Initial Application Part I

Received: **07/30/2019**

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

Revised March 23, 2017

RECEIVED: 07/30/2019	REVIEWER:	TYPE: SWD	APP NO: pMAM1921342930

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: Solaris Water Midstream, LLC **OGRID Number:** 371643
Well Name: Mercury Fed SWD #1 **API:**
Pool: Proposed: SWD, Devonian-Silurian **Pool Code:** 97869

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

SWD-2222

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 16, 2019
Date

Randall Hicks (agent)
Print or Type Name

505 238 9515
Phone Number

Randall Hicks
Digitally signed by Randall Hicks
DN: cn=Randall Hicks, o, ou=Hicks Consultants, email=r@rthicksconsult.com, c=US
Date: 2019.07.29 14:36:24 -06'00'
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 Rd., Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office
☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
	97869	SWD; DEVONIAN

Property Code	Property Name	Well Number
	MERCURY FED SWD	#1

OGRID No.	Operator Name	Elevation
371643	SOLARIS WATER MIDSTREAM, LLC	3639'

Surface Location

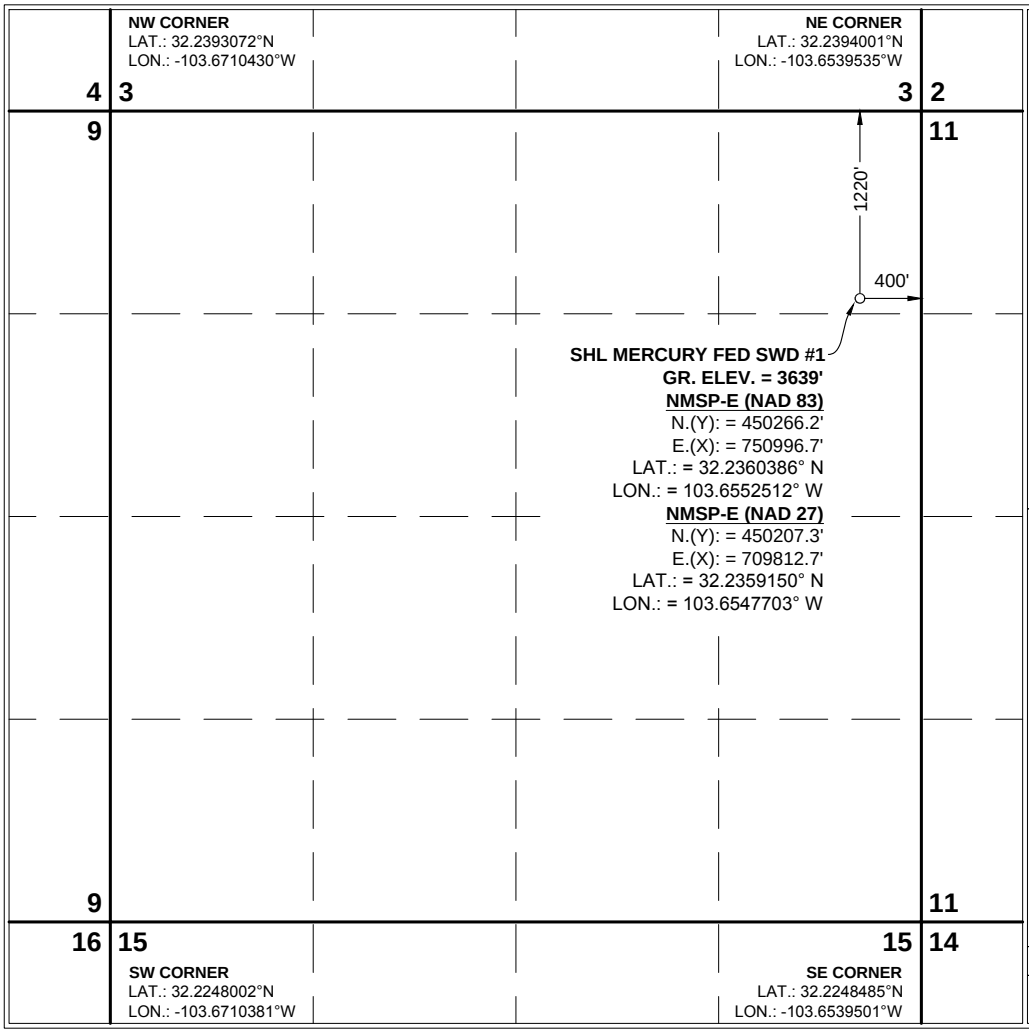
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	10	24S	32E		1220'	NORTH	400'	EAST	LEA

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
-	-	-	-		-	-	-	-	-

Dedicated Acres	Joint or Infill	Consolidated Code	Order No.
5.51			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



OPERATOR CERTIFICATION

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

Signature Date

Print Name

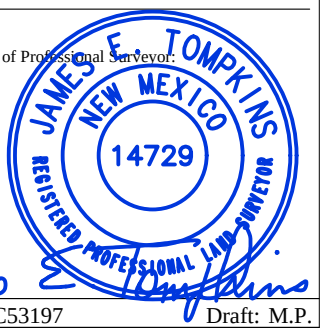
E-mail Address

SURVEYORS CERTIFICATION

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

April 16, 2019
Date of Survey

Signature and Seal of Professional Surveyor:

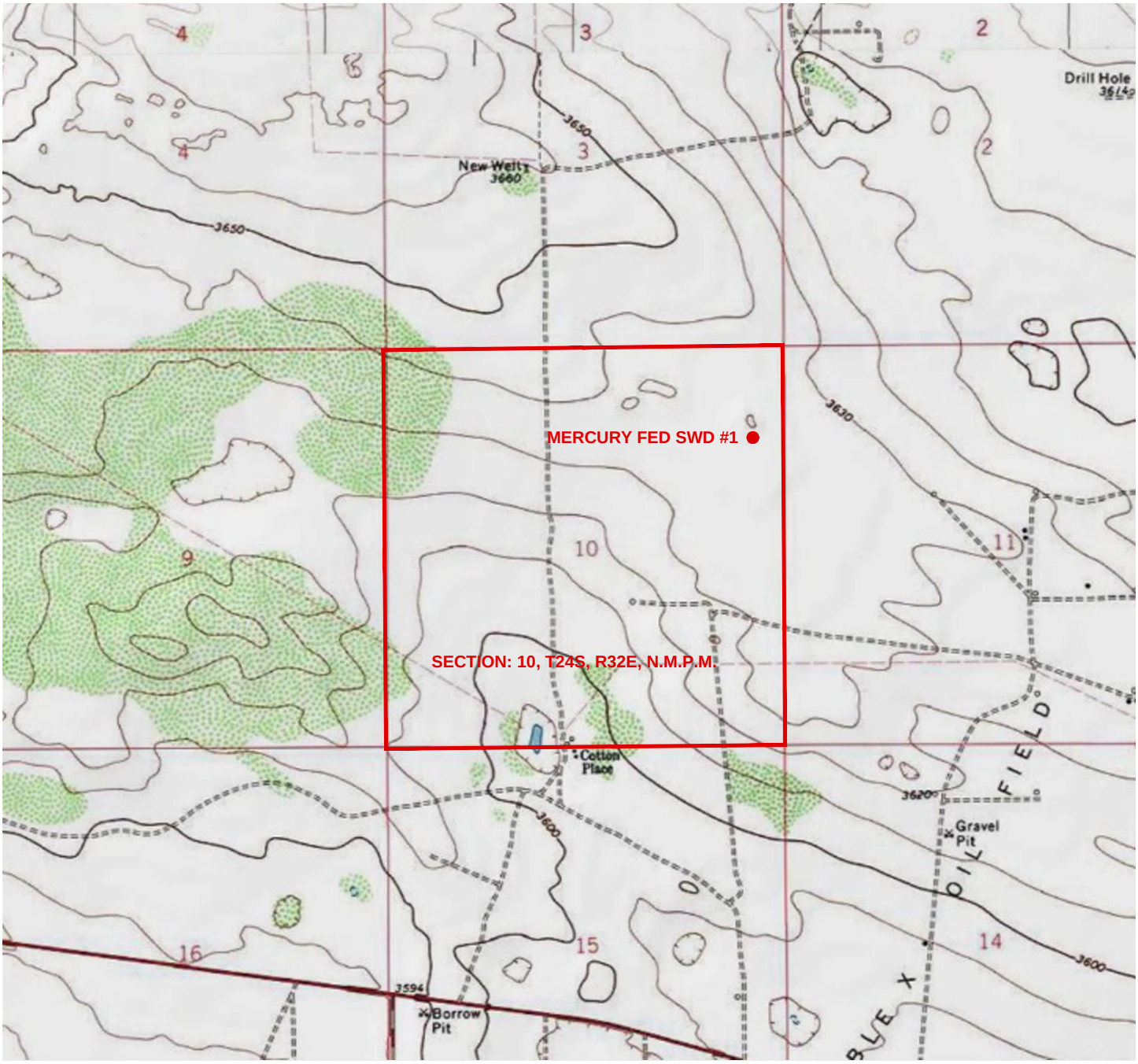


Job No.: WTC53197 Draft: M.P.

JAMES E. TOMPKINS 14729
Certificate Number

PLAT: C:\USERS\FHERNANDEZ\DESKTOP\FH\TEMPLATE\NM WELL TEMP LAYOUT TAB: MAPS

LOCATION VERIFICATION MAP



SECTION: 10, T24S, R32E, N.M.P.M.

COUNTY: LEA STATE: NEW MEXICO

DESCRIPTION: 1220' FNL & 400' FEL

OPERATOR: SOLARIS WATER MIDSTREAM, LLC

WELL NAME: MERCURY FED SWD #1

2000 0 2000 4000 FEET

SCALE: 1" = 2000'

DRIVING DIRECTIONS:

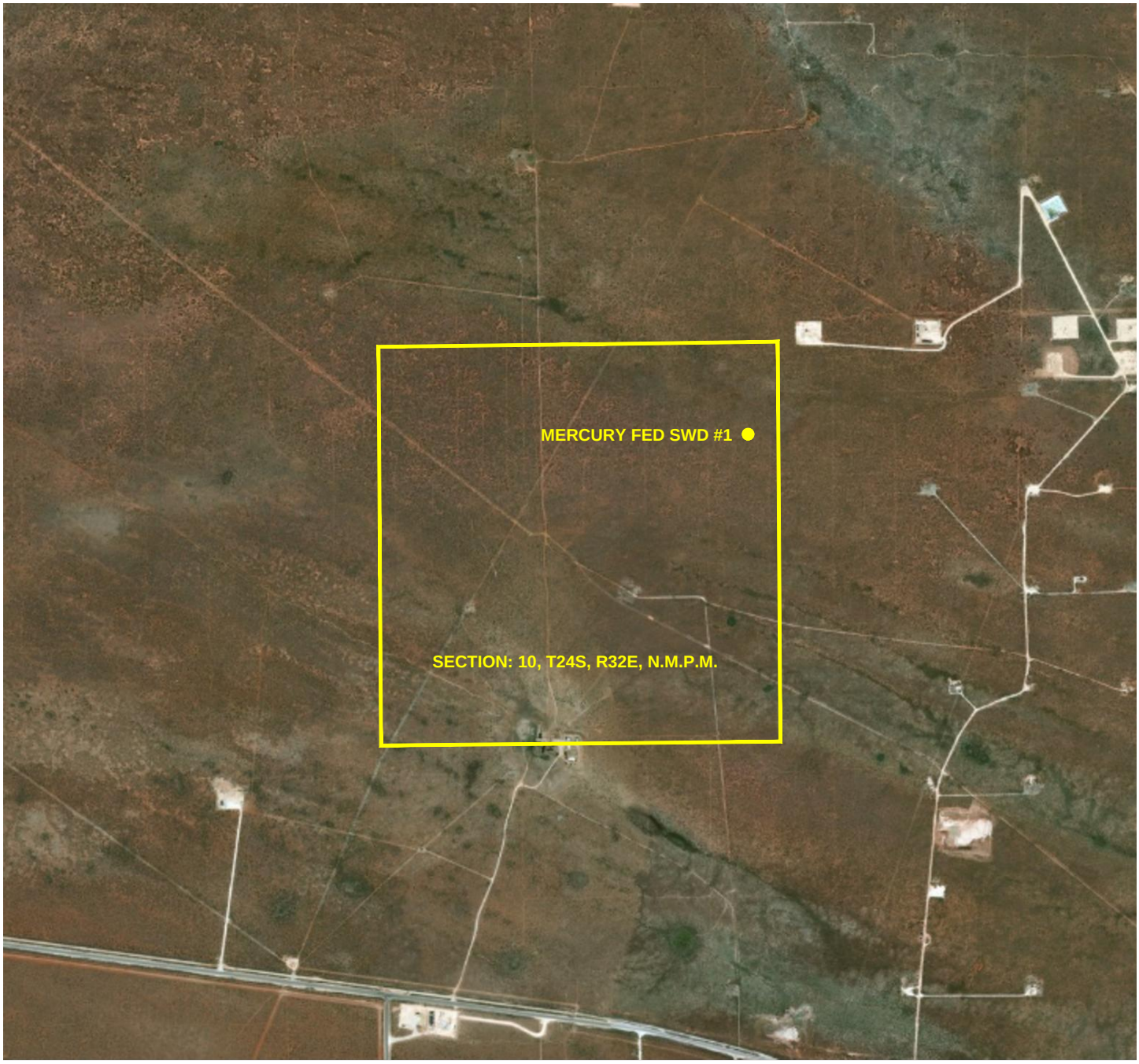
BEGINNING AT THE INTERSECTION OF COUNTY ROAD 1 AND NM HWY 128, IN LEA COUNTY, NEW MEXICO HEAD EAST/SOUTHEAST ±1.3 MILES TO A LEASE ROAD ON THE LEFT. TURN LEFT ONTO LEASE ROAD AND HEAD NORTH/NORTHEAST ±3.4 MILES TO THE END OF THE LEASE ROAD. THE FLAGGED LOCATION SITE IS ±0.25 MILES SOUTHWEST FROM THE END OF THIS LEASE ROAD.

W T C, INC.
405 S.W. 1st Street
Andrews, TX 79714
(432) 523-2181

JOB No.: WTC53197

PLAT: X:\PROJECTS\OIL & GAS SURVEYS\SOLARIS MIDSTREAM\53197-SOLARIS MIDSTREAM STAKE & PLAT THE MERCURY FED SWD #1.KMZ EDDY CO. NM\DRAWINGS\53197-SOLARIS MIDSTREAM, MERCURY FED SWD #1 LAYOUT TAB: MAPS

AERIAL MAP



SECTION: 10, T24S, R32E, N.M.P.M.

COUNTY: LEA STATE: NEW MEXICO

DESCRIPTION: 1220' FNL & 400' FEL

OPERATOR: SOLARIS WATER MIDSTREAM, LLC

WELL NAME: MERCURY FED SWD #1

2000 0 2000 4000 FEET

SCALE: 1" = 2000'

DRIVING DIRECTIONS:

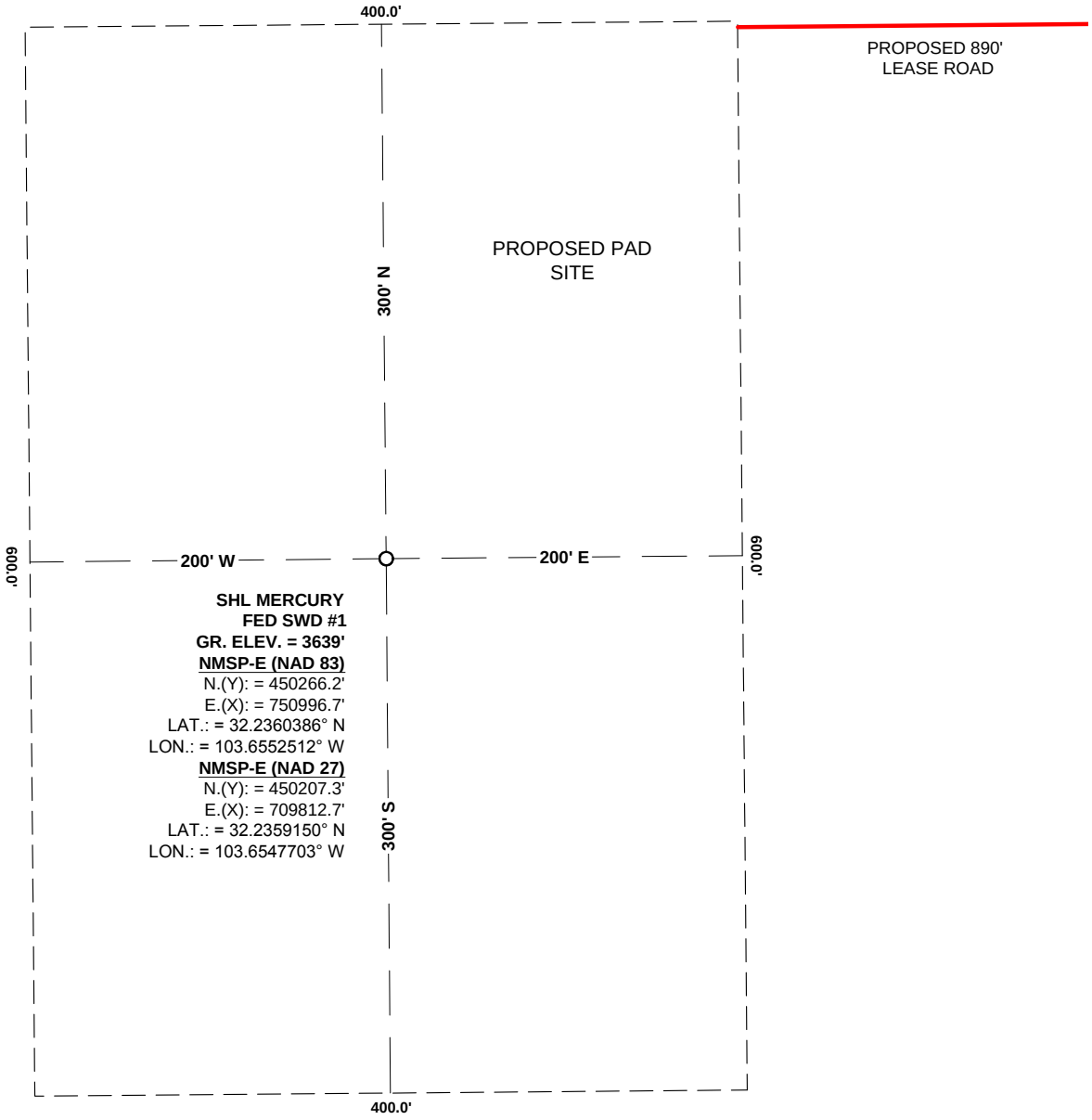
BEGINNING AT THE INTERSECTION OF COUNTY ROAD 1 AND NM HWY 128, IN LEA COUNTY, NEW MEXICO HEAD EAST/SOUTHEAST ±1.3 MILES TO A LEASE ROAD ON THE LEFT. TURN LEFT ONTO LEASE ROAD AND HEAD NORTH/NORTHEAST ±3.4 MILES TO THE END OF THE LEASE ROAD. THE FLAGGED LOCATION SITE IS ±0.25 MILES SOUTHWEST FROM THE END OF THIS LEASE ROAD.

W T C, INC.
405 S.W. 1st Street
Andrews, TX 79714
(432) 523-2181

JOB No.: WTC53197

PLAT: X:\PROJECTS\OIL & GAS SURVEYS\SOLARIS MIDSTREAM\53197-SOLARIS MIDSTREAM STAKE & PLAT THE MERCURY FED SWD #1.KMZ EDDY CO. NM\DRAWINGS\53197-SOLARIS MIDSTREAM, MERCURY FED SWD #1 LAYOUT TAB: MAPS

SITE LOCATION



SECTION: 10, T24S, R32E, N.M.P.M.

COUNTY: LEA STATE: NEW MEXICO

DESCRIPTION: 1220' FNL & 400' FEL

OPERATOR: SOLARIS WATER MIDSTREAM, LLC

WELL NAME: MERCURY FED SWD #1

100 0 100 200 FEET

SCALE: 1" = 100'

DRIVING DIRECTIONS:

BEGINNING AT THE INTERSECTION OF COUNTY ROAD 1 AND NM HWY 128, IN LEA COUNTY, NEW MEXICO HEAD EAST/SOUTHEAST ±1.3 MILES TO A LEASE ROAD ON THE LEFT. TURN LEFT ONTO LEASE ROAD AND HEAD NORTH/NORTHEAST ±3.4 MILES TO THE END OF THE LEASE ROAD. THE FLAGGED LOCATION SITE IS ±0.25 MILES SOUTHWEST FROM THE END OF THIS LEASE ROAD.

W T C, INC.
405 S.W. 1st Street
Andrews, TX 79714
(432) 523-2181

N W E S

SOLARIS MIDSTREAM

JOB No.: WTC53197

PLAT: X:\PROJECTS\OIL & GAS SURVEYS\SOLARIS MIDSTREAM\53197-SOLARIS MIDSTREAM STAKE & PLAT THE MERCURY FED SWD #1.KMZ EDDY CO. NM\DRAWINGS\53197-SOLARIS MIDSTREAM, MERCURY FED SWD #1 LAYOUT TAB: MAPS

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? _____Yes _____No

II. OPERATOR: _Solaris Water Midstream, LLC_____

ADDRESS: __907 Tradewinds Blvd, Suite B, Midland, TX 79706_____

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).

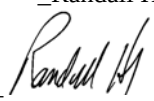
*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

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: __7/15//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: __Solaris Water Midstream, LLC_____ _____

WELL NAME & NUMBER: _Mercury Fed SWD #1_____

WELL LOCATION: ____1220 FNL 400 FEL_____A_____10_____24S_____32E_____

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-Silurian_____

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
OCD well reports referenced in written descriptions
OSE well logs referenced in written descriptions

Section XIII Proof of Notice

SOLARIS WATER MIDSTREAM - WELLBORE DATA SHEET

Mercury Fed SWD #1

AREA/SYSTEM:	Pecos Star System
WELL NAME:	Mercury Fed SWD #1
OBJECTIVE:	Devonion
SHL:	1220' FNL & 400' FEL; Sec 10, T24S-R32E
BHL:	Same as SHL
SURFACE ELEV.:	3639
TOTAL DEPTH:	18,955

SOLARIS WATER MIDSTREAM

MUD LOGGING E LOGGING/ DIRECTIONAL	CASING SIZE (IN.)		RKB DRILL DEPTH MD	/	TVD	BOPE	FORMATION	HOLE SIZE (IN.)	MUD WT.	FRAC GRAD	TUBING
Grnd Level	RKB		30								
	GL ELEV.							Set and grouted			
	30"		120'	/	120'	Open			8.8		
								18.125"	8.4		
			1,255				Rustler				
	16"		1,480	/	1,480	21-1/4"-5M Annular/Diverter			8.4		
	84 lb/ft	J55, BTC							9.5		
			1,530				T/Salt				
Mud Logging to begin @ 2,500'											
			4,655				B/Salt				
									9.5		
								14.75"	to		
									10		
	13.375"		4,805	/	4,805	13-5/8"-5M Annular			10.0		
	68 lb/ft	L-80, EZ-GO FJ3	4,905			13-5/8"-5M BOP's	Bell Canyon		9.4	FIT	
			6,055				Cherry Canyon				
			7,205				Brushy Canyon				
			8,780				Bone Spring				
			9,830				1st BS Sand				
			10,780				2nd BS Sand				
			11,830				3rd BS Sand		9.4		
								12.25"	to		
									10.0		
	TOL		12,930	/	12,930						
			13,030				Wolfcamp				
	9.625"		13,130	/	13,130	13-5/8"-5M Annular			10.0		
	53.5lb/ft	HCP-110, BTC				13-5/8"-10M BOP's			12.5	15.6	
			14,005				Strawn				
			14,305				Atoka				
			14,905				Morrow				
									12.5		
								8.5"	to		
			16,655				Barnett		13.5		
			17,005				Miss LM				
			17,455				Woodford				
			17,680				Devonian				
	Liner Wedge 513	7.625"	17,680	/	17,680	13-5/8"-5M Annular			13.5		
	39 lb/ft	P-110				13-5/8"-10M BOP's					
Run #1								6.5"	9.0		
GR/NEUTRON 18,955 - 0											
USIT/CBL 17,680 - 0											
	Dual	0"	18,955			13-5/8"-5M Annular	Base of Fusselman is 19,155				
		TD	18,955	/	18,955	13-5/8"-10M BOP's					

5-1/2" (18#) IPC TUBING

5-1/2" (18#) IPC TUBING

5" (18#) IPC TUBING

Casing Set Depths/ Cement									
Conductor	120'					Setting Depth			
		Hole Size	Casing Size	Casing Grade	Casing Weight	TOP	Bottom	Sacks of Cement	TOC
Surface		18.125"	16"	J55, BTC	84 lb/ft	0 -	1480	3,411	Surface
1st Intermediate		14.75"	13.375"	L-80, EZ-GO FJ3	68 lb/ft	0 -	4805	2,900	Surface
2nd Intermediate		12.25"	9.625"	HCP-110, BTC	53.5lb/ft	0 -	13130	3,140	Surface
Liner Wedge 513		8.5"	7.625"	P-110	39 lb/ft	12930	17680	197	Liner Top
Openhole		6.5"				17680	18955		

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: Mercury Fed SWD #1
Unit Letter A, Section 10, T24S R32E, 1220 FNL, 400 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 were established by Jim Brannigan, R.G. CPG. Tops were picked in part using the Owl SWD Operating, LLC #2 McCloy SWD #2 in Section 15-T24S-R32E, and other e-logs, scout tickets, and GeoMap tops.

The result of the evaluation of Mr. Brannigan is presented to the right (Figure 1).

Figure 1

Formation	GL	3639
Tops	KB	3669
	SS	TVD
Rustler	2414	1255
T/Salt	2139	1530
B/Salt	-986	4655
Lamar		
Bell Canyon	-1236	4905
Cherry Canyon	-2386	6055
Brushy Canyon	-3536	7205
Bone Spring	-5111	8780
1st BS Sand	-6161	9830
2nd BS Sand	-7111	10780
3rd BS Sand	-8161	11830
Wolfcamp	-9361	13030
Penn		
Cisco		
Canyon		
Strawn	-10336	14005
Atoka	-10636	14305
Morrow	-11236	14905
Morrow Clastics		
Morrow Lower		
Barnett	-12986	16655
Miss LM	-13336	17005
Woodford	-13786	17455
Devonian	-14011	17680
Fusselman	-14761	18430
T/Montoya	-15486	19155
Simpson	*-16011*	*19680*
Ellenburger	*-16661*	*20330*
Gtanite		
Injection Interval	17680	18955
TD	18955	

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 17,680'

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

Halliburton BWS or equivalent packer set at 17,580'.

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 both the Devonian and Fusselman 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 17,680-18,955 (1,275 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.

Overlying Oil & Gas Zones:

Bell Canyon (4,875')
Cherry Canyon (6,025')
Brushy Canyon (7,175')
1st BS Sand (9,800')
2nd BS Sand (10,750')
3rd BS Sand (11,800')
Wolfcamp (13,000')
Strawn (13,975')
Atoka (14,275')
Morrow (14,875')

Underlying Oil & Gas Zones:

None Exist

The proposed injection intervals include the Devonian and part of the Fusselman formations. The highly cemented carbonates of the Devonian and deeper formations will provide favorable open hole integrity in which to inject salt water without concern of the open hole section 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 radii 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 2a presents the lease numbers for SLO and BLM oil and gas leases within the 2-mile area of review.
- Plate 2b presents State, BLM, and private surface ownership for the same area.
- Table 2a lists the BLM leaseholders for the lease numbers presented on Plate 2a
- Table 2b lists the SLO leaseholders for the lease numbers presented on Plate 2a.
- Table 2c presents surface ownership information for the land within the 2-mile area of review.

The Federal Government owns the surface upon which the SWD is located.

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 is one well (API # 30 025-42947) within the 2.0-mile radius area of review that penetrates the proposed injection zone.

API	ogrid	ogrid_name	well_type	status
30-025-42947	308339	OWL SWD OPERATING, LLC	S	A

wellname	district	ulstr	tot_depth	pool_id_li	comp. date
MCCLOY SWD #002	1	L-15-24S-32E	18776	[96101] SWD, DEVONIAN	OCT, 2017

This well is located 1.75 miles southwest of the proposed Mercury SWD location (see Plate 1a). It is listed as an active SWD. The Well Completion Report (C-105) is attached.

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 Solaris SWDs may receive produced water from recycling 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: 3,500 psi
Proposed Average Injection Rate: 2,425 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" provides the requisite analyses. The Delaware-Brushy Canyon, Avalon, and Bone Springs Formations are the subjects of the analyses. These formations, in addition to the Wolfcamp Formation, 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-Brushy Canyon, Avalon, Bone Springs, and Wolfcamp Formations into the Devonian 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 closest wells (3 in T23S, R34E) in Table 4 are approximately 12 miles to the east. The other wells in Table 4 are located either 30 miles east or 30 miles west-northwest of the Mercury SWD. 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, Bone Springs, and Wolfcamp Formations into the Devonian 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 both the Devonian and Fusselman in an open-hole interval. The highly cemented carbonate nature of the Devonian and Fusselman indicate that favorable open-hole integrity will exist, allowing for the saltwater to be injected without concern of collapse in the open-hole injection interval.

As indicated in Section III.A.2, the approximate depths to the top of the Devonian and the base of the Fusselman are 17,680 and 19,155 respectively. The injection depth interval of 17,680-18,955 (1,275 feet) is contained within these 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.

In this area of Lea County, the Chinle yields water to wells from 100-200 feet below the ground surface (bgs) to a depth of about 600 feet. The material above the Chinle Formation to ground surface is mapped as alluvium. It is most probably reworked Ogallala material.

The upper portion of the Rustler Formation yields fresh water to wells in southeastern Eddy County and in southwestern Lea County, the location of the Mercury SWD. The depth interval of this potential source of fresh water is about 700-1000 feet.

The locations of all water supply wells listed in public databases are shown in Plate 3. There exist three wells within two miles of the location of the Mercury SWD.

The closest water well (USGS-14849) is about 0.75 miles northwest of the Mercury SWD location. Depth to water was recorded as 454.43 feet in 1976. North of this well and about 0.9 miles northwest of the Mercury SWD is MISC-12. This well has a windmill associated with it and supplies water for stock. It has a recorded depth to water of 198.2 feet in 1970. This data suggests that these two wells access water within the Chinle Formation.

Southwest of the Mercury SWD location by about 0.95 miles is USGS-14952 with a depth to water of 33.96 feet in 2010. A ranch house and buildings are associated with this well. While this area is not mapped as Ogallala Formation, the alluvial material from the surface to the top of the Chinle Formation is reworked Ogallala material. The data suggest that USGS-14952 accesses water within this material.

The location of nearby mapped surface water bodies are shown in Plate 4. Three Lake/Ponds are mapped at distances of between 1.0 and 1.7 miles southwest and south of the Mercury SWD location.

In the area of the Mercury SWD, the depth interval of the Rustler is about 700-1000 feet bgs, according to the BLM and OCD. We agree with this assessment. The bottom of the Rustler Formation is characterized by evaporates (anhydrite) and is not considered an underground source of drinking water. Hence, the surface casing required by OCD to prevent impairment of fresh water will be from ground surface to a depth of 1,480 feet at the proposed Mercury 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 analysis of the wells described above in Section VIII is available. Data from various sources permit a conclusion that groundwater within the Chinle Formation 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 Solaris Water Midstream, that

- The USGS has mapped quaternary faults in New Mexico and no such faults are mapped in the area of the proposed Mercury Fed SWD 1[1]
- The Texas Bureau of Economic Geology has mapped older faults (e.g. basement and Woodford) in New Mexico and the closest mapped fault is about 8 miles to the east[2]

[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

- 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 15,000 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 Devonian disposal zone would undoubtedly enter these permeable formations prior to moving through the 2400-foot low-permeability salt zone that underlies the Rustler Formation.
    - There is no evidence that the pressure regime in the oil and gas reservoirs is sufficient to cause the upward migration of formation water through 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

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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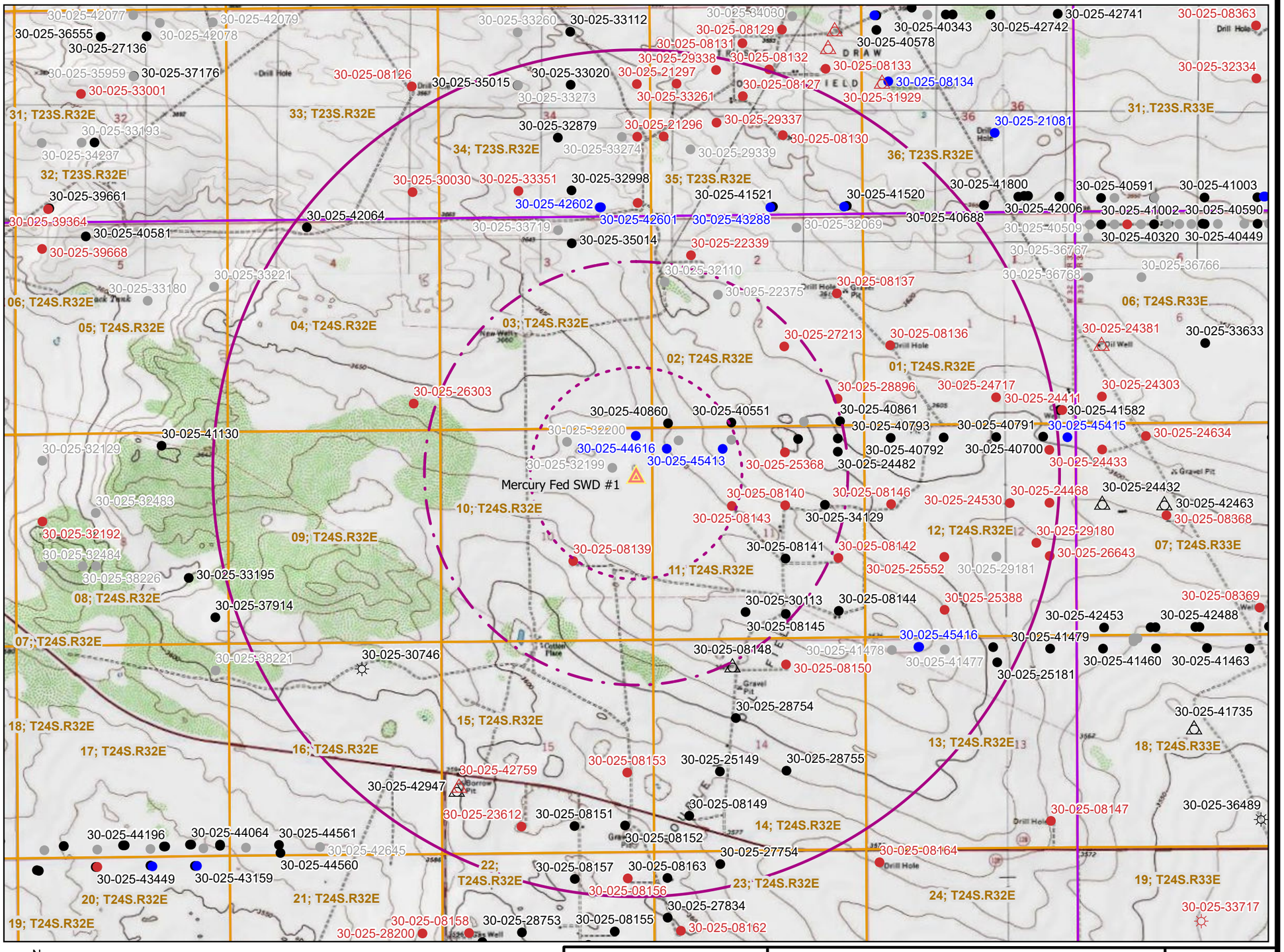

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NM Oil and Gas Wells within 2 Miles

Solaris Water Midstream
Mercury Fed SWD #1

Plate 1a

June 2019

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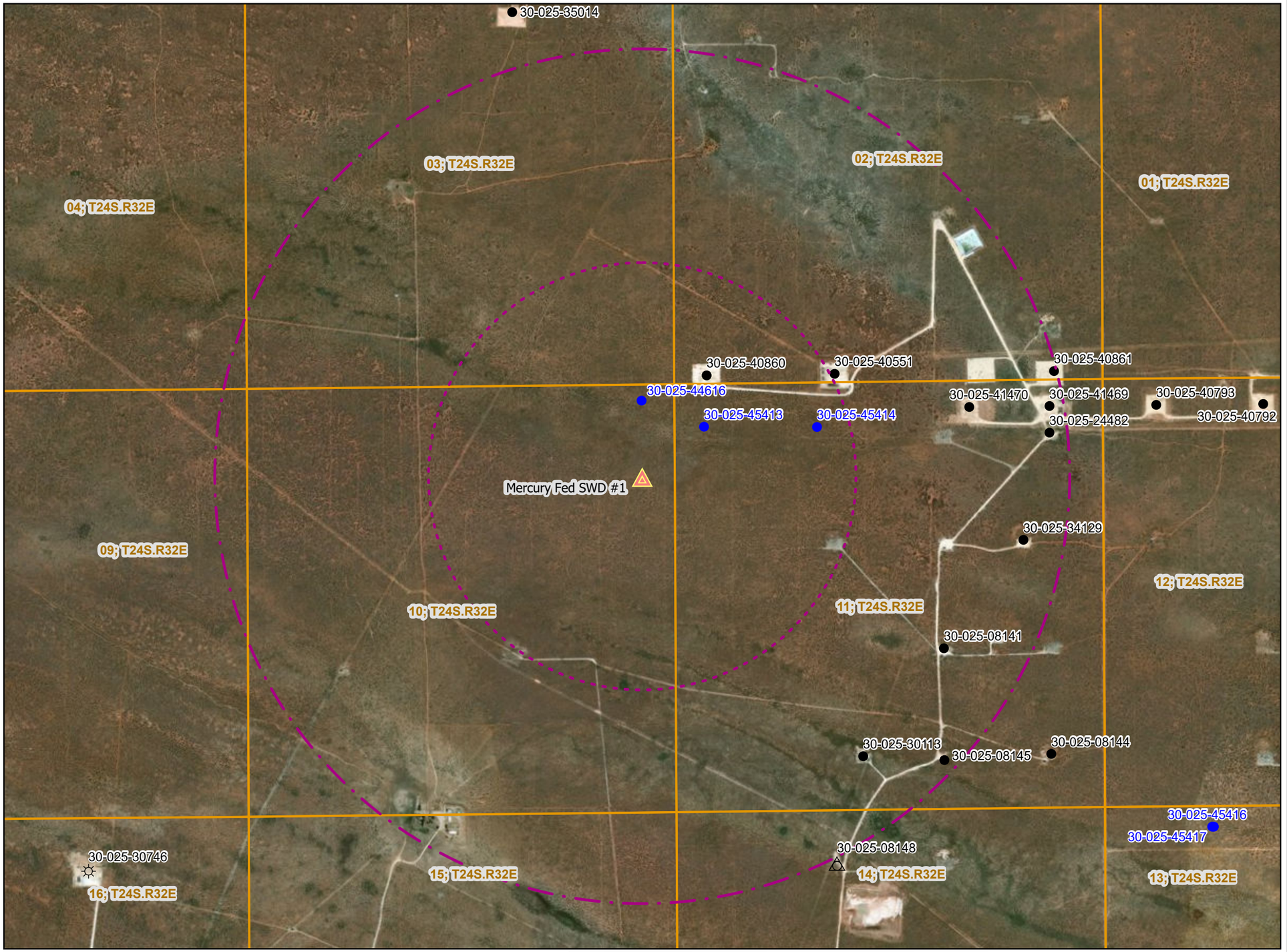

SWD
SWD Buffer
Distance (miles)
0.5
1
2
Oil and Gas (NMOCD)
Gas, Active
Oil, Active
Oil, New
Salt Water Injection, Active

N
W E
S

0 0.25 0.5 Miles

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

Plate 1b

Solaris Water Midstream
Mercury Fed SWD #1

June 2019

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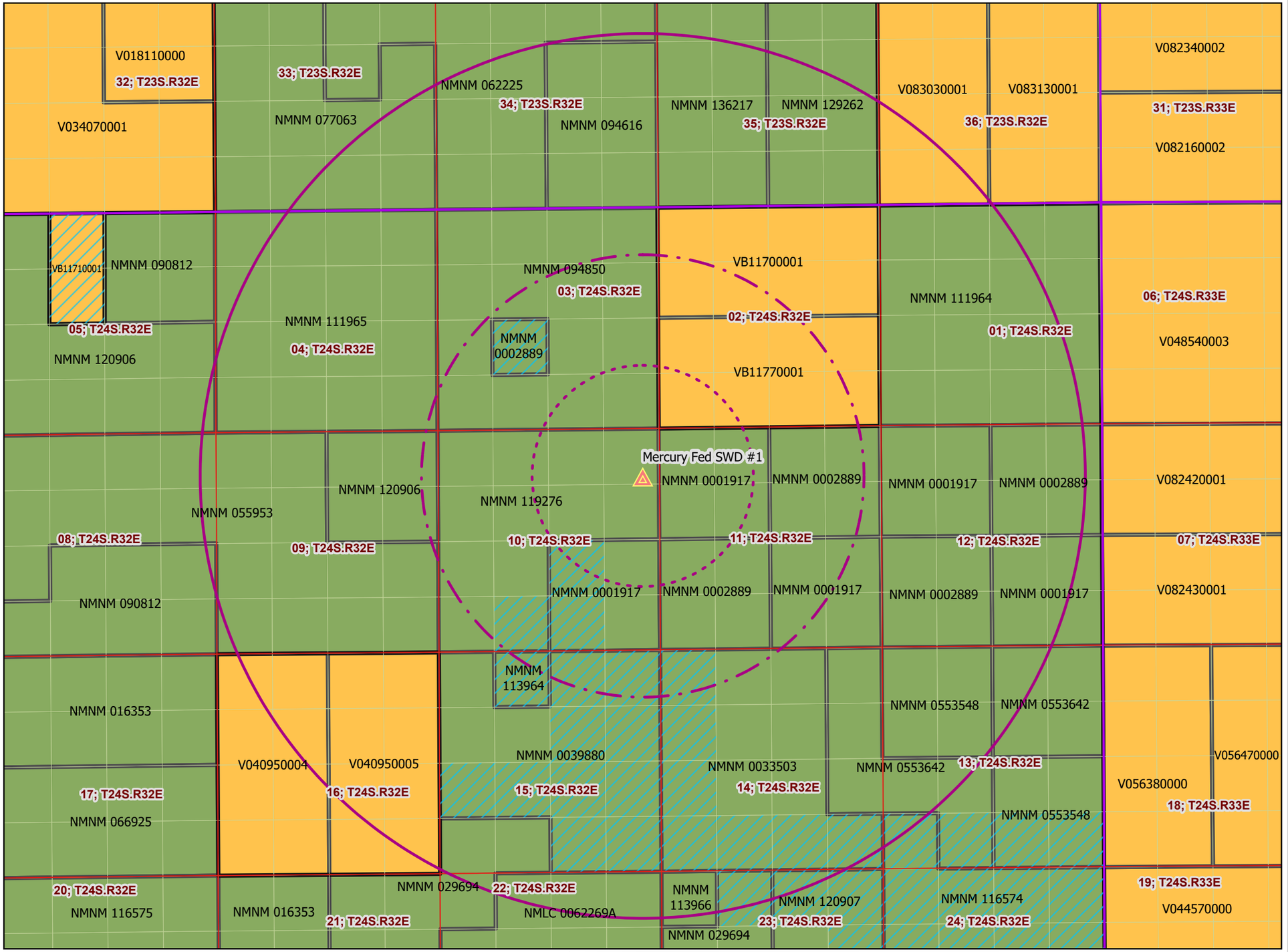

SWD

Distance (miles)

0.5

1

2

Oil and Gas Leases

SLO Leases

BLM Leases

NM Land Ownership

Private

Township Range Section

Township Range

Section

UL (qq)

N W E S

0 0.25 0.5 Miles

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BLM and State Oil and Gas Leases

Plate 2a

Solaris Water Midstream
Mercury Fed SWD #1

July 2019

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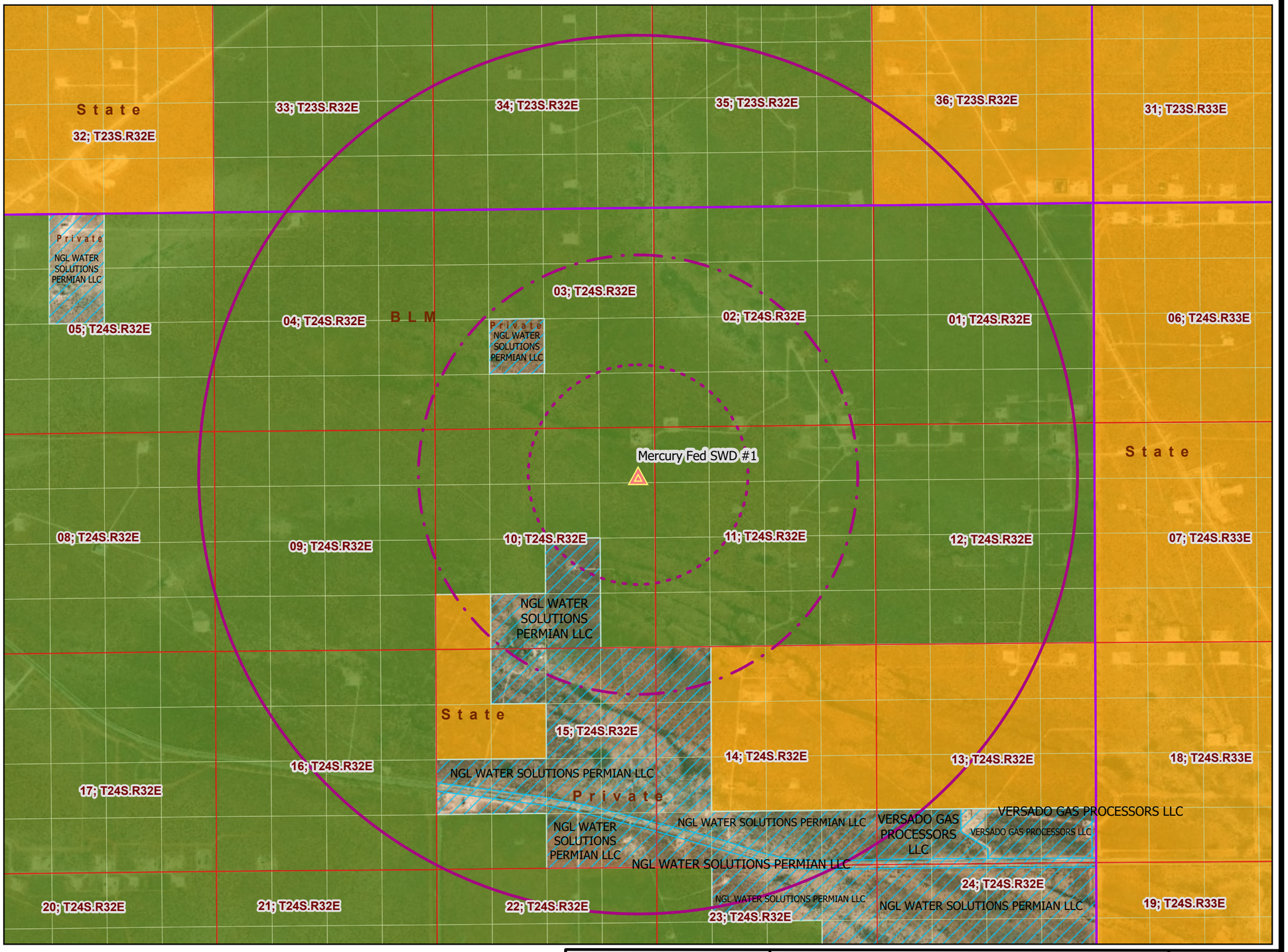

SWD
Distance (miles)
0.5
1
2
NM Land Ownership
BLM
Private
State
Township Range Section
Township Range
Section
UL (qq)

N
W E
S

0 0.25 0.5 Miles

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Surface Ownership	Plate 2b
Solaris Water Midstream Mercury Fed SWD #1	July 2019

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SWD

Potentiometric Surface (ft msl)

Isocontour

USGS Gauging Station (DTW, Date)

Aquifer Code, Well Status

Alluvium/Bolsom

Ogallala

Chinle

Santa Rosa

Santa Rosa, Site was being pumped.

Dewey Lake Redbeds, Site was being pumped.

Rustler, Site was being pumped.

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

C-03749 (POD1)
639 ft
2014-08-06

C-03851 (POD1)
713 ft
2015-10-02

USGS-15080
478.47 ft
12/7/1976

C-02216
400 ft
1912-12-31

C-02275
400 ft
1980-12-31

C-02276
400 ft
1957-12-31

MISC-99
(East of Graham Well)
208 ft
11/12/2013

USGS-15071
470.5 ft
12/8/1976

C-02277
400 ft
1974-12-31

MISC-161
256.9 (pumping)
02/04/1959

USGS-9579
No Data
2/14/2013

C-02348
430 ft
2013-11-01

USGS-14813
No Data
1/16/2013

MISC-16
>450
Year 2013

C-02281
400 ft
1944-12-31

Qe/Qp

C-03555 (POD1)
380 ft
2013-10-21

C-02405
160 ft
1994-09-30

C-02464
205 ft
1995-08-24

USGS-9624
437.47 ft
1/16/2013

MISC-162
(Engles well)
423.6 ft
03/13/1959

MISC-12
198.2 ft
12/16/1970

USGS-14849
454.43 ft
1/22/1976

Mercury Fed SWD #1

USGS-14952
33.96 ft
12/16/2010

MISC-70
(Brinninstool 4 State 3H)
>120
4/15/2013

C-03565 (POD3)
1533 ft
2012-10-21

MISC-136
(Yates Atoka Bank BDJ State Com #3H)
>120 ft
2/1/2014

MISC-69
(Mogi 9 SC 1H)
>120
2/27/2013

C-02431
415 ft
1959-12-31

USGS-14925
97.37 ft
3/11/1986

MISC-137
(Murchison "20" Bettis State Com 2H)
>120 ft
3/4/2014

3100
3050
3200
3300
3400
3500

Qp
Qoa

N
W E
S

0 1 2 Miles

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Depth to Water on Potentiometric and Geologic Features

Solaris Water Midstream
Mercury Fed SWD #1

Plate 3a

June 2019

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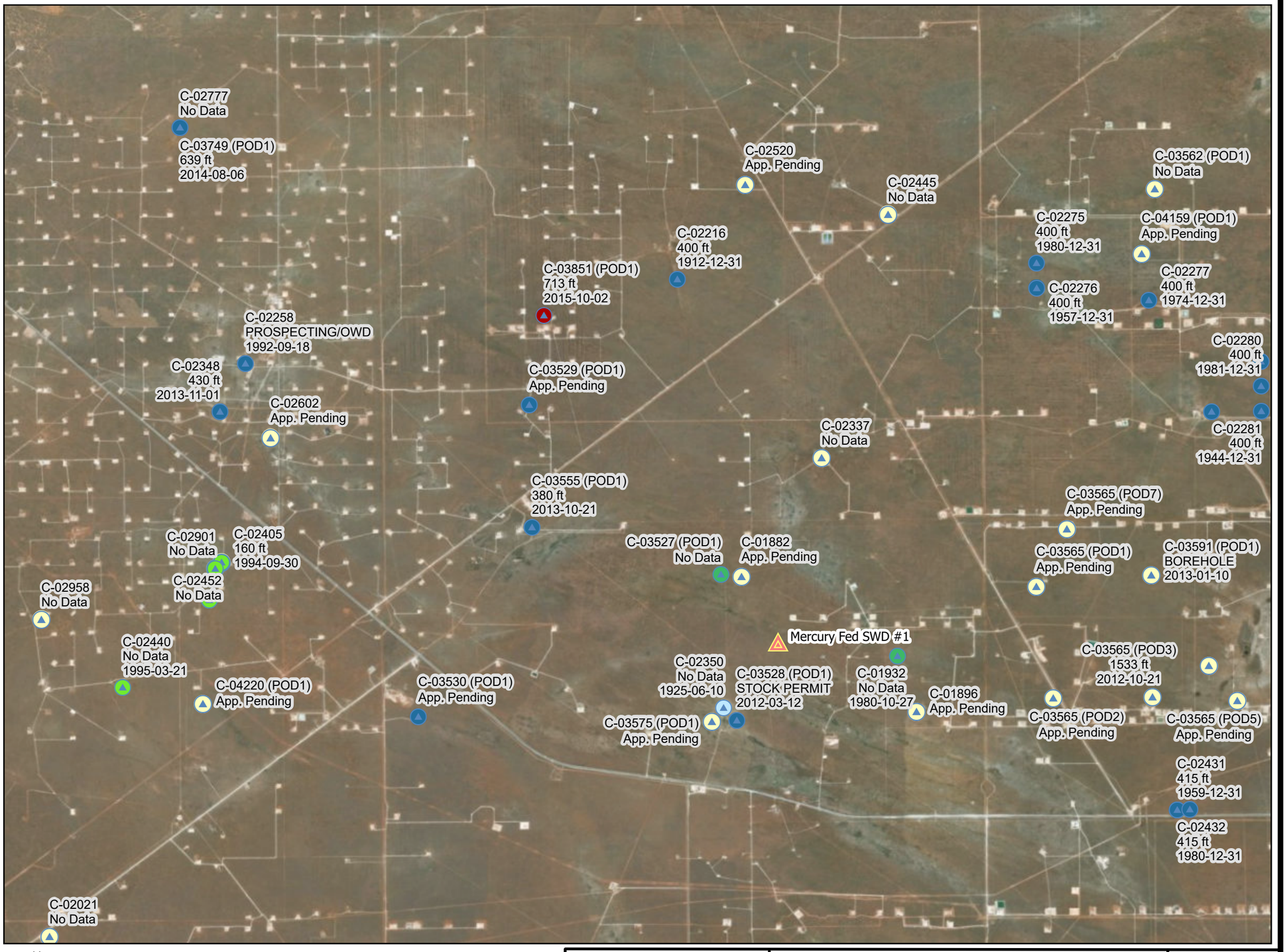

SWD

OSE Water Wells (DTW/Date)

Well Depth (ft)

- <=150
- 151-350
- 351-500
- 501-1000
- <1000
- Other

N
W E
S

0 1 2 Miles

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Nearby OSE Water Wells	Plate 3b
Solaris Water Midstream Mercury Fed SWD #1	June 2019

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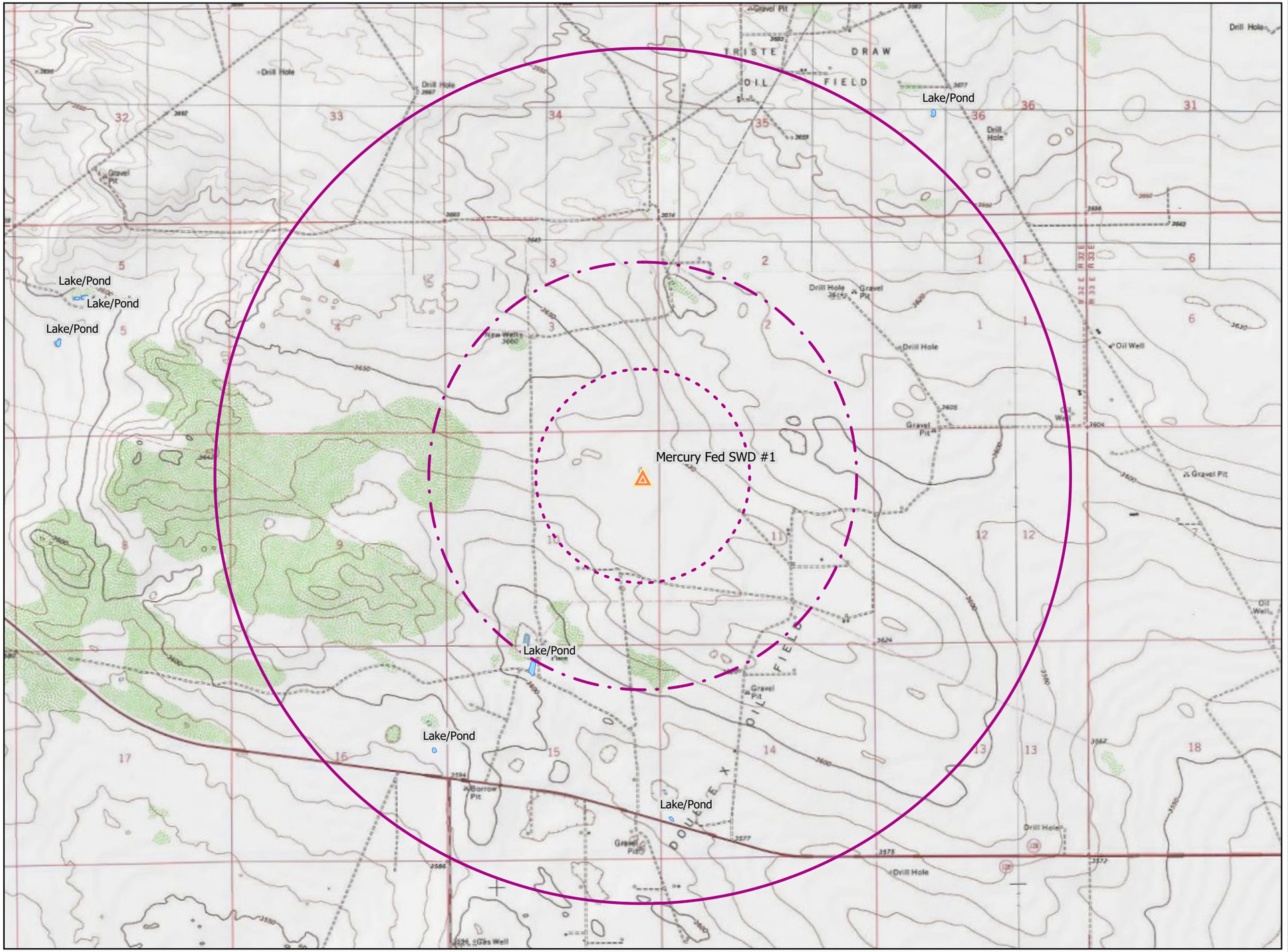

SWD

SWD Buffer

Distance (miles)

0.5

1

2

Water Bodies (1307)

Lake/Pond

N W E S

0 0.25 0.5 Miles

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Surface Water	Plate 4
Solaris Water Midstream Mercury Fed SWD #1	June 2019