

Initial Application Part I

Received 11/24/20

This application is placed in file for record. It MAY or MAY NOT have been reviewed to be determined Administratively Complete

ALLCONSULTING

GOVERNMENT RELATIONS · ENERGY · PLANNING · TECHNOLOGY
ENGINEERING · ENVIRONMENTAL

November 24, 2020

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

Subject: Anthem Water Solutions, LLC – East Federal SWD #5
Application for Authorization to Inject

To whom it may concern:

On behalf of Anthem Water Solutions, LLC (Anthem), ALL Consulting, LLC (ALL) has prepared and is submitting an application for the East Federal SWD #5 to convert an existing plugged and abandoned well for the purpose of saltwater disposal into the Devonian and Silurian formations.

This re-open and re-completion is for API No. 30-015-25907, which was drilled by Bass Enterprises Production Company (Bass) in 1988 to a total depth of 12,093'. The surface and intermediate casing were cemented to the surface, and this well was properly plugged and abandoned by Bass in November of 1988 prior to completion of the well. A copy of the Sundry Notice plugging report C-103 is included with this application package.

If you have any questions regarding this application, please contact me at (918) 382-7581 or e-mail me at nalleman@all-llc.com.

Sincerely,
ALL Consulting



Nathan Alleman
Sr. Regulatory Specialist

Attachment

JJJU-201124-C-1080

Revised March 23, 2017

RECEIVED: 11/24/20	REVIEWER:	TYPE: SWD	APP NO: pBL2032944109
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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

SWD-2406

- 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.

Date

Print or Type Name

Nathan Allen

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

II. OPERATOR: Anthem Water Solutions, LLC

ADDRESS: 5914 W. Courtyard Dr. Suite 320, Austin, TX, 78730

CONTACT PARTY: Nathan Alleman PHONE: 918-382-7581

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: Sr. Regulatory Specialist

XV. SIGNATURE: Nathan Alleman DATE: 11/24/2020

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

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

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.

Application for Authorization to Inject
Well Name: East Federal SWD #5

III – Well Data *(The Wellbore Diagram is included as Attachment 1)*

A.

(1) General Well Information:

Operator: Anthem Water Solutions, LLC (OGRID No. 330069)
Lease Name & Well Number: East Federal SWD #5
Location Footage Calls: 1,980 FSL & 1,980 FWL
Legal Location: Unit Letter K, S30 T21S R28E
Ground Elevation: 3,166.4'
Proposed Injection Interval: 13,585' – 14,530'
County: Eddy

(2) Casing Information:

Type	Hole Size	Casing Size	Casing Weight	Setting Depth	Sacks of Cement	Estimated TOC	Method Determined
Surface	17.5"	13.375"	48.0 lb/ft	555'	650	Surface	Circulation
Intermediate	12.25"	8.625"	24 lb/ft	2,903'	1,350	Surface	Circulation
Production	7.875"	7"	26 lb/ft	13,585'	820	2,703'	CBL
Tubing	-	4.5"	11.6 lb/ft	13,565'	-	-	-

(The Wellbore Diagram is attached) Note: Two DV Tools will be set in the Production casing at 6,000 ft. and 9,000 ft.

(3) Tubing Information:

4.5" (11.6# N80 IPC) tubing with setting depth of 13,565'

(4) Packer Information: Arrowset AS1-X or equivalent packer set at 13,565'

B.

(1) Injection Formation Name: Devonian - Silurian

Pool Name: SWD; DEVONIAN - SILURIAN

Pool Code: 97869

Injection Interval: Open hole injection between 13,585' – 14,530'

(2) Drilling Purpose: Re-Completion for Salt Water Disposal

(3) Other Perforated Intervals: No perforated intervals exist.

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

- Delaware (2,914')
- Bone Springs (5,698)
- Wolfcamp (9,188')
- Atoka (10,927')
- Morrow (11,390')

(5) Underlying Oil and Gas Zones: No underlying oil and gas zones exist.

V – Well and Lease Maps

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

- 2-mile Oil & Gas Well Map
- 1-mile Well Detail List
- 2-mile Lease Map
- 2-mile Mineral Ownership Map
- 2-mile Surface Ownership map
- 1.5-mile Deep SWD Map (Devonian/Silurian)
- Potash Lease Map

VI – AOR Well List

There are 16 wells, including the Subject well, within the 1-mile AOR. None of those wells penetrate the proposed injection zone.

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

VII – Proposed Operation

- (1) **Proposed Maximum Injection Rate:** 30,000 bpd
Proposed Average Injection Rate: 15,000 bpd
- (2) A **closed system** will be used.
- (3) **Proposed Maximum Injection Pressure:** 2,717 psi (surface)
Proposed Average Injection Pressure: approximately 1,350 – 1,850 psi (surface)
- (4) **Source Water Analysis:** It is expected that the injectate will consist of produced water from production wells completed in the Wolfcamp and Bone Springs formations. Analysis of water from these formations is included in **Attachment 3**.
- (5) **Injection Formation Water Analysis:** The proposed SWD will be injecting water into the Devonian - Silurian formations which are a non-productive zone known to be compatible with formation water from the Wolfcamp and Bone Springs formations. Water analyses from the Devonian formation in the area are included in **Attachment 4**.

VIII – Geologic Description

The proposed injection interval includes the Devonian - Silurian formations from 13,585 – 14,530 feet. This formation consists of interbedded carbonate rocks consisting of dolomites and limestones with some interbedded siltstones and shales. Several thick sections of porous and permeable intervals capable of taking water are present within the subject formation in the area.

The base of the lowermost Underground Source of Drinking Water (USDW) is at a depth of approximately 2,604 feet. The USDW is covered by casing set at 2,903 feet that is cemented to surface and isolates the USDW. Geophysical log assessment was conducted to accurately determine the top of the Rustler formation, and the top and base of the Capitan Reef in this area. Water well depths in the area range from approximately 33 - 55 feet below ground surface.

IX – Proposed Stimulation Program

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

X – Logging and Test Data

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

XI – Fresh Groundwater Samples

Based on a review of data from the New Mexico Office of the State Engineer, there are seven groundwater well located within 1-mile of the proposed SWD location; however, none of the groundwater wells were determined to be active. Therefore, there were no groundwater samples collected in association with this application.

A water well map of the area is included in **Attachment 5**.

XII – No Hydrologic Connection Statement

ALL Consulting has examined available geologic and engineering data, and has found no evidence of faulting present in the area that would provide a hydrologic connection between the injection interval and overlying USDWs. Additionally, the casing and cementing program has been designed to further ensure there will be no hydrologic connection between the injection interval and overlying USDWs. A letter from a knowledgeable and qualified expert stating that there is a low risk of seismic activity from the proposed injection activities is included in **Attachment 6**.

XIII – Proof of Notice

A Public Notice was filed with the Carlsbad Current Argus newspaper and an affidavit is included in **Attachment 7**.

A copy of the application was mailed to the OCD District Office, landowner, and leasehold operators within 1-mile of the proposed SWD location. A list of the recipients, as well as delivery confirmations, are included in **Attachment 7**.

Attachments

Attachment 1:

- C-102
- Existing Wellbore Diagram
- Proposed Wellbore Diagram
- C-103

Attachment 2: Area of Review Information:

- 2-mile Oil & Gas Well Map
- 1-mile Well Detail List
- 2-mile Lease Map
- 2-mile Mineral Ownership Map
- 2-mile Surface Ownership Map
- 1.5-mile Deep SWD Map (Devonian/Silurian SWDs)
- Potash Lease Map

Attachment 3: Source Water Analyses

Attachment 4: Injection Formation Water Analyses

Attachment 5: Water Well Map and Well Data

Attachment 6: Public Notice Affidavit and Notice of Application Confirmations

Attachment 1

- C-102
- Existing Wellbore Diagram
- Proposed Wellbore Diagram
- C-103

WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

REVISED EXHIBIT A

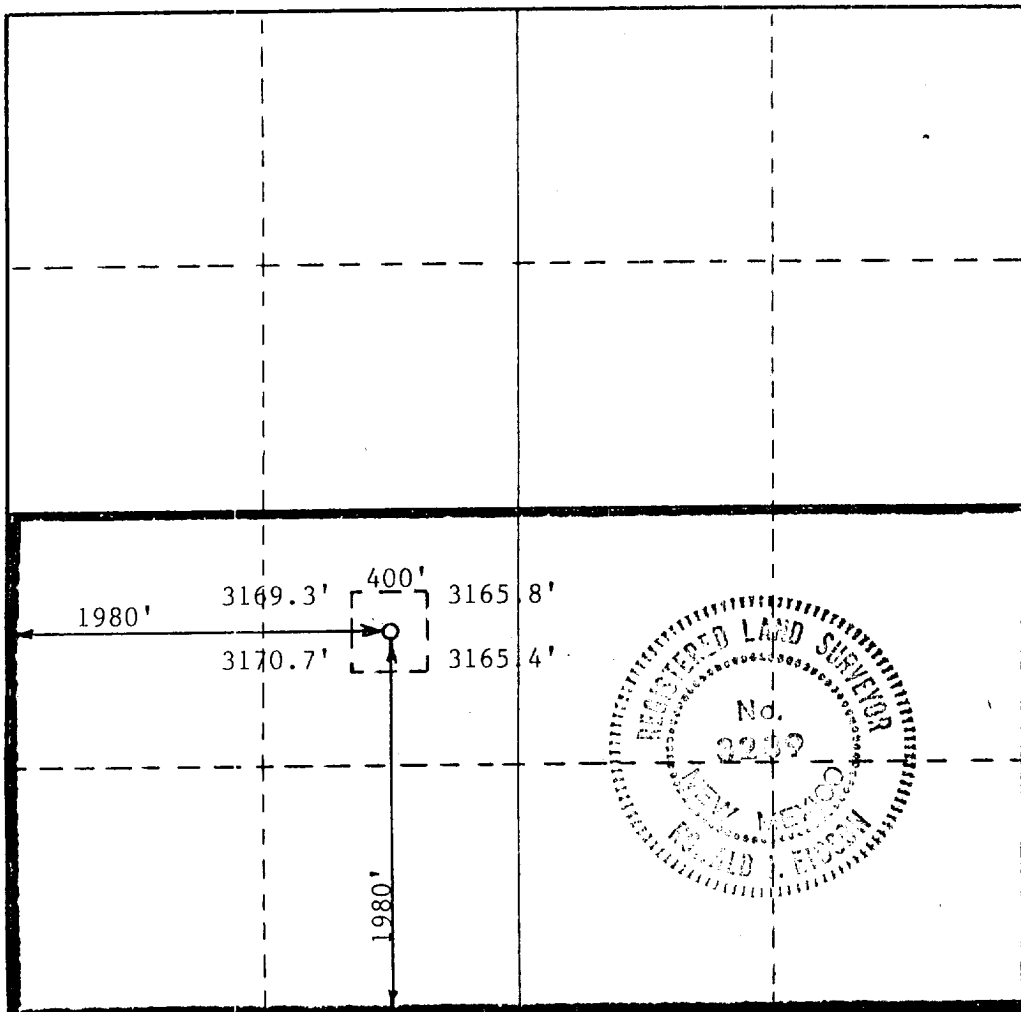
Operator BASS ENTERPRISES PRODUCTION CO.			Lease BIG EDDY UNIT		Well No. 102
Unit Letter K	Section 30	Township 21 SOUTH	Range 28 EAST	County EDDY	
Actual Footage Location of Well: 1980 feet from the SOUTH line and 1980 feet from the WEST line					
Ground Level Elev. 3166.4'	Producing Formation MORROW	Pool EAST CARLSBAD GAS	Dedicated Acreage: 316.44 Acres		

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

Yes No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) SE/4, E $\frac{1}{2}$ SW $\frac{1}{4}$, and NW/4 of SW/4; Bass Companies

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name
Troy L. Bevers

Position
Engineering Assistant

Company
Bass Enterprises Prod. Co.

Date
April 16, 1988

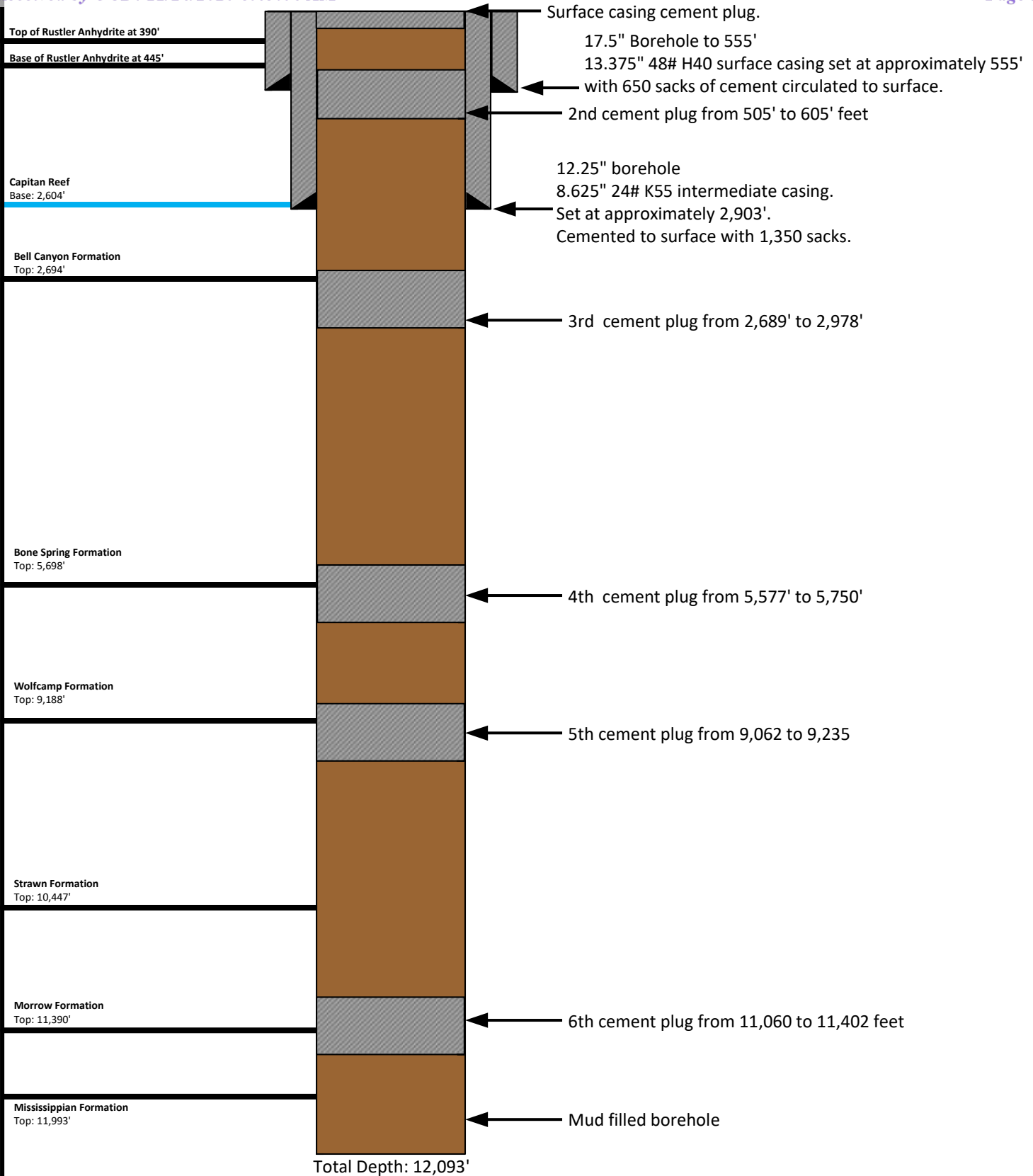
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed
3-19-88

Registered Professional Engineer and/or Land Surveyor
Ronald J. Eidson



Certificate No. JOHN W. WEST, 676
RONALD J. EIDSON, 3239

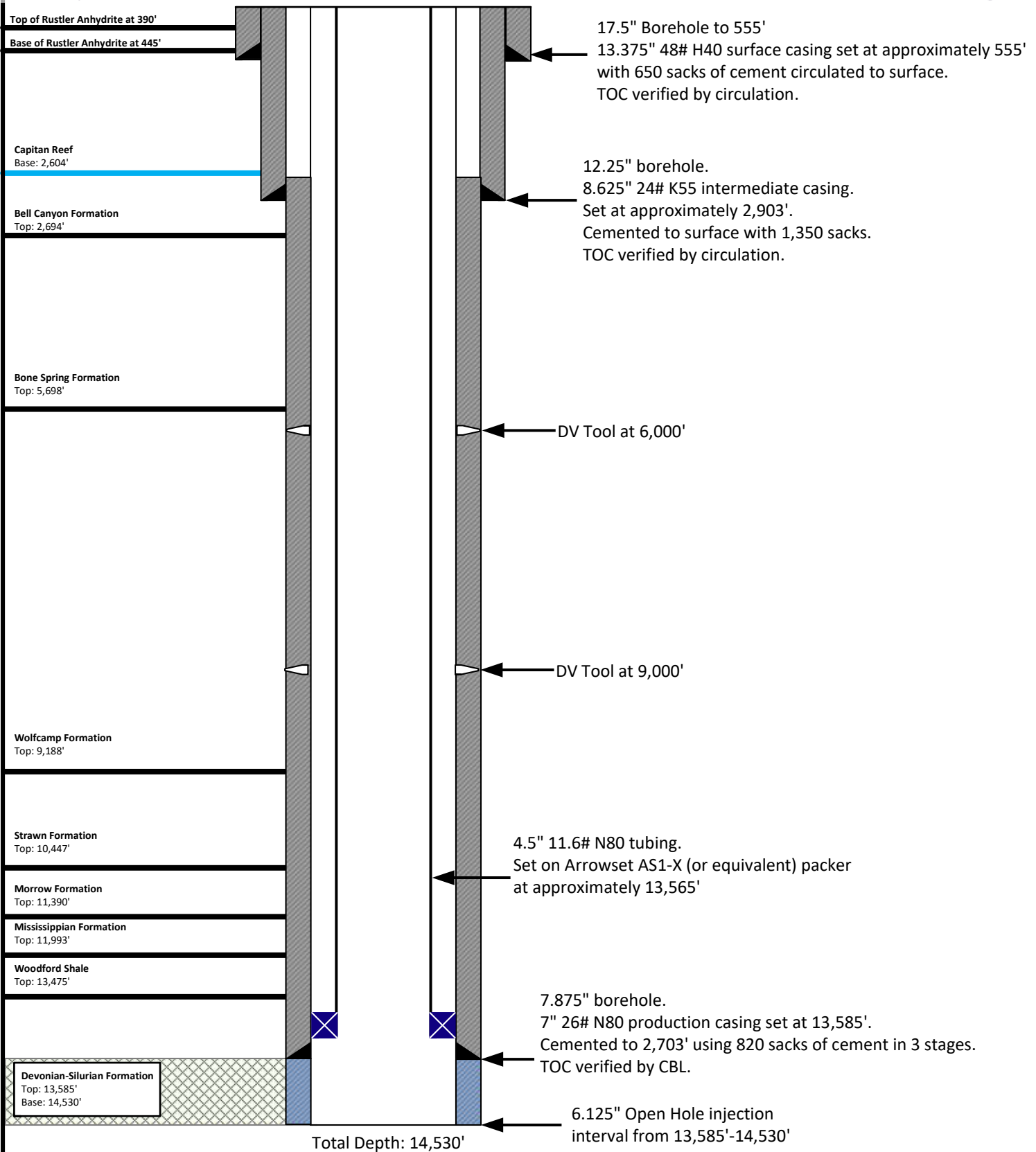
91746



Note: Listed depths and cement volumes are approximates based on available information. All cement calculations use yield of 1.18 cubic foot per sack and include 40% excess.

NOT TO SCALE

<p>Prepared by:</p>  <p>Prepared for:</p> 	<p>Drawn by: Joshua Ticknor</p>	<p>Wellbore Diagram – Existing Construction Anthem Water Solutions, LLC: East Federal SWD # 5 API No. 30-015-25907 1,980' FSL & 1,980' FWL Section 30, Twp. 21S, Range 28E Eddy County, New Mexico</p>
	<p>Project Manager: Dan Arthur</p>	
	<p>Date: 10/28/2020</p>	



Note: Listed depths and cement volumes are approximates based on available information. All cement calculations use yield of 1.18 cubic foot per sack and include 25% excess.

NOT TO SCALE

Prepared by:

 Prepared for:


Drawn by: Joshua Ticknor

Project Manager:
Dan Arthur

Date: 10/28/2020

Wellbore Diagram – Proposed Construction
 Anthem Water Solutions, LLC: East Federal SWD # 5
 API No. 30-015-25907
 1,980' FSL & 1,980' FWL
 Section 30, Twp. 21S, Range 28E
 Eddy County, New Mexico

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPPLICATE
(Other instructions on reverse side)

Expires August 31, 1988 Page 13 of 52

5. LEASE DESIGNATION AND SERIAL NO. *6/51*

LC-059365

6. OPERATOR, ALLOTTEE OR TRIBE NAME

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT-" for such proposals.)

RECEIVED

NOV 17 1988

1. OIL WELL GAS WELL OTHER

7. UNIT AGREEMENT NAME

Big Eddy Unit

2. NAME OF OPERATOR

Bass Enterprises Production Co.

8. FARM OR LEASE NAME

Big Eddy Unit

3. ADDRESS OF OPERATOR

P O Box 2760 Midland Texas 79702-2760

9. WELL NO.

1402

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.)
At surface

1980' FSL & 1980' FWL Of Unit Letter K

10. FIELD AND POOL, OR WILDCAT

Carlsbad Morrow East

RECEIVED

DEC 12 '88

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA

Sec. 30, T21S, R28E

14. PERMIT NO.

30-015-25907

15. ELEVATIONS (Show whether DF, RT, GR, etc.)

3166.4' GL Ungraded

O. C. D.

ARTESIAN OFFICE

12. COUNTY OR PARISH 13. STATE

Eddy New Mexico

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

SUBSEQUENT REPORT OF:

TEST WATER SHUT-OFF

PULL OR ALTER CASING

WATER SHUT-OFF

REPAIRING WELL

FRACTURE TREAT

MULTIPLE COMPLETE

FRACTURE TREATMENT

ALTERING CASING

SHOOT OR ACIDIZE

ABANDON*

SHOOTING OR ACIDIZING

ABANDONMENT*

REPAIR WELL

CHANGE PLANS

(Other)

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

November 9, 10, 1988 Set Plugs as Follows

- No. 1. 11,402' - 11,060' Cemented W/100 sx Class "H" Neat Tag Plug
- No. 2. 9,235' - 9,062' Cemented W/50 sx Class "H" Neat Calc.
- No. 3. 5,750' - 5,577' Cemented W/50 sx Class "H" Neat Calc.
- No. 4. 2,978' - 2,689' Cemented W/85 sx Class "H" W/2% Calc. 2 -Tag.
- No. 5. 605' - 505' Cemented W/50 sx Class "H" Neat Calc
- No. 6. 50' - 0' Surface Cemented W/30 sx Class "H" Neat

Released Rig at 4:00 A.M. CST 11/11/88
Well plugged & abandoned

Note: Cement, Tags and Plugs were witnessed by Mr. Dale Carpenter and Mr. Joe Sanchez, with BLM.

18. I hereby certify that the foregoing is true and correct

SIGNED *R.C. Sanchez*

TITLE Senior Prod. Clerk

DATE 11/11/88

(This space for Federal or State office use)

APPROVED BY _____

TITLE _____

DATE 12/8/88

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

AS1-X MECHANICAL PACKER



The ACT AS1-X Packer is the most versatile of the mechanically set retrievable packers and may be used in any production application. Treating, testing, injecting, pumping wells, flowing wells, deep or shallow, the AS1-X is suited for all. The packer can be left in tension or compression, depending on well conditions and the required application. A large internal by-pass reduces swabbing when running and retrieving. The by-pass closes when the packer is set and opens prior to releasing the upper slips when retrieving to allow pressure equalization.

The J-slot design allows easy setting and releasing; 1/4 turn right-hand set, right-hand release. A patented upper-slip releasing system reduces the force required to release the packer. A non directional slip is released first, making it easier to release the other slips. The AS1-X packer can withstand 7,000 psi (48 MPa) of differential pressure above or below.

FEATURES, ADVANTAGES AND BENEFITS:

- The design holds high differential pressure from above or below, enabling the packer to meet most production, stimulation, and injection needs
- The packer can be set with compression, tension, or wire line, enabling deployment in shallow and deep applications
- The packer can be set and released with only a one-quarter turn of the tubing
- The bypass valve is below the upper slips so that debris are washed from the slips when the valve is opened, reducing the times for circulation and total retrieval

- The full opening enables unrestricted flow and the passage of wire line tools and other packer systems
- The packer can be run with the T-2 on-off tool, which enables the tubing to be disconnected and retrieved without retrieving the packer

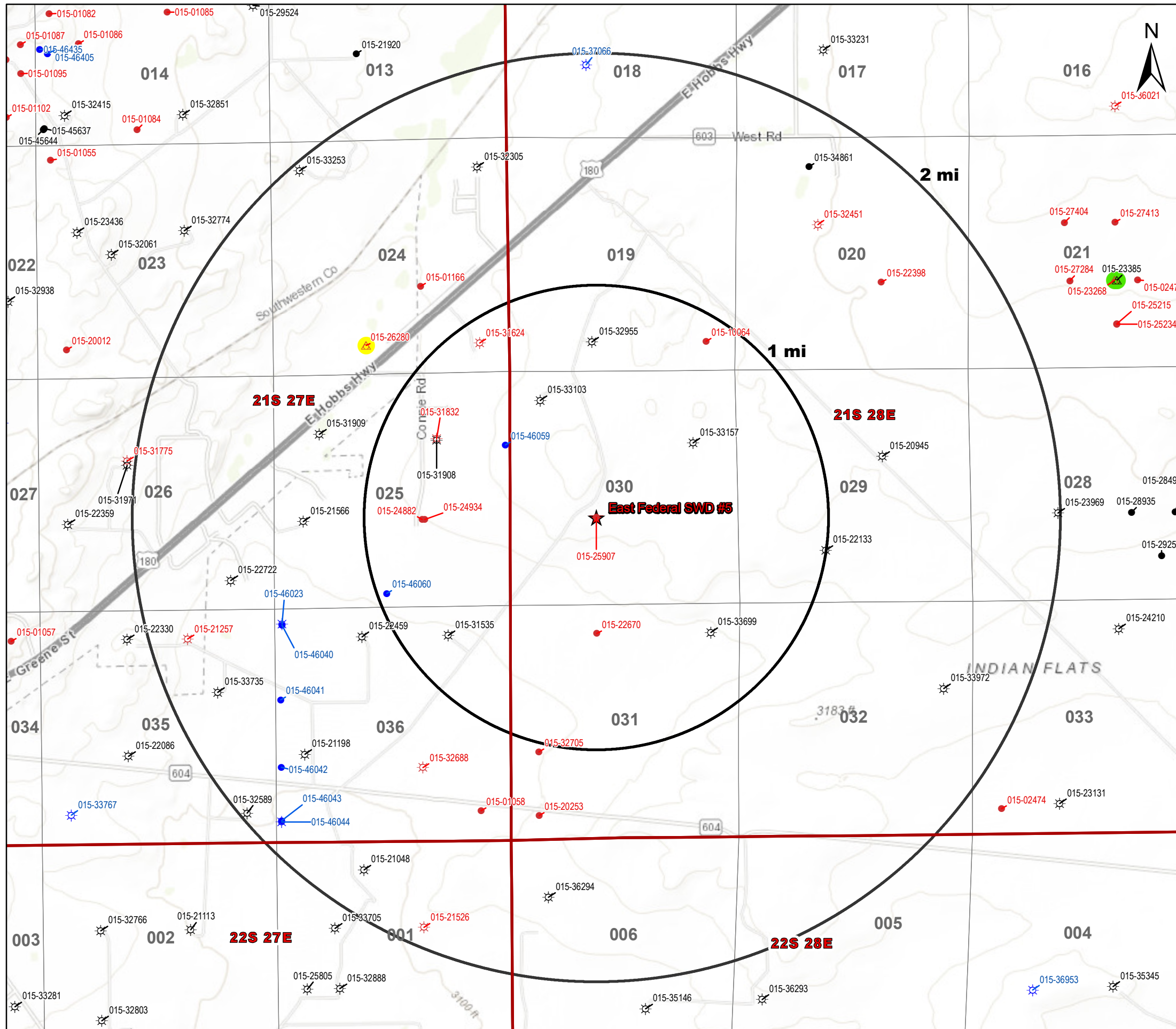
OPTIONS:

- Elastomer options are available for hostile environments
- Optional safety releases are available

Attachment 2

Area of Review Information:

- 2-mile Oil & Gas Well Map
- 1-mile Well Detail List
- 2-mile Lease Map
- 2-mile Mineral Ownership Map
- 2-mile Surface Ownership Map
- 1.5-mile Deep SWD Map (Devonian/Silurian SWDs)
- Potash Lease Map



Legend

- ★ Proposed SWD
- ☀ Gas, Active (46)
- ☀ Gas, New (6)
- ☀ Gas, Plugged (8)
- Oil, Active (9)
- Oil, New (8)
- Oil, Plugged (28)
- △ Salt Water Injection, Active (1)
- △ Salt Water Injection, Plugged (2)
- Deep Injection Zone (1)
- Shallow Injection Zone (2)

Source Info: NMOCD O&G Wells updated 10/21/2020
 (<http://www.emnrd.state.nm.us/OCD/ocdgis.html>)

O&G Wells Area of Review

East Federal SWD #5
 Eddy County, New Mexico

Proj Mgr:
 Dan Arthur

November 03, 2020

Mapped by:
 Ben Bockelmann

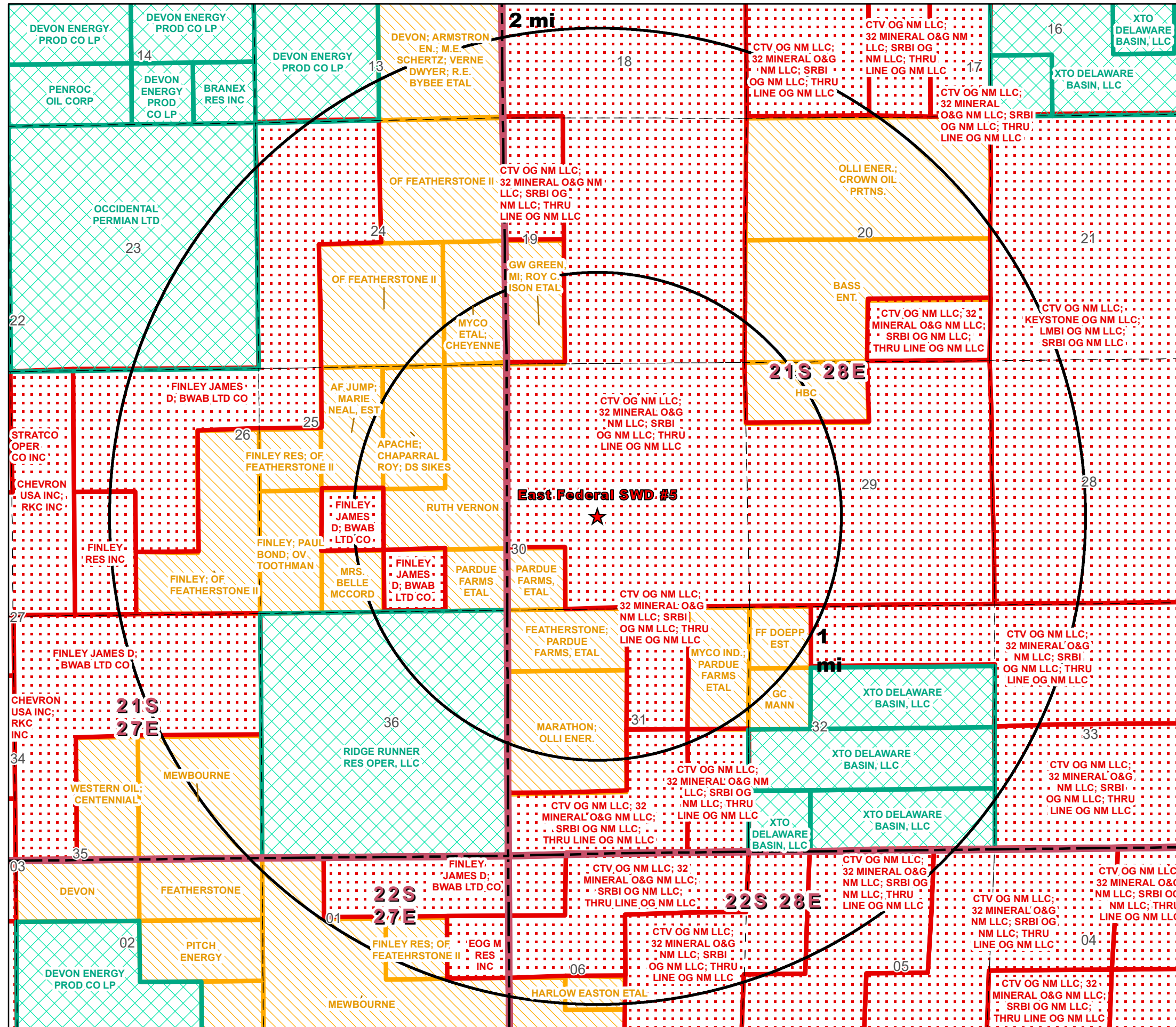


AOR Tabulation for East Federal SWD #5 (Top of Injection Interval: 13,585')

Well Name	API#	Well Type	Operator	Spud Date	Location (Sec., Tn., Rng.)	Total Vertical Depth (feet)	Penetrate Inj. Zone?	
AUSTIN STATE #001	30-015-31535	Gas	MATADOR PRODUCTION COMPANY	2/3/2001	B-36-21S-27E	12100	No	
PRE-ONGARD WELL #001	30-015-24882	Plugged	PRE-ONGARD WELL OPERATOR (Sante Fe Energy Compay)	7/8/1984	J-25-21S-27E	Plugged (12200)	No	
PRE-ONGARD WELL #001	30-015-24934	Plugged	PRE-ONGARD WELL OPERATOR (Sante Fe Energy Compay)	7/22/1984	J-25-21S-27E	Plugged (12007)	No	
CARSON CITY 25 FEE COM #001Y	30-015-31908	Gas	EOG RESOURCES INC	7/7/2001	G-25-21S-27E	12052	No	
CARSON CITY #001	30-015-31832	Plugged	EOG M RESOURCES, INC.	6/26/2001	G-25-21S-27E	Plugged (1396)	No	
CHEYENNE #001	30-015-31624	Plugged	EOG RESOURCES INC	3/27/2001	P-24-21S-27E	Plugged (12074)	No	
BIG EDDY UNIT #144	30-015-33103	Gas	XTO PERMIAN OPERATING LLC.	11/20/2003	30-21S-28E	12100	No	
BIG EDDY UNIT #143	30-015-32955	Gas	XTO PERMIAN OPERATING LLC.	8/28/2003	N-19-21S-28E	12114	No	
Big Eddy Unit #102	30-015-25907	Plugged	Subject Well					
PRE-ONGARD WELL #065	30-015-22670	Plugged	PRE-ONGARD WELL OPERATOR (Perry R. Bass)	3/7/1979	C-31-21S-28E	Plugged (12108)	No	
BIG EDDY UNIT #151	30-015-33157	Gas	XTO PERMIAN OPERATING LLC.	8/6/2006	H-30-21S-28E	12201	No	
PRE-ONGARD WELL #002	30-015-10064	Plugged	PRE-ONGARD WELL OPERATOR (Pan American Petroleum Corporation)	12/30/1962	P-19-21S-28E	Plugged (12457)	No	
PANTHER CITY 31 FEE COM #001	30-015-33699	Gas	EOG RESOURCES INC	1/29/2005	A-31-21S-28E	12202	No	
BIG EDDY #054	30-015-22133	Gas	XTO PERMIAN OPERATING LLC.	5/26/1995	N-29-21S-28E	12256	No	
EDMONTON STATE #002H	30-015-46060	Oil	MATADOR PRODUCTION COMPANY	Not Drilled	N-25-21S-27E	Unknown**	No	
EDMONTON STATE #001H	30-015-46059	Oil	MATADOR PRODUCTION COMPANY	Not Drilled	H-25-21S-27E	Unknown**	No	

Notes:

- No wells within a 1-mile AOR penetrated the injection interval.
- Wells with a Total Vertical Depth (TVD) of "Unknown**" have been permitted into the Bone Spring formation, but no TVD information is available through NMOCD. The top of the Bone Spring formation in this area is ~ 5,700'. Therefore, wells with a TVD of "Unknown**", will not penetrate the injection interval.



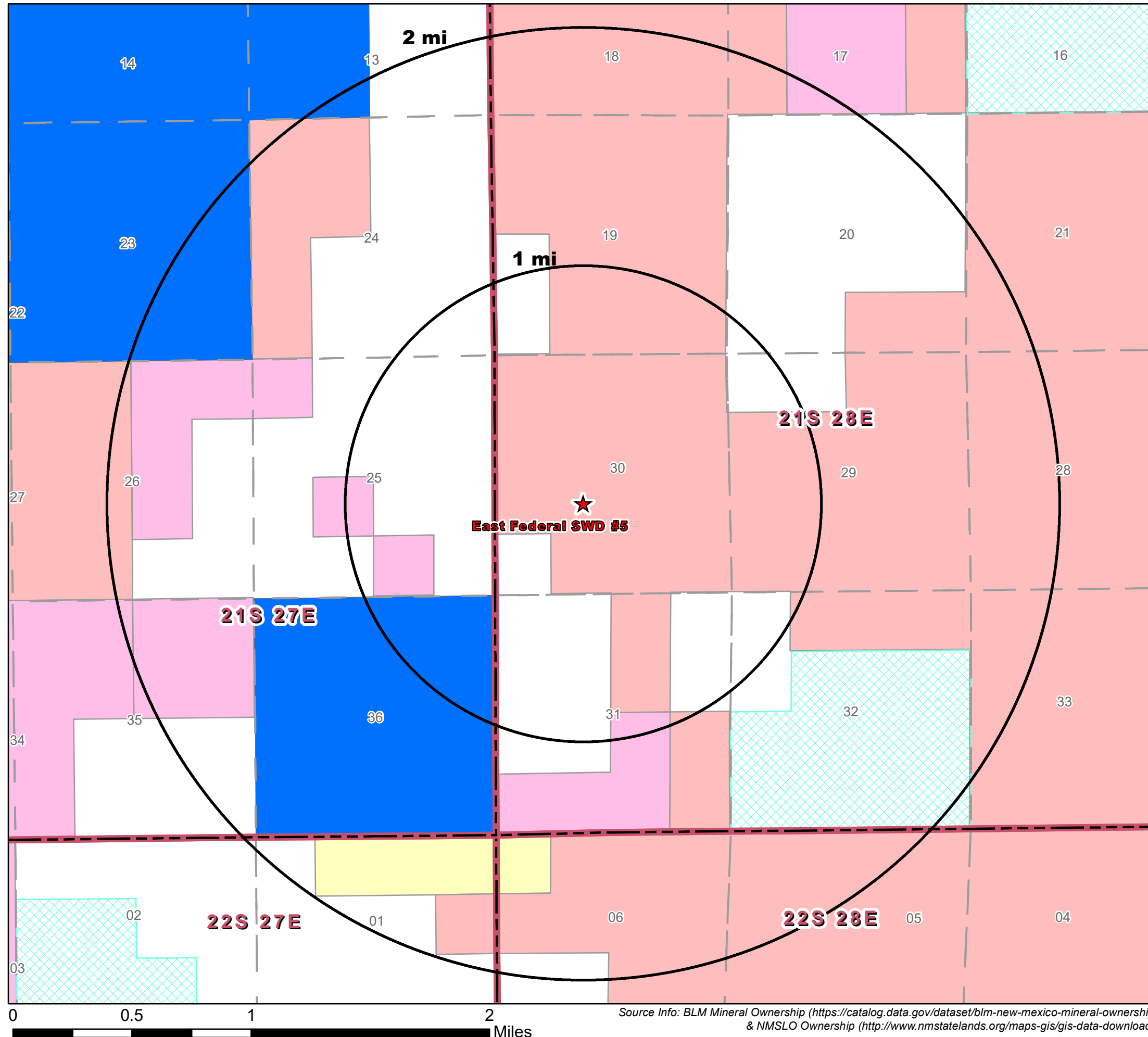
Legend

- ★ Proposed SWD
- NMSLO Mineral Leases
- BLM Mineral Leases
- Private Mineral Leases
- Unreleased Minerals - Private Owned



Mineral Lease Area of Review		
East Federal SWD #5 Eddy County, New Mexico		
Proj Mgr: Dan Arthur	November 04, 2020	Mapped by: Ben Bockelmann
Prepared for: 	Prepared by: 	

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



Legend

★ Proposed SWD

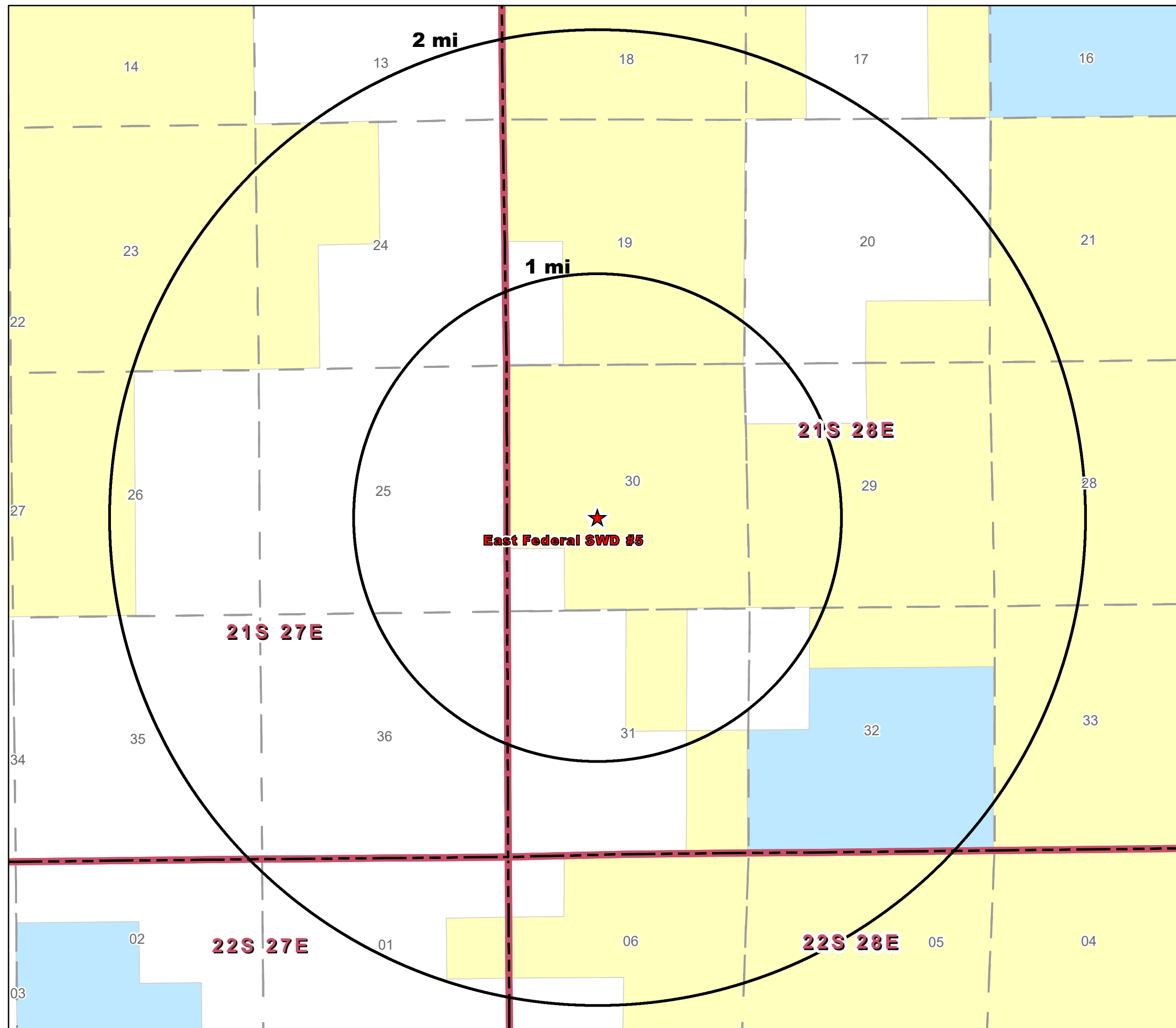
Mineral Ownership

- All minerals are owned by U.S. (BLM)
- Only oil and gas are owned by the U.S.
- Other minerals are owned by the U.S. (BLM)
- Private minerals
- Subsurface minerals (NMSLO)
- Surface and Subsurface minerals (NMSLO)



Mineral Ownership Area of Review		
East Federal SWD #5 Eddy County, New Mexico		
Proj Mgr: Dan Arthur	November 05, 2020	Mapped by: Ben Bockelmann
<small>Prepared for:</small> 	<small>Prepared by:</small> 	

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



Legend

★ Proposed SWD

Surface Ownership

BLM

Private

State

N



**Surface Ownership
Area of Review**

**East Federal SWD #5
Eddy County, New Mexico**

Proj Mgr:
Dan Arthur

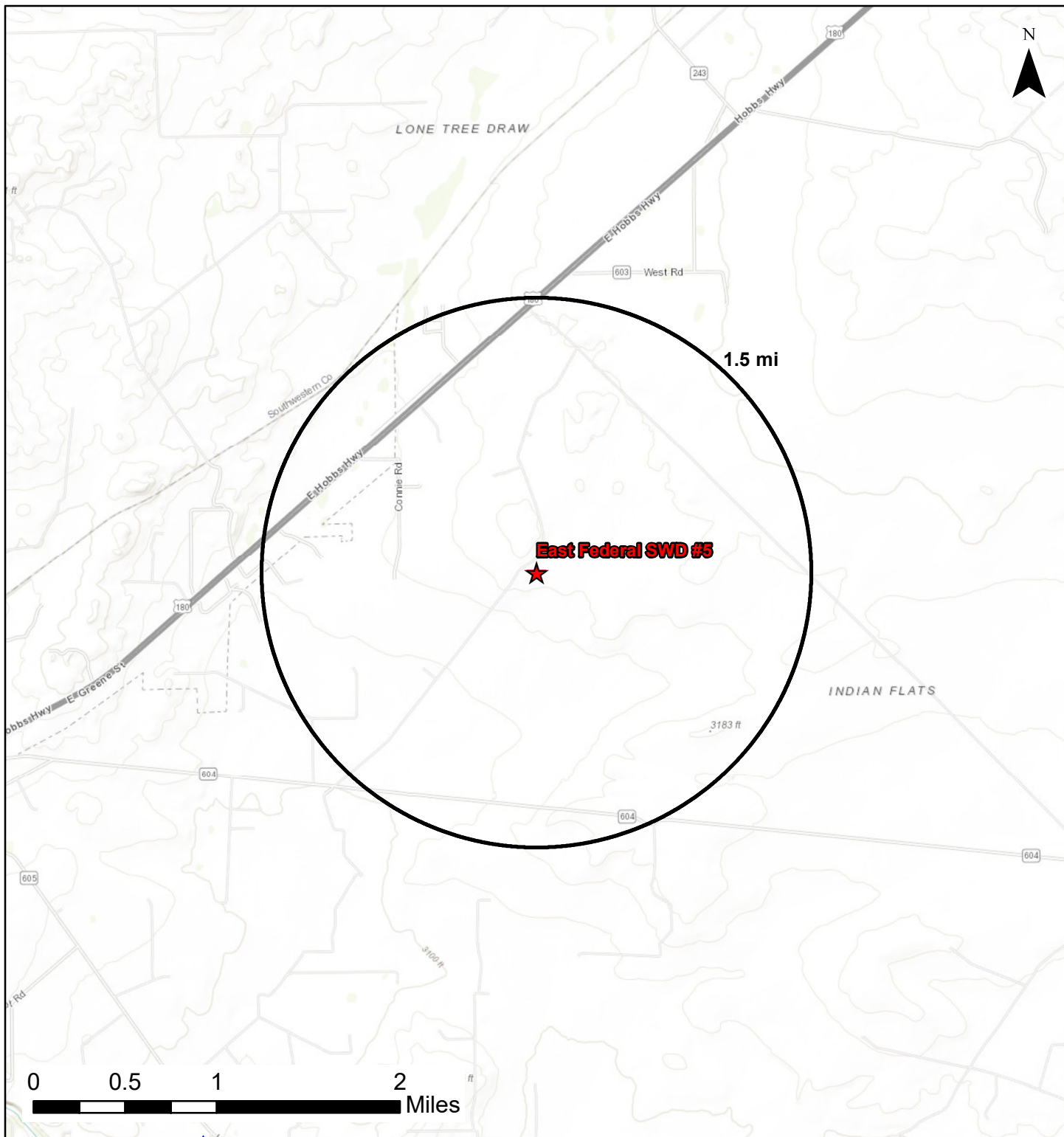
November 05, 2020

Mapped by:
Ben Bockelmann



0 0.5 1 2 Miles

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



**East Federal SWD #5
Deep SWDs AOR**

Proj Mgr:
Dan Arthur

Nov 11, 2020

Mapped by:
Ben Bockelmann

Prepared by:



Legend

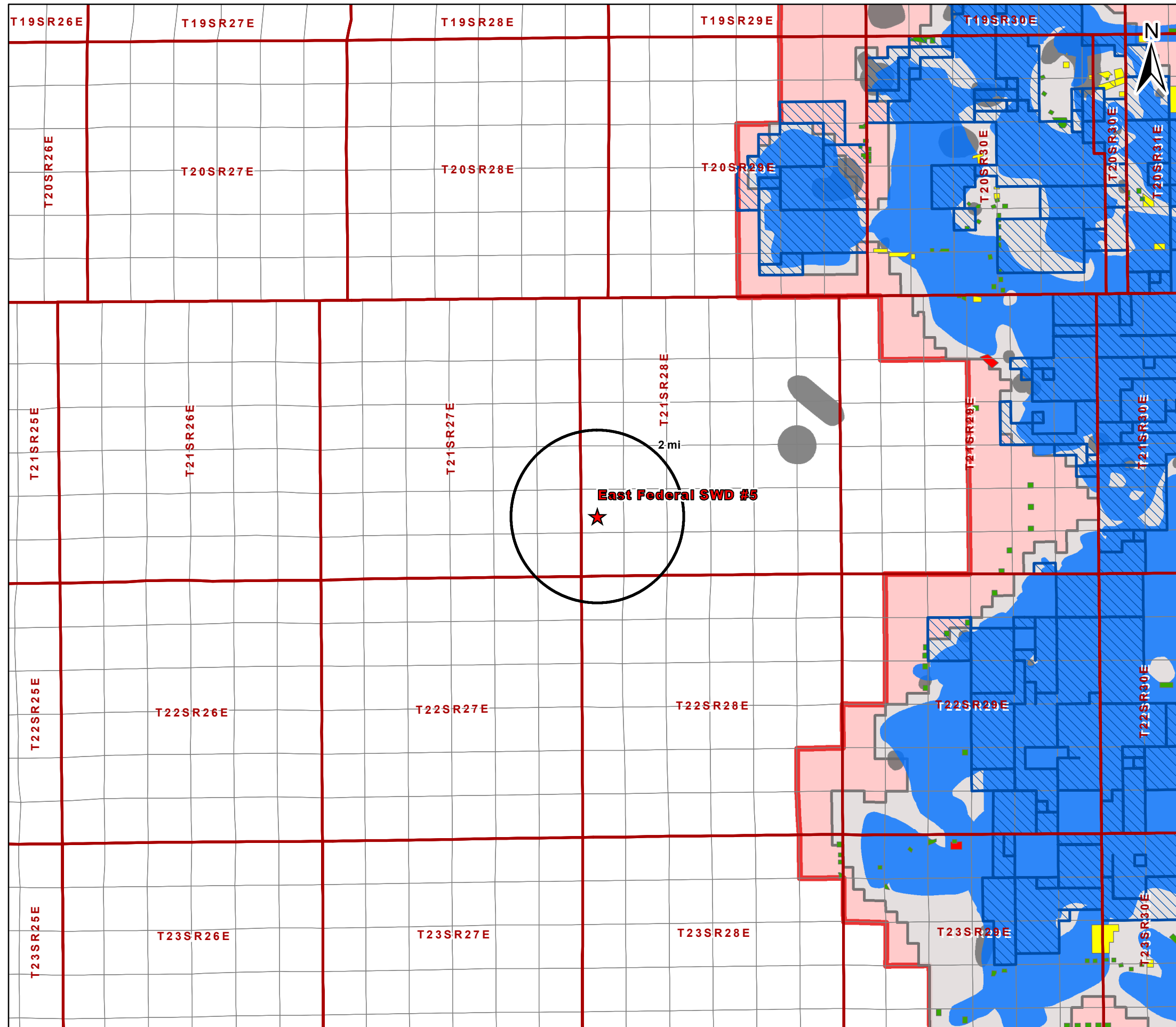
★ Proposed SWD

Devonian/Silurian SWDs

△ Salt Water Injection, Active (0)

△ Salt Water Injection, New (1)

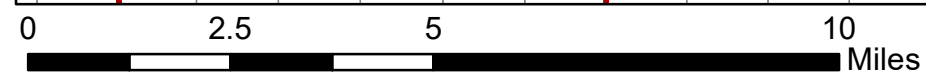
Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



Legend

- ★ Proposed SWD
- Potash Leases
- Ore Type - Measured
- Ore Type - Indicated
- KPLA
- SOPA
- Drill Islands**
- Status**
- Approved
- Denied
- Nominated

Potash Leases Area of Review		
East Federal SWD #5 Eddy County, New Mexico		
Proj Mgr: Dan Arthur	November 05, 2020	Mapped by: Ben Bockelmann
Prepared for: 	Prepared by: 	



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

Attachment 3

Source Water Analyses

Source Water Analysis																	
Anthem Water Solutions, LLC																	
Well Name	API	Latitude	Longitude	Section	Township	Range	Unit	Ftgs	Ftgw	County	State	Field	Formation	TDS (Mg/L)	Chloride (Mg/L)	Bicarbonate (Mg/L)	Sulfate (Mg/L)
ROOKIE STATE #001	3001510060	32.4132729	-104.3302536	7	22S	26E	B	150N	2056E	EDDY	NM	HAPPY VALLEY SOUTH	BONE SPRING	67985	39150	61	1148
STONEWALL DS FEDERAL COM #002	3001521640	32.5426216	-104.1979904	29	20S	28E	J	1980S	1980E	EDDY	NM	AVALON	BONE SPRING	131898	85953.5	635.033	2418.81
STONEWALL DS FEDERAL COM #002	3001521640	32.5426216	-104.1979904	29	20S	28E	J	1980S	1980E	EDDY	NM	AVALON	BONE SPRING	142444	93828.2	678.602	1878.7
STATE AC COM #001	3001522299	32.5572166	-104.1806107	21	20S	28E	J	1980S	1980E	EDDY	NM	BURTON FLAT NORTH	WOLFCAMP	41597	25000	449	76
STATE AC COM #001	3001522299	32.5572166	-104.1806107	21	20S	28E	J	1980S	1980E	EDDY	NM	BURTON FLAT NORTH	WOLFCAMP	43441	26100	446	100
FED UNION #001	3001502416	32.5527229	-104.1623917	22	20S	28E	O	330S	1650E	EDDY	NM		WOLFCAMP	55965	32400	252	2260
COLT FEDERAL #001	3001527288	32.5981598	-104.175827	4	20S	28E	P	990S	660E	EDDY	NM	OLD MILLMAN RANCH	BONE SPRING	1594.98	65	93	5
COLT FEDERAL #001	3001527288	32.5981598	-104.175827	4	20S	28E	P	990S	660E	EDDY	NM	OLD MILLMAN RANCH	BONE SPRING	6037.86	3352.36	220.88	141.564
STATE AC COM #001	3001522299	32.5572166	-104.1806107	21	20S	28E	J	1980S	1980E	EDDY	NM	BURTON FLAT NORTH	WOLFCAMP	40785	24300	688	44
STATE AC COM #001	3001522299	32.5572166	-104.1806107	21	20S	28E	J	1980S	1980E	EDDY	NM	BURTON FLAT NORTH	WOLFCAMP	144926	87600	37	1350
FED UNION #001	3001502416	32.5527229	-104.1623917	22	20S	28E	O	330S	1650E	EDDY	NM	APACHE SPRINGS	WOLFCAMP	297557	186000	143	447

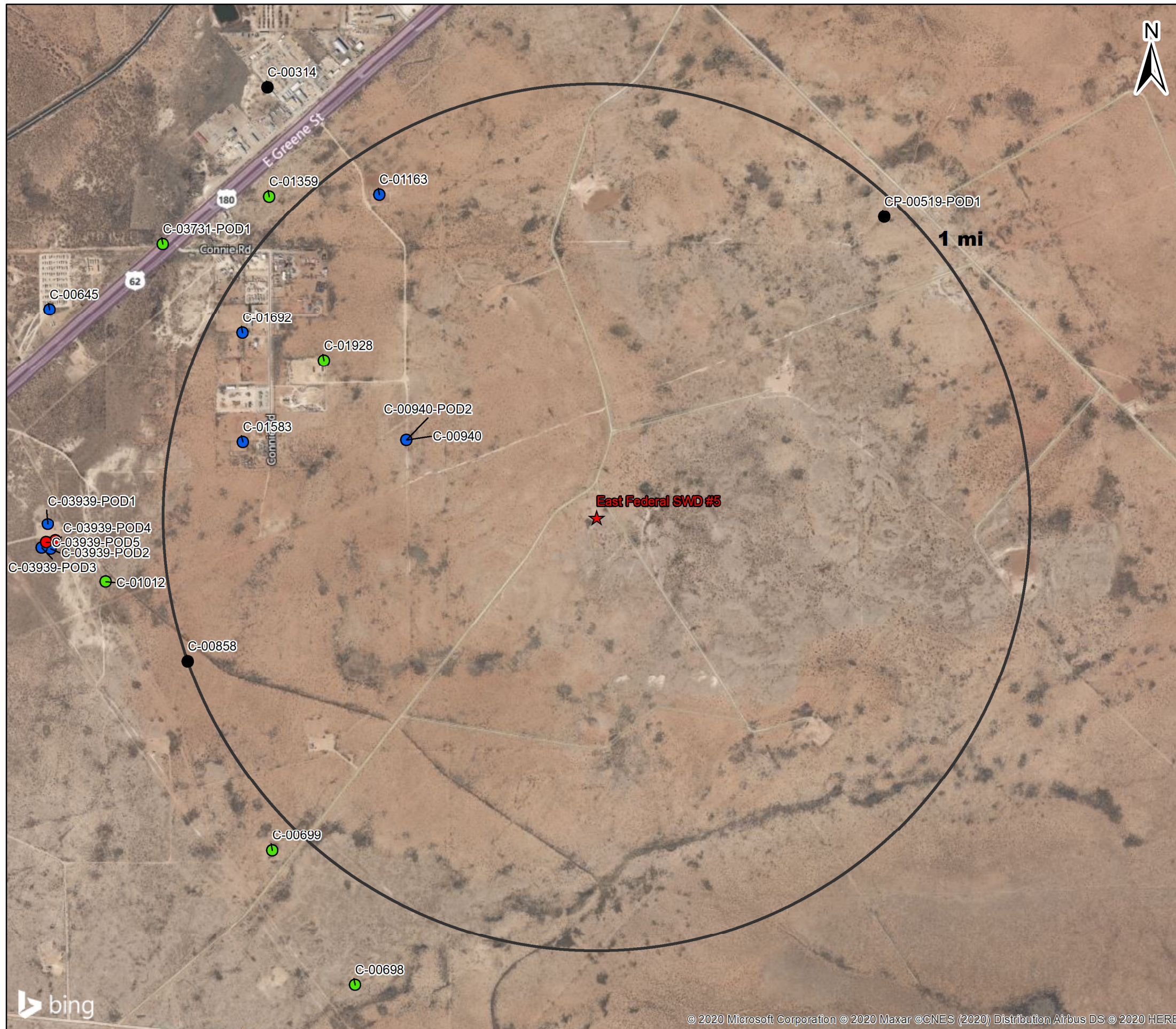
Attachment 4

Injection Formation Water Analyses

Injection Formation Water Analysis																		
Anthem Water Solutions, LLC																		
Well Name	API	Latitude	Longitude	Section	Township	Range	Unit	Ftgs	Ftgew	County	State	Field	Formation	TDS (Mg/L)	Chloride (Mg/L)	Bicarbonate (Mg/L)	Sulfate (Mg/L)	
BANDANA POINT UT #001	3001500044	32.2986107	-104.5515823	13	23S	23E	O	750S	1900E	EDDY	NM	BANDANA POINT	DEVONIAN	15500	8020	500	1190	
REMUDA BASIN UNIT #001	3001503691	32.2886238	-103.9360428	24	23S	29E	J	1980S	1980E	EDDY	NM	REMUDA	DEVONIAN	56922	29000	1740	4980	
TORTOISE ASB COM #001	3001510490	32.2766914	-104.5190887	29	23S	24E	G	1980N	2250E	EDDY	NM		DEVONIAN	15601	7780	476	1600	
BIG EDDY UT #001	3001502475	32.4421539	-104.042305	36	21S	28E	C	660N	1980W	EDDY	NM		DEVONIAN	16223	7000	1030	2290	

Attachment 5

Water Well Map and Well Data



Legend

- ★ Proposed SWD
- NMOSE Points of Diversion**
- Active (9)
- Pending (6)
- Change Location of Well (0)
- Capped (0)
- Plugged (2)
- Incomplete (0)
- Unknown (3)

Water Wells Area of Review

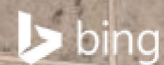
East Federal SWD #5 Eddy County, New Mexico

Proj Mgr:
Dan Arthur

November 05, 2020

Mapped by:
Ben Bockelmann

Prepared by:



Water Well Sampling Rationale					
Anthem Water Solutions - East Federal SWD #5					
Water Wells	Owner	Available Contact Information	Use	Sampling Required	Notes
C 01163	Jimmy Hood	Unlisted Private Phone Number	Exploration	No	After talks with the water well owner it was determined that this water well is no longer active.
C 01583	Ivan Heard	Route 2, Box 3K Carlsbad, NM 88220 (575)361-2730	Domestic Livestock Watering	No	Water bearing formation contains sand. Well was plugged back with sand before the 5-1/2" casing could be cemented.
C 01692	Calvin Brown	RR #1 Box 3H Carlsbad, NM 88220	Domestic One Household	No	After talks with the water well owner it was determined that this water well does not exist.
CP 00519 POD1	Mark Bond	81 W. Rd. Carlsbad, NM 88220	Prospecting or Development of Natural Resources	No	Well was permitted in 2014 for the purpose of drilling an oil well. Permit length was one year. Permit expired in July of 2015
C 00940	Frank L. Neal	P.O. Box 613, Carlsbad, NM 88220 (925)398-6375 (925)398-6374	Domestic One Household	No	An attempted to contact the landowner was made via telephone on 11/13/2020. After the landowner did not respond via telephone, a letter was sent requesting information on the status of the water wells to P.O. Box 613, Carlsbad, NM 88220 (Attached below). If the landowner responds with additional information regarding this water well, the application will be updated accordingly.
C 00940 POD2	Mark McLellon	(575)626-3201	Domestic One Household	No	After talks with the water well owner it was determined that this water well does not exist.
C 01928	Robert Lee Marshall	205 NE. First Carlsbad, NM 88220	Domestic Livestock Watering	No	According to NMOSE records this well was never drilled. Permit expired 1961.

Notes:



November 19, 2020

Frank L. Neal
PO Box 613
Carlsbad, NM 88220

Subject: Anthem Water Solutions, LLC – Water well (CP-00940)

Mr. Neal,

My name is Daniel Arthur and I work for ALL-Consulting, an environmental consulting firm out of Tulsa, Oklahoma. As part of the requirements from the New Mexico Oil Conservation Division we are writing to you to request additional information pertaining to a water well that you are listed as the owner of. Please confirm the status of the water well listed below (operational – has a functioning pump currently installed at the well or non-operational – water is removed by a manual system, or the well is not in use), and whether the water well is producing from a freshwater formation.

- CP-00940 POD 1 (Sec 25 T21S R27E)

If the water well is operational and producing freshwater, we would like to request permission to have a third party water sampling company, come collect a sample.

Thank you for your time,

Sincerely,
ALL Consulting

Place label at top of the center of the envelope and fold at dotted line.

Place label at top of the center of the envelope and fold at dotted line.

Place label at top of the center of the envelope and fold at dotted line.

Place label at top of the center of the envelope and fold at dotted line.

ALL Consulting, LLC
1718 S Cheyenne Ave
Tulsa OK 74119

\$5.750
US POSTAGE
FIRST-CLASS
FROM 74119
NOV 19 2020
stamps
endicia



06250008663991



9414 8118 9956 4142 6881 63

Mr. Frank L Neal
PO Box 613
Carlsbad NM 88221-0613

Attachment 6

Induced Seismicity Assessment Letter



November 19, 2020

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

Subject: Induced Seismicity Potential Statement for the East Federal SWD #5

Dear Mr. Goetze,

This letter provides information regarding the seismic potential associated with injection operations related to Anthem Water Solutions (Anthem), proposed East Federal SWD #5, hereinafter referred to as the “Subject Well.”

As outlined herein, based on my experience as an expert on the issue of induced seismicity, it is my opinion that the potential for the proposed injection well to cause injection-induced seismicity is expected to be minimal, at best. This conclusion is based on (1) the lack of historic seismic activity and faulting in the area, (2) the low fault slip potential (FSP) of Precambrian faults in the area, (3) the presence of confining layers, and (4) the overall vertical distance between the proposed injection zone and basement rock.

The Subject Well, is located 1,980’ FSL & 1,980’ FWL of Section 30, in T21-S and R28-E of Eddy County, New Mexico. Historically, the Eddy and Lea Counties area has experienced very limited recorded seismic activity (per the U.S. Geological Survey [USGS] earthquake catalog database). There has been one known seismic event located within a 25-mile radius of the proposed Subject Well. The closest recorded seismic event was a M3.9 that occurred on November 28th, 1974 and was located approximately 9.6 miles south of the Subject Well (See Exhibit 1). The closest Class IID well previously permitted to inject into the same formations (Devonian-Silurian) of the Subject Well is approximately 1.2 miles to the northwest; however, the permit for this well expired in January of 2015 and it was never re-completed for the purpose of injection. The closest active Class IID well injecting into the same formation (Devonian-Silurian) of the subject well is approximately 3.6 mi to the southwest. (See Exhibit 1).

Anthem does not own either 2D or 3D seismic reflection data in the area of the Subject Well. Fault data from USGS indicates that the closest known fault is approximately 10.4 miles southwest of the Subject Well (See Exhibit 1).

In a recent paper written by Snee and Zoback (2018) entitled “State of Stress in the Permian Basin, Texas and New Mexico: Implications for Induced Seismicity,” the authors found that large groups of mostly north-south striking Precambrian basement faults, predominantly located along the

Induced Seismicity Potential Statement for the East Federal SWD #5
November 19, 2020

Central Basin Platform, the western Delaware Basin, and large parts of the Northwest Shelf (which includes Eddy and Lea counties, New Mexico) have low FSP at the modeled fluid-pressure perturbation. The map in Exhibit 2 depicts the low probability risk of FSP for the Delaware Basin and Northwest Shelf areas (Snee and Zoback 2018).

Geologic analysis indicates that the proposed Devonian-Silurian injection zone is overlain by approximately 200 to 400 feet of Woodford Shale, which is the upper confining zone and will serve as a barrier for upward injection fluid migration. Additionally, the Simpson Group that lies directly below the Montoya Formation will act as a lower confining zone to prohibit fluids from migrating downward into the underlying Ellenburger Formation and Precambrian basement rock. See the stratigraphic column for the Delaware Basin included in Exhibit 3.

In the Eddy and Lea Counties area of New Mexico, the Simpson Group is comprised of a series of Middle to Upper Ordovician carbonates, several sandstones, and sandy shales that range from approximately 350 to 650 feet thick (Jones 2008). This group of rocks is capped by the limestones of the Bromide Formation, which is approximately 200 feet thick in this area (Jones 2008). The closest deep well drilled into the Precambrian basement was completed by the Skelly Oil Company in 1975. This well is located in Section 17, Range 36E, Township 25S of Lea County (API No.30-025-25046) and encountered 602 feet of Ellenburger Formation before reaching the top of the Precambrian granite at a depth of 18,920 feet. Based on the estimated thickness of the Simpson Group and Ellenburger Formation in this area, the Precambrian basement should be approximately 1,000 to 1,200 feet below the bottom of the proposed injection zones in the Subject Well.

Conclusion

As an expert on the issue of induced seismicity, it is my opinion that the potential for the proposed injection well to cause injection-induced seismicity is expected to be minimal, at best. This conclusion is based on (1) the lack of historic seismic activity and faulting in the area, (2) the low FSP of Precambrian faults in the area, (3) the presence of confining layers, and (4) the overall vertical distance between the proposed injection zone and basement rock.

Sincerely,
ALL Consulting



J. Daniel Arthur, P.E., SPEC
President and Chief Engineer

Enclosures
References
Exhibits

Induced Seismicity Potential Statement for the East Federal SWD #5
November 19, 2020

References

Induced Seismicity Potential Statement for the East Federal SWD #5
November 19, 2020

Ball, Mahlon M. 1995. "Permian Basin Province (044)." In *National Assessment of United States Oil and Gas Resources—Results, Methodology, and Supporting Data*. U.S. Geological Survey. <https://certmapper.cr.usgs.gov/data/noga95/prov44/text/prov44.pdf> (accessed June 18, 2018).

Green, G.N., and G.E. Jones. 1997. "The Digital Geologic Map of New Mexico in ARC/INFO Format." U.S. Geological Survey Open-File Report 97-0052. <https://mrdata.usgs.gov/geology/state/state.php?state=NM> (accessed June 14, 2018).

Jones, Rebecca H. 2008. "The Middle-Upper Ordovician Simpson Group of the Permian Basin: Deposition, Diagenesis, and Reservoir Development." http://www.beg.utexas.edu/resprog/permianbasin/PBGSP_members/writ_synth/Simpson.pdf (accessed June 19, 2018).

Snee, Jens-Erik Lund, and Mark D. Zoback. 2018. "State of Stress in the Permian Basin, Texas and New Mexico: Implications for Induced Seismicity." *The Leading Edge* 37, no. 2 (February 2018): 127-34.

U.S. Geological Survey (USGS). No date. Earthquakes Hazard Program: Earthquake Catalog. <https://earthquake.usgs.gov/earthquakes/search/> (accessed June 14, 2018).

Induced Seismicity Potential Statement for the East Federal SWD #5
November 19, 2020

Exhibits

Induced Seismicity Potential Statement for the East Federal SWD #5
 November 19, 2020

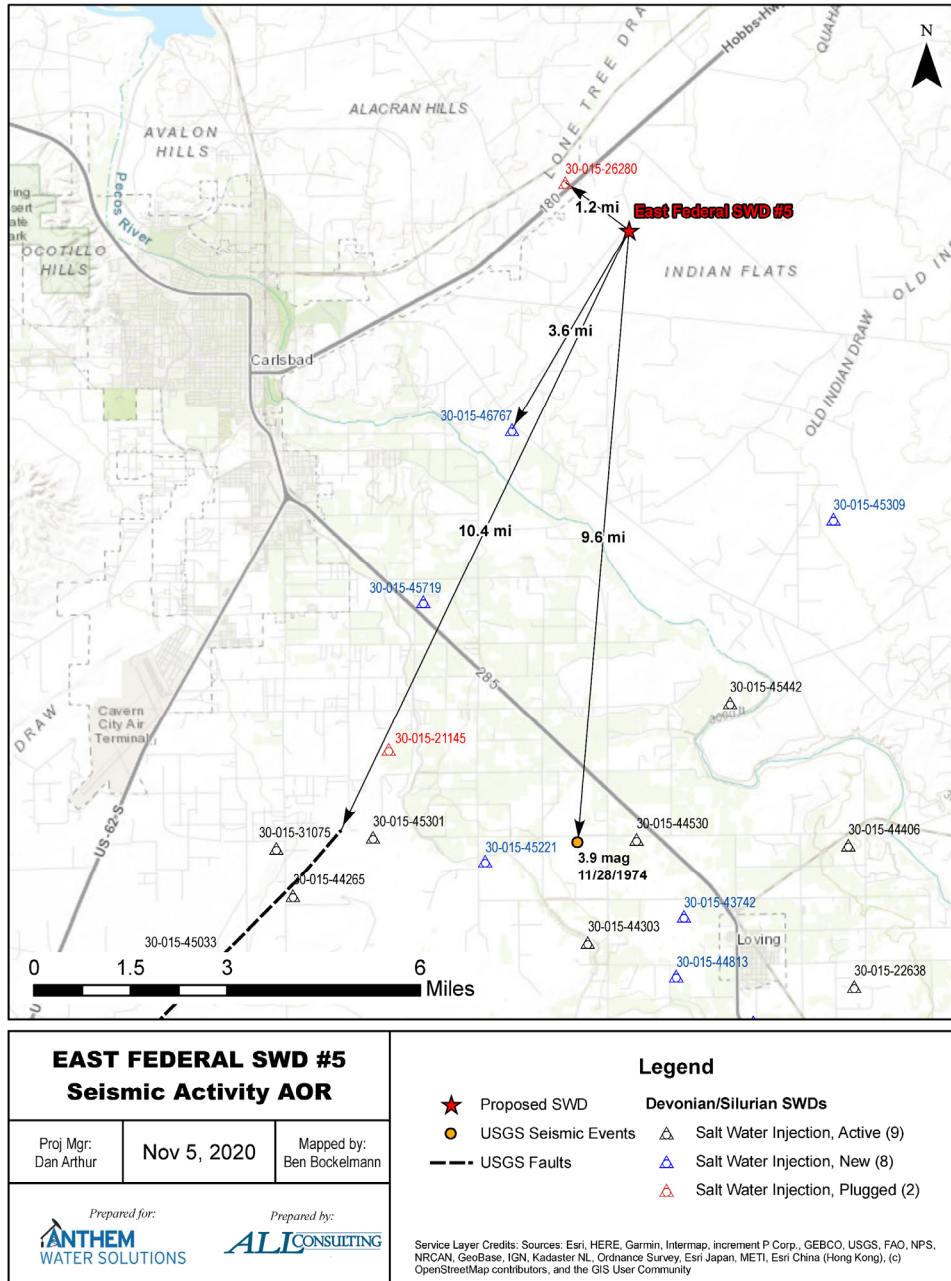


Exhibit 1. Map Showing the Distances from Known and Inferred Faults, Seismic Event, and Closest Deep Injection Well

Induced Seismicity Potential Statement for the East Federal SWD #5
November 19, 2020

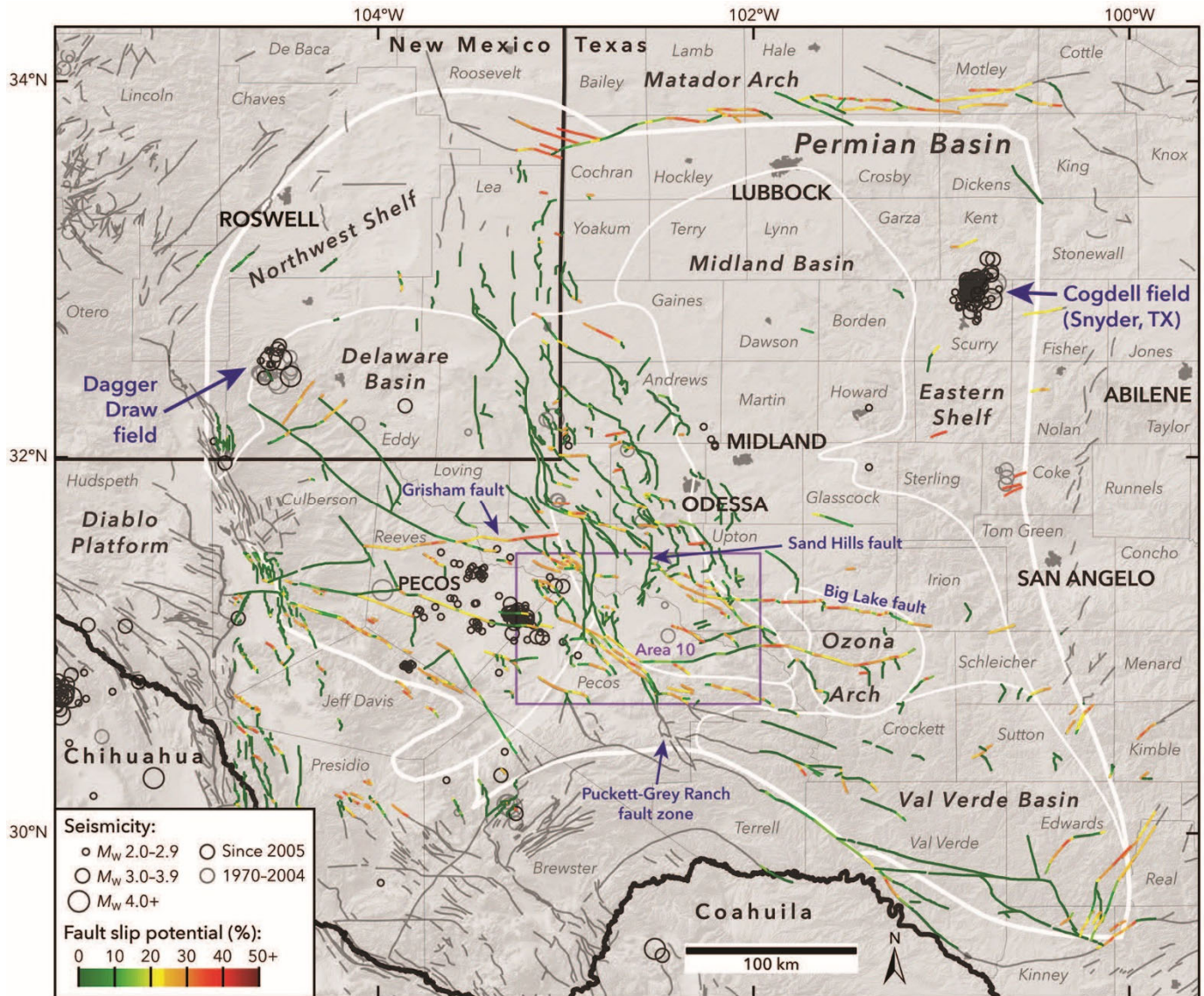


Exhibit 2. Results of the Snee and Zoback (2018) Probabilistic FSP Analysis Across the Permian Basin

Induced Seismicity Potential Statement for the East Federal SWD #5
November 19, 2020

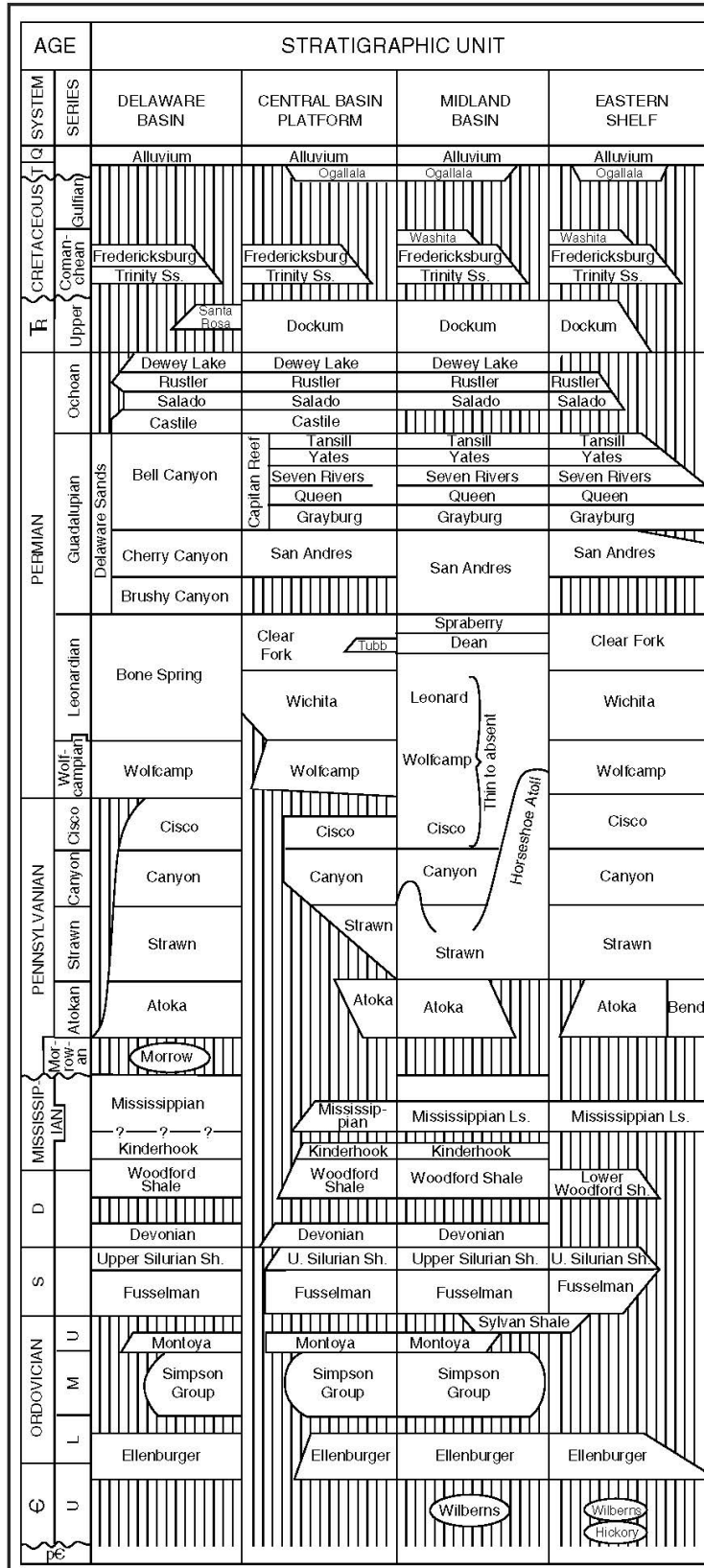


Exhibit 3. Delaware Basin Stratigraphic Chart (Ball 1995)

Attachment 7

Public Notice Affidavit and Notice of Application Confirmations

APPLICATION FOR AUTHORIZATION TO INJECT

NOTICE IS HEREBY GIVEN: That Anthem Water Solutions, LLC, 5914 W. Courtyard Dr, Suite 320, Austin, TX, 78730, is requesting that the New Mexico Oil Conservation Division administratively approve the APPLICATION FOR AUTHORIZATION TO INJECT as follows:

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

WELL NAME AND LOCATION: East Federal SWD #5
Located 6.2 miles northeast of Carlsbad, NM
NE ¼ SW ¼, Section 30, Township 21S, Range 28E
1,980' FSL & 1,980' FWL
Eddy County, NM

NAME AND DEPTH OF DISPOSAL ZONE: Devonian - Silurian (13,585 – 14,530)

EXPECTED MAXIMUM INJECTION RATE: 30,000 Bbls/day

EXPECTED MAXIMUM INJECTION PRESSURE: 2,717 psi (surface)

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

Additional information may be obtained by contacting Nate Alleman at 918-382-7581.

Carlsbad Current Argus.

PART OF THE USA TODAY NETWORK

Affidavit of Publication

Ad # 0004454148

This is not an invoice

ALL CONSULTING- CARL SBAD
1718 SOUTH CHEYENNE AVENUE

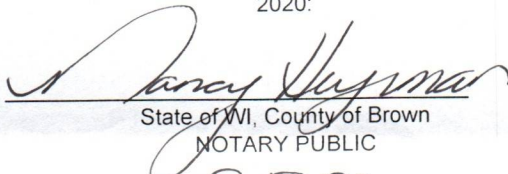
TULSA, OK 74119

I, a legal clerk of the **Carlsbad Current Argus**, a newspaper published daily at the City of Carlsbad, in said county of Eddy, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the State wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

11/06/2020


Legal Clerk

Subscribed and sworn before me this November 6, 2020:


State of WI, County of Brown
NOTARY PUBLIC
5.15.23
My commission expires

APPLICATION FOR AUTHORIZATION TO INJECT

NOTICE IS HEREBY GIVEN: That Anthem Water Solutions, LLC, 5914 W. Court-yard Dr, Suite 320, Austin, TX, 78730, is requesting that the New Mexico Oil Conservation Division administratively approve the APPLICATION FOR AUTHORIZATION TO INJECT as follows:

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

WELL NAME AND LOCATION: East Federal SWD #5
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Township 21S, Range 28E
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Additional information may be obtained by contacting Nate Alleman at 918-382-7581.
#4454148, Current Argus, November 6, 2020

Ad # 0004454148
PO #: East Federal SWD #5
of Affidavits 1

This is not an invoice

NANCY HEYRMAN
Notary Public
State of Wisconsin

East Federal SWD #5 - Notice of Application Recipients				
Entity	Address	City	State	Zip Code
Landowner & Mineral Owner				
New Mexico BLM	620 E Greene St.	Carlsbad	NM	88220
OCD District				
NMOCD District 2	811 S. 1st St.	Artesia	NM	88210
Leasehold Operators				
32 Mineral Oil & Gas New Mexico, LLC (32 MINERAL O&G NM LLC)	123 E Marcy St., Suite 101	Santa Fe	NM	87501
Alesha Jump (AF JUMP)	1809 Laney Dr.	Longview	TX	75605
Apache Corporation (APACHE)	303 Veterans Airpark Lane, Suite 3000	Midland	TX	79705
Bass Enterprises Production Company (BASS ENT.)	201 Main St.	Fort Worth	TX	76102
Belle McCord (MRS. BELLE MCCORD)	P.O. Box 88	Skidmore	TX	78389
BWAB Limited Liability Company (BWAB LTD CO)	475 17th St., Suite 1390	Denver	CO	80202
Chaparral Energy, LLC (CHAPARRAL ROY)	701 Cedar Lake Blvd.	Oklahoma City	OK	73114
Cheyenne Petroleum Company (CHEYENNE)	14000 Quail Springs Pkwy, Suite 2200	Oklahoma City	OK	73134
Commission of Public Lands - State Land Office	310 Old Santa Fe Trail	Santa Fe	NM	87501
CTV Oil & Gas New Mexico, LLC (CTV OG NM LLC)	201 Main Street, Suite 2700	Fort Worth	TX	76102
Donavan S. Sikes (DS SIKES)	14 Rd 5455	Farmington	NM	87401
EOG Resources, Inc. (EOG RESOURCES INC) (EOG M RESOURCES, INC.)	5509 Champions Drive	Midland	TX	79706
Faye F. Doepp (FF DOEPP EST)	1207 Wallace Ln.	San Angelo	TX	76905
G. C. Mann (GC MANN)	3507 Old Cavern Hwy.	Carlsbad	NM	88220
Gilbert Wayne Green (GW GREEN, MI)	250 S. 164th E. Pl.	Tulsa	OK	74108
HBC Oil & Gas, Inc. (HBC)	RR 1	Welda	KS	66091
James D. Finley (FINLEY JAMES D)	1308 Lake St.	Fort Worth	TX	76102
Marathon Oil Company (MARATHON)	P.O. Box 2069	Houston	TX	77252-2069
Marie Neal (MARIE NEAL, EST)	5248 N. Highway 74	Crescent	OK	73028
Matador Production Company	5400 LBJ Freeway, Suite 1500	Dallas	TX	75240
MYCO Industries (MYCO ETAL) (MYCO IND.)	105 S. 4th	Artesia	NM	88210
Olen F. Featherstone II (OF FEATHERSTONE II)	P.O. Box 429	Roswell	NM	88202
Olli Energy, LLC (OLLI ENERGY)	200 N. Loraine St., Suite 150	Midland	TX	79701
Pardue Farms, Etal. (PARDUE FARMS ETAL) (PARDUE FARMS, ETAL)	1308 W. Thomas	Carlsbad	NM	88220
Ridge Runner Resources Operating, LLC (RIDGE RUNNER RES OPER, LLC)	1004 N. Big Springs St.	Midland	TX	79701
Roy C. Ison (ROY C. ISON ETAL)	220 Rising Star Ln.	Gate City	VA	24251
Ruth Vernon	6550 43rd St., Apt. B207	Lubbock	TX	79407
SRBI O&G NM, LLC (SRBI OG NM LLC)	201 Main Street, Suite 3200	Fort Worth	TX	76102
Thru Line Oil & Gas NewMexico, LLC (THRU LINE OG NM LLC)	201 Main Street, Suite 2700	Fort Worth	TX	76102
XTO Permian Operating, LLC (XTO PERMIAN OPERATING LLC.)	6401 Holiday Hill Rd.	Midland	TX	79707

Notes: The table above shows the Entities who were identified as parties of interest requiring notification on either the 1-mile well detail list (Attachment 2) or on the 2-mile Mineral Lease Map (Attachment 2). The names listed above in parenthesis, are the abbreviated entity, or subsidiary, names used on either the 1-mile well detail list (Attachment 2) or on the 2-mile Mineral Lease Map (Attachment 2).

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CTV Oil & Gas New Mexico, LLC
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Fort Worth TX 76102-3131

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Thru Line Oil & Gas New Mexico, LLC
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Fort Worth TX 76102-3131

Apache Corporation
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Midland TX 79705-4561

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Marie Neal
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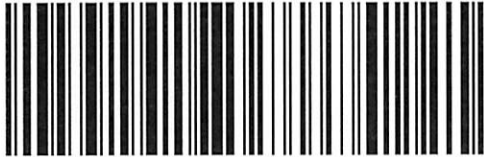
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Bass Enterprises Production Company
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Alesha Jump
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State Land Office
Commission of Public Lands
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Santa Fe NM 87501-2708

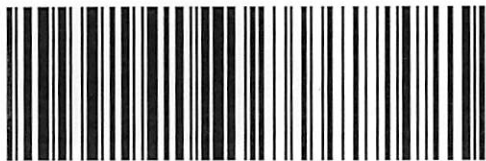
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Artesia NM 88210-2834

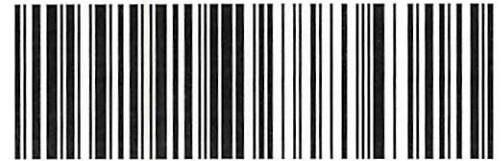
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