RECEIVED:	REVIEWER:	TYPE:	APP NO:
6/28/2019		SWD	pKAM1928233159, SWD2304

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: Bayside State 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

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.

June 26, 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 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 and 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

Property Code	Property Name	Well Number
	BAYSIDE STATE SWD	1

OGRID No.	Operator Name	Elevation
	SOLARIS WATER MIDSTREAM	3235'

Surface Location

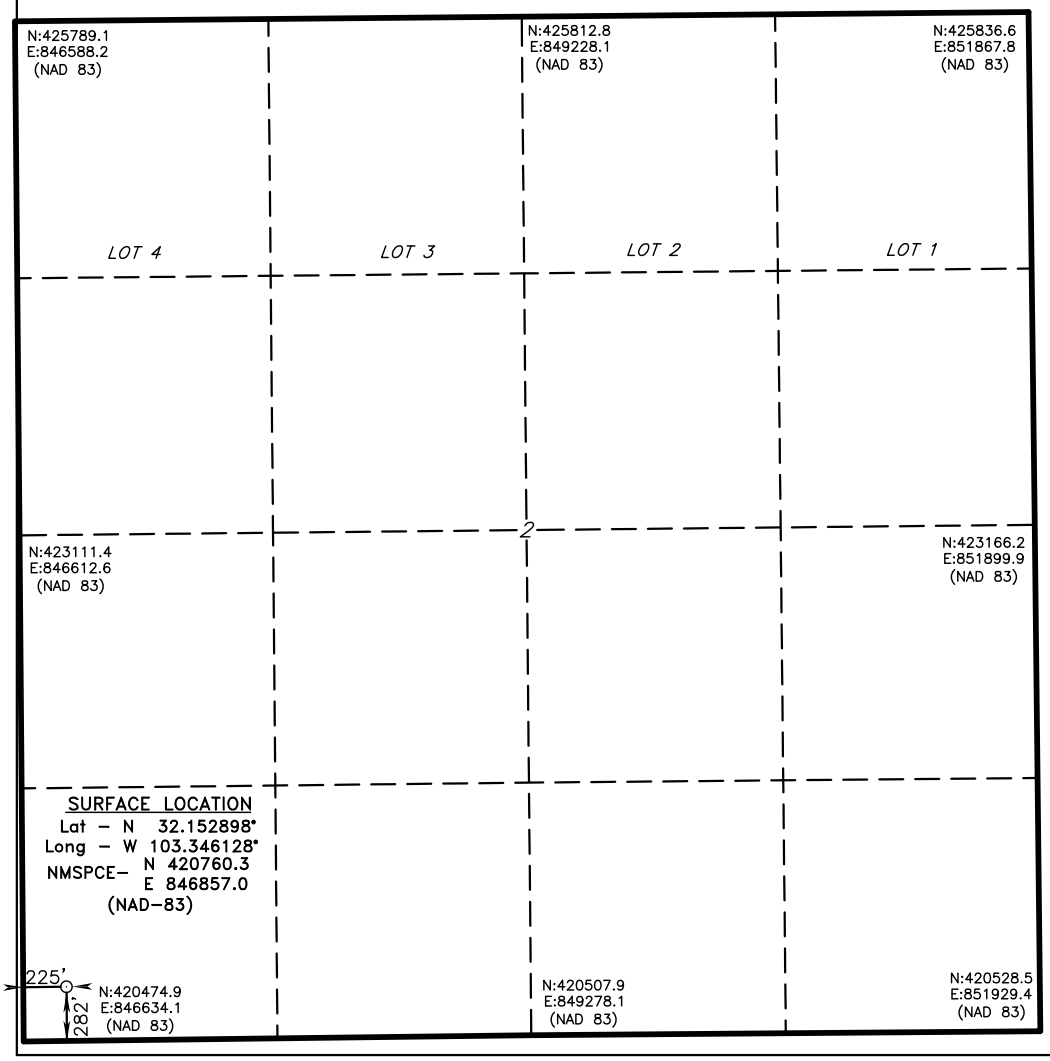
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	2	25 S	35 E		282	SOUTH	225	WEST	LEA

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	Consolidation Code	Order No.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



OPERATOR CERTIFICATION

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

Signature Date

Printed Name

Email Address

SURVEYOR CERTIFICATION

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

JUNE 22, 2019
Date Surveyed

Signature & Seal of Professional Surveyor

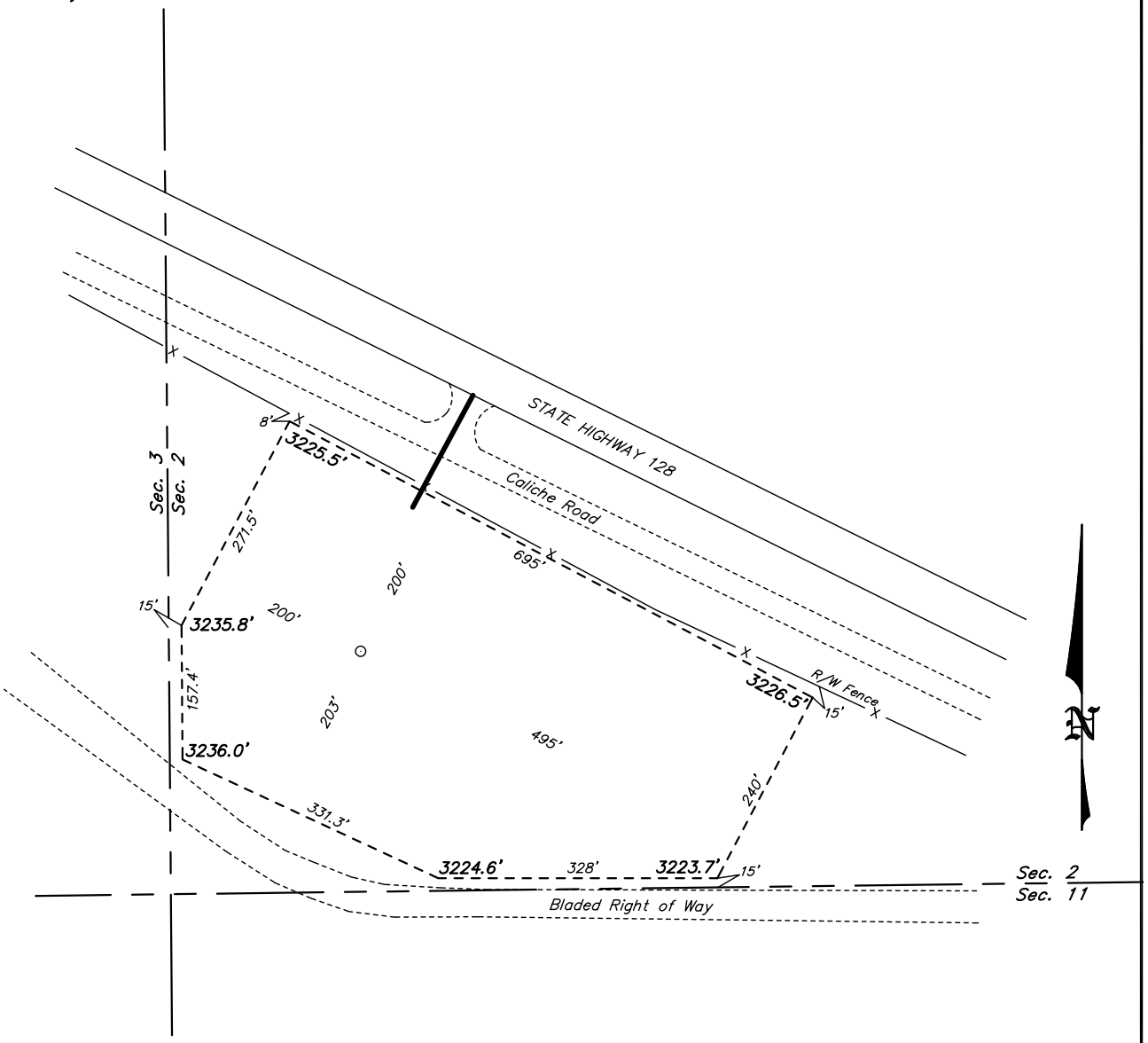
GARY L. JONES
NEW MEXICO
7977
REGISTERED PROFESSIONAL LAND SURVEYOR

Certificate No. Gary L. Jones 7977
BASIN SURVEYS

0' 1000' 2000' 3000' 4000'
N
SCALE: 1" = 2000'
WO Num.: 34646

SECTION 2 TOWNSHIP 25 SOUTH, RANGE 35 EAST, N.M.P.M.,

LEA COUNTY, **NEW MEXICO.**



JAL, NM IS ±10 MILES TO THE SOUTHEAST OF LOCATION.

200 0 200 400 FEET

SCALE: 1" = 200'

DIRECTIONS TO LOCATION:
FROM THE JUNCTION OF STATE HWY 128 AND CO. RD. J-2, GO SOUTHEAST ON HWY 128 FOR APPROX. 6 MILES TO PROPOSED LEASE ROAD

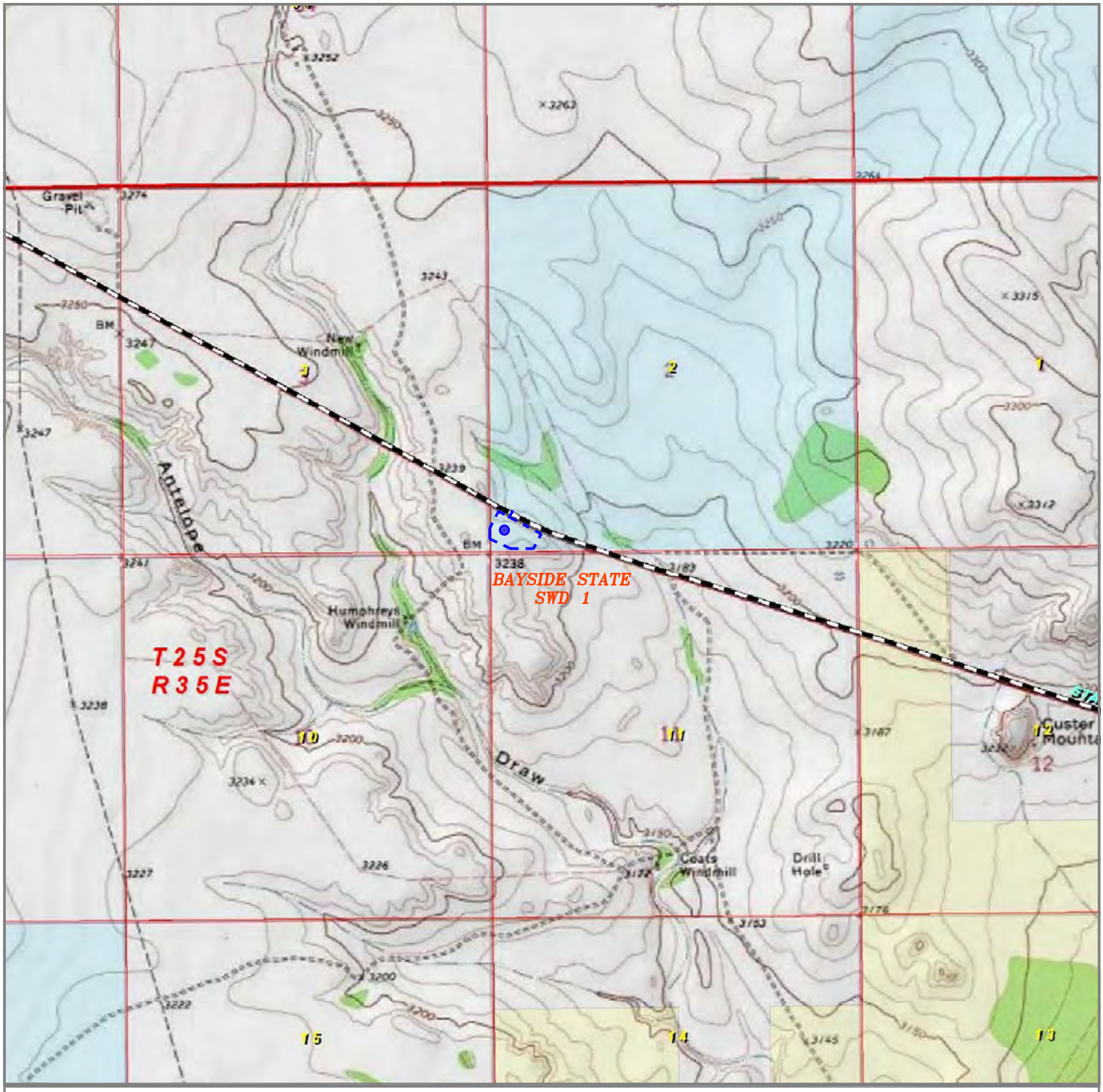
SOLARIS WATER MIDSTREAM

REF: BAYSIDE STATE SWD 1 / WELL PAD TOPO

THE BAYSIDE STATE SWD 1 LOCATED 282' FROM THE SOUTH LINE AND 225' FROM THE WEST LINE OF SECTION 2, TOWNSHIP 25 SOUTH, RANGE 35 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO.

basin surveys
focused on excellence in the oilfield
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number: 34646	Drawn By: K. GOAD	Date: 06-24-2019	Survey Date: 06-23-2019	Sheet 1 of 1 Sheets



BAYSIDE STATE SWD 1

Located 282' FSL & 225' FWL
Section 2, Township 25 South, Range 35 East,
N.M.P.M., Lea County, New Mexico.

basin surveys
focused on excellence in the oilfield

P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 – Office
(575) 392-2206 – Fax
basinsurveys.com

0' 1000' 2000' 3000' 4000'

SCALE: 1" = 2000'

W.O. Number: JG – 34646

Survey Date: 06-23-2019

YELLOW TINT – USA LAND
BLUE TINT – STATE LAND
NATURAL COLOR – FEE LAND

N

SOLARIS WATER MIDSTREAM

BAYSIDE STATE SWD 1

Located 282' FSL & 225' FWL
Section 2, Township 25 South, Range 35 East,
N.M.P.M., Lea County, New Mexico.

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basinsurveys.com

0' 1000' 2000' 3000' 4000'
SCALE: 1" = 2000'

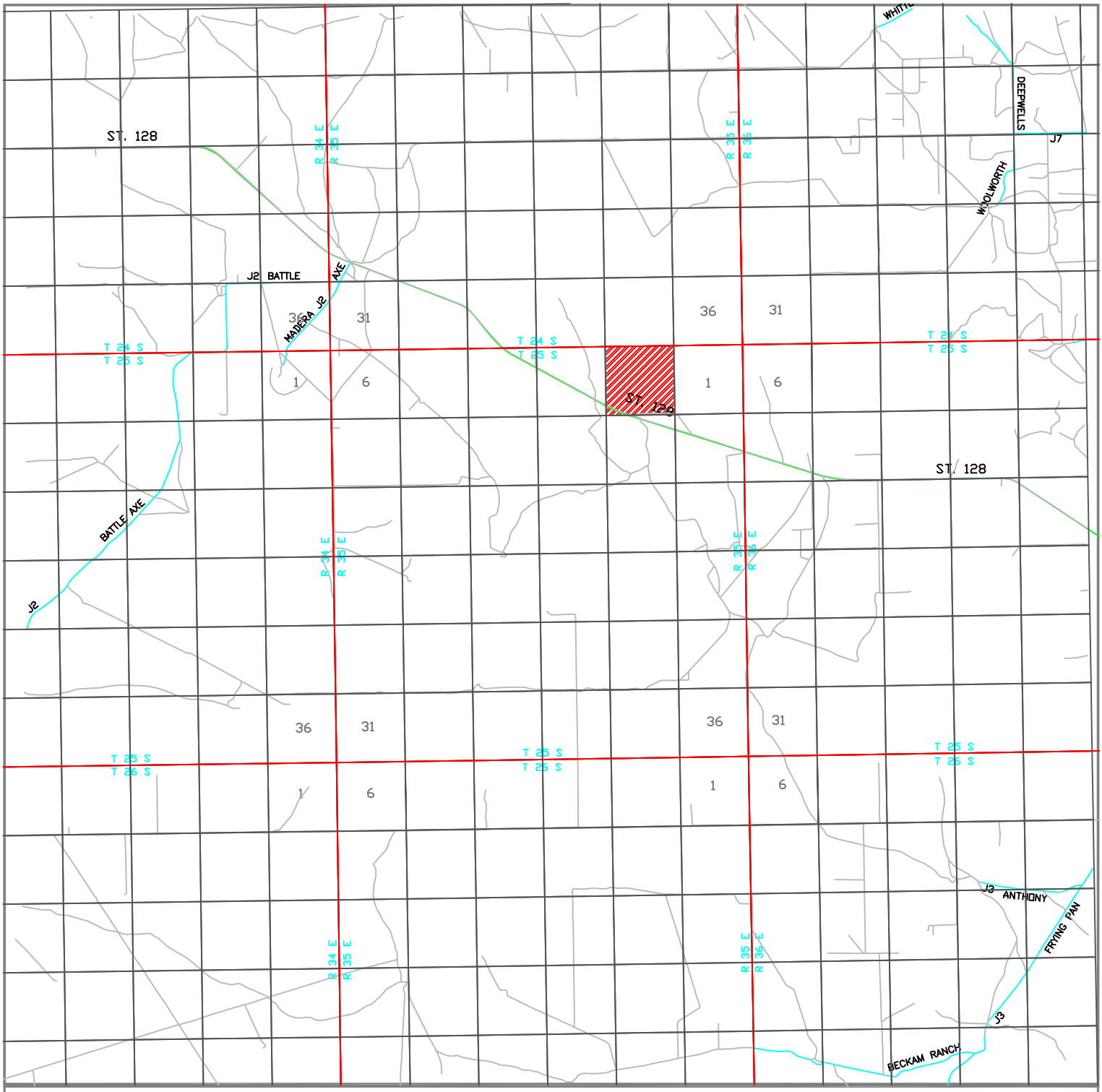
W.O. Number: JG – 34646

Survey Date: 06-23-2019

YELLOW TINT – USA LAND
BLUE TINT – STATE LAND
NATURAL COLOR – FEE LAND

N

SOLARIS WATER MIDSTREAM



BAYSIDE STATE SWD 1

Located 282' FSL & 225' FWL
Section 2, Township 25 South, Range 35 East,
N.M.P.M., Lea County, New Mexico.

basin surveys
focused on excellence in the oilfield

P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 – Office
(575) 392-2206 – Fax
basinsurveys.com

0 1 MI 2 MI 3 MI 4 MI

SCALE: 1" = 2 MILES

W.O. Number: JG – 34646

Survey Date: 06-23-2019

YELLOW TINT – USA LAND
BLUE TINT – STATE LAND
NATURAL COLOR – FEE LAND

N

SOLARIS WATER MIDSTREAM

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: __6/25/19_____

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: _Bayside State SWD #1_____

WELL LOCATION: ____282 FSL 225 FWL_____ M_____ 2_____ 25S_____ 35E_____
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
OSE well logs referenced in written descriptions

Section XIII Proof of Notice

SOLARIS WATER MIDSTREAM - WELLBORE DATA SHEET

Bayside State SWD #1

AREA/SYSTEM:	Pecos Star System
WELL NAME:	Bayside State SWD #1
OBJECTIVE:	Devonion
SHL:	282' FSL & 225' FWL; Sec 2, T25S-R35E
BHL:	Same as SHL
SURFACE ELEV.:	3233
TOTAL DEPTH:	19,230
Design	Chris Giese / Review / Ed Martin

MUD LOGGING / E LOGGING / DIRECTIONAL	CASING SIZE (IN.)		RKB DRILL DEPTH MD	/ TVD	BOPE	FORMATION	HOLE SIZE (IN.)	MUD WT.	FRAC GRAD
	Grnd Level / RKB		30						
	GL ELEV.						Set and grouted		
	30"		120'	/ 120'	Open			8.8	
							18.125"	8.4	
			880			Rustler			
	16"		1,180	/ 1,180	21-1/4"-5M Annular/Diverter			8.4	
	84 lb/ft	J55, BTC						9.5	
			1,230			T/Salt			
Mud Logging to begin @ 2,500'									
			5,055			B/Salt			
							14.75"	9.5 to 10	
	13.375"		5,130	/ 5,130	13-5/8"-5M Annular			10.0	
	68 lb/ft	L-80, EZ-GO FJ3	5,230		13-5/8"-5M BOP's	Bell Canyon		9.4	FIT
			6,280			Cherry Canyon			
			7,755			Brushy Canyon			
			9,070			Bone Spring			
			10,355			1st BS Sand			
			11,130			2nd BS Sand			
			11,930			3rd BS Sand		9.4	
							12.25"	to 10.0	
	TOL		12,090	/ 12,090					
			12,190			Wolfcamp			
	9.625"		12,290	/ 12,290	13-5/8"-5M Annular			10.0	
	53.5lb/ft	HCP-110, BTC			13-5/8"-10M BOP's			12.5	15.6
			12,805			Strawn			
			13,075			Atoka			
			13,880			Morrow		12.5	
							8.5"	to 13.5	
			15,755			Barnett			
			16,780			Miss LM			
			17,180			Woodford			
			17,430			Devonian			
	Liner Wedge 513	7.625"	17,430	/ 17,430	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 19,230 - 0									
USIT/CBL 17,430 - 0									
	Dual	0"	19,230		13-5/8"-5M Annular	Base of Fusselman			
			TD 19,230	/ 19,230	13-5/8"-10M BOP's				

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 -	1180	2,731	Surface
1st Intermediate		14.75"	13.375"	L-80, EZ-GO FJ3	68 lb/ft	0 -	5130	3,141	Surface
2nd Intermediate		12.25"	9.625"	HCP-110, BTC	53.5lb/ft	0 -	12290	2,950	Surface
Liner Wedge 513		8.5"	7.625"	P-110	39 lb/ft	12090	17430	218	Liner Top
Openhole		6.5"				17430	19230		

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: Bayside State SWD #1
Unit Letter M, Section 2, T25S R35E, 282 FSL, 225 FWL

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 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 by using the Florida Exploration Co. #1 Reno in Section 11(D)-T25S-R35E, and GeoMap tops.

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 19,136'

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 17,330 feet.

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 and Fusselman Formations in an open-hole interval.

Formation	GL	3233
Tops	KB	3263
	SS	TVD
Rustler	2383	880
T/Salt	2033	1230
B/Salt	-1792	5055
Lamar		
Bell Canyon	-1967	5230
Cherry Canyon	-3017	6280
Brushy Canyon	-4492	7755
Bone Spring	-5807	9070
1st BS Sand	-7092	10355
2nd BS Sand	-7867	11130
3rd BS Sand	-8667	11930
Wolfcamp	-8927	12190
Penn		
Cisco		
Canyon		
Strawn	-9542	12805
Atoka	-9812	13075
Morrow	-10617	13880
Morrow Clastics		
Morrow Lower		
Barnett	-12492	15755
Miss LM	-13517	16780
Woodford	-13917	17180
Devonian	-14167	17430
Fusselman	-15417	18680
T/Montoya	-16167	19430
Simpson	*-16542*	*19805*
Ellenburger	*-17117*	*20380*
Gtanite		
Injection Interval	**17430**	**19230**
TD	**19230**	

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

The depth interval of the open-hole injection interval is 17430-19230 (1800 feet).

The proposed injection intervals include the formations below the top of the Devonian. The highly cemented carbonates of the Devonian and Fussleman will provide favorable open hole integrity which to inject salt water without concern of the open hole section 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 Zones:

Formation	GL	3233
Tops	KB	3263
	SS	TVD
Bell Canyon	-1967	5230
Cherry Canyon	-3017	6280
Brushy Canyon	-4492	7755
Bone Spring	-5807	9070
1st BS Sand	-7092	10355
2nd BS Sand	-7867	11130
3rd BS Sand	-8667	11930
Wolfcamp	-8927	12190
Strawn	-9542	12805
Atoka	-9812	13075
Morrow	-10617	13880

The next higher petroleum reservoir is the Morrow, which lies about 1675 feet above the top of the Devonian injection zone.

Underlying Oil & Gas Zones:
None exist in this general area.

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 around the proposed SWD. 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 listed on the OCD database.

Plate 2a shows all of the leases and the leaseholder name within the 2-mile area of review. Leases of private minerals are not available on readily available public record, therefore identification of any mineral lessees on the private land (gray stippled) is not presented in Plate 2a. Note that some public land is not leased (e.g. NE quarter of Section 16, 2.5 miles north of the Bayside SWD location) and is shown in gray.

Plate 2b shows the surface ownership based upon data from the Lea County Assessor's Office.

Tabular listing of all mapped leases and surface ownership are presented in

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

The State of New Mexico 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

Table 1 presents information on all wells in the OCD database within the 2-mile Area of Review. One plugged Morrow gas well was drilled to a total depth of 19170 into the Fusselman Formation. Information from Table 1 on this well is summarized below.

30-025-26867	PACIFIC ENTERPRISES OIL CO (USA)	RENO COM #001
D-11-25S-35E	Drilled 7/20/1980	Plugged 6/22/1990

The OCD database contains information on this well at:
http://ocdimage.emnrd.state.nm.us/imaging/WellFileView.aspx?RefType=WF&RefID=30025268670000

Attached to this submission is the 1990 plugging report and schematic submitted to BLM and OCD.

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 is 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: 3,486 psi
Proposed Average Injection Rate: 2,800 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 (also presented in the C-108 for the Solaris Raven State SWD #1 and Eagle State SWD #1) provides the analyses of produced water that would be typical of the water injected into the proposed SWD. The Delaware – Brushy Canyon, Avalon, and Bone Springs and Wolfcamp producing zones will provide 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 these formations into the Devonian/Fusselman 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 injection 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 into the Devonian/Fusselman 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 and Fusselman Formations in an open-hole interval. The highly cemented carbonate nature of these Formations 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 depth to the top of the Devonian and the bottom of the Fusselman are 18,680 and 19,430 respectively. The depth of the injection interval of 17430-19230 (1,800 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.

As shown on Plate 3a, the Ogallala Formation, Alluvium and the Chinle Formation yield water to supply wells in this area of southern Lea County. In the immediate area of the Bayside SWD (Plate 3b), the closest mapped water wells are about ¼ miles south (Misc-294 and CP-624). Examination of Google Earth images suggest that Misc-294 is probably mapped correctly as evidence of stock watering is obvious at this location. The OSE database reports that Well CP-624 is a dry hole to a total depth of 510 feet.

Mapped wells USGS-15013 and USGS-1508/Misc-293 are less than 1 mile distant from the SWD to the south and northwest respectively. Examination of Google Earth images provided no evidence of USGS-15013 to the south, and we believe it is mis-located and is the same well as Misc-294. USGS-1508 is a windmill that appears to be abandoned based upon examination of Google Earth images.

The Ogallala Aquifer is not mapped within the AOR. The mapped outcrop of the Chinle one mile east of the Bayside SWD suggests saturated thickness of any alluvium would be restricted to major drainages, such as Antelope Wash. The Bayside State SWD does not lie within Antelope Wash or a tributary and, therefore, does not overlie any alluvium and shallow groundwater.

In this area of Lea County, the Chinle yields water to wells, but the data from CP-624 suggests the depth to a water bearing unit in the Chinle lies below 510 feet. According to Plate 3a, the elevation of groundwater in the Chinle is about 3020 feet above sea level. The Bayside State SWD#1 is at an elevation of 3235, which provides an estimate of the depth to water of (3235-3020=) 215 feet. Given the “dry hole” (CP-624), water in the Chinle may be under pressure.

The upper portion of the Rustler Formation yields fresh water to wells in Eddy County and in the area of the Bayside SWD, the depth interval of this potential source of fresh water is about 880-1230 feet. We believe it highly unlikely that the Rustler contains potable water. Nevertheless, setting surface casing to a depth of 1180 is prudent.

The locations of all water supply wells listed in public databases are shown in Plate 3b. As stated above, there are no active water supply wells within 1 mile of the proposed location. About 1.4 miles northwest of the SWD location three wells are mapped. We believe USGS 15016 may be an active well at a ranch house and Misc-310/USGS-15007 are the same well located at what appears to be an abandoned stock trough.

The location of nearby mapped surface water bodies are shown in Plate 4.

In the area of the Bayside SWD, the depth interval of the Rustler is about 880-1230 feet, according to the BLM and OCD and, 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. Thus, in this area, surface casing required by OCD to prevent impairment of fresh water runs from ground surface to a depth of 1180 feet at the proposed Bayside 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

Two water supply wells were identified within one mile of the proposed SWD from public data bases. As discussed above, these are not active wells. Nevertheless, data from various sources permit a conclusion that groundwater within the Chinle Formation in this area is potable. In this area, groundwater in the underlying Rustler formation is probably 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 Bayside State 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 7 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 17,000 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 injection zone would undoubtedly enter these permeable formations prior to moving through the 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

Form 3160-5
(December 1989)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

1-1-22

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: September 30, 1990

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.
SRM-1538 NM-19209

6. If Indian, Allottee or Tribe Name

7. If Unit or CA, Agreement Designation

1. Type of Well
☐ Oil Well ☒ Gas Well ☐ Other

8. Well Name and No.
Reno-Comm#1 17223

2. Name of Operator
Pacific Enterprises Oil Co. U.S. A.

9. API Well No.

3. Address and Telephone No.
P. O. Box 3083, Midland, Texas 79701 (915) 684-3861

10. Field and Pool, or Exploratory Area
Humphreys-Mills-Morro

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
1200' FNL & 1200' FWL Unit D
Sec. 11, T-25-S, R-35-E

11. County or Parish, State
Lea, N. M.

12. CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☒ Abandonment	☐ Change of Plans
☐ Subsequent Report	☐ Recompletion	☐ New Construction
☒ Final Abandonment Notice	☐ Plugging Back	☐ Non Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☐ Other	

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

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

6/19/90	Baker Model D. B. Permian PKR. @ 14,490' 20SKS				
6/19/90	Plug	@ 12,550'	150 SKS	Cement	T&G @ 11,680'
6/20/90	Plug	@ 8,090'	80 SKS	Cement	T&G @
6/20/90	Plug	@ 5,104'	75 SKS	Cement	T&G Plug @ 4,925'
6/21/90	Plug	@ 3,570'	50 SKS	Cement	
6/21/90	Plug	@ 1,200'	50 SKS	Cement	
6/21/90	Plug	@ 465"	50 SKS	Cement	T&G Plug @ 345'
6/22/90	Plug	@ Surf	10 SKS		

RECEIVED
JUL 11 10 44 AM '90

API 30 025 26867

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

Signed Nancy Tatum Title Engineering Tech Date 7-10-90

(This space for Federal or State office use)

Approved by Title PETROLEUM ENGINEER Date 7-17-90
Conditions of approval, if any:

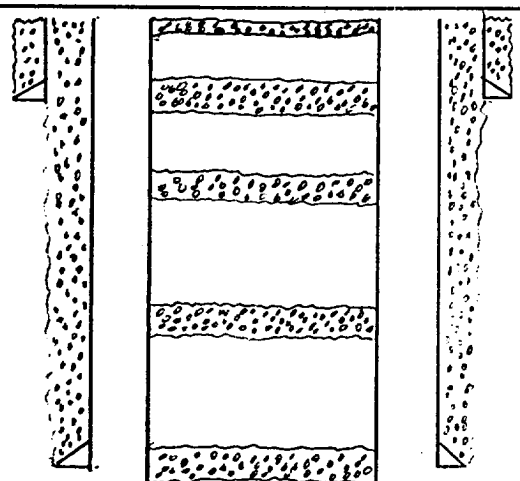
Approval is granted for well bore,
Liability
Surface restoration is complete.

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

9

EXHIBIT "A"
ROBERT E. LANDRETH
RENO FEDERAL COM. NO. 1
1200' FNL & 1200' FWL, Sec. 11, T25S, R35E
Lea County, NM

Spud Date: 7-20-80 Plug Date: 6-22-90

Plug Size & Depth	Existing Casing & Cement Plugs	Bit	Casing	Depth	Cement
0 sks. @ surface 0 sks. 465' to 345' (tagged)		26"	20" 94#	415'	850 sks.
0 sks. spotted @ 1200' across top of Salt)					
0 sks. spotted @ 3570' across base of Salt)					
5 Sks. 5104' to 4925' (tagged)		17½"	13-3/8" 54#-72#	5,029'	6,000 sks.
0 sks. spotted @ 8090' across DV tool)					
50 sks. 12,550' to 1,680' (tagged)		12¼"	10-3/4" 51#-60.7#	12,429'	Two Stages 1838 sks. & 1585 sks.
aker Model D.B. Perm. kr @ 14,490' capped /20 sks. cmt.	Perfs: 15,246'-49' 15,260'-68' 15,390'-98'				
IBP @ 16,665' capped /17' cmt.		9½"	7-3/4" 46.1#	12,091' to 16,829'	1130 sks.
		6¼"	5" 18#-23#	16,667' to 19,170'	235 sks.

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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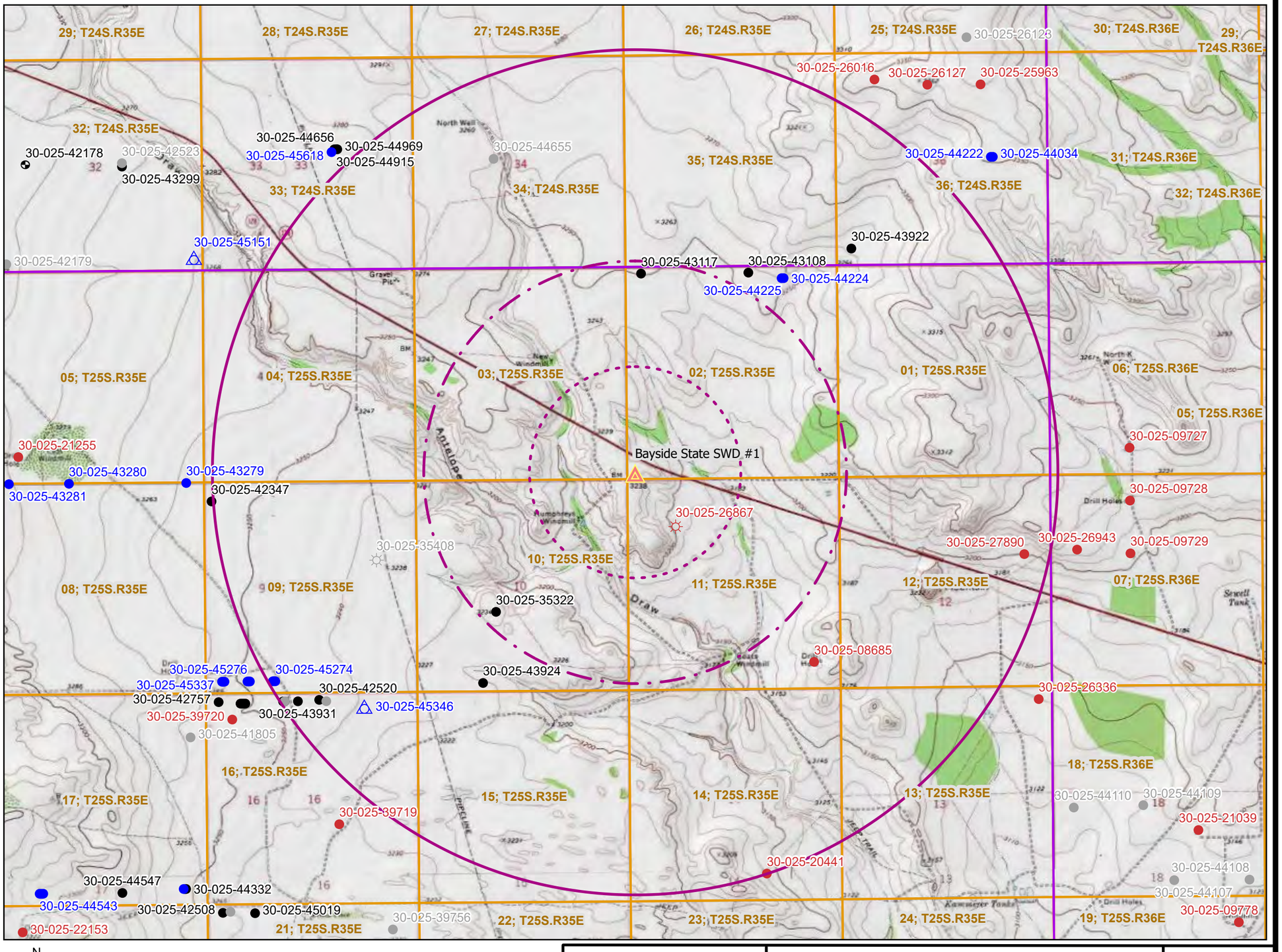

SWD

Distance (miles)

0.5

1

2

Oil and Gas (NMOCD)

Miscellaneous

Gas, Cancelled

Gas, Plugged

Oil, Active

Oil, Cancelled

Oil, New

Oil, Plugged

Salt Water Injection, New

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

Solaris Water Midstream
Bayside State SWD #1

Plate 1a

June 2019

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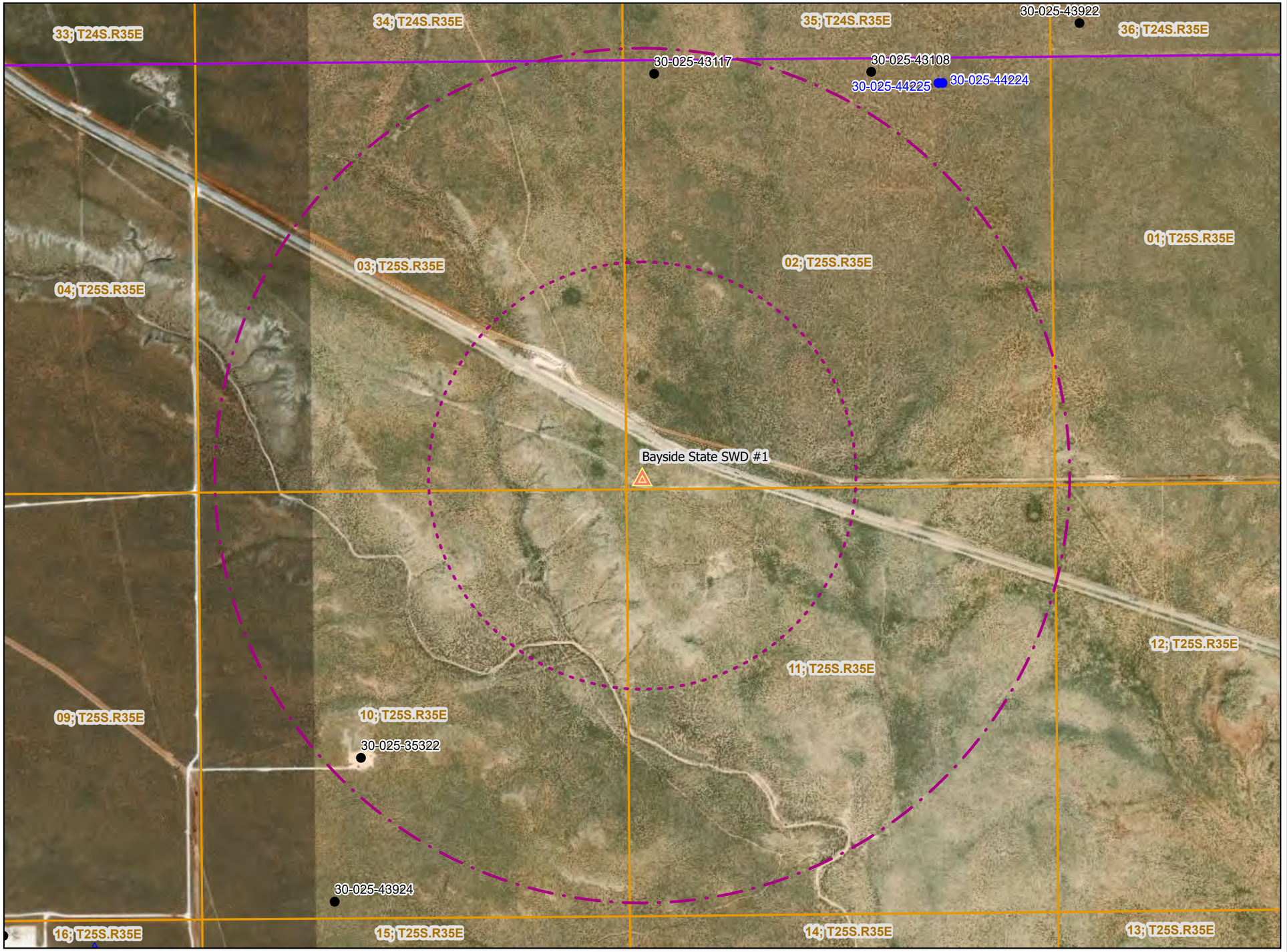

SWD

Distance (miles)

0.5

1

2

Oil and Gas (NMOCD)

Oil, Active

Oil, New

Salt Water Injection, New

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

Oil and Gas Wells within 1-mile (Active Only)

Solaris Water Midstream
Bayside State SWD #1

Plate 1b

June 2019

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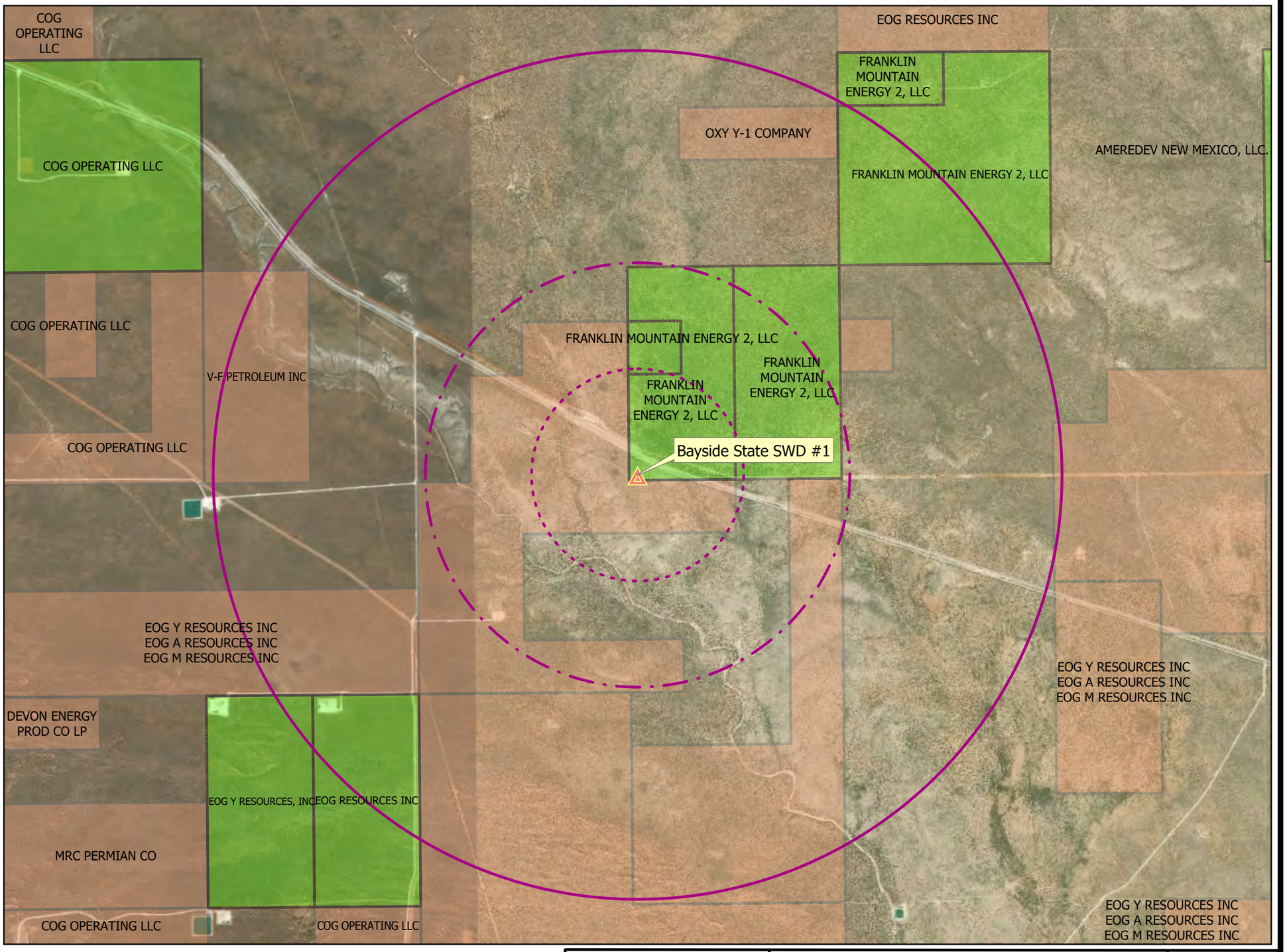

SWD
Distance (miles)
0.5
1
2
Oil and Gas Leases
SLO Leases
BLM Leases

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	New Mexico BLM and SLO Leases within 2 Miles Solaris Water Midstream Bayside State SWD #1	Plate 2a June 2019

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

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 Surface Ownership within 2 Miles

Solaris Water Midstream
Bayside State SWD #1

Plate 2b

June 2019

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SWD

USGS Gauging Station (DTW, Date)

Aquifer Code, Well Status

- Alluvium/Bolsom
- Alluviu/Bolsom, Site was being pumped.
- Ogallala
- Ogallala, Site had been pumped recently.
- Chinle
- Chinle, Site was being pumped.
- Santa Rosa
- Not Defined

Misc. Water Wells (Well ID, DTW)

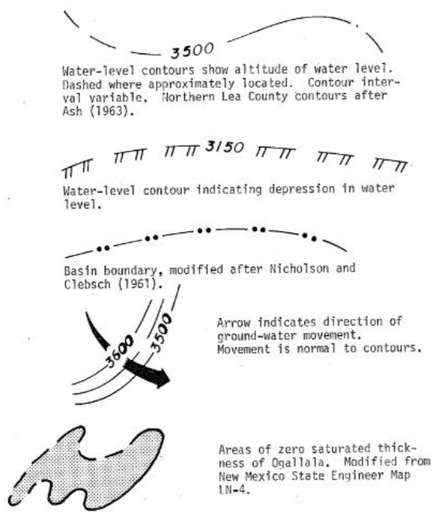
Well Depth (ft)

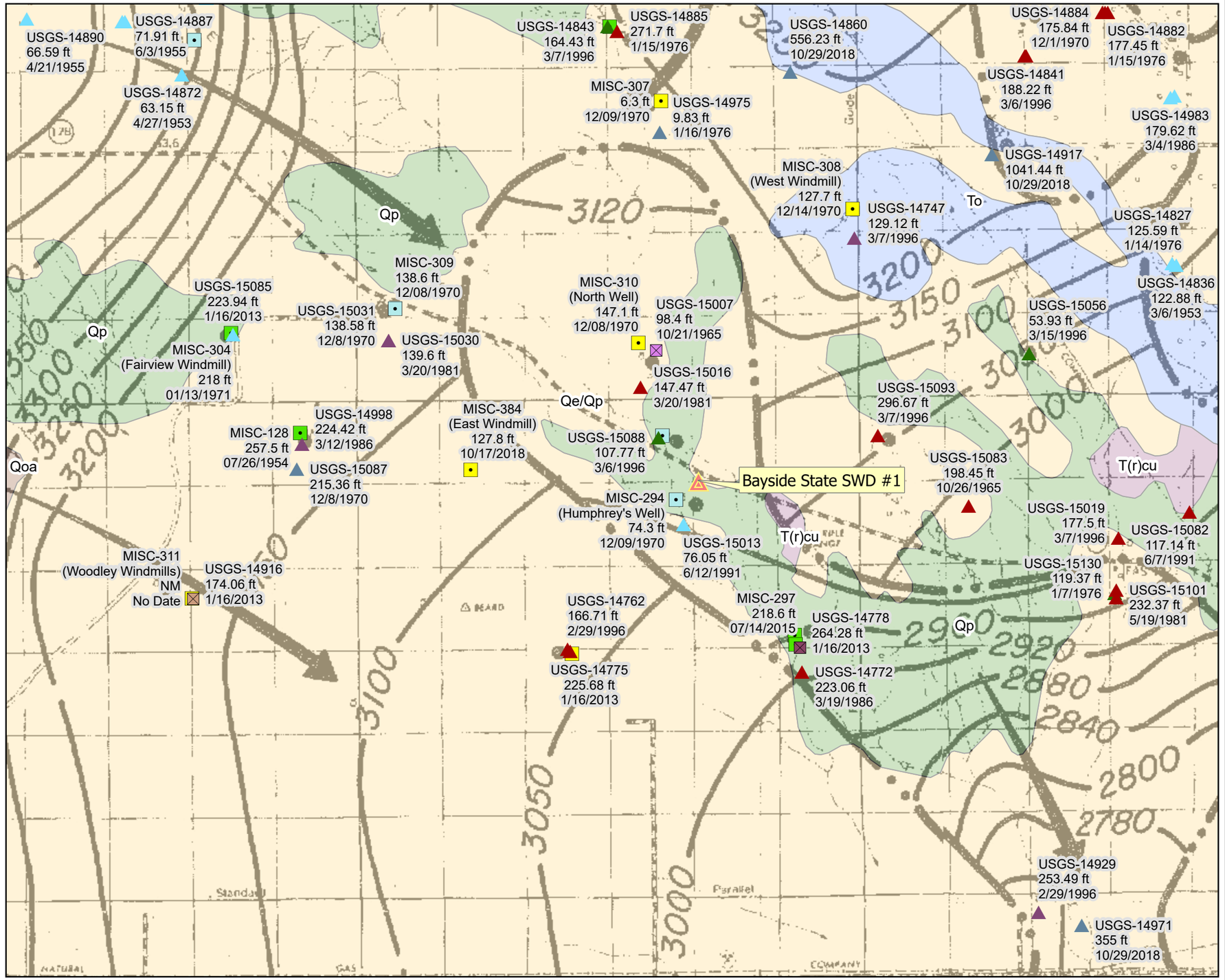
- No Data
- <= 150
- 151 - 350

NM Geology

Map Unit,Description

- 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
- T(r)cu,Triassic-Upper Chinle Group,T(r)cu,Triassic-Upper Chinle Group
- To, Tertiary-Ogallala Formation,To, Tertiary-Ogallala Formation





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

Depth to Water and Groundwater Elevation (Basemap USGS OFR-95)

Solaris Water Midstream
Bayside State SWD #1

Plate 3a

June 2019

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SWD

Distance (miles)

0.5

1

2

Misc. Water Wells (Well ID, DTW)

Well Depth (ft)

No Data

<= 150

151 - 350

OSE Wells (DTW, Date)

Well Depth (ft)

No Data/Pending

151 - 350

501 - 1000

USGS Gauging Station (DTW, Date)

Aquifer Code, Well Status

Alluvium/Bolsom

Alluviu/Bolsom, Site was being pumped.

Ogallala

Chinle, Site was being pumped.

Santa Rosa

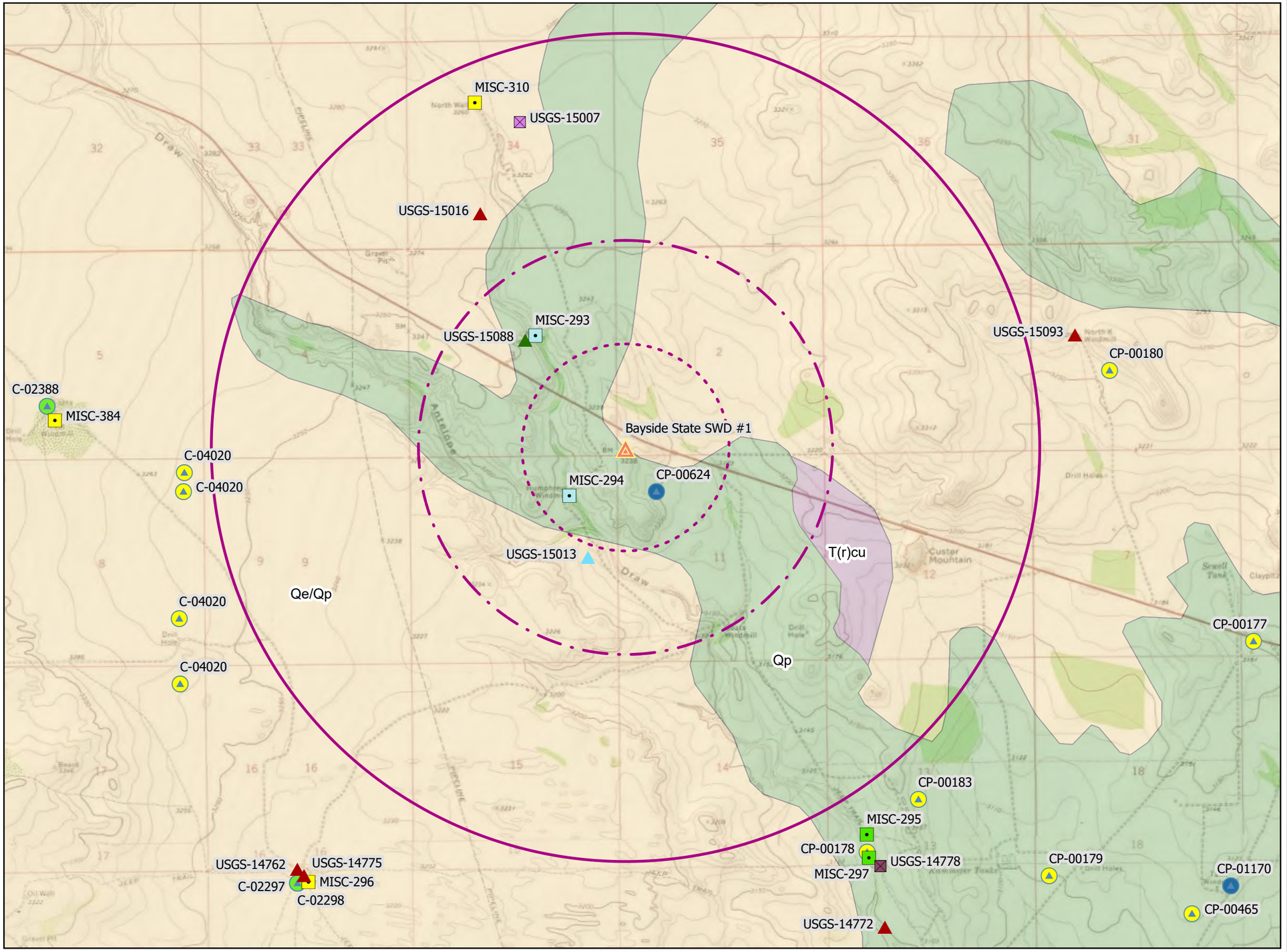
NM Geology

Map Unit,Description

Qe/Qp, Quaternary-Eolian Piedmont Deposits

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

T(r)cu,Triassic-Upper Chinle Group,T(r)cu,Triassic-Upper Chinle Group



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	Nearby Water Wells and Geology Solaris Water Midstream Bayside State SWD #1	Plate 3b June 2019

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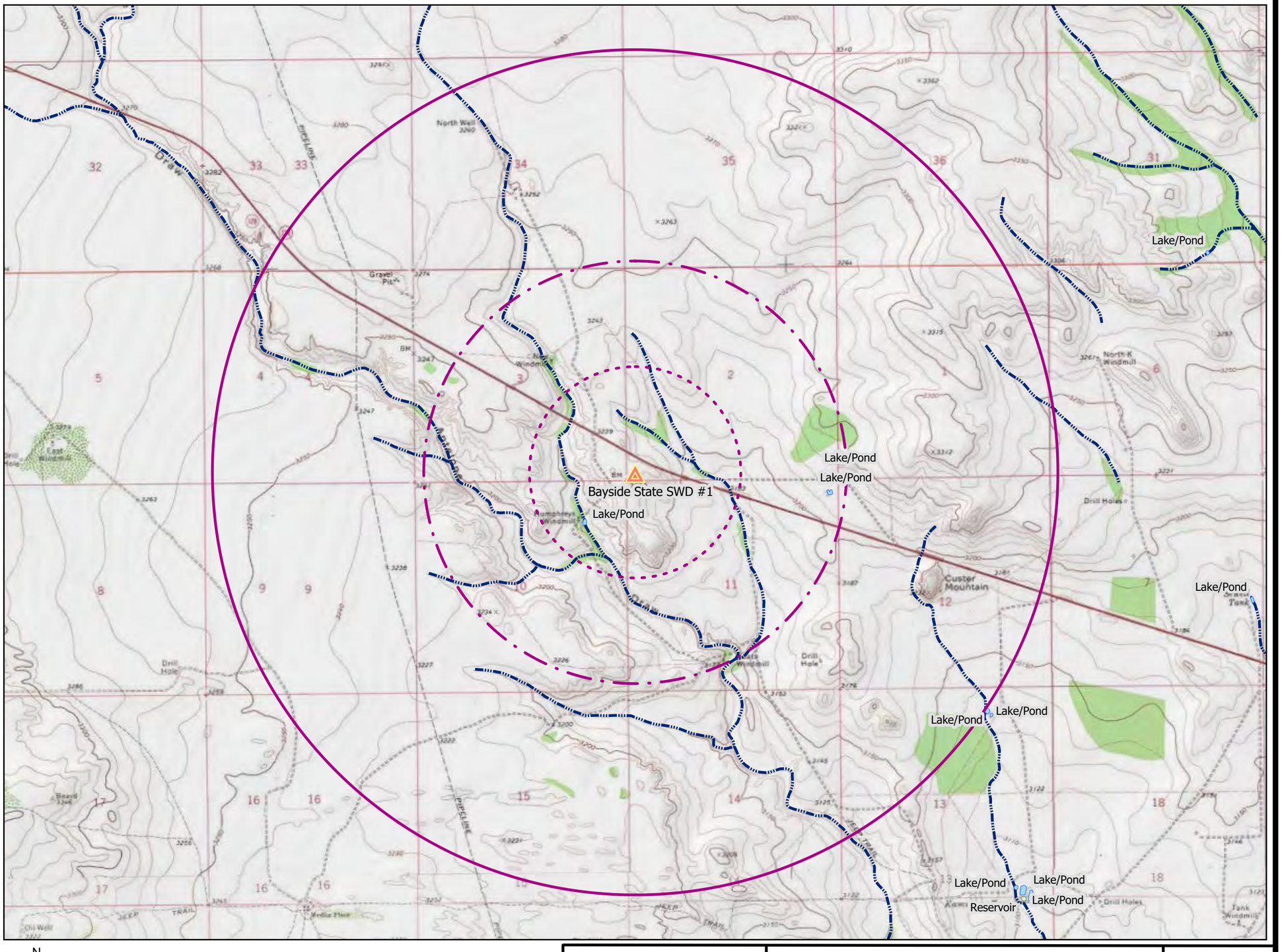

SWD

Distance (miles)

0.5

1

2

Water Bodies (1307)

Lake/Pond

Reservoir

River and Drainages (1307)

Stream/River Artificial Path

Intermittent Stream

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

Surface Water	Plate 4
Solaris Water Midstream Bayside State SWD #1	June 2019

Tables

API	OGRID	OGRID Name	Well Type	Status	Well Name	UL-S-T-R	Total Depth	Associated Pools
30-025-08685	214263	PRE-ONGARD WELL OPERATOR	O	P	PRE-ONGARD WELL #001	P-11-25S-35E	5148	
30-025-20441	214263	PRE-ONGARD WELL OPERATOR	O	P	PRE-ONGARD WELL #001	O-14-25S-35E	350	
30-025-26867	16801	PACIFIC ENTERPRISES OIL CO (USA)	G	P	RENO COM #001	D-11-25S-35E	19170	[78875] HUMPHREYS MILL, MORROW (GAS)
30-025-27890	214263	PRE-ONGARD WELL OPERATOR	O	P	PRE-ONGARD WELL #001	H-12-25S-35E	3700	
30-025-35322	229137	COG OPERATING LLC	O	A	OXY BANANA GIRL FEDERAL #002	K-10-25S-35E	16075	[97225] WILDCAT S253510K, STRAWN (GAS)
30-025-35408	192463	OXY USA WTP LIMITED PARTNERSHIP	G	C	OXY BANANA GIRL #003	H-09-25S-35E	0	
30-025-42520	7377	EOG RESOURCES INC	O	A	WHEATFIELD 16 STATE #701H	B-16-25S-35E	12438	[17980] DOGIE DRAW, WOLFCAMP
30-025-42787	7377	EOG RESOURCES INC	O	C	WHEATFIELD 16 STATE #702C	B-16-25S-35E	0	[17980] DOGIE DRAW, WOLFCAMP
30-025-43085	270329	ENDURANCE RESOURCES LLC	O	C	WHITE FALCON 16 STATE #002C	C-16-25S-35E	0	[97779] DOGIE DRAW, DELAWARE
30-025-43108	373908	Franklin Mountain Energy 2 LLC	O	A	PARADE BWY STATE #001H	2-02-25S-35E	8987	[98185] WC-025 G-09 S253502B, LWR BONE SPRIN; [98187] WC-025 G-09 S253502D, UPR WOLFCAMP
30-025-43117	373908	Franklin Mountain Energy 2 LLC	O	A	COUNTY FAIR BTY STATE #001H	4-02-25S-35E	12012	[98187] WC-025 G-09 S253502D, UPR WOLFCAMP
30-025-43922	373908	Franklin Mountain Energy 2 LLC	O	A	PROXY WCA STATE COM #001H	M-36-24S-35E	11954	[98187] WC-025 G-09 S253502D, UPR WOLFCAMP
30-025-43924	229137	COG OPERATING LLC	O	A	MONTERA FEDERAL #023H	N-10-25S-35E	12315	[17980] DOGIE DRAW, WOLFCAMP
30-025-43930	229137	COG OPERATING LLC	O	A	WHITE FALCON 16 FEDERAL COM #011H	C-16-25S-35E	12327	[97088] WC-025 G-08 S253534O, BONE SPRING
30-025-43931	229137	COG OPERATING LLC	O	A	WHITE FALCON 16 FEDERAL COM #021H	C-16-25S-35E	12513	[17980] DOGIE DRAW, WOLFCAMP
30-025-43932	229137	COG OPERATING LLC	O	A	WHITE FALCON 16 FEDERAL COM #022H	C-16-25S-35E	12584	[17980] DOGIE DRAW, WOLFCAMP
30-025-44224	373908	Franklin Mountain Energy 2 LLC	O	N	PARADE WCB STATE COM #001H	2-02-25S-35E	0	[98187] WC-025 G-09 S253502D, UPR WOLFCAMP
30-025-44225	373908	Franklin Mountain Energy 2 LLC	O	N	PARADE WCXY STATE COM #001H	2-02-25S-35E	0	[98187] WC-025 G-09 S253502D, UPR WOLFCAMP
30-025-44655	372043	TAP ROCK OPERATING, LLC	O	C	MAN HANDS 24S35E3427 #217C	F-34-24S-35E	0	[98098] WC-025 G-09 S243532M, WOLFBONE
30-025-45274	229137	COG OPERATING LLC	O	N	FEZ FEDERAL COM #601H	N-09-25S-35E	0	[98098] WC-025 G-09 S243532M, WOLFBONE
30-025-45275	229137	COG OPERATING LLC	O	N	FEZ FEDERAL COM #602H	N-09-25S-35E	0	[98098] WC-025 G-09 S243532M, WOLFBONE
30-025-45277	229137	COG OPERATING LLC	O	N	FEZ FEDERAL COM #701H	N-09-25S-35E	0	[98098] WC-025 G-09 S243532M, WOLFBONE
30-025-45346	371643	SOLARIS WATER MIDSTREAM, LLC	S	N	SCREECH STATE SWD #001	A-16-25S-35E	0	[97869] SWD, DEVONIAN-SILURIAN

Serial Number	Name 1	Acres
NMNM 045706	OCCIDENTAL PERMIAN LP	1400
NMNM 101608	COG OPERATING LLC	1600
NMNM 101609	CHEVRON USA INC	1920
NMNM 120912		120
NMNM 125657	V-F PETROLEUM INC	321.72
NMNM 125658	EOG Y RESOURCES INC	640
NMNM 127447	EOG Y RESOURCES INC	2443.45

OGRID	OGRID Name	Lease	Status	Acres
7377	EOG RESOURCES INC	VB19710001	Active	320
25575	EOG Y RESOURCES, INC.	VB19720001	Active	320
328094	FRANKLIN MOUNTAIN ENERGY 2, LLC	V092360003	Active	80
328094	FRANKLIN MOUNTAIN ENERGY 2, LLC	V092560003	Active	560
328094	FRANKLIN MOUNTAIN ENERGY 2, LLC	VB21170003	Active	321.66
328094	FRANKLIN MOUNTAIN ENERGY 2, LLC	VB21210003	Active	40
328094	FRANKLIN MOUNTAIN ENERGY 2, LLC	VB21210003	Active	281.78

UPC	Parcel Code	Name	Address 1	Address 2	City	State	Zip	Acres	Township	Range	Section
4206145262272	4000516900001	DESTINY MANAGEMENT INC	1004 N BIG SPRING	STE 220	MIDLAND	TX	79701	624.803	25	35	04
4209146312215	4000516980001	DINWIDDIE CATTLE COMPANY LLC		PO BOX 963	CAPITAN	NM	88316	309.94	25	35	12
4210146255186	4000517040001	DINWIDDIE CATTLE COMPANY LLC	PO BOX 963		CAPITAN	NM	88316	325.577	25	36	07
4209145398265	4000517050002	DINWIDDIE CATTLE COMPANY LLC		PO BOX 963	CAPITAN	NM	88316	319.908	25	35	01
4209147266398	4000517050004	DINWIDDIE CATTLE COMPANY LLC		PO BOX 963	CAPITAN	NM	88316	319.637	25	35	13
4208147400463	4000517050005	DINWIDDIE CATTLE COMPANY LLC		PO BOX 963	CAPITAN	NM	88316	80.076	25	35	14
4210145267266	4000517050008	DINWIDDIE CATTLE COMPANY LLC		PO BOX 963	CAPITAN	NM	88316	644.19	25	36	06
4209145134267	4000517060004	DINWIDDIE CATTLE COMPANY LLC		PO BOX 963	CAPITAN	NM	88316	320.5032765	25	35	01
4208147465330	4000517060005	DINWIDDIE CATTLE COMPANY LLC		PO BOX 963	CAPITAN	NM	88316	40.04391807	25	35	14
4206146266265	4000517880002	QUAIL RANCH LLC	PO BOX 2795		RUIDOSO	NM	88355	640.856	25	35	09
4208146698465	4000518890012	NEW MEXICO TEN LTD	BOX 305		CEDAR HILL	TX	75104	40.026	25	35	11
4208146328113	4000518890009	NEW MEXICO TEN LTD	BOX 305		CEDAR HILL	TX	75104	282.102	25	35	11
4207147287155	4000518890014	NEW MEXICO TEN LTD	BOX 305		CEDAR HILL	TX	75104	359.955	25	35	15
4208147278949	4000518890010	NEW MEXICO TEN LTD	BOX 305		CEDAR HILL	TX	75104	200.246	25	35	14
4208147693400	4000518890013	NEW MEXICO TEN LTD	BOX 305		CEDAR HILL	TX	75104	80.07	25	35	14
4207146267463	4000518890015	NEW MEXICO TEN LTD	BOX 305		CEDAR HILL	TX	75104	159.928	25	35	10
4207146265199	4000518890011	NEW MEXICO TEN LTD	BOX 305		CEDAR HILL	TX	75104	479.903	25	35	10
4207144223310	4000518890006	NEW MEXICO TEN LTD	BOX 305		CEDAR HILL	TX	75104	480	24	35	34
4208144266267	4000518890007	NEW MEXICO TEN LTD	BOX 305		CEDAR HILL	TX	75104	640	24	35	35
4206144269263	4000518890005	NEW MEXICO TEN LTD	BOX 305		CEDAR HILL	TX	75104	625.052	24	35	33
4207145309161	4000518890008	NEW MEXICO TEN LTD	BOX 305		CEDAR HILL	TX	75104	355.874	25	35	03
4208146134267	4000518890016	NEW MEXICO TEN LTD	BOX 305		CEDAR HILL	TX	75104	160.206	25	35	11
4208146331259	4000518890009	NEW MEXICO TEN LTD	BOX 305		CEDAR HILL	TX	75104	413.225	25	35	11

Table 3: Produced Water Chemistry of Nearby Wells Raven SWD # 1

Well Name	API #	Sect.	Twn.	Rng.	Unit	Cty.	Formation	Sample Date	pH	TDS m/gL	Resistivity ohm_cm	Na mg/L	Ca mg/L	Fe mg/L	Mg mg/L	Mn mg/L	Cl mg/L	HCO3 mg/L	SO4 mg/L	CO2 mg/L
SALADO DRAW 6 FEDERAL #001H	3002541293	6	26S	34E	M	Lea	BONE SPRING 3RD SAND	7/30/2014 0:00	6.6	99401.9	0.064	34493.3	3295	0.4	396.8	0.37	59986.5	109.8	710	70
SALADO DRAW 6 FEDERAL #001H	3002541293	6	26S	34E	M	Lea	BONE SPRING 3RD SAND	8/19/2014 0:00	6.5	99612.7	0.064	34586.5	3244	10.3	417.7	0.39	59986.5	158.6	820	50
SALADO DRAW 6 FEDERAL #001H	3002541293	6	26S	34E	M	Lea	BONE SPRING 3RD SAND	1/29/2014 0:00	6.7	95604		31066	3196	10	394	0.5	59071	183	0	100
SALADO DRAW 6 FEDERAL #001H	3002541293	6	26S	34E	M	Lea	BONE SPRING 3RD SAND	11/24/2014 0:00	7				3289	0.3	474.5	0.38		219.6		300
SALADO DRAW 6 FEDERAL #001H	3002541293	6	26S	34E	M	Lea	BONE SPRING 3RD SAND	12/11/2014 0:00	7	98321.4	0.065	33892.3	3267	9.5	534.7	0.39	59386.6	219.6	635	300
ICHABOD 7 FEDERAL #004H	3002540574	7	26S	34E	P	Lea	DELAWARE-BRUSHY CANYON	7/1/2014 0:00	6.3	232754.7		71556.2	15222.7	113.1	2609.4	4.05	140558	244	0	0
ICHABOD 7 FEDERAL #004H	3002540574	7	26S	34E	P	Lea	DELAWARE-BRUSHY CANYON	8/28/2012 0:00	7.3	204619		61053.4	13288	48	2261	2.5	124979	219.6	997	40
ICHABOD 7 FEDERAL #001H	3002540043	7	26S	34E	P	Lea	AVALON UPPER	10/3/2014 0:00	8.25	1508.7	0.029	317.4	90.7	0	55.4	0	242.4	125	675	0
ICHABOD 7 FEDERAL #001H	3002540043	7	26S	34E	P	Lea	AVALON UPPER	10/3/2014 0:00	5.97	220260.7	0.029	66687.9	13470	121.8	2827	3.42	134969.6	440	910	1400
ICHABOD 7 FEDERAL #001H	3002540043	7	26S	34E	P	Lea	AVALON UPPER	11/24/2014 0:00	7				8614	33	1755	3.73		1403		2670
ICHABOD 7 FEDERAL #001H	3002540043	7	26S	34E	P	Lea	AVALON UPPER	12/11/2014 0:00	7	225003.5	0.028	76053.3	8718	159.9	1414	3.26	136469.2	231.8	1395	900
ICHABOD 7 FEDERAL #004H	3002540574	7	26S	34E	P	Lea	DELAWARE-BRUSHY CANYON	12/11/2014 0:00	7	229575.5	0.028	69087.1	15140	121	2391	3.91	140268.4	1202	490	850
ICHABOD 7 FEDERAL #001H	3002540043	7	26S	34E	P	Lea	AVALON UPPER	4/4/2012 0:00	6.7	211246.6		71749.9	7064	68	1291	2	125645	1049.2	2840	50
RAGIN CAJUN 12 FEDERAL #002H	3002542256	12	26S	34E	M	Lea	DELAWARE-BRUSHY CANYON	7/16/2014 0:00	5.9	234275.2		66931.8	14864.3	58.2	2824.5	3.34	147046	244	36	540
RAGIN CAJUN 12 FEDERAL #001H	3002541188	12	26S	34E	O	Lea	DELAWARE-BRUSHY CANYON	7/30/2014 0:00	5.8	234081.1	0.027	71944.4	14010	27	2679	2.9	143967.5	61	560	250
RAGIN CAJUN 12 FEDERAL #001H	3002541188	12	26S	34E	O	Lea	DELAWARE-BRUSHY CANYON	8/19/2014 0:00	5.7	230390.5	0.028	68909	14660	37.6	3226	2.81	141968	109.8	635	450
RAGIN CAJUN 12 FEDERAL #001H	3002541188	12	26S	34E	O	Lea	DELAWARE-BRUSHY CANYON	11/24/2014 0:00	6				12570	13.7	3244	3.51		170.8		790
RAGIN CAJUN 12 FEDERAL #001H	3002541188	12	26S	34E	O	Lea	DELAWARE-BRUSHY CANYON	12/11/2014 0:00	6	232609.8	0.028	67144	17640	24.6	2789	3.69	143367.7	170.8	530	790
RATTLESNAKE 13 FEDERAL #002H	3002541247	13	26S	34E	B	Lea	DELAWARE-BRUSHY CANYON	7/16/2014 0:00	6	227045.4		64080.1	14521.3	40.3	2543.8	3.57	143469	122	0	200
RAGIN CAJUN 13 FEDERAL #001H	3002541259	13	26S	34E	N	Lea	DELAWARE-BRUSHY CANYON	7/16/2014 0:00	6.7	165212.8		45382.9	10714.8	38.4	1824.7	3.14	105060	244	18	370
RAGIN CAJUN 13 FEDERAL #002H	3002541273	13	26S	34E	M	Lea	DELAWARE-BRUSHY CANYON	7/16/2014 0:00	6.4	174604.2		49562.8	11420.3	45.7	1946.5	3.19	109315	231.8	18	380
RATTLESNAKE 13 12 FEDERAL COM #001H	3002540912	13	26S	34E	P	Lea	DELAWARE-BRUSHY CANYON	7/30/2014 0:00	6.2	243517.1	0.026	73409.8	15800	18.8	2869	3.12	149966.2	48.8	560	200
RAGIN CAJUN 13 FEDERAL #001H	3002541259	13	26S	34E	N	Lea	DELAWARE-BRUSHY CANYON	7/30/2014 0:00	6.2	194590.2	0.033	55244.8	15260	22.6	2592	2.88	119973	48.8	710	200
RATTLESNAKE 13 12 FEDERAL COM #001H	3002540912	13	26S	34E	P	Lea	DELAWARE-BRUSHY CANYON	8/19/2014 0:00	5.8	237253.4	0.027	70270.3	16360	38.8	2889	3.2	145967.1	85.4	820	270
RAGIN CAJUN 13 FEDERAL #001H	3002541259	13	26S	34E	N	Lea	DELAWARE-BRUSHY CANYON	8/19/2014 0:00	5.8	210915.4	0.03	60929	15360	24.4	2986	3.14	129970.7	85.4	820	350
RATTLESNAKE 13 12 FEDERAL COM #001H	3002540912	13	26S	34E	P	Lea	DELAWARE-BRUSHY CANYON	9/19/2013 0:00	6.7	216889.9		61033	14133	57	2562	3.5	136770	146.4	603	30
RATTLESNAKE FEDERAL UNIT #006	3002537629	13	26S	34E		Lea		4/10/2007 0:00	5.1	242375.1		76077.6	12910	48	2499	2.5	148294	146	754	
RATTLESNAKE FEDERAL UNIT #006	3002537629	13	26S	34E		Lea		6/26/2014 0:00	6.1	262911.3		71964	24902.5	58.5	3835.8	8.29	159177	122	0	300
RATTLESNAKE 13 12 FEDERAL COM #001H	3002540912	13	26S	34E	P	Lea	DELAWARE-BRUSHY CANYON	6/26/2014 0:00	5.8	294790.8		82865.5	25101.5	44.1	3824.7	8.14	178552	122	0	400
RATTLESNAKE 13 12 FEDERAL COM #001H	3002540912	13	26S	34E	P	Lea	DELAWARE-BRUSHY CANYON	6/26/2014 0:00	6.5	243702.6		72700	17288.4	36.7	3113.4	3.64	147982	122	0	300
RATTLESNAKE 13 12 FEDERAL COM #001H	3002540912	13	26S	34E	P	Lea	DELAWARE-BRUSHY CANYON	11/24/2014 0:00	6				16550	44.6	3471	3.61		170.8		1000
RATTLESNAKE 13 FEDERAL #002H	3002541247	13	26S	34E	B	Lea	DELAWARE-BRUSHY CANYON	11/24/2014 0:00	7				14830	18.4	3055	3.67		109.8		800
RAGIN CAJUN 13 FEDERAL #001H	3002541259	13	26S	34E	N	Lea	DELAWARE-BRUSHY CANYON	11/24/2014 0:00	6				15880	22	3528	3.32		170.8		2720
RAGIN CAJUN 13 FEDERAL #002H	3002541273	13	26S	34E	M	Lea	DELAWARE-BRUSHY CANYON	11/24/2014 0:00	6				16380	20.5	3296	3.57		122		1000
RATTLESNAKE 13 12 FEDERAL COM #001H	3002540912	13	26S	34E	P	Lea	DELAWARE-BRUSHY CANYON	12/11/2014 0:00	6	237717.1	0.027	69712.7	16960	38.6	2793	3.53	145567.2	1220	490	1630
RATTLESNAKE 13 FEDERAL #002H	3002541247	13	26S	34E	B	Lea	DELAWARE-BRUSHY CANYON	12/11/2014 0:00	6	232791.8	0.028	70589.6	15060	28.4	2458	3.37	143167.7	110	490	1220
RAGIN CAJUN 13 FEDERAL #001H	3002541259	13	26S	34E	N	Lea	DELAWARE-BRUSHY CANYON	12/11/2014 0:00	6	196569.9	0.033	54329.2	16280	39.7	2864	3.09	121672.6	170.8	225.5	2720
RAGIN CAJUN 13 FEDERAL #002H	3002541273	13	26S	34E	M	Lea	DELAWARE-BRUSHY CANYON	12/11/2014 0:00	6	229426.7	0.028	69461.4	15070	28.3	2355	3.3	140968.2	146.4	600	800
RATTLESNAKE FEDERAL UNIT #006	3002537629	13	26S	34E		Lea		3/10/2009 0:00	6.5	272886.6		73385.1	23586	45	4070	7.5	168798	47	348	360
RATTLESNAKE FEDERAL UNIT #006	3002537629	13	26S	34E		Lea		4/4/2012 0:00	6	261471.6		66907.2	25146	42	4104	8.5	161186	24.4	1252	30
FIGHTING OKRA 18 FEDERAL COM #001H	3002540382	18	26S	34E	E	Lea	AVALON UPPER	2/11/2015 0:00	8	201455.9	0.032	66908.6	9313	10	1603	1.6	121072.7	1024.8	940	1950
FIGHTING OKRA 18 FEDERAL COM #001H	3002540382	18	26S	34E	E	Lea	AVALON UPPER	10/3/2014 0:00	7.5	163025.9	0.039	58095.8	4006	28.5	648.2	0.76	96978.1	915	2000	6
FIGHTING OKRA 18 FEDERAL COM #001H	3002540382	18	26S	34E	E	Lea	AVALON UPPER	11/24/2014 0:00	7				7177	5.8	1445	1.3		976		1820
FIGHTING OKRA 18 FEDERAL COM #001H	3002540382	18	26S	34E	E	Lea	AVALON UPPER	12/11/2014 0:00	7	196841.4	0.033	66599.5	7587	25.7	1213	1.25	118673.2	976	1300	1820
FIGHTING OKRA 18 FEDERAL COM #001H	3002540382	18	26S	34E	E	Lea	AVALON UPPER	12/18/2014 0:00	7	196841.4	0.03	66599.5	7587	25.7	1.2	1.25	118673.2	976	1300	1820
GREEN WAVE 20 FEDERAL #001H	3002540383	20	26S	34E	M	Lea	DELAWARE-BRUSHY CANYON	8/28/2012 0:00	7.4	187609.5		56309.3	11773	57	2070	2.5	114435	134.2	1063	30
GREEN WAVE 20 FEDERAL #001H	3002540383	20	26S	34E	M	Lea	DELAWARE-BRUSHY CANYON	6/26/2014 0:00	6.5	234475		70222.2	15528.5	59.9	2566	3.5	143361	244	475	400
GREEN WAVE 20 FEDERAL #001H	3002540383	20	26S	34E	M	Lea	DELAWARE-BRUSHY CANYON	6/26/2014 0:00	6.5	234361.8		70222.2	15528.5	59.9	2566	3.54	143361	244	0	400
GREEN WAVE 20 FEDERAL #001H	3002540383	20	26S	34E	M	Lea	DELAWARE-BRUSHY CANYON	11/24/2014 0:00	7				14710	38.6	2900	3.55		231.8		3000

Table 3: Produced Water Chemistry of Nearby Wells Raven SWD # 1

Well Name	API #	Sect.	Twn.	Rng.	Unit	Cty.	Formation	Sample Date	pH	TDS m/gL	Resistivity ohm_cm	Na mg/L	Ca mg/L	Fe mg/L	Mg mg/L	Mn mg/L	Cl mg/L	HCO3 mg/L	SO4 mg/L	CO2 mg/L
GREEN WAVE 20 FEDERAL #001H	3002540383	20	26S	34E	M	Lea	DELAWARE-BRUSHY CANYON	12/11/2014 0:00	5	231803.9	0.028	70990.1	14540	94.2	2259	3.48	142367.9	219.6	425	3000
MEAN GREEN 22 FEDERAL #001H	3002541434	22	26S	34E	P	Lea	DELAWARE-BRUSHY CANYON	2/11/2015 0:00	7.5	179090	0.036	54833.4	11980	16.2	2048	3.12	108375.6	231.8	880	950
MEAN GREEN 27 FEDERAL #001	3002541433	22	26S	34E	P	Lea		4/11/2014 0:00	6.1	195378.7		56260.8	14430.4	43.9	2399.9	4	119789	122	0	300
MEAN GREEN 23 FEDERAL #001H	3002541292	23	26S	34E	P	Lea	DELAWARE-BRUSHY CANYON	2/11/2015 0:00	7.5	172606.4	0.037	56152.9	9156	24.6	1515	3.5	104576.4	183	675	1800
MEAN GREEN 26 FEDERAL #001H	3002541246	26	26S	34E	A	Lea	DELAWARE-BRUSHY CANYON	2/11/2015 0:00	8	189333.4	0.034	63479.7	8597	17.9	1409	2.89	114774.1	134.2	635	730
ARENA ROJA FEDERAL UNIT #005	3002538683	27	26S	35E	C	Lea		10/23/2008 0:00	6.95	53385.9		20219.9	117	24	154	1	31456	643	432	
ARENA ROJA FEDERAL UNIT #001	3002537257	27	26S	35E	J	Lea		9/29/2010 0:00	6.2	36294.5		12733.6	905	17	152	0.4	21532	390	262	70
MIRO 35 FEDERAL #001	3002534897	35	26S	35E	D	Lea		7/22/2010 0:00	7.4	94061.4		32889.3	2524	57	466	3	55859	183	1533	200

wellname	api	latitude	longitude	section	township	range	unit	ftgns	ftgew	county	state	company	field	formation	depth	labNo	sampleNo	samplesource	watertype	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	32.3651619	-104.3481293	25	22S	25E	G	1650N	2310E	EDDY	NM			DEVONIAN				DST						16200							8762	290	1175
MCKITTRICK FED #1	3001500135	32.3651619	-104.3481293	25	22S	25E	G	1650N	2310E	EDDY	NM			DEVONIAN				DST						17510							9389	664	982
CARNERO PEAK UT #001	3001510053	32.3534012	-104.4281158	31	22S	25E	A	660N	660E	EDDY	NM			DEVONIAN				DST						14601							7236	515	1487
CARNERO PEAK UT #001	3001510053	32.3534012	-104.4281158	31	22S	25E	A	660N	660E	EDDY	NM			DEVONIAN				DST						15780							8126	336	1467
CARNERO PEAK UT #001	3001510053	32.3534012	-104.4281158	31	22S	25E	A	660N	660E	EDDY	NM			DEVONIAN				DST						15580							7853	487	1488
BANDANA POINT UT #001	3001500044	32.2986107	-104.5515823	13	23S	23E	O	750S	1900E	EDDY	NM		BANDANA POINT	DEVONIAN				DST						15500							8020	500	1190
TORTOISE ASB COM #001	3001510490	32.2766914	-104.5190887	29	23S	24E	G	1980N	2250E	EDDY	NM			DEVONIAN				DST						17861							7760	490	3100
TORTOISE ASB COM #001	3001510490	32.2766914	-104.5190887	29	23S	24E	G	1980N	2250E	EDDY	NM			DEVONIAN				DST						15601							7780	476	1600
REMUDA BASIN UNIT #001	3001503691	32.2886238	-103.9360428	24	23S	29E	J	1980S	1980E	EDDY	NM		REMUDA	DEVONIAN				SWAB						64582							37500	610	1700
REMUDA BASIN UNIT #001	3001503691	32.2886238	-103.9360428	24	23S	29E	J	1980S	1980E	EDDY	NM		REMUDA	DEVONIAN				SWAB						56922							29000	1740	4980
BELL LAKE UNIT #006	3002508483	32.3282585	-103.507103	6	23S	34E	O	660S	1980E	LEA	NM		BELL LAKE NORTH	DEVONIAN				HEATER TREATER			7			71078							42200	500	1000
ANTELOPE RIDGE UNIT #003	3002521082	32.2593155	-103.4610748	34	23S	34E	K	1980S	1650W	LEA	NM		ANTELOPE RIDGE	DEVONIAN				UNKNOWN		11/14/1967 0:00	6.9			80187							47900	476	900
ANTELOPE RIDGE UNIT #003	3002521082	32.2593155	-103.4610748	34	23S	34E	K	1980S	1650W	LEA	NM		ANTELOPE RIDGE	DEVONIAN				UNKNOWN		11/14/1967 0:00	6.9			80187							47900	476	900
CLINE FEDERAL #001	3002510717	32.3025551	-103.1358261	14	23S	37E	K	1980S	1980W	LEA	NM		CLINE	DEVONIAN				PRODUCTION TEST	PRODUCED					118979							71280	462	2593
E C HILL B FEDERAL #001	3002510945	32.2658463	-103.1443634	34	23S	37E	A	810N	660E	LEA	NM		TEAGUE	DEVONIAN				UNKNOWN						112959							67390	288	2765
E C HILL D FEDERAL #001	3002510947	32.2622147	-103.1443634	34	23S	37E	H	2131N	660E	LEA	NM		TEAGUE	DEVONIAN				UNKNOWN						35639									
E C HILL D FEDERAL #004	3002510950	32.2653503	-103.1443634	34	23S	37E	A	990N	660E	LEA	NM		TEAGUE	DEVONIAN				UNKNOWN						236252							147000	129	781
HUAPACHE #003	3001500020	32.2043953	-104.6915207	22	24S	22E	F	2040N	1980W	EDDY	NM			DEVONIAN				DST						3110							48	246	2020
JURNEGAN POINT #001	3001510280	32.2405243	-104.423912	5	24S	25E	M	660S	660W	EDDY	NM		WILDCAT	DEVONIAN				DST		12/14/1964 0:00	7			229706							136964	198	2511
JURNEGAN POINT #001	3001510280	32.2405243	-104.423912	5	24S	25E	M	660S	660W	EDDY	NM		WILDCAT	DEVONIAN				DST		12/14/1964 0:00	7			203100							121100	175	2220
WHITE CITY PENN GAS COM UNIT 1 #001	3001500408	32.1937523	-104.3088455	29	24S	26E	A	660N	660E	EDDY	NM			DEVONIAN		MH00408	152	DST		3/1/1960 0:00	7	1.012	60		0.36	75	25596	64	6072	1002	132	10120	653	1336
STATE B COM #001	3002509716	32.1794052	-103.2212524	36	24S	36E	C	600N	1880W	LEA	NM		CUSTER	DEVONIAN				UNKNOWN						176234							107400	128	1004
ELLIOTT H FEDERAL #001	3002512272	32.1756325	-103.0931931	31	24S	38E	H	1980N	660E	LEA	NM		DOLLARHIDE	DEVONIAN				WELLHEAD						58687									
ELLIOTT H FEDERAL #001	3002512272	32.1756325	-103.0931931	31	24S	38E	H	1980N	660E	LEA	NM		DOLLARHIDE	DEVONIAN				WELLHEAD						57018									
WEST DOLLARHIDE DEVONIAN UNIT #104	3002512297	32.1720123	-103.0761032	32	24S	38E	I	1980S	660E	LEA	NM		DOLLARHIDE	DEVONIAN				WELLHEAD						50858							30200	183	980
WESTATES FEDERAL #004	3002511389	32.161129	-103.1241226	1	25S	37E	E	1980N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN				DST		6/17/1961 0:00	6			80880							46200	340	3050
WESTATES FEDERAL #004	3002511389	32.161129	-103.1241226	1	25S	37E	E	1980N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN				DST						84900							48600	840	2650
WESTATES FEDERAL #004	3002511389	32.161129	-103.1241226	1	25S	37E	E	1980N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN				DST						72200							41000	370	2960
WESTATES FEDERAL #004	3002511389	32.161129	-103.1241226	1	25S	37E	E	1980N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN				DST						80900							46200	340	3050
WESTATES FEDERAL #004	3002511389	32.161129	-103.1241226	1	25S	37E	E	1980N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN				DST						77600							44000	550	3240
WESTATES FEDERAL #004	3002511389	32.161129	-103.1241226	1	25S	37E	E	1980N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN				DST						135000							77000	650	5810
WESTATES FEDERAL #004	3002511389	32.161129	-103.1241226	1	25S	37E	E	1980N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN				DST						114000							65000	280	5110
WESTATES FEDERAL #004	3002511389	32.161129	-103.1241226	1	25S	37E	E	1980N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN				DST						135000							77000	500	5320
WESTATES FEDERAL #008	3002511393	32.1621208	-103.1241226	1	25S	37E	E	1620N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN				UNKNOWN						91058							51020	376	4783
WESTATES FEDERAL #008	3002511393	32.1621208	-103.1241226	1	25S	37E	E	1620N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN				UNKNOWN						86847							50450	363	2544
STATE NJ A #001	3002511398	32.1647491	-103.1273346	2	25S	37E	A	663N	660E	LEA	NM		JUSTIS NORTH	DEVONIAN				DST						105350							59300	660	4950
NEW MEXICO BM STATE #002	3002511407	32.1579971	-103.1262436	2	25S	37E	I	2160S	330E	LEA	NM		JUSTIS NORTH	MONTOYA				UNKNOWN						77770							45500	1800	2400
HALE STATE #003	3002512581	32.1620369	-103.1262589	2	25S	37E	H	1650N	330E	LEA	NM		JUSTIS NORTH	MONTOYA				WELLHEAD						64916							37000	813	2500
SOUTH JUSTIS UNIT #016F	3002511556	32.1312065	-103.1187744	13	25S	37E	F	2310N	1980W	LEA	NM		JUSTIS	FUSSELMAN				UNKNOWN						57675							34030	595	1211
LEARCY MCBUFFINGTON #008	3002511569	32.1239548	-103.118782	13	25S	37E	N	330S	1980W	LEA	NM		203MNTY, 259FSLM	FUSSELMAN	7052	MN11569				1/2/1900 0:00	7.6	1.037	78	67909			81429	67	2603	684	38887	742	2489
LEARCY MCBUFFINGTON #008	3002511569	32.1239548	-103.118782	13	25S	37E	N	330S	1980W	LEA	NM		JUSTIS	MONTOYA				UNKNOWN						67898							38880	742	2489
A B COATES C FEDERAL #014	3002511736	32.118515	-103.1156082	24	25S	37E	G	1650N	2310E	LEA	NM		JUSTIS	MONTOYA				UNKNOWN						39261							22840	871	1030
SOUTH JUSTIS UNIT #023C	3002511760	32.1067276	-103.1184616	25	25S	37E	C	660N	2080W	LEA	NM		JUSTIS	FUSSELMAN				SEPARATOR						63817							35870	360	3442
CARLSON A #002	3002511764	32.1003838	-103.1113434	25	25S	37E	I	2310S	990E	LEA	NM		JUSTIS	FUSSELMAN				DST						208280							124000	510	3400
STATE Y #009	3002511777	32.1058197	-103.1113434	25	25S	37E	A	990N	990E	LEA	NM		JUSTIS	FUSSELMAN				DST		3/17/1961 0:00	7.3			219570							129000	960	4630
STATE Y #009	3002511777	32.1058197	-103.1113434	25	25S	37E	A	990N	990E	LEA	NM		JUSTIS	FUSSELMAN				DST		3/18/1961 0:00	6.8			163430							96000	290	3780
CARLSON B 25 #004	3002511784	32.096756	-103.1113434	25	25S	37E	P	990S	990E	LEA	NM		JUSTIS	FUSSELMAN				SEPARATOR						184030							112900	68	1806
COPPER #001	3002511818	32.0994835	-103.1656723	28	25S	37E	J	1980S	1981E	LEA	NM		CROSBY	DEVONIAN				UNKNOWN						27506							15270	1089	1079
ARNOTT RAMSAY NCT-B #003	3002511863	32.0922279	-103.1784439	32	25S	37E	A	660N	660E	LEA	NM		CROSBY	DEVONIAN	8797	MN11863				1/2/1900 0:00		1.142	70							17244	5345	100382	476	
ARNOTT RAMSAY NCT-B #003	3002511863	32.0922279	-103.1784439	32	25S	37E	A	660N	660E	LEA	NM		CROSBY	DEVONIAN				UNKNOWN						158761									
WEST DOLLARHIDE DEVONIAN UNIT #110	3002512386	32.1647377	-103.0797195	5	25S	38E	B	666N	1780E	LEA	NM		DOLLARHIDE	DEVONIAN				UNKNOWN						56776									
FARNSWORTH FEDERAL #006	3002511950	32.0777245	-103.162468	4	26S	37E	A	660N	990E	LEA	NM		CROSBY	DEVONIAN				UNKNOWN						31931							20450	302	591

OSE Well Logs

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

FIELD CHECK

Section 1. GENERAL INFORMATION

(A) Owner of well Florida Oil and Gas Co. Owner's Well No. Reno Comm.# 1
Street or Post Office Address 900 Vaughn Bldg.
City and State Midland, Texas 79701

Well was drilled under Permit No. CP-624 and is located in the:
1200'FNL 1200'FWL
a. SE ¼ NW ¼ NW ¼ ¼ of Section 11 Township 25S Range 35E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in Lea County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Abbott Bros. License No. WD-46
Address P.O. Box 637, Hobbs, New Mexico 88240

Drilling Began 7/14/80 Completed 7/17/80 Type tools Cable Size of hole 8 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 510 ft.

Completed well is [X] shallow [ ] artesian. Depth to water upon completion of well DRY HOLE ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
			DRY HOLE	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor Abbott Bros.
Address P.O. Box 637,Hobbs, New Mexico
Plugging Method Ruble,cement plug at top,covered w/dirt.
Date Well Plugged 7/17/80
Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received July 23, 1980

Quad _____ FWL _____ FSL _____

File No. CP-624 Use OWD Location No. 25.35.11.11444

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	110	110	Fine sand
110	190	80	Red clay
190	210	20	Blue clay
210	510	300	Red clay
			DRY HOLE

'80 JUL 22 AM 8 32

STATE ENGINEER OFFICE
ROSWELL, N. M.

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Murrell Abbott
Driller

M.B

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All tions, e: Section 5, shall be answered as completely accurate possible when any well is drilled, repaired or deepen hen this form is used as a plugging record, only Section 1(a) and Section need be completed.

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

June 25, 2019

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

LEGAL NOTICE

LEGAL NOTICE
Solaris Water Midstream, LLC, 907 Tradewinds Blvd., Suite B, Midland, TX 79706 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 Bayside SWD No. 1 will be located 282 feet from the South line and 225 feet from the West line, Section 2, Township 25 South, Range 35 East, Lea County, New Mexico. Produced water from area production will be commercially disposed into the Devonian and Fusselman formations at a depth of 17,430 feet to 19,230 feet at a maximum surface pressure of 3,486 psi and an average injection rate of 30,000 barrels per day. The proposed SWD well is located approximately 9 miles northeast of Jal, 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 Solaris Water Midstream, at 505-238-9515.

Sincerely,
R.T. Hicks Consultants

Randall Hicks
Principal

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Since 1996
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June 27, 2019

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

To Whom It May Concern:

Solaris Water Midstream, LLC, Midland, Texas, has made application to the New Mexico Oil Conservation Division to drill and complete, for salt water disposal, the Bayside SWD No. 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 2, Township 25 South, Range 35 East in Lea County, New Mexico.

The published notice states that the interval will be from 17,430 feet to 19,230 feet into the Devonian and Fusselman Formations.

Following is the notice published in the Hobbs News Sun, Hobbs, New Mexico on or about June 29, 2019.

LEGAL NOTICE
Solaris Water Midstream, LLC, 907 Tradewinds Blvd., Suite B, Midland, TX 79706 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 Bayside SWD No. 1 will be located 282 feet from the South line and 225 feet from the West line, Section 2, Township 25 South, Range 35 East, Lea County, New Mexico. Produced water from area production will be commercially disposed into the Devonian and Fusselman formations at a depth of 17,430 feet to 19,230 feet at a maximum surface pressure of 3,486 psi and an average injection rate of 30,000 barrels per day. The proposed SWD well is located approximately 9 miles northeast of Jal, 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.

Thank you for your attention in this matter.

Sincerely,
R.T. Hicks Consultants

Randall Hicks
Principal

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

Street and Apt. No.

City, State, ZIP+4

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

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City, State, ZIP+4
Midland, Tx 79706

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COG OPERATING LLC
Re:Bayside State SWD #1
600 W Illinois Ave
Midland, TX 79701

Street and Apt. N

City, State, ZIP+

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Re:Bayside State SWD #1
1004 N BIG SPRING
STE 220
MIDLAND, TX 79701

Street and Apt. N

City, State, ZIP+

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DINWIDDIE CATTLE COMPANY LLC
Re:Bayside State SWD #1
PO BOX 963
CAPITAN, NM 88316

Street and Apt. N

City, State, ZIP+4

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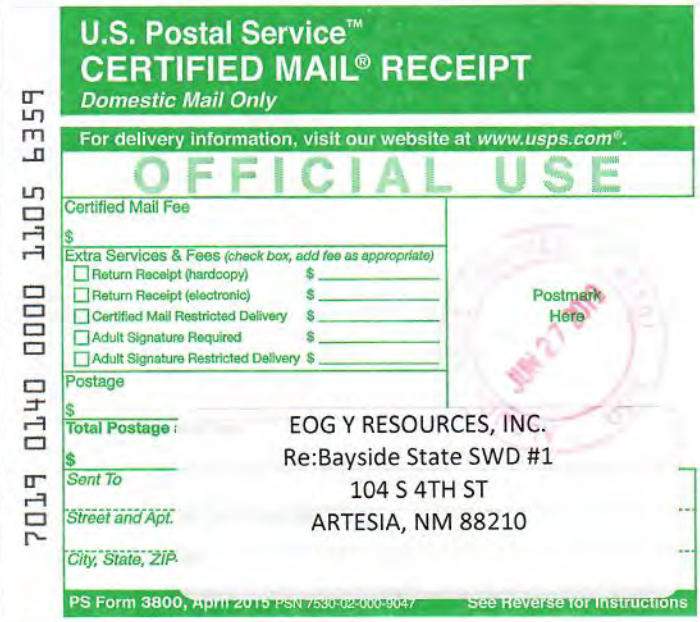
ENDURANCE RESOURCES LLC
Re:Bayside State SWD #1
15455 DALLAS PARKWAY
SUITE 1050
ADDISON, TX 75234

Street and Apt. N

City, State, ZIP+4

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



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ARTESIA, NM 88210

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P.O. Box 2267

City, State, ZIP+4
Midland, TX 79702

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PO BOX 840

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ARTESIA, NM 88211

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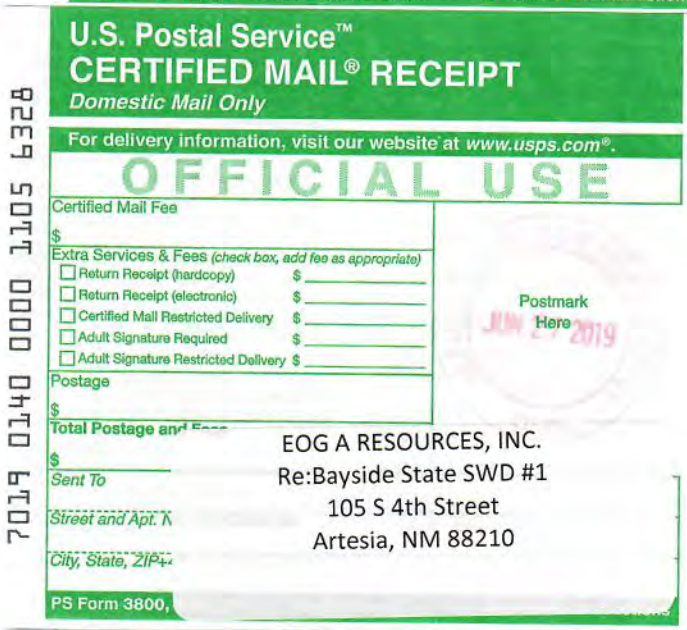

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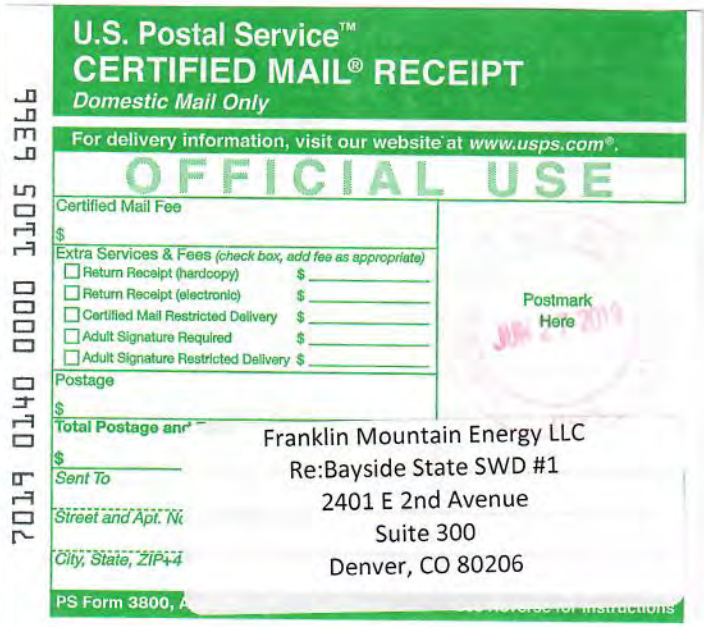

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Re:Bayside State SWD #1

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Suite 300

City, State, ZIP+4
Denver, CO 80206

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City, State, ZIP+4
Santa Fe, NM 87501

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MIDLAND, TX 79702
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QUAIL RANCH LLC
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RUIDOSO, NM 88355
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PACIFIC ENTERPRISES OIL CO (USA)
Re:Bayside State SWD #1
PO BOX 1350
MIDLAND, TX 79702-1350
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OCCIDENTAL PERMIAN, LP
Re:Bayside State SWD #1
5 GREENWAY PLAZA, SUITE 110
HOUSTON, TX 77046
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OXY USA WTP LIMITED PARTNERSHIP
Re:Bayside State SWD #1
PO BOX 27570
HOUSTON, TX 77227-7570
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NEW MEXICO TEN LTD
Re:Bayside State SWD #1
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CEDAR HILL, TX 75104
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Re:Bayside State SWD #1

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Suite 200

City, State, ZIP
Golden, CO 80401

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R. T. HICKS CONSULTANTS, LTD.

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June 27, 2019

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

RE: Solaris Water Midstream LLC, Bayside State SWD#1
UL M, Section 2 T25S R35E, 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 2.0-2.9 earthquake that occurred between 1970-2004 about 6miles west of the proposed Bayside State SWD #1. A slightly larger magnitude and more recent seismic event is reported about 10 miles east of the Bayside 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 closest mapped basement fault that was re-activated during Woodford time is about 6 miles to the west) 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 southwest-northeast trending fault about 32 miles north-northwest of the Bayside 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 Bayside State SWD #1, the OCD database shows about 2 active and 4 new Devonian SWDs, which translates into an average density of about one SWD for every 18 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 in the Antelope Ridge area of Lea County (Section 3 24S 34E) 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 does not possess) near the Bayside 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 Bayside State 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 Bayside 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 Bayside State 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 Ellenberger Formation, which lies beneath the Simpson Group. This downward migration will next enter the permeable units of the Ellenberger and, over time, increase the fluid pressure. After fluid pressure in the Ellenberger 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 Bayside State SWD will measurably contribute to the events described above and will cause 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

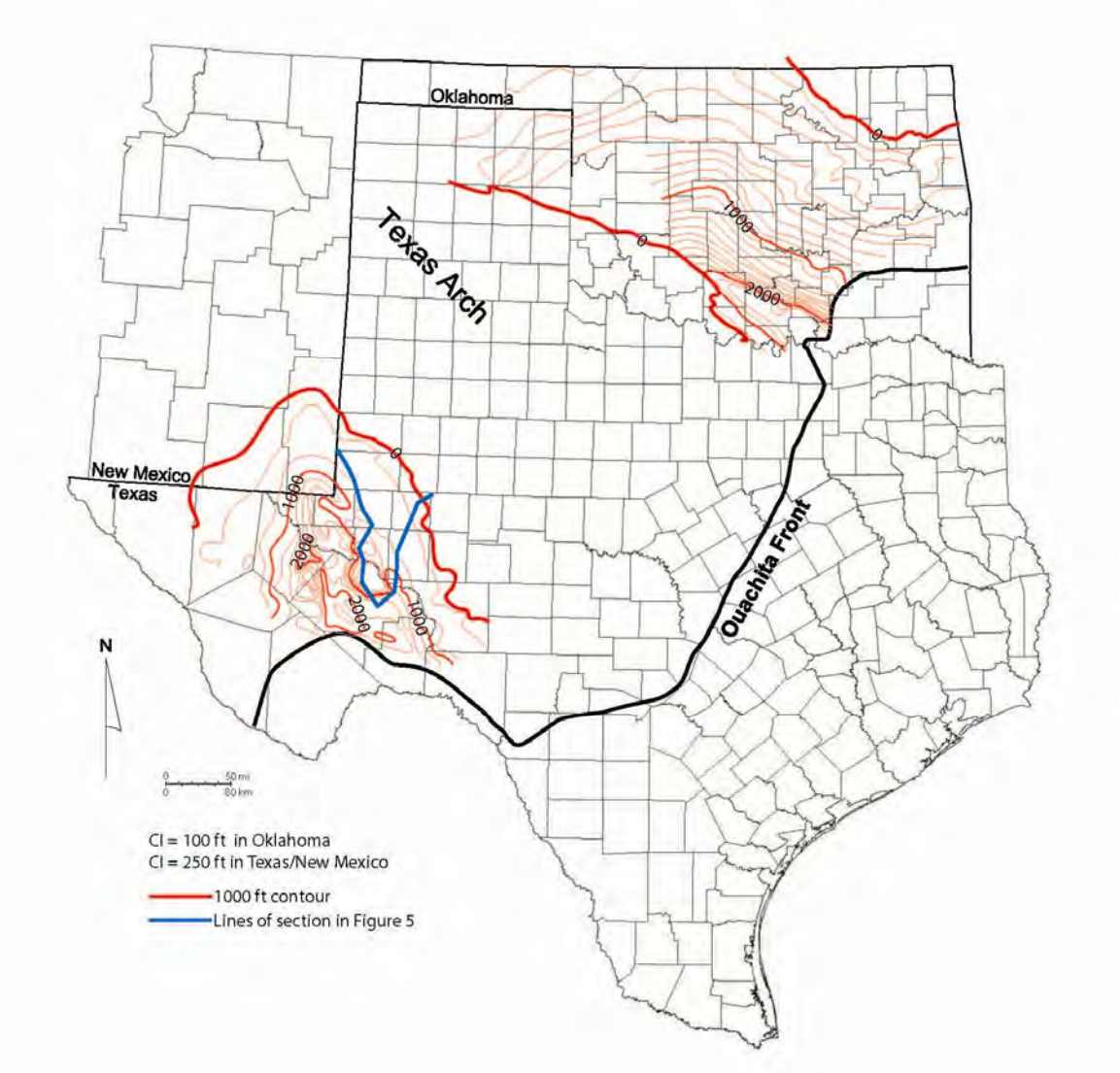

Figure 4. Thickness map of Simpson Group modified from Texas Water Development Board (1972), Frenzel and others (1988), and Northcutt and Johnson (1997). Thousand-foot contour lines and locations of figure 5 cross sections shown in heavy red and blue lines, respectively. Note that contour interval is 100 ft for Oklahoma and 250 ft for Texas and New Mexico.

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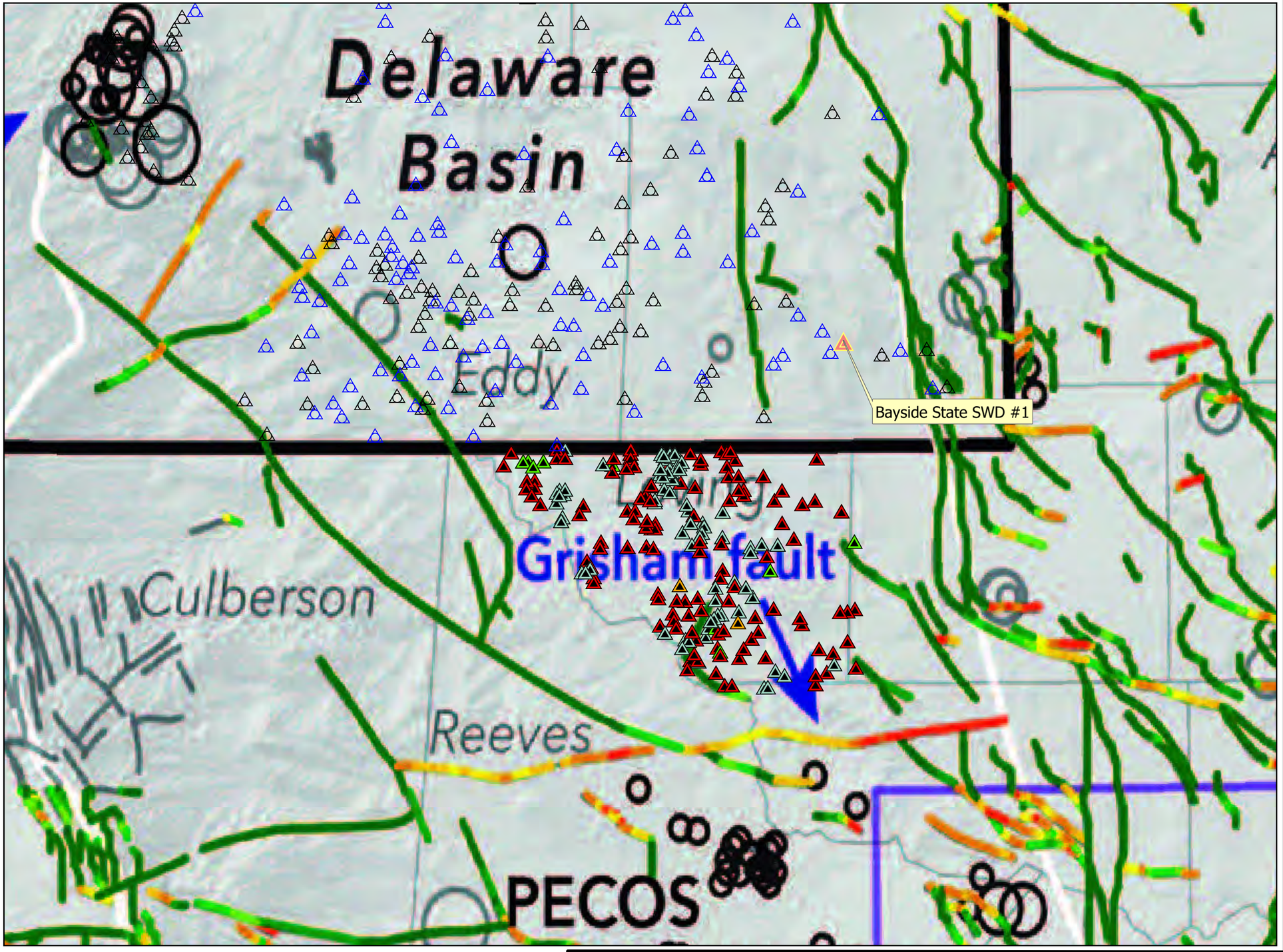

SWD

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 — Since 2005

M_W 3.0-3.9 — 1970-2004

M_W 4.0+

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 and Fault Slip Potential Relative to SWD and Injection Wells

Solaris Water Midstream
Bayside State SWD #1

Plate 5

June 2019

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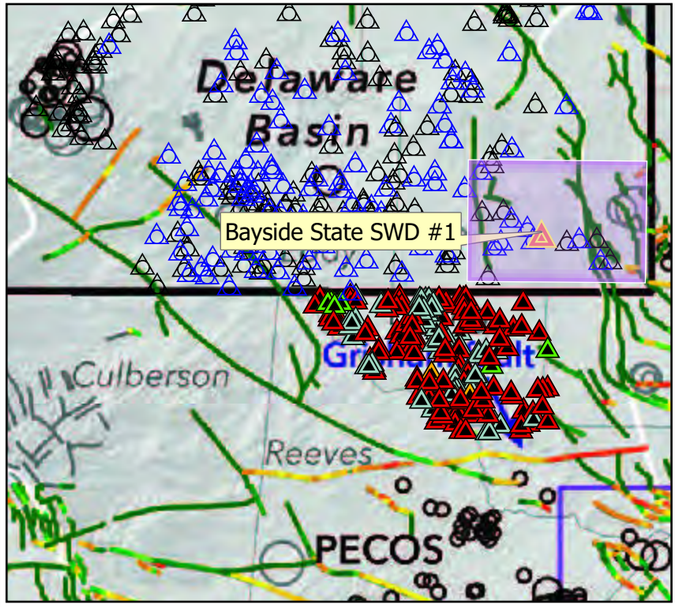

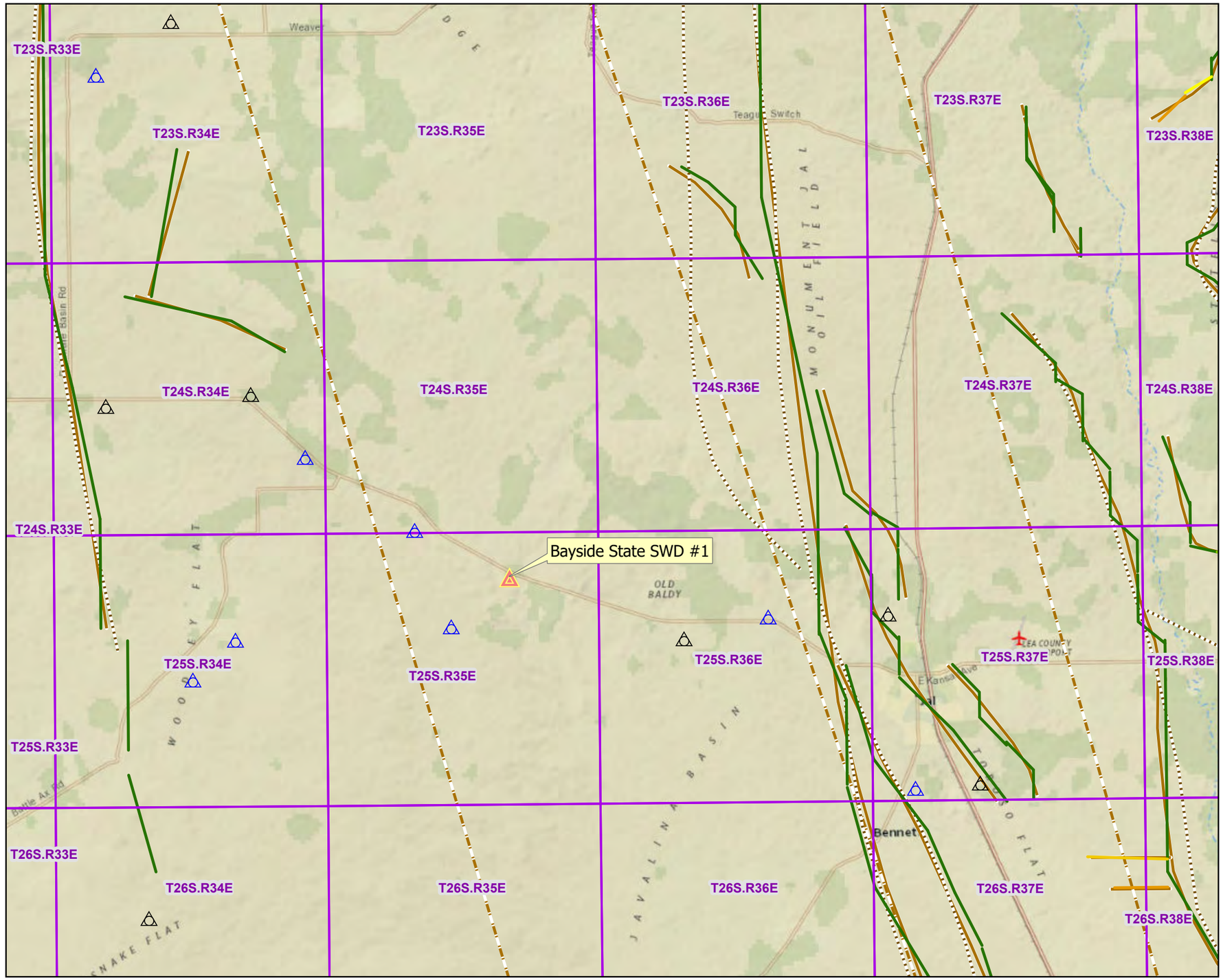

SWD

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

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 SWD

Solaris Water Midstream
Bayside State SWD #1

Plate 6

June 2019