

APR 26 2019 PM 01:16

RECEIVED:	REVIEWER:	TYPE: SWD	APP NO: PKEL 1912752463
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ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
 - Geological & Engineering Bureau -
 1220 South St. Francis Drive, Santa Fe, NM 87505

**ADMINISTRATIVE APPLICATION CHECKLIST**

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

Applicant: Solaris Water Midstream, LLC**OGRID Number:** 371643**Well Name:** Caltrops 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**2) NOTIFICATION REQUIRED TO:** Check those which apply.A. ☒ Offset operators or lease holdersB. ☐ Royalty, overriding royalty owners, revenue ownersC. ☒ Application requires published noticeD. ☒ Notification and/or concurrent approval by SLOE. ☒ Notification and/or concurrent approval by BLMF. ☒ Surface ownerG. ☒ For all of the above, proof of notification or publication is attached, and/or,H. ☐ No notice required**FOR OCD ONLY**☐

Notice Complete

☐Application
Content
Complete

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

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

Randall Hicks (agent)

Print or Type Name

Randall Hicks

Signature

April 24, 2019

Date

505 238 9515

Phone Number

r@rthicksconsult.com

e-mail Address

Digitally signed by Randall Hicks
 DN: cn=Randall Hicks, o=RT Hicks Consultants, ou, email=r@rthicksconsult.com, c=US
 Date: 2019.04.24 06:06:19 -0500

Lowe, Leonard, EMNRD

From: Lowe, Leonard, EMNRD
Sent: Tuesday, May 7, 2019 2:51 PM
To: 'r@rthicksconsult.com'
Cc: McMillan, Michael, EMNRD
Subject: Admin. Incomplete FOR Solaris Water Midstream, LLC_Caltrops State SWD Well No. 1

Importance: High

Mr. Randall Hicks,

The OCD had received your Salt Water Disposal Application for the above subject well.

The OCD has determined your SWD application to be Administratively Incomplete, therefore your Application is Suspended as of 05/07/19.

Your application is lacking the following information, please provide.

1. Identification of the Surface Owner of the SWD location.
2. Proof of publication
3. List of affected parties.

Your SWD application is currently suspended.

If additional information is NOT received within 15 days the OCD will deny and dismiss this application.

Leonard Lowe

Engineering Bureau
Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St. Francis
Santa Fe, New Mexico 87505
Office: 505-476-3492
Cell: 505-930-6717
Fax: 505-476-3462
E-mail: leonard.lowe@state.nm.us
Website: <http://www.emnrd.state.nm.us/oed/>

APR 26 2019 PM 01:17

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: _____ Secondary Recovery _____ Pressure Maintenance ☒ 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 ☒ 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: 4/23/2019
E-MAIL ADDRESS: R@rthicksconsult.com
- * If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

III. WELL DATA

- A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

- (1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

- B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and,
- (4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

INJECTION WELL DATA SHEET

OPERATOR: Solaris Water Midstream, LLCWELL NAME & NUMBER: Caltrops State SWD #1WELL LOCATION: 690 FSL 100 FWL
FOOTAGE LOCATIONUNIT LETTER MSECTION 16TOWNSHIP 25SRANGE 32EWELLBORE SCHEMATICWELL CONSTRUCTION DATASurface CasingHole Size: See Attachments Casing Size: Cemented with: sx. or ft³Top of Cement: Method Determined: Intermediate CasingHole Size: Casing Size: Cemented with: sx. or ft³Top of Cement: Method Determined: Production CasingHole Size: Casing Size: Cemented with: sx. or ft³Top 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

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

Form C-102
Revised August 1, 2011

Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name
Property Code	Property Name CALTROPS STATE SWD	Well Number 1
OGRID No.	Operator Name SOLARIS WATER MIDSTREAM	Elevation 3399'

Surface Location

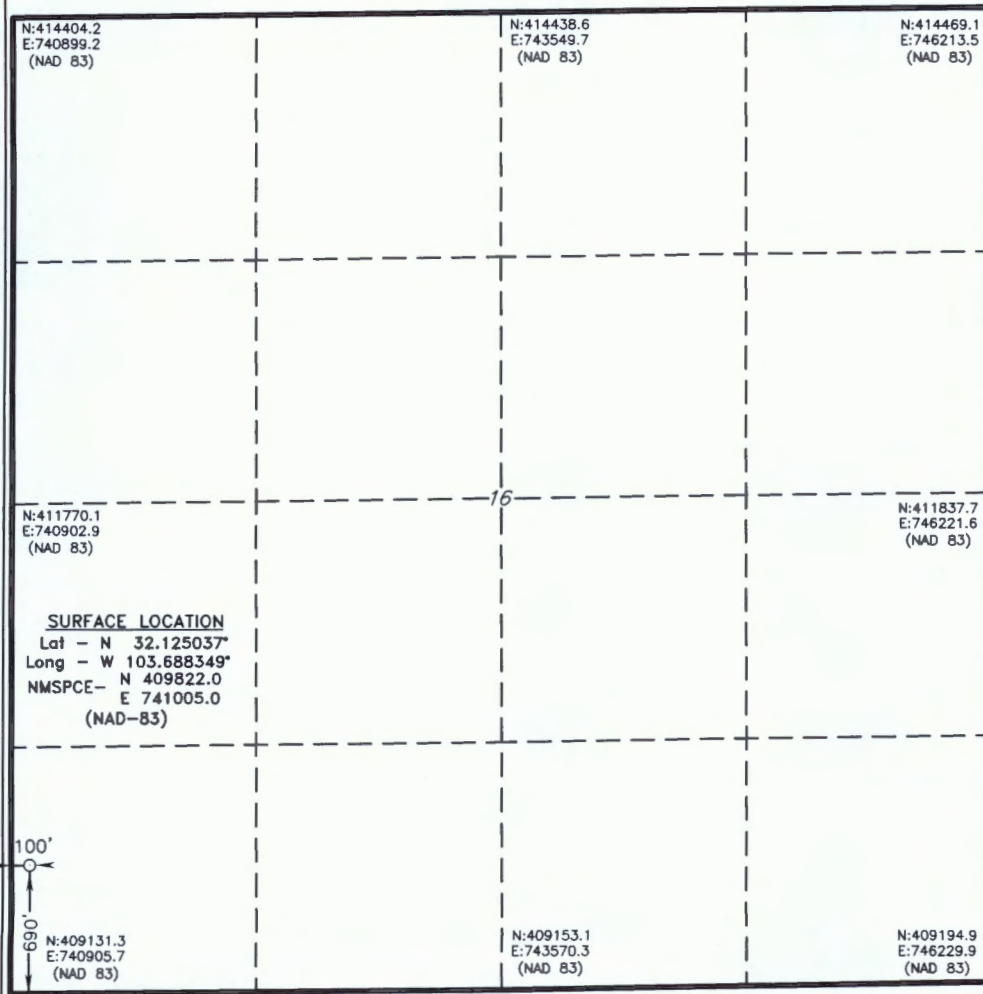
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	16	25 S	32 E		690	SOUTH	100	WEST	LEA

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
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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 undivided 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 supervision, and that the same is true and correct to the best of my belief.

MARCH 20, 2019

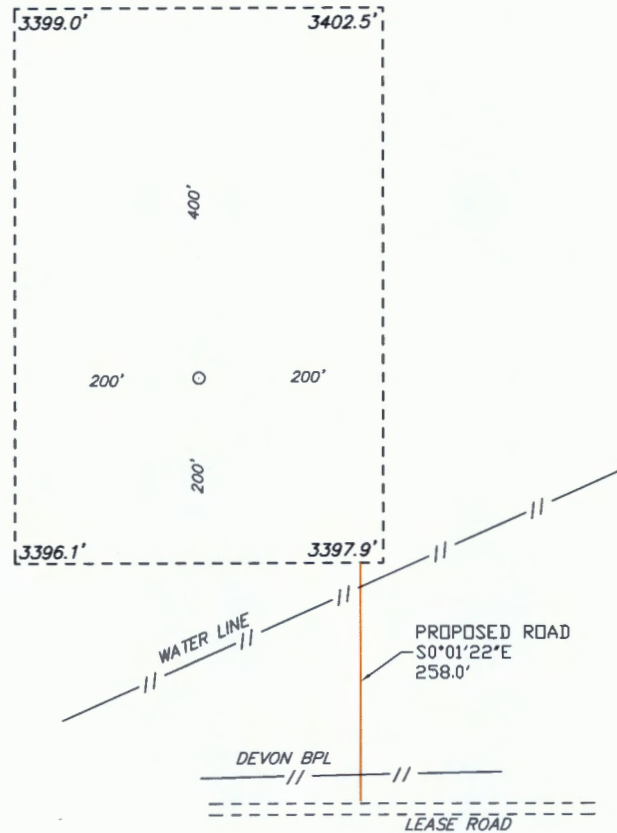
Date Surveyed _____

Signature & Seal of
Professional Surveyor

Certificate No. Gary L. Jones 7977

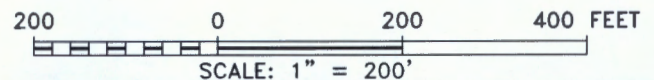
0' 500' 1000' 1500' 2000'
SCALE: 1" = 1000'
WO Num.: 34391

**SECTION 16 TOWNSHIP 25 SOUTH, RANGE 32 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO.**



CALTROPS STATE SWD 1
ELEV. - 3399'
Lat - N 32.125037°
Long - W 103.688349°
NMSPCE- N 409822.0
E 741005.0
(NAD-83)

JAL, NM IS ±29 MILES TO THE EAST OF LOCATION.



SOLARIS WATER MIDSTREAM

REF: CALTROPS STATE SWD 1 / WELL PAD TOPO

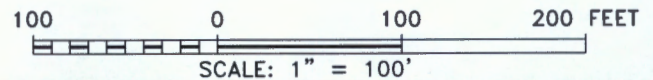
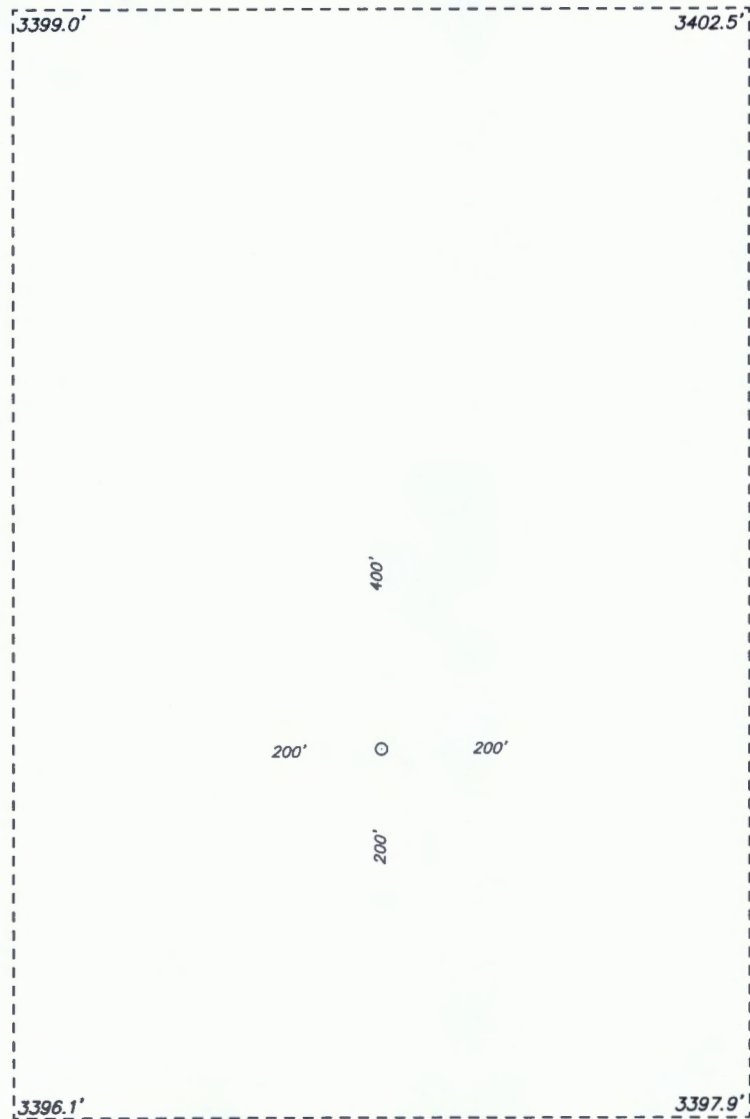
THE CALTROPS STATE SWD 1 LOCATED 690' FROM
THE SOUTH LINE AND 100' FROM THE WEST LINE OF
SECTION 16, TOWNSHIP 25 SOUTH, RANGE 32 EAST,
N.M.P.M., LEA COUNTY, NEW MEXICO.



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

W.O. Number: 34391 Drawn By: J GOAD Date: 3-22-2019 Survey Date: 3-20-2019 Sheet 1 of 1 Sheets

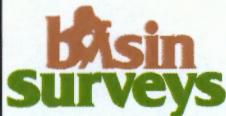
**SECTION 16 TOWNSHIP 25 SOUTH, RANGE 32 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO.**



SOLARIS WATER MIDSTREAM

REF: CALTROP'S STATE SWD 1 / WELL PAD TOPO

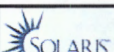
THE CALTROP'S STATE SWD 1 LOCATED 690' FROM
THE SOUTH LINE AND 100' FROM THE WEST LINE OF
SECTION 16, TOWNSHIP 25 SOUTH, RANGE 32 EAST,
N.M.P.M., LEA COUNTY, NEW MEXICO.



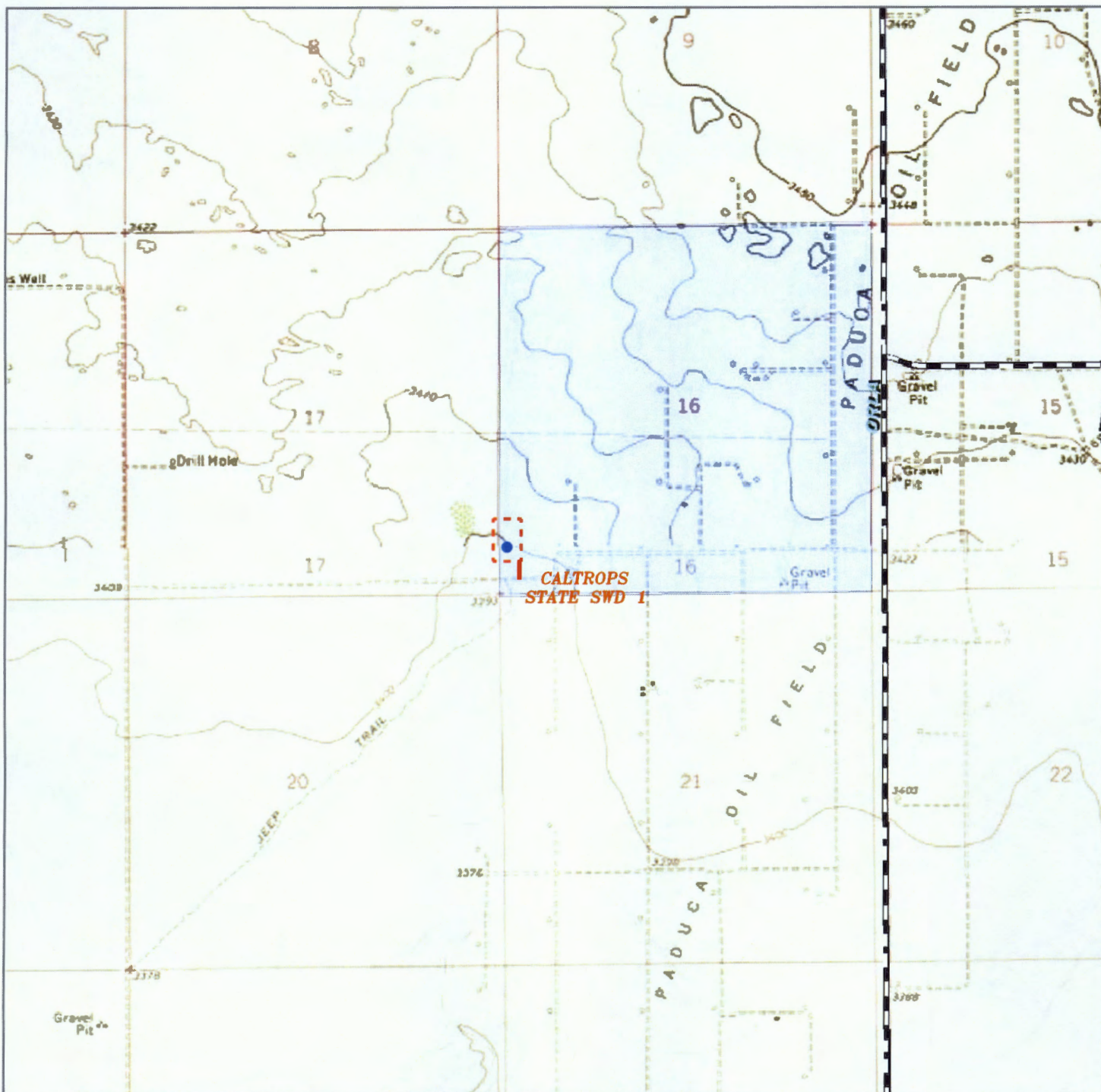
P.O. Box 1786 (575) 393-7316 - Office
1120 N. West County Rd. (575) 392-2206 - Fax
Hobbs, New Mexico 88241 basinsurveys.com

W.O. Number: 34391	Drawn By: J GOAD	Date: 3-22-2019	Survey Date: 3-20-2019	Sheet 1 of 1 Sheets
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basisin
surveys
focused on excellence
in the oilfield

	SOLARIS WATER MIDSTREAM
	REF: CALTROP'S STATE SWD 1 / CUT & FILL
<i>THE CALTROP'S STATE SWD 1 LOCATED 690' FROM THE SOUTH LINE AND 100' FROM THE WEST LINE OF SECTION 16, TOWNSHIP 25 SOUTH, RANGE 32 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO.</i>	

W.O. Number: 34394	Drawn By: J GOAD	Date: 3-22-2019	Survey Date: 3-20-2019	Sheet 1 of 1 Sheets
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CALTROPS STATE SWD 1

Located 690' FSL & 100' FWL
 Section 16, Township 25 South, Range 32 East,
 N.M.P.M., Lea County, New Mexico.



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'

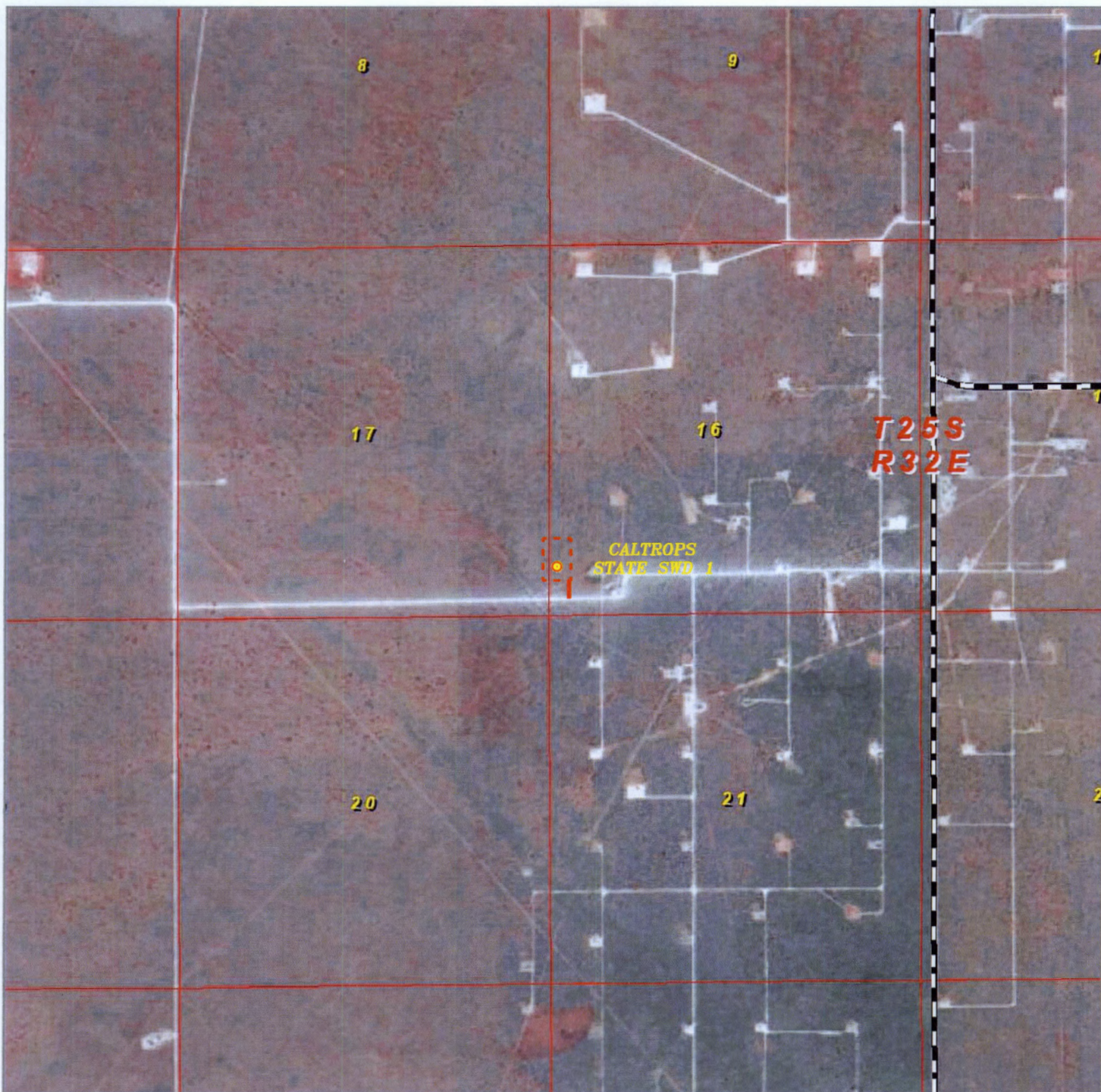
SCALE: 1" = 2000'

W.O. Number: JG - 34391

Survey Date: 3-20-2019

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





CALTROP STATE SWD 1

Located 690' FSL & 100' FWL
 Section 16, Township 25 South, Range 32 East,
 N.M.P.M., Lea County, New Mexico.



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'

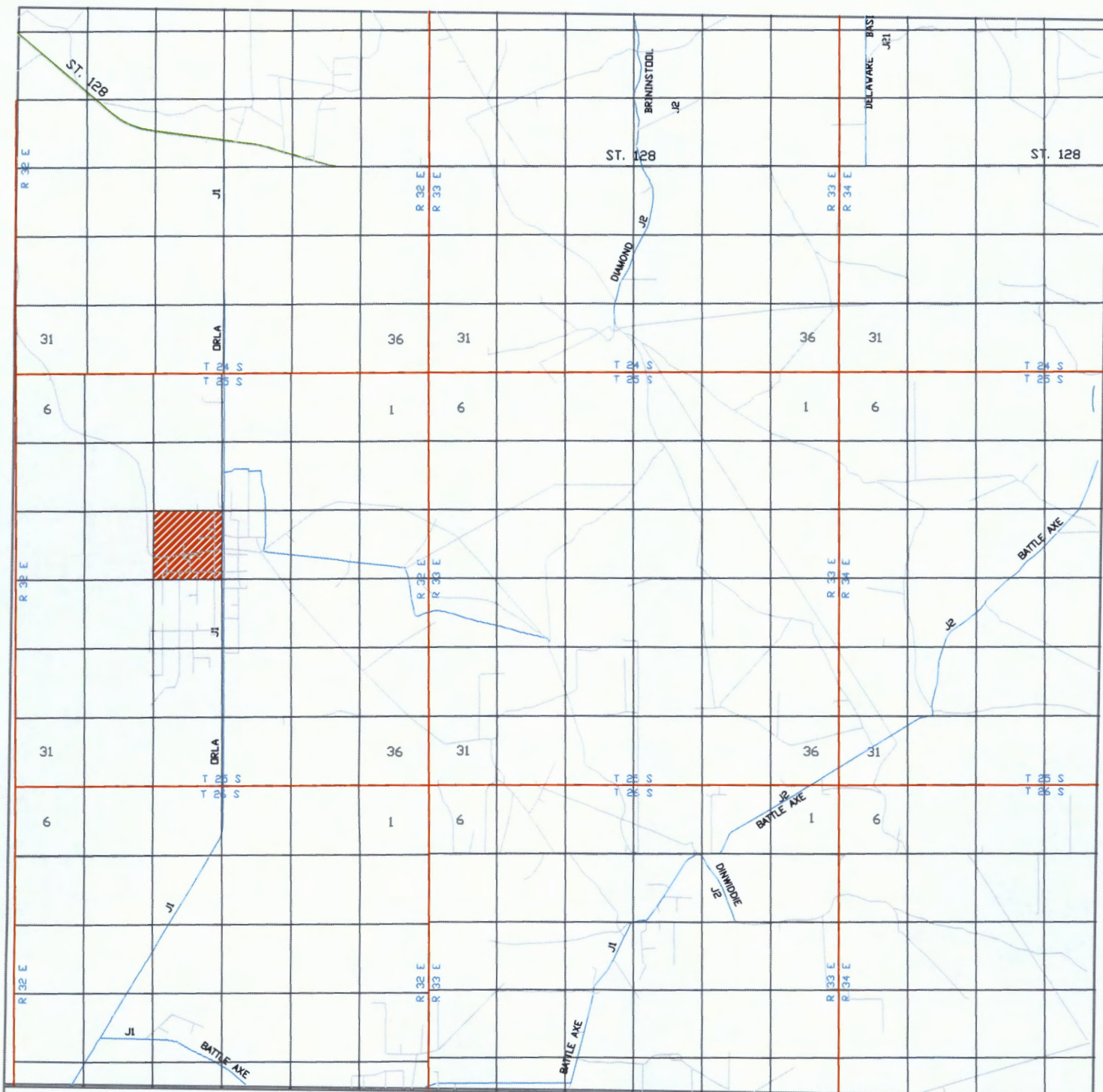
SCALE: 1" = 2000'

W.O. Number: JG - 34391

Survey Date: 3-20-2019

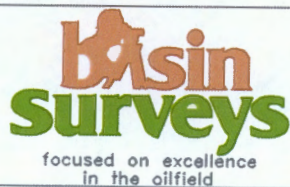
YELLOW TINT - USA LAND
 BLUE TINT - STATE LAND
 NATURAL COLOR - FEE LAND





CALTROPS STATE SWD 1

Located 690' FSL & 100' FWL
 Section 16, Township 25 South, Range 32 East,
 N.M.P.M., Lea County, New Mexico.



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 - 34391

Survey Date: 3-20-2019

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



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

Caltrops State SWD #1



AREA/SYSTEM:	Pecos Star System
WELL NAME:	Caltrops State SWD #1
OBJECTIVE:	Devonion
SHL:	550' FSL & 120' FWL
BHL:	Same as SHL
SURFACE ELEV.:	3399'
TOTAL DEPTH:	18,482'

WELL DESIGN BY CHRIS GIESE REVIEWED BY JIM BRANNIGAN AND ED MARTIN

MUD LOGGING E LOGGING/ DIRECTIONAL	CASING SIZE (IN.)	MD	RKB DRILL DEPTH TVD	BOPE	FORMATION	HOLE SIZE (IN.)	MUD WT.	FRAC GRAD
Grnd Level	RKB		30					
	GL ELEV.							
	30"		0 / 0		Set and grouted			
				Open			8.8	
			707		Rustler	18.125"	8.4	
	16"		1,032 / 1,032	21-1/4"-5M Annular/Diverter			8.4	
84 lb/ft J55, BTC			1,082		T/Salt		9.5	
			4,307		B/Salt	14.75"	9.5 to 10	
Mud Logging to begin @ 2,500'			4,532		T/Lamar			
	13.375"		4,552 / 4,552	13-5/8"-5M Annular			10.0	
68 lb/ft L-80, EZ-GO FJ3				13-5/8"-5M BOP's			9.4	FIT
			4,560 5,557 7,182 8,532 9,507 10,132 11,282		Bell Canyon Cherry Canyon Brushy Canyon Bone Spring 1st BS Sand 2nd BS Sand 3rd BS Sand	12.25"	9.4 to 10.0	
			11,682		Wolfcamp			
	TOL		11,582 / 11,582					
	9.625"		11,782 / 11,782	13-5/8"-5M Annular			10.0	
35.50 lb/ft HCP-110, BTC				13-5/8"-10M BOP's			12.5	15.6
			13,457 13,657 13,932 14,482 14,782 15,407 15,907		Canyon Strawn Atoka Morrow Morrow Clastics Morrow Lower Barnett	8.5"	12.5 to 13.5	
			17,057		Devonion			
Liner Wedge 513	7.625"		17,057 / 17,057	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 18,482 - 0								
USIT/CBL 17,057 - 0								
Dual 0"								
			18,482 / 18,482	13-5/8"-5M Annular	Base of Fusselman			
				13-5/8"-10M BOP's				

Casing Set Depths/ Cement

	Hole Size	Casing Size	Casing Grade	Casing Weight	TOP	Bottom	Sacks of Cement	TOC
Conductor					0	120		
Surface	18.125"	16"	J55, BTC	84 lb/ft	0 - 1032		2,396	Surface
1st Intermediate	14.75"	13.375"	L-80, EZ-GO FJ3	68 lb/ft	0 - 4610		2,831	Surface
2nd Intermediate	12.25"	9.625"	HCP-110, BTC	35.50 lb/ft	0 - 13357		3,239	Surface
Liner Wedge 513	8.5"	7.625"	P-110	39 lb/ft	13157	17057	167	Liner Top
Openhole	6.5"				17057	18482		

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

See C-108

Lease Name: Caltrops State SWD #1

Property Code	Property Name CALTROPS STATE SWD	Well Number 1
OGRID No.	Operator Name SOLARIS WATER MIDSTREAM	Elevation 3399'

Surface Location									
UL or lot No. M	Section 16	Township 25 S	Range 32 E	Lot Idn	Feet from the 690	North/South line SOUTH	Feet from the 100	East/West line WEST	County LEA

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. Deeper tops picked using the Texaco Cotton Draw #64 e-log in Section 18-T25S-R32E (TD-16,218') and the Superior Oil Co. Paduca Fed. #1 e-log in Section 22-T25S-R32E (TD- 15,850'). The intervals from the Barnett to the Montoya were estimated using the intervals reported on the C-105 on the Mesquite SWD, Inc. #1Y Paduca 6 SWD in Section 6-T26S-R32E (TD- 18,881'. The result of the evaluation of Mr. Brannigan is presented to the right.

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 17,007'

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 17,007'.

Formation	GL	3399
Tops	KB	3429
	SS	TVD
Rustler	2722	707
T/Salt	2347	1082
B/Salt	-878	4307
T/Lamar	-1103	4532
Bell Canyon	-1131	4560
Cherry Canyon	-2128	5557
Brushy Canyon	-3753	7182
Bone Spring	-5103	8532
1st BS Sand	-6078	9507
2nd BS Sand	-6703	10132
3rd BS Sand	-7853	11282
Wolfcamp	-8253	11682
Penn		
Cisco		
Canyon	-10028	13457
Strawn	-10228	13657
Atoka	-10503	13932
Morrow	-11053	14482
Morrow Clastics	-11353	14782
Morrow Lower	-11978	15407
Barnett	-12478	15907
Miss LS	-12678	16107
Woodford		
Devonian	-13628	17057
Fusselman		
T/Montoya	-15253	18682
Simpson		
Ellenburger		
Injection Interval	17057	18482
TD		18482

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 17,057-18,482 (1,425 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 and Gas Zones:

Delaware (4,553')
Bone Spring (9,500')
Wolfcamp (11,675')
Canyon (13,450')
Strawn (13,650')
Atoka (13,925')
Morrow (14,775')

Underlying Oil and Gas Zone:

No underlying oil and gas zones exist.

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 a favorable open hole integrity will exist, allowing for the saltwater to be injected without concern of collapse in the open hole injection interval.

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 1 identifies all OCD listed wells and API numbers. Note that where numerous wells are closely-spaced, the API number may not be labeled for clarity. Table 1 lists all of these wells within the 2-mile area of review.

Plate 2 shows all of the leases and the leaseholder name within the 2-mile area of review. Tabular listing of all mapped leases are presented in

Table 2a BLM leases

Table 2b State of NM leases

Note that Plate 1 shows one apparent BLM lease on private land. This single parcel is the only private land within the area of review. Information on this parcel is presented below.

UPC	TWP	RNG	SECTION	Parcel Code	Number	Name	Address	City	State	Zip Code	Zip Ext
4186151686338	26	32	06	4950302104125	203021	BAKER, JESSE T	PO BOX 24	SILVER CITY	NM	88062	0024

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

No wells exist within the area of review that penetrates the proposed injection zone.

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: 4,081 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 "Produced Water Chemistry of Nearby Wells" provides the requisite analyses. The Bone Springs and Avalon Formations are the subjects of most of the analyses. These formations, in addition to the Wolfcamp, will provide most of the produced water to the proposed SWD. At the time of writing, we are unaware of any problems associated with disposal of produced water derived from the Bone Springs, Avalon and Wolfcamp 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 represented in Table 4 are more than 30 miles to the east. 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 Bone Springs, Avalon and Wolfcamp 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 depth to the top of the Devonian and Montoya are 17,057 and 18,682 respectively. The depth interval of the injection interval is 17,057-18,482 (1,425 feet).

Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.

The Rustler Formation and the Chinle Formation yield water to supply wells in southeastern Eddy County and southwestern Lea County. In the immediate area of the Caltrops SWD, there are no active water supply wells (well C-4221 is a shallow

monitoring well near a frac pond). In this area of Lea County, the Chinle yields water to wells from 100-200 feet below the ground surface to a depth of about 600 feet. The upper portion of the Rustler Formation yields fresh water to wells in Eddy County and in the area of the Caltrops 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. As stated above, there are no active water supply wells within the area of review.

In the area of the Caltrops SWD, the depth interval of the Rustler is about 700-1000 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 1032 feet at the proposed Caltrops SWD.

IX. Describe the proposed stimulation program, if any

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

***X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted)**

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

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

No active water supply wells were identified within one mile of the proposed SWD. Data from various sources permit a conclusion that groundwater within the Chinle Formation is potable.

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 Caltrops State SWD ¹

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

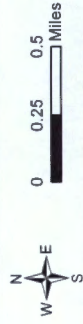
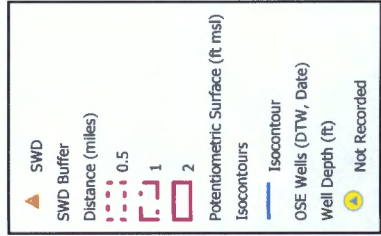
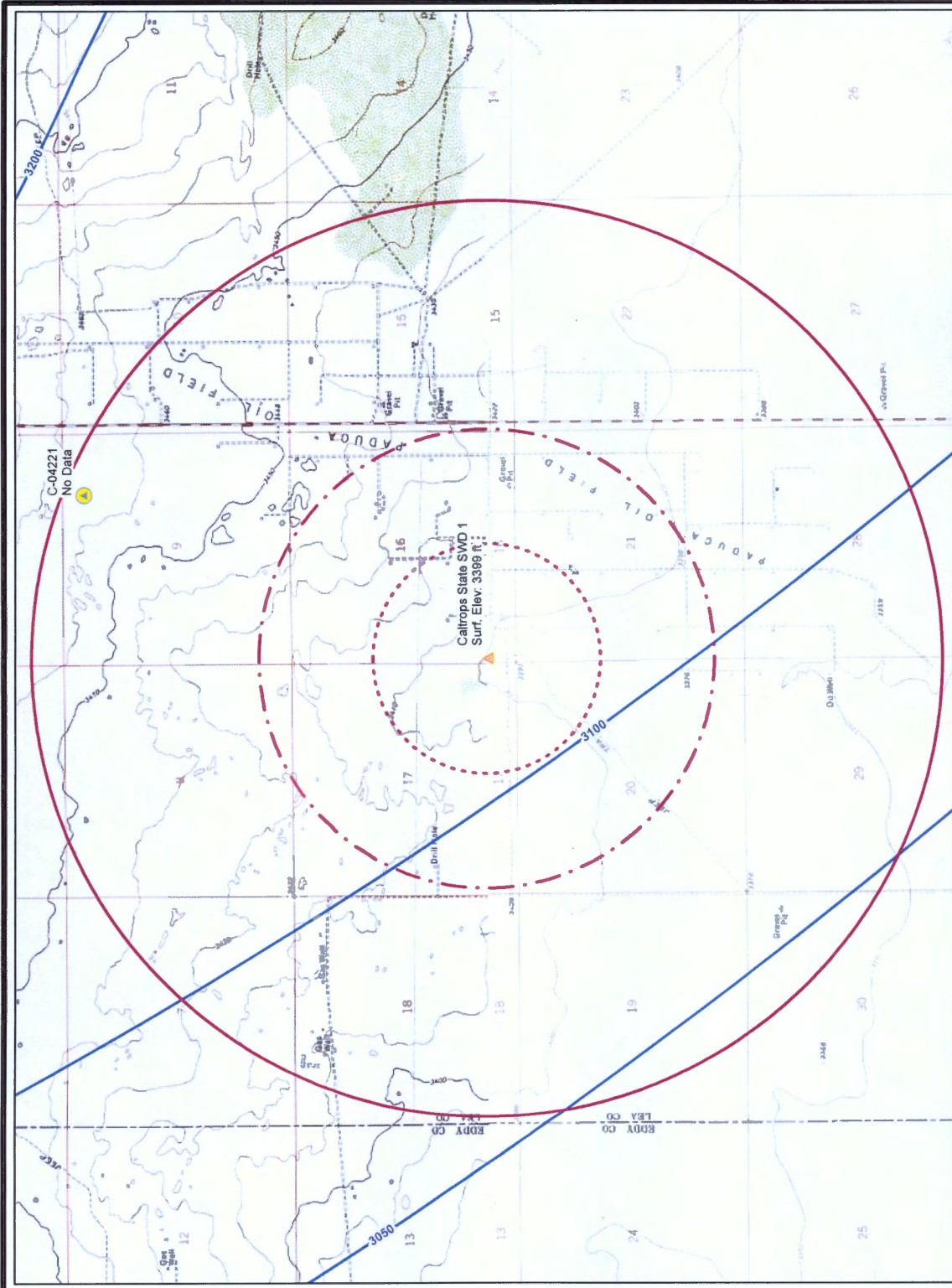
- The Texas Bureau of Economic Geology has mapped older faults (e.g. basement and Woodford) in New Mexico and the closest mapped fault is more than 11 miles to the east²
- With respect to migration of produced water from the injection zone to underground sources of drinking water via faults or other 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 2800-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

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>

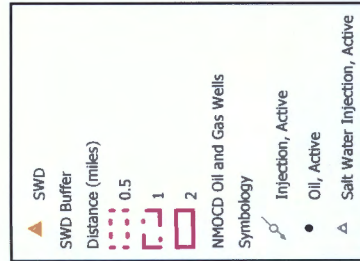
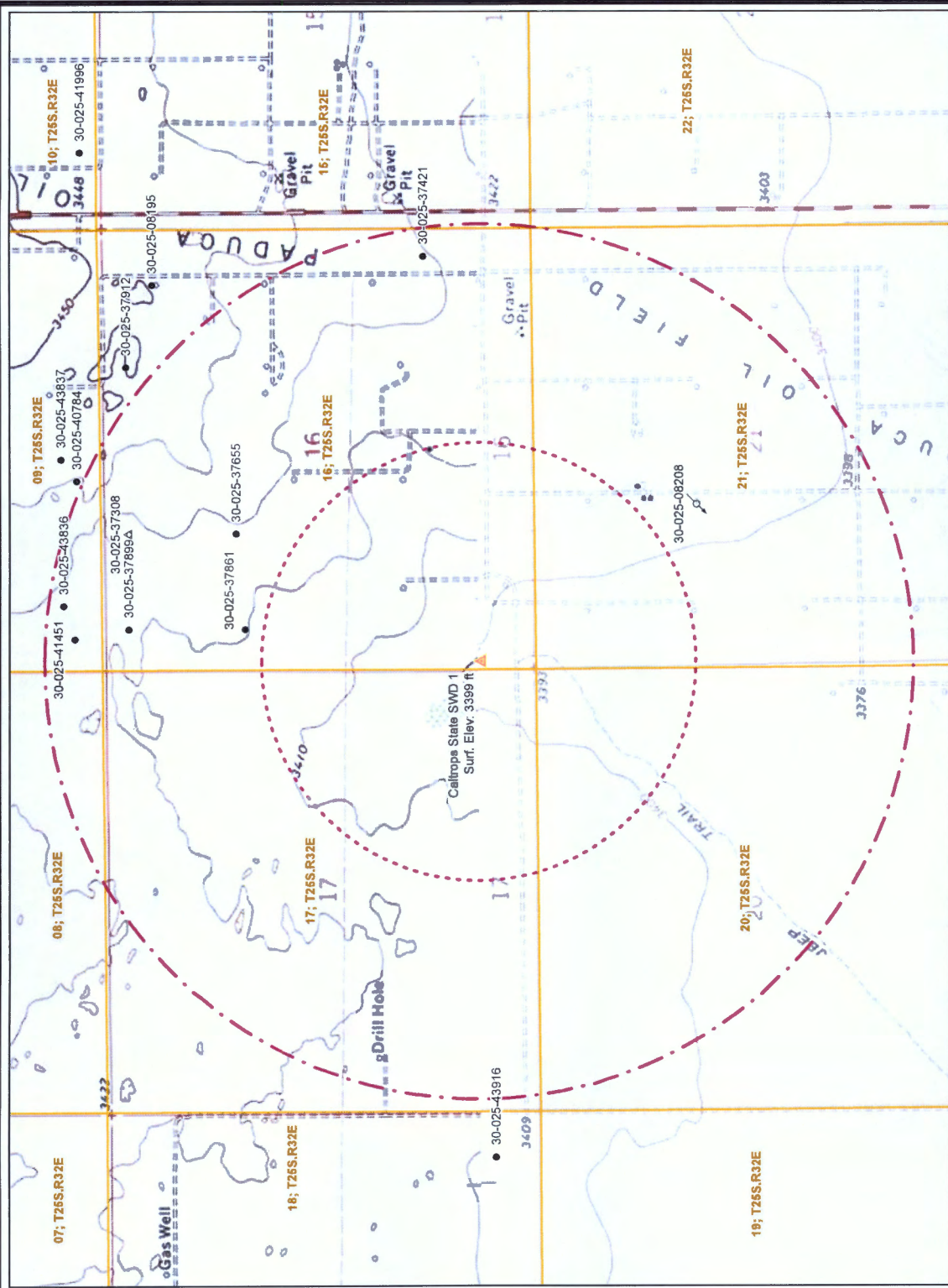
XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

Plates

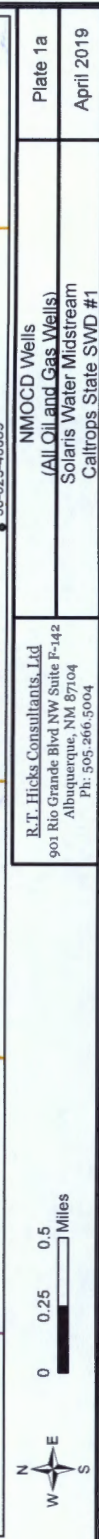
Plate 1	OCD wells within the area of review
Plate 2	Mineral leases within the area of review
Plate 3	Water supply wells within the area of review



R.T. Hicks Consultants, Ltd. 901 Rio Grande Blvd NW Suite P-142 Albuquerque, NM 87104 Ph: 505-266-5004	Depth to Water and Potentiometric Surface Wells Queried: OSE, USGS (no USGS) Solaris Water Midstream Caltrops State SWD #1	Plate 3
		April 2019



R.T. Hicks Consultants, Ltd. 901 Rio Grande Blvd NW Suite P-142 Albuquerque, NM 87104 Ph: 505.266.5004	Active Oil and Gas Wells	
	Within 1-Mile	
	Solaris Water Midstream	Caltrops State SWD #1
	Plate 1b	April 2019



Tables

Table 1	OCD wells within the area of review
Table 2a	BLM leases within the area of review
Table 2b	State leases within the area of review
Table 3	Produced Water Chemistry of Nearby Wells
Table 4	Available Devonian formational water quality data

Solaris Water Midstream

Well Type	USTR	OGHD	OGHD Name	Status	Drill Status	Elevation	Measured Depth	Total Depth	Spud Date	Plng Date	Effective Date	API Date	Latitude	Longitude	Drinet	Prod ID
O	I-09-255-32E	20077	SAHARA OPERATING CO	A	V	3460	4839	4839	4/23/2015	12/31/9999	6/3/2015	17/1900	32.142863	-103.675311	17/1900	194961
O	A-16-255-32E	20077	SAHARA OPERATING CO	A	V	3447	4839	4839	4/23/2015	12/31/9999	6/3/2015	17/1900	32.142863	-103.675311	17/1900	194961
O	A-16-255-32E	20077	SAHARA OPERATING CO	A	V	3447	4839	4839	4/23/2015	12/31/9999	6/3/2015	17/1900	32.142863	-103.675311	17/1900	194961
O	F-10-255-32E	20077	SAHARA OPERATING CO	A	V	3447	4839	4839	4/23/2015	12/31/9999	6/3/2015	17/1900	32.142863	-103.675311	17/1900	194961
S	F-10-255-32E	161668	MESQUITO SWD, INC	A	V	3461	15769	15769	1/17/1900	12/31/9999	1/7/2014	17/1900	32.1068764	-103.678932	17/1900	194960
S	H-22-255-32E	161668	MESQUITO SWD, INC	A	V	3461	15769	15769	1/17/1900	12/31/9999	1/7/2014	17/1900	32.1068764	-103.678932	17/1900	194960
O	L-09-255-32E	240074	LEGACY RESERVES OPERATING, LP	A	V	3409	13505	13505	6/29/1982	12/31/9999	6/15/2011	17/1984	32.1117807	-103.656478	17/1984	194960
O	L-09-255-32E	240074	LEGACY RESERVES OPERATING, LP	A	V	3409	13505	13505	6/29/1982	12/31/9999	6/15/2011	17/1984	32.1117807	-103.656478	17/1984	194960
S	P-16-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3429	4850	4850	4850/17/21/2005	12/31/9999	1/17/2007	6/17/2005	32.1387569	-103.683038	6/17/2005	194960
O	P-16-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3429	4850	4850	4850/17/21/2005	12/31/9999	1/17/2007	6/17/2005	32.1387569	-103.683038	6/17/2005	194960
O	F-18-255-32E	20077	SAHARA OPERATING CO	A	V	3475	5000	5000	5000/27/7/2006	12/31/9999	6/3/2015	17/2006	32.1032295	-103.67554	17/2006	194960
O	F-18-255-32E	20077	SAHARA OPERATING CO	A	V	3475	5000	5000	5000/27/7/2006	12/31/9999	6/3/2015	17/2006	32.1032295	-103.67554	17/2006	194960
O	F-16-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3475	4890	4890	4890/27/12/2006	12/31/9999	1/25/2006	17/2006	32.131315	-103.683191	17/2006	194960
O	F-16-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3475	4890	4890	4890/27/12/2006	12/31/9999	1/25/2006	17/2006	32.131315	-103.683191	17/2006	194960
O	D-16-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3418	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	D-16-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3418	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
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O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
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O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	194960
O	H-22-255-32E	151323	PRIDE ENERGY COMPANY	A	V	3454	4850	4850	4850/16/25/2006	12/31/9999	1/25/2006	5/20/2006	32.136734	-103.670746	5/20/2006	1949

Solaris Water Midstream

Well Type	USTR	COORD	COORD Name	Status	QMS Status	Reconstructions	Measured Depth	Int Depth	Snd Date	Plng Date	Hit Date	Alt Date	Latitude	Longitude	District	Post ID
G	C-16-255-32E	151392	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151393	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151394	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151395	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151396	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151397	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151398	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151399	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151400	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151401	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151402	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151403	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151404	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151405	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151406	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151407	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151408	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151409	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151410	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151411	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151412	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151413	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151414	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151415	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151416	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151417	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151418	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151419	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151420	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151421	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151422	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151423	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151424	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151425	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151426	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151427	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151428	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151429	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151430	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151431	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151432	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151433	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151434	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151435	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151436	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151437	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151438	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151439	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151440	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151441	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151442	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151443	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151444	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151445	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151446	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151447	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151448	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151449	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151450	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151451	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151452	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151453	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151454	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151455	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151456	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151457	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151458	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151459	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151460	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151461	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151462	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151463	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151464	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151465	PRODE ENERGY COMPANY	N	H	3435	0	0	0	0	0	0	32.137125	-103.64184	19670	WC-025 G-07 S2532160, UPPER WALCAMP
G	C-16-255-32E	151466	PRODE ENERGY COMPANY	N	H											

Table 1
NMCO Wells within 2-Miles of Calrops State SWD #1

API	Well Name	Well Type	USFR	GORID	GORID Name	Status	DBR	Location	Measured Depth	Total Depth	Sand Date	Pipe Date	Effective Date	API Date	Latitude	Longitude	Block	Pool ID
30-025-20729	PRE-ONGARD WELL #001	O	P-20-255-32E	214263	PRE-ONGARD WELL OPERATOR	P	O	99999	4739	4739	4/20/17	1/1/1900	1/1/1900	1/1/1900	32.1568742	-103.681621	1	
30-025-20807	MONSANTO STATE #006	O	K-10-255-32E	16696	OXY USA INC	P	V	99999	4739	4739	4/20/17	1/1/1900	1/1/1900	1/1/1900	32.1568742	-103.681621	1	(49460) PADUCA, DELAWARE
30-025-20907	PRE-ONGARD WELL #003	O	F-10-255-32E	214263	PRE-ONGARD WELL OPERATOR	P	O	99999	4739	4739	4/20/17	1/1/1900	1/1/1900	1/1/1900	32.1568742	-103.681621	1	
30-025-20910	MONSANTO STATE #007	O	M-10-255-32E	16696	OXY USA INC	P	V	99999	4739	4739	4/20/17	1/1/1900	1/1/1900	1/1/1900	32.1568742	-103.681621	1	(49460) PADUCA, DELAWARE
30-025-21474	PRE-ONGARD WELL #001	O	G-10-255-32E	22351	PRE-ONGARD WELL OPERATOR	P	O	99999	4739	4739	4/20/17	1/1/1900	1/1/1900	1/1/1900	32.1568742	-103.681621	1	
30-025-21726	COTTON DRAW UNIT #064	G	C-10-255-32E	22351	ITCADO EXPLORATION & PRODUCTION INC	P	O	99999	4739	4739	4/20/17	1/1/1900	1/1/1900	1/1/1900	32.1568742	-103.681621	1	(49460) PADUCA, DELAWARE
30-025-23802	MONSANTO STATE #008	O	L-10-255-32E	16696	OXY USA INC	P	O	99999	4739	4739	4/20/17	1/1/1900	1/1/1900	1/1/1900	32.1568742	-103.681621	1	(49460) PADUCA, DELAWARE
30-025-23873	COTTON DRAW UNIT #075	O	K-10-255-32E	16696	OXY USA INC	P	V	99999	4739	4739	4/20/17	1/1/1900	1/1/1900	1/1/1900	32.1568742	-103.681621	1	(49460) PADUCA, DELAWARE
30-025-23873	COTTON DRAW UNIT #075	O	K-10-255-32E	16696	OXY USA INC	P	V	99999	4739	4739	4/20/17	1/1/1900	1/1/1900	1/1/1900	32.1568742	-103.681621	1	(49460) PADUCA, DELAWARE
30-025-30272	PADUCA # FEDERAL #001	O	E-20-255-32E	214263	PRE-ONGARD WELL OPERATOR	P	O	99999	4739	4739	4/20/17	1/1/1900	1/1/1900	1/1/1900	32.1568742	-103.681621	1	(49460) PADUCA, DELAWARE
30-025-37586	COTTON DRAW UNIT #096	O	M-10-255-32E	16696	OXY USA INC	P	V	99999	4739	4739	4/20/17	1/1/1900	1/1/1900	1/1/1900	32.1568742	-103.681621	1	(49460) PADUCA, DELAWARE
30-025-37937	PADUCA DELAWARE 10 STATE #008	O	C-10-255-32E	151323	PRIDE ENERGY COMPANY	P	V	3435	67	67	6/16/2006	6/16/2006	6/16/2006	6/16/2006	32.1357683	-103.6811676	1	(49460) PADUCA, DELAWARE

Table 2a

BLM Leases within 2-Miles of Caltrops State SWD #1

Solaris Water Midstream

Serial Number	Date	Name 1	Name 2	Name 3	Name 4
NMLC 0061873B	3/1/1951	CHEVRON USA INC	DEVON ENERGY PROD CO LP	LEGACY RESERVES OPERATING LP	
NMLC 0061863A	6/1/1950	CHEVRON USA INC	DEVON ENERGY PROD CO LP		
NMLC 0061873	3/1/1951	CHEVRON USA INC	DEVON ENERGY PROD CO LP		
NMLC 0062300	3/1/1951	3-M ENERGY CO	CHEVRON USA INC	DEVON ENERGY	PROVIDENCE MINERALS LLC
NMLC 0061873A	3/1/1951	CHEVRON USA INC	DEVON ENERGY PROD CO LP		
NMLC 0061936A	7/1/1957	CHEVRON USA INC	DEVON ENERGY PROD CO LP		
NMLC 0061936	7/1/1951	CHEVRON USA INC	DEVON ENERGY		
NMLC 0061869	1/1/1951	DEVON ENERGY PROD CO LP			
NMNM 015912	7/1/1972	MOBIL PROD TX & NM			
NMNM 110836	9/1/2003	OXY Y-1 COMPANY	EOG A RESOURCES INC	EOG M RESOURCES INC	
NMNM 108971	9/1/2002	OXY Y-1 COMPANY	EOG A RESOURCES INC	EOG M RESOURCES INC	
NMNM 115421	3/1/2006	OXY USA INC			
NMNM 123518	9/1/2009	EOG Y RESOURCES INC	EOG A RESOURCES INC	EOG M RESOURCES INC	OXY Y-1 COMPANY
NMNM 115422	3/1/2006	OGX RESOURCES INC			
NMNM 112935	1/1/2005	OXY Y-1 COMPANY	EOG A RESOURCES INC	EOG M RESOURCES INC	
NMNM 0359295A	2/1/1960	DEVON ENERGY OPER CO LP			
NMNM 0054031	4/1/1960	CHEVRON USA INC	DEVON ENERGY PROD CO LP		

Table 2b

Solaris Water Midstream

State Leases within 2-Miles of Caltrops State SWD #1

OGRID Name	OGRID	Unique Key	Lease Prefix	Lease Number	Lease Suffix	Date
CONOCOPHILLIPS COMPANY	217817	E050090001	E0	5009	1	2/10/51
PADUCA PARTNERS LLC	317612	E097890012	E0	9789	12	2/21/56
PRIDE ENERGY COMPANY	151323	V065450000	V0	6545	0	2/1/02

Table 3 - Produced Water Chemistry of Nearby Wells

api	S	TWO	RNG	CTY	formation	sampledate	ph	tds_mgl	resistivity_ohm_cm	sodium_mgl	calcium_mgl	iron_mgl	magnesium_mgl	manganese_mgl	chloride_mgl	bicarbonate_mgl	sulfate_mgl	co2_mg_L
3001542426	1 255	31E	EDDY	DELAWARE-BRUSHY CANYON	10/7/2015 0:00	6.3	245565.5	0.05108	71987.8	15105.6	76.4	2475.6	153168.3	545.1	400			
3001542515	1 255	31E	EDDY	DELAWARE-BRUSHY CANYON	10/7/2015 0:00	6.5	240893.6	0.05116	69999.9	13540.5	54	2248.5	152475.6	600.8	300			
3001529252	1 255	31E	EDDY		2/12/2014 0:00	6.7	128946.5		41405	6715	16	588	78100	317	481	30		
3001542513	1 255	31E	EDDY	BONE SPRING 2ND SAND	4/22/2015 0:00	7.1	145420.8		45961.8	7771.4	35	973.4	88433.1	144	0	200		
3001542514	1 255	31E	EDDY	BONE SPRING 2ND SAND	4/22/2015 0:00	7.1	145160.9		44866.9	7892.4	36	972.6	89011.8	244	0	200		
3001529252	1 255	31E	EDDY		8/24/2005 0:00	7.7	135335.2		450732.8	6045	2	480	82003	248.9	477			
3001529252	1 255	31E	EDDY		3/9/2011 0:00	7	133147.6		44488.8	5627	3.5	511	80547	341.6	468	0.2		
3001541364	2 255	31E	EDDY	BONE SPRING 2ND SAND	6/30/2014 0:00	6.5	164473.4		53511.8	9168.8	44.7	1111.4	98461	244	0	200		
3001541363	2 255	31E	EDDY	BONE SPRING 2ND SAND	1/27/2015 0:00	6.3	151759.9		42640.4	7768.3	47	933	93955.3	122	0	200		
3001541364	2 255	31E	EDDY	BONE SPRING 2ND SAND	1/27/2015 0:00	6.3	151611		47257.6	7748.1	48.7	954	93154.3	122	875.3	200		
3001541364	2 255	31E	EDDY	BONE SPRING 2ND SAND	1/27/2015 0:00	6.3	151433.6		47257.6	7748.1	48.7	954	93154.3	122	0	200		
3001538533	2 255	31E	EDDY	DELAWARE-BRUSHY CANYON	10/7/2015 0:00	6.5	257515.5	0.04973	74122.9	16699.4	79.5	2736.1	160663.2	359.4	400			
3001538533	2 255	31E	EDDY	AVALLON MIDDLE	2/1/2013 0:00	7.1	204607.1		68549.6	7663	25	1369	123033	976	1434	60		
3001538534	2 255	31E	EDDY	AVALLON LOWER	2/1/2013 0:00	7.1	176370.9		63443.9	3351	36	615	104946	1537.2	1188	40		
3001538556	2 255	31E	EDDY	AVALLON MIDDLE	2/1/2013 0:00	7.3	230564.8		73317.3	11591	44	1987	140233	610	781	40		
3001529345	2 255	31E	EDDY		5/15/2013 0:00	7.2	212182.4		62900.7	13704	29	2349	130100	134.2	331			
3001538533	2 255	31E	EDDY	AVALLON MIDDLE	6/25/2013 0:00	6.5	221504.1		71676	11845	49	2039	131876	707.6	1106	50		
3001541363	2 255	31E	EDDY	BONE SPRING 2ND SAND	10/17/2013 0:00	6.5	99209		33720	3384	38	912	56135	122	3635	150		
3001538293	2 255	31E	EDDY	AVALLON LOWER	1/27/2014 0:00	6.6	173940.4		59159	4411	73	912	105084	1403	0	350		
3001538533	2 255	31E	EDDY	AVALLON MIDDLE	1/27/2014 0:00	6.6	193809		59779	8398	95	1562	120738	549	0	400		
3001538556	2 255	31E	EDDY	AVALLON LOWER	1/27/2014 0:00	6.7	154676.5		55033	1169	47	261	94550	1220	0	300		
3001510843	2 255	31E	EDDY	AVALLON MIDDLE	1/27/2014 0:00	6.4	201766.5		60669	9699	64	1785	125944	488	300	0		
3001510843	2 255	31E	EDDY		2/10/2014 0:00	6.12	251232.5		73846	15965	56	2572	155756	122	0	350		
3001529728	2 255	31E	EDDY		2/12/2014 0:00	6.59	131449.7		42344	6992	6	601	79220	353	542	40		
3001529728	2 255	31E	EDDY		2/12/2014 0:00	4.74	85798.5		28036	3873	887	362	51300	59	389	50		
3001510843	2 255	31E	EDDY		2/20/2014 0:00	7.47	246826		74769	16401	65	2689	149839	158	410	410		
3001538556	2 255	31E	EDDY	AVALLON MIDDLE	2/20/2014 0:00	6.3	194713		58546	10372	70	1733	120869	634	656	570		
3001541363	2 255	31E	EDDY	BONE SPRING 2ND SAND	11/18/2014 0:00	6.4	155083		46690.1	7728.7	132	945.5	97130.8	183	876.9	200		
3001541363	2 255	31E	EDDY	BONE SPRING 2ND SAND	11/18/2014 0:00	6.4	154900.7		46690.1	7728.7	132	945.5	97130.8	183	0	200		
3001541364	2 255	31E	EDDY	BONE SPRING 2ND SAND	11/18/2014 0:00	6.2	151545		47168.6	7450	48.1	989.6	9392.1	122	0	200		
3001541364	2 255	31E	EDDY	BONE SPRING 2ND SAND	11/18/2014 0:00	6.2	151722		47168.6	7450	48.1	989.6	9392.1	122	111.7	200		
3001541437	2 255	31E	EDDY	BONE SPRING 2ND SAND	11/18/2014 0:00	6.2	160017		48268.6	7948.4	38.3	1005.5	100334.1	122	834.5	100		
3001541437	2 255	31E	EDDY	BONE SPRING 2ND SAND	11/18/2014 0:00	6.2	159829		48268.6	7948.4	38.3	1005.5	100334.1	122	0	100		
3001541437	2 255	31E	EDDY	BONE SPRING 2ND SAND	4/7/2015 0:00	6.9	149970.4	0.06035	47221.1	7739.3	48.6	945.9	91736.6	188	0	200		
3001529345	2 255	31E	EDDY		7/21/2005 0:00	6	251350.9		72408	18324	168	2885	154636	124.4	253			
3001529728	2 255	31E	EDDY		7/21/2005 0:00	7	122561		40610.6	5512	2	495	74201	290.4	456			
3001529345	2 255	31E	EDDY		8/24/2005 0:00	5	264347.8		81366.6	15276	146	2599	162178	62.2	249			
3001529728	2 255	31E	EDDY		8/24/2005 0:00	7	136044.4		45442.1	5998	0.7	450	82374	311.1	468			
3001529728	2 255	31E	EDDY		8/24/2005 0:00	6.2	136576.4		45028.5	6334	280	485	82850	122.4	499			
3001538432	2 255	31E	EDDY	DELAWARE-BRUSHY CANYON	6/17/2014 0:00	6	202329		64882.1	13144.3	55.3	2199.6	119000	244	0	70		
3001541363	2 255	31E	EDDY	BONE SPRING 2ND SAND	6/30/2014 0:00	6.7	126424.8		40645.2	6514.4	11.4	810.1	75892	244	0	200		
3001541364	2 255	31E	EDDY	BONE SPRING 2ND SAND	1/7/2015 0:00	6	155357.9		48378.6	7952.2	44.4	957.3	95566.7	244	0	200		
3001541499	2 255	31E	EDDY	BONE SPRING 2ND SAND	1/7/2015 0:00	6.2	152518		48678.5	7968.1	37.6	993.3	92365.3	122	846.7	150		
3001541499	2 255	31E	EDDY	BONE SPRING 2ND SAND	1/7/2015 0:00	6.2	152325.4		48678.5	7968	37.6	993.3	92365.3	122	0	150		
3001538293	2 255	31E	EDDY	AVALLON LOWER	3/29/2011 0:00	6.6	85262.9		31498.1	815	15	116	48116	2867	1368	200		
3001510843	2 255	31E	EDDY		9/21/2011 0:00	6	222994.1		73657.1	10000	42	1944	136320	500	531			
3001542317	3 255	31E	EDDY	BONE SPRING 2ND SAND	1/27/2015 0:00	6.3	143226.8		42636.7	6947.7	35.4	881.4	90482.2	244	0	300		
3001542318	3 255	31E	EDDY	BONE SPRING 2ND SAND	1/27/2015 0:00	6.4	143721.9		43196.3	7185.3	47.3	911.9	90263.4	122	0	200		
3001531381	3 255	31E	EDDY	DELAWARE-BRUSHY CANYON	6/25/2013 0:00	6.7	240716		82640	18493	103	3404	163110	219.6	286	30		
3001531381	3 255	31E	EDDY		2/10/2014 0:00	6.2	240716		69047	14901	68	2407	151403	122	0	300		
3001531381	3 255	31E	EDDY		2/20/2014 0:00	7.4	25030.4		71818	14933	58	2445	162812	146.4	495	390		
3001531381	3 255	31E	EDDY		2/20/2014 0:00	7.4	242428.7		69222	14322	51	2315	153661	134.2	443	380		
3001531381	3 255	31E	EDDY		2/20/2014 0:00	7.67	250022.2		68772	14093	55	2298	161917	134.2	506	420		
3001542317	3 255	31E	EDDY	BONE SPRING 2ND SAND	4/7/2015 0:00	6.5	151149.4	0.05979	46958.4	7753.9	38.7	968.6	93214.4	122	0	200		
3001542318	3 255	31E	EDDY	BONE SPRING 2ND SAND	4/7/2015 0:00	6.5	150344.4	0.05986	46535.7	7533.5	36	943.7	93134.6	122	0	200		

Table 3 - Produced Water Chemistry of Nearby Wells

api	S	TWO	RNG	CTY	formation	sampledate	ph	tds_mg	resistivity_ohm_cm	sodium_mg	calcium_mg	iron_mg	magnesium_mg	manganese_mg	chloride_mg	bicarbonate_mg	sulfate_mg	co2_mg
3001538535	3/25	31E	EDDY	DELAWARE-BRUSHY CANYON	12/1/2014 0:00	6	259462.7	73189.3	17155.5	59.3	2948.2	3.44	163095.6	122	0	400	0	400
3001538952	3/25	31E	EDDY	DELAWARE-BRUSHY CANYON	12/13/2014 0:00	6	237973.7	68394.1	15453.2	43.6	2523.9	3.49	148589.6	188	0	400	0	400
3001531381	3/25	31E	EDDY	DELAWARE-BRUSHY CANYON	8/11/2015 0:00	6.4	193507	56637.5	10651.6	36.3	1522.3		122006.1			846.7	200	200
3001538535	3/25	31E	EDDY	DELAWARE-BRUSHY CANYON	9/21/2011 0:00	6.2	194556.7	67591.7	5200	84	1944		117860			220	1657	
3001539230	10/25	31E	EDDY	DELAWARE-BRUSHY CANYON	2/1/2013 0:00	7.4	254959.9	79764.6	13961	35	2265	2.5	156140	48.8	351	20		
3001542126	10/25	31E	EDDY	DELAWARE-BRUSHY CANYON	11/4/2014 0:00	6	248787.7	71811.8	15698.5	62	2546	3.91	166925.1	305	0	300		
3001542126	10/25	31E	EDDY	DELAWARE-BRUSHY CANYON	11/4/2014 0:00	6	248787.7	69168.6	15101.9	85.5	2497.6	3.39	159331.7	122	0	350		
3001539229	10/25	31E	EDDY	BONE SPRING 2ND SAND	11/18/2014 0:00	6.2	166762.2	50511.3	8741.5	34.9	1113.3	1.09	104123.2	122	0	150		
3001542127	10/25	31E	EDDY	BONE SPRING 2ND SAND	11/18/2014 0:00	6.2	166972	50511.3	8741.5	34.9	1113.3	1.1	104123.2	122	698.3	150		
3001542127	10/25	31E	EDDY	BONE SPRING 2ND SAND	11/18/2014 0:00	6	157230.6	48594.2	8080.1	33.4	1039.4	1.05	97266	122	0	150		
3001542127	10/25	31E	EDDY	BONE SPRING 2ND SAND	11/18/2014 0:00	6	157444	48594.2	8080.1	33.4	1039.4	1	97266	122	767.5	150		
3001542126	10/25	31E	EDDY	BONE SPRING 2ND SAND	4/7/2015 0:00	6.8	156876.4	47995.3	8167.1	46.9	1037.2	1.26	97409	152	0	200		
3001542127	10/25	31E	EDDY	BONE SPRING 2ND SAND	4/7/2015 0:00	6.5	158125.7	48703.1	8121.1	37.1	1022.8	1.06	98100	122	0	200		
3001542414	11/25	31E	EDDY	BONE SPRING 2ND SAND	1/25/2015 0:00	6.2	126269.1	40446.7	6580.5	43.2	894	1.63	76140.7	122	0	200		
3001542415	11/25	31E	EDDY	BONE SPRING 2ND SAND	1/25/2015 0:00	6.1	135102.7	42665.9	7042.6	54.3	944	2.19	82210.5	122	0	250		
3001539375	11/25	31E	EDDY	DELAWARE-BRUSHY CANYON	1/27/2014 0:00	6.3	249141.5	73945	14492	45	2514	2.5	155100	122	0	250		
3001539376	11/25	31E	EDDY	BONE SPRING 2ND SAND	1/27/2014 0:00	6.6	154710.4	46995	6817	39	940	1.5	97481	183	0	200		
3001539730	11/25	31E	EDDY	DELAWARE-BRUSHY CANYON	2/27/2014 0:00	6.2	247108.5	74025	13425	76	2423	4.5	154200	122	0	300		
3001539375	11/25	31E	EDDY	DELAWARE-BRUSHY CANYON	1/20/2014 0:00	6.2	245188.5	72215	15714	45	2559	3	151636	98	332	380		
3001539730	11/25	31E	EDDY	DELAWARE-BRUSHY CANYON	2/20/2014 0:00	6.2	257350	74080	14866	54	2518	3	162870	110	376	400		
3001539376	11/25	31E	EDDY	BONE SPRING 2ND SAND	10/29/2014 0:00	6.3	157604.8	45851.5	7916	78.4	914	1.81	100557	244	0	250		
3001520272	12/25	31E	EDDY		2/12/2014 0:00	4.42	23445	7289	1376	424	167	24	13755	0	19			
3001529850	12/25	31E	EDDY		2/12/2014 0:00	6.59	131449.7	42344	6992	6	601	0.2	79220	353	542			
3001540385	13/25	31E	EDDY	DELAWARE-BRUSHY CANYON	10/7/2015 0:00	6.7	239818.3	72792.6	12750.4	110.8	2141.6		149091.1			595.6	400	
3001542091	14/25	31E	EDDY	BONE SPRING 2ND SAND	4/7/2015 0:00	6.4	155557.8	47632.8	7833.6	31.4	950.8	0	96870.5	122	0	200		
3001542092	14/25	31E	EDDY	BONE SPRING 2ND SAND	4/7/2015 0:00	6.2	154868.7	48183	8015.7	36	979.9	1.07	95447.5	122	0	200		
3001542504	14/25	31E	EDDY	BONE SPRING 2ND SAND	4/22/2015 0:00	6.8	149342.5	46864.9	7735.5	34.3	953.9	1.08	91392.5	244	0	200		
3001542504	14/25	31E	EDDY	BONE SPRING 2ND SAND	4/22/2015 0:00	6.8	148832	46832	7781.8	31.8	940.8	1.03	91091.9	144	0	200		
3001542091	14/25	31E	EDDY	BONE SPRING 2ND SAND	1/6/2015 0:00	6.9	147434.3	45458.9	7994.4	37.3	982.6	1.17	90722.4	61	0	180		
3001542092	14/25	31E	EDDY	BONE SPRING 2ND SAND	1/6/2015 0:00	7	145369.9	45077.6	7846.9	36.1	956.5	1.13	89272.7	61	0	220		
3001539727	22/25	31E	EDDY	BONE SPRING 2ND SAND	4/7/2015 0:00	6.9	158206.7	48491.4	7898.9	47.9	982.5	1.19	98665.6	122	0	200		
3001541548	25/25	31E	EDDY	AVALLON UPPER	9/5/2013 0:00	6.8	160733	52106	1481	68	289	0.9	102300	2342.4	1012	60		
3001541548	25/25	31E	EDDY	BONE SPRING 2ND SAND	6/11/2014 0:00	6.5	137946	45552	7086	26	850	1	81903	244	683	25		
3001541940	25/25	31E	EDDY	BONE SPRING 2ND SAND	6/11/2014 0:00	6.5	137735	45552	7086	26	850	1	81903	244	0	25		
3002508166	3/25	32E	LEA	BONE SPRING 2ND SAND	5/21/2015 0:00	6.12	200406.5	59653.7	10821.5	24.3	1679.7	1.93	125567.1			715		
3002541829	4/25	32E	LEA	BONE SPRING 2ND SAND	1/27/2015 0:00	6.3	140235.4	42818.4	6441.7	40.5	785.3	0	87998.1	102	760			
3002541829	4/25	32E	LEA	BONE SPRING 2ND SAND	11/11/2014 0:00	6.5	139733.4	42191.3	7002.9	78.4	913.2	1.66	87280.6	244	0	150		
3002541829	4/25	32E	LEA	BONE SPRING 2ND SAND	4/7/2015 0:00	7.2	141809.9	43932.5	6382.4	63.2	789.5	1.2	88463.4	244	0	100		
3002539948	6/25	32E	LEA	AVALLON LOWER	1/15/2015 0:00	6.2	122	0	0	0	0	0	0	122	0	200		
3002540044	6/25	32E	LEA	DELAWARE-BRUSHY CANYON	1/15/2015 0:00	6.3	239818.3	74875.7	14394.1	58.6	2437.4	2.53	145508.4	122	0	300		
3002540105	6/25	32E	LEA	AVALLON LOWER	1/15/2015 0:00	6.5	144738.6	53757.9	7182.2	44.8	135.8	0	86689.6	1098	0	400		
3002542312	6/25	32E	LEA	DELAWARE-BRUSHY CANYON	10/7/2015 0:00	6.5	239860	74029.5	13590.6	48.6	2237.5		147359.6			639.6	300	
3002540048	6/25	32E	LEA	BONE SPRING 2ND SAND	12/18/2013 0:00	7.65	179697.7	56825.9	9232	23	1459	2	108593	48.8	1692	230		
3002539948	6/25	32E	LEA	AVALLON LOWER	2/1/2013 0:00	7.4	165243.8	62859.4	567	17	107	0.2	97097	2281.4	1177	40		
3002539949	6/25	32E	LEA	AVALLON MIDDLE	2/1/2013 0:00	7.2	191604.1	65433.6	6298	128	1120	2	114866	793	1710	50		
3002540105	6/25	32E	LEA	AVALLON LOWER	2/1/2013 0:00	7.1	164202.4	62428.1	501	25	96	0.5	96323	2305.8	1264	30		
3002540048	6/25	32E	LEA	BONE SPRING 2ND SAND	1/23/2014 0:00	6.8	133237	40473	6252	23	836	1	82438	244	0	200		
3002539949	6/25	32E	LEA	AVALLON MIDDLE	1/27/2014 0:00	6.3	197184.5	62422	6809	218	1344	3.5	123168	549	0	500		
3002540045	6/25	32E	LEA	BONE SPRING 2ND SAND	1/29/2014 0:00	6.7	139871.5	40364	6643	41	750	1.5	89675	183	0	200		
3002540046	6/25	32E	LEA	DELAWARE-BRUSHY CANYON	1/29/2014 0:00	6.2	225114.5	60110	12606	50	1970	3	147814	122	0	250		
3002540047	6/25	32E	LEA	DELAWARE-BRUSHY CANYON	3/20/2015 0:00	6.7	252093.3	78472.1	17591.8	34.8	2984	2.98	150156.7	148.8	0	400		
3002540047	6/25	32E	LEA	DELAWARE-BRUSHY CANYON	4/7/2015 0:00	6.7	248632	71715	15831.6	43.8	2760.6	2.61	155536.8	122	0	300		
3002542475	6/25	32E	LEA	BONE SPRING 2ND SAND	8/31/2015 0:00	6.2	162064.6	49783.6	7951.8	36.1	987.1		100900.9			949.5	100	
3002542476	6/25	32E	LEA	BONE SPRING 2ND SAND	8/31/2015 0:00	6.58	151458.9	46370.7	7184.6	35.5	876		94430.6			1111.8	200	

Table 3 - Produced Water Chemistry of Nearby Wells

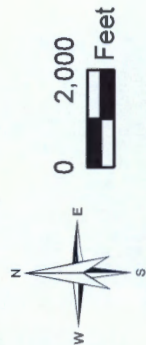
api	S	TWO	RNG	CTY	formation	sampledate	ph	tds_mg_L	resistivity_ohm_cm	sodium_mg_L	calcium_mg_L	iron_mg_L	magnesium_mg_L	manganese_mg_L	chloride_mg_L	bicarbonate_mg_L	sulfate_mg_L	co2_mg_L
3002539948	6/255	32E	Lea	Lea	AVALLON LOWER	12/8/2011 0:00	7	144951		54645.4	665	22	113	0.3	84541	2708.4	1047	60
3002539949	6/255	32E	Lea	Lea	AVALLON MIDDLE	12/8/2011 0:00	7	145592.5		55404.5	440	25	71	0.3	84840	2806	1092	60
3002540105	6/255	32E	Lea	Lea	AVALLON LOWER	12/8/2011 0:00	7	145530.9		55235.9	493	27	80	0.5	84856	2720.6	1090	60
3002541996	10/255	32E	Lea	Lea	BONE SPRING 2ND SAND	4/7/2015 0:00	6.5	207154.8	0.05017	68477	4041.6	41.3	1744.6	1.53	126763.4	122	0	200
3002508176	10/255	32E	LEA	LEA	DELAWARE			246555							152600	112	939	
3002508182	15/255	32E	LEA	LEA	DELAWARE			308600										
3002508182	15/255	32E	LEA	LEA	DELAWARE			309990										
3002508182	16/255	32E	LEA	LEA	DELAWARE			224016							138600	139	462	
3002508221	22/255	32E	LEA	LEA	DELAWARE			276839							170500	198	552	
3002508226	27/255	32E	LEA	LEA	DELAWARE			239464							147800	64	908	
3002508226	32/255	32E																
3002508242	33/255	32E	Lea	Lea	BONE SPRING 3RD SAND	10/8/2015 0:00	6.1	226822	0.05289	57077.4	20081.9	19.4	2953.6		144325.8		528.7	300
3001542113	2/265	31E	EDDY	EDDY	BONE SPRING 3RD SAND	1/27/2015 0:00	6.5	94965.6		31352.7	3678.6	31.7	483.6	0.83	57489.5	244	0	200
3001542113	2/265	31E	EDDY	EDDY	BONE SPRING 3RD SAND	9/30/2015 0:00	7	94518.2	0.08933	30031.5	3402.8	19.9	438.9		58782.2		355.2	200
3001542113	2/265	31E	EDDY	EDDY	BONE SPRING 3RD SAND	10/7/2015 0:00	7.2	94863.9	0.08894	30224.8	3424	14.8	444		59015.2		365	200
3001542688	2/265	31E	EDDY	EDDY	WOLF CAMP	10/7/2015 0:00	7.3	81366.4	0.1004	26319.4	2687.4	26.1	326.7		50281.2		399.7	100
3001542113	2/265	31E	EDDY	EDDY	BONE SPRING 3RD SAND	12/14/2015 0:00	6.8	91289.1	0.08914	28721.3	3440.7	16.3	437.4		56957.4		327.9	150
3001539036	2/265	31E	EDDY	EDDY	AVALLON UPPER	6/26/2014 0:00	6.1	223019		76001.7	10437.8	209.9	1922.4	4.5	131072	366	632	1100
3001539162	2/265	31E	EDDY	EDDY	AVALLON UPPER	6/26/2014 0:00	6.5	179788.5		71575.7	617.4	21.8	109.6	0	101374	3660	0	500
3001539162	2/265	31E	EDDY	EDDY	AVALLON UPPER	6/26/2014 0:00	6.5	179938		71575.7	617.4	21.8	109.6	0	101374	3660	844	500
3001539104	2/265	31E	EDDY	EDDY	AVALLON UPPER	8/31/2011 0:00	7	162560.1		57137	3886	42	776	0.6	97161	1403	756	70
3001529605	10/265	31E	EDDY	EDDY		3/20/2015 0:00	6.3	111430.5	0.07008	38922.4	3647.3	76.8	487.9	1.05	66173.2	366	0	300
3001529605	10/265	31E	EDDY	EDDY		4/14/2015 0:00	7	54116.9		46100	5224	349.6	719.3	3.73	0	73.2	0	570
3001540994	10/265	31E	EDDY	EDDY	BONE SPRING 2ND SAND	6/5/2014 0:00	6.6	138161.9		44458.5	6280.8	29.7	781.3	0	84470	122	0	20
3001540994	10/265	31E	EDDY	EDDY	BONE SPRING 2ND SAND	6/5/2014 0:00	6.6	138376		44458.5	6280.8	29.7	781.3	0	84470	122	618	20
3001537899	10/265	31E	EDDY	EDDY	AVALLON UPPER	6/26/2014 0:00	6.5	199638.8		68948.2	7560.4	111.2	1522.8	2.19	118195	732	0	500
3001539866	10/265	31E	EDDY	EDDY	BONE SPRING 2ND SAND	6/26/2014 0:00	6.5	152439.2		48495.7	6731.3	29.1	801.4	1.06	94055	244	0	100
3001537899	10/265	31E	EDDY	EDDY	AVALLON UPPER	7/19/2011 0:00	7.1	209352.4		70089.5	7327	203	1557	2.5	127230	146.4	600	600
3001538193	11/265	31E	EDDY	EDDY	AVALLON UPPER	6/26/2014 0:00	6.1	225189.8		77010.7	8743.8	636.1	1649.2	6.75	134075	366	0	300
3001538193	11/265	31E	EDDY	EDDY	AVALLON UPPER	7/19/2011 0:00	7	196576.7		68797.3	5059	12	1066	0.9	118943	122	872	380
3001538193	11/265	31E	EDDY	EDDY	AVALLON UPPER	8/31/2011 0:00	7	203078.9		72261.4	4407	112	904	1.5	122172	1098	658	80
3001505886	26/265	31E	EDDY	EDDY	DELAWARE			212112							132100	195	425	
3002508253	8/265	32E	LEA	LEA				216350							134500	198	998	
3002508278	25/265	32E	LEA	LEA	DELAWARE			244815							153500	88	220	
3002508291	26/265	32E	LEA	LEA	DELAWARE			254895										
3002508296	26/265	32E	LEA	LEA	DELAWARE			249479							156000	976	373	
3002508308	35/265	32E	LEA	LEA	DELAWARE			255115							160000	85	310	

Table 4 - Chemistry of Produced Water from Devonian Formations

wellname	api	section	township	range	county	state	field	formation/depth	sample/sampled/depth	ph	specific gravity	specific gravity	conductivity	conductivity	sodium	calcium	magnesium	chloride	bicarbonate	sulfate
CROSSROADS DEVONIAN UNIT #001	3002520735	16	105	36E	LEA	NM	CROSSROADS DEVONIAN	DST	DST		11788							4872	631	2111
CROSSROADS DEVONIAN UNIT #001	3002520735	16	105	36E	LEA	NM	CROSSROADS DEVONIAN	DST	DST		150646							88710	2811	2394
DEVONIAN STATE #005	3002504728	20	215	36E	LEA	NM	EUMONT ARTESIA	UNKNOWN	UNKNOWN		82730							48060	1349	1455
WEST DOLLARHIDE DEVONIAN UNIT #104	3002512297	32	245	36E	LEA	NM	ELLENBURGER	FLOW LINE	4/1/1965 0:00	5.8	1.039	77	0.155	65	64340	64	16300	3000	195	980
WEST DOLLARHIDE DEVONIAN UNIT #104	3002512297	32	245	36E	LEA	NM	DOLLARHIDE DEVONIAN	WELLHEAD	UNKNOWN		50858							30200	183	980
WEST DOLLARHIDE DEVONIAN UNIT #110	3002512386	34	255	36E	LEA	NM	DOLLARHIDE DEVONIAN	UNKNOWN	UNKNOWN		56776							30200	183	980
CROSSROADS SILURO DEVONIAN UNIT #104	3002503832	34	095	36E	LEA	NM	SWD DEVONIAN	UNKNOWN	UNKNOWN		298844							184000	244	200
CROSSROADS SILURO DEVONIAN UNIT #104	3002503810	27	095	36E	LEA	NM	CROSSROADS PENNSYLVANIAN	SEPARATOR	5/27/1971 0:00	7.5							33700	375	1470	
CROSSROADS SILURO DEVONIAN UNIT #202	3002508612	27	095	36E	LEA	NM	CROSSROADS SILURO DEVONIAN	HEATER TR	5/27/1971 0:00	7.3							50100	287	1400	

OSE Well Logs - NO WATER SUPPLY WELLS

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



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

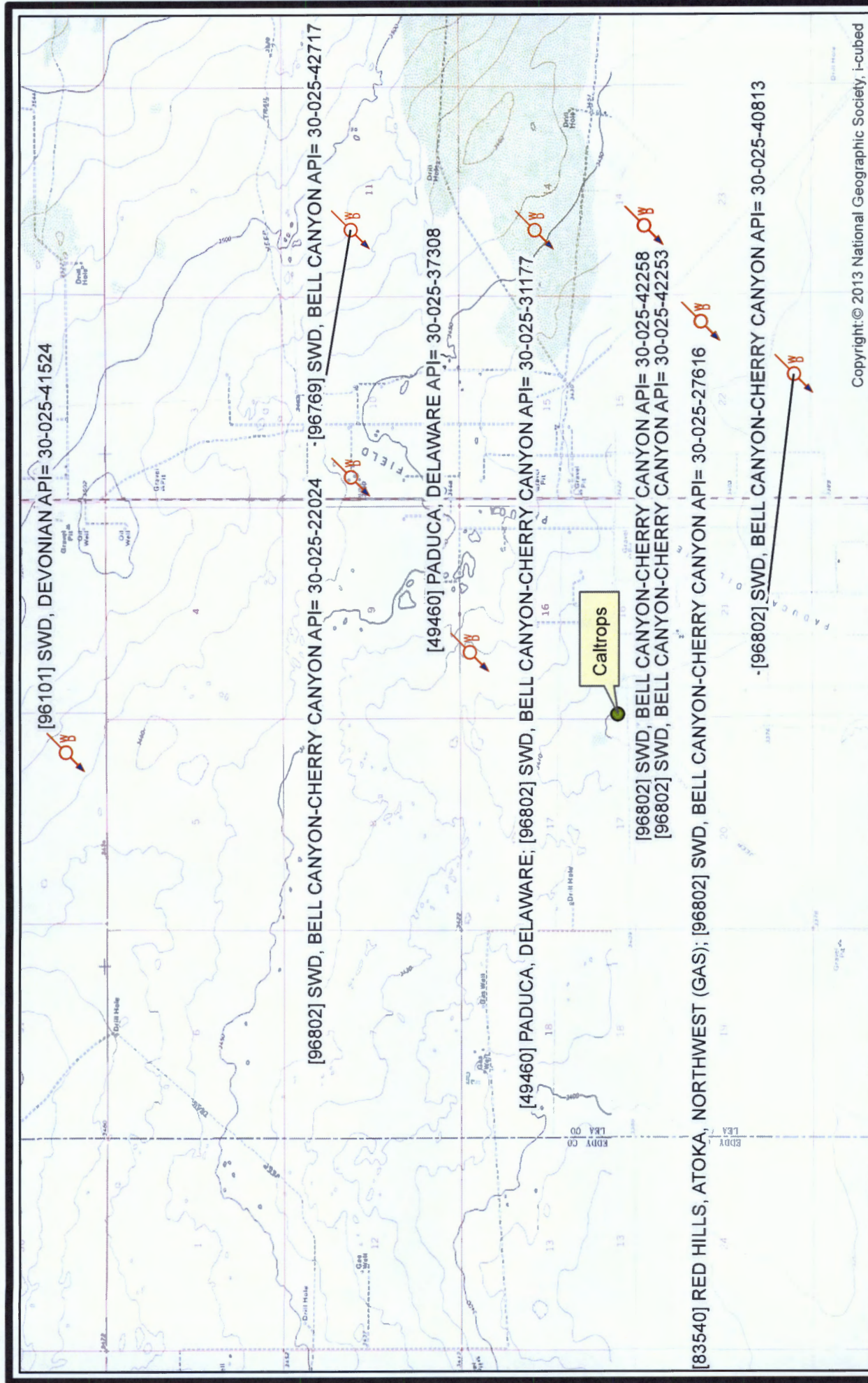
Nearby SWDs

Solaris - Ironside SWD

Plate #

Date _____

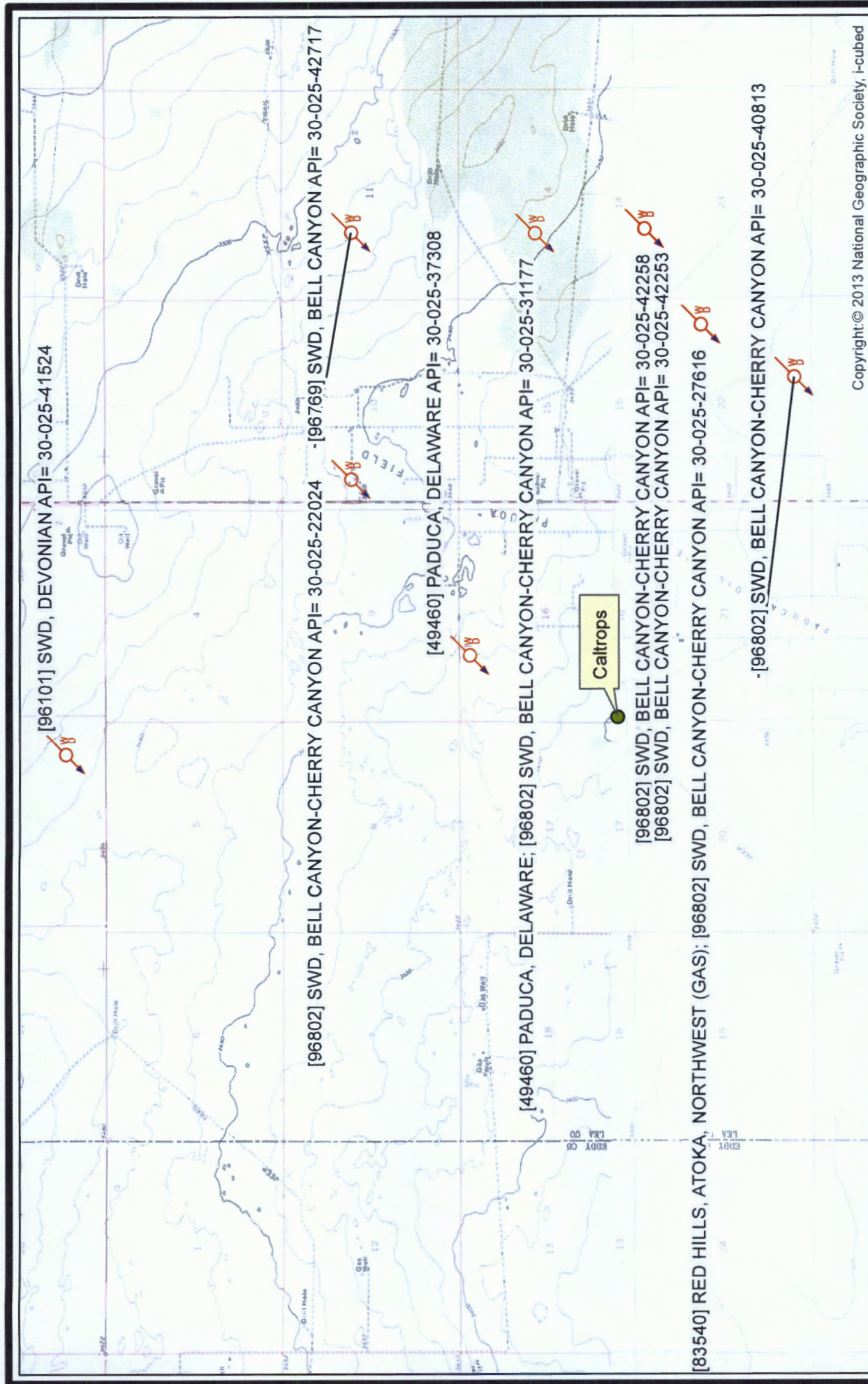
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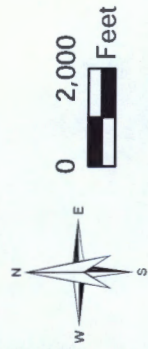
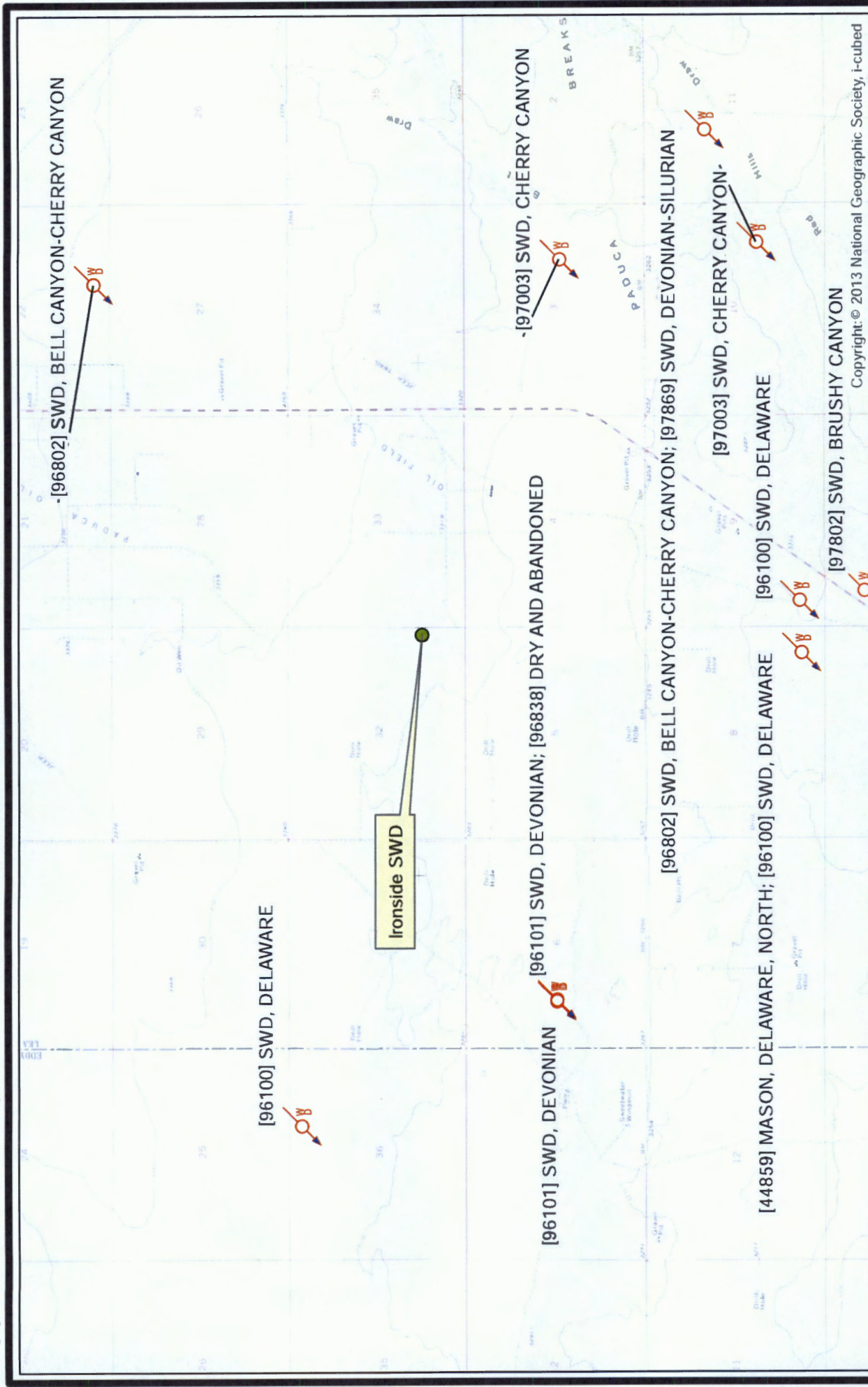
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby SWDs Solaris - Caltrops SWD	Plate #	Date
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R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	<table> <tr> <th data-bbox="1396 73 1469 304">Nearby SWDs</th><th data-bbox="1396 304 1469 735">Plate #</th></tr> <tr> <td data-bbox="1469 73 1550 304">Solaris - Caltrops SWD</td><td data-bbox="1469 304 1550 735">Date</td></tr> </table>	Nearby SWDs	Plate #	Solaris - Caltrops SWD	Date
Nearby SWDs	Plate #				
Solaris - Caltrops SWD	Date				



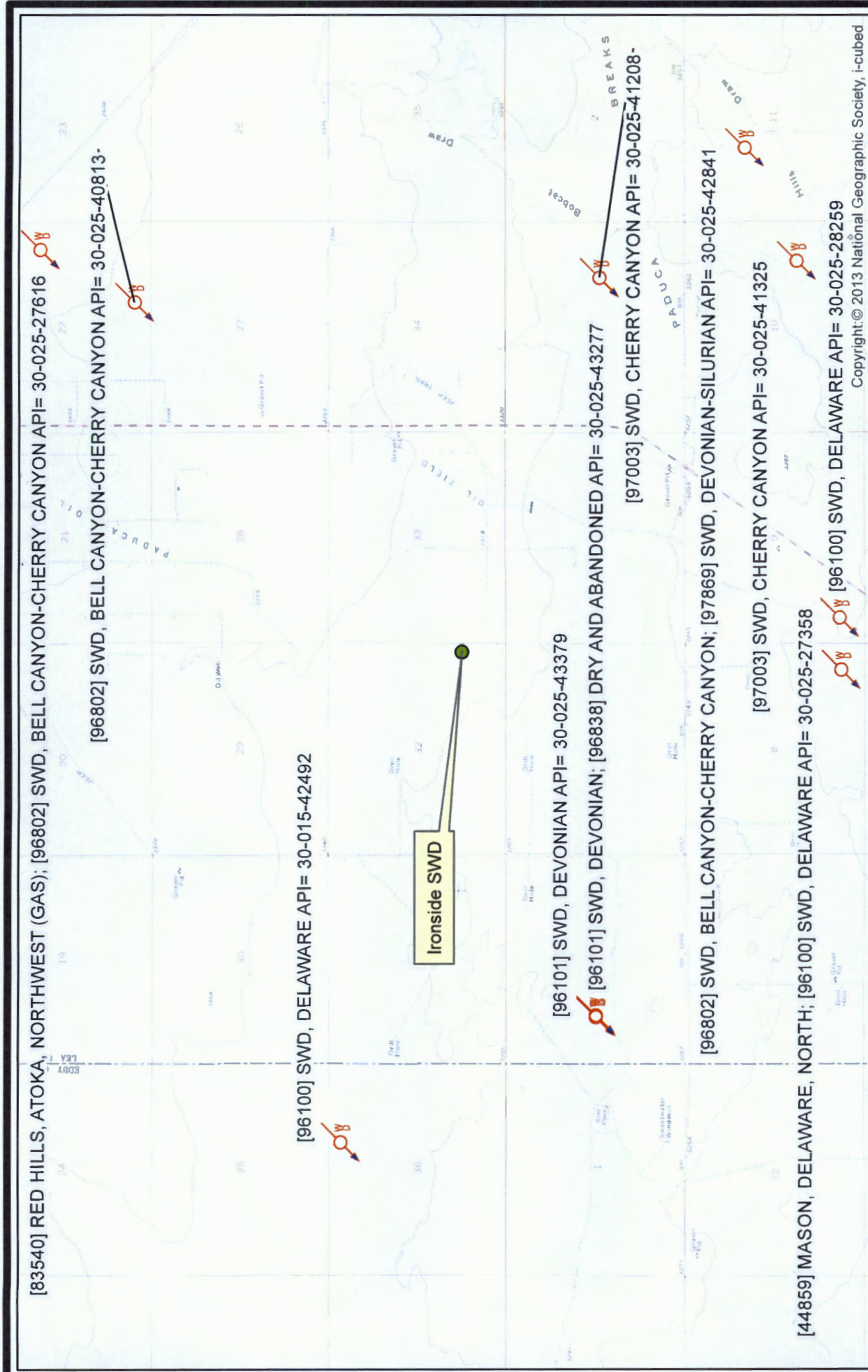
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 Albuquerque, NM 87104
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Nearby SWDs

Solaris - Ironsides SWD

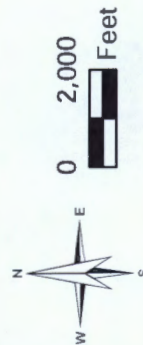
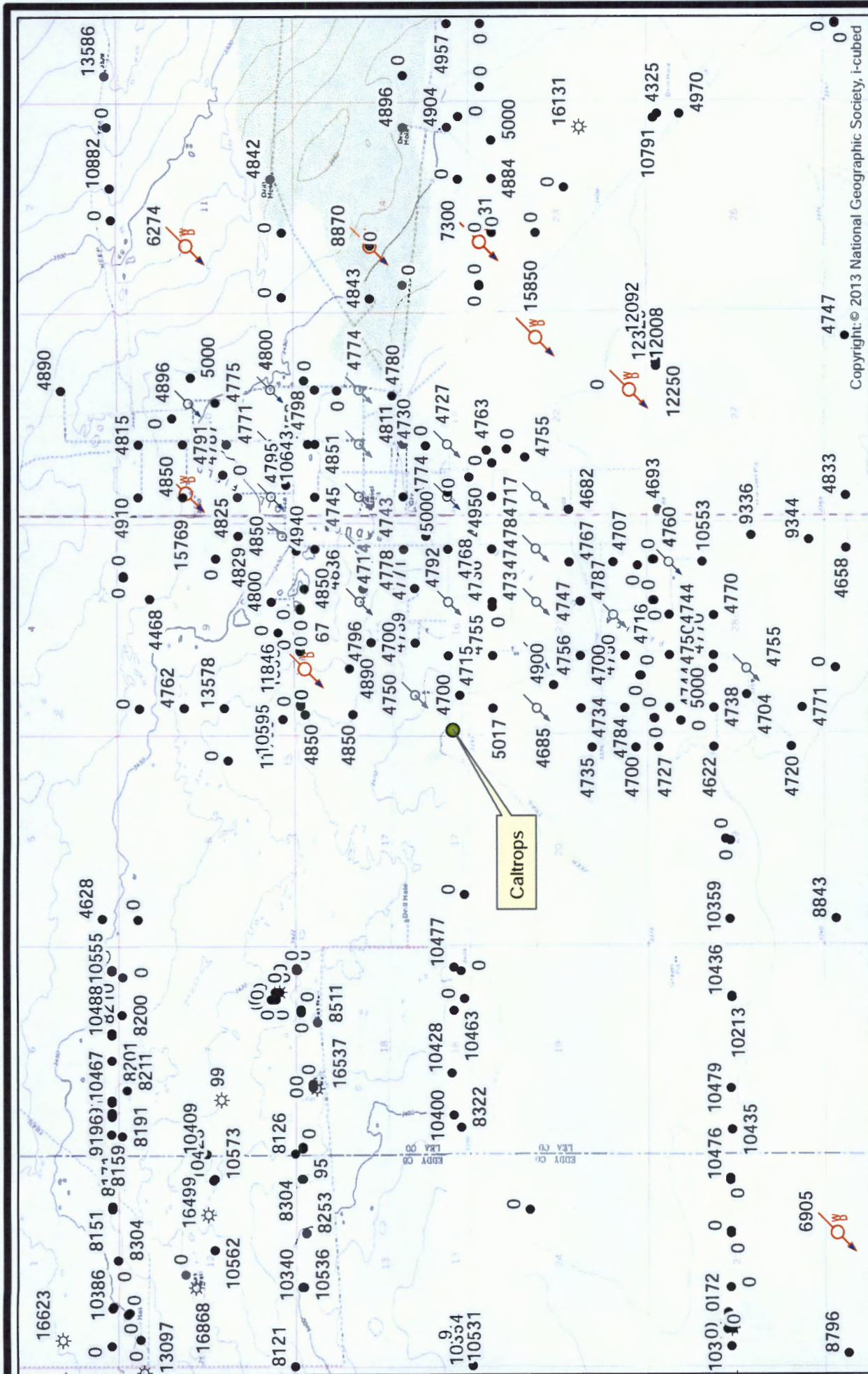
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Plate #	Nearby SWDs
Date	Solaris - Ironside SWD



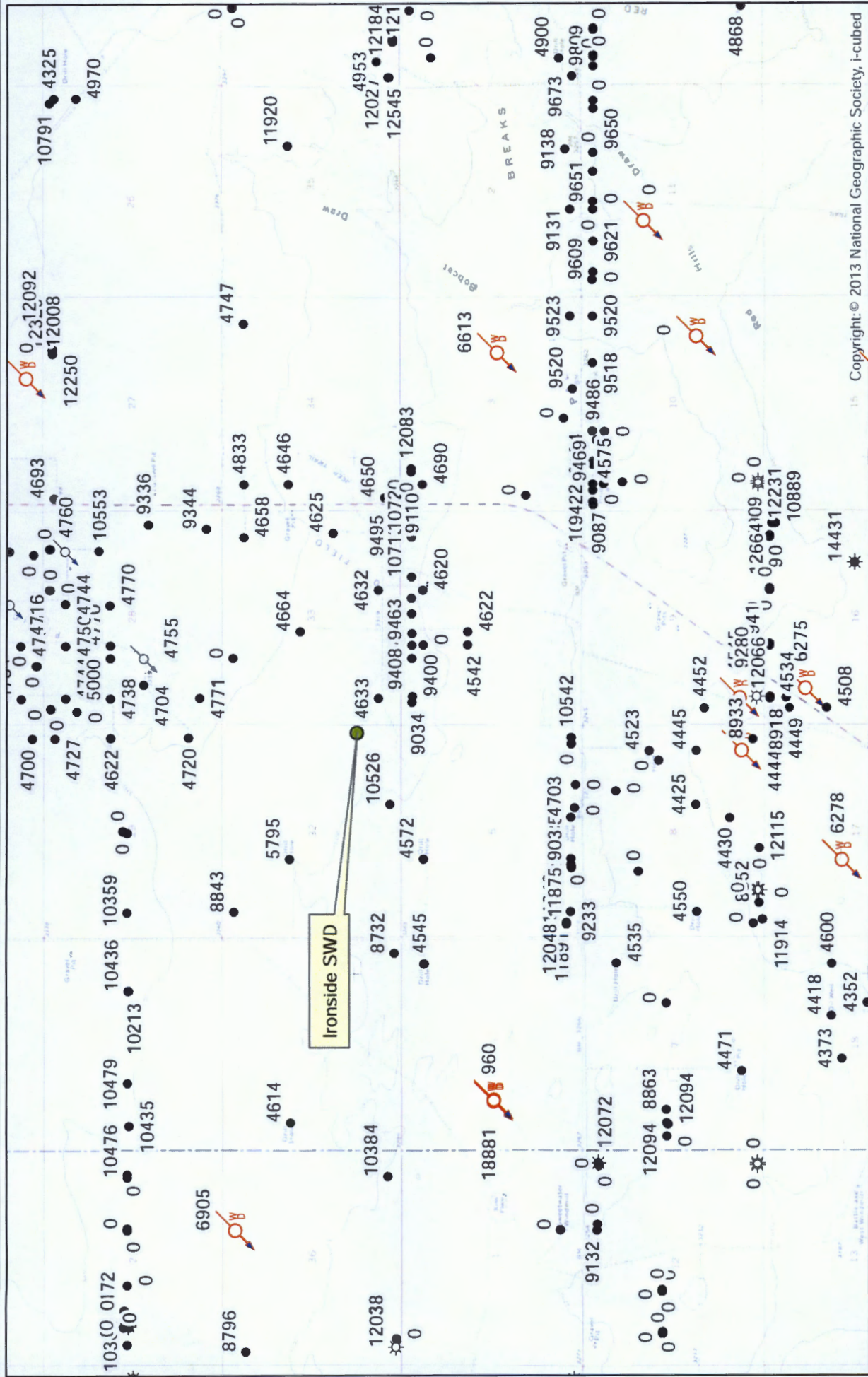
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Nearby OCD Wells & TD

Solaris - Caltrops SWD

Plate #

Date



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Nearby OCD Wells & TD

Plate #

Solaris - Ironside SWD

Date _____

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Artesia ▲ Carlsbad ▲ Durango ▲ Midland

April 26, 2019

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

RE: Solaris Water Midstream Caltrops State SWD #1
UL M Section 16 T25S R32E, Lea County

Dear Mr. Goetze:

On behalf of Solaris Water Midstream 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 2018¹
- Plate 4, 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, a 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 Solaris SWD well

Plate 4 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)

¹ https://scits.stanford.edu/sites/default/files/3702_tss_lundsnee_v2.pdf

2. Areas of documented seismic activity, such as the Dagger Draw area and a magnitude 2.0-2.9 earthquake that occurred between 1970-2004 about 7-miles east of the proposed Caltrops State SWD #1. A slightly larger magnitude seismic event is reported about 15 miles northwest of the Caltrops State SWD #1 well location.
3. Although Plate 4 does not show faults that may be identified in confidential seismic data owned by oil and gas operators, the mapped fault that is closest to the Caltrops State SWD #1 (about 10 miles to the east) exhibits a low FSP (less than 5%) based upon the modeling and analysis of Snee and Zoback referenced above
4. Other mapped faults in southern Lea County shown on Plate 4 also show a low FSP, except for part of southwest-northeast trending fault about 35 miles north-northwest of the Caltrops State SWD #1 well that has a FSP of about 25 – 33% at the northeast end.

Plate 5 reproduces the major elements of Plate 4 in the inset map and also shows that within an 11-mile radius around the proposed Caltrops State SWD #1, the OCD database shows 26 active or new Devonian SWDs, which translates into an average density of one SWD for every 5 square miles.

We contend that the data permit conclusion that unmapped faults (which may be located by confidential seismic data that Solaris does not possess) near the Caltrops State SWD #1 would be dominantly north-south normal faults, as is common in Lea County. The data on Plate 4 permit a conclusion that faults near the Caltrops State SWD #1 are also most likely to exhibit a low FSP, like the mapped faults shown on Plate 4.

Given the density of Devonian SWDs (planned/new and active) near the proposed Caltrops 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 Caltrops 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.

Sincerely,
R.T. Hicks Consultants



Randall T. Hicks
Principal

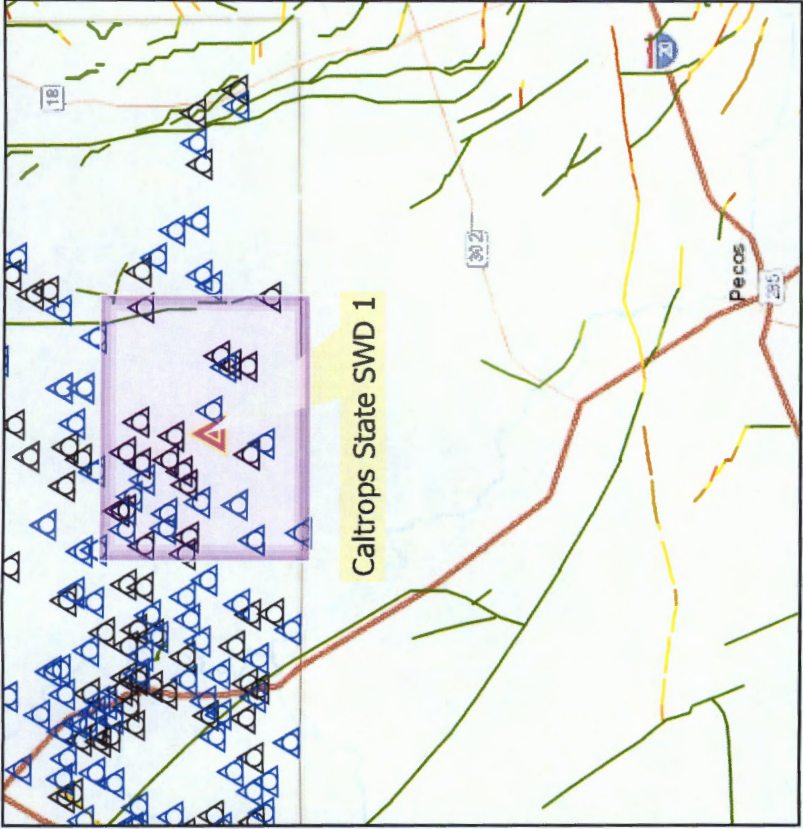
Copy: Solaris Water Midstream LLC



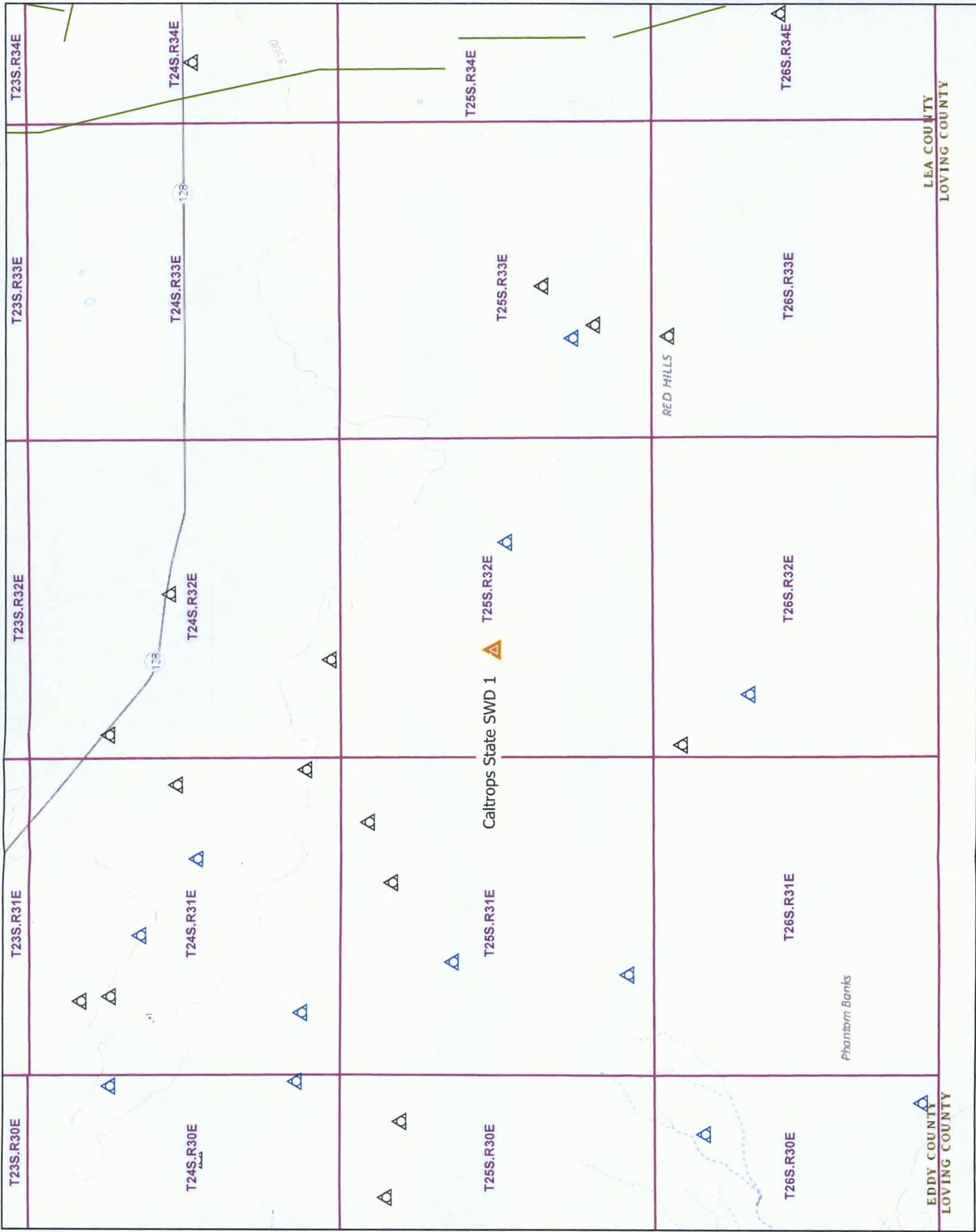
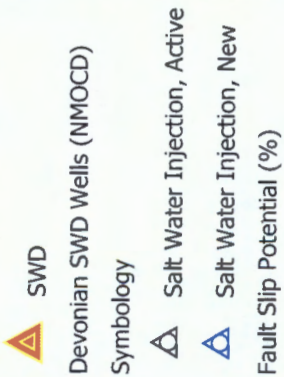
Source: State of stress in the Permian Basin, Texas and New Mexico: Implications for induced seismicity (Jens-Erik Lund Snee and Mark D. Zoback)

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Fault Slip Potential
Solaris Water Midstream
Caltrops State SWD #1



Fault Slip Potential Source -
State of stress in the Permian Basin, Texas and New Mexico: Implications for induced seismicity (Jens-Erik Lund Snee and Mark D. Zoback)



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Fault Slip Potential

Solaris Water Midstream

Caltrops State SWD #1

Plate 5

April 2019

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April 26, 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 Caltrops 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 16, Township 25 South, Range 32 East in Lea County, New Mexico.

The published notice states that the interval will be from 17,057 feet to 18,482 feet into the Devonian and Fusselman Formations.

Following is the notice published in the Hobbs News Sun, Hobbs, New Mexico on or about April 30, 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 Caltrops SWD No. 1 will be located 550 feet from the South line and 120 feet from the West line, Section 16, Township 25 South, Range 32 East, Lea County, New Mexico. Produced water from area production will be commercially disposed into the Devonian, Silurian and Fusselman formations at a depth of 17,057 feet to 18,482 feet at a maximum surface pressure of 4,081 psi and an average injection rate of 30,000 barrels per day. The proposed SWD well is located approximately 24 miles southeast of Loving, 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