

AE Order Number Banner

Application Number: pMSG2415732192

SWD-2619

RIDGEWAY ARIZONA OIL CORP. [164557]

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? _____ X _____ Yes _____ No

II. OPERATOR: Ridgeway Arizona Oil Corp

ADDRESS: 575 N. Dairy Ashford, Suite 210, Houston, TX 77079

CONTACT PARTY: Nate Alleman (Regulatory Consultant) PHONE: 918-237-0559

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: Nate Alleman TITLE: Regulatory Consultant

SIGNATURE:  DATE: 04/19/2024

E-MAIL ADDRESS: nate.alleman@aceadvisors.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

DISTRICT I
 1825 N. French Dr., Hobbs, NM 88240
 Phone (575) 393-8161 Fax: (575) 393-0720

DISTRICT II
 811 S. First St., Artesia, NM 88210
 Phone (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
 1000 Rio Brazos Rd., Aztec, NM 87410
 Phone (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
 1220 S. St. Francis Dr., Santa Fe, NM 87505
 Phone (505) 476-3480 Fax: (505) 476-3482

State of New Mexico
 Energy, Minerals and Natural Resources Department

Form C-102
 Revised August 1, 2011

Submit one copy to appropriate
 District Office

OIL CONSERVATION DIVISION
 1220 South St. Francis Dr.
 Santa Fe, New Mexico 87505

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-005-	Pool Code 97869	Pool Name SWD; Devonian-Silurian
Property Code	Property Name KIZER SWD	Well Number 3
OGRID No. 164557	Operator Name RIDGWAY ARIZONA OIL CORP.	Elevation 4423'

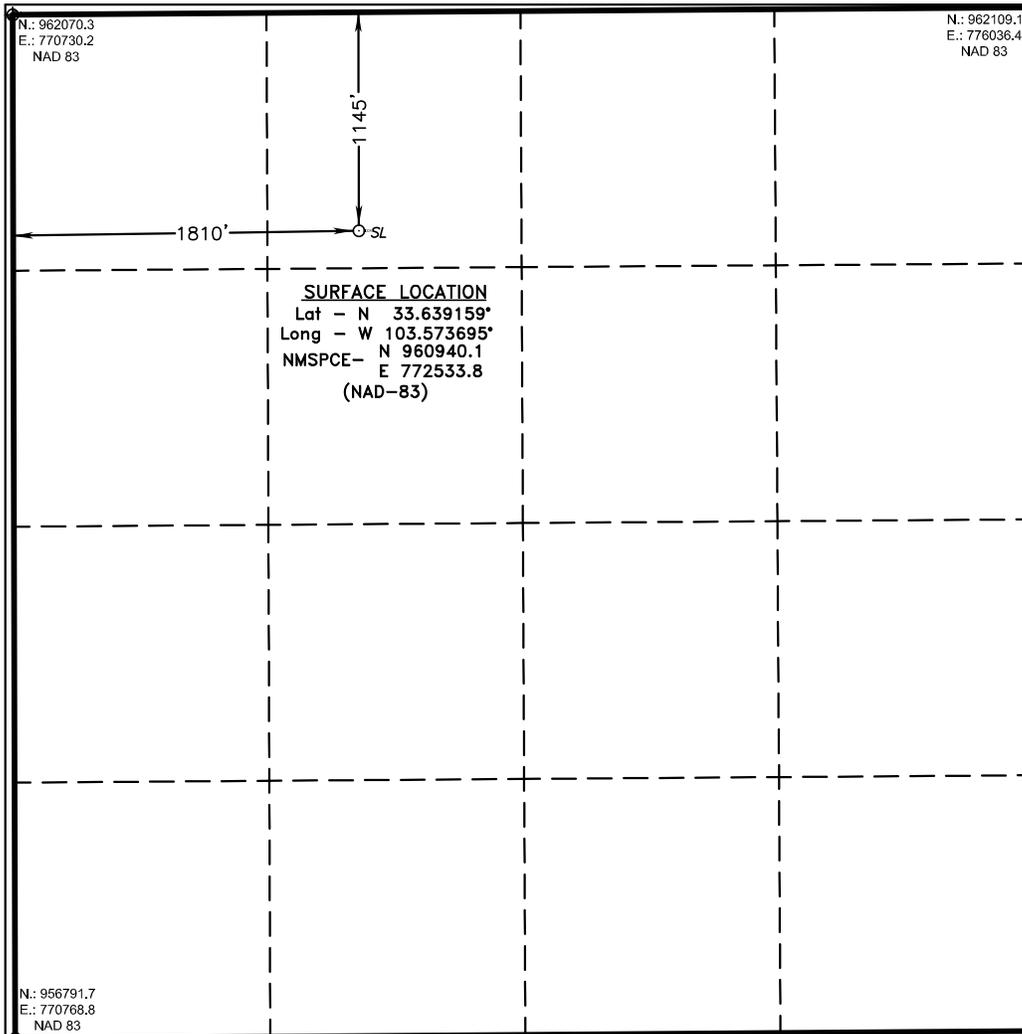
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	9	8 S	33 E		1145	NORTH	1810	WEST	CHAVES

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.

Nathan Alleman 04/16/2024
 Signature Date

Nate Alleman
 Printed Name

nate.alleman@aceadvisors.com
 Email 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.

MARCH 21 2022
 Date Surveyed

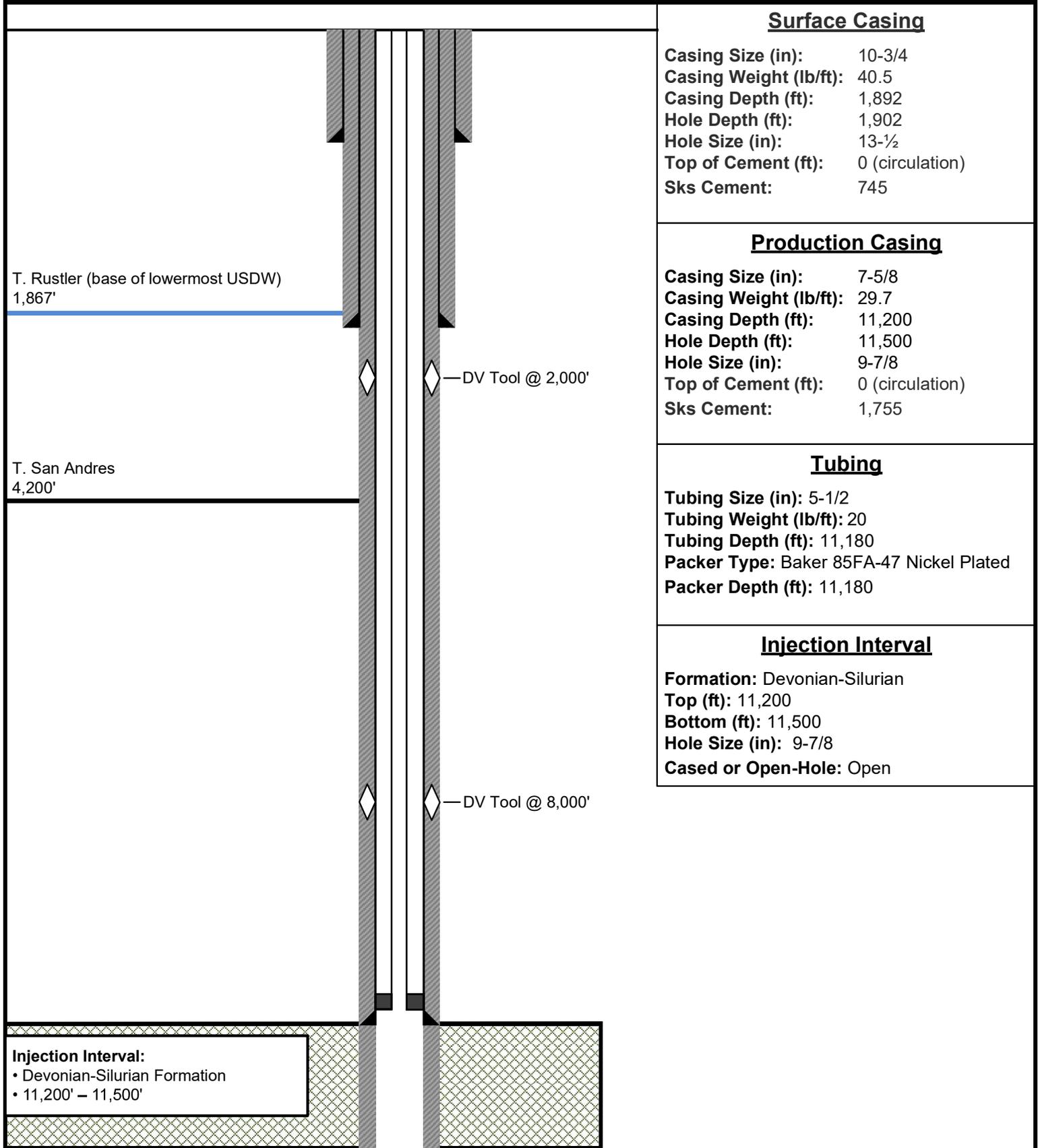
Gary L. Jones
 Signature & Seal of Professional Surveyor 7977

Certificate No. Gary L. Jones 7977
 BASIN SURVEYS

0' 1000' 2000' 3000' 4000'
 SCALE: 1" = 2000'
 WO Num.: 35628

Ridgeway Arizona Oil Corp

Kizer SWD #3 Wellbore Diagram



Surface Casing

Casing Size (in): 10-3/4
 Casing Weight (lb/ft): 40.5
 Casing Depth (ft): 1,892
 Hole Depth (ft): 1,902
 Hole Size (in): 13-1/2
 Top of Cement (ft): 0 (circulation)
 Sks Cement: 745

Production Casing

Casing Size (in): 7-5/8
 Casing Weight (lb/ft): 29.7
 Casing Depth (ft): 11,200
 Hole Depth (ft): 11,500
 Hole Size (in): 9-7/8
 Top of Cement (ft): 0 (circulation)
 Sks Cement: 1,755

Tubing

Tubing Size (in): 5-1/2
 Tubing Weight (lb/ft): 20
 Tubing Depth (ft): 11,180
 Packer Type: Baker 85FA-47 Nickel Plated
 Packer Depth (ft): 11,180

Injection Interval

Formation: Devonian-Silurian
 Top (ft): 11,200
 Bottom (ft): 11,500
 Hole Size (in): 9-7/8
 Cased or Open-Hole: Open

T. Rustler (base of lowermost USDW)
1,867'

DV Tool @ 2,000'

T. San Andres
4,200'

DV Tool @ 8,000'

Injection Interval:

- Devonian-Silurian Formation
- 11,200' – 11,500'

Total Depth: 11,500'

Note: Listed depths and cement volumes are approximates based on available information.

NOT TO SCALE

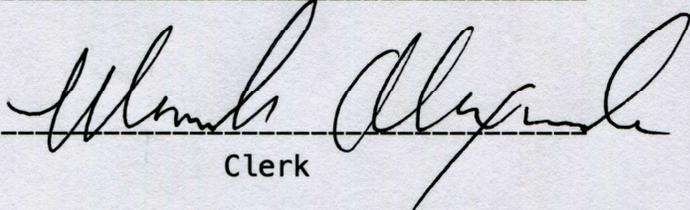
Attachment 8

AFFIDAVIT OF PUBLICATION
STATE OF NEW MEXICO

I, Merle Alexander
Legals Clerk

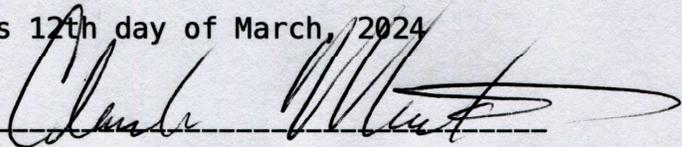
Of the Roswell Daily Record, a daily newspaper published at Roswell, New Mexico do solemnly swear that the clipping hereto attached was published in the regular and entire issue of said paper and not in a supplement thereof for a period of:

One time with the issue dated
February 21st, 2024



Clerk

Sworn and subscribed to before me
this 12th day of March, 2024



Notary Public

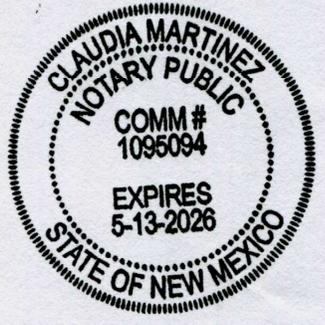
Public Notice...

Publish February 21st, 2024

Ridgeway Arizona Oil Corp., 575 N. Dairy Ashford, Suite 210, Houston, TX 77079, is filing Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for non-commercial saltwater injection into its Kizer SWD #3. This will be a new well located 1,145' FNL & 1,810' FWL in Section 9 Township 8S Range 38E in Chaves County, New Mexico. The purpose of the well is to inject produced water from permitted oil and gas wells in the area for non-commercial disposal into the Devonian-Silurian formation at depths of 11,200' - 11,500' at a maximum surface injection pressure of 2,240 psi and a maximum injection rate of 20,000 barrels of water per day.

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.

Additional information may be obtained by contacting Nate Alleman at 918-237-0559.



Statement of Affected Person Notification

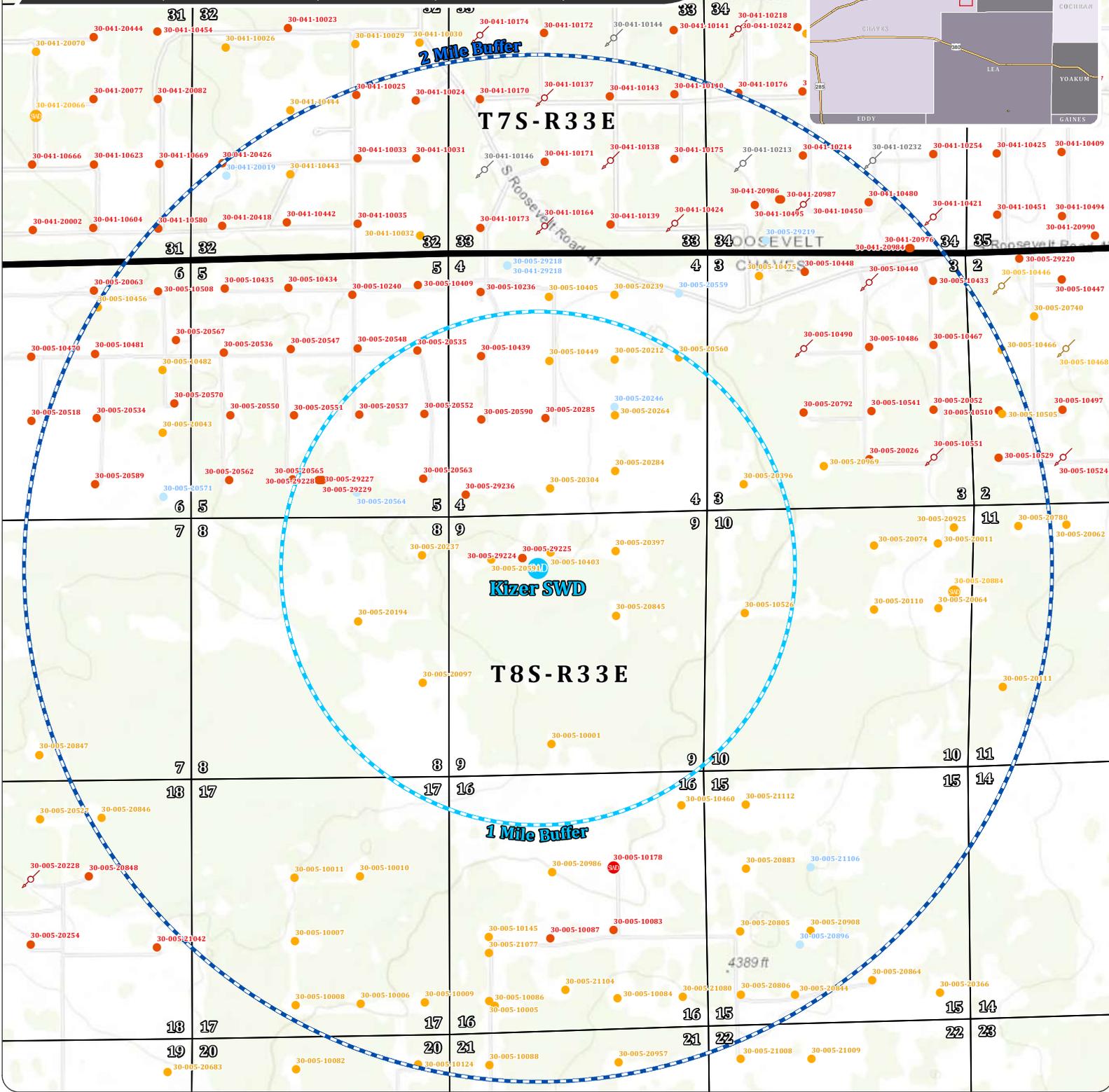
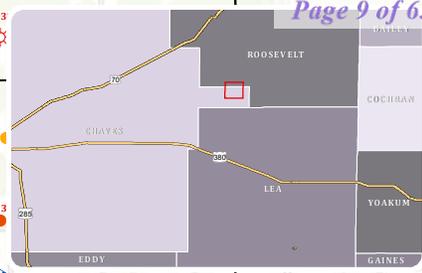
A copy of the C-108 application has been provided to the following Affected Persons as notification of the subject Application for Authorization to Inject (C-108).

Entity Name	Entity Address	Mailing Date
Site Surface Owner		
Shannon Kizer	PO Box 75 Causey, NM 88113	
OCD District Office		
OCD - District 1	1625 N. French Drive Hobbs, NM 88240	
Leaseholders within 1-mile AOR		
Pacific Energy Development Corp	575 N. Dairy Ashford, Ste 210 Houston, TX 77079	
Riley Exploration Permian	305 US Hwy 82 West Plains, TX 79355	
Endeavor Energy Resources, LLC	110 North Marienfield Midland, TX 79701	
Well Operators within 1-Mile AOR		
Ridgeway Arizona Oil Corp	575 N. Dairy Ashford, Suite 210 Houston, TX 77079	
Hadaway Consulting and Engineering, LLC	P.O. BOX 188 Canadian, TX 79014	
AOR Mineral Owners (SLO/BLM/Unleased Minerals)		
Bureau of Land Management	Roswell Field Office 2909 W. Second Street Roswell, NM 88201	
State Land Office	P.O. Box 1148 Santa Fe, NM 87504	

Attachment 2

WELL MAP

SECTION 9, TOWNSHIP 8 SOUTH, RANGE 33 EAST, CHAVEZ COUNTY, NEW MEXICO



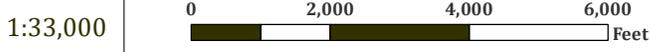
2 Mile Buffer

1 Mile Buffer

Kizer SWD

T8S-R33E

1 Mile Buffer



- Legend**
- Proposed SWD
 - 1 Mile Buffer
 - 2 Mile Buffer
 - ⊕ Gas, Active
 - ⊕ Gas, Cancelled
 - ⊕ Gas, Plugged
 - ⊕ Gas, Temporary Abandonment
 - ⊕ Injection, Active
 - ⊕ Injection, Plugged
 - ⊕ Injection, Temporary Abandonment (expired)
 - Oil, Active
 - Oil, Cancelled
 - Oil, Plugged
 - Oil, Temporary Abandonment
 - Oil, Zone Plugged (permanent)
 - ⊕ Salt Water Disposal, Active
 - ⊕ Salt Water Disposal, Cancelled
 - ⊕ Salt Water Disposal, Plugged
 - ⊕ Water, Active
 - ⊕ Water, Plugged

Kizer SWD

OPERATOR:
RIDGEWAY ARIZONA OIL CORP.

Project Managed By:
ACE Energy Advisors
 (918) 237-0559
 nate.alleman@aceadvisors.com

Map Prepared By:
COOSA CONSULTING
 (432) 631-4738
 info@coosaconsulting.com

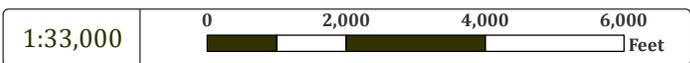
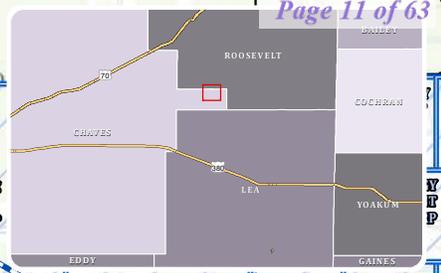
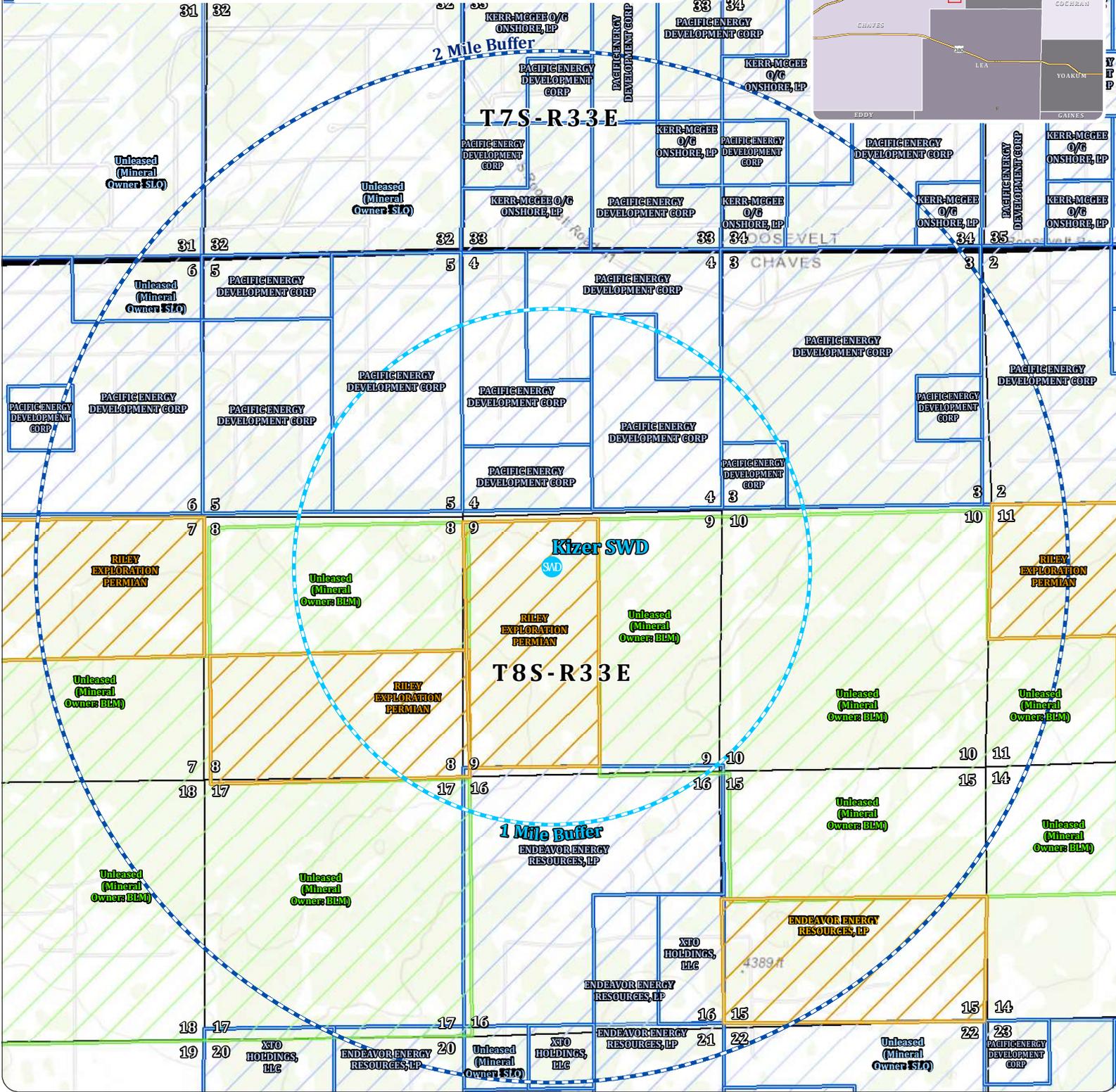
Coordinate System:
 NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
 Projection: Transverse Mercator
 Datum: North American 1983
 False Easting: 541,337.5000
 False Northing: 0.0000
 Central Meridian: -104.3333
 Scale Factor: 0.9999
 Latitude Of Origin: 31.0000
 Units: Foot US

1-mile AOR Tabulation for Kizer SWD #3 (Top of Injection Interval: 11,200')									
Well Name	API#	Well Type	Operator	Status	Spud Date	Location (Sec., Tn., Rng.)	Total Vertical Depth	Penetrate Inj. Zone?	
STATE COM #403H	30-005-29225	Oil	RIDGEWAY ARIZONA OIL CORP.	New	12/21/2021	C-09-08S-33E	0	No	
STATE COM #402H	30-005-29224	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	12/7/2021	C-09-08S-33E	4,320	No	
PRE-ONGARD WELL #012	30-005-20564	Oil	PRE-ONGARD WELL OPERATOR	Cancelled	-	O-05-08S-33E	0	No	
PRE-ONGARD WELL #001	30-005-20194	Oil	PRE-ONGARD WELL OPERATOR	Plugged	12/13/1967	G-08-08S-33E	4,420	No	
STATE 5-8-33 #009	30-005-20537	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	6/3/1976	J-05-08S-33E	4,545	No	
STATE 5-8-33 #011	30-005-20563	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	4/18/1977	P-05-08S-33E	4,520	No	
STATE 5-8-33 #010	30-005-20552	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	9/13/1976	I-05-08S-33E	4,450	No	
PRE-ONGARD WELL #001	30-005-20237	Oil	PRE-ONGARD WELL OPERATOR	Plugged	2/26/1968	A-08-08S-33E	4,410	No	
STATE 5-8-33 #006	30-005-20535	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	7/15/1976	H-05-08S-33E	4,485	No	
PRE-ONGARD WELL #001	30-005-20097	Oil	PRE-ONGARD WELL OPERATOR	Plugged	7/330/67	I-08-08S-33E	4,309	No	
STATE I #004	30-005-20590	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	5/18/1977	L-04-08S-33E	4,485	No	
STATE I #002	30-005-10439	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	4/13/1966	E-04-08S-33E	4,482	No	
PRE-ONGARD WELL #002	30-005-20591	Oil	PRE-ONGARD WELL OPERATOR	Plugged	5/3/1977	D-09-08S-33E	4,500	No	
PRE-ONGARD WELL #001	30-005-10001	Oil	PRE-ONGARD WELL OPERATOR	Plugged	4/13/1963	N-09-08S-33E	4,405	No	
PRE-ONGARD WELL #001	30-005-20304	Oil	PRE-ONGARD WELL OPERATOR	Plugged	7/1/1969	N-04-08S-33E	4,438	No	
PRE-ONGARD WELL #001	30-005-10403	Oil	PRE-ONGARD WELL OPERATOR	Plugged	11/28/1965	C-09-08S-33E	4,440	No	
PRE-ONGARD WELL #002	30-005-10449	Oil	PRE-ONGARD WELL OPERATOR	Plugged	5/15/1966	F-04-08S-33E	4,431	No	
STATE I #003	30-005-20285	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	3/12/1969	K-04-08S-33E	4,418	No	
PRE-ONGARD WELL #001	30-005-20264	Oil	PRE-ONGARD WELL OPERATOR	Plugged	10/25/1968	J-04-08S-33E	4,420	No	
PRE-ONGARD WELL #001	30-005-20397	Oil	PRE-ONGARD WELL OPERATOR	Plugged	1/20/1972	B-09-08S-33E	4,365	No	
PRE-ONGARD WELL #002	30-005-20284	Oil	PRE-ONGARD WELL OPERATOR	Plugged	3/9/1969	O-04-08S-33E	4,436	No	
PRE-ONGARD WELL #002	30-005-20246	Oil	PRE-ONGARD WELL OPERATOR	Cancelled	-	J-04-08S-33E	0	No	
PRE-ONGARD WELL #001	30-005-20845	Oil	PRE-ONGARD WELL OPERATOR	Plugged	2/15/1982	G-09-08S-33E	4,400	No	
PRE-ONGARD WELL #001	30-005-20212	Oil	PRE-ONGARD WELL OPERATOR	Plugged	1/6/1968	G-04-08S-33E	4,415	No	
PRE-ONGARD WELL #004	30-005-20560	Oil	PRE-ONGARD WELL OPERATOR	Plugged	10/10/1976	H-04-08S-33E	4,505	No	
PRE-ONGARD WELL #001	30-005-20396	Oil	PRE-ONGARD WELL OPERATOR	Plugged	1/8/1972	M-03-08S-33E	4,372	No	
PRE-ONGARD WELL #001	30-005-10526	Oil	PRE-ONGARD WELL OPERATOR	Plugged	10/8/1966	E-10-08S-33E	4,440	No	
STATE #502H	30-005-29227	Oil	HADAWAY CONSULTING AND ENGINEERING, LLC	New	-	N-05-08S-33E	0	No	
STATE #503H	30-005-29228	Oil	HADAWAY CONSULTING AND ENGINEERING, LLC	New	-	N-05-08S-33E	0	No	
STATE #504H	30-005-29229	Oil	HADAWAY CONSULTING AND ENGINEERING, LLC	New	-	O-05-08S-33E	0	No	
STATE #401H	30-005-29236	Oil	HADAWAY CONSULTING AND ENGINEERING, LLC	New	-	M-04-08S-33E	0	No	

Notes: No wells within the 1/2-mile AOR penetrate the injection interval

LEASEHOLDER MAP

SECTION 9, TOWNSHIP 8 SOUTH, RANGE 33 EAST, CHAVEZ COUNTY, NEW MEXICO



Project Managed By:
ACE Energy Advisors
 (918) 237-0559
 nate.allen@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

Legend

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

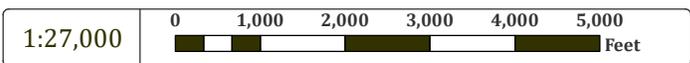
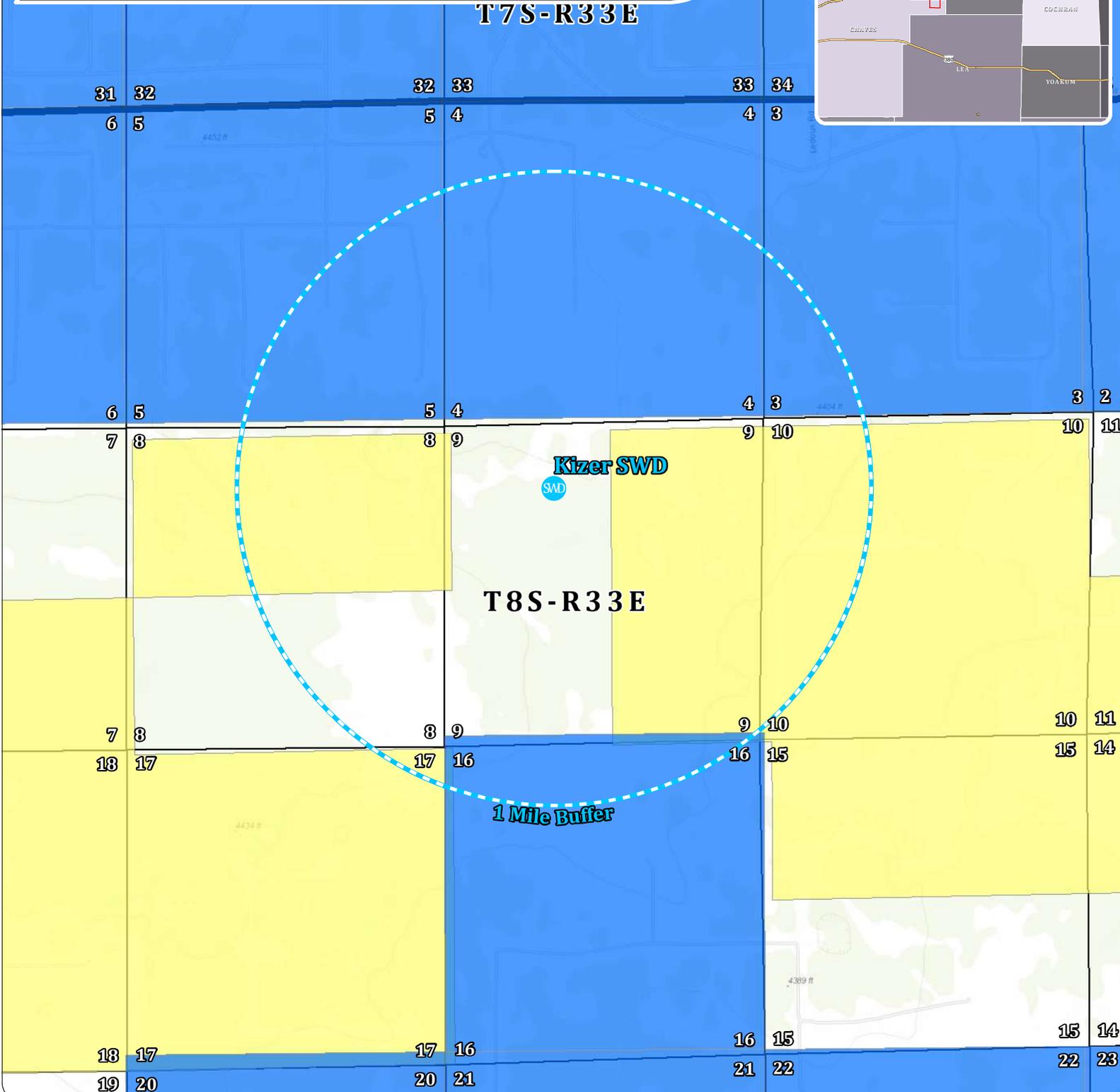
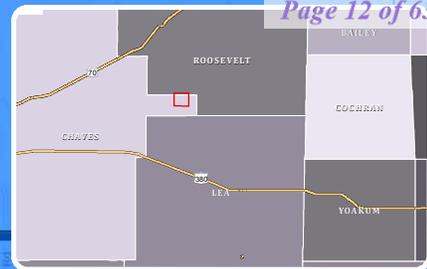
Kizer SWD

OPERATOR:
RIDGEWAY ARIZONA OIL CORP.

MINERAL OWNERSHIP MAP

SECTION 9, TOWNSHIP 8 SOUTH, RANGE 33 EAST, CHAVEZ COUNTY, NEW MEXICO

T7S-R33E



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



- Legend**
- Proposed SWD
 - 1 Mile Buffer
 - Subsurface minerals (NMSLO)
 - All minerals are owned by U.S. (BLM)
 - Private minerals

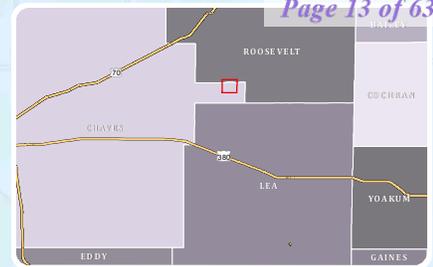
Kizer SWD

OPERATOR:
RIDGEWAY ARIZONA OIL CORP.

SURFACE OWNERSHIP MAP

SECTION 9, TOWNSHIP 8 SOUTH, RANGE 33 EAST, CHAVEZ COUNTY, NEW MEXICO

T 7 S - R 33 E



31 32 33 34 35
6 5 4 3 2

6 5 4 3 2
7 8 9 10 11

7 8 9 10 11
18 17 16 15



Kizer SWD



1 Mile Buffer

Seed Family Ranch

Kizer, Shannon

T 8 S - R 33 E

KIZER, SHANNON

Seed Family Ranch, LLC

Seed Family Ranch, LLC

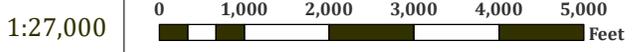
KIZER, SHANNON

Seed Family Ranch

Seed Family Ranch, LLC^{434 ft}

Seed Family Ranch, LLC

Mc Cloy Revocable



Legend

-  Proposed SWD
-  Federal Land
-  State of NM Land
-  Private Land

Kizer SWD

OPERATOR:
RIDGEWAY ARIZONA OIL CORP.

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



1-mile AOR Tabulation for Kizer SWD #3 (Top of Injection Interval: 11,200')									
Well Name	API#	Well Type	Operator	Status	Spud Date	Location (Sec., Tn., Rng.)	Total Vertical Depth	Penetrate Inj. Zone?	
STATE COM #403H	30-005-29225	Oil	RIDGEWAY ARIZONA OIL CORP.	New	12/21/2021	C-09-08S-33E	0	No	
STATE COM #402H	30-005-29224	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	12/7/2021	C-09-08S-33E	4,320	No	
PRE-ONGARD WELL #012	30-005-20564	Oil	PRE-ONGARD WELL OPERATOR	Cancelled	-	O-05-08S-33E	0	No	
PRE-ONGARD WELL #001	30-005-20194	Oil	PRE-ONGARD WELL OPERATOR	Plugged	12/13/1967	G-08-08S-33E	4,420	No	
STATE 5-8-33 #009	30-005-20537	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	6/3/1976	J-05-08S-33E	4,545	No	
STATE 5-8-33 #011	30-005-20563	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	4/18/1977	P-05-08S-33E	4,520	No	
STATE 5-8-33 #010	30-005-20552	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	9/13/1976	I-05-08S-33E	4,450	No	
PRE-ONGARD WELL #001	30-005-20237	Oil	PRE-ONGARD WELL OPERATOR	Plugged	2/26/1968	A-08-08S-33E	4,410	No	
STATE 5-8-33 #006	30-005-20535	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	7/15/1976	H-05-08S-33E	4,485	No	
PRE-ONGARD WELL #001	30-005-20097	Oil	PRE-ONGARD WELL OPERATOR	Plugged	7/330/67	I-08-08S-33E	4,309	No	
STATE I #004	30-005-20590	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	5/18/1977	L-04-08S-33E	4,485	No	
STATE I #002	30-005-10439	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	4/13/1966	E-04-08S-33E	4,482	No	
PRE-ONGARD WELL #002	30-005-20591	Oil	PRE-ONGARD WELL OPERATOR	Plugged	5/3/1977	D-09-08S-33E	4,500	No	
PRE-ONGARD WELL #001	30-005-10001	Oil	PRE-ONGARD WELL OPERATOR	Plugged	4/13/1963	N-09-08S-33E	4,405	No	
PRE-ONGARD WELL #001	30-005-20304	Oil	PRE-ONGARD WELL OPERATOR	Plugged	7/1/1969	N-04-08S-33E	4,438	No	
PRE-ONGARD WELL #001	30-005-10403	Oil	PRE-ONGARD WELL OPERATOR	Plugged	11/28/1965	C-09-08S-33E	4,440	No	
PRE-ONGARD WELL #002	30-005-10449	Oil	PRE-ONGARD WELL OPERATOR	Plugged	5/15/1966	F-04-08S-33E	4,431	No	
STATE I #003	30-005-20285	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	3/12/1969	K-04-08S-33E	4,418	No	
PRE-ONGARD WELL #001	30-005-20264	Oil	PRE-ONGARD WELL OPERATOR	Plugged	10/25/1968	J-04-08S-33E	4,420	No	
PRE-ONGARD WELL #001	30-005-20397	Oil	PRE-ONGARD WELL OPERATOR	Plugged	1/20/1972	B-09-08S-33E	4,365	No	
PRE-ONGARD WELL #002	30-005-20284	Oil	PRE-ONGARD WELL OPERATOR	Plugged	3/9/1969	O-04-08S-33E	4,436	No	
PRE-ONGARD WELL #002	30-005-20246	Oil	PRE-ONGARD WELL OPERATOR	Cancelled	-	J-04-08S-33E	0	No	
PRE-ONGARD WELL #001	30-005-20845	Oil	PRE-ONGARD WELL OPERATOR	Plugged	2/15/1982	G-09-08S-33E	4,400	No	
PRE-ONGARD WELL #001	30-005-20212	Oil	PRE-ONGARD WELL OPERATOR	Plugged	1/6/1968	G-04-08S-33E	4,415	No	
PRE-ONGARD WELL #004	30-005-20560	Oil	PRE-ONGARD WELL OPERATOR	Plugged	10/10/1976	H-04-08S-33E	4,505	No	
PRE-ONGARD WELL #001	30-005-20396	Oil	PRE-ONGARD WELL OPERATOR	Plugged	1/8/1972	M-03-08S-33E	4,372	No	
PRE-ONGARD WELL #001	30-005-10526	Oil	PRE-ONGARD WELL OPERATOR	Plugged	10/8/1966	E-10-08S-33E	4,440	No	
STATE #502H	30-005-29227	Oil	HADAWAY CONSULTING AND ENGINEERING, LLC	New	-	N-05-08S-33E	0	No	
STATE #503H	30-005-29228	Oil	HADAWAY CONSULTING AND ENGINEERING, LLC	New	-	N-05-08S-33E	0	No	
STATE #504H	30-005-29229	Oil	HADAWAY CONSULTING AND ENGINEERING, LLC	New	-	O-05-08S-33E	0	No	
STATE #401H	30-005-29236	Oil	HADAWAY CONSULTING AND ENGINEERING, LLC	New	-	M-04-08S-33E	0	No	

Notes: No wells within the 1/2-mile AOR penetrate the injection interval

Attachment 4

Injection Formation Water Analysis								
Well Name	API	Formation	Sampled	pH	TDS (Mg/L)	Bicarbonate (Mg/L)	Sulfate (mg/L)	Chloride (Mg/L)
SOUTH ROBERTS #002	30-025-00003	DEVONIAN	1960		43,618	500	2,189	24,310

Data Source:

New Mexico Tech's GO-TECH Produced Water Quality Data Search

Note:

A review of GO-TECH data returned only 1 Devonian water quality analysis within a 10 mile radius.

Attachment 5



SEISMIC RISK ASSESSMENT

Well Information

Kizer SWD #3
Ridgeway Arizona Oil Corp.

Well Location

1145 FNL & 1810 FWL
Sec 9 Township 8S Range 33 E
Chaves County, New Mexico

Evaluation Performed By:

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

April 15, 2024

OVERVIEW

GENERAL INFORMATION

Ridgeway Arizona Oil Corp.'s (Ridgeway) Kizer SWD #3 (Subject SWD) is located in Section 9 Township 8N, Range 33E, about 12 miles Southeast of Milnesand, NM. Raybaw proposes open-hole injection of produced water for disposal within the Devonian-Silurian Formations at depths of 11,200 to 11,500 feet (ft) below ground surface (bgs).

This report assesses the potential for concerns associated with induced seismicity associated with recorded faulting and seismicity as well as a description of the geologic isolation of the injection zone from known underground potable water sources.

INJECTION INTERVAL DESCRIPTION

The Devonian-Silurian interval is a carbonate sequence consisting of the Devonian Thirtyone, Silurian Wristen Group, and Silurian Fusselman, from shallowest to deepest. These carbonate formations consist predominantly of dolomite with limestone and interbedded cherts. with porosities expected to range from 0% to 7% and higher skeletal cherts ranging greater than 7% due to secondary porosity in the form of vugs and fractures from weathering effects and compaction. Permeabilities in the 2-7% porosity dolomitic grainstones intervals are estimated to be in the 2-15 millidarcy range, with higher porosity intervals estimated to be in the 40-100 millidarcy range. (Ruppel and Holtz, 1994) The open hole injection interval is expected to be within the majority of the higher permeability intervals.

GROUNDWATER SOURCES

The Tertiary Ogallala formation acts as the principal aquifer used for drinking ground water near the Subject SWD (Cikoski et al., 2020). The base of the lowermost underground source of drinking water (USDW) aquifer is generally identified as the top of the first anhydrite, which in this area occurs at the top of the Permian Rustler Formation at an estimated depth of 1,867 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. 218 ft thick). The top of the injection interval (11,225 ft bgs) is separated from the base of the lowermost USDW, identified as the top of the Rustler formation at approximately 1,867 ft, by approximately 9,333 ft of rock.

Underlying geologic confinement is provided by the low permeability Ordovician aged Montoya-Simpson Group (approx. 113 ft thick). The Subject SWD will terminate in the Devonian-Silurian formation at a depth of 11,500 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, the Cambrian, or Precambrian basement rock below. In this area, Precambrian basement rock is expected to occur at a depth of approximately 11,798 ft bgs (see Figure 1, Precambrian contour data source: Ruppel, 2009). Therefore, the proposed injection zone lies approximately 298 ft above the Precambrian basement.

SEISMIC RISK ASSESSMENT

Historical Seismicity

Review of the USGS and New Mexico Tech earthquake catalogs did not identify any seismic events >M2.5 within the Seismic Area of Interest ("Seismic AOI"), which includes a 6-mile radius around the Subject SWD. (Fig. 1). The closest recorded seismic events above an M2.0 were an M2.2 recorded 7.2 miles to

the east in 2020 and an M2.1 recorded 9.2 miles to the east-northeast in 2019. (see Figure 1 & Table 1), both of which have a large amount of uncertainty depth and/or location accuracy. The 2019 event has a listed depth of 5 kilometers (km) (3.1 miles), which is a default depth used when the depth couldn't be accurately determined, and the 2020 event does not have a depth listed. The location uncertainty for the 2019 event is 3.89 km (2.4 miles) with detection by 12 stations, while the location uncertainty for the 2020 event is 13.87 km (8.62 miles) with detection by only 3 stations (New Mexico Tech, 2024).

Faults and Subsurface Conditions

As shown in Figure 1, the nearest known fault to the Subject SWD is a basement-rooted fault inferred by Horne et al (2021) located approximately 4.6 miles to the west/southwest. Information about known nearby faults based on data from Horne et al. (2021) is listed in Tables 2 and 3.

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 S_{Hmax} direction of S135°E and an A_{ϕ} of 0.80, 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 (Table 2) including the Subject SWD injecting at the proposed maximum of 20,000 bbls/day and all other existing SWDs within a 6 mile radius injecting at their individual historical peak annual volume, **the model resulted in a FSP value of 0.0, indicating a zero percent chance of slip on either of the faults within the Seismic AOI, as inferred by Horne et al. (2021), through the year 2044 (see Figure 2 & Table 3).**

This model also suggests that maximum injection of all SWDs within the Seismic AOI, including the Subject SWD, over 20 years would result in a pore pressure increase of only 90 psi on the nearest known fault (Fault 2, Figure 3; Table 3). Geomechanical modeling indicates that the faults within the Seismic AOI would need a pressure increase of 500 psi to reach even a 50% probability of slip. Therefore, the pressure increase required to reach a 50% slip probability is more than 5x greater than the modeled increase of 90 psi over 20 years of maximum injection (Figure 3).

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, and 3) sufficient permeabilities and porosities in the injection zone over an injection interval thickness of 375 ft should allow for low injection pressures at high injection rates.

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.

Table 1. Seismic Event Details (New Mexico Tech, 2024)

Date	Latitude	Longitude	Depth (km)	Magnitude	STD (km)	# Stations
3/13/2019	33.692	-103.426	5	2.16	3.89	12
4/21/2020	33.623	-103.45	NULL	2.2	13.87	3

Table 2. 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)	135	Snee and Zoback (2018)
Depth for Calculation	11,200	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	0.8	Snee and Zoback (2018)
Reference Friction Coefficient	0.6	Ikari et al. (2011)
Hydrology		
Aquifer Thickness (ft)	400	Proposed Injection Zone, Devonian-Silurian
Porosity (%)	7	Ruppel and Holtz (1994)
Permeability (mD)	105	Ruppel and Holtz (1994)
Injection Rate (bbl/day)	20,000	Maximum Proposed Injection Rate

Table 3. 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)	Δ Pore Pressure needed for 50 % FSP (psi)
Fault 1	5.4	185	72	0.0	92	1,000	500
Fault 2	4.6	170	72	0.0	90	1,000	500

Figure 2. Fault Slip Potential Result Map with faults as mapped by Horne et al. (2021). Faults are colored based on probability of fault slip as modeled using Fault Slip Potential software (Walsh and Zoback, 2016).

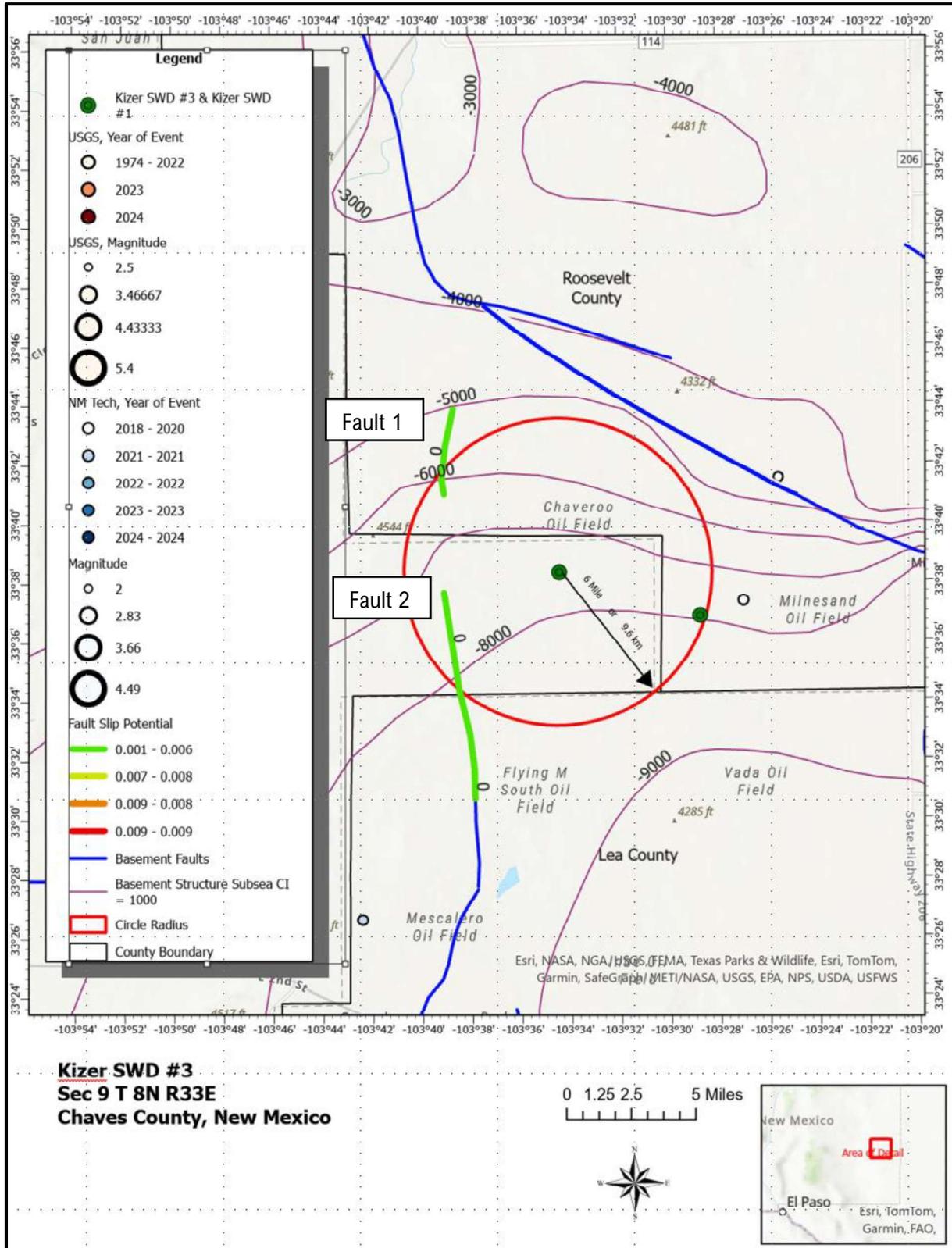
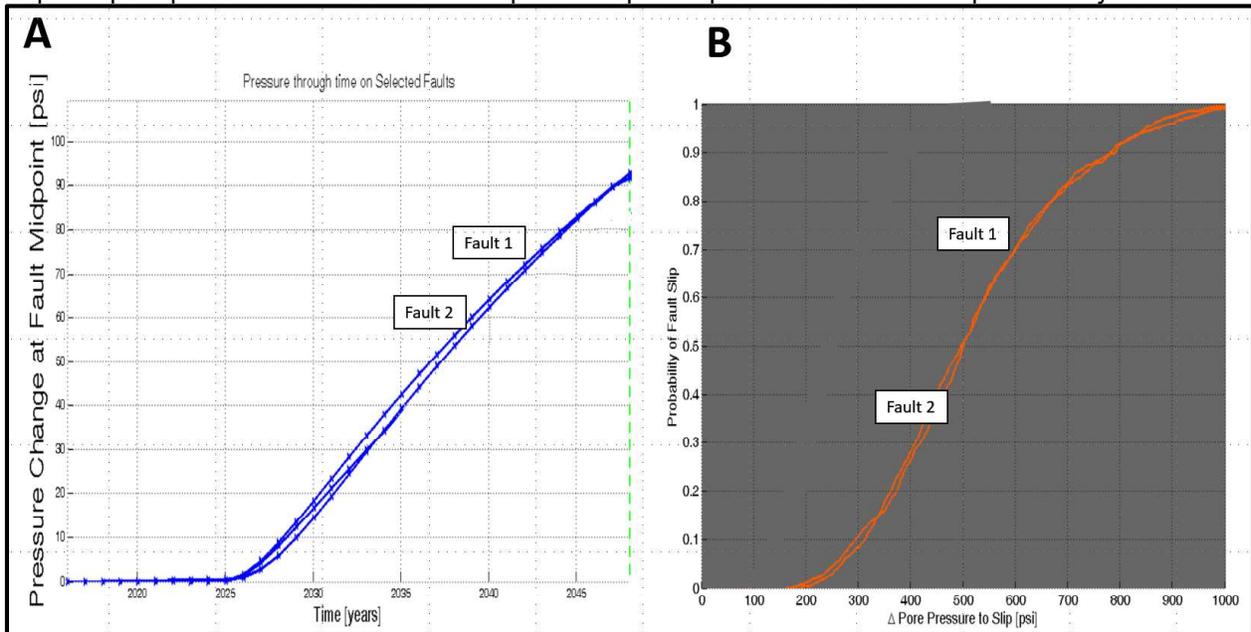


Figure 3. Fault Slip Potential Model Pore Pressure Data A) Plot showing the modeled change of pore pressure on nearby faults through time as a response to the proposed SWD well. B) Plot showing the required pore pressure increase needed to produce specific probabilities of fault slip on nearby faults.



References Cited

- Cokoski, C., Fichera, M., Mamer, E., Stugris, L., 2020 A Three-Dimensional Hydrogeological Model from the Pecos Slope to the Southern High Plains, Southeastern New Mexico: New Mexico Bureau of Mines and Mineral Resources, Open-File Report 614.
- Comer, J. B., 1991, Stratigraphic Analysis of the Upper Devonian Woodford Formation, Permian Basin, West Texas and Southeastern New Mexico: The University of Texas at Austin, Bureau of Economic Geology, Report of Investigations No. 201, 63 p.
- Frenzel, H. N., Bloomer, R. R., Cline, R. B., Cys, J. M., Galley, J. E., Gibson, W. R., Hills, J. M., King, W. E., Seager, W. R., Kottowski, F. E., Thompson, S., III, Luff, G. C., Pearson, B. T., and Van Siclen, D. C., 1988, The Permian Basin region, in Sloss, L. L., ed., Sedimentary cover—North American Craton, U.S.: Boulder, Colorado, Geological Society of America, The Geology of North America, v. D-2, p. 261–306.
- Hendrickson, G. E., and Jones, R. S., 1952, Geology and Ground-Water Resources of Eddy County, New Mexico: New Mexico Bureau of Mines and Mineral Resources, Ground-Water Report 3, 179 pp., 6 plates.
- Horne, E. A., Hennings, P. H., and Zahm, C. K., 2021, Basement-rooted faults of the Delaware Basin and Central Basin Platform, Permian Basin, West Texas and southeastern New Mexico, in Callahan, O. A., and Eichhubl, P., eds., The geologic basement of Texas: a volume in honor of Peter T. Flawn: The University of Texas, Bureau of Economic Geology Report of Investigations No. 286, doi:10.23867/RI0286C6.
- Hurd, O; Zoback, MD, 2012, Intraplate earthquakes, regional stress and fault mechanics in the Central and Eastern U.S. and Southeastern Canada. Tectonophysics, 581:182-92. Ikari, M. J.; C. Marone, and D. M. Saffer, 2011, On the relation between fault strength and frictional stability, Geology, 39, 83–86.
- New Mexico Tech, 2024, “Recent Seismic Events — New Mexico Tech Seismological Observatory”, New Mexico Bureau of Geology & Mineral Resources, <https://geoinfo.nmt.edu/nmtso/events/home.cfml>
- Ruppel, S.C., 2009, Integrated synthesis of the Permian basin: data and models for recovering existing and undiscovered oil resources from the largest oil-bearing basin: U.S. Oil & Natural Gas Technology, Bureau Economic Geology, The University of Texas at Austin, p. 1-959.
- Ruppel, S.C, and Holtz, M.H., 1994, Depositional and Diagenetic Facies Patterns and Reservoir Development in Silurian and Devonian Rocks of the Permian Basin, Bureau Economic Geology, The University of Texas at Austin, Report of Investigations No. 216.
- Snee, J.-E.L., Zoback, M.D., 2018, State of stress in the Permian Basin, Texas and New Mexico: Implications for induced seismicity: Leading Edge, v. 37, p. 127–134.
- USGS, 2024, “Earthquake Hazards Program”, <https://www.usgs.gov/programs/earthquake-hazards>
- Walsh, F. R., and Zoback, M. D., (2016) Probabilistic assessment of potential fault slip related to injection induced earthquakes: Application to north central Oklahoma, USA, Geology, Data Repository item 2016334, doi:10.1130/G38275.1.
- Walsh, F. R., Zoback, M. D., Pais, D., Weingarten, M., and Tyrrell, T. (2017) FSP 1.0: A Program for Probabilistic Estimation of Fault Slip Potential Resulting from Fluid Injection, User Guide from the Stanford Center for Induced and Triggered Seismicity, available at SCITS.Stanford.edu/software.
- Zoback, M. L., and M. D. Zoback, 1980, State of stress in the conterminous United States: Journal of Geophysical Research, 85, no. B11, 6113–6156, <https://doi.org/10.1029/JB085iB11p06113>.



April 19, 2024

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

Subject: Ridgeway Arizona Oil Corp.
Application for Authorization to Inject
Kizer SWD #3

Mr. Fuge,

Ridgeway Arizona Oil Corp. (Ridgeway) is applying for administrative approval of the attached Application for Authorization to Inject (Form C-108) for their proposed Kizer SWD #3. The application is requesting authorization to dispose of saltwater from oil and gas production in the area via non-commercial disposal into the Devonian-Silurian formations in Chaves County, NM.

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

Sincerely,

A handwritten signature in black ink that reads "Nathan Alleman".

Nate Alleman
Chief Regulatory Advisor
Ace Energy Advisors

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

- 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

<u>FOR OCD ONLY</u>	
<input type="checkbox"/>	Notice Complete
<input type="checkbox"/>	Application Content Complete

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.

 Print or Type Name

 Date



 Signature

 Phone Number

 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 Disposal _____ Storage
Application qualifies for administrative approval? Yes _____ No

II. OPERATOR: Ridgeway Arizona Oil Corp

ADDRESS: 575 N. Dairy Ashford, Suite 210, Houston, TX 77079

CONTACT PARTY: Nate Alleman (Regulatory Consultant) PHONE: 918-237-0559

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 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: Nate Alleman TITLE: Regulatory Consultant

SIGNATURE:  DATE: 04/19/2024

E-MAIL ADDRESS: nate.alleman@aceadvisors.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

Side 2

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

- (1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and,
- (4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

III. Well Data

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

- (1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.**

Operator: Ridgeway Arizona Oil Corp. (OGRID# 164557)
 Lease/Well Name & Number: Kizer SWD #3
 Legal Location: 1,145' FNL & 1,810' FWL - Unit C – Section 9 T8S R33E – Chaves County
 Coordinates: 33.639159, -103.573695 (NAD83)

- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.**

Casing String	Hole Size (in)	Casing Size (in)	Casing Depth (ft)	Sacks Cement (sx)	Top of Cement (ft)	Method Determined
Surface	13-1/2"	10-3/4"	1,892	745	0	Circulation
Production	9-7/8"	7-5/8"	11,200	1,755	0	Circulation
Open hole	9-7/8"		11,500			

A wellbore diagram is included in **Attachment 1**.

- (3) A description of the tubing to be used including its size, lining material, and setting depth.**

5-1/2" fiberglass-coated tubing set at 11,180'

- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.**

Baker 85FA-47 Nickel Plated' set at 11,180'

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

- (1) The name of the injection formation and, if applicable, the field or pool name.**

Injection Formation Name - Devonian-Silurian
 Pool Name - SWD;Devonian-Silurian
 Pool Code – 67869

- (2) The injection interval and whether it is perforated or open-hole.**

Open-hole injection between 11,200' - 11,500'

- (3) State if the well was drilled for injection or, if not, the original purpose of the well.**

New drill for injection

- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.**

None

- (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.**

- **Overlying:**
 - San Andres (≈4,200')
- **Underlying:**
 - None

V. AOR Maps

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.

The following figures are included in **Attachment 2**:

- 2-Mile & 1-Mile Well Map
- 1-Mile Well List
- 2-Mile & 1-Mile Lease Map
- 1-Mile Surface Ownership Map
- 1-Mile Mineral Ownership Map

VI. AOR List

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.

Details of the wells within the 0.5-mile AOR are included in **Attachment 2**. No wells within the 0.5-mile AOR penetrate the top of the proposed injection zone.

VII. Operational Information

Attach data on the proposed operation, including:

- (1) **Proposed average and maximum daily rate and volume of fluids to be injected;**

Maximum: 20,000 bpd

Average: 15,000 bpd

- (2) **Whether the system is open or closed;**

The system will be closed.

- (3) **Proposed average and maximum injection pressure;**

Maximum: 2,240 psi (surface)

Average: approx. 1500 psi (surface)

- (4) **Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water;**

It is anticipated that produced water from San Andres production wells in the area will be injected into the proposed SWD. Therefore, water analysis from these formations was obtained and is included in **Attachment 3**.

- (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.).**

The proposed injection interval for this SWD is the Devonian-Silurian formation, which is a non-productive zone known to be compatible with formation water from the San Andres formations. Water analyses of samples collected from the proposed injection formation in the area were obtained and are included in **Attachment 4**.

VIII. Geologic Description

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.

The proposed injection interval is located in the Devonian-Silurian formation between the depths of 11,200 and 11,500 feet. The Devonian-Silurian interval is a carbonate sequence consisting of the Devonian Thirtyone, Silurian Wristen Group, and Silurian Fusselman, from shallowest to deepest. These carbonate formations consist predominantly of dolomite with limestone and interbedded cherts.

Overlying geologic confinement for the proposed Devonian-Silurian injection interval is provided by the low permeability Woodford Shale (approx. 218 ft thick). Underlying geologic confinement is provided by the low permeability Ordovician aged Montoya-Simpson Group (approx. 113 ft thick).

The base of the lowermost Underground Source of Drinking Water (USDW), identified as the top of the first anhydrite, was determined to occur at the top of the Rustler formation at a depth of 1,867'.

A Seismic Risk Assessment, including Fault Slip Potential Model, prepared by Jason Currie P.G. (TXBG-PG Lic# 10329) is included as **Attachment 5**.

IX. Proposed Stimulation Program

Describe the proposed stimulation program, if any.

A minor acid job utilizing 15-20% hydrochloric acid may be used to cleanup the wellbore.

X. Logging and Test Data

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

Logs will be run and submitted to the Division once the well is completed.

XI. Groundwater Wells

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.

Review of Office of State Engineer (OSE) records indicate that there are no water wells within one mile of the proposed well. A map of OSE water well locations confirming the lack of water wells within 1-mile is included as **Attachment 6**.

XII. No Hydrologic Connection Statement

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.

A geologic review conducted on offset wireline log data and published regional studies did not identify any faulting in the vicinity of the proposed locations that would allow for the hydraulic communication between the injection interval and overlying USDWs. The base of the lowermost Underground Source of Drinking Water (USDW), identified as the top of the first anhydrite, was determined to occur at the top of the Rustler formation at a depth of 1,867'.

An Affirmative Statement regarding examination of geologic and engineering data and resulting findings of no evidence of open faults or hydrologic connection to the USDW was prepared by Jason Currie P.G. (TXBG-PG Lic# 10329) and is included as **Attachment 7**.

XIII. Proof of Notice

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

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

A copy of the application was mailed to the Affected Persons, including the OCD District Office, surface owner, leasehold operators within the AOR, and BLM/SLO if they own minerals within the AOR. **Attachment 8** includes a list of the Affected Persons receiving notice of the application and the associated certified mailing receipts (green sheets).

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located.

A Public Notice was published in the Roswell Daily Record, a newspaper of general circulation in the area, and the associated affidavit is included in **Attachment 8**.

Attachment 1

DISTRICT I
 1825 N. French Dr., Hobbs, NM 88240
 Phone (575) 393-8161 Fax: (575) 393-0720

DISTRICT II
 811 S. First St., Artesia, NM 88210
 Phone (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
 1000 Rio Brazos Rd., Aztec, NM 87410
 Phone (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
 1220 S. St. Francis Dr., Santa Fe, NM 87505
 Phone (505) 476-3480 Fax: (505) 476-3482

State of New Mexico
 Energy, Minerals and Natural Resources Department

Form C-102
 Revised August 1, 2011

Submit one copy to appropriate
 District Office

OIL CONSERVATION DIVISION
 1220 South St. Francis Dr.
 Santa Fe, New Mexico 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

AMENDED REPORT

API Number 30-005-	Pool Code 97869	Pool Name SWD; Devonian-Silurian
Property Code	Property Name KIZER SWD	Well Number 3
OGRID No. 164557	Operator Name RIDGWAY ARIZONA OIL CORP.	Elevation 4423'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	9	8 S	33 E		1145	NORTH	1810	WEST	CHAVES

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

SURFACE LOCATION
 Lat - N 33.639159°
 Long - W 103.573695°
 NMSPC- N 960940.1
 E 772533.8
 (NAD-83)

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.

Nathan Alleman 04/16/2024
 Signature Date

Nate Alleman
 Printed Name

nate.alleman@aceadvisors.com
 Email 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.

MARCH 21 2022
 Date Surveyed

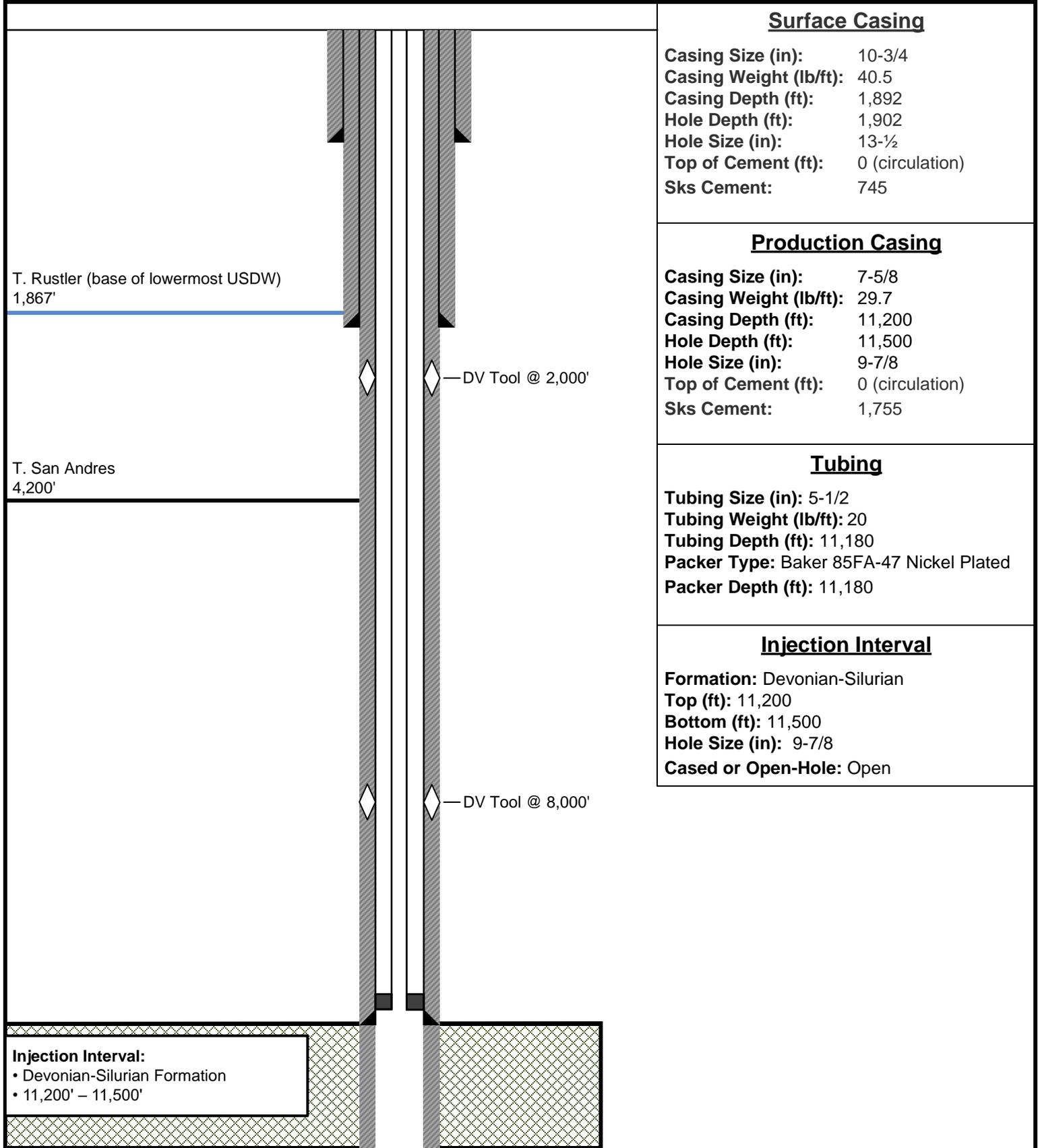
Gary L. Jones
 Signature & Seal of Professional Surveyor
 7977

Certificate No. Gary L. Jones 7977
 BASIN SURVEYS

0' 1000' 2000' 3000' 4000'
 SCALE: 1" = 2000'
 WO Num.: 35628

Ridgeway Arizona Oil Corp

Kizer SWD #3 Wellbore Diagram



Surface Casing

Casing Size (in): 10-3/4
 Casing Weight (lb/ft): 40.5
 Casing Depth (ft): 1,892
 Hole Depth (ft): 1,902
 Hole Size (in): 13-1/2
 Top of Cement (ft): 0 (circulation)
 Sks Cement: 745

Production Casing

Casing Size (in): 7-5/8
 Casing Weight (lb/ft): 29.7
 Casing Depth (ft): 11,200
 Hole Depth (ft): 11,500
 Hole Size (in): 9-7/8
 Top of Cement (ft): 0 (circulation)
 Sks Cement: 1,755

Tubing

Tubing Size (in): 5-1/2
 Tubing Weight (lb/ft): 20
 Tubing Depth (ft): 11,180
 Packer Type: Baker 85FA-47 Nickel Plated
 Packer Depth (ft): 11,180

Injection Interval

Formation: Devonian-Silurian
 Top (ft): 11,200
 Bottom (ft): 11,500
 Hole Size (in): 9-7/8
 Cased or Open-Hole: Open

Injection Interval:
 • Devonian-Silurian Formation
 • 11,200' – 11,500'

Total Depth: 11,500'

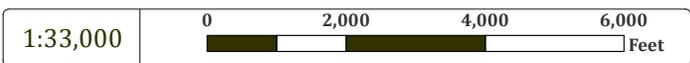
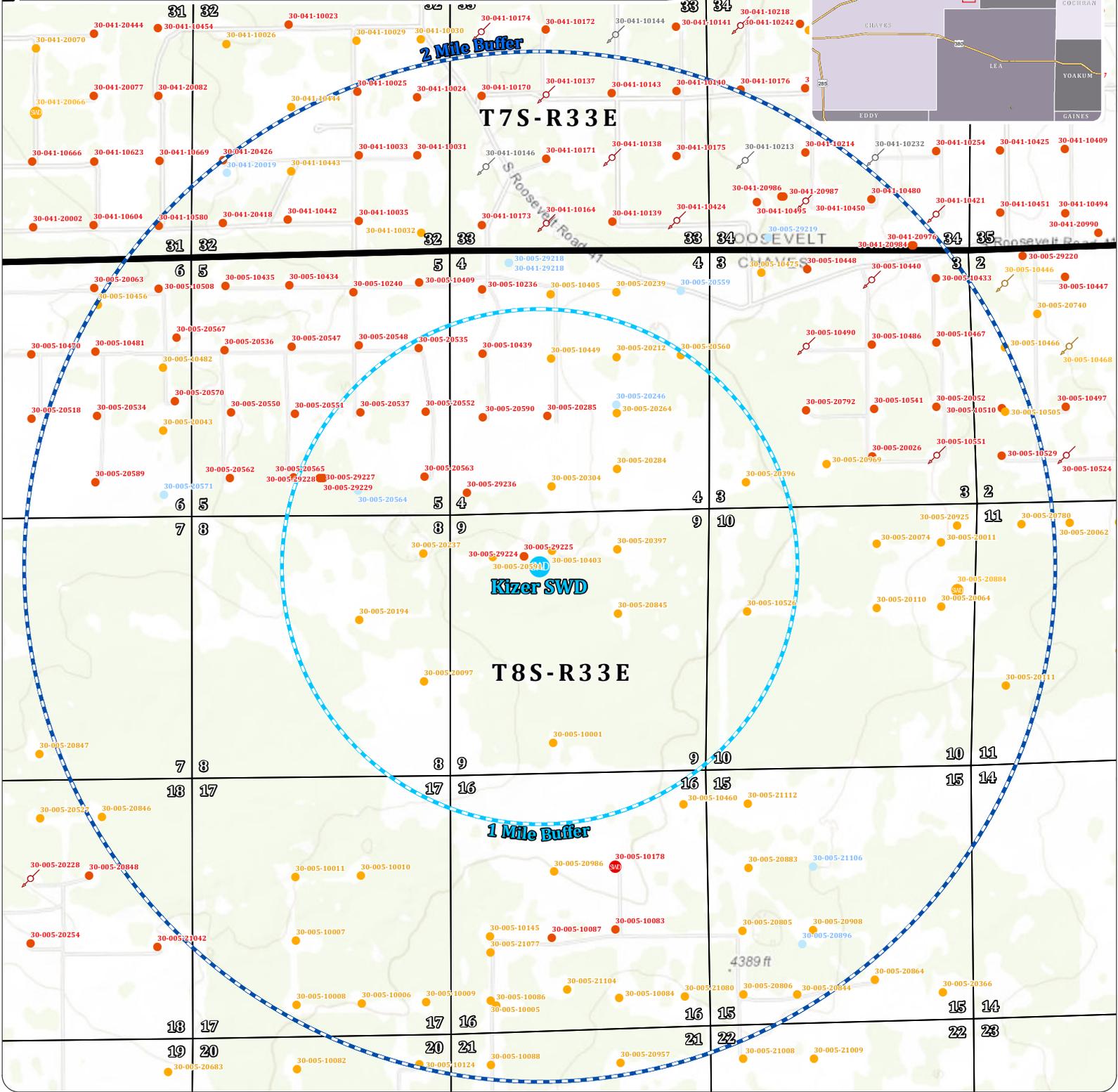
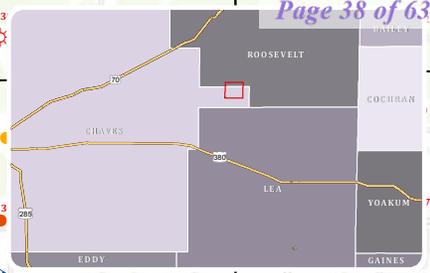
Note: Listed depths and cement volumes are approximates based on available information.

NOT TO SCALE

Attachment 2

WELL MAP

SECTION 9, TOWNSHIP 8 SOUTH, RANGE 33 EAST, CHAVEZ COUNTY, NEW MEXICO



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

Legend

- Proposed SWD
- 1 Mile Buffer
- 2 Mile Buffer
- ⊕ Gas, Active
- ⊕ Gas, Cancelled
- ⊕ Gas, Plugged
- ⊕ Gas, Temporary Abandonment
- ⊕ Injection, Active
- ⊕ Injection, Plugged
- ⊕ Injection, Temporary Abandonment (expired)
- Oil, Active
- Oil, Cancelled
- Oil, Plugged
- Oil, Temporary Abandonment
- Oil, Zone Plugged (permanent)
- ⊕ Salt Water Disposal, Active
- ⊕ Salt Water Disposal, Cancelled
- ⊕ Salt Water Disposal, Plugged
- ⊕ Water, Active
- ⊕ Water, Plugged

Kizer SWD

OPERATOR:
RIDGEWAY ARIZONA OIL CORP.

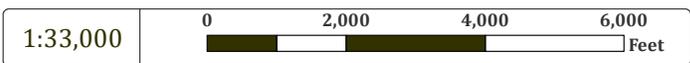
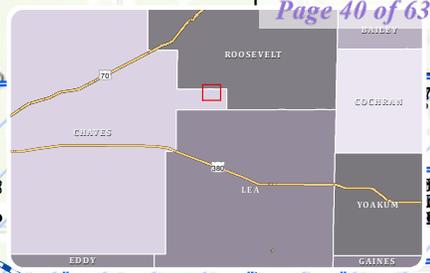
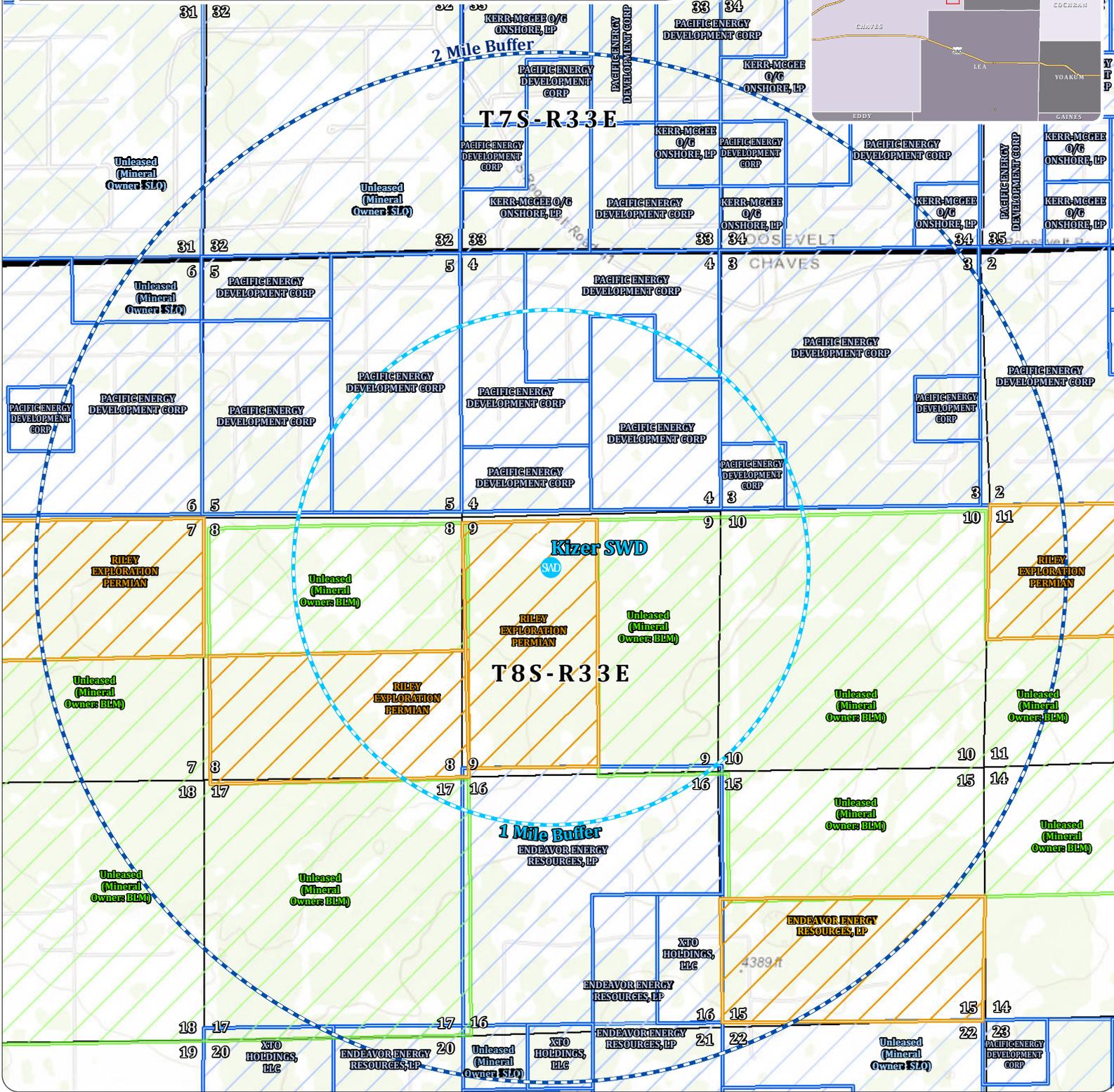
1-mile AOR Tabulation for Kizer SWD #3 (Top of Injection Interval: 11,200')

Well Name	API#	Well Type	Operator	Status	Spud Date	Location (Sec., Tn., Rng.)	Total Vertical Depth	Penetrate Inj. Zone?
STATE COM #403H	30-005-29225	Oil	RIDGEWAY ARIZONA OIL CORP.	New	12/21/2021	C-09-08S-33E	0	No
STATE COM #402H	30-005-29224	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	12/7/2021	C-09-08S-33E	4,320	No
PRE-ONGARD WELL #012	30-005-20564	Oil	PRE-ONGARD WELL OPERATOR	Cancelled	-	O-05-08S-33E	0	No
PRE-ONGARD WELL #001	30-005-20194	Oil	PRE-ONGARD WELL OPERATOR	Plugged	12/13/1967	G-08-08S-33E	4,420	No
STATE 5-8-33 #009	30-005-20537	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	6/3/1976	J-05-08S-33E	4,545	No
STATE 5-8-33 #011	30-005-20563	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	4/18/1977	P-05-08S-33E	4,520	No
STATE 5-8-33 #010	30-005-20552	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	9/13/1976	I-05-08S-33E	4,450	No
PRE-ONGARD WELL #001	30-005-20237	Oil	PRE-ONGARD WELL OPERATOR	Plugged	2/26/1968	A-08-08S-33E	4,410	No
STATE 5-8-33 #006	30-005-20535	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	7/15/1976	H-05-08S-33E	4,485	No
PRE-ONGARD WELL #001	30-005-20097	Oil	PRE-ONGARD WELL OPERATOR	Plugged	7/330/67	I-08-08S-33E	4,309	No
STATE I #004	30-005-20590	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	5/18/1977	L-04-08S-33E	4,485	No
STATE I #002	30-005-10439	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	4/13/1966	E-04-08S-33E	4,482	No
PRE-ONGARD WELL #002	30-005-20591	Oil	PRE-ONGARD WELL OPERATOR	Plugged	5/3/1977	D-09-08S-33E	4,500	No
PRE-ONGARD WELL #001	30-005-10001	Oil	PRE-ONGARD WELL OPERATOR	Plugged	4/13/1963	N-09-08S-33E	4,405	No
PRE-ONGARD WELL #001	30-005-20304	Oil	PRE-ONGARD WELL OPERATOR	Plugged	7/1/1969	N-04-08S-33E	4,438	No
PRE-ONGARD WELL #001	30-005-10403	Oil	PRE-ONGARD WELL OPERATOR	Plugged	11/28/1965	C-09-08S-33E	4,440	No
PRE-ONGARD WELL #002	30-005-10449	Oil	PRE-ONGARD WELL OPERATOR	Plugged	5/15/1966	F-04-08S-33E	4,431	No
STATE I #003	30-005-20285	Oil	RIDGEWAY ARIZONA OIL CORP.	Active	3/12/1969	K-04-08S-33E	4,418	No
PRE-ONGARD WELL #001	30-005-20264	Oil	PRE-ONGARD WELL OPERATOR	Plugged	10/25/1968	J-04-08S-33E	4,420	No
PRE-ONGARD WELL #001	30-005-20397	Oil	PRE-ONGARD WELL OPERATOR	Plugged	1/20/1972	B-09-08S-33E	4,365	No
PRE-ONGARD WELL #002	30-005-20284	Oil	PRE-ONGARD WELL OPERATOR	Plugged	3/9/1969	O-04-08S-33E	4,436	No
PRE-ONGARD WELL #002	30-005-20246	Oil	PRE-ONGARD WELL OPERATOR	Cancelled	-	J-04-08S-33E	0	No
PRE-ONGARD WELL #001	30-005-20845	Oil	PRE-ONGARD WELL OPERATOR	Plugged	2/15/1982	G-09-08S-33E	4,400	No
PRE-ONGARD WELL #001	30-005-20212	Oil	PRE-ONGARD WELL OPERATOR	Plugged	1/6/1968	G-04-08S-33E	4,415	No
PRE-ONGARD WELL #004	30-005-20560	Oil	PRE-ONGARD WELL OPERATOR	Plugged	10/10/1976	H-04-08S-33E	4,505	No
PRE-ONGARD WELL #001	30-005-20396	Oil	PRE-ONGARD WELL OPERATOR	Plugged	1/8/1972	M-03-08S-33E	4,372	No
PRE-ONGARD WELL #001	30-005-10526	Oil	PRE-ONGARD WELL OPERATOR	Plugged	10/8/1966	E-10-08S-33E	4,440	No
STATE #502H	30-005-29227	Oil	HADAWAY CONSULTING AND ENGINEERING, LLC	New	-	N-05-08S-33E	0	No
STATE #503H	30-005-29228	Oil	HADAWAY CONSULTING AND ENGINEERING, LLC	New	-	N-05-08S-33E	0	No
STATE #504H	30-005-29229	Oil	HADAWAY CONSULTING AND ENGINEERING, LLC	New	-	O-05-08S-33E	0	No
STATE #401H	30-005-29236	Oil	HADAWAY CONSULTING AND ENGINEERING, LLC	New	-	M-04-08S-33E	0	No

Notes: No wells within the 1/2-mile AOR penetrate the injection interval

LEASEHOLDER MAP

SECTION 9, TOWNSHIP 8 SOUTH, RANGE 33 EAST, CHAVEZ COUNTY, NEW MEXICO



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



Legend

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

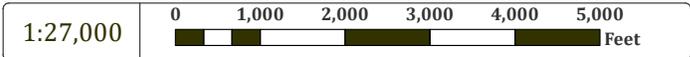
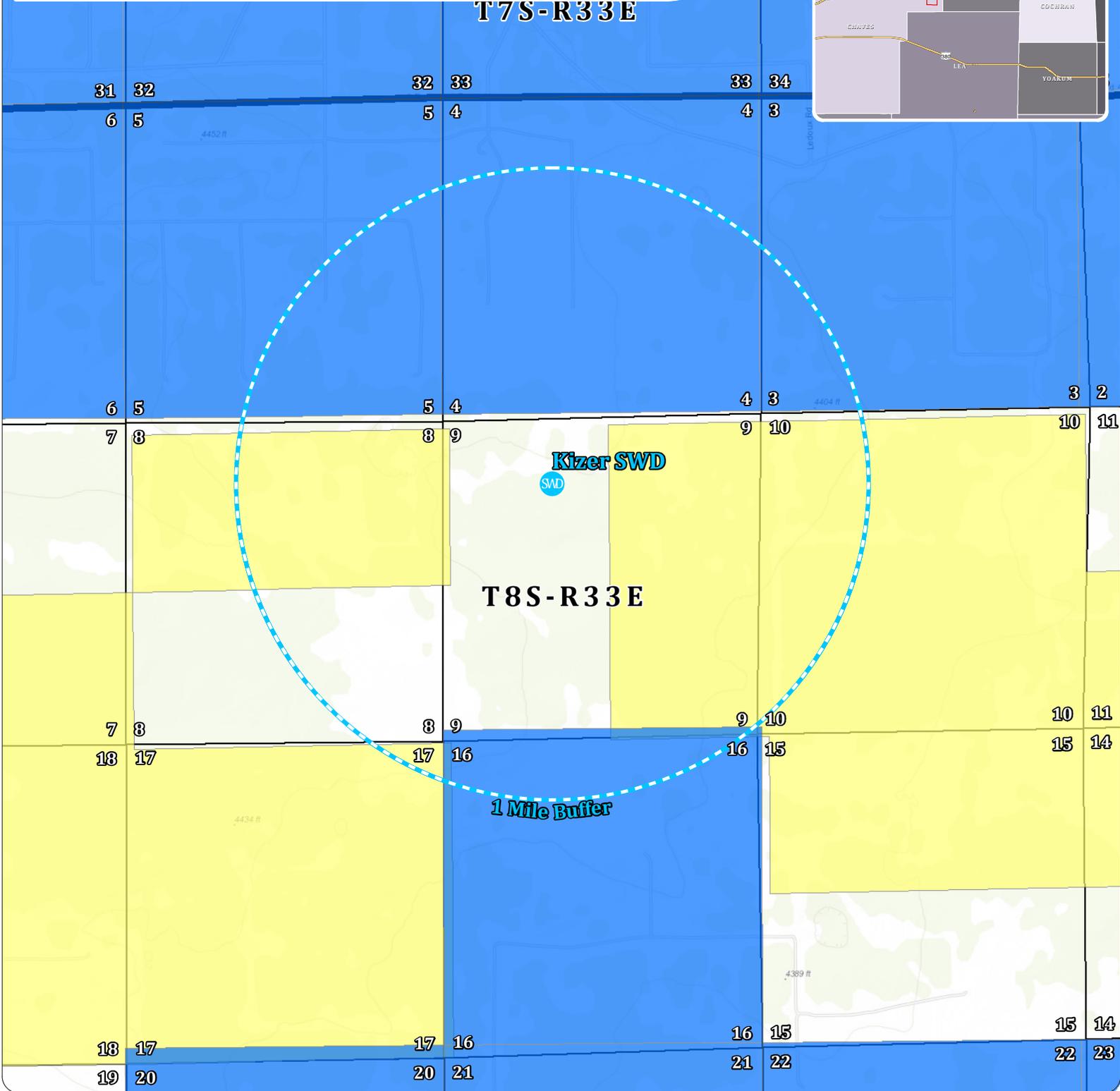
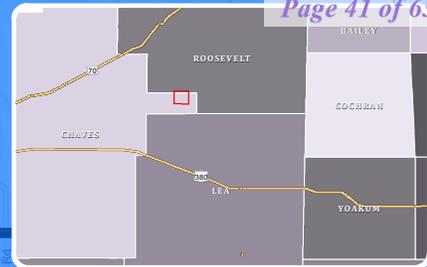
Kizer SWD

OPERATOR:
RIDGEWAY ARIZONA OIL CORP.

MINERAL OWNERSHIP MAP

SECTION 9, TOWNSHIP 8 SOUTH, RANGE 33 EAST, CHAVEZ COUNTY, NEW MEXICO

T7S-R33E



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



- Legend**
- Proposed SWD
 - 1 Mile Buffer
 - Subsurface minerals (NMSLO)
 - All minerals are owned by U.S. (BLM)
 - Private minerals

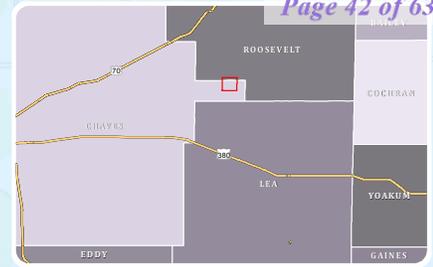
Kizer SWD

OPERATOR:
RIDGEWAY ARIZONA OIL CORP.

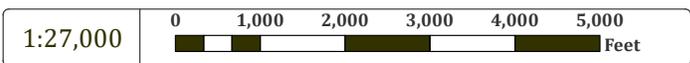
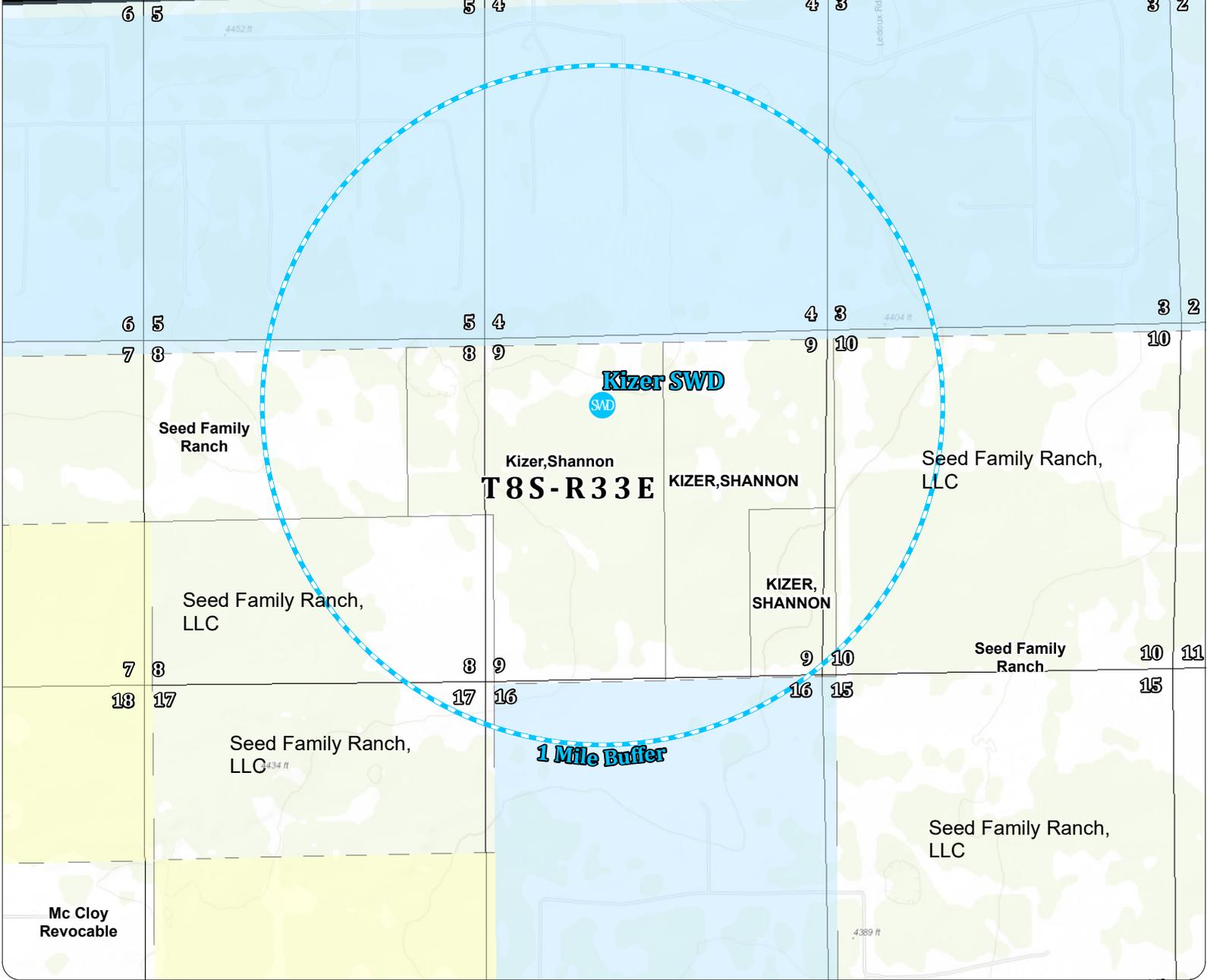
SURFACE OWNERSHIP MAP

SECTION 9, TOWNSHIP 8 SOUTH, RANGE 33 EAST, CHAVEZ COUNTY, NEW MEXICO

T 7 S - R 3 3 E



31 32 33 34 35
6 5 4 3 2



Project Managed By:
ACE Energy Advisors
 (918) 237-0559
 nate.allen@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

Legend

- Proposed SWD
- Federal Land
- State of NM Land
- Private Land

Kizer SWD

OPERATOR:
RIDGEWAY ARIZONA OIL CORP.

Attachment 3

Source Formation Water Analysis								
Well Name	API	Formation	Sampled	pH	TDS (Mg/L)	Bicarbonate (Mg/L)	Sulfate (mg/L)	Chloride (Mg/L)
AMERICAN PETROFINA S #001	30-005-10458	SAN ANDRES	1966	6.1	243,827	427	2,300	147,000
STATE B #001	30-025-00002	SAN ANDRES	1965		84,626			
STATE B #001	30-025-00002	SAN ANDRES	1965		92,491	925	4,791	50,880
FLYING M SA UNIT #051	30-025-20635	SAN ANDRES			228,237	608	1,957	136,600
FLYING M SAN ANDRES #003	30-025-20640	SAN ANDRES			228,048	642	1,480	136,400
FLYING M SA UNIT #005	30-025-20641	SAN ANDRES			258,032	793	2,413	155,100
FLYING M SA UNIT #005	30-025-20641	SAN ANDRES			228,200	597	1,601	136,800
SOUTHERN MINERALS ST #003	30-025-20644	SAN ANDRES			352,358	658	420	245,700
FLYING M SA UNIT #061	30-025-20807	SAN ANDRES			237,663	633	2,800	141,000
FLYING M SA UNIT #052	30-025-21005	SAN ANDRES			226,221	642	1,105	134,200
FLYING M SA UNIT #003	30-025-21038	SAN ANDRES			263,094	457	3,251	156,700
MCNULTY #001	30-025-01804	SAN ANDRES	1960	6.27	103,439	233	1,305	62,583

Data Source:

New Mexico Tech's GO-TECH Produced Water Quality Data Search

Attachment 4

Injection Formation Water Analysis								
Well Name	API	Formation	Sampled	pH	TDS (Mg/L)	Bicarbonate (Mg/L)	Sulfate (mg/L)	Chloride (Mg/L)
SOUTH ROBERTS #002	30-025-00003	DEVONIAN	1960		43,618	500	2,189	24,310

Data Source:

New Mexico Tech's GO-TECH Produced Water Quality Data Search

Note:

A review of GO-TECH data returned only 1 Devonian water quality analysis within a 10 mile radius.

Attachment 5



SEISMIC RISK ASSESSMENT

Well Information

Kizer SWD #3
Ridgeway Arizona Oil Corp.

Well Location

1145 FNL & 1810 FWL
Sec 9 Township 8S Range 33 E
Chaves County, New Mexico

Evaluation Performed By:

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

April 15, 2024

OVERVIEW

GENERAL INFORMATION

Ridgeway Arizona Oil Corp.'s (Ridgeway) Kizer SWD #3 (Subject SWD) is located in Section 9 Township 8N, Range 33E, about 12 miles Southeast of Milnesand, NM. Raybaw proposes open-hole injection of produced water for disposal within the Devonian-Silurian Formations at depths of 11,200 to 11,500 feet (ft) below ground surface (bgs).

This report assesses the potential for concerns associated with induced seismicity associated with recorded faulting and seismicity as well as a description of the geologic isolation of the injection zone from known underground potable water sources.

INJECTION INTERVAL DESCRIPTION

The Devonian-Silurian interval is a carbonate sequence consisting of the Devonian Thirtyone, Silurian Wristen Group, and Silurian Fusselman, from shallowest to deepest. These carbonate formations consist predominantly of dolomite with limestone and interbedded cherts. with porosities expected to range from 0% to 7% and higher skeletal cherts ranging greater than 7% due to secondary porosity in the form of vugs and fractures from weathering effects and compaction. Permeabilities in the 2-7% porosity dolomitic grainstones intervals are estimated to be in the 2-15 millidarcy range, with higher porosity intervals estimated to be in the 40-100 millidarcy range. (Ruppel and Holtz, 1994) The open hole injection interval is expected to be within the majority of the higher permeability intervals.

GROUNDWATER SOURCES

The Tertiary Ogallala formation acts as the principal aquifer used for drinking ground water near the Subject SWD (Cikoski et al., 2020). The base of the lowermost underground source of drinking water (USDW) aquifer is generally identified as the top of the first anhydrite, which in this area occurs at the top of the Permian Rustler Formation at an estimated depth of 1,867 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. 218 ft thick). The top of the injection interval (11,225 ft bgs) is separated from the base of the lowermost USDW, identified as the top of the Rustler formation at approximately 1,867 ft, by approximately 9,333 ft of rock.

Underlying geologic confinement is provided by the low permeability Ordovician aged Montoya-Simpson Group (approx. 113 ft thick). The Subject SWD will terminate in the Devonian-Silurian formation at a depth of 11,500 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, the Cambrian, or Precambrian basement rock below. In this area, Precambrian basement rock is expected to occur at a depth of approximately 11,798 ft bgs (see Figure 1, Precambrian contour data source: Ruppel, 2009). Therefore, the proposed injection zone lies approximately 298 ft above the Precambrian basement.

SEISMIC RISK ASSESSMENT

Historical Seismicity

Review of the USGS and New Mexico Tech earthquake catalogs did not identify any seismic events >M2.5 within the Seismic Area of Interest ("Seismic AOI"), which includes a 6-mile radius around the Subject SWD. (Fig. 1). The closest recorded seismic events above an M2.0 were an M2.2 recorded 7.2 miles to

the east in 2020 and an M2.1 recorded 9.2 miles to the east-northeast in 2019. (see Figure 1 & Table 1), both of which have a large amount of uncertainty depth and/or location accuracy. The 2019 event has a listed depth of 5 kilometers (km) (3.1 miles), which is a default depth used when the depth couldn't be accurately determined, and the 2020 event does not have a depth listed. The location uncertainty for the 2019 event is 3.89 km (2.4 miles) with detection by 12 stations, while the location uncertainty for the 2020 event is 13.87 km (8.62 miles) with detection by only 3 stations (New Mexico Tech, 2024).

Faults and Subsurface Conditions

As shown in Figure 1, the nearest known fault to the Subject SWD is a basement-rooted fault inferred by Horne et al (2021) located approximately 4.6 miles to the west/southwest. Information about known nearby faults based on data from Horne et al. (2021) is listed in Tables 2 and 3.

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 S_{Hmax} direction of S135°E and an A_{ϕ} of 0.80, 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 (Table 2) including the Subject SWD injecting at the proposed maximum of 20,000 bbls/day and all other existing SWDs within a 6 mile radius injecting at their individual historical peak annual volume, ***the model resulted in a FSP value of 0.0, indicating a zero percent chance of slip on either of the faults within the Seismic AOI, as inferred by Horne et al. (2021), through the year 2044 (see Figure 2 & Table 3).***

This model also suggests that maximum injection of all SWDs within the Seismic AOI, including the Subject SWD, over 20 years would result in a pore pressure increase of only 90 psi on the nearest known fault (Fault 2, Figure 3; Table 3). Geomechanical modeling indicates that the faults within the Seismic AOI would need a pressure increase of 500 psi to reach even a 50% probability of slip. Therefore, the pressure increase required to reach a 50% slip probability is more than 5x greater than the modeled increase of 90 psi over 20 years of maximum injection (Figure 3).

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, and 3) sufficient permeabilities and porosities in the injection zone over an injection interval thickness of 375 ft should allow for low injection pressures at high injection rates.

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.

Figure1. Seismic Event and Fault Map with structural contours of the Precambrian basement in feet below sea level (Ruppel, 2009).

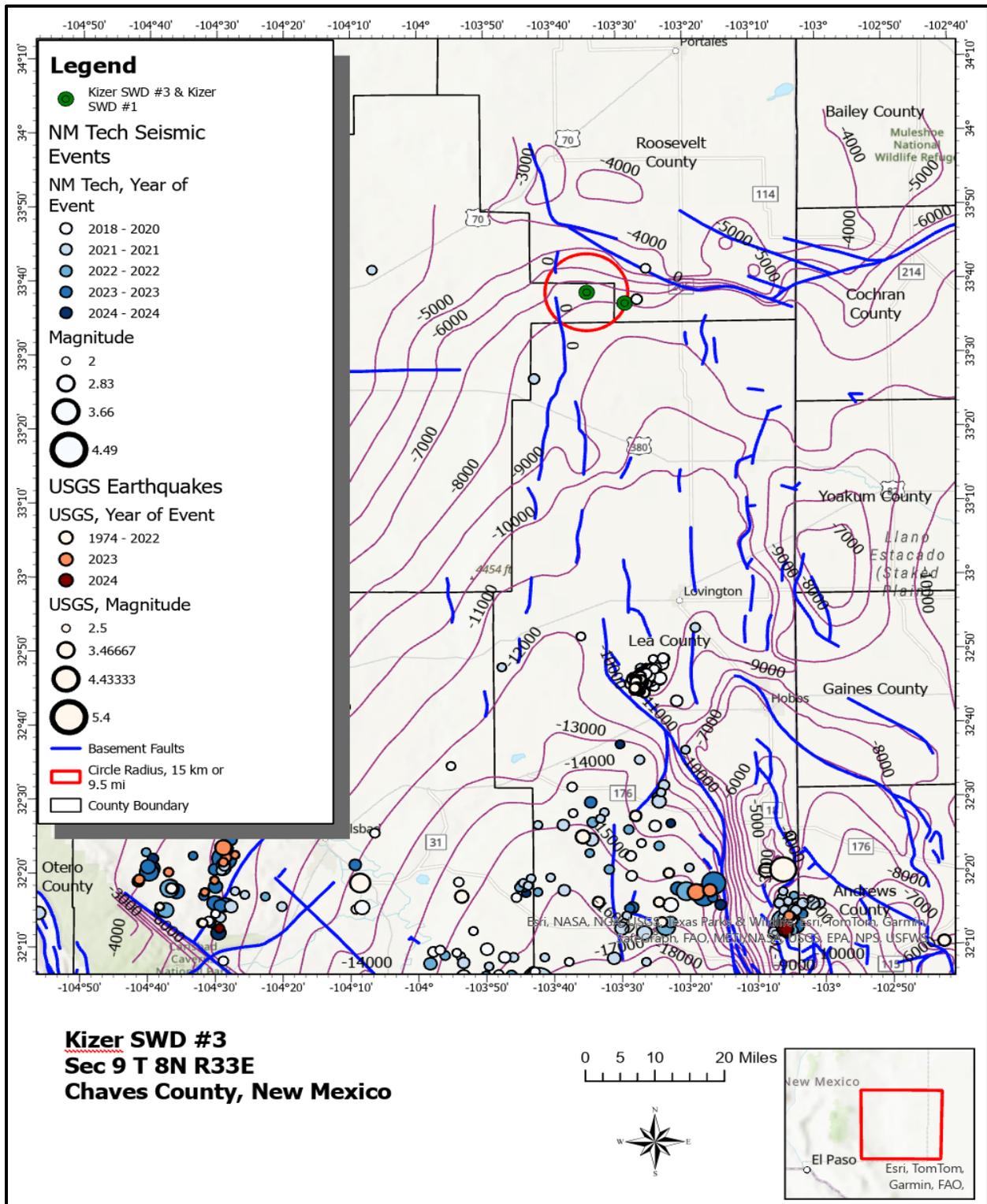


Table 1. Seismic Event Details (New Mexico Tech, 2024)

Date	Latitude	Longitude	Depth (km)	Magnitude	STD (km)	# Stations
3/13/2019	33.692	-103.426	5	2.16	3.89	12
4/21/2020	33.623	-103.45	NULL	2.2	13.87	3

Table 2. 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)	135	Snee and Zoback (2018)
Depth for Calculation	11,200	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	0.8	Snee and Zoback (2018)
Reference Friction Coefficient	0.6	Ikari et al. (2011)
Hydrology		
Aquifer Thickness (ft)	400	Proposed Injection Zone, Devonian-Silurian
Porosity (%)	7	Ruppel and Holtz (1994)
Permeability (mD)	105	Ruppel and Holtz (1994)
Injection Rate (bbl/day)	20,000	Maximum Proposed Injection Rate

Table 3. 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)	Δ Pore Pressure needed for 50 % FSP (psi)
Fault 1	5.4	185	72	0.0	92	1,000	500
Fault 2	4.6	170	72	0.0	90	1,000	500

Figure 2. Fault Slip Potential Result Map with faults as mapped by Horne et al. (2021). Faults are colored based on probability of fault slip as modeled using Fault Slip Potential software (Walsh and Zoback, 2016).

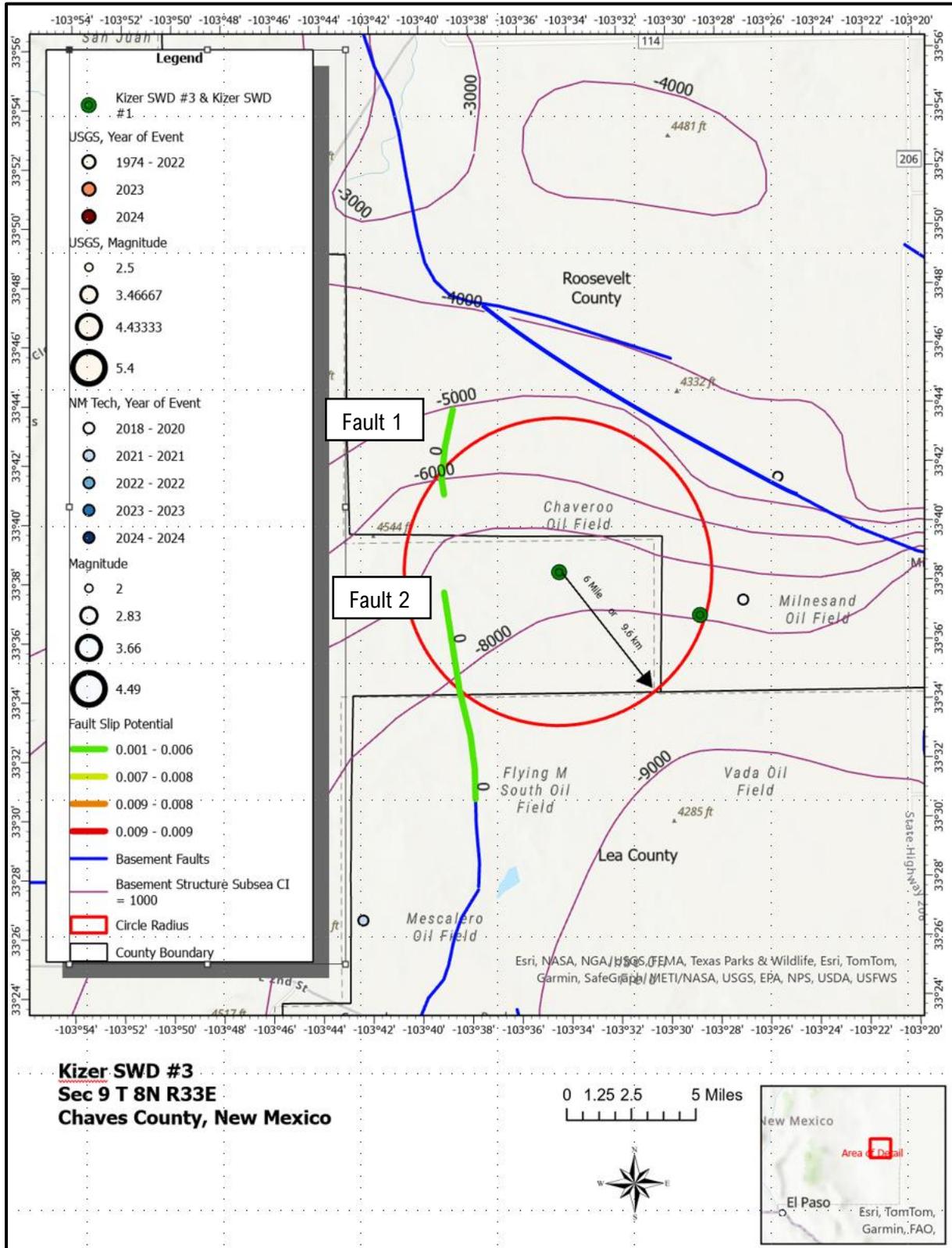
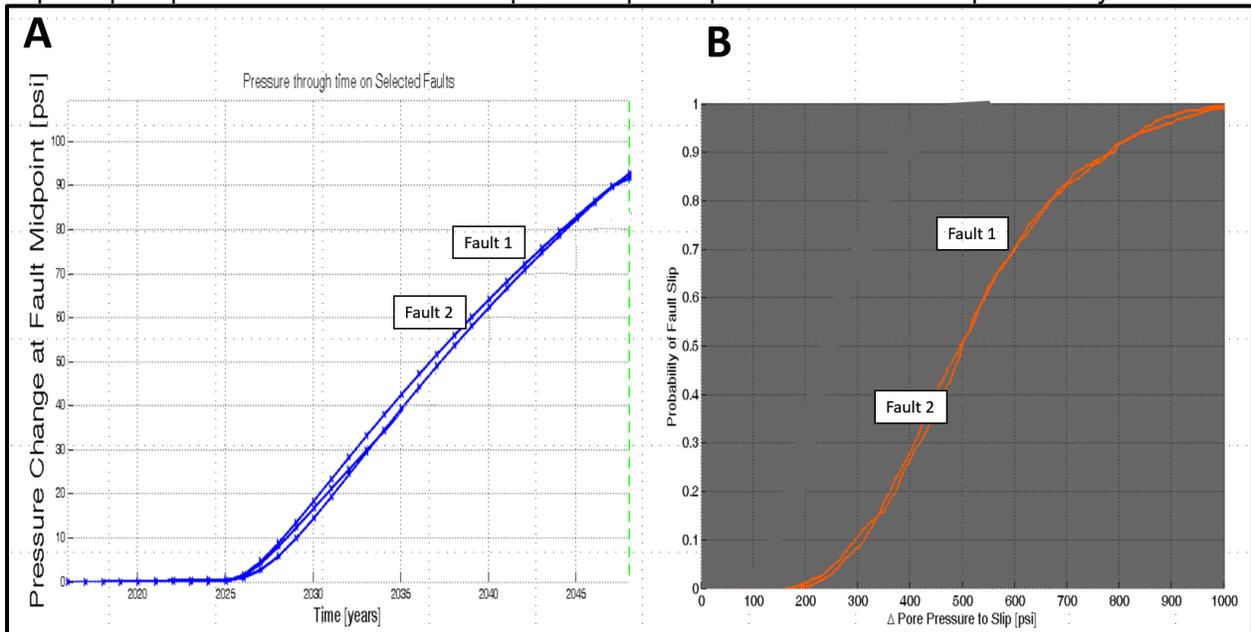


Figure 3. Fault Slip Potential Model Pore Pressure Data A) Plot showing the modeled change of pore pressure on nearby faults through time as a response to the proposed SWD well. B) Plot showing the required pore pressure increase needed to produce specific probabilities of fault slip on nearby faults.



References Cited

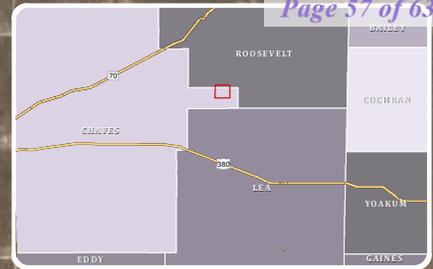
- Cokoski, C., Fichera, M., Mamer, E., Stugris, L., 2020 A Three-Dimensional Hydrogeological Model from the Pecos Slope to the Southern High Plains, Southeastern New Mexico: New Mexico Bureau of Mines and Mineral Resources, Open-File Report 614.
- Comer, J. B., 1991, Stratigraphic Analysis of the Upper Devonian Woodford Formation, Permian Basin, West Texas and Southeastern New Mexico: The University of Texas at Austin, Bureau of Economic Geology, Report of Investigations No. 201, 63 p.
- Frenzel, H. N., Bloomer, R. R., Cline, R. B., Cys, J. M., Galley, J. E., Gibson, W. R., Hills, J. M., King, W. E., Seager, W. R., Kottlowski, F. E., Thompson, S., III, Luff, G. C., Pearson, B. T., and Van Siclen, D. C., 1988, The Permian Basin region, in Sloss, L. L., ed., Sedimentary cover—North American Craton, U.S.: Boulder, Colorado, Geological Society of America, The Geology of North America, v. D-2, p. 261–306.
- Hendrickson, G. E., and Jones, R. S., 1952, Geology and Ground-Water Resources of Eddy County, New Mexico: New Mexico Bureau of Mines and Mineral Resources, Ground-Water Report 3, 179 pp., 6 plates.
- Horne, E. A., Hennings, P. H., and Zahm, C. K., 2021, Basement-rooted faults of the Delaware Basin and Central Basin Platform, Permian Basin, West Texas and southeastern New Mexico, in Callahan, O. A., and Eichhubl, P., eds., The geologic basement of Texas: a volume in honor of Peter T. Flawn: The University of Texas, Bureau of Economic Geology Report of Investigations No. 286, doi:10.23867/RI0286C6.
- Hurd, O; Zoback, MD, 2012, Intraplate earthquakes, regional stress and fault mechanics in the Central and Eastern U.S. and Southeastern Canada. Tectonophysics, 581:182-92. Ikari, M. J.; C. Marone, and D. M. Saffer, 2011, On the relation between fault strength and frictional stability, Geology, 39, 83–86.
- New Mexico Tech, 2024, “Recent Seismic Events — New Mexico Tech Seismological Observatory”, New Mexico Bureau of Geology & Mineral Resources, <https://geoinfo.nmt.edu/nmtso/events/home.cfml>
- Ruppel, S.C., 2009, Integrated synthesis of the Permian basin: data and models for recovering existing and undiscovered oil resources from the largest oil-bearing basin: U.S. Oil & Natural Gas Technology, Bureau Economic Geology, The University of Texas at Austin, p. 1-959.
- Ruppel, S.C, and Holtz, M.H., 1994, Depositional and Diagenetic Facies Patterns and Reservoir Development in Silurian and Devonian Rocks of the Permian Basin, Bureau Economic Geology, The University of Texas at Austin, Report of Investigations No. 216.
- Snee, J.-E.L., Zoback, M.D., 2018, State of stress in the Permian Basin, Texas and New Mexico: Implications for induced seismicity: Leading Edge, v. 37, p. 127–134.
- USGS, 2024, “Earthquake Hazards Program”, <https://www.usgs.gov/programs/earthquake-hazards>
- Walsh, F. R., and Zoback, M. D., (2016) Probabilistic assessment of potential fault slip related to injection induced earthquakes: Application to north central Oklahoma, USA, Geology, Data Repository item 2016334, doi:10.1130/G38275.1.
- Walsh, F. R., Zoback, M. D., Pais, D., Weingarten, M., and Tyrrell, T. (2017) FSP 1.0: A Program for Probabilistic Estimation of Fault Slip Potential Resulting from Fluid Injection, User Guide from the Stanford Center for Induced and Triggered Seismicity, available at SCITS.Stanford.edu/software.
- Zoback, M. L., and M. D. Zoback, 1980, State of stress in the conterminous United States: Journal of Geophysical Research, 85, no. B11, 6113–6156, <https://doi.org/10.1029/JB085iB11p06113>.

Attachment 6

WATER WELL MAP

SECTION 9, TOWNSHIP 8 SOUTH, RANGE 33 EAST, CHAVEZ COUNTY, NEW MEXICO

T7S-R33E



31 32 32 33 33 34 34 35

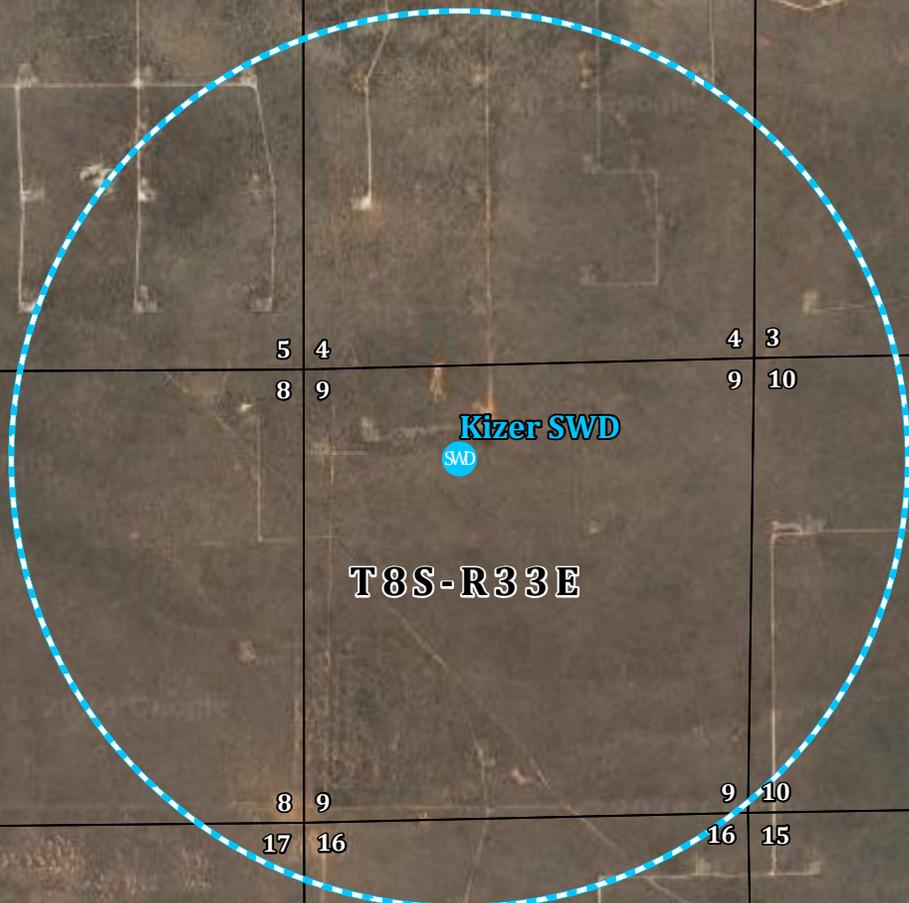
6 5 5 4 4 3 3 2

6 5 5 4 4 3 3 2

7 8 8 9 9 10 10

7 8 8 9 9 10 10 11

18 17 17 16 16 15 15 14



T8S-R33E

Kizer SWD



1 Mile Buffer

CL-00385-POD1

15 14

1:27,000 0 1,000 2,000 3,000 4,000 5,000 Feet

Legend

- Proposed SWD
- 1 Mile Buffer
- NMOSE Points of Diversion**
- Active
- Pending
- Changed Location of Well
- Inactive
- Capped
- Plugged
- Unknown

Kizer SWD

OPERATOR:
RIDGWAY ARIZONA OIL CORP.

Project Managed By:
ACE
 Energy Advisors
 (918) 237-0559
 nate.alleman@aceadvisors.com
 Map Prepared By:

 (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



Attachment 7



Subject C-108 Application for Authorization to inject.
Ridgeway Arizona Oil Corp
Kizer SWD #3
1145 FNL 19 & 1810 FWL, Sec 9 T8N R33E,
Chaves 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.

A handwritten signature in black ink, which appears to read "Jason W. Currie". The signature is written in a cursive style and is positioned above a horizontal line.

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

Date 3/14/2024

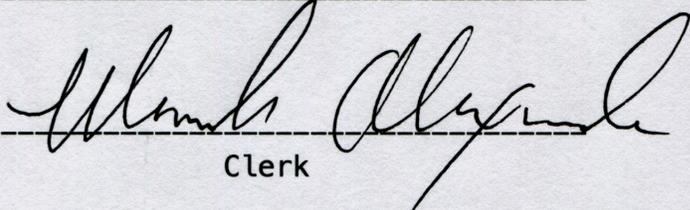
Attachment 8

AFFIDAVIT OF PUBLICATION
STATE OF NEW MEXICO

I, Merle Alexander
Legals Clerk

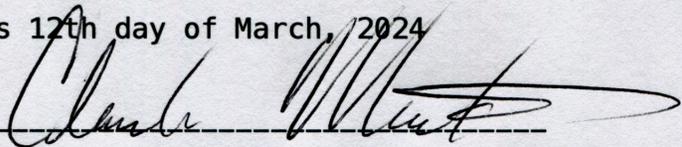
Of the Roswell Daily Record, a daily newspaper published at Roswell, New Mexico do solemnly swear that the clipping hereto attached was published in the regular and entire issue of said paper and not in a supplement thereof for a period of:

One time with the issue dated
February 21st, 2024



Clerk

Sworn and subscribed to before me
this 12th day of March, 2024



Notary Public

Public Notice...

Publish February 21st, 2024

Ridgeway Arizona Oil Corp., 575 N. Dairy Ashford, Suite 210, Houston, TX 77079, is filing Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for non-commercial saltwater injection into its Kizer SWD #3. This will be a new well located 1,145' FNL & 1,810' FWL in Section 9 Township 8S Range 38E in Chaves County, New Mexico. The purpose of the well is to inject produced water from permitted oil and gas wells in the area for non-commercial disposal into the Devonian-Silurian formation at depths of 11,200' - 11,500' at a maximum surface injection pressure of 2,240 psi and a maximum injection rate of 20,000 barrels of water per day.

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.

Additional information may be obtained by contacting Nate Alleman at 918-237-0559.



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		
Shannon Kizer	PO Box 75 Causey, NM 88113	
OCD District Office		
OCD - District 1	1625 N. French Drive Hobbs, NM 88240	
Leaseholders within 1-mile AOR		
Pacific Energy Development Corp	575 N. Dairy Ashford, Ste 210 Houston, TX 77079	
Riley Exploration Permian	305 US Hwy 82 West Plains, TX 79355	
Endeavor Energy Resources, LLC	110 North Marienfield Midland, TX 79701	
Well Operators within 1-Mile AOR		
Ridgeway Arizona Oil Corp	575 N. Dairy Ashford, Suite 210 Houston, TX 77079	
Hadaway Consulting and Engineering, LLC	P.O. BOX 188 Canadian, TX 79014	
AOR Mineral Owners (SLO/BLM/Unleased Minerals)		
Bureau of Land Management	Roswell Field Office 2909 W. Second Street Roswell, NM 88201	
State Land Office	P.O. Box 1148 Santa Fe, NM 87504	

District I
 1625 N. French Dr., Hobbs, NM 88240
 Phone:(575) 393-6161 Fax:(575) 393-0720

District II
 811 S. First St., Artesia, NM 88210
 Phone:(575) 748-1283 Fax:(575) 748-9720

District III
 1000 Rio Brazos Rd., Aztec, NM 87410
 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV
 1220 S. St Francis Dr., Santa Fe, NM 87505
 Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS
 Action 342566

CONDITIONS

Operator: RIDGEWAY ARIZONA OIL CORP. 575 N. Dairy Ashford Houston, TX 77079	OGRID: 164557
	Action Number: 342566
	Action Type: [C-108] Fluid Injection Well (C-108)

CONDITIONS

Created By	Condition	Condition Date
mgebremichael	None	6/5/2024