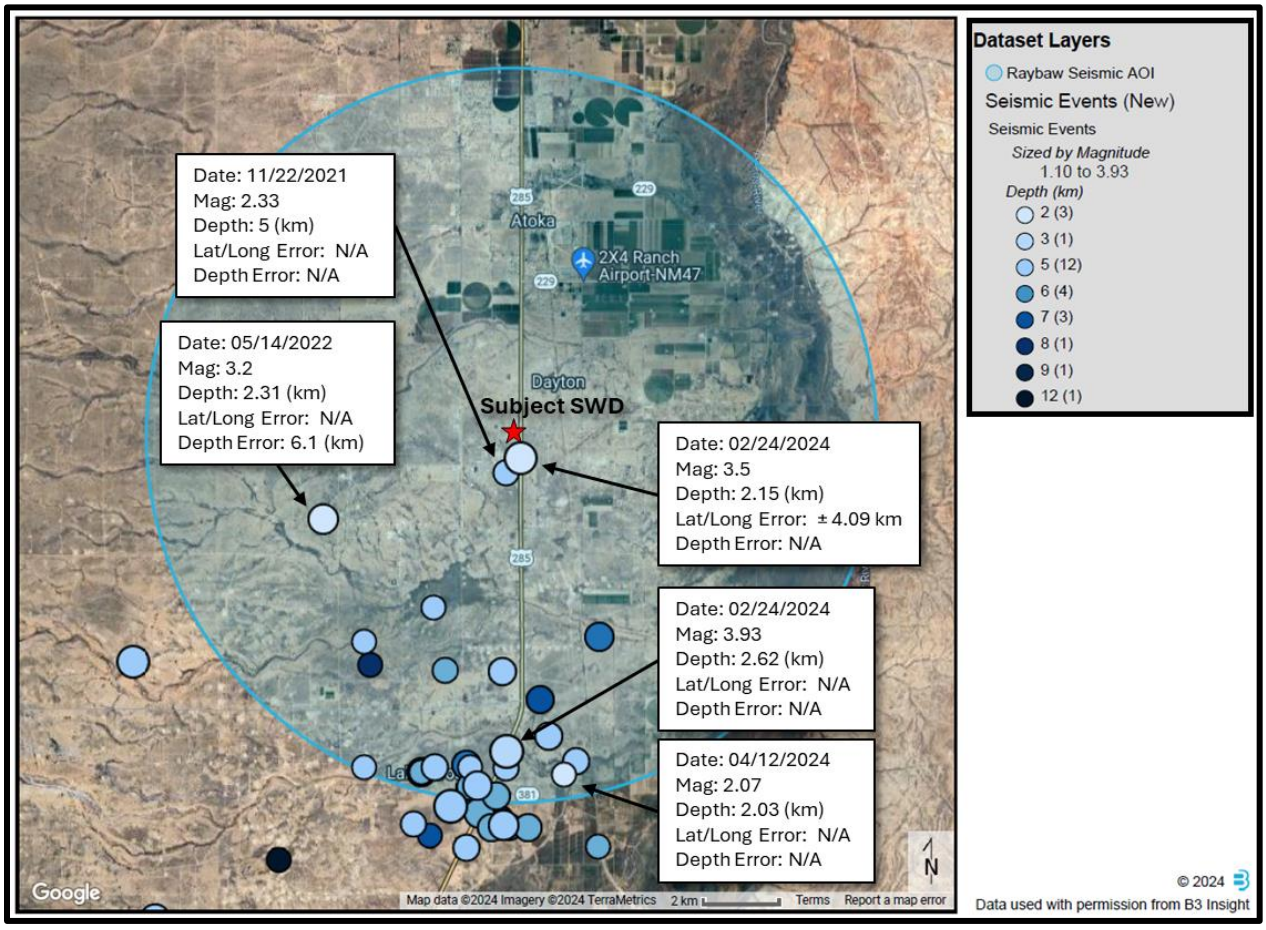
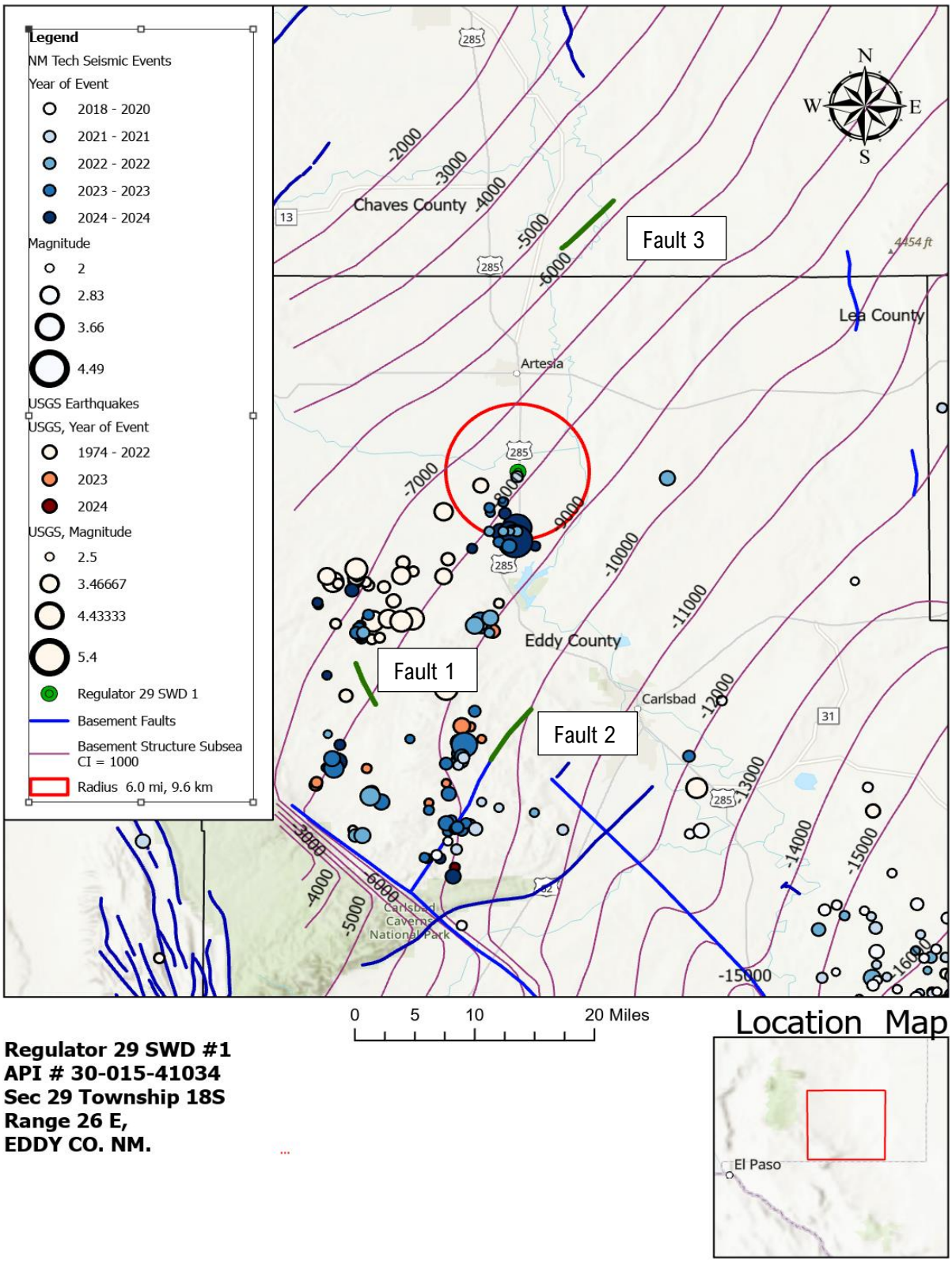


Exhibit 2. Seismic Event Details (New Mexico Tech, 2024)

Data Source	Date	Depth (km)	Depth Error (km)	Magnitude	Latitude Error (km)	Longitude Error (km)	Station Count
NMTSO	11/22/2021	5		2.33			8
USGS	5/14/2022	2.31	6.1	3.2			18
NMTSO	11/30/2022	5		2.1			16
NMTSO	11/30/2022	5		2.1			19
NMTSO	12/6/2022	5		2			21
NMTSO	12/6/2022	5		2.2			24
NMTSO	1/20/2023	5		2.1			34
NMTSO	2/12/2023	5		2.15			31
NMTSO	10/10/2023	8.7		2.02			14
NMTSO	2/23/2024	6.75		2.98			15
NMTSO	2/23/2024	12.42		2.85			20
USGS	2/23/2024	5		2.8	2.81	2.81	22
USGS	2/23/2024	5		2.6	2.71	2.71	16
NMTSO	2/24/2024	5.99		2.17			12
NMTSO	2/24/2024	6		2.33			15
USGS	2/24/2024	2.146		3.5	4.09	4.09	17
NMTSO	2/24/2024	2.62		3.93			27
USGS	3/1/2024	8.394		2.7	2.94	2.94	9
NMTSO	3/7/2024	6		2.48			20
USGS	3/10/2024	5		2.5	1.83	1.83	38
NMTSO	3/10/2024	6		2.65			28
USGS	3/10/2024	5		2.6	2.97	2.97	26
USGS	4/12/2024	5		2.5	1.66	1.66	14
NMTSO	4/12/2024	2.03		2.07			15
NMTSO	4/12/2024	6.79		2.96			25
USGS	4/12/2024	6.994		2.8	2.52	2.52	16

Exhibit 3. Seismic Event and Fault Map with structural contours of the Precambrian basement in feet below sea level (Horne et al., 2021).



Regulator 29 SWD #1
API # 30-015-41034
Sec 29 Township 18S
Range 26 E,
EDDY CO. NM.

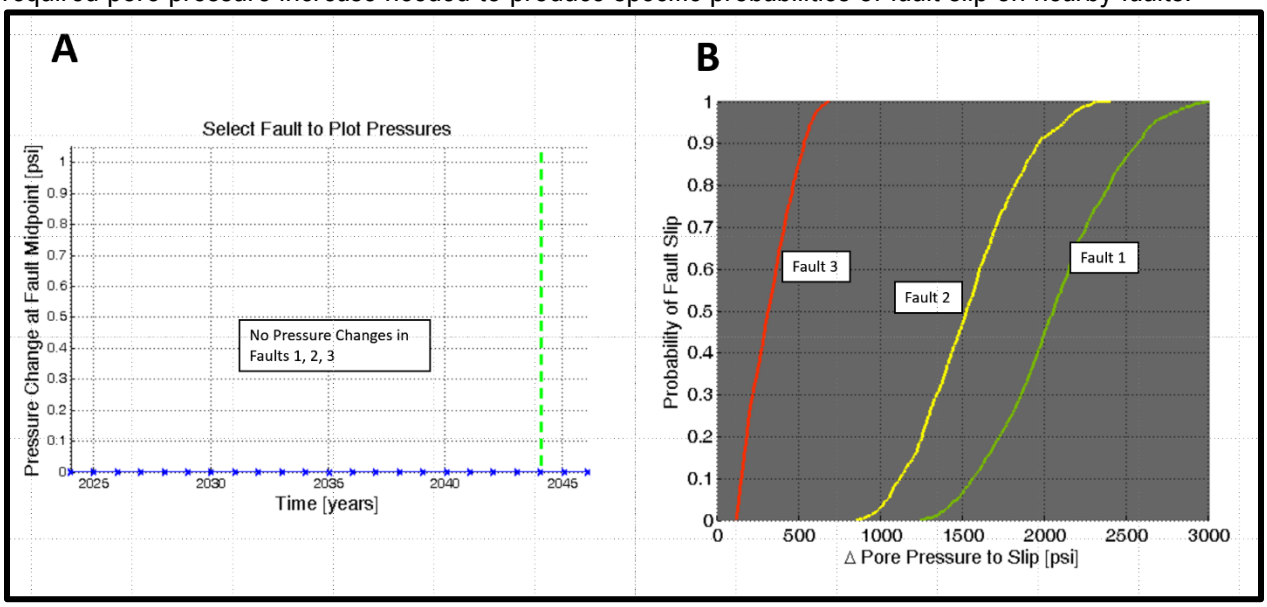
Exhibit 4. Fault Slip Potential Model Input Parameters

Faults	Value	Notes
Friction Coefficient	0.6	Ikari et al. (2011)
Dip Angle	60-72	Horne et al. (2021)
Stress		
Vertical Stress Gradient	1.1	Hurd and Zoback (2012)
Max Horizontal Stress Direction (deg)	165	Snee and Zoback (2018)
Depth for Calculation	9,838	Proposed Injection Zone
Initial Reservoir Pressure Gradient (psi/ft)	0.49	calculated from mud weight (ppg) used in drilling at these depths
A Phi Parameter	0.75	Snee and Zoback (2018)
Reference Friction Coefficient	0.6	Ikari et al. (2011)
Hydrology/Formation Characteristics		
Thickness (ft)	638	Proposed Injection Zone, Devonian-Silurian
Porosity (%)	7	Ruppel and Holtz (1994)
Permeability (mD)	10	Ruppel and Holtz (1994)
Injection Rate (bbl/day)	10,000	Maximum Proposed Injection Rate

Exhibit 5. Nearby Fault Model Results

Fault Number	Distance to Proposed SWD (mi)	Strike (deg)	Dip (deg)	FSP (2044)	Δ Pore Pressure after 20 years (psi)	Δ Pore Pressure needed for 100% FSP (psi)	ΔPore Pressure needed for 50 % FSP (psi)
Fault 1	19	45	72	0.001	0	3,000	2,000
Fault 2	4.6	170	72	0.001	0	2,000	1,500
Fault 3	21	45	72	0.001	0	600	300

Exhibit 6. Fault Slip Potential Model Pore Pressure Data A) Plot showing the modeled change of pore pressure on nearby faults through time as a response to the Subject SWD well. B) Plot showing the required pore pressure increase needed to produce specific probabilities of fault slip on nearby faults.



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Oil Conservation Division
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CONDITIONS

Action 369779

CONDITIONS

Operator: RAYBAW Operating, LLC 2626 Cole Avenue Dallas, TX 75204	OGRID: 330220
	Action Number: 369779
	Action Type: [IM-SD] Admin Order Support Doc (ENG) (IM-AAO)

CONDITIONS

Created By	Condition	Condition Date
anthony.harris	None	8/2/2024