

# Initial Application Part I

Received: 07/23/2019

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

RECEIVED: <b>07/23/2019</b>	REVIEWER:	TYPE: <b>SWD</b>	APP NO: <b>pMAM1920440511</b>
-----------------------------	-----------	------------------	-------------------------------

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:** Russell State SWD #1 **API:** \_\_\_\_\_  
**Pool:** Proposed: SWD, Devonian, Fusselman, Montoya **Pool Code:** 97869

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

- 1) **TYPE OF APPLICATION:** Check those which apply for [A] SWD-2204  
 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.**

Randall Hicks (agent)  
 Print or Type Name

Signature

July 23, 2019  
 Date

505 238 9515  
 Phone Number

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**

<sup>1</sup> API Number	<sup>2</sup> Pool Code	<sup>3</sup> Pool Name
<sup>4</sup> Property Code	<sup>5</sup> Property Name <b>RUSSELL STATE SWD</b>	
<sup>7</sup> OGRID No. <b>328805</b>	<sup>8</sup> Operator Name <b>AWR DISPOSAL, LLC</b>	<sup>6</sup> Well Number <b>1</b>
<sup>9</sup> Elevation <b>3459'</b>		

<sup>10</sup> Surface Location									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	25	22-S	33-E	-	741'	NORTH	2349'	WEST	LEA

<sup>11</sup> 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

<sup>12</sup> Dedicated Acres	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> 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.

X=787932.45  
Y=499244.78

X=793212.75  
Y=499272.84

**<sup>17</sup>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 \_\_\_\_\_

**<sup>18</sup>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

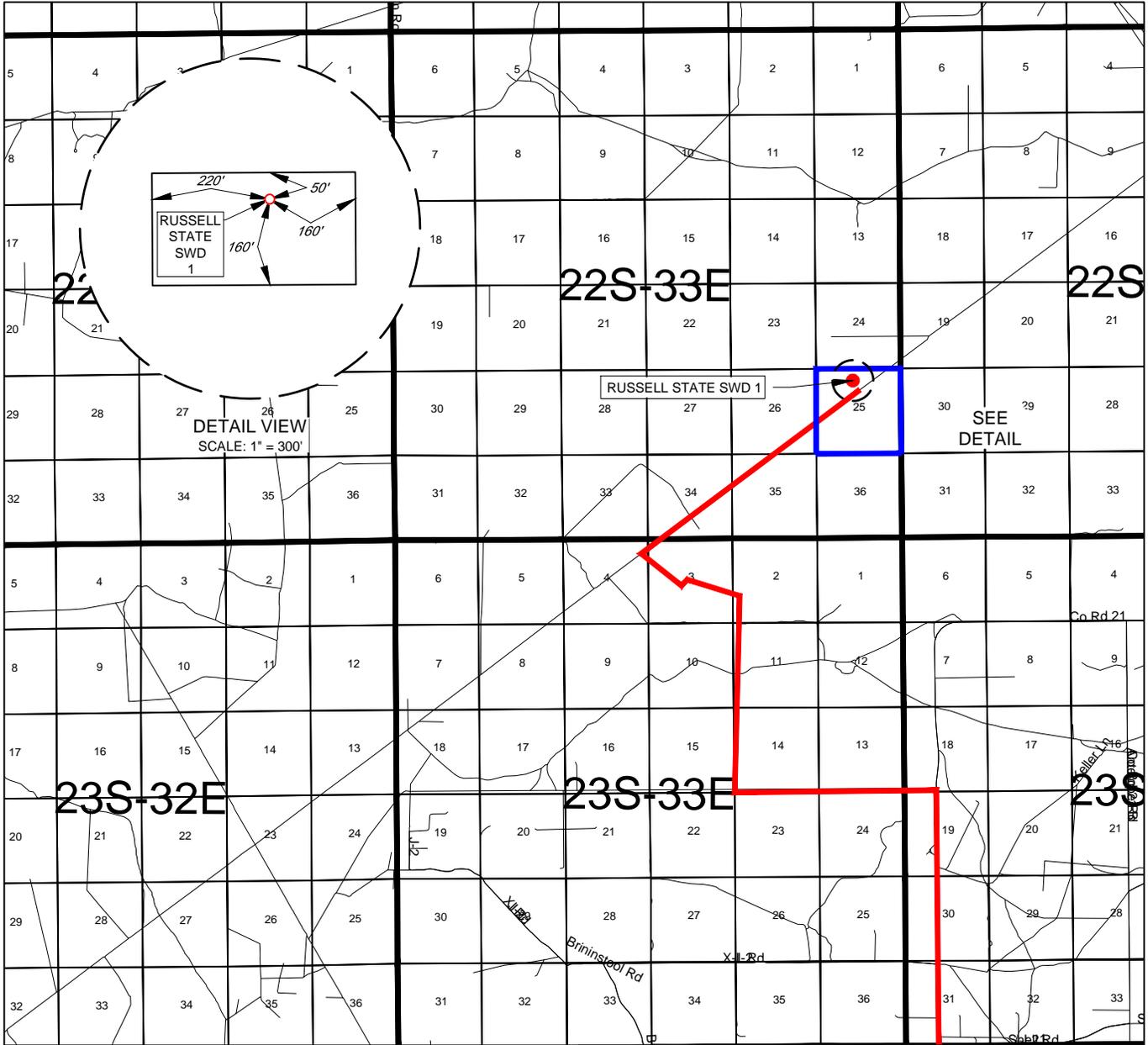
Date of Survey \_\_\_\_\_

John R. Carnegie

Certificate Number \_\_\_\_\_



EXHIBIT 2  
VICINITY MAP



AWR DISPOSAL, LLC

LEASE NAME & WELL NO.: RUSSELL STATE SWD 1

SECTION 25 TWP 22-S RGE 33-E SURVEY N.M.P.M.

COUNTY LEA STATE NM

DESCRIPTION 741' FNL & 2349' FWL

DISTANCE & DIRECTION

FROM INT. OF NM-128 & DELAWARE BASIN RD., GO NORTH ON DELAWARE  
BASIN RD. ±6.0 MILES, THENCE WEST (LEFT) ON LEASE RD. ±2.4 MILES,  
THENCE NORTH (RIGHT) ON LEASE RD. ±3.6 MILES, THENCE NORTHEAST  
(RIGHT) ON PADUCA BREAKS LN. ±3.2 MILES, TO A POINT ±750 FEET  
SOUTHEAST OF THE LOCATION.



SCALE: 1" = 10000'  
0' 5000' 10000'



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

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.

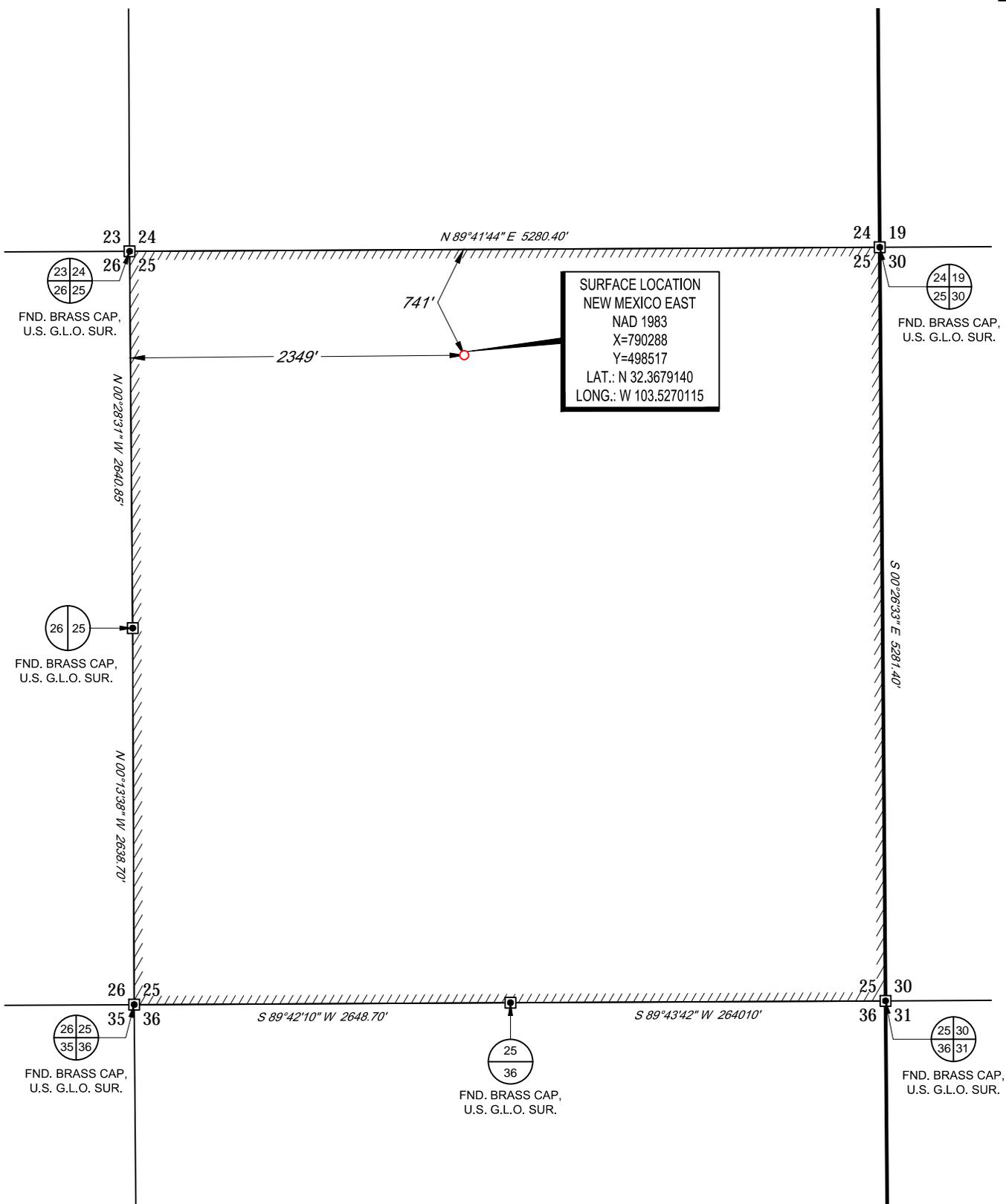
ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREON ARE GRID BASED UPON THE NEW MEXICO COORDINATE SYSTEM, EAST ZONE OF THE NORTH AMERICAN DATUM 1983, U.S. SURVEY FEET.

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

# EXHIBIT 2A

## AWR DISPOSAL, LLC

SECTION 25, TOWNSHIP 22-S, RANGE 33-E, N.M.P.M.  
 LEA COUNTY, NEW MEXICO



LEASE NAME & WELL NO.: RUSSELL STATE SWD 1

SECTION 25 TWP 22-S RGE 33-E SURVEY N.M.P.M.  
 COUNTY LEA STATE NM  
 DESCRIPTION 741' FNL & 2349' FWL

**DISTANCE & DIRECTION**  
 FROM INT. OF NM-128 & DELAWARE BASIN RD., GO NORTH ON DELAWARE BASIN RD. ±6.0 MILES, THENCE WEST (LEFT) ON LEASE RD. ±2.4 MILES, THENCE NORTH (RIGHT) ON LEASE RD. ±3.6 MILES, THENCE NORTHEAST (RIGHT) ON PADUCA BREAKS LN. ±3.2 MILES, TO A POINT ±750 FEET SOUTHEAST 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*

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

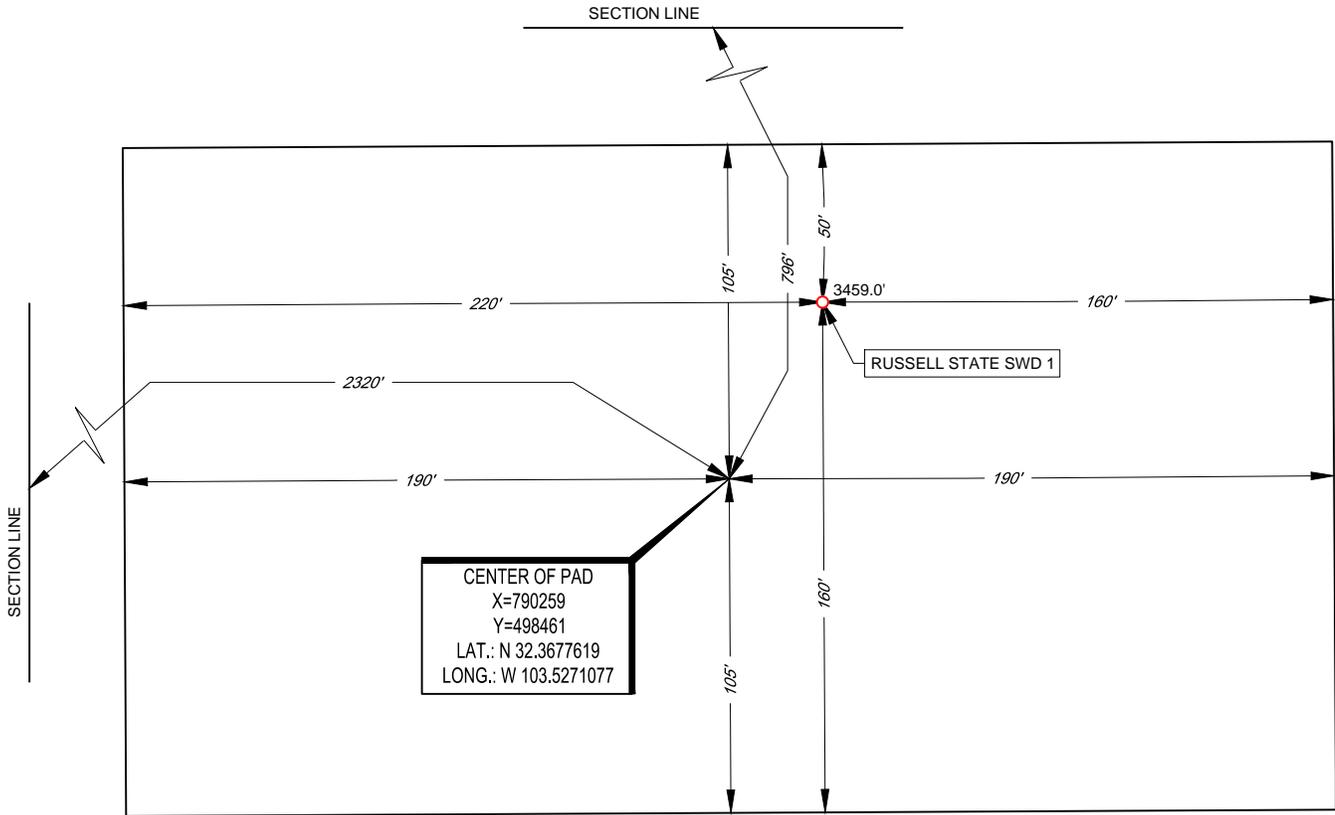


1400 EVERMAN PARKWAY, Ste. 146 • FT. WORTH, TEXAS 76140  
 TELEPHONE: (817) 744-7512 • FAX (817) 744-7554  
 2903 NORTH BIG SPRING • MIDLAND, TEXAS 79705  
 TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743  
 WWW.TOPOGRAPHIC.COM

# EXHIBIT 2B

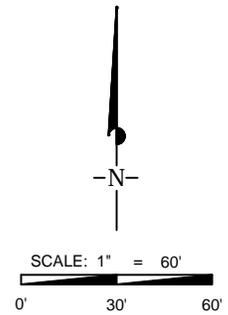
## AWR DISPOSAL, LLC

SECTION 25, TOWNSHIP 22-S, RANGE 33-E, N.M.P.M.  
LEA COUNTY, NEW MEXICO



LEASE NAME & WELL NO.: RUSSELL STATE SWD 1  
 1 LATITUDE N 32.3679140 1 LONGITUDE W 103.5270115

CENTER OF PAD IS 796' FNL & 2320' FWL



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  
 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

**APPLICATION FOR AUTHORIZATION TO INJECT**

- I. PURPOSE: \_\_\_\_\_ Secondary Recovery \_\_\_\_\_ Pressure Maintenance  Disposal \_\_\_\_\_ Storage  
Application qualifies for administrative approval?  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  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:
- Proposed average and maximum daily rate and volume of fluids to be injected;
  - Whether the system is open or closed;
  - Proposed average and maximum injection pressure;
  - Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
  - 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: 7/17/2019  
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: \_\_\_\_\_

### 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.

INJECTION WELL DATA SHEET

OPERATOR: AWR Disposal LLC.

WELL NAME & NUMBER: Russell\_State\_SWD #1

WELL LOCATION: 741' FNL 2349' FWL C 25 22S 33E  
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<sup>3</sup>

Top of Cement: \_\_\_\_\_ Method Determined: \_\_\_\_\_

Intermediate Casing

Hole Size: \_\_\_\_\_ Casing Size: \_\_\_\_\_

Cemented with: \_\_\_\_\_ sx. *or* \_\_\_\_\_ ft<sup>3</sup>

Top of Cement: \_\_\_\_\_ Method Determined: \_\_\_\_\_

Production Casing

Hole Size: \_\_\_\_\_ Casing Size: \_\_\_\_\_

Cemented with: \_\_\_\_\_ sx. *or* \_\_\_\_\_ ft<sup>3</sup>

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?  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

Plates referenced in written descriptions

Tables referenced in written descriptions

OSE well logs referenced in written descriptions

Section XIII Proof of Notice

Directions

Date Spudded: TBD

### AWR Disposal LLC

#### Russell State SWD #1

Unit Letter C, Sec 25, T22S R33E

741' FNL, 2349' FWL

Lea County, NM

Latitude + 32°22'4.49"N, Longitude 103°31'37.241"W

From Carlsbad:

**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'

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

2<sup>nd</sup> 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 @ 11,750'.**

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

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

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

3<sup>rd</sup> 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 @ 16,410'.**

Cmt w/ 230 sks 11.9 ppg Class C

Injection Interval:

8.5" Hole

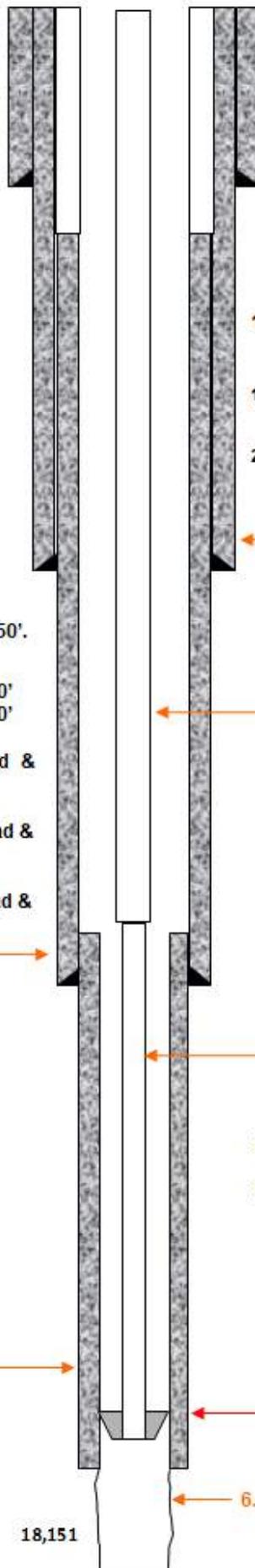
Packer set @ 16,310

16,410	-	17,267
17,267	-	17,766
17,766	-	18,151

DVNN
FSLM
MNTY

6.5" Openhole

TD: 18,151



### 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: Russell State SWD #1  
 Unit Letter C, Section 25, T22S R33E, 741 FNL, 2349 FWL

The surface is owned by the State of New Mexico.

**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 Russell State SWD #1 were established by Geologist Herb Wacker TBPG license #4517. The tops were picked by using the offset open hole logs of the surrounding wells (300-025-33077, 30-025-26902, 300-025-33440), all of which are within 3 miles of the proposed SWD.

AWR 06 Russell St.		
H. Wacker		
	GL	3546
	KB	3576
	MD	SS
Dockum	537	3039
Santa Rosa	1006	2570
Dewey Lake	1481	2095
Rustler	1893	1683
Lamar	5115	-1539
Bell Canyon	5159	-1583
Cherry Canyon	5846	-2270
Brushy Canyon	7305	-3729
Bone Spring	8649	-5073
Bone Spring LS	8659	-5083
Avalon	9165	-5589
1st Bone Spring SS	9799	-6223
2nd Bone Spring SS	10437	-6861
3rd Bone Spring SS	11534	-7958
Wolfcamp	11859	-8283
Strawn	13633	-10057
Atoka	13915	-10339
Morrow	14372	-10796
Barnett	15263	-11687
Miss Upper	15349	-11773
Miss Lime	15973	-12397
Woodford	16248	-12672
Devonian	16379	-12803
Fusselman	17267	-13691
Montoya	17766	-14190
Simpson	18181	-14605
Top of Interval	16410	Devonian + 30'
Bottom of Interval	18151	Simpson - 30'
TD	18151	

**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 16,310'.

**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 16,310'.

***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 Devonian, 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 16,410-18,151 (1,741 feet).

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.

**(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.**

**Overlying Oil & Gas Zone (Using GL of 3546’):**

	GL	3546
	KB	3576
	MD	SS
Bell Canyon	5159	-1583
Cherry Canyon	5846	-2270
Brushy Canyon	7305	-3729
Bone Spring	8649	-5073
Bone Spring LS	8659	-5083
Avalon	9165	-5589
1st Bone Spring SS	9799	-6223
2nd Bone Spring SS	10437	-6861
3rd Bone Spring SS	11534	-7958
Wolfcamp	11859	-8283
Strawn	13633	-10057
Atoka	13915	-10339
Morrow	14372	-10796
Barnett	15263	-11687

## **Underlying Oil & Gas Zones:**

Ellenberger and Devonian have produced limited gas in the general vicinity.

### **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 radio 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 surface at the SWD location is owned by the State of New Mexico.

### **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**

The two deepest wells shown on Table 1 are plugged Morrow test wells. Thus, there are no wells that penetrate the injection zone within the area of review.

### **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 Bone Spring Formation is the principal subject of the analyses. The Bone Spring and Wolfcamp 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, Wolfcamp and Bone Spring Formations into the Devonian/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-producing wells. The value of these data for the purpose of evaluating potential problems relating to the injections of produced water into the proposed injection interval is probably poor. As stated above, we are unaware of any problems associated with disposal of produced water derived from the Delaware, Avalon, and Bone Spring Formations into the Devonian/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 Devonian, 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 Devonian and the base of the Montoya are 16,379 and 18,181 respectively. The depth interval of the injection interval is 16,410-18,151 (1,741 feet), within the Devonian, 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 Rustler Formation and the Chinle Formation yield water to supply wells in southeastern Eddy County and southwestern Lea County. In the immediate area of the Russell State SWD #1, the closest water wells are about 2 miles distant. Well USGS-15229/15231 appear to be the same well and are associated with a corral slightly less than 2 miles north the proposed SWD (Plate 3a). In September of 1972, a depth to water of 388.05 feet was reported by the USGS. The log of Well CP-1723, northeast of the proposed SWD shows the uppermost water-bearing unit is at a depth of about 768 feet. This may draw water from the Santa Rosa Sandstone or from a thick section of bolson fill associated with the structural sag of the San Simon Swale.

In this area of Lea County, the Chinle yields water to wells from 100-200 feet below the ground surface (bgs) to an estimated depth of about 1500 feet in this area of the San Simon Swale. The upper portion of the Rustler Formation yields fresh water to wells in Eddy County and in the area of the Russell State SWD #1, the depth interval of this potential source of fresh water is almost 2000 feet. The Capitan Reef, does not exist in the immediate area of the Russell State SWD.

The locations of all water supply wells listed in public databases are shown in Plate 3b. There are no active water supply wells within 1.5 miles of the proposed location. The location of nearby mapped surface water bodies are shown in Plate 4. No mapped surface water exists within 1/2 mile of the proposed Russell State SWD.

**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.

## **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 Russel State SWD #1<sup>1</sup>
- 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 3.5 miles to the west.
  - A Basement fault that was reactivated during Woodford time lies 1/2 mile to the east<sup>2</sup>
- 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. Any excursion of injected fluids from the disposal zone would undoubtedly enter these permeable formations 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) 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 open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water

---

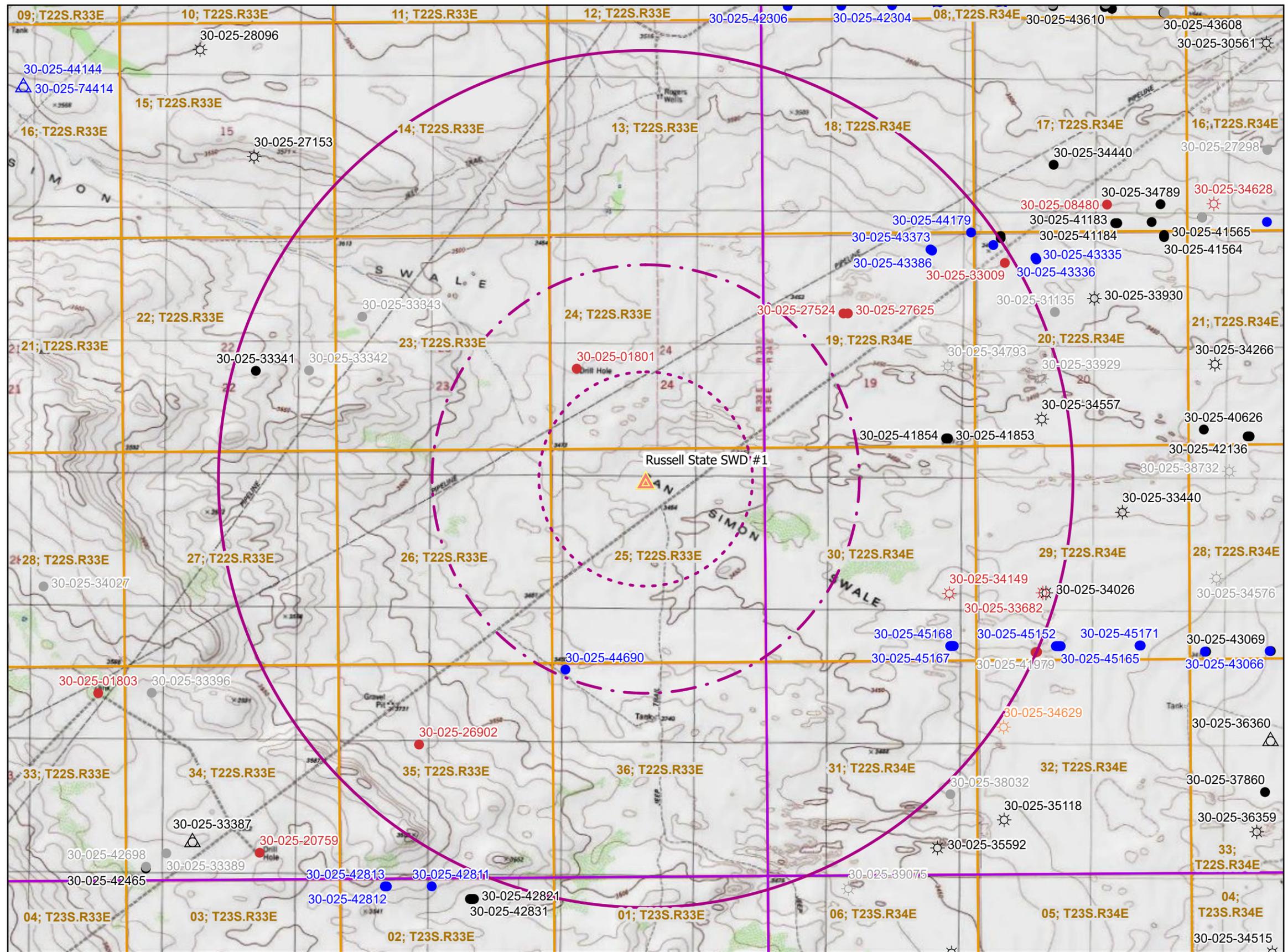
<sup>1</sup> <https://usgs.maps.arcgis.com/apps/webappviewer/index.html?id=5a6038b3a1684561a9b0aadf88412fcf>

<sup>2</sup> 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>

## Plates

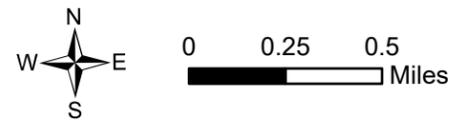
---

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



**Legend**

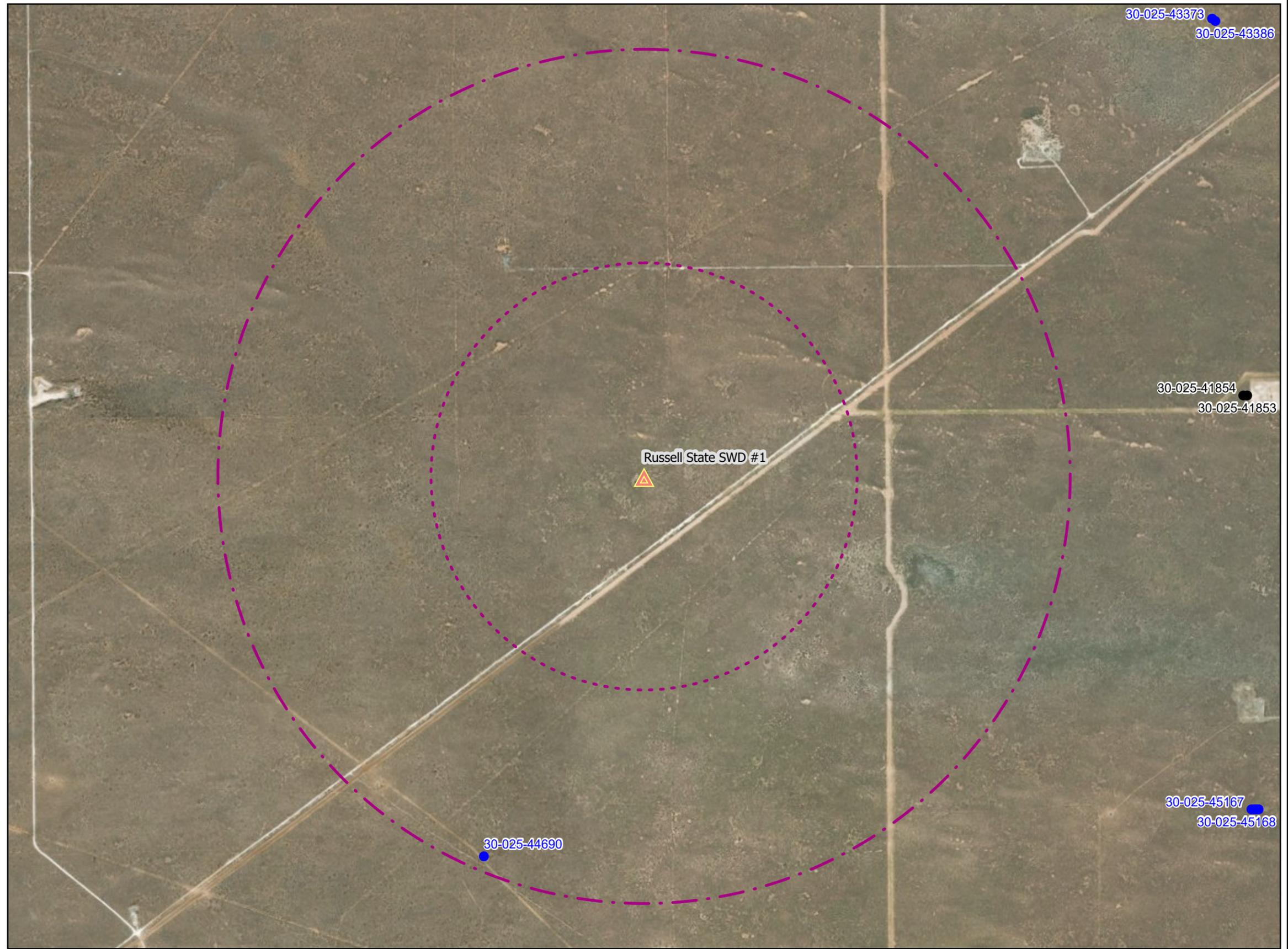
- SWD
- Distance (miles)**
- 0.5
- 1
- 2
- Oil and Gas (NMOCD)**
- Gas, Active
- Gas, Cancelled
- Gas, New
- Gas, Plugged
- Gas, Temporarily Abandoned
- Oil, Active
- Oil, Cancelled
- Oil, New
- Oil, Plugged
- Salt Water Injection, Active
- Salt Water Injection, New



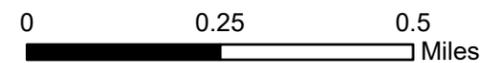
**R.T. Hicks Consultants, Ltd**  
 901 Rio Grande Blvd NW Suite F-142  
 Albuquerque, NM 87104  
 Ph: 505.266.5004

**NM Oil and Gas Wells within 2 Miles**  
 AWR Disposal, LLC  
 Russell State SWD #1

**Plate 1a**  
 June 2019



 SWD  
 Distance (miles)  
 0.5  
 1  
 2  
 Oil and Gas (NMOCD)  
 Oil, Active  
 Oil, New

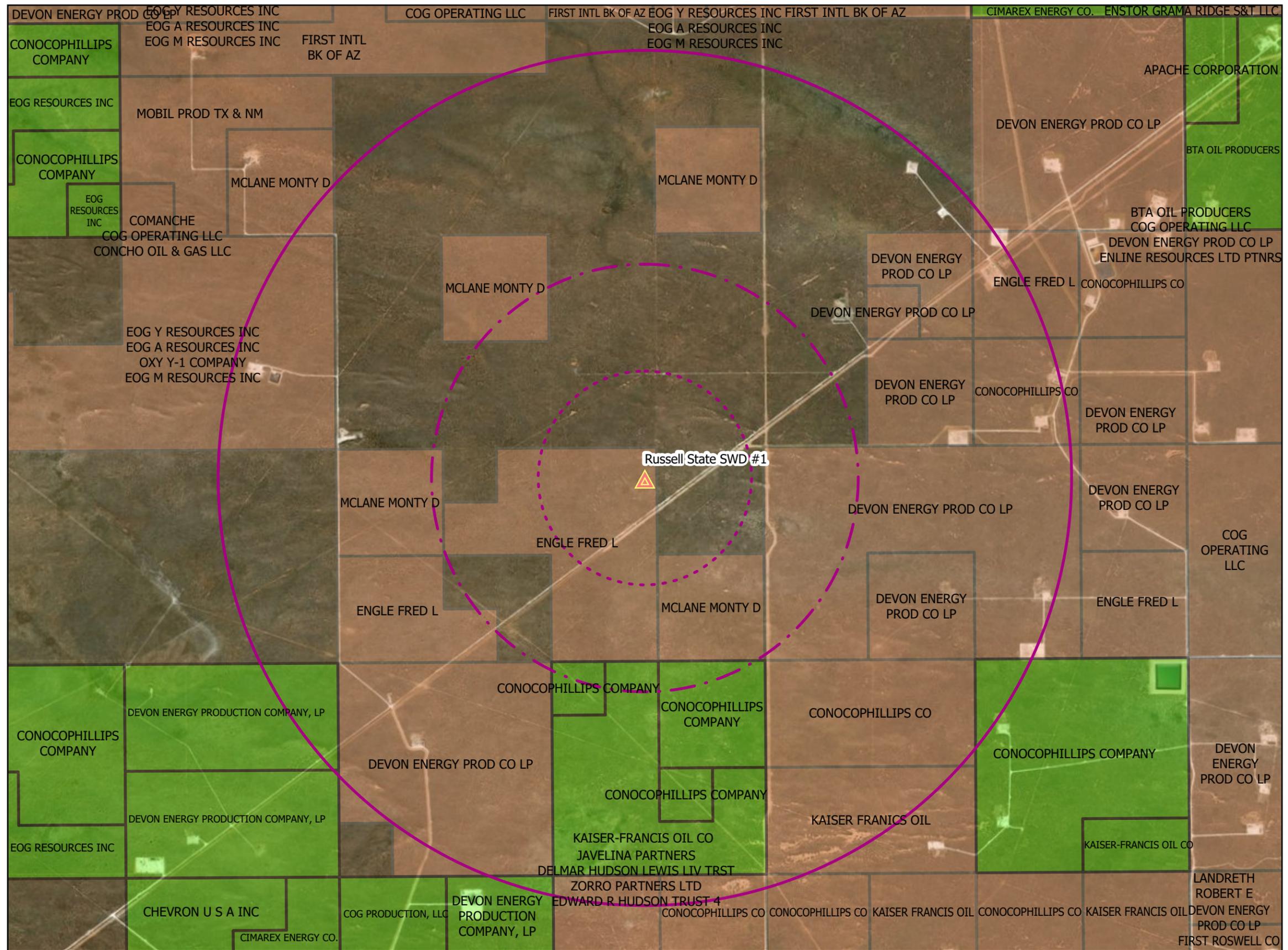


**R.T. Hicks Consultants, Ltd**  
 901 Rio Grande Blvd NW Suite F-142  
 Albuquerque, NM 87104  
 Ph: 505.266.5004

NM Oil and Gas Wells within 1 Mile  
 (Active Only)  
 AWR Disposal, LLC  
 Russell State SWD #1

Plate 1b

June 2019

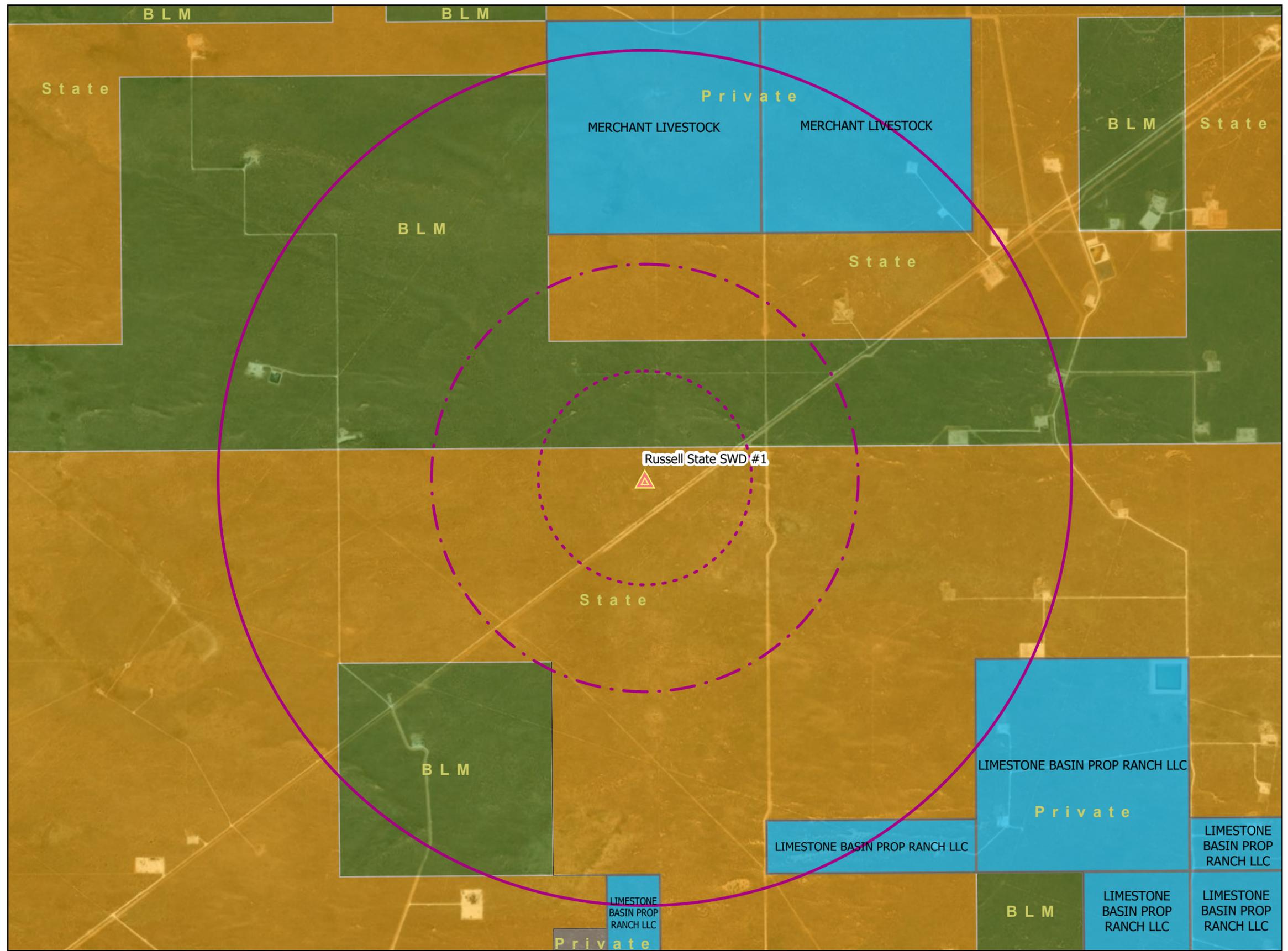


 SWD  
 Distance (miles)  
 0.5  
 1  
 2  
 Oil and Gas Leases  
 SLO Leases  
 BLM Leases

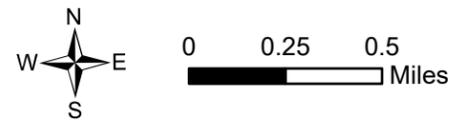


**R.T. Hicks Consultants, Ltd**  
 901 Rio Grande Blvd NW Suite F-142  
 Albuquerque, NM 87104  
 Ph: 505.266.5004

NM BLM and SLO Leases within 2 Mile	Plate 2a
AWR Disposal, LLC Russell State SWD #1	June 2019



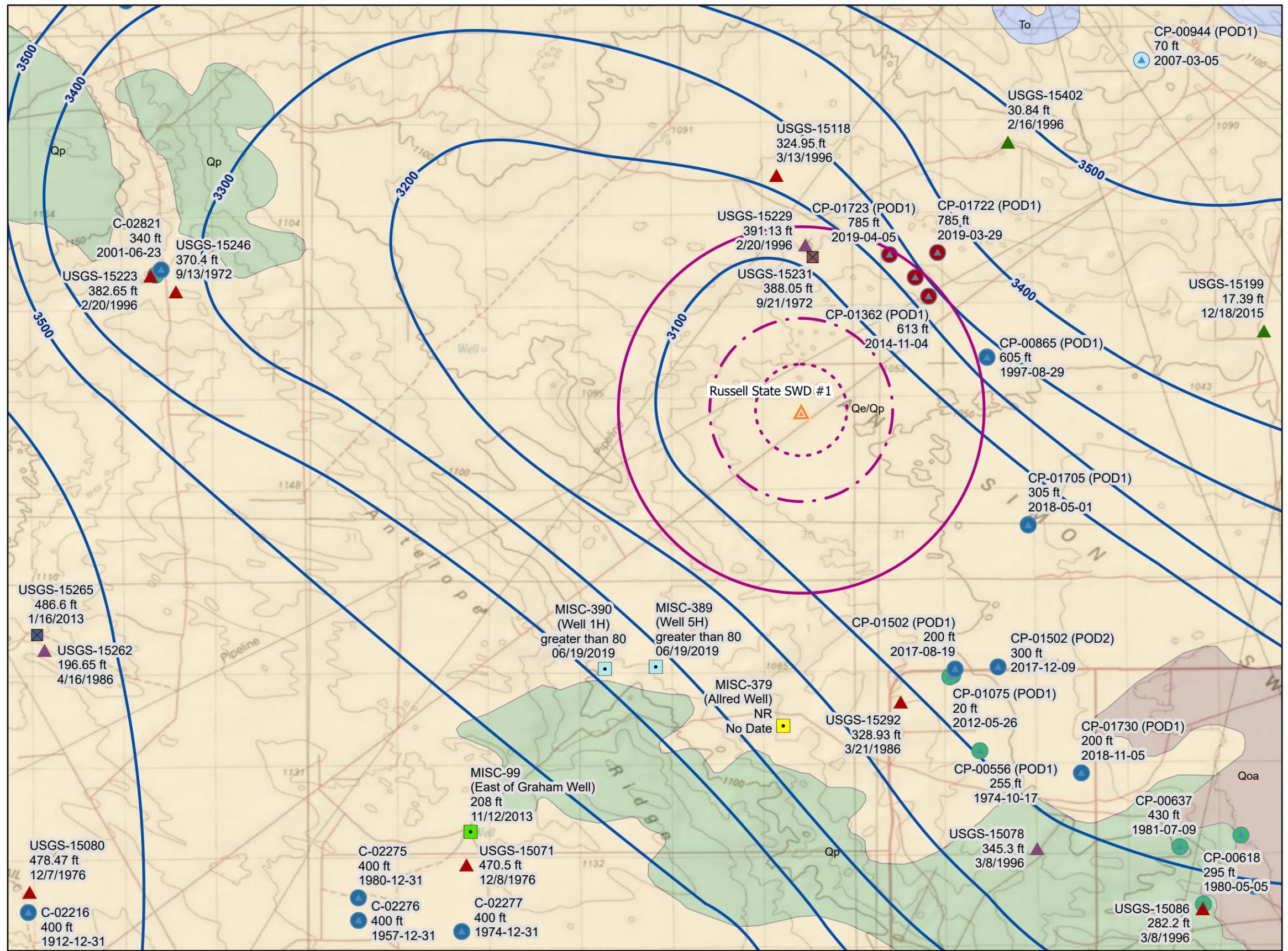
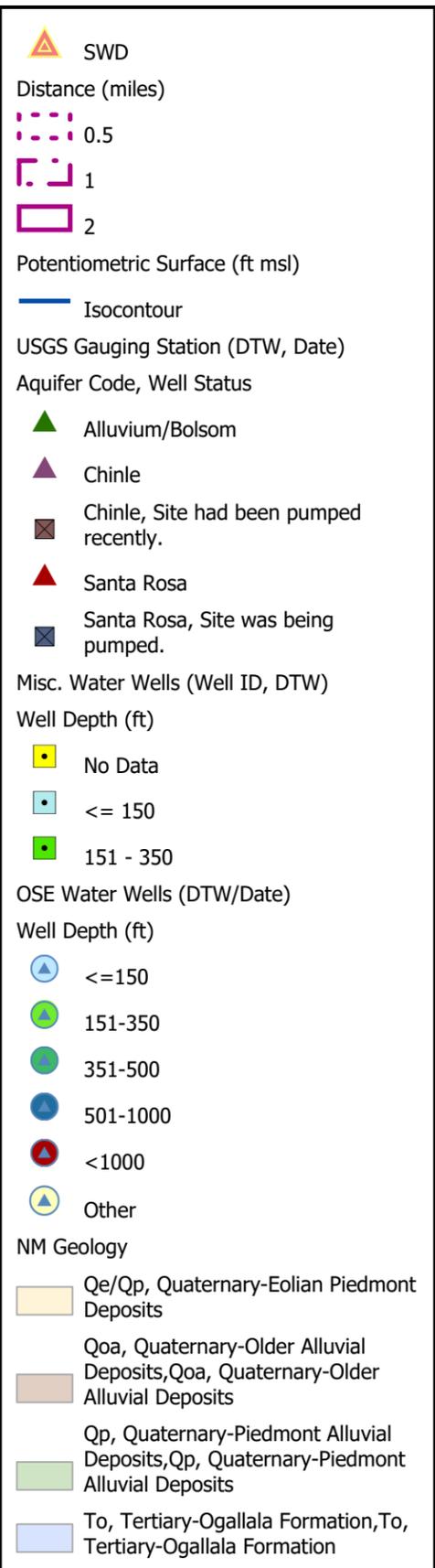
 SWD  
 Distance (miles)  
 0.5  
 1  
 2  
 Lea County Parcels  
 Private  
 NM Land Ownership  
 BLM  
 State  
 Private



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

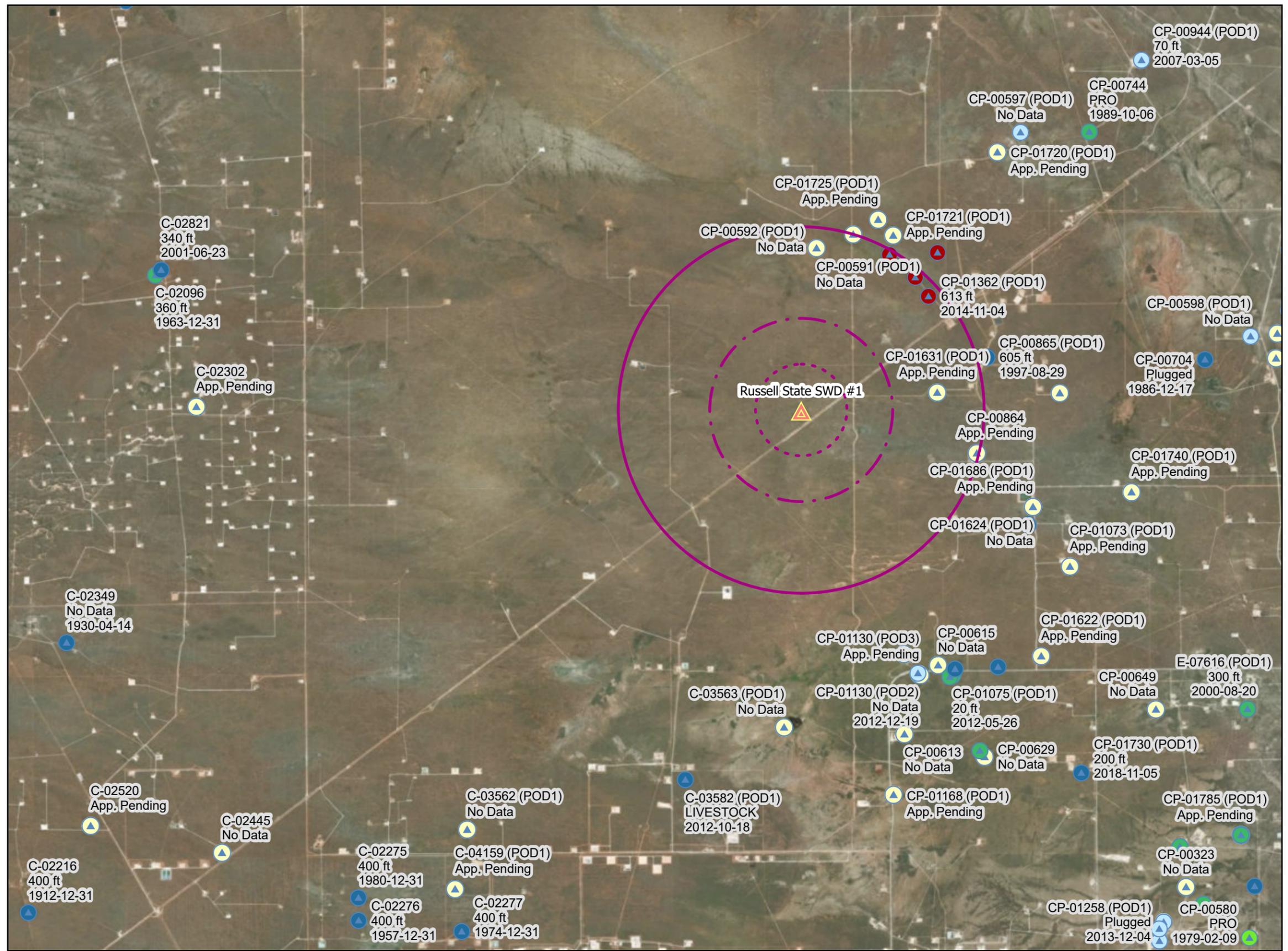
NM Surface Ownership  
 AWR Disposal, LLC  
 Russell State SWD #1

Plate 2b  
 June 2019



Note: Some features not present in map extent.





**Legend**

- SWD (Yellow Triangle)
- Distance (miles): 0.5 (Dashed), 1 (Dash-dot), 2 (Solid)
- OSE Water Wells (DTW/Date)
- Well Depth (ft):
  - ≤150 (Light Blue)
  - 151-350 (Light Green)
  - 351-500 (Green)
  - 501-1000 (Dark Blue)
  - <1000 (Red)
  - Other (Yellow)

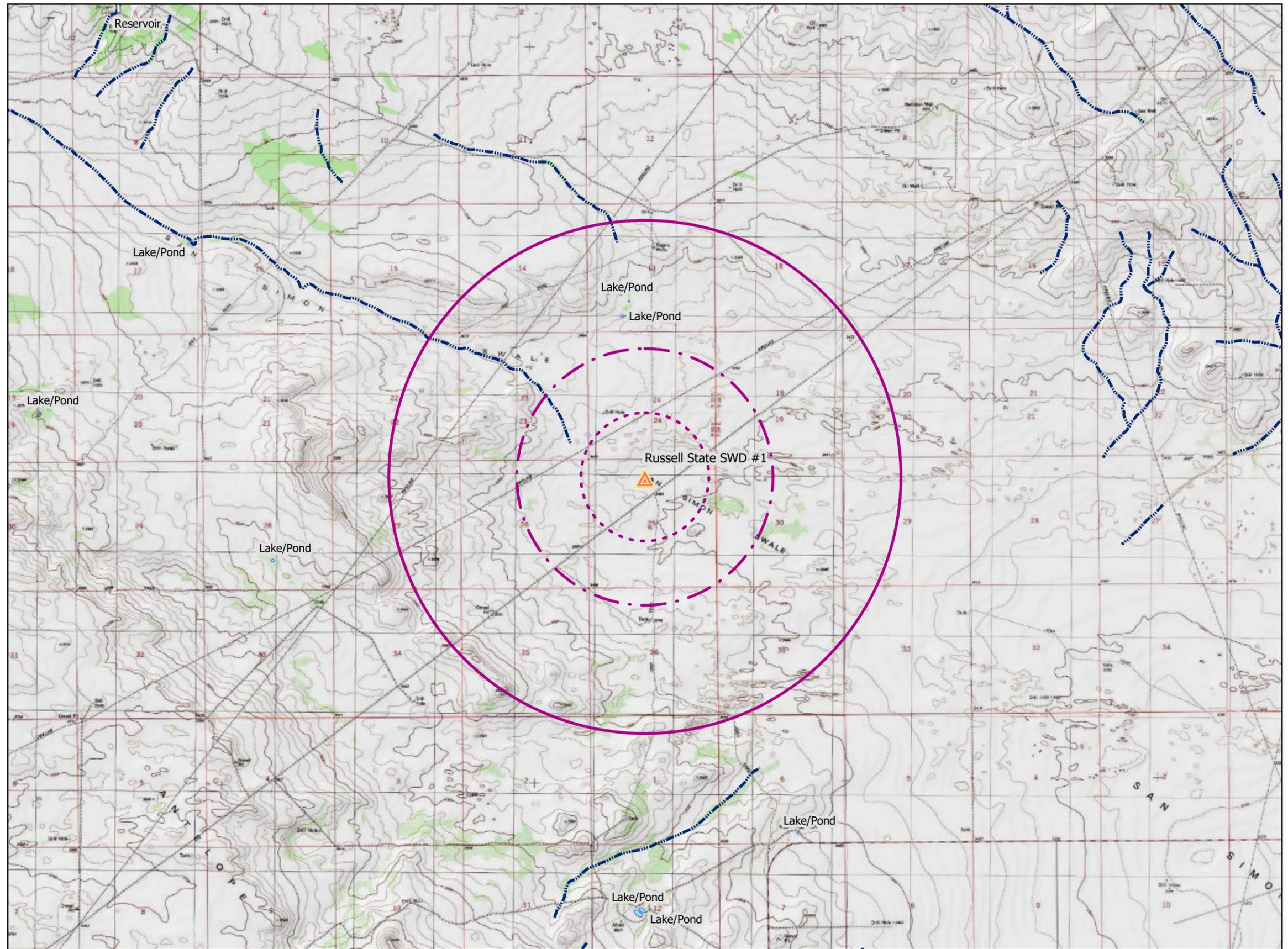
Note: Some features not present in map extent.



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

**NM Nearby OSE Water Wells**  
 AWR Disposal, LLC  
 Russell State SWD #1

**Plate 3b**  
 June 2019



	SWD
Distance (miles)	
	0.5
	1
	2
Water Bodies (1307)	
	Lake/Pond
	Reservoir
River and Drainages (1307)	
	Stream/River Artificial Path
	Intermittent Stream



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

Surface Water
AWR Disposal, LLC Russell State SWD #1

Plate 4
June 2019