Revised March 23, 2017

RECEIVED:	REVIEWER:	TYPE:	APP NO:

ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION

- Geological & Engineering Bureau –
1220 South St. Francis Drive, Santa Fe, NM 87505

ADMINISTRATIVE APPLICATION CHECKLIST

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

Applicant: AWR Disposal LLC **OGRID Number:** 328805
Well Name: LT State SWD #1 **API:**
Pool: Proposed: SWD, Devonian, Silurian, Fusselman, Montoya **Pool Code:**

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

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

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

FOR OCD ONLY
☐ Notice Complete
☐ Application Content Complete

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

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

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

July 3, 2019
Date

Randall Hicks (agent)
Print or Type Name

505 238 9515
Phone Number

Signature

r@rthicksconsult.com
e-mail Address

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

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

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

☐ **AMENDED REPORT**

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1]API Number	[2]Pool Code	[3]Pool Name

[4]Property Code	[5]Property Name	[6]Well Number
	LT STATE SWD	1

[7]OGRID No.	[8]Operator Name	[9]Elevation
328805	AWR DISPOSAL, LLC	3359'

[10]Surface Location

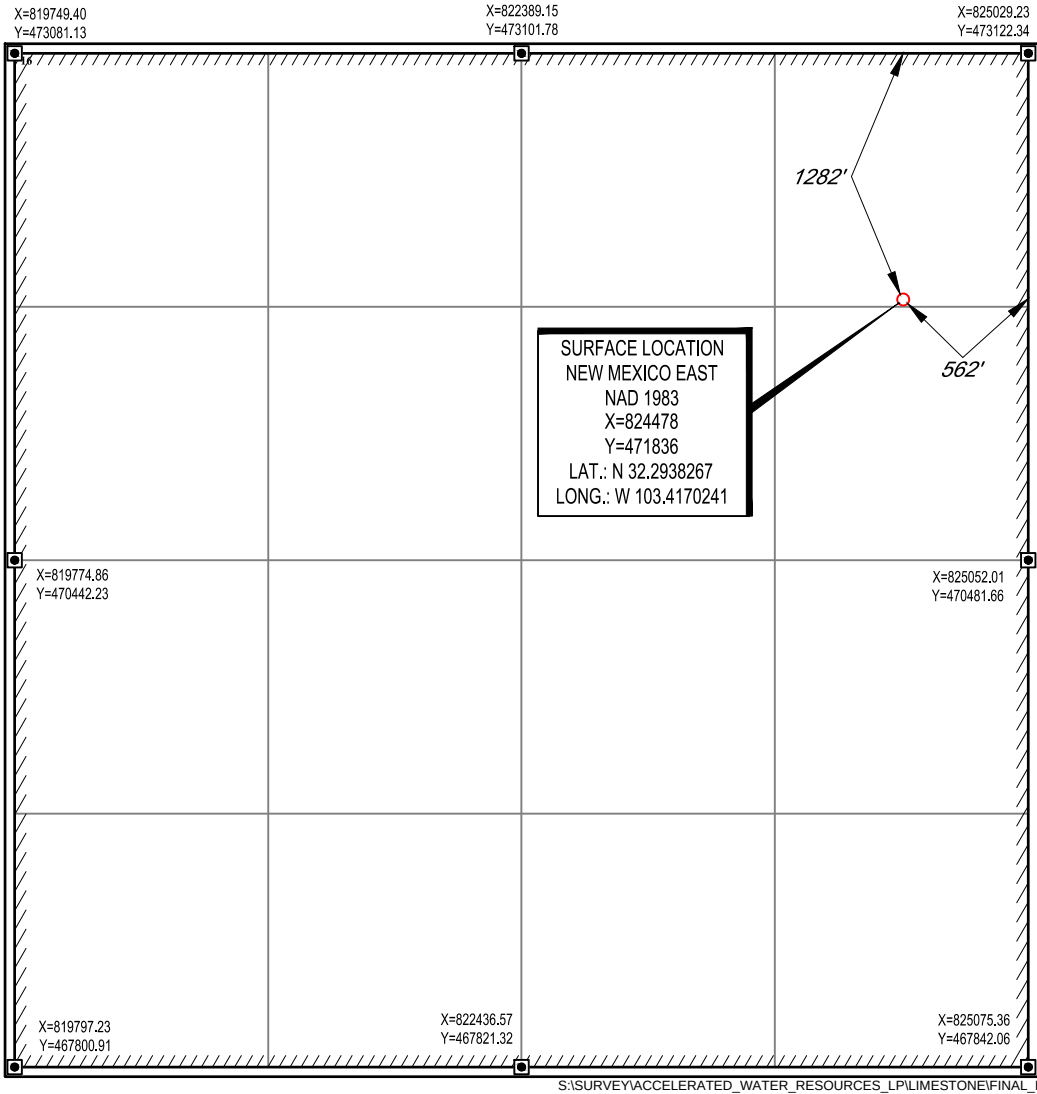
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	24	23-S	34-E	-	1282'	NORTH	562'	EAST	LEA

[11]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

[12]Dedicated Acres	[13]Joint or Infill	[14]Consolidation Code	[15]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.



[17]OPERATOR CERTIFICATION

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

Signature Date

Printed Name

E-mail Address

[18]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 to the best of my belief.

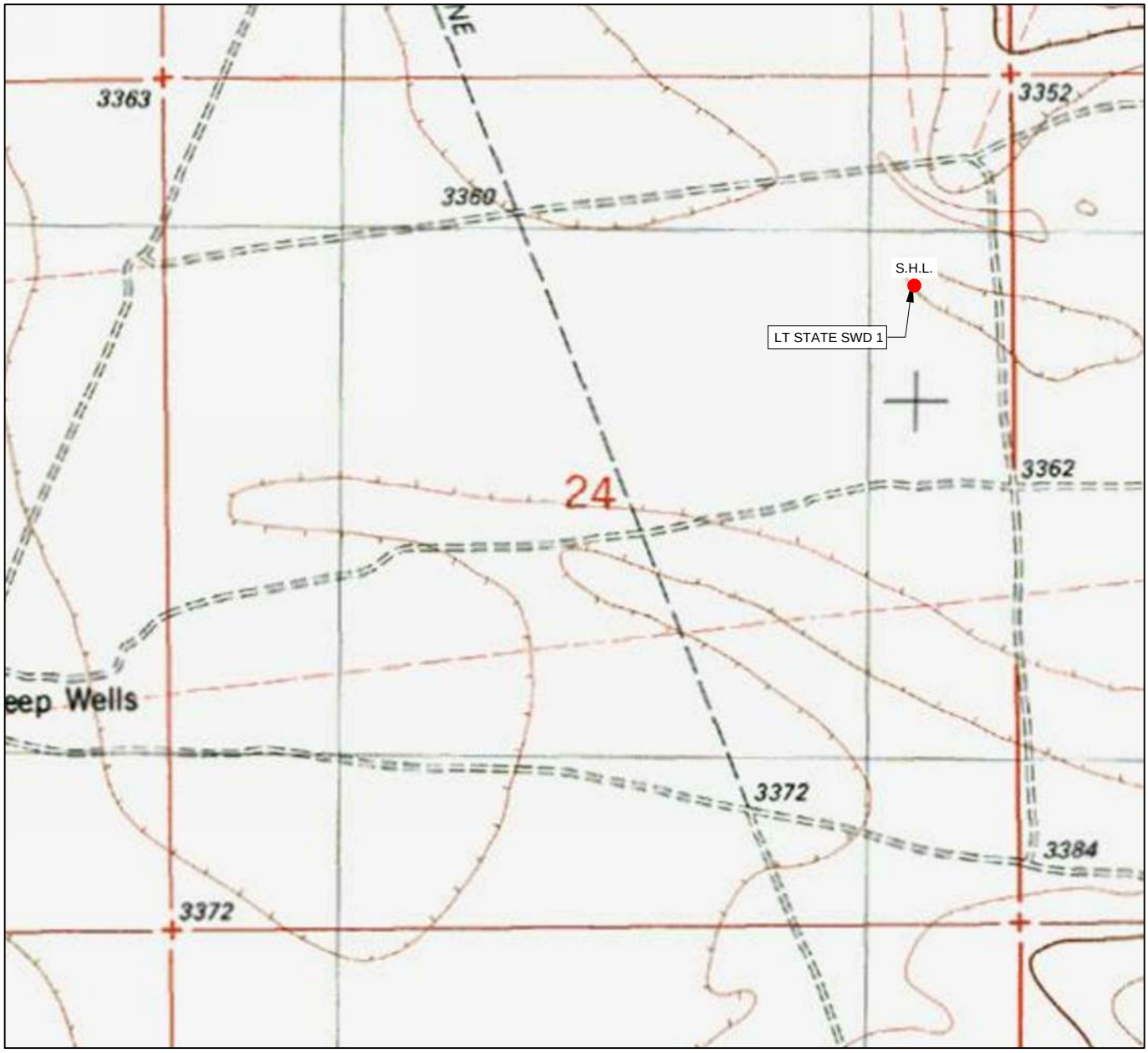
06/14/2019
Date of Survey
Signature and Seal of Professional Surveyor

JOHN KARNEGIE
NEW MEXICO
11401
REGISTERED PROFESSIONAL SURVEYOR

Certificate Number

S:\SURVEY\ACCELERATED_WATER_RESOURCES_LP\LIMESTONE\FINAL_PRODUCTS\LO_LT_STATE_SWD_1.DWG 6/14/2019 2:48:44 PM kmatheny

LOCATION & ELEVATION VERIFICATION MAP

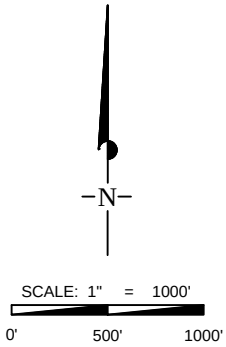


AWR DISPOSAL, LLC

LEASE NAME & WELL NO.: LT STATE SWD 1

SECTION 24 TWP 23-S RGE 34-E SURVEY N.M.P.M.
COUNTY LEA STATE NM ELEVATION 3359'
DESCRIPTION 1282' FNL & 562' FEL

LATITUDE N 32.2938267 LONGITUDE W 103.4170241



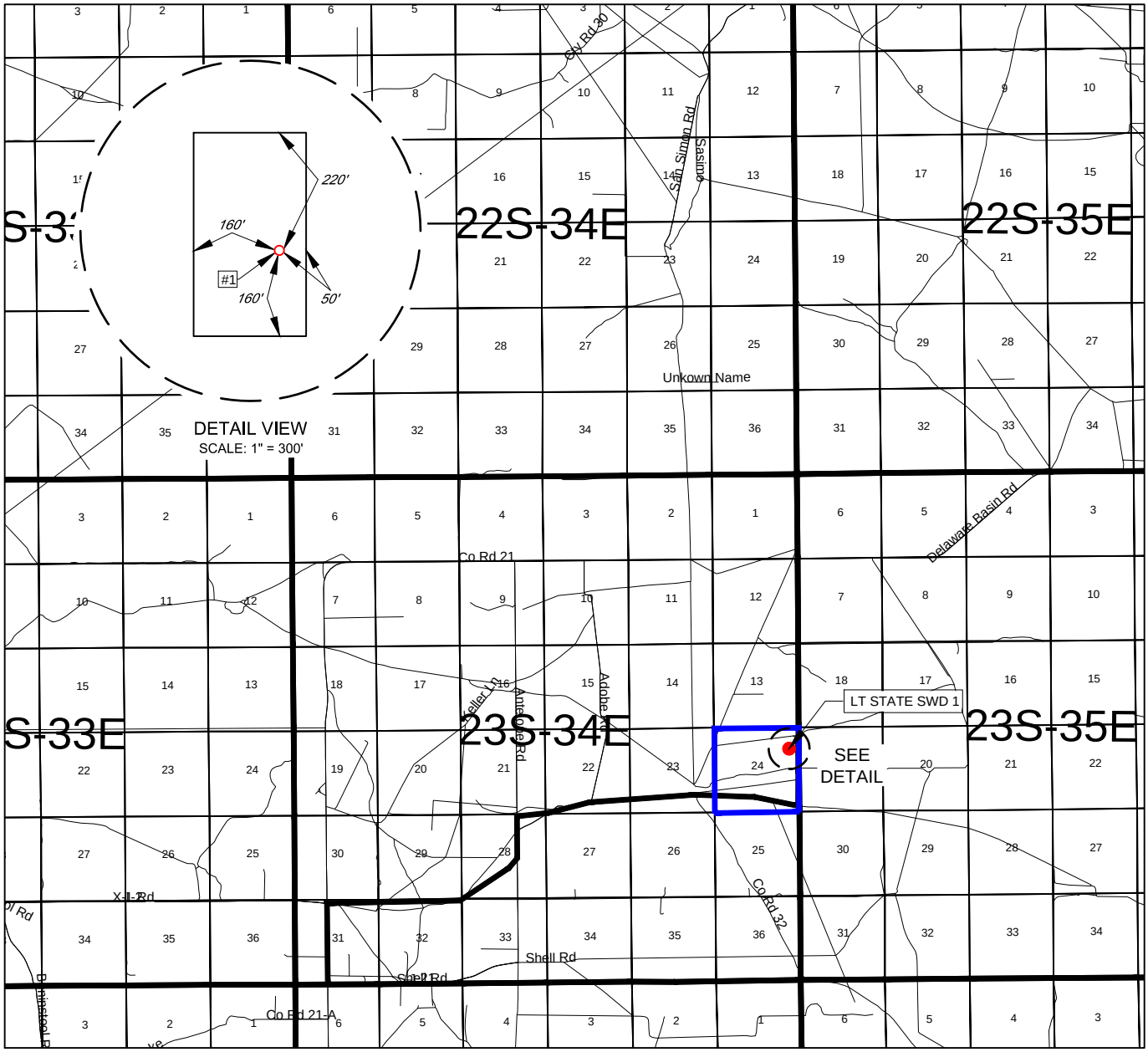
THIS EASEMENT/SERVITUDE LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY AWR DISPOSAL, LLC. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.

ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREON ARE GRID BASED UPON THE NEW MEXICO COORDINATE SYSTEM, EAST ZONE OF THE NORTH AMERICAN DATUM 1983, U.S. SURVEY FEET.

TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
1400 EVERMAN PARKWAY, Ste. 146 • FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 • FAX (817) 744-7554
2903 NORTH BIG SPRING • MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743
WWW.TOPOGRAPHIC.COM

EXHIBIT 2

VICINITY MAP

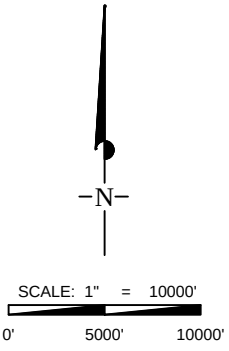


AWR DISPOSAL, LLC

LEASE NAME & WELL NO.: LT STATE SWD 1

SECTION 24 TWP 23-S RGE 34-E SURVEY N.M.P.M.
COUNTY LEA STATE NM
DESCRIPTION 1282' FNL & 562' FEL

DISTANCE & DIRECTION
FROM INT. OF NM-128 & DELAWARE BASIN RD., GO NORTH ON DELAWARE BASIN RD. ±3.0 MILES, THENCE GO EAST ON COUNTY RD. 21 ±2.3 MILES, THENCE NORTH ON ANTELOPE RD. ±1.6 MILES, THENCE EAST ON E-21 ±3.5MILES, THENCE NORTH ON A LEASE RD. ± 0.7 MILES TO A POINT ±373 FEET EAST OF THE LOCATION.



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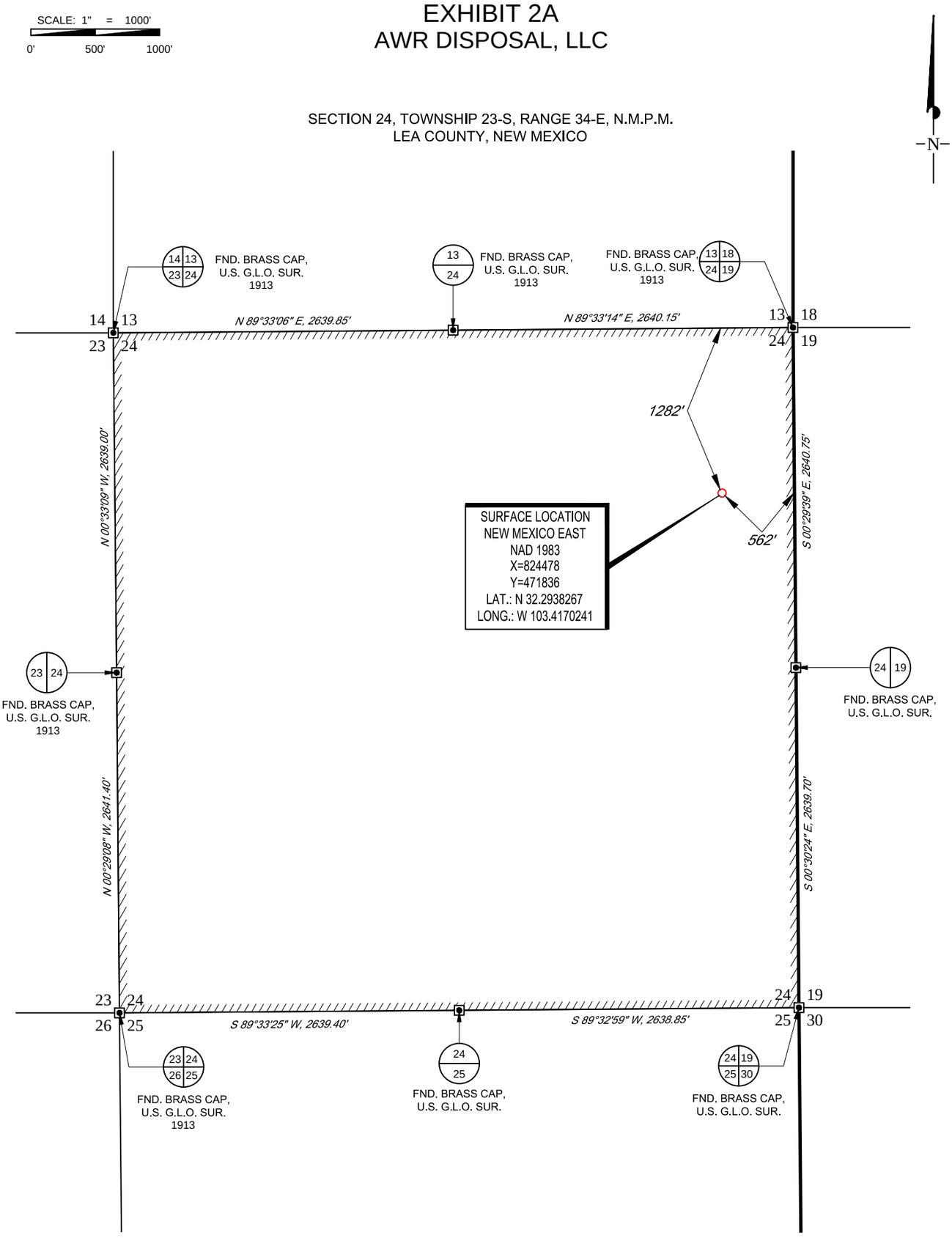
WWW.TOPOGRAPHIC.COM

EXHIBIT 2A
AWR DISPOSAL, LLC

SCALE: 1" = 1000'
0' 500' 1000'

SECTION 24, TOWNSHIP 23-S, RANGE 34-E, N.M.P.M.
LEA COUNTY, NEW MEXICO



LEASE NAME & WELL NO.: LT STATE SWD 1

SECTION 24 TWP 23-S RGE 34-E SURVEY N.M.P.M.
COUNTY LEA STATE NM
DESCRIPTION 1282' FNL & 562' FEL

DISTANCE & DIRECTION
FROM INT. OF NM-128 & DELAWARE BASIN RD., GO NORTH ON DELAWARE BASIN RD. ±3.0 MILES, THENCE GO EAST ON COUNTY RD. 21 ±2.3 MILES, THENCE NORTH ON ANTELOPE RD. ±1.6 MILES, THENCE EAST ON E-21 ±3.5MILES, THENCE NORTH ON A LEASE RD. ± 0.7 MILES TO A POINT ±373 FEET EAST OF THE LOCATION.

ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREON ARE GRID BASED UPON THE NEW MEXICO COORDINATE SYSTEM, EAST ZONE OF THE NORTH AMERICAN DATUM 1983, U.S. SURVEY FEET

THIS EASEMENT/SERVITUDE LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY AWR DISPOSAL, LLC. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.

JOHN TREVOR CARNEGIE
NEW MEXICO
11401
REGISTERED PROFESSIONAL SURVEYOR

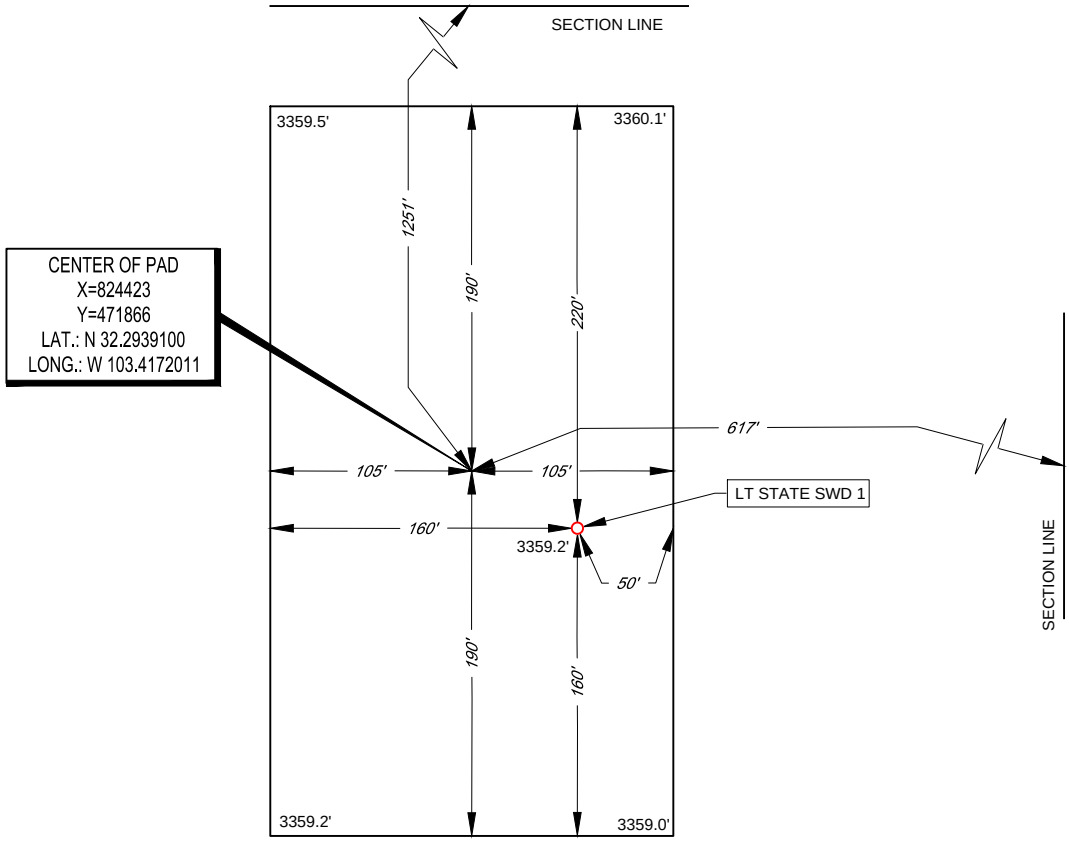
John Trevor Carnegie, P.S. No. 11401
JUNE 14, 2019

TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
1400 EVERMAN PARKWAY, Ste. 146 • FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 • FAX (817) 744-7554
2903 NORTH BIG SPRING • MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743
WWW.TOPOGRAPHIC.COM

EXHIBIT 2B

AWR DISPOSAL, LLC

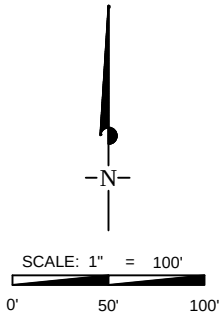
SECTION 24, TOWNSHIP 23-S, RANGE 34-E, N.M.P.M.
LEA COUNTY, NEW MEXICO



LEASE NAME & WELL NO.: LT STATE SWD 1

1 LATITUDE N 32.2938267 1 LONGITUDE W 103.4170241

CENTER OF PAD IS 1251' FNL & 617' FEL



ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREON ARE GRID BASED UPON THE NEW MEXICO COORDINATE SYSTEM, EAST ZONE OF THE NORTH AMERICAN DATUM 1983, U.S. SURVEY FEET

THIS PROPOSED PAD SITE LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY AWR DISPOSAL, LLC. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.

TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
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TELEPHONE: (817) 744-7512 • FAX (817) 744-7554
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TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743
WWW.TOPOGRAPHIC.COM

ORIGINAL DOCUMENT SIZE: 8.5" X 11"

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: _**AWR Disposal, LLC**._____

ADDRESS: __**3300 N. A Street, Ste 220, Midland, TX 79705**_____

CONTACT PARTY: __**Randall Hicks (Agent)**_____PHONE: __**505 238 9515**_____

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: _ _**Randall Hicks** TITLE: _**Agent**_____

SIGNATURE: ___  _____DATE: _ **07/03/2019** _____

E-MAIL ADDRESS: ____R@rthicksconsult.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

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.

Side 1

INJECTION WELL DATA SHEET

OPERATOR: __**AWR Disposal, LLC**_____

WELL NAME & NUMBER: _**LT State SWD #1**_____

WELL LOCATION: ____**1282 FNL 562 FEL**____**A**____**24**____**23S**____**34E**_____

FOOTAGE LOCATION | UNIT LETTER | SECTION | TOWNSHIP | RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: ___See Attachments_____ Casing Size:_____

Cemented with: _____ sx. ***or*** _____ ft^3

Top of Cement: _____ Method Determined: _____

Intermediate Casing

Hole Size: _____ Casing Size:_____

Cemented with: _____ sx. ***or*** _____ ft^3

Top of Cement: _____ Method Determined: _____

Production Casing

Hole Size: _____ Casing Size:_____

Cemented with: _____ sx. ***or*** _____ ft^3

Top of Cement: _____ Method Determined: _____

Total Depth: _____

Injection Interval

_____feet to_____

(Perforated or Open Hole; indicate which)

INJECTION WELL DATA SHEET

Tubing Size: ___**See Attachments**_____Lining Material: _____

Type of Packer: _____

Packer Setting Depth: _____

Other Type of Tubing/Casing Seal (if applicable): _____

Additional Data

1. Is this a new well drilled for injection? ___**X**___Yes _____No

   If no, for what purpose was the well originally drilled? _____

   _____

2. Name of the Injection Formation: __**Proposed: SWD, Devonian, Fusselman, Montoya**_____

3. Name of Field or Pool (if applicable): _____

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. _____**No**_____

   _____

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: _**See Attachments**_____

   _____

   _____

   _____

Attachments to C-108

Copy of well bore diagram

Section III-XII Written descriptions to supplement C-108

Section VI - APD, plugging diagram and SWD order for API 30-025-26692 Caza Ridge 14 State 001

Plates referenced in written descriptions

Tables referenced in written descriptions

OSE well logs referenced in written descriptions

Section XIII Proof of Notice

AWR Disposal, LLC

Lease Name: LT State SWD #1

Unit Letter A, Sec. 24, T23S R34E
1282 FNL, 562' FEL

Lea County, NM

Latitude + 32°17'37.8"N, Longitude 103°25'1.3"W

Directions

From Carlsbad:

Date Spudded: TBD

20", 133#, J-55 casing @ 1,050'.

Cmt w/ 450 sks, 13.7 lead and 450 sks, 14.8 tail

24" Hole

13-3/8", 68# L-80 EZ-GO FJ3 casing @ 4,550'.
DV Tool w/ 10' pkr at 4,000'

1st Stg Cmt w/ 1000 sks 11.8 ppg lead & 400 sks 13.2 ppg tail.

2nd Stg Cmt w/ 1000 sks 11.8 ppg lead & 380 sks 13.2 ppg tail.

17.5" Hole

9-5/8", 35.5#, HCP-110 BTC casing @ 11,000'.

Upper DV Tool w/ 10' pkr at 7,000'
Lower DV Tool w/ 10' pkr at 9,000'

1st Stg Cmt w/ 600 sks 11.8 ppg lead & 400 sks 13.2 ppg tail.

2nd Stg Cmt w/ 600 sks 11.8 ppg lead & 380 sks 13.2 ppg tail.

3rd Stg Cmt w/ 600 sks 11.8 ppg lead & 380 sks 13.2 ppg tail.

12.25" Hole

5.5" Tubing

5" Tubing

Maximum Proposed Injection Rate: 40,000 BBLS PER DAY

Maximum Proposed Injections Pressure: 3,000 psi

7-5/8" Liner, 39#, P-110 casing @ 15,015'.

Cmt w/ 230 sks 11.9 ppg Class C

Injection Interval: **8.5" Hole**

15,015	-	16,128	SLRN
16,128	-	16,641	FSLM
16,641	-	16,965	MNTY

Packer set @ 14,915

6.5" Openhole

TD : 16,965

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

Lease Name: LT State SWD #1
Unit Letter A, Section 24, T23S R34E, 1282 FNL, 562 FEL

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

The attached Wellbore Data Sheet provides all of the design specifics required and a tabulation of these data are shown on the diagram.

The formation tops for the LT State SWD #1 were established by Geologist Herb Wacker TBPG license #4517. The tops were picked in part by using the offset open hole logs of the surround wells. The Woodford formation top and deeper formations were correlated with open hole logs and picked using the three nearest wells drilled below the Simpson formation.

LT STATE SWD#1 Section 24 OF T23S R34E		
Formation	**GL**	**3365**
Tops	**KB**	**3395**
	MD	**SS**
Quaternary	55	3340
Dockum	377	3018
Chinle	406	2989
Santa Rosa	569	2826
Dewey Lake	1146	2249
Rustler	1613	1782
Yates	3910	-515
Capitan Reef	4002	-607
Delaware	5128	-1733
Bell Canyon	5174	-1779
Cherry Canyon	6018	-2623
Brushy Canyon	7385	-3990
Bone Spring	8598	-5203
Avalon U.	8820	-5425

1st BS Sand	9811	-6416
2nd BS Sand	10274	-6879
3rd BS Sand	11252	-7857
Wolfcamp	11594	-8199
Strawn	12020	-8625
Atoka	12281	-8886
Morrow	13078	-9683
Miss Upper	13833	-10438
Barnett	13898	-10503
Miss Lime	14352	-10957
Woodford	14746	-11351
Silurian	14985	-11589
Fusselman	16128	-12733
Montoya	16641	-13246
Simpson	16995	-13600
Injection Interval	**15015**	Siluro-Devonian +30’
	16965	Simpson minus 30’
TD	**16965**	

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

5-1/2” (20#) internal plastic-coated tubing swaged down to 5” (18#) with setting depth of 14,915’.

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

Tryton Tools, 7” Arrow Set 1-X Nickel Plated Injection Packer will be set at 14,915’.

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

The proposed injection intervals include the Silurian, Fusselman, and Montoya Formations in an open-hole interval.

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

The depth interval of the open-hole injection interval is 15,015-16,965 (1,950 feet).

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

The well will be drilled for disposal.

(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

There are no perforated intervals, only the open-hole completion described above.

(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.

Tops for the LT State SWD #1 well were picked in part by using the offset open hole logs on the surrounding wells. The Woodford formation top and deeper formations were correlated with open hole logs and picked using the formation thicknesses of the three nearest wells drilled below the Simpson formation.

Overlying Oil & Gas Zone (Using KB of 3395'):

Delaware (5128')
1st BS Sand (9811')
2nd BS Sand (10,274')
3rd BS Sand (11,252')
Wolfcamp (11,594')
Strawn (12,020')
Atoka (12,281')
Morrow (13,078)
Mississippian Limestone (14,352')

Underlying Oil & Gas Zones:

Silurian (14,982')
Inactive Siluro-Devonian gas well 2004-16 Distance: 2.1 miles due west
API-30-025-36778

The proposed injection intervals in the Pre-Mississippian Carbonates are well cemented and will provide the necessary open hole integrity while allowing salt water to be injected. Because of the competency of the rock, the open hole section has very little chance of collapsing.

IV. Is this an expansion of an existing project

No.

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

- Plate 1a identifies all OCD listed wells and API numbers and shows circles with radii of 0.5, 1.0, and 2.0 miles. Note that where numerous wells are closely-spaced, the API number may not be labeled for clarity. New wells, active wells, plugged wells, and canceled wells have color-coded symbols.
- Plate 1b shows only new and active wells and circles with radio of 0.5 and 1.0 miles.
- Table 1 lists all of the wells shown on Plate 1a within the circle having a 2.0 mile radius.
- Plate 2 shows all of the leases and the leaseholder name within the 2-mile area of review.

Tabular listing of all mapped leases are presented in

- Table 2a BLM leases
- Table 2b State of NM leases
- Table 2c Surface Owners

The State of New Mexico owns the land surface of the SWD location.

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

According to the data presented in Table 1, there are no active wells that penetrate the injection zone. Table 1 does show the following well as being plugged:

30-025-26692 CAZA RIDGE 14 STATE #001 J 14-23S-34E 13543 (TD)
[2205] ANTELOPE RIDGE, BONE SPRING, NORTH;
[70360] ANTELOPE RIDGE, ATOKA (GAS);
[97869] SWD, DEVONIAN-SILURIAN

This is a plugged gas producer that was permitted by OCD as a re-entry SWD to the Devonian-Silurian with an open hole completion from 14,838 to 17,300. There is no evidence in the OCD files that this SWD re-entry was ever drilled. Therefore, we conclude that this well remains a plugged gas well with a total depth as shown of 13,543. Attached to this submission is the APD, plugging diagram and SWD order for this well.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected

Proposed Maximum Injection Rate: 40,000 bbl/day
Proposed Average Injection Rate: 30,000 bbl/day

2. Whether the system is open or closed

This will be an open system. All AWR Disposal LLC SWDs may receive produced water and recycled produced water from storage facilities, such as in-ground containments or above-ground steel-walled containments, which are registered or permitted under Rule 34.

3. Proposed average and maximum injection pressure

Proposed Maximum Injection Pressure: 3,000 psi
Proposed Average Injection Rate: 2,000 psi

4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water

The attached Table 3 “Produced Water Chemistry of Nearby Wells” provides the requisite analyses. The Delaware and Bone Springs Formations are the subjects of the analyses. These formations will provide most of the produced water to the proposed SWD. At the time of writing, we are unaware of any problems associated with disposal of produced water derived from the Delaware, Avalon, and Bone Springs Formations into the Silurian/Fusselman/Montoya injection zone.

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.).

Table 4 presents formational water quality data from the Go-Tech site for Devonian-Fusselman-Montoya producing wells. As stated above, we are unaware of any problems associated with disposal of produced water derived from the Delaware, Avalon, and Bone Springs Formations into the Silurian/Fusselman/Montoya injection zone.

*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth.

The proposed injection intervals include the Silurian, Fusselman, and Montoya Formations in an open-hole interval. The proposed injection intervals in the Pre-Mississippian Carbonates are well cemented and will provide the necessary open hole integrity while allowing salt water to be injected. Because of the competency of the rock, the open hole section has very little chance of collapsing.

As indicated in Section III.A.2, the approximate depths to the top of the Silurian and the base of the Montoya are 14,985' and 16,995' respectively. The depth interval of the injection interval is 15,015-16,965 (1,950 feet), within the Silurian, Fusselman, and Montoya Formations.

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 Chinle Formation yields water to supply wells in this area of Lea County (Plate 3). In the immediate area of the LT State SWD #1, the closest mapped water well shown in Plate 3b is Misc-43, which is probably the same well as USGS-15045/15046 and CP-606. Examination of Google Earth images suggests that the USGS database mis-located the well by about ½ mile and such minor errors in the database are not uncommon. The measured depth to water in 2013 was 232.9 feet as measured by Hicks Consultants. The well log suggests that a yell to red/brown sand is the uppermost water-bearing unit but saturated units are reported to a depth of 575 feet. This well appears to be active, according to examination of Google Earth images.

The table of formation tops shows the top of the Santa Rosa Sandstone at a depth of 569 feet, which probably coincides with the lowermost zone of saturated observed in well CP-606, which has a total depth of 658 feet.

AWR-04 LT State		GL 3365
	KB	3395
	MD	SS
Quaternary	55	3340
Dockum	377	3018
Chinle	406	2989
Santa Rosa	569	2826
Dewey Lake	1146	2249
Rustler	1613	1782
Yates	3910	-515
Capitan Reef	4002	-607
Delaware	5128	-1733

Underlying the nearly 600-foot thick Santa Rosa Sandstone are the red beds of the Dewey Lake (aka Quartermaster) Formation. The Dewey Lake/Quartermaster is close to 500 feet thick according to the formation top picks (see inset). To our knowledge the red beds of the Dewey Lake are not considered an underground source of drinking water.

The Rustler Formation lies at a depth of about 1613-3910 feet at the LT State SWD 1 location. This 2,297-foot section is many times thicker than what is generally reported in Eddy

County (e.g. 150-500 feet thick). The structural sag that is the San Simon Swale probably causes this thickening. In Eddy County, only the upper portion of the Rustler Formation yields fresh water to wells. At the time of writing, the Rustler is not used as a fresh water supply in this area and, to our knowledge, have not been tested as a fresh water (<10,000 mg/L TDS) unit. In general, the lower 1/3 of the Rustler Formation is characterized by evaporates (anhydrite) and is not considered an underground source of drinking water. Thus, in this area, surface casing to prevent impairment of fresh water runs from ground surface to a depth of 4300 feet at the proposed LT STATE SWD #1, which is beneath the Capitan Reef.

Figure 3a shows 3 wells mapped within 1.5 miles of the proposed location. The location of nearby mapped surface water bodies are shown in Plate 4.

Fresh water does not exist in any formations below the proposed injection zone.

IX. Describe the proposed stimulation program, if any

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

*X. 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 submitted to OCD upon completion of the well.

*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

No active water supply wells were identified within one mile of the proposed SWD. Data from various sources permit a conclusion that groundwater within the Chinle Formation and Santa Rosa Sandstone is potable. In this area, groundwater in the underlying Rustler formation may be relatively brackish.

As stated in an earlier section, a proposed water supply well completed into the Santa Rosa Formation is about 3000 feet west of the LT State SWD #1.

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

Randall T. Hicks, a Professional Geologist with decades of experience in hydrogeology, affirms, on behalf of AWR Disposal LLC, that

- The USGS has mapped quaternary faults in New Mexico and no such faults are mapped in the area of the proposed LT STATE SWD 1[1]
- The Texas Bureau of Economic Geology has mapped older faults in New Mexico and the closest mapped faults are
    - A Pre-Cambrian fault that was not re-activated in Woodford time lies about 1.3 mile to the west.
    - A Basement fault that was reactivated during Woodford time slightly less than 3 miles to the west[2]
- With respect to migration of produced water from the injection zone to underground sources of drinking water via faults or other natural conduits, the following conditions were considered
    - The lowest underground source of drinking water is the middle and upper Rustler Formation.
    - More than 10,000 feet of sedimentary rock separates the bottom of the Rustler Formation and the top of the injection zone. Many of the formations that lie between the injection zone and the lowermost aquifer are permeable and contain oil, gas or water at various pressures, depending upon the production of oil and gas from these reservoirs. Any excursion of injected fluids from the Devonian disposal zone would undoubtedly enter these permeable formations (oil and gas reservoirs) prior entering the Rustler Formation.
    - There is no evidence that the pressure regime in the oil and gas reservoirs (e.g. Bone Spring, Morrow, Atoka) or disposal zones (e.g. Cherry Canyon) has caused the upward migration of formation water through the mapped faults and the bedded salt and into the Rustler or Chinle aquifers.
- There is no evidence of <u>open</u> faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water

[1] https://usgs.maps.arcgis.com/apps/webappviewer/index.html?id=5a6038b3a1684561a9b0aadf88412fcf

[2] Bureau of Economic Geology (Accessed April 2019). University of Texas at Austin. Basement Faults (Ewing 1990, Tectonic Map of Texas); Precambrian Faults (Frenzel et al. 1988, Figure 6); Woodord Faults (Comer 1991, plate 1). Http://www.beg.utexas.edu/resprog/permianbasin/gis.htm

Section VI - APD, plugging diagram and SWD order for API 30-025-26692 Caza Ridge 14 State 001

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

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

Form C-101
Revised July 18, 2013

☐ AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

[1] Operator Name and Address	[2] OGRID Number
BTA Oil Producers, LLC 104 S Pecos Midland, TX 79701	260297
	[3] API Number 30-025-26692

[4] Property Code	[5] Property Name	[6] Well No.
318087	Ridge SWD 8006 JV-P	1

[7] Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
J	14	23S	34E		1980	South	1980	East	Lea

[8] Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County

[9] Pool Information

Pool Name	Pool Code
SWD;DEVONIAN-SILURIAN	97869

Additional Well Information **SWD-1672**

[11] Work Type	[12] Well Type	[13] Cable/Rotary	[14] Lease Type	[15] Ground Level Elevation
P	S		S	3366
[16] Multiple	**[17] Proposed Depth**	**[18] Formation**	**[19] Contractor**	**[20] Spud Date**
No	17300'			

Depth to Ground water	Distance from nearest fresh water well	Distance to nearest surface water

☒ We will be using a closed-loop system in lieu of lined pits

SWD-1672

[21] Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surface	26"	20"	94#	677'	1250	Surface
Intl	17-1/2"	13-3/8"	68# & 72#	4900'	5400	Surface
Prod	12-1/4"	9-5/8"	47# & 53.5#	11713'	3300	Surface
Liner	8-1/2"	7-5/8"	39#	14838'	300	
Open	6-1/2"			17300'		

Casing/Cement Program: Additional Comments

See attached Proposed Re-enter Wellbore and Procedure to Convert. C-108 was submitted and approved.

[22] Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Annular	5000	5000	

[23] I hereby certify that the information given above is true and complete to the best of my knowledge and belief.
I further certify that I have complied with 19.15.14.9 (A) NMAC ☒ and/or 19.15.14.9 (B) NMAC ☒, if applicable.
Signature: Kayla McConnell

Printed name: Kayla McConnell

Title: Regulatory Analyst

E-mail Address: kmcconnell@btaoil.com

Date: 6/19/2017 Phone: 432-682-3753

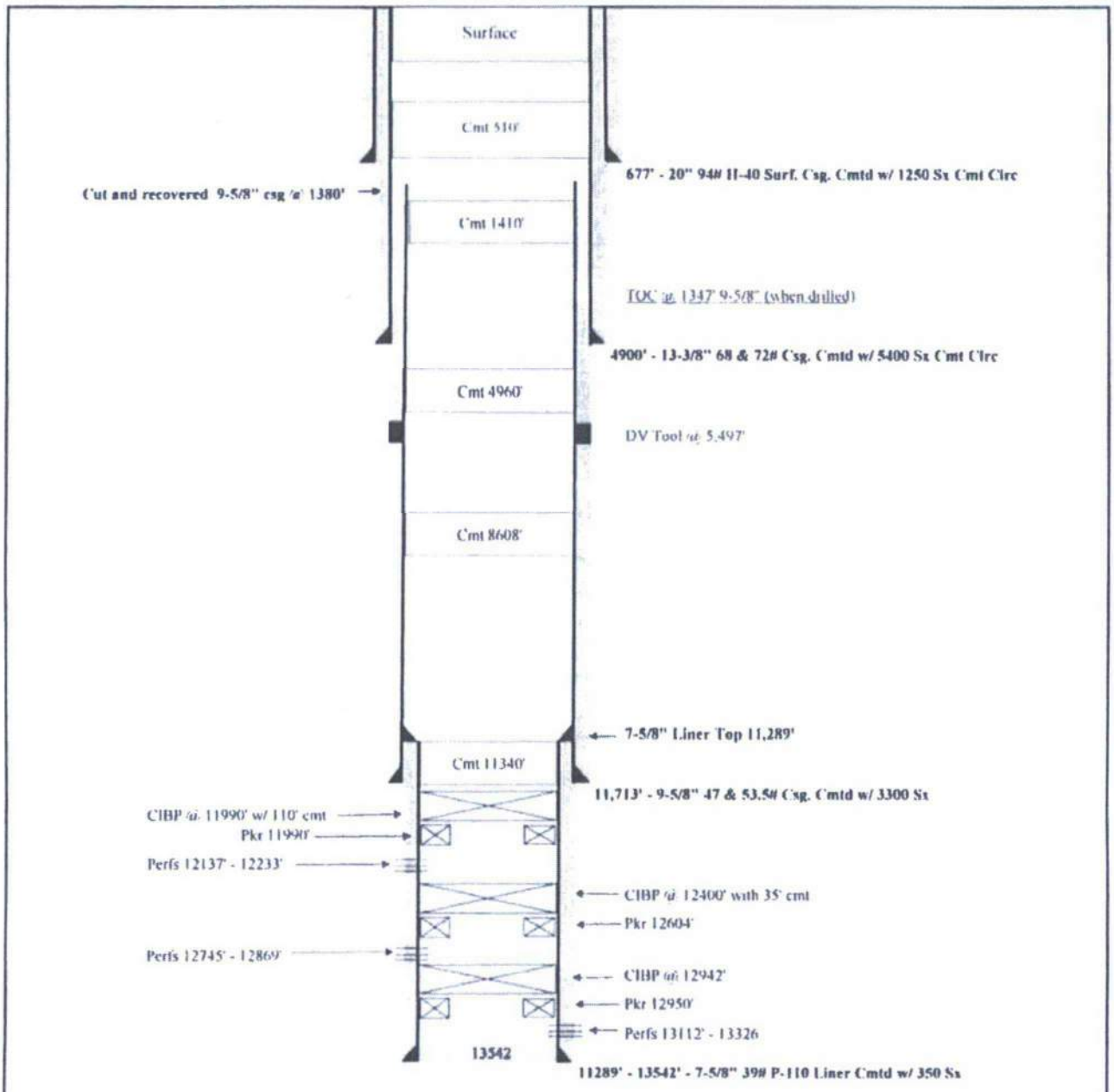
OIL CONSERVATION DIVISION

Approved By:

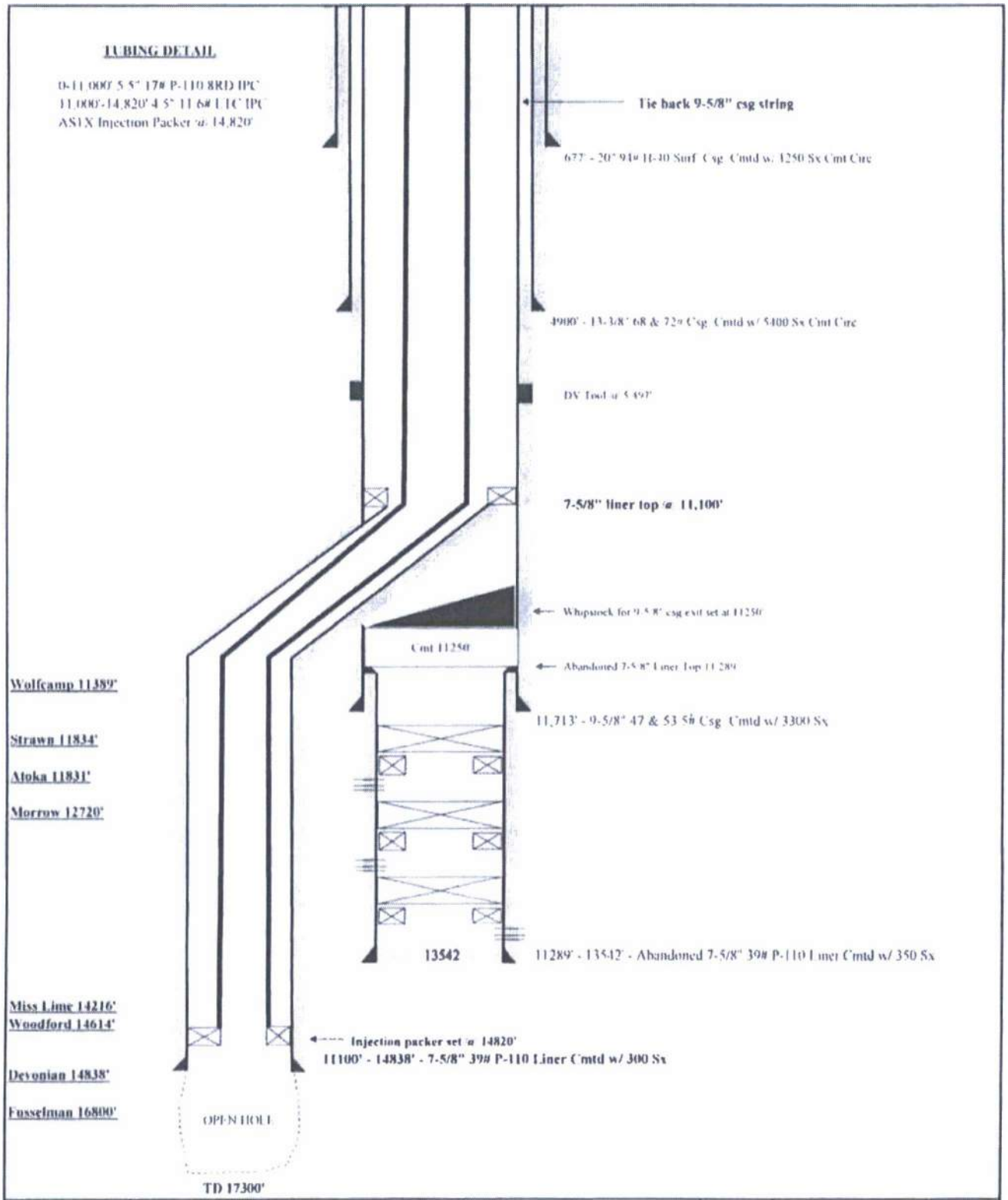
Title: Petroleum Engineer

Approved Date: 06/19/17 Expiration Date: 06/19/19

Conditions of Approval Attached



REVISED		P&A WELLBORE		DRAWN	DATE
		LEASE:	8003 JV-P RIDGE #1	NE	3/22/2017
		FIELD:			
		LOCATION:	Sec 14, T23S-R34E		
		COUNTY:	LEA STATE: NEW MEXICO		
		BTA OIL PRODUCERS, LLC			



REVISED		PROPOSED WELLBORE		DRAWN	DATE
		LEASE:	8003 JV-P RIDGE #1	NE	3/22/2017
		FIELD:			
		LOCATION:	Sec 14, T23S-R31E		
		COUNTY: LEA	STATE: NEW MEXICO		
		INJECTION FORMATION:	DEVONIAN		
		BTA OIL PRODUCER, LLC			

State of New Mexico
Energy, Minerals and Natural Resources Department

Administrative Order SWD-1672
May 5, 2017

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Pursuant to the provisions of Division Rule 19.15.26.8B. NMAC, BTA Oil Producers, LLC (the "operator") seeks an administrative order for its 8006 JV-P Ridge SWD Well No. 1 with a location of 1980 feet from the South line and 1980 feet from the East line, Unit J of Section 14, Township 23 South, Range 34 East, NMPM, Lea County, New Mexico, for the purpose of commercial disposal of produced water.

THE DIVISION DIRECTOR FINDS THAT:

The application has been duly filed under the provisions of Division Rule 19.15.26.8B. NMAC and satisfactory information has been provided that affected parties as defined in said rule have been notified and no objections have been received within the prescribed waiting period. The applicant has presented satisfactory evidence that all requirements prescribed in Rule 19.15.26.8 NMAC have been met and the operator is in compliance with Rule 19.15.5.9 NMAC.

IT IS THEREFORE ORDERED THAT:

The applicant, BTA Oil Producers, LLC (OGRID 260297), is hereby authorized to utilize its 8006 JV-P Ridge SWD Well No. 1 (API 30-025-26692) with a location of 1980 feet from the South line and 1980 feet from the East line, Unit J of Section 14, Township 23 South, Range 34 East, NMPM, Lea County, for disposal of oil field produced water (UIC Class II only) through an open-hole interval consisting of the Devonian and Silurian formations from 14838 feet to approximately 17300 feet.

Injection will occur through internally-coated, 5-1/2-inch or smaller tubing inside the surface and intermediate casings, **and a tapered 4-1/2-inch tubing inside the liner**. Further, a packer shall be set within 100 feet of the top of the open-hole interval.

This permit does not allow disposal into the Ellenburger formation (lower Ordovician) or lost circulation intervals directly on top and obviously connected to this formation. The operator shall provide logs and a mudlog over the proposed interval which verify that only the permitted interval is completed for disposal.

IT IS FURTHER ORDERED THAT:

The operator shall run a CBL (or equivalent) across the 7-5/8-inch liner from approximately 10500 feet to 14838 or from approximately 500 feet from the top of liner to the top of the Devonian formation whichever is greater, to demonstrate good cement across the liner.

The operator shall take all steps necessary to ensure that the disposed water enters only the approved disposal interval and is not permitted to escape to other formations or onto the surface. This includes the completion and construction of the well as proposed in the application and, if necessary, as modified by the District Supervisor.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT procedures and schedules shall follow the requirements in Division Rule 19.15.26.11(A) NMAC. The Division Director retains the right to require at any time wireline verification of completion and packer setting depths in this well.

The wellhead injection pressure on the well shall be limited to **no more than 2968 psi**. In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formations. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

The operator shall notify the supervisor of the Division's District I office of the date and time of the installation of disposal equipment and of any MIT so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's District I office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 and 19.15.7.24 NMAC.

The injection authority granted under this order is not transferable except upon Division approval. The Division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

The Division may revoke this injection order after notice and hearing if the operator is in violation of Rule 19.15.5.9 NMAC.

The disposal authority granted herein shall terminate two (2) years after the effective date of this Order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto*. The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

Compliance with this Order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.

David R. Catanach

DAVID R. CATANACH
Director

DRC/mam

cc: Oil Conservation Division – Hobbs District Office
New Mexico State Land Office – Oil, Gas, and Minerals
Well File – 30-025-26692

Plates

Plate 1	OCD wells within the area of review
Plate 2	Mineral leases within the area of review
Plate 3	Water supply wells within the area of review
Plate 4	Surface water within the area of review

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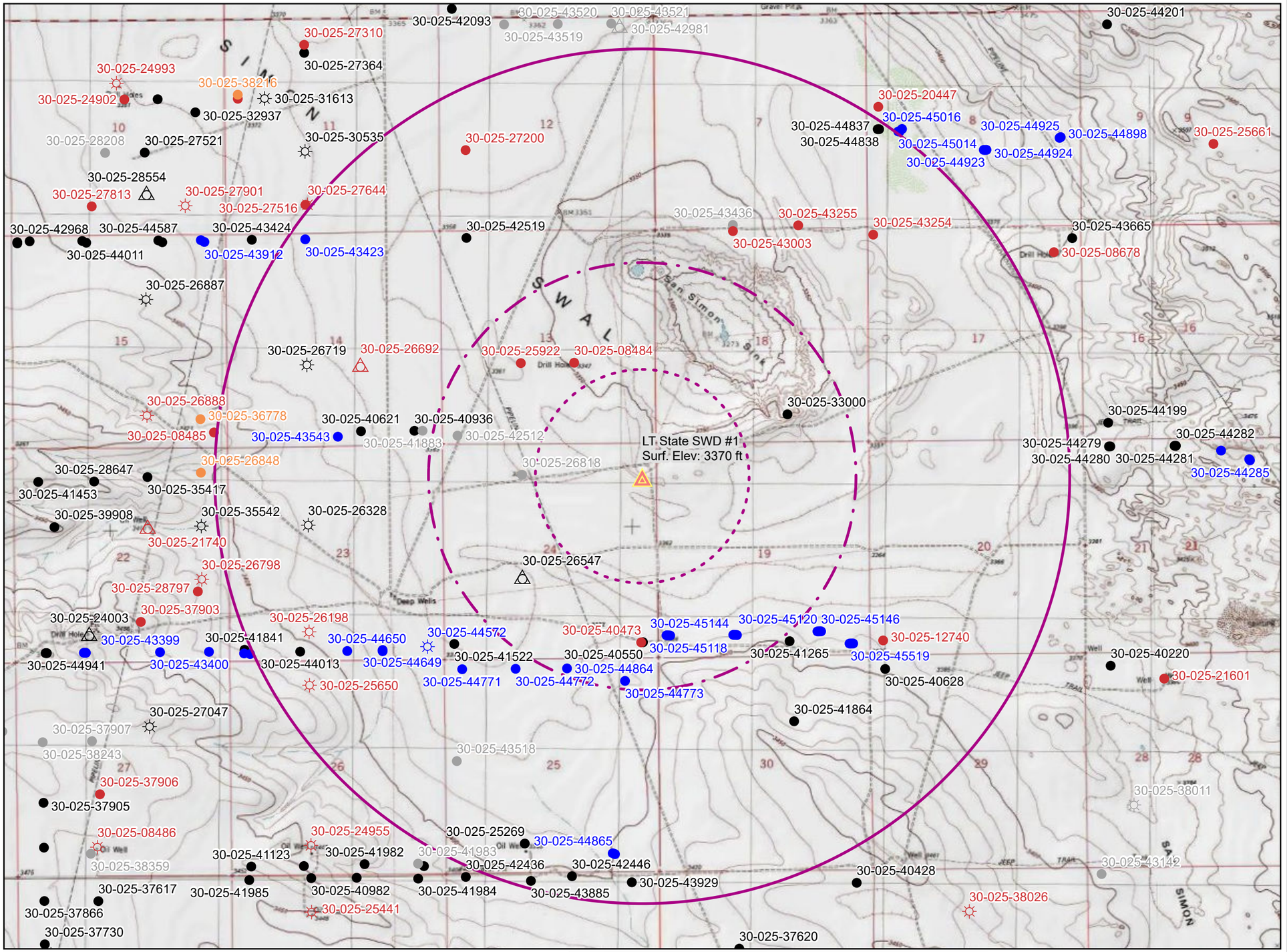

SWD

Distance (miles)

0.5

1

2

Oil and Gas (NMOCD)

Gas, Active

Gas, Cancelled

Gas, New

Gas, Plugged

Oil, Active

Oil, Cancelled

Oil, New

Oil, Plugged

Oil, Temporarily Abondoned

Salt Water Injection, Active

Salt Water Injection, Cancelled

Salt Water Injection, Plugged

N W E S

0 0.25 0.5 Miles

R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

NM Oil and Gas Wells within 2 Miles

Plate 1a

AWR Disposal, LLC
LT State SWD #1

June 2019

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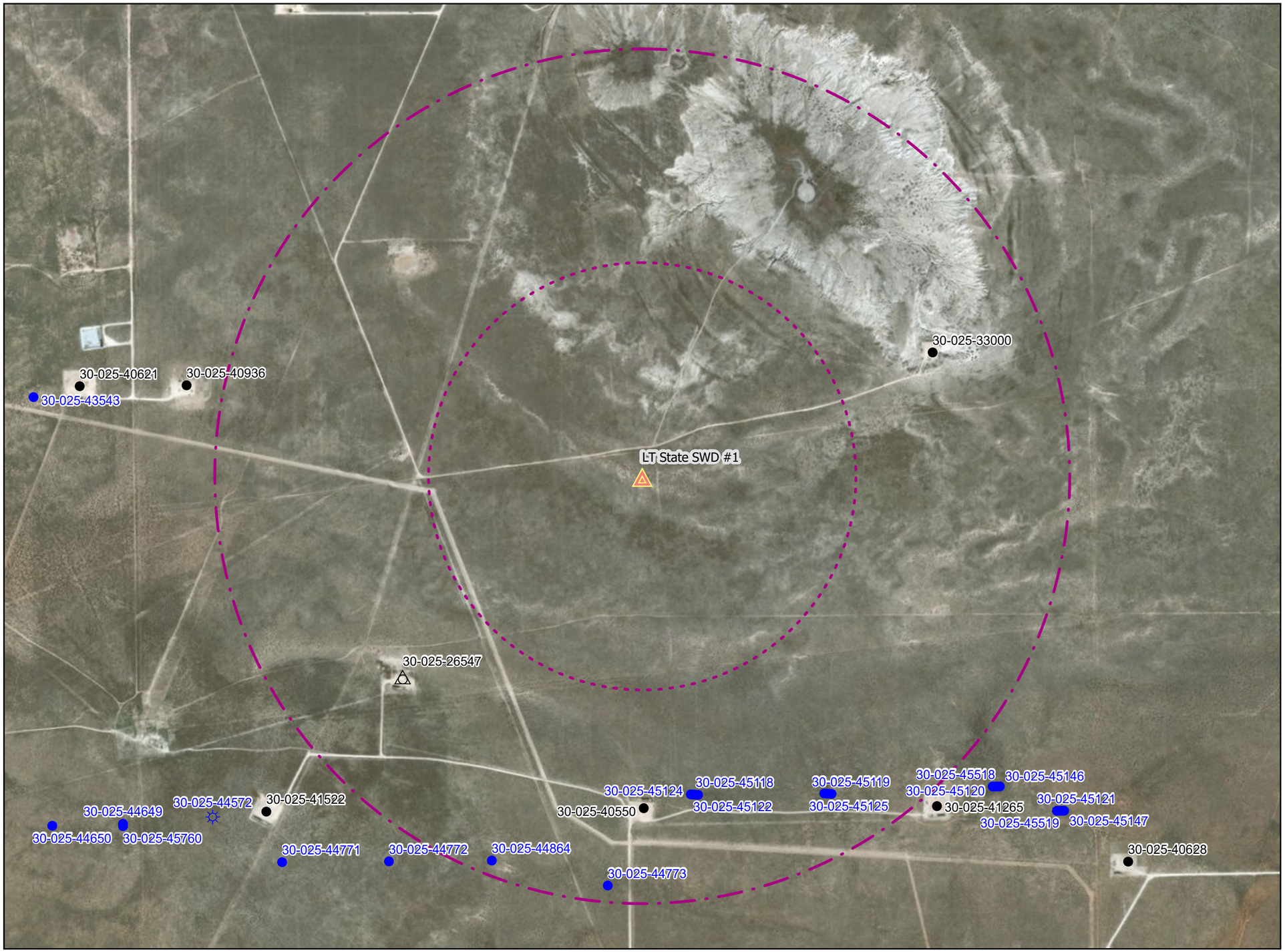

SWD

Distance (miles)

0.5

1

2

Oil and Gas (NMOCD)

Gas, New

Oil, Active

Oil, New

Salt Water Injection, Active

N

W E

S

0 0.25 0.5 Miles

R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

NM Oil and Gas Wells within 1 Mile
(active only)

AWR Disposal, LLC
LT State SWD #1

Plate 1b

June 2019

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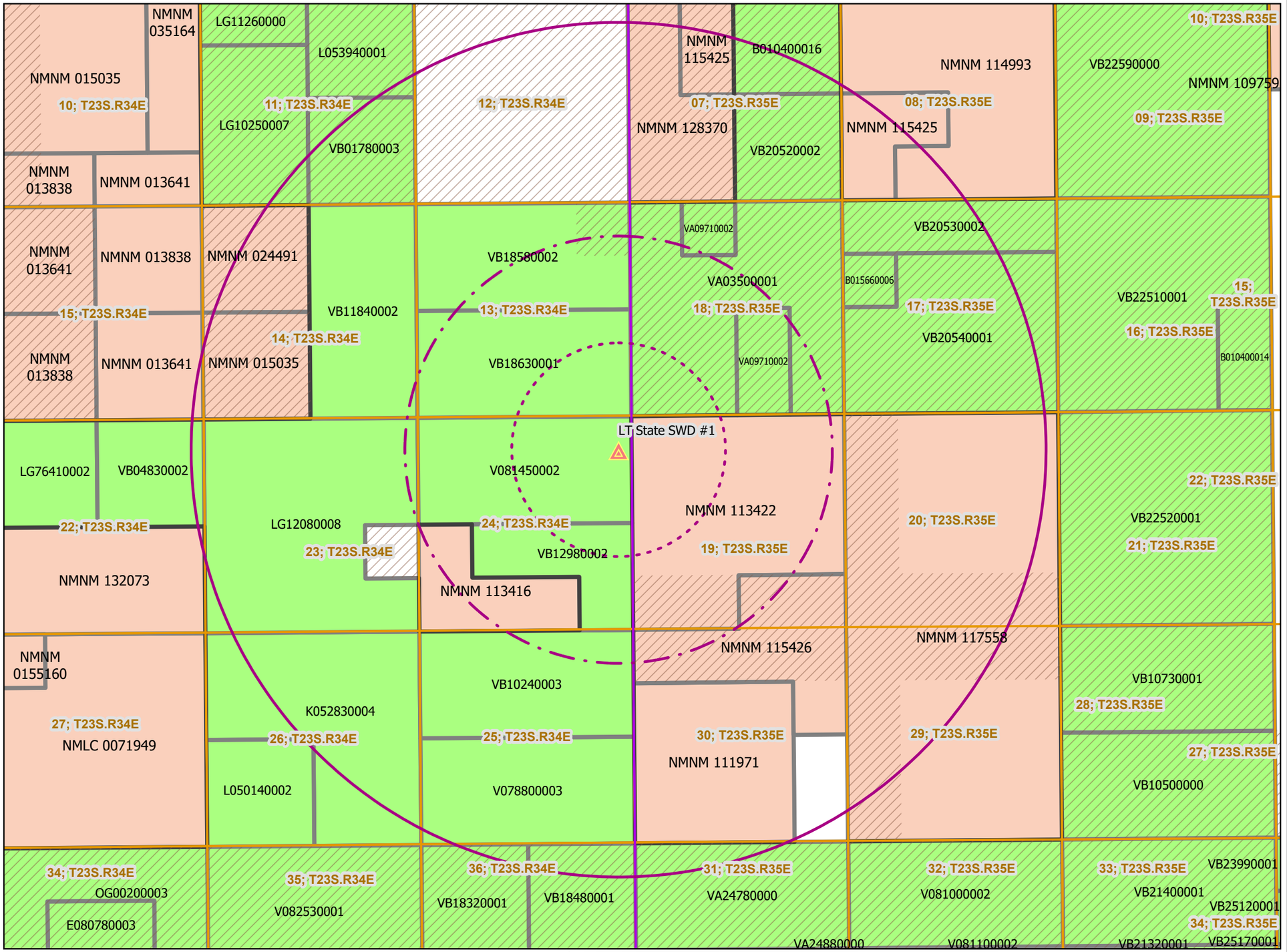

R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Federal and State Oil & Gas Leases

Plate 2a

AWR Disposal, LLC
LT State SWD #1

July 2019

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R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

NM Surface Ownership

AWR Disposal, LLC
LT State SWD #1

Plate 2b

July 2019

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SWD

Distance (miles)

0.5

1

2

Potentiometric Surface (ft msl)

Isocontour

USGS Gauging Station (DTW, Date)

Aquifer Code, Well Status

Alluvium/Bolsom

Ogallala

Ogallala, Nearby site that taps the same aquifer had been pumped recently.

Chinle

Chinle, Site was being pumped.

Santa Rosa

Santa Rosa, Site was being pumped.

Not Defined

Misc. Water Wells (Well ID, DTW)

Well Depth (ft)

No Data

<= 150

151 - 350

351 - 500

> 500

OSE Wells (DTW, Date)

Well Depth (ft)

No Data/Pending

<= 150

151 - 350

351 - 500

501 - 1000

> 1000

NM Geology

Qe/Qp, Quaternary-Eolian Piedmont Deposits

Qoa, Quaternary-Older Alluvial Deposits,Qoa, Quaternary-Older Alluvial Deposits

Qp, Quaternary-Piedmont Alluvial Deposits,Qp, Quaternary-Piedmont Alluvial Deposits

Qpl, Quaternary-Lacustrine and Playa Deposits,Qpl, Quaternary-Lacustrine and Playa Deposits

To, Tertiary-Ogallala Formation,To, Tertiary-Ogallala Formation

CP-01362 (POD1)
613 ft
2014-11-04

CP-00865 (POD1)
605 ft
1997-08-29

USGS-15199
17.39 ft
12/18/2015

USGS-15248
78.75 ft
2/16/1996

USGS-15219
78.74 ft
5/3/1991

To

MISC-30
(Dees Well)
76.6 ft
12/4/1970

USGS-15326
78.29 ft
2/16/1996

USGS-15325
77.73 ft
3/21/1986

3200

3100

3400

3300

CP-01705 (POD1)
305 ft
2018-05-01

SAN SIMON

Qe/Qp

MISC-34
(Wood Well)
141.4 ft
11/18/1977

CP-01075 (POD1)
20 ft
2012-05-26

CP-01502 (POD2)
300 ft
2017-12-09

E-07616 (POD1)
300 ft
2000-08-20

USGS-15285
137.29 ft
11/25/1953

USGS-15275
135.44 ft
3/21/1986

USGS-15279
96.93 ft
3/7/1996

USGS-15278
125.48 ft
1/23/1976

Qpl

CP-00872 (POD1)
305 ft
1997-10-03

USGS-15292
328.93 ft
3/21/1986

MISC-379
(Allred Well)
NR
No Date

CP-01730 (POD1)
200 ft
2018-11-05

WELLS

Qoa

CP-01120 (POD1)
318 ft
2013-04-06

USGS-15010
42.54 ft
3/7/1996

USGS-15078
345.3 ft
3/8/1996

CP-00637
430 ft
1981-07-09

LT State SWD #1

CP-00618
295 ft
1980-05-05

MISC-43
232.9 ft
10/10/2013

USGS-15086
282.2 ft
3/8/1996

USGS-15053
234.79 ft
3/13/1996

USGS-15047
479.49 ft
10/29/2018

USGS-15025
553.85 ft
10/29/2018

C-02283
225 ft
1940-12-31

USGS-15045
234.91 ft
3/30/1981

MISC-183
(Capitan Well)
>300
08/05/2014

USGS-15004
230.43 ft
1/23/1976

USGS-15099
No Data
12/1

USGS-15120
117.2 ft
5/24/1991

Qp

USGS-15046
233.06 ft
1/13/1971

MISC-181
326.5 ft
12/09/1970

MISC-182
117.1 ft
01/13/1971

USGS-14752
174.14 ft
3/7/1996

USGS-14708
329.15 ft
4/17/1986

USGS-14711
117.1 ft
1/13/1971

USGS-14728
206.1 ft
3/20/1986

USGS-14731
174.93 ft
1/21/1976

USGS-15099
146.27 ft
12/16/1976

C-03620 (POD1)
130 ft
2013-04-29

USGS-14919
162.14 ft
1/16/2013

C-04014 (POD3)
87 ft
2017-02-17

USGS-14955
440.57 ft
1/16/2013

CP-01057 (POD1)
4365 ft
2012-06-07

USGS-14980
51.87 ft
12/8/1970

USGS-14881
43.91 ft
12/18/2015

MISC-305
274 ft
12/09/1970

CP-01056 (POD1)
4399 ft
2012-02-08

C-04014 (POD4)
86 ft
2017-02-17

MISC-301
72.2 ft
12/08/1970

USGS-14890
66.59 ft
4/21/1955

USGS-14887
71.91 ft
6/3/1955

USGS-14843
164.43 ft
3/7/1996

To

USGS-14889
63 ft
2/7/2006

USGS-14886
69.73 ft
12/8/1970

C-02387
40 ft
1916-12-31

USGS-14885
271.7 ft
1/15/1976

N

W E

S

0 0.250.5

Miles

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Water Wells on Potentiometric and Geography AWR Disposal, LLC LT State SWD #1	Plate 3 June 2019

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SWD

Distance (miles)

0.5

1

2

Potentiometric Surface (ft msl)

Isocontour

USGS Gauging Station (DTW, Date)

Aquifer Code, Well Status

Alluvium/Bolsom

Ogallala

Ogallala, Nearby site that taps the same aquifer had been pumped recently.

Chinle

Chinle, Site was being pumped.

Santa Rosa

Santa Rosa, Site was being pumped.

Not Defined

Misc. Water Wells (Well ID, DTW)

Well Depth (ft)

No Data

<= 150

151 - 350

351 - 500

> 500

OSE Water Wells (DTW/Date)

Well Depth (ft)

<=150

151-350

351-500

501-1000

<1000

Other

NM Geology

Qe/Qp, Quaternary-Eolian Piedmont Deposits

Qoa, Quaternary-Older Alluvial Deposits,Qoa, Quaternary-Older Alluvial Deposits

Qp, Quaternary-Piedmont Alluvial Deposits,Qp, Quaternary-Piedmont Alluvial Deposits

Qpl, Quaternary-Lacustrine and Playa Deposits,Qpl, Quaternary-Lacustrine and Playa Deposits

To, Tertiary-Ogallala Formation,To, Tertiary-Ogallala Formation

CP-01362 (POD1)
613 ft
2014-11-04

CP-00865 (POD1)
605 ft
1997-08-29

USGS-15199
17.39 ft
12/18/2015

USGS-15248
78.75 ft
2/16/1996

USGS-15219
78.74 ft
5/3/1991

To

MISC-30
(Dees Well)
76.6 ft
12/4/1970

USGS-15326
78.29 ft
2/16/1996

USGS-15325
77.73 ft
3/21/1986

3200

3100

3400

3300

CP-01705 (POD1)
305 ft
2018-05-01

Qe/Qp

MISC-34
(Wood Well)
141.4 ft
11/18/1977

CP-00872 (POD1)
305 ft
1997-10-03

CP-01502 (POD2)
300 ft
2017-12-09

USGS-15285
137.29 ft
11/25/1953

USGS-15275
135.44 ft
3/21/1986

USGS-15279
96.93 ft
3/7/1996

USGS-15278
125.48 ft
1/23/1976

CP-01075 (POD1)
20 ft
2012-05-26

USGS-15292
328.93 ft
3/21/1986

CP-01730 (POD1)
200 ft
2018-11-05

Qpl

Qoa

CP-01120 (POD1)
318 ft
2013-04-06

USGS-15010
42.54 ft
3/7/1996

USGS-15078
345.3 ft
3/8/1996

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430 ft
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USGS-15053
234.79 ft
3/13/1996

USGS-15047
479.49 ft
10/29/2018

USGS-15025
553.85 ft
10/29/2018

C-02283
225 ft
1940-12-31

USGS-15045
234.91 ft
3/30/1981

MISC-183
(Capitan Well)
>300
08/05/2014

Qp

USGS-15046
233.06 ft
1/13/1971

MISC-181
326.5 ft
12/09/1970

USGS-15004
230.43 ft
1/23/1976

MISC-182
117.1 ft
01/13/1971

USGS-14752
174.14 ft
3/7/1996

USGS-15099
No Data
12/1

USGS-15120
117.2 ft
5/24/1991

USGS-14708
329.15 ft
4/17/1986

USGS-14711
117.1 ft
1/13/1971

USGS-14728
206.1 ft
3/20/1986

USGS-14731
174.93 ft
1/21/1976

146.27 ft
12/16/1976

C-03620 (POD1)
130 ft
2013-04-29

USGS-14919
162.14 ft
1/16/2013

C-04014 (POD3)
87 ft
2017-02-17

USGS-14955
440.57 ft
1/16/2013

CP-01057 (POD1)
4365 ft
2012-06-07

USGS-14980
51.87 ft
12/8/1970

C-04014 (POD4)
86 ft
2017-02-17

MISC-301
72.2 ft
12/08/1970

USGS-14890
66.59 ft
4/21/1955

USGS-14887
71.91 ft
6/3/1955

USGS-14881
43.91 ft
12/18/2015

MISC-305
274 ft
12/09/1970

CP-01056 (POD1)
4399 ft
2012-02-08

USGS-14843
164.43 ft
3/7/1996

USGS-14889
63 ft
2/7/2006

USGS-14886
69.73 ft
12/8/1970

C-02387
40 ft
1916-12-31

USGS-14885
271.7 ft
1/15/1976

To

N
W
E
S

0 0.5 1 Miles

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Water Wells on Potentiometric and Geography AWR Disposal, LLC LT State SWD #1	Plate 3a June 2019

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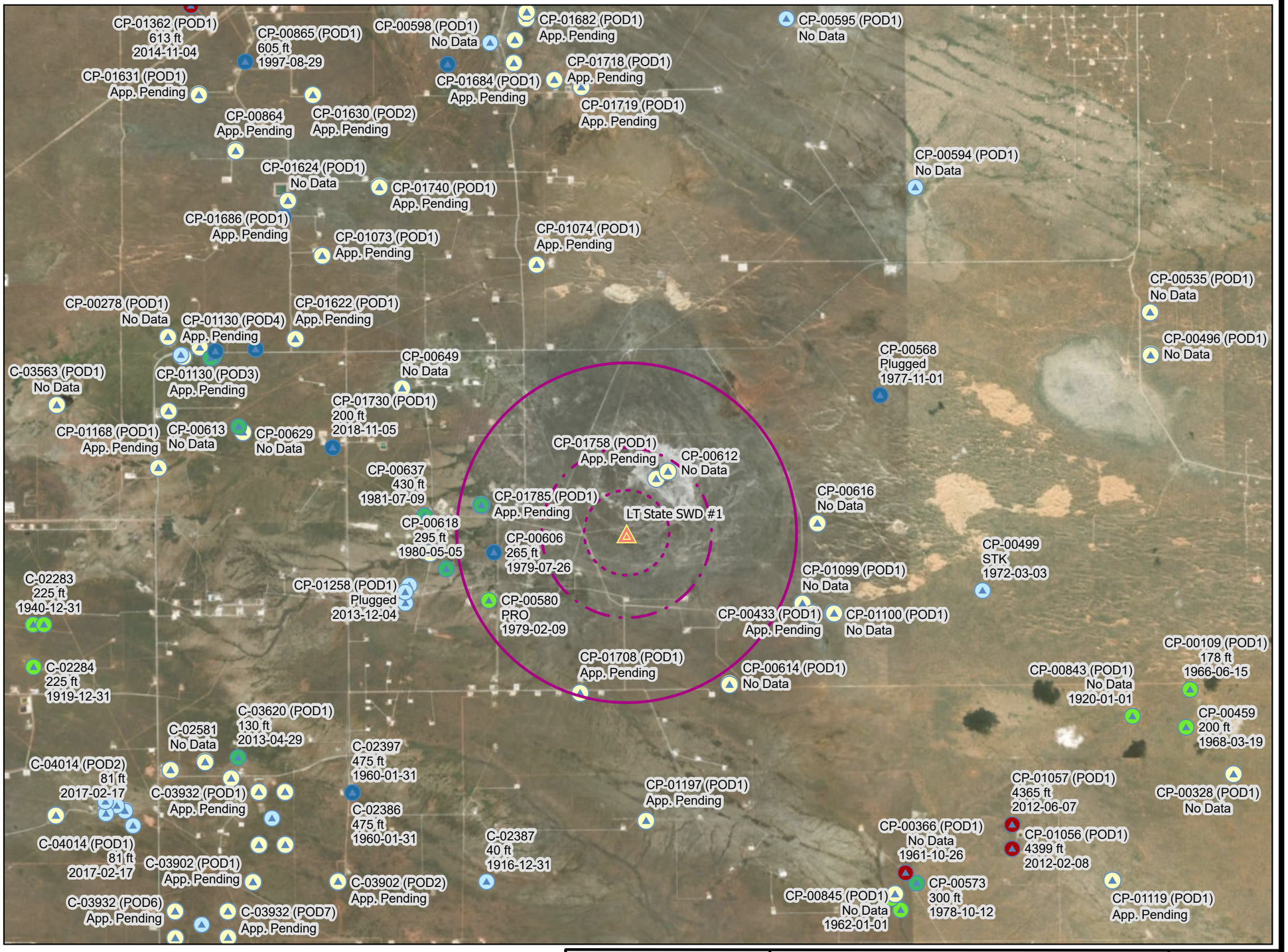

SWD

Distance (miles)

0.5

1

2

OSE Water Wells (DTW/Date)

Well Depth (ft)

<=150

151-350

351-500

501-1000

<1000

Other

N

W E

S

0 0.5 1 Miles

R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Nearby OSE Water Wells	Plate 3b
AWR Disposal, LLC LT State SWD #1	June 2019

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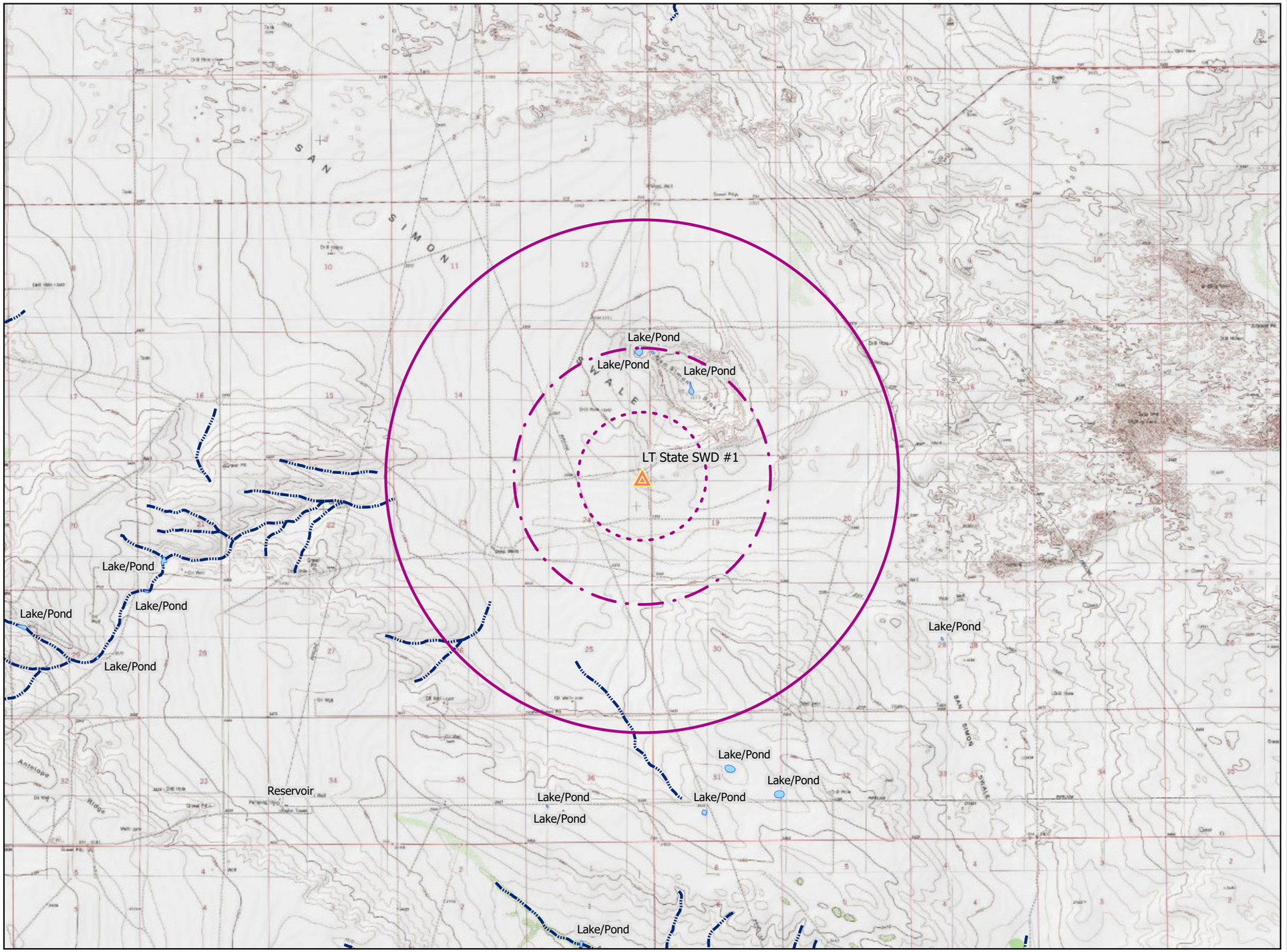


SWD

Distance (miles)

0.5

1

2

Water Bodies (1307)

Lake/Pond

Reservoir

River and Drainages (1307)

Stream/River Artificial Path

Intermittent Stream

Note: Some features not present in map extent.

N W E S

0 0.5 1 Miles

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby Surface Water	Plate 4
	AWR Disposal, LLC LT State SWD #1	June 2019

Tables

API	OGRID	OGRID Name	Status	Well Type	Well Name	UL-S-T-R	Total Depth	Associated Pools
30-025-08484	214263	PRE-ONGARD WELL OPERATOR	P	O	PRE-ONGARD WELL #001	J-13-23S-34E	4352	<Null>
30-025-12740	214263	PRE-ONGARD WELL OPERATOR	P	O	PRE-ONGARD WELL #001	M-20-23S-35E	3947	<Null>
30-025-25269	228937	MATADOR PRODUCTION COMPANY	A	O	STATE R COM #001H	N-25-23S-34E	8846	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-25650	147179	CHESAPEAKE OPERATING, INC.	P	G	STATE EO #001	C-26-23S-34E	13871	[70440] ANTELOPE RIDGE, MORROW (GAS)
30-025-25922	214263	PRE-ONGARD WELL OPERATOR	P	O	PRE-ONGARD WELL #001	K-13-23S-34E	13914	<Null>
30-025-26198	280240	REGENERATION ENERGY, CORPORATION	P	G	STATE 23 #001	N-23-23S-34E	13715	[2209] ANTELOPE RIDGE, BONE SPRING, WEST; [70360] ANTELOPE RIDGE, ATOKA (GAS); [70440] ANTELOPE RIDGE, MORROW (GAS)
30-025-26328	228937	MATADOR PRODUCTION COMPANY	A	G	STATE 23 #002	F-23-23S-34E	13600	[2209] ANTELOPE RIDGE, BONE SPRING, WEST; [70360] ANTELOPE RIDGE, ATOKA (GAS); [70440] ANTELOPE RIDGE, MORROW (GAS)
30-025-26547	228937	MATADOR PRODUCTION COMPANY	A	S	ANTELOPE RIDGE 24 SWD #001	K-24-23S-34E	13900	[2200] ANTELOPE RIDGE, BONE SPRING; [96100] SWD, DELAWARE
30-025-26692	249099	CAZA OPERATING, LLC	P	S	CAZA RIDGE 14 STATE #001	J-14-23S-34E	13543	[2205] ANTELOPE RIDGE, BONE SPRING, NORTH; [70360] ANTELOPE RIDGE, ATOKA (GAS); [97869] SWD, DEVONIAN-SILURIAN
30-025-26719	370351	WYNN-CROSBY OPERATING, LP	A	G	SUPRON 14 FEDERAL COM #001	K-14-23S-34E	13600	[70360] ANTELOPE RIDGE, ATOKA (GAS); [70440] ANTELOPE RIDGE, MORROW (GAS)
30-025-26818	214263	PRE-ONGARD WELL OPERATOR	C	O	PRE-ONGARD WELL #002	C-24-23S-34E	0	<Null>
30-025-27200	14829	MID-AMERICA PET INC	P	O	MADDOX #001	L-12-23S-34E	13622	[66453] LEA UNDESIGNATED, GROUP 10
30-025-33000	7377	EOG RESOURCES INC	A	O	SAN SIMON AWO STATE COM #001	O-18-23S-35E	14200	[96446] SAN SIMON SINK, MORROW (GAS)
30-025-40473	280240	REGENERATION ENERGY, CORPORATION	P	O	LEPAKAST STATE COM #001	P-24-23S-34E	1248	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-40550	228937	MATADOR PRODUCTION COMPANY	A	O	LEPAKAST STATE COM #001Y	P-24-23S-34E	8900	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-40621	249099	CAZA OPERATING, LLC	A	O	CAZA RIDGE 14 STATE #003H	O-14-23S-34E	11260	[2209] ANTELOPE RIDGE, BONE SPRING, WEST
30-025-40628	6137	DEVON ENERGY PRODUCTION COMPANY, LP	A	O	RED BULL 29 FEDERAL #001H	D-29-23S-35E	8722	[96341] CINTA ROJO, DELAWARE
30-025-40936	249099	CAZA OPERATING, LLC	A	O	CAZA RIDGE 14 STATE #004H	P-14-23S-34E	9	[2209] ANTELOPE RIDGE, BONE SPRING, WEST
30-025-41265	228937	MATADOR PRODUCTION COMPANY	A	O	BILL FEDERAL COM #001H	O-19-23S-35E	8635	[96341] CINTA ROJO, DELAWARE
30-025-41522	228937	MATADOR PRODUCTION COMPANY	A	O	LANDRETH FEDERAL COM #001H	M-24-23S-34E	11369	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-41864	6137	DEVON ENERGY PRODUCTION COMPANY, LP	A	O	SWEETNESS 30 STATE FED COM #001H	G-30-23S-35E	8585	[96341] CINTA ROJO, DELAWARE
30-025-41883	249099	CAZA OPERATING, LLC	C	O	CAZA RIDGE 14 STATE #005C	P-14-23S-34E	0	[2209] ANTELOPE RIDGE, BONE SPRING, WEST
30-025-42446	14744	MEWBOURNE OIL CO	A	O	TORO 36 B3BO STATE #001H	B-36-23S-34E	11685	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-42512	25575	EOG Y RESOURCES, INC.	C	O	WANDERER BWP STATE #001H	M-13-23S-34E	0	[2205] ANTELOPE RIDGE, BONE SPRING, NORTH
30-025-42519	229137	COG OPERATING LLC	A	O	BANTER STATE COM #004H	D-13-23S-34E	11349	[2205] ANTELOPE RIDGE, BONE SPRING, NORTH
30-025-43003	7377	EOG RESOURCES INC	H	O	WOLVERINE BWT STATE COM #001	C-18-23S-35E	85	[2205] ANTELOPE RIDGE, BONE SPRING, NORTH
30-025-43254	7377	EOG RESOURCES INC	H	O	WEASEL BXD STATE COM #001	D-17-23S-35E	100	[2205] ANTELOPE RIDGE, BONE SPRING, NORTH
30-025-43255	7377	EOG RESOURCES INC	H	O	VERMINATOR BWV STATE COM #002	O-07-23S-35E	100	[2205] ANTELOPE RIDGE, BONE SPRING, NORTH
30-025-43423	14744	MEWBOURNE OIL CO	N	O	ORYX 14 B3CN FEDERAL COM #001H	C-14-23S-34E	0	[2209] ANTELOPE RIDGE, BONE SPRING, WEST
30-025-43436	25575	EOG Y RESOURCES, INC.	C	O	VERMINATOR BWV STATE COM #001C	N-07-23S-35E	0	[2205] ANTELOPE RIDGE, BONE SPRING, NORTH
30-025-43518	372165	CENTENNIAL RESOURCE PRODUCTION, LLC	C	O	EXCITEBIKE 12 #001C	D-12-23S-34E	0	[2205] ANTELOPE RIDGE, BONE SPRING, NORTH
30-025-43543	249099	CAZA OPERATING, LLC	N	O	CAZA RIDGE 14 STATE #006H	O-14-23S-34E	0	[2209] ANTELOPE RIDGE, BONE SPRING, WEST
30-025-43885	14744	MEWBOURNE OIL CO	A	O	TORO 36 B3CN STATE #001H	C-36-23S-34E	11658	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-43929	14744	MEWBOURNE OIL CO	A	O	TORO 36 B3AP STATE #001H	A-36-23S-34E	11698	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-44013	228937	MATADOR PRODUCTION COMPANY	A	O	FLORENCE STATE 23 23 34 AR #202H	N-23-23S-34E	11367	[98242] WC-025 G-06 S233423N, WOLFCAMP
30-025-44572	228937	MATADOR PRODUCTION COMPANY	N	G	FLORENCE STATE COM #204H	P-23-23S-34E	0	[98242] WC-025 G-06 S233423N, WOLFCAMP
30-025-44649	228937	MATADOR PRODUCTION COMPANY	N	O	FLORENCE STATE 23 23 34 AR #133H	O-23-23S-34E	0	[2209] ANTELOPE RIDGE, BONE SPRING, WEST
30-025-44650	228937	MATADOR PRODUCTION COMPANY	N	O	FLORENCE STATE 23 23 34 AR #203H	O-23-23S-34E	0	[98242] WC-025 G-06 S233423N, WOLFCAMP
30-025-44771	228937	MATADOR PRODUCTION COMPANY	N	O	JEFF HART STATE COM #131H	D-25-23S-34E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-44772	228937	MATADOR PRODUCTION COMPANY	N	O	JEFF HART STATE COM #132H	C-25-23S-34E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-44773	228937	MATADOR PRODUCTION COMPANY	N	O	MICHAEL RYAN STATE COM #134H	A-25-23S-34E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-44837	7377	EOG RESOURCES INC	A	O	FUNKY MONKS 8 FEDERAL COM #601H	L-08-23S-35E	11483	[2205] ANTELOPE RIDGE, BONE SPRING, NORTH
30-025-44838	7377	EOG RESOURCES INC	A	O	FUNKY MONKS 8 FEDERAL COM #602H	L-08-23S-35E	11516	[2205] ANTELOPE RIDGE, BONE SPRING, NORTH
30-025-44864	228937	MATADOR PRODUCTION COMPANY	N	O	JEFF HART STATE COM #133H	D-25-23S-34E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-44865	228937	MATADOR PRODUCTION COMPANY	N	O	JEFF HART STATE COM #134H	P-25-23S-34E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-45118	228937	MATADOR PRODUCTION COMPANY	N	O	DR IRELAND FEDERAL COM #111H	4-19-23S-35E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-45119	228937	MATADOR PRODUCTION COMPANY	N	O	DR IRELAND FEDERAL COM #112H	N-19-23S-35E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-45120	228937	MATADOR PRODUCTION COMPANY	N	O	DR IRELAND FEDERAL COM #113H	P-19-23S-35E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-45121	228937	MATADOR PRODUCTION COMPANY	N	O	DR IRELAND FEDERAL COM #114H	P-19-23S-35E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-45122	228937	MATADOR PRODUCTION COMPANY	N	O	DR IRELAND FEDERAL COM #121H	4-19-23S-35E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-45123	228937	MATADOR PRODUCTION COMPANY	N	O	DR IRELAND FEDERAL COM #122H	N-19-23S-35E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-45124	228937	MATADOR PRODUCTION COMPANY	N	O	DR IRELAND FEDERAL COM #131H	4-19-23S-35E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-45125	228937	MATADOR PRODUCTION COMPANY	N	O	DR IRELAND FEDERAL COM #132H	N-19-23S-35E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-45126	228937	MATADOR PRODUCTION COMPANY	N	O	DR IRELAND FEDERAL COM #134H	P-19-23S-35E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-45144	228937	MATADOR PRODUCTION COMPANY	N	O	DR IRELAND FEDERAL COM #211H	4-19-23S-35E	0	[98242] WC-025 G-06 S233423N, WOLFCAMP
30-025-45145	228937	MATADOR PRODUCTION COMPANY	N	O	DR IRELAND FEDERAL COM #212H	N-19-23S-35E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-45146	228937	MATADOR PRODUCTION COMPANY	N	O	DR IRELAND FEDERAL COM #213H	P-19-23S-35E	0	[2200] ANTELOPE RIDGE, BONE SPRING; [98242] WC-025 G-06 S233423N, WOLFCAMP
30-025-45147	228937	MATADOR PRODUCTION COMPANY	N	O	DR IRELAND FEDERAL COM #214H	P-19-23S-35E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-45518	228937	MATADOR PRODUCTION COMPANY	N	O	DR IRELAND FEDERAL COM #123H	P-19-23S-35E	0	[2200] ANTELOPE RIDGE, BONE SPRING

API	OGRID	OGRID Name	Status	Well Type	Well Name	UL-S-T-R	Total Depth	Associated Pools
30-025-45519	228937	MATADOR PRODUCTION COMPANY	N	O	DR IRELAND FEDERAL COM #124H	P-19-23S-35E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-45520	228937	MATADOR PRODUCTION COMPANY	N	O	DR IRELAND FEDERAL COM #133H	P-19-23S-35E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-45758	228937	MATADOR PRODUCTION COMPANY	N	O	JEFF HART STATE COM #114H	P-25-23S-34E	0	[960] AIRSTRIP, BONE SPRING; [2200] ANTELOPE RIDGE, BONE SPRING
30-025-45759	228937	MATADOR PRODUCTION COMPANY	N	O	JEFF HART STATE COM #124H	P-25-23S-34E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-45760	228937	MATADOR PRODUCTION COMPANY	N	O	FLORENCE STATE COM #134H	O-23-23S-34E	0	[2209] ANTELOPE RIDGE, BONE SPRING, WEST

Serial Number	Name 1	Acres	Township	Range	Section	Unit Letter
NMNM 013641	MEWBOURNE OIL CO	400	23	34	15	I,P
NMNM 024491	DEVON ENERGY PROD CO LP	160	23	34	14	C-F
NMNM 015035	NORTEX CORP	520	23	34	14	K-N
NMNM 111971	DEVON ENERGY PROD CO LP	358.51	23	35	30	E,F,G,J-O
NMNM 117558	DEVON ENERGY PROD CO LP	1280	23	35	20	A-P
			23	35	29	A-P
NMNM 132073	Not Listed	320	23	34	22	I
NMNM 113422	REGENERATION ENERGY CORP	557.44	23	35	19	A-N
NMNM 114993	EOG RESOURCES INC	1161.12	23	35	8	E,N,O
NMNM 113416	ADVANCE ENERGY PARTNERS LLC	160	23	34	24	L-O
NMNM 115425	EOG Y RESOURCES INC	200	23	35	7	C,F
			23	35	8	K,L,M
NMNM 128370	EOG Y RESOURCES INC	236.08	23	35	7	D,E,K,L,M,N
NMNM 115426	EOG Y RESOURCES INC	279.45	23	35	19	O,P
			23	35	30	A-D,H

Lease Number	OGRID	OGRID Name	Acres	Township	Range	Section	Unit Letter
B010400016	25575	EOG Y RESOURCES, INC.	320	23	35	7	B,G,H
B015660006	25575	EOG Y RESOURCES, INC.	40	23	35	17	E
K052830004	4323	CHEVRON U S A INC	480	23	34	26	A-H,I,J,O,P
L050140002	146438	NORTEX CORPORATION	160	23	34	26	K-M
L053940001	3002	BTA OIL PRODUCERS	160	23	34	11	H
LG10250007	372165	CENTENNIAL RESOURCE PRODUCTION, LLC	240	23	34	11	N
LG12080008	261044	MRC PERMIAN COMPANY	600	23	34	23	A-H, J-P
V078800003	261044	MRC PERMIAN COMPANY	320	23	34	25	I-P
V081450002	371992	ADVANCE ENERGY PARTNERS, LLC	320	23	34	24	A-H
VA03500001	25575	EOG Y RESOURCES, INC.	516.72	23	35	18	A,B,D-I,K-N,P
VA09710002	25575	EOG Y RESOURCES, INC.	120	23	35	18	C,J,O
VA24780000	6137	DEVON ENERGY PRODUCTION COMPANY, LP	319.16	23	35	31	B-D
VB01780003	229137	COG OPERATING LLC	160	23	34	11	I,J,O,P
VB04830002	190595	ENDEAVOR ENERGY RESOURCES, LP	160	23	34	22	A,B,G,H
VB10240003	261044	MRC PERMIAN COMPANY	320	23	34	25	A-H
VB11840002	326734	CAZA PETROLEUM, LLC.	320	23	34	14	A,B,G,H,I,J,O,P
VB12980002	371992	ADVANCE ENERGY PARTNERS, LLC	160	23	34	24	I-K,P
VB18320001	90723	MEWBOURNE OIL COMPANY	320	23	34	36	C,D
VB18480001	90723	MEWBOURNE OIL COMPANY	320	23	34	36	A,B
VB18580002	25575	EOG Y RESOURCES, INC.	320	23	34	13	A-H
VB18630001	25575	EOG Y RESOURCES, INC.	320	23	34	13	I-P
VB20520002	25575	EOG Y RESOURCES, INC.	160	23	35	7	I,J,O,P
VB20530002	25575	EOG Y RESOURCES, INC.	160	23	35	17	A-D
VB20540001	372165	CENTENNIAL RESOURCE PRODUCTION, LLC	440	23	35	17	F-P

UPC	Parcel Code	Name	Acres	Township	Range	Section	Unit Letter	Address	City	State	Zip
4201136267397		BLM	320	23	34	22	I	620 E. Greene Street	Carlsbad	NM	88220-6292
4205134267266		BLM	640	23	35	08	K-O	620 E. Greene Street	Carlsbad	NM	88220-6292
4204136264200		BLM	477.799	23	35	19	A-L	620 E. Greene Street	Carlsbad	NM	88220-6292
4205136332199		BLM	360.531	23	35	20	A,B,C,F,G,H,I,J,K	620 E. Greene Street	Carlsbad	NM	88220-6292
4205137333331		BLM	360	23	35	29	F,G,K	620 E. Greene Street	Carlsbad	NM	88220-6292
4204137266332		BLM	478.647	23	35	30	E-P	620 E. Greene Street	Carlsbad	NM	88220-6292
4202134134266	4000501790004	LIMESTONE BASIN PROP RANCH LLC	320	23	34	11	N	18 DESTA DRIVE	MIDLAND	TX	79705
4202134398264	4000501780003	LIMESTONE BASIN PROP RANCH LLC	320	23	34	11	H, I,J,O,P	18 DESTA DRIVE	MIDLAND	TX	79705
4203134266265	4000501800014	LIMESTONE BASIN PROP RANCH LLC	640	23	34	12	A,B,C,E-P	18 DESTA DRIVE	MIDLAND	TX	79705
4203135462664	4000501800015	LIMESTONE BASIN PROP RANCH LLC	40	23	34	13	A	18 DESTA DRIVE	MIDLAND	TX	79705
4202135134267	4000501800016	LIMESTONE BASIN PROP RANCH LLC	320	23	34	14	C,D,E,F,K,L,M,N	18 DESTA DRIVE	MIDLAND	TX	79705
4202136465330	4000501800020	LIMESTONE BASIN PROP RANCH LLC	40	23	34	23	I	18 DESTA DRIVE	MIDLAND	TX	79705
4203138265266	4000517830004	LIMESTONE BASIN PROP RANCH LLC	640	23	34	36	A-D	18 DESTA DRIVE	MIDLAND	TX	79705
4204134264266	4000501770006	LIMESTONE BASIN PROP RANCH LLC	636.008	23	35	07	B-P	18 DESTA DRIVE	MIDLAND	TX	79705
4205135267265	4000501790007	LIMESTONE BASIN PROP RANCH LLC	640	23	35	17	A-P	18 DESTA DRIVE	MIDLAND	TX	79705
4204135264266	4000501780008	LIMESTONE BASIN PROP RANCH LLC	636.72	23	35	18	A-P	18 DESTA DRIVE	MIDLAND	TX	79705
4204136266463	4000501800024	LIMESTONE BASIN PROP RANCH LLC	159.412	23	35	19	M-P	18 DESTA DRIVE	MIDLAND	TX	79705
4205136182351	4000501800025	LIMESTONE BASIN PROP RANCH LLC	280	23	35	20	D,E,L,M-P	18 DESTA DRIVE	MIDLAND	TX	79705
4205137180181	4000517800003	LIMESTONE BASIN PROP RANCH LLC	280	23	35	29	A-E,L,M	18 DESTA DRIVE	MIDLAND	TX	79705
4204137263682	4000517800004	LIMESTONE BASIN PROP RANCH LLC	159.45	23	35	30	A-D	18 DESTA DRIVE	MIDLAND	TX	79705
4206137114659	4000517830004	LIMESTONE BASIN PROP RANCH LLC	638.49	23	35	31	B-D	18 DESTA DRIVE	MIDLAND	TX	79705
4203135253279		State of New Mexico	600	23	34	13	B-P	310 Old Santa Fe Trail	Santa Fe	NM	87501
4202135398264		State of New Mexico	320	23	34	14	A,B,G,H,I,J,O,P	310 Old Santa Fe Trail	Santa Fe	NM	87501
4201135398264		State of New Mexico	320	23	34	15	A,B,G,H,I,J,O,P	310 Old Santa Fe Trail	Santa Fe	NM	87501
4201136265133		State of New Mexico	320	23	34	22	A,H	310 Old Santa Fe Trail	Santa Fe	NM	87501
4202136253261		State of New Mexico	600	23	34	23	A-H,J-P	310 Old Santa Fe Trail	Santa Fe	NM	87501
4203136266265		State of New Mexico	640	23	34	24	A-P	310 Old Santa Fe Trail	Santa Fe	NM	87501
4203137265265		State of New Mexico	640	23	34	25	A-P	310 Old Santa Fe Trail	Santa Fe	NM	87501
4202137266266		State of New Mexico	640	23	34	26	A-D,F-K,O,P	310 Old Santa Fe Trail	Santa Fe	NM	87501

wellname	api	section	township	range	unit	county	state	field	formation	samplesource	sampledate	ph	tds_mgL	resistivity_ohm_cm	sodium_mgL	calcium_mgL	iron_mgL	magnesium_mgL	manganese_mgL	chloride_mgL	bicarbonate_mgL	sulfate_mgL	co2_mgL	CorrectFlag
RIO BLANCO 4 FEDERAL COM #003	3002536425	4	23S	34E	J	Lea	NM				9/3/2014 0:00	6.1	179000.8		53519.9	12080.6	38.7	1748.7	2.4	109000	122	0	200	FALSE
BELL LAKE UNIT #006	3002508483	6	23S	34E	O	LEA	NM	BELL LAKE NORTH	DEVONIAN	HEATER TREATER		7	71078							42200	500	1000		TRUE
BELL LAKE UNIT #002	3002508489	30	23S	34E	N	LEA	NM	SWD	DELAWARE	UNKNOWN			52115							32200	451	529		TRUE
RIO BLANCO 4 FEDERAL COM #003	3002536425	4	23S	34E	J	Lea	NM				10/15/2015 0:00	7	254017.1	0.025	62818	24835.8	47	4233.5	5.48	160463.8	244	425	1000	FALSE
MAD DOG 15 FEDERAL COM #001	3002536778	15	23S	34E	P	Lea	NM				10/15/2015 0:00	6.07	185742	0.034	60151.2	9297	80.6	1501	1.68	113474.4	341.6	560	800	FALSE
CABALLO 9 STATE #001	3002534577	9	23S	34E	E	Lea	NM				9/10/2014 0:00	7.81	71862.4		24399.6	2685.9	462.1	367.8	2.86	42700	576	0	0	FALSE
MAD DOG 15 FEDERAL COM #001	3002536778	15	23S	34E	P	Lea	NM				9/10/2014 0:00	6.9	71718.6		23830.8	2540	0	346.3	0	42400	610	170	100	FALSE
RIO BLANCA 4 FEDERAL COM #001	3002534515	4	23S	34E	F	Lea	NM				9/8/2004 0:00	6.1	43388.1		13982.1	1697	363	243		25721	207	574		FALSE
RIO BLANCA 4 FEDERAL COM #001	3002534515	4	23S	34E	F	Lea	NM				12/16/2004 0:00	6.1	70316.5		25492.9	1361	7	162		41669	228.1	1011	100	FALSE
RIO BLANCO 9 STATE #001	3002536302	9	23S	34E	B	Lea	NM				12/16/2004 0:00	5.6	65810.3		15070.8	6754	28	2137		41261	165.9	277		FALSE
MAD DOG 15 FEDERAL COM #001	3002536778	15	23S	34E	P	Lea	NM				12/16/2004 0:00	6.2	71521.1		25245.7	1754	5	255		42308	207.4	1176	75	FALSE
RIO BLANCA 4 FEDERAL COM #001	3002534515	4	23S	34E	F	Lea	NM				4/26/2005 0:00	5.7	84267.8		28936.1	2670	64	383		50154	153.7	1230		FALSE
RIO BLANCO 9 STATE #001	3002536302	9	23S	34E	B	Lea	NM				4/26/2005 0:00	5.9	83217.6		28207.2	2817	1	493		49511	290.4	1188		FALSE
MAD DOG 15 FEDERAL COM #001	3002536778	15	23S	34E	P	Lea	NM				4/26/2005 0:00	5.8	81393.3		27656.1	2657	9.5	497		48230	331.8	1340		FALSE
RIO BLANCA 4 FEDERAL COM #001	3002534515	4	23S	34E	F	Lea	NM				5/23/2005 0:00	5.9	76404.4		25237.5	2495	1087	329		45259	290.4	1093		FALSE
RIO BLANCO 9 STATE #001	3002536302	9	23S	34E	B	Lea	NM				5/23/2005 0:00	5.9	74771.3		25099.8	2724	5	454		44417	311.1	1123		FALSE
MAD DOG 15 FEDERAL COM #001	3002536778	15	23S	34E	P	Lea	NM				5/23/2005 0:00	5.8	72187.8		24914.3	2151	7.5	345		42673	331.8	1198		FALSE
RIO BLANCA 4 FEDERAL COM #001	3002534515	4	23S	34E	F	Lea	NM				6/30/2005 0:00	6.1	74296		25272.2	2538	47	343		44022	456.3	1031	60	FALSE
RIO BLANCO 9 STATE #001	3002536302	9	23S	34E	B	Lea	NM				6/30/2005 0:00	6	74579		25426.9	2472	33	363		44159	414.8	1112	50	FALSE
MAD DOG 15 FEDERAL COM #001	3002536778	15	23S	34E	P	Lea	NM				6/30/2005 0:00	6.1	73515.4		25199.7	2394	22	320		43444	456.3	1134	25	FALSE
MAD DOG 15 FEDERAL COM #001	3002536778	15	23S	34E	P	Lea	NM				4/10/2007 0:00	6.6	73741.5		24583.3	2814	5	363	0.2	42853	732	1724		FALSE
ANTELOPE RIDGE UNIT #003	3002521082	34	23S	34E	K	LEA	NM	ANTELOPE RIDGE	DEVONIAN	UNKNOWN	11/14/1967 0:00	6.9	80187							47900	476	900		TRUE
CABALLO 9 STATE #001	3002534577	9	23S	34E	E	Lea	NM				5/14/2014 0:00	6.9	70554		22500.6	2476.8	0	337.7	0	42521	732	1299	200	FALSE
RIO BLANCO 9 STATE #001	3002536302	9	23S	34E	B	Lea	NM				5/14/2014 0:00	6.2	192154		54068.3	13499.7	59.3	1983	2.7	119614	122	943	200	FALSE
BELL LAKE UNIT #009	3002520261	18	23S	34E	K	LEA	NM	BELL LAKE NORTH	BONE SPRING	UNKNOWN			204652							130000	512	260		TRUE
MAD DOG 15 FEDERAL COM #001	3002536778	15	23S	34E	P	Lea	NM				3/29/2010 0:00	7	77292.8		25964.7	2876	1	378	0.08	45890	244	1186	100	FALSE
MAD DOG 15 FEDERAL COM #001	3002536778	15	23S	34E	P	Lea	NM				8/24/2010 0:00	8.4	69356		24262.3	1833	4.5	298	0.2	40711	366	1404	20	FALSE
CABALLO 9 STATE #001	3002534577	9	23S	34E	E	Lea	NM				10/14/2010 0:00	7	122402.2		38021	6823	11	1120	1	73600	622.2	1213	300	FALSE
RED BULL 31 STATE #002	3002537069	31	23S	35E	P	Lea	NM				10/15/2015 0:00	6.9	258268.6	0.025	73826.2	19030	31.6	4042	3.31	159864	73.2	490	300	FALSE
SWEETNESS 30 STATE FED COM #001H	3002541864	30	23S	35E	G	Lea	NM		DELAWARE-BRUSHY CANYON		10/15/2015 0:00	8.5	67516.1	0.095	23558.7	2923.2	0.1	401	0.03	39091.2	732	740	200	FALSE
NORTH CUSTER MOUNTAI #001	3002521601	28	23S	35E	C	LEA	NM			UNKNOWN			39074							23980	488	465		TRUE
SWEETNESS 30 STATE FED COM #001H	3002541864	30	23S	35E	G	Lea	NM		DELAWARE-BRUSHY CANYON		11/3/2014 0:00	5.5			57782	18114	29	2755	3.3	130601	122	920	300	FALSE
RED BULL 31 STATE #001	3002536798	31	23S	35E	N	Lea	NM				2/13/2006 0:00	5.69	280094		78620	21967	62	4035		173149	87	385		FALSE
RED BULL 31 STATE #002	3002537069	31	23S	35E	P	Lea	NM				6/12/2006 0:00	5.52	271366.2		85907.7	14750	39	2346	4	166106	24	778	280	FALSE
KELLER 4 STATE #001	3002536643	4	23S	35E	K	Lea	NM				8/27/2007 0:00	6.9	182379.5		68450.6	846	54	104	1	100659	292.8	10609		FALSE
SWEETNESS 30 STATE FED COM #001H	3002541864	30	23S	35E	G	Lea	NM		DELAWARE-BRUSHY CANYON		11/21/2014 0:00	5.5			53792	19065	78	2983	4.34	126850	122	690	220	FALSE
RED BULL 29 FEDERAL #001H	3002540628	29	23S	35E	D	Lea	NM		DELAWARE-BRUSHY CANYON		1/8/2015 0:00	6.3			71207	35626	28	5417	6.2	190774	61	90	120	FALSE
SWEETNESS 30 STATE FED COM #001H	3002541864	30	23S	35E	G	Lea	NM		DELAWARE-BRUSHY CANYON		1/8/2015 0:00	6			75025	29081	22	4416	4.9	178278	37	380	520	FALSE
SWEETNESS 30 STATE FED COM #001H	3002541864	30	23S	35E	G	Lea	NM		DELAWARE-BRUSHY CANYON		5/13/2015 0:00	5.8			65779	26380	23	5455	5.6	164000	49	269	880	FALSE

Table 4 - Chemistry of Produced Water from Formations

wellname	api	section	township	range	unit	county	state	field	formation	depth	samplesource	sampledate	ph	specificgravity	specificgravity_temp_F	tds_mgL	resistivity_ohm_cm	resistivity_ohm_cm_temp_F	conductivity	conductivity_temp_F	sodium_mgL	calcium_mgL	magnesium_mgL	chloride_mgL	bicarbonate_mgL	sulfate_mgL
MCKITTRICK FED #1	3001500135	25	22S	25E	G	EDDY	NM		DEVONIAN		DST					16200								8762	290	1175
MCKITTRICK FED #1	3001500135	25	22S	25E	G	EDDY	NM		DEVONIAN		DST					17510								9389	664	982
CARNERO PEAK UT #001	3001510053	31	22S	25E	A	EDDY	NM		DEVONIAN		DST					14601								7236	515	1487
CARNERO PEAK UT #001	3001510053	31	22S	25E	A	EDDY	NM		DEVONIAN		DST					15780								8126	336	1467
CARNERO PEAK UT #001	3001510053	31	22S	25E	A	EDDY	NM		DEVONIAN		DST					15580								7853	487	1488
BANDANA POINT UT #001	3001500044	13	23S	23E	O	EDDY	NM	BANDANA POINT	DEVONIAN		DST					15500								8020	500	1190
TORTOISE ASB COM #001	3001510490	29	23S	24E	G	EDDY	NM		DEVONIAN		DST					17861								7760	490	3100
TORTOISE ASB COM #001	3001510490	29	23S	24E	G	EDDY	NM		DEVONIAN		DST					15601								7780	476	1600
REMUDA BASIN UNIT #001	3001503691	24	23S	29E	J	EDDY	NM	REMUDA	DEVONIAN		SWAB					64582								37500	610	1700
REMUDA BASIN UNIT #001	3001503691	24	23S	29E	J	EDDY	NM	REMUDA	DEVONIAN		SWAB					56922								29000	1740	4980
BELL LAKE UNIT #006	3002508483	6	23S	34E	O	LEA	NM	BELL LAKE NORTH	DEVONIAN		HEATER TREATER		7			71078								42200	500	1000
ANTELOPE RIDGE UNIT #003	3002521082	34	23S	34E	K	LEA	NM	ANTELOPE RIDGE	DEVONIAN		UNKNOWN	14/11/1967 0:00	6,9			80187								47900	476	900
ANTELOPE RIDGE UNIT #003	3002521082	34	23S	34E	K	LEA	NM	ANTELOPE RIDGE	DEVONIAN		UNKNOWN	14/11/1967 0:00	6,9			80187								47900	476	900
CLINE FEDERAL #001	3002510717	14	23S	37E	K	LEA	NM	CLINE	DEVONIAN		PRODUCTION TEST					118979								71280	462	2593
E C HILL B FEDERAL #001	3002510945	34	23S	37E	A	LEA	NM	TEAGUE	DEVONIAN		UNKNOWN					112959								67390	288	2765
E C HILL D FEDERAL #001	3002510947	34	23S	37E	H	LEA	NM	TEAGUE	DEVONIAN		UNKNOWN					35639										
E C HILL D FEDERAL #004	3002510950	34	23S	37E	A	LEA	NM	TEAGUE	DEVONIAN		UNKNOWN					236252								147000	129	781
HUAPACHE #003	3001500020	22	24S	22E	F	EDDY	NM		DEVONIAN		DST					3110								48	246	2020
JURNEGAN POINT #001	3001510280	5	24S	25E	M	EDDY	NM	WILDCAT	DEVONIAN		DST	14/12/1964 0:00	7			229706								136964	198	2511
JURNEGAN POINT #001	3001510280	5	24S	25E	M	EDDY	NM	WILDCAT	DEVONIAN		DST	14/12/1964 0:00	7			203100								121100	175	2220
WHITE CITY PENN GAS COM UNIT 1 #001	3001500408	29	24S	26E	A	EDDY	NM		DEVONIAN		DST	01/03/1960 0:00	7	1,012	60		0,36	75	25596	64	6072	1002	132	10120	653	1336
STATE B COM #001	3002509716	36	24S	36E	C	LEA	NM	CUSTER	DEVONIAN		UNKNOWN					176234								107400	128	1004
ELLIOTT H FEDERAL #001	3002512272	31	24S	38E	H	LEA	NM	DOLLARHIDE	DEVONIAN		WELLHEAD					58687										
ELLIOTT H FEDERAL #001	3002512272	31	24S	38E	H	LEA	NM	DOLLARHIDE	DEVONIAN		WELLHEAD					57018										
WEST DOLLARHIDE DEVONIAN UNIT #104	3002512297	32	24S	38E	I	LEA	NM	DOLLARHIDE	DEVONIAN		WELLHEAD					50858								30200	183	980
WESTATES FEDERAL #004	3002511389	1	25S	37E	E	LEA	NM	JUSTIS NORTH	FUSSELMAN		DST	17/06/1961 0:00	6			80880								46200	340	3050
WESTATES FEDERAL #004	3002511389	1	25S	37E	E	LEA	NM	JUSTIS NORTH	FUSSELMAN		DST					84900								48600	840	2650
WESTATES FEDERAL #004	3002511389	1	25S	37E	E	LEA	NM	JUSTIS NORTH	FUSSELMAN		DST					72200								41000	370	2960
WESTATES FEDERAL #004	3002511389	1	25S	37E	E	LEA	NM	JUSTIS NORTH	FUSSELMAN		DST					80900								46200	340	3050
WESTATES FEDERAL #004	3002511389	1	25S	37E	E	LEA	NM	JUSTIS NORTH	FUSSELMAN		DST					77600								44000	550	3240
WESTATES FEDERAL #004	3002511389	1	25S	37E	E	LEA	NM	JUSTIS NORTH	FUSSELMAN		DST					135000								77000	650	5810
WESTATES FEDERAL #004	3002511389	1	25S	37E	E	LEA	NM	JUSTIS NORTH	FUSSELMAN		DST					114000								65000	280	5110
WESTATES FEDERAL #004	3002511389	1	25S	37E	E	LEA	NM	JUSTIS NORTH	FUSSELMAN		DST					135000								77000	500	5320
WESTATES FEDERAL #008	3002511393	1	25S	37E	E	LEA	NM	JUSTIS NORTH	FUSSELMAN		UNKNOWN					91058								51020	376	4783
WESTATES FEDERAL #008	3002511393	1	25S	37E	E	LEA	NM	JUSTIS NORTH	FUSSELMAN		UNKNOWN					86847								50450	363	2544
STATE NJ A #001	3002511398	2	25S	37E	A	LEA	NM	JUSTIS NORTH	DEVONIAN		DST					105350								59300	660	4950
NEW MEXICO BM STATE #002	3002511407	2	25S	37E	I	LEA	NM	JUSTIS NORTH	MONTOYA		UNKNOWN					77770								45500	1800	2400
HALE STATE #003	3002512581	2	25S	37E	H	LEA	NM	JUSTIS NORTH	MONTOYA		WELLHEAD					64916								37000	813	2500
SOUTH JUSTIS UNIT #016F	3002511556	13	25S	37E	F	LEA	NM	JUSTIS	FUSSELMAN		UNKNOWN					57675								34030	595	1211
LEARCY MCBUFFINGTON #008	3002511569	13	25S	37E	N	LEA	NM	203MNTY, 259FSLM	FUSSELMAN	7052		02/01/1900 0:00	7,6	1,037	78	67909			81429	67		2603	684	38887	742	2489
LEARCY MCBUFFINGTON #008	3002511569	13	25S	37E	N	LEA	NM	JUSTIS	MONTOYA		UNKNOWN					67898								38880	742	2489
A B COATES C FEDERAL #014	3002511736	24	25S	37E	G	LEA	NM	JUSTIS	MONTOYA		UNKNOWN					39261								22840	871	1030
SOUTH JUSTIS UNIT #023C	3002511760	25	25S	37E	C	LEA	NM	JUSTIS	FUSSELMAN		SEPARATOR					63817								35870	360	3442
CARLSON A #002	3002511764	25	25S	37E	I	LEA	NM	JUSTIS	FUSSELMAN		DST					208280								124000	510	3400
STATE Y #009	3002511777	25	25S	37E	A	LEA	NM	JUSTIS	FUSSELMAN		DST	17/03/1961 0:00	7,3			219570								129000	960	4630
STATE Y #009	3002511777	25	25S	37E	A	LEA	NM	JUSTIS	FUSSELMAN		DST	18/03/1961 0:00	6,8			163430								96000	290	3780
CARLSON B 25 #004	3002511784	25	25S	37E	P	LEA	NM	JUSTIS	FUSSELMAN		SEPARATOR					184030								112900	68	1806
COPPER #001	3002511818	28	25S	37E	J	LEA	NM	CROSBY	DEVONIAN		UNKNOWN					27506								15270	1089	1079
ARNOTT RAMSAY NCT-B #003	3002511863	32	25S	37E	A	LEA	NM	CROSBY	DEVONIAN	8797		02/01/1900 0:00		1,142	70							17244	5345	100382	476	
ARNOTT RAMSAY NCT-B #003	3002511863	32	25S	37E	A	LEA	NM	CROSBY	DEVONIAN		UNKNOWN					158761										
WEST DOLLARHIDE DEVONIAN UNIT #110	3002512386	5	25S	38E	B	LEA	NM	DOLLARHIDE	DEVONIAN		UNKNOWN					56776										
FARNSWORTH FEDERAL #006	3002511950	4	26S	37E	A	LEA	NM	CROSBY	DEVONIAN		UNKNOWN					31931								20450	302	591

OSE Well Logs – NO WATER SUPPLY WELLS

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

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Since 1996
Artesia ▲ Carlsbad ▲ Durango ▲ Midland

July 3, 2019

Hobbs News Sun
201 N. Thorp
P.O. Box 850
Hobbs, N.M. 88240

LEGAL NOTICE

AWR Disposal LLC, 3300 N. A Street, Ste. 220, Midland, TX 79705 is filing Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the LT State SWD #1 will be located 1282 feet from the North line and 562 feet from the East line, Section 24, Township 23 South, Range 34 East, Lea County, New Mexico. Produced water and recycled produced water from area production will be commercially disposed into the Devonian, Silurian, Fusselman and Montoya Formations at a depth of 15,015 feet to 16,965 feet at a maximum surface pressure of 3,000 psi and an average injection rate of 30,000 barrels per day. The proposed SWD well is located approximately 25 miles southwest of Eunice, New Mexico.

Interested parties wishing to object to the proposed application must file with the New Mexico Oil Conservation Division, 1220 S. St. Francis Dr., Santa Fe, NM 87505 (505) 476-3460 within 15 days of the date of this notice.

Additional information can be obtained by contacting Mr. Randall Hicks, agent for AWR Disposal, LLC at 505-238-9515.

Sincerely,
R.T. Hicks Consultants

Randall Hicks
Principal

Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA

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

Beginning with the issue dated
July 03, 2019
and ending with the issue dated
July 03, 2019.

Publisher

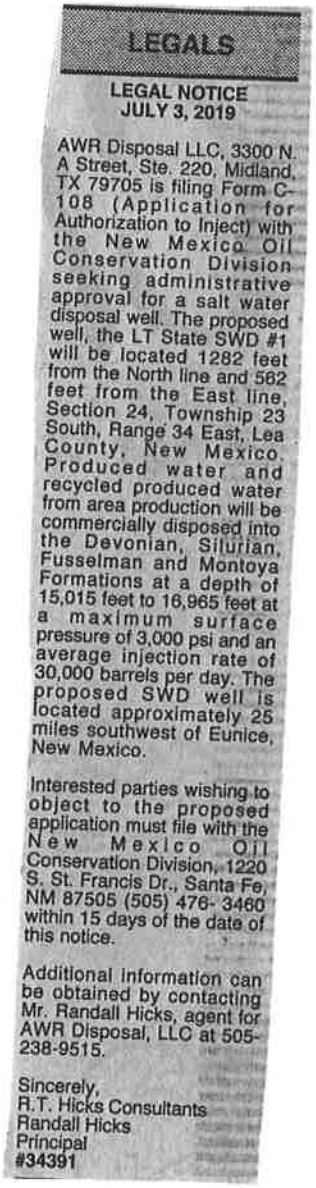
Sworn and subscribed to before me this
3rd day of July 2019.

Business Manager

My commission expires
January 29, 2023
(Seal)

OFFICIAL SEAL
GUSSIE BLACK
Notary Public
State of New Mexico
My Commission Expires 1-29-23

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



LEGALS

LEGAL NOTICE
JULY 3, 2019

AWR Disposal LLC, 3300 N. A Street, Ste. 220, Midland, TX 79705 is filing Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the LT State SWD #1 will be located 1282 feet from the North line and 562 feet from the East line, Section 24, Township 23 South, Range 34 East, Lea County, New Mexico. Produced water and recycled produced water from area production will be commercially disposed into the Devonian, Silurian, Fusselman and Montoya Formations at a depth of 15,015 feet to 16,965 feet at a maximum surface pressure of 3,000 psi and an average injection rate of 30,000 barrels per day. The proposed SWD well is located approximately 25 miles southwest of Eunice, New Mexico.

Interested parties wishing to object to the proposed application must file with the New Mexico Oil Conservation Division, 1220 S. St. Francis Dr., Santa Fe, NM 87505 (505) 476- 3460 within 15 days of the date of this notice.

Additional information can be obtained by contacting Mr. Randall Hicks, agent for AWR Disposal, LLC at 505-238-9515.

Sincerely,
R.T. Hicks Consultants
Randall Hicks
Principal
#34391

67115764 00230415

RANDALL HICKS
R.T. HICKS CONSULTANTS, LTD
901 RIO GRANDE BLVD NM
SUITE F-142
ALBUQUERQUE, NM 87104

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Since 1996
Artesia ▲ Carlsbad ▲ Durango ▲ Midland

July 1, 2019

NOTIFICATION TO INTERESTED PARTIES
Via U.S. Certified Mail – Return Receipt Requested

To Whom It May Concern:

AWR Disposal, LLC, Midland, Texas, has made application to the New Mexico Oil Conservation Division to drill and complete, for salt water disposal, the LT State SWD #1. The proposed commercial operation will be for produced water disposal from area operators. As indicated in the notice below, the well is located in Section 24, Township 23 South, Range 34 East in Lea County, New Mexico.

The published notice states that the interval will be from 15,015 feet to 16,965 feet into the Devonian, Silurian, Fusselman, and Montoya Formations.

LEGAL NOTICE
AWR Disposal, LLC, 3300 N. A Street, Ste. 220, Midland, TX 79705 filed Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the LT State SWD #1 will be located 1282 feet from the North line and 562 feet from the East line, Section 24, Township 23 South, Range 34 East, Lea County, New Mexico. Produced water from area production will be commercially disposed into the Devonian, Silurian, Fusselman, and Montoya Formations at a depth of 15,015 feet to 16,965 feet at a maximum surface pressure of 3,000 psi and an average injection rate of 30,000 barrels per day. The proposed SWD well is located approximately 25 miles southwest of Eunice, New Mexico.

Interested parties wishing to object to the proposed application must file with the New Mexico Oil Conservation Division, 1220 S. St. Francis Dr., Santa Fe, NM 87505 (505) 476-3460 within 15 days of the date of this notice.

You have been identified as a party who may be interested as an offset lessee or operator. **IF YOU WOULD LIKE AN ELECTRONIC COPY OF THE ENTIRE PERMIT PACKAGE, PLEASE SEND YOUR REQUEST TO** r@rthicksconsult.com (request a read receipt to avoid your email becoming stuck in spam).

Thank you for your attention in this matter.

Sincerely,
R.T. Hicks Consultants

Randall Hicks
Principal

OPERATORS, LEASEHOLDERS AND SURFACE OWNERS WITHIN 2 MILES -RADIUS

DATA EXTRACTED FROM TABLES 1, 2A, 2B AND 2C

New Mexico State Land Office
LT State SWD #1
310 Old Santa Fe Trail
Santa Fe, NM 87501

Bureau of Land Management
LT State SWD #1
620 E. Greene Street
Carlsbad, NM 88220-6292

LIMESTONE BASIN PROP RANCH LLC
LT State SWD #1
18 DESTA DRIVE

MIDLAND, TX 79705

MEWBOURNE OIL CO
LT State SWD #1
4801 BUSINESS PARK BLVD.
PO BOX 5270
HOBBS, NM 88240

DEVON ENERGY PRODUCTION COMPANY, LP
LT State SWD #1
333 West Sheridan Ave.
Oklahoma City, OK 73102

NORTEX CORP
LT State SWD #1
100 THROCKMORTON ST STE 400
FORT WORTH, TX 76102

REGENERATION ENERGY, CORPORATION
LT State SWD #1
P. O. BOX 210
ARTESIA, NM 88210

EOG RESOURCES INC
LT State SWD #1
P.O. Box 2267
Midland, TX 79702

ADVANCE ENERGY PARTNERS, LLC
LT State SWD #1
11490 WESTHEIMER RD, STE 950
HOUSTON, TX 77077

EOG Y RESOURCES, INC.
LT State SWD #1
104 S 4TH ST
ARTESIA, NM 88210

CHEVRON U S A INC
LT State SWD #1
6301 DEAUVILLE BLVD
MIDLAND, TX 79706

NORTEX CORPORATION
LT State SWD #1
1415 LOUISIANASTE 3100
HOUSTON, TX 77002

BTA OIL PRODUCERS
LT State SWD #1
104 S PECOS
MIDLAND, TX 79701

CENTENNIAL RESOURCE PRODUCTION, LLC
LT State SWD #1
1001 17th Street, Suite 1800
Denver, CO 80202

MRC PERMIAN COMPANY
LT State SWD #1
5400 LBJ FREEWAY
SUITE 1500
DALLAS, TX 75240

COG OPERATING LLC
LT State SWD #1
600 W Illinois Ave
Midland, TX 79701

ENDEAVOR ENERGY RESOURCES, LP
LT State SWD #1
110 NORTH MARIENFELD
SUITE 200
MIDLAND, TX 79701

CAZA PETROLEUM, LLC.
LT State SWD #1
4 GREENSPOINT PLACE
16945 NORTHCHASE DR SUITE 1430
HOUSTON, TX 77060

MEWBOURNE OIL COMPANY
LT State SWD #1
P. O. BOX 7698
TYLER, TX 75711

PRE-ONGARD WELL OPERATOR
LT State SWD #1
1220 S ST FRANCIS
SANTA FE, NM BADADDR

MATADOR PRODUCTION COMPANY
LT State SWD #1
One Lincoln Centre
5400 LBJ Freeway, Ste 1500
Dallas, TX 75240

CHESAPEAKE OPERATING, INC.
LT State SWD #1
P. O. BOX 18496
OKLAHOMA CITY, OK 731540496

CAZA OPERATING, LLC
LT State SWD #1
200 N LORAINE
STE 1550
MIDLAND, TX 79701

WYNN-CROSBY OPERATING, LP
LT State SWD #1
15660 DALLAS PARKWAY
SUITE 1175
DALLAS, TX 75248

MID-AMERICA PET INC
LT State SWD #1
401 S BOSTON
TULSA, OK 74103

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Postage	$0.55
Total	$6.85

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MIDLAND TX GRAVES STA 79708 USPS

07/01/2019

Sent To: PRE-ONGARD WELL OPERATOR
Street: LT State SWD #1
City, S: 1220 S ST FRANCIS
SANTA FE, NM 87505

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07/01/2019

Sent To: ADVANCE ENERGY PARTNERS, LLC
Street: LT State SWD #1
City, S: 11490 WESTHEIMER RD, STE 950
HOUSTON, TX 77077

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

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07/01/2019

Sent To: CENTENNIAL RESOURCE PRODUCTION, LLC
Street: LT State SWD #1
City, S: 1001 17th Street, Suite 1800
Denver, CO 80202

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

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Postage	$0.55
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Sent To: NORTEX CORPORATION
Street: LT State SWD #1
City, S: 1415 LOUISIANASTE 3100
HOUSTON, TX 77002

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Sent To: ENDEAVOR ENERGY RESOURCES, LP
Street: LT State SWD #1
City, S: 110 NORTH MARIENFELD
SUITE 200
MIDLAND, TX 79701

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Sent To: MRC PERMIAN COMPANY
Street: LT State SWD #1
City, Sta: 5400 LBJ FREEWAY
SUITE 1500
DALLAS, TX 75240

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Sent To: CAZA OPERATING, LLC
Street and Apt. No.: LT State SWD #1
City, State, ZIP+4®: 200 N LORAINE STE 1550 MIDLAND, TX 79701

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Street and Apt. No.: LT State SWD #1
City, State, ZIP+4®: 18 DESTA DRIVE MIDLAND, TX 79705

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Street and Apt. No.: LT State SWD #1
City, State, ZIP+4®: 100 THROCKMORTON ST STE 400 FORT WORTH, TX 76102

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Total	$6.85

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Sent To: CAZA PETROLEUM, LLC
Street and Apt. No.: LT State SWD #1
City, State, ZIP+4®: 4 GREENSPOINT PLACE 16945 NORTHCHASE DR SUITE 1430 HOUSTON, TX 77060

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

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Total Postage	$6.85

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MIDLAND TX GRAVES STA 79708 USPS

07/01/2019

Sent To: BTA OIL PRODUCERS
Street and Apt. No.: LT State SWD #1
City, State, ZIP+4®: 104 S PECOS MIDLAND, TX 79701

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

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☐ Adult Signature Required	$0.00
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Postage	$0.55
Total Postage	$6.85

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JUL - 1 2019
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USPS TX GRAVES STA 79708

07/01/2019

Sent To: MEWBOURNE OIL COMPANY
Street and Apt. No.: LT State SWD #1
City, State, ZIP+4®: P. O. BOX 7698 TYLER, TX 75711

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MIDLAND, TX 79706

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- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.55

Total Postage and Fees $6.85

Sent To CHEVRON U S A INC
LT State SWD #1
Street and Apt. No. 6301 DEAUVILLE BLVD
City, State, ZIP+4® MIDLAND, TX 79706

0708 04
USPS MIDLAND TX GRAVES STA 79706 JUL 2019
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07/02/2019

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

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DALLAS, TX 75240

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- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.55

Total Postage and Fees $6.85

Sent To MATADOR PRODUCTION COMPANY
LT State SWD #1
Street and Apt. No. One Lincoln Centre
5400 LBJ Freeway, Ste 1500
City, State, ZIP+4® Dallas, TX 75240

0708 04
MIDLAND TX GRAVES STA 79708 JUL 2 2019
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07/02/2019

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

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MIDLAND, TX 79702

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- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
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July 3, 2019

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

RE: AWR Disposal, LLC LT State SWD #1
UL A, Section 24 T23S R34E, Lea County

Dear Mr. Goetze:

On behalf of AWR Disposal LLC, R.T. Hicks Consultants is providing data and an opinion regarding the probability that injection of wastewater in the above referenced well at the proposed rates will cause seismic events of sufficient magnitude to create damage. It is our understanding that OCD is interested in such an opinion as part of the SWD approval process. We elected to provide this opinion as a separate submission as the C-108 does not specifically require such an opinion.

We relied upon the following data to develop our opinion

- State of stress in the Permian Basin, Texas and New Mexico: Implications for induced seismicity, Jens-Erik Lund Snee and Mark D. Zoback, The Leading Edge, February 2018[1]
- Plate 5, which is reproduced from the Snee and Zoback publication, which uses the following references
    - Crone, A. J., and R. L. Wheeler, 2000, Data for Quaternary faults, liquefaction features, and possible tectonic features in the Central and Eastern United States, east of the Rocky Mountain front; U.S. Geological Survey Open-File Report.
    - Ewing, T. E., R. T. Budnik, J. T. Ames, and D. M. Ridner, 1990, Tectonic map of Texas: Bureau of Economic Geology, University of Texas at Austin.
    - Green, G. N., and G. E. Jones, 1997, e digital geologic map of New Mexico in ARC/INFO format: U.S. Geological Survey Open-File Report.
    - Ruppel, S. C., R. H. Jones, C. L. Breton, and J. A. Kane, 2005, Preparation of maps depicting geothermal gradient and Precambrian structure in the Permian Basin: USGS Order no. 04CRSA0834 and Requisition no. 04CRPR01474.
    - NMOCD database of oil and gas wells
- Plate 5, which shows the distribution of active and new SWD wells in the area of the proposed AWR Disposal SWD well
- Stratigraphic and lithologic information from two deep wells in the Delaware Basin
- Data on the thickness and lithology of the Simpson Group from the Texas Bureau of Economic Geology[2]

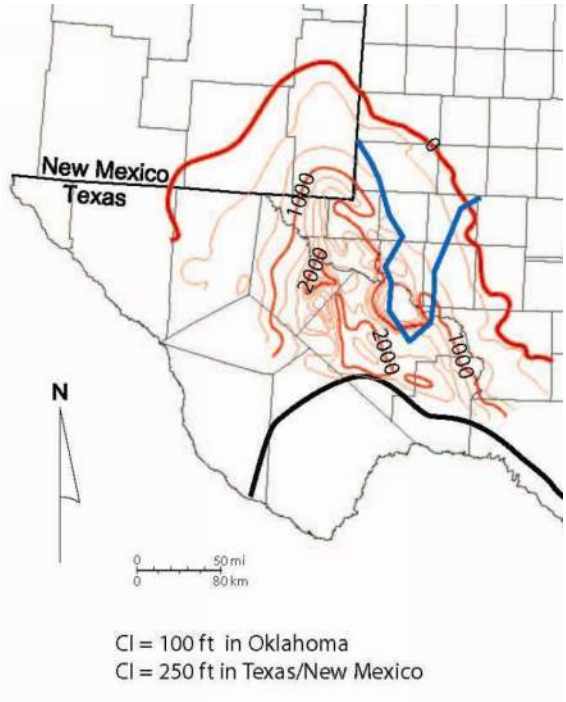
[1] https://scits.stanford.edu/sites/default/files/3702_tss_lundsnee_v2.pdf
[2] http://www.beg.utexas.edu/resprog/permianbasin/PBGSP_members/writ_synth/Simpson.pdf

Plate 5 reproduces Figure 3 of the 2018 publication of Snee and Zoback and shows

1. Fault traces based upon the references provided above for which Dr. Snee and Dr. Zoback provide a value of the fault slip potential (FSP)
2. Areas of documented seismic activity, and a magnitude 4.0+ earthquake that occurred between 1970-2004 about 20 miles east of the proposed LT State SWD #1. A larger magnitude and more recent seismic event is reported about 27 miles west of the LT State SWD #1 well location.
3. Although Plate 5 does not show faults that may be identified in confidential seismic data owned by oil and gas operators, the mapped fault that is closest to the LT State SWD #1 (about 2.9 miles to the east) exhibits a low FSP (less than 5%) based upon the modeling and analysis of Snee and Zoback referenced above
4. Other mapped faults in southern Lea County shown on Plate 5 also show a low FSP, except for part of northwest-southeast trending fault about 35 miles north-northwest of the LT State SWD #1 well that has a FSP of about 25 – 33% in the central portion of this fault trace.

Plate 6 reproduces the major elements of Plate 5 in the inset map and also shows that within an 6-mile radius around the proposed LT State SWD #1, the OCD database shows about 5 active or new Devonian SWDs, which translates into an average density of about one SWD for every 22.6 square miles.

Figure 4 from the referenced Bureau of Economic Geology (The Middle-Upper Ordovician Simpson Group Of The Permian Basin: Deposition, Diagenesis, And Reservoir Development) is attached to this letter and the portion of that figure for the Delaware Basin is shown to the right. In southern Lea County the mapped thickness appears to be 500-1500 feet thick (note one contour line appears to be missing on the map). This unit, which is clay-rich carbonate interbedded with shale and sandstone, provides an excellent permeability/pressure barrier between the injection zone and the basement faults that were re-activated during Woodford time.



Data from the Amoco Federal CW Com 1 (3002528119) show that the thickness of the Simpson near the LT State SWD #1 is about 450 feet thick with. This is consistent with Figure 4 of the BEG paper (probably because this well was used to produce the isopach map).

We contend that the data permit conclusion that unmapped faults (which may be located by confidential seismic data that AWR Disposal not possess) near the LT State SWD #1 would be dominantly north-south normal faults, as is

common in Lea County. The data on Plate 6 permit a conclusion that faults near the LT State SWD #1 are also most likely to exhibit a low FSP, like the mapped faults shown on Plate 5.

Given the density of Devonian SWDs (planned/new and active) near the proposed LT State SWD #1 well and the high likelihood that any unmapped faults in the area would exhibit a low FSP, the probability that injection into the LT State SWD #1 would cause an increase in pore pressure to trigger a seismic event of sufficient magnitude to cause damage is very low.

The users of this letter should recognize the uncertainties of using seismic maps of the Permian Basin to determine probability that injection of wastewater into a single SWD well could cause seismic events of sufficient magnitude to cause damage. However, on a regional basis injection by numerous wells into the Devonian/Fusselman/Montoya interval will raise the hydrostatic pressure. If pressure increases sufficiently, fluid could migrate from the injection zone along fault planes, up and down. Downward fluid migration will be intercepted first by the sandstone units of the Simpson Group. After fluid pressure increases in these sandstones, fluid would migrate downward into the Ellenburger Formation, which lies beneath the Simpson Group. This downward migration will next enter the permeable units of the Ellenburger and, over time, increase the fluid pressure. After fluid pressure in the Ellenburger is sufficiently large to cause downward migration along fault planes or other conduits, the migrating fluid will, in some areas, enter a thinner horizon of granite wash. Downward migrating fluids from the injection zone could then enter basement fault planes if the pressure in the granite wash horizon is sufficient, and reduce the frictional resistance (lubricate the faults). Reduction in the frictional force in faults due to fluid invasion can and has caused seismic events.

In my opinion, the probability that injection into the LT State SWD #1 will measurably contribute to the events described above, although the probability of causing a seismic event resulting in damage is so low as to be nil.

Sincerely,
R.T. Hicks Consultants

Randall T. Hicks
Principal

Copy: AWR Disposal LLC

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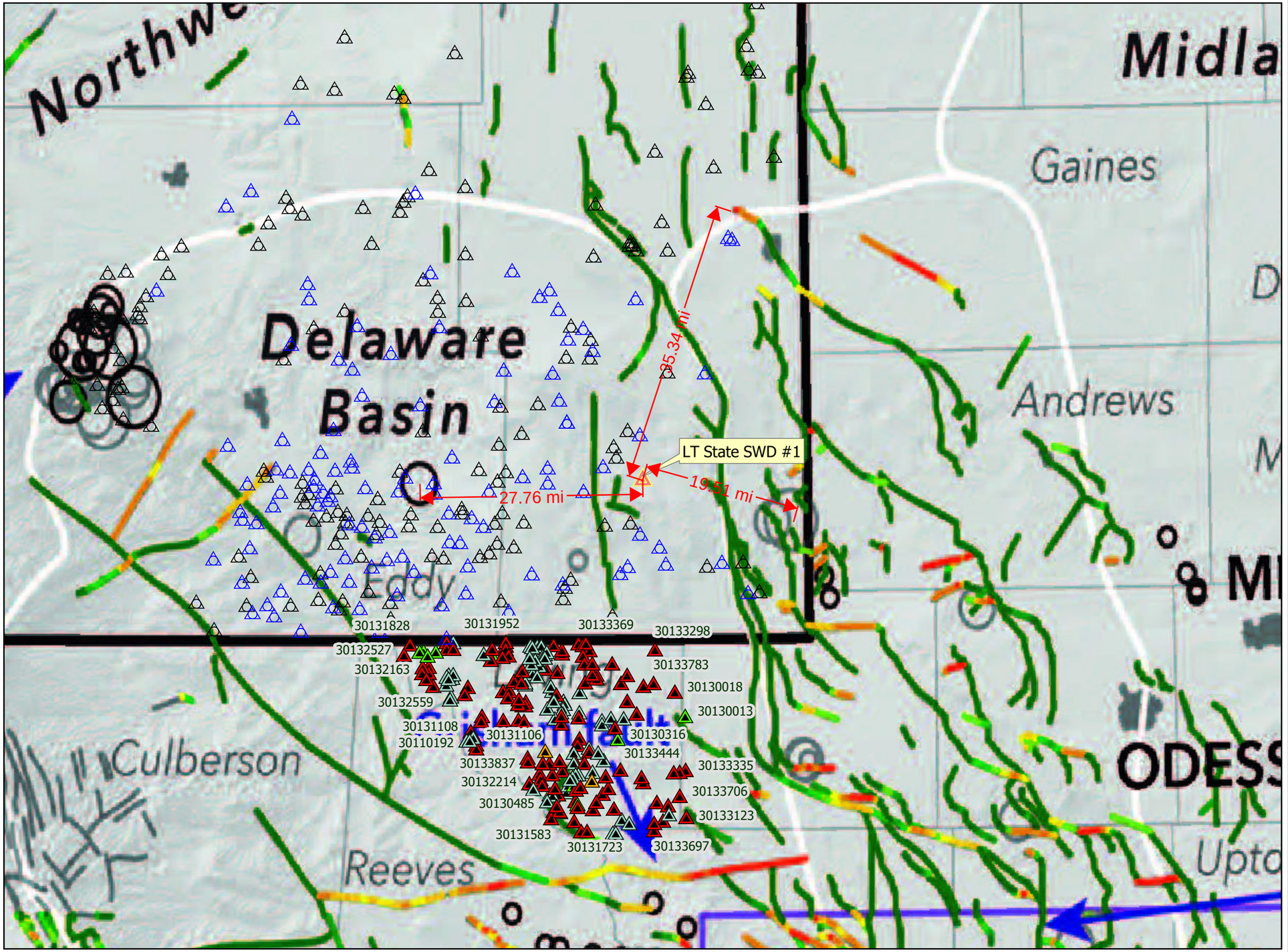

SWD

Oil and Gas (NMOCD)

- Salt Water Injection, Active
- Salt Water Injection, New

Loving, Tx Oil and Gas Wells

- Injection/Disposal From Gas
- Injection/Disposal From Oil
- Injection/Disposal From Oil/Gas
- Injection/Disposal Well

Seismicity:

- M_W 2.0-2.9
- M_W 3.0-3.9
- M_W 4.0+
- Since 2005
- 1970-2004

Fault slip potential (%):

0 10 20 30 40 50+

Seismic and Fault Slip Potential-
Ewing et al. (1990), Green and Jones (1997), Ruppel et al. (2005), and the USGS Quaternary Faults and Folds Database (Crone and Wheeler, 2000).

N W E S

0 5 10 Miles

R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Seismicity with Fault Slip Potential	Plate 5
AWR Disposal, LLC LT State SWD #1	June 2019

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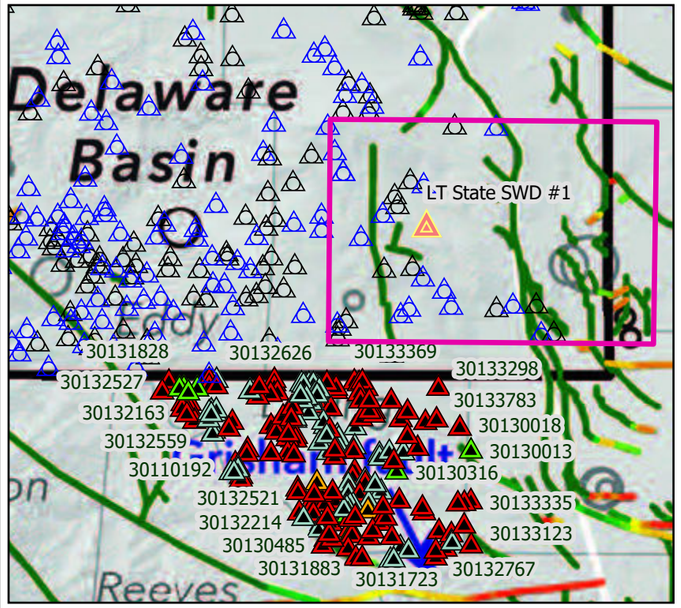

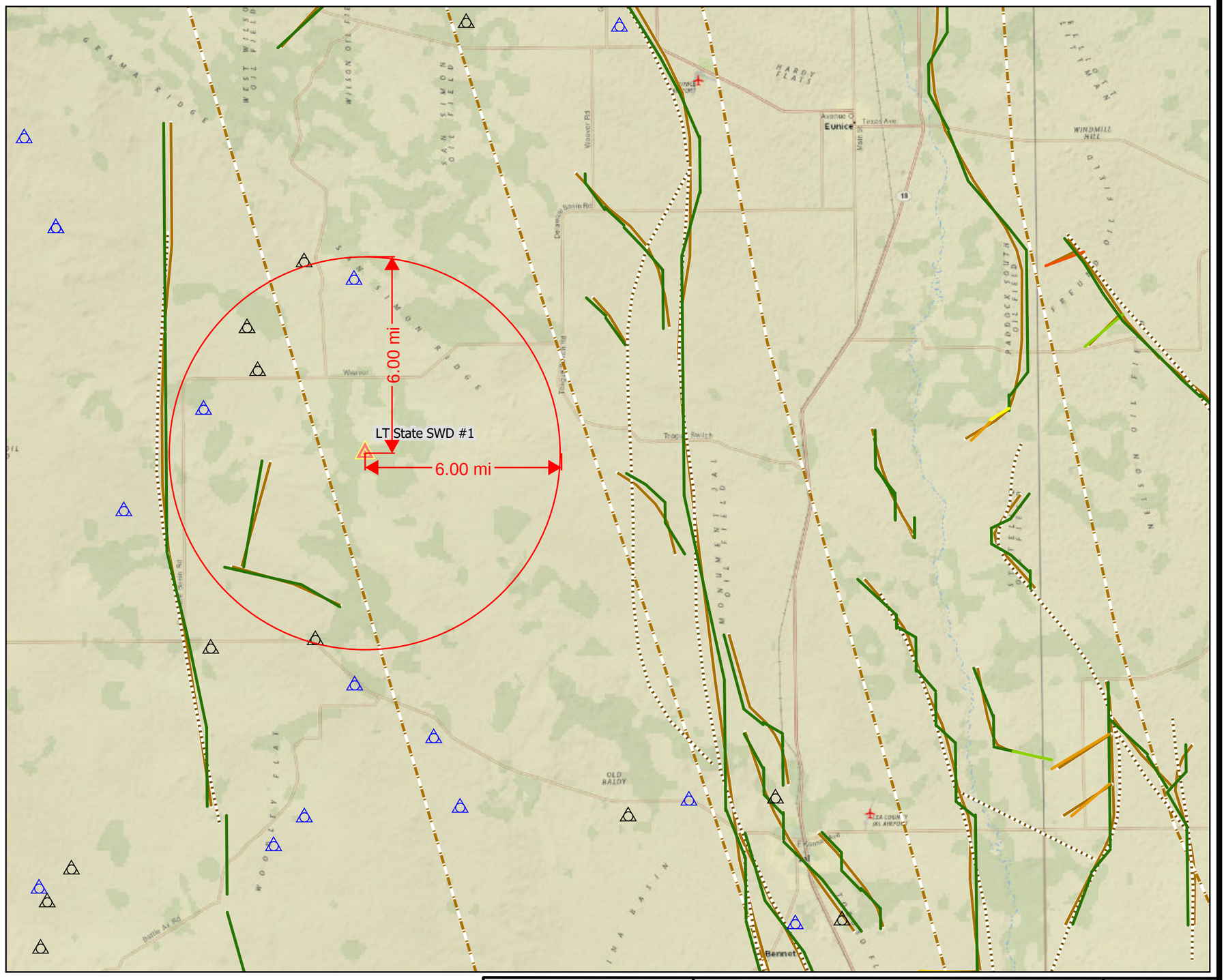

- SWD

Oil and Gas (NMOCD)

- Salt Water Injection, Active
- Salt Water Injection, New

Faults

- Fault - Woodford
- Fault - Precambrian
- Fault - Basement

Fault Slip Potential (%)

- <5
- 15 - 20
- 20 - 25
- 25 - 30
- 30 - 35
- 35 - 40

Seismic and Fault Slip Potential-
Ewing et al. (1990), Green and Jones (1997), Ruppel et al. (2005), and the USGS Quaternary Faults and Folds Database (Crone and Wheeler, 2000).

N W E S

0 2 4 Miles

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Fault Slip Potential Relative to Active Salt Water Injection Wells

AWR Disposal, LLC
LT State SWD #1

Plate 6

June 2019