STATE OF NEW MEXICO
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES
OIL CONSERVATION DIVISION

APPLICATION OF SOLARIS WATER MIDSTREAM, LLC FOR APPROVAL OF SALT WATER DISPOSAL WELL, EDDY COUNTY, NEW MEXICO. **CASE NO. 20587**

SOLARIS HEARING EXHIBITS

1. Application for Authorization to Inject, Form C-108
2. Revised wellbore design
3. Affidavit of Publication and proof of mailing
4. Seismicity and Faults in the Vicinity of the Proposed Solaris Water Midstream, LLC SWD wells
5. Seismicity report backup documents
6. Geologic supporting map and cross-section
7. Affidavit of Stephen M. Martinez
8. Letter from Apache to OCD, dated June 6, 2019

SOLARIS EXHIBIT 1

LONQUIST & CO. LLC
PETROLEUM ENGINEERS | ENERGY ADVISORS
AUSTIN · HOUSTON · WICHITA · DENVER · CALGARY

March 21, 2019

New Mexico Energy, Minerals, and Natural Resources Department
Oil Conservation Division District IV
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
(505) 476-3440

RE: CAPT CALL SWD NO. 1 AUTHORIZATION TO INJECT

To Whom It May Concern:

Attached for your review is Form C-108, Application for Authorization to Inject, and its supplemental documents prepared for Solaris Water Midstream, LLC's ("Solaris") Capt Call SWD No. 1. In addition, Forms C-101 and C-102 have also been included with this package. Notices have been sent to offset, operators, leaseholders and the surface owner. Proof of notice will be sent to the OCD upon receipt.

Any questions should be directed towards Solar Water Midstream, LLC's agent Lonquist & Co., LLC.

Regards,

Ramona K Hovey

Ramona Hovey
Sr. Petroleum Engineer
Lonquist & Co., LLC

(512) 600-1777
ramona@lonquist.com

Revised March 23, 2017

RECEIVED:	REVIEWER:	TYPE:	APP NO:

ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

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

ADMINISTRATIVE APPLICATION CHECKLIST

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

Applicant: Solaris Water Midstream, LLC **OGRID Number: 371643**
Well Name: Capt Call SWD #1 **API:**
Pool: 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.

March 21, 2019
Date

Ramona Hovey – Agent of Solaris Water Midstream
Print or Type Name

Ramona K Hovey
Signature

(512) 600-1777
Phone Number

ramona@lonquist.com
e-mail Address

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

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

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____Secondary Recovery _____Pressure Maintenance ___X___Disposal _____Storage
Application qualifies for administrative approval? ___X___Yes _____No

II. OPERATOR: Solaris Water Midstream, LLC

ADDRESS: 701 Tradewinds Blvd., Suite C, Midland, TX 79706

CONTACT PARTY: Whitney McKee PHONE: 432-203-9020

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: Ramona Hovey TITLE: Consulting Engineer – Agent for Solaris Water Midstream

SIGNATURE: Ramona K Hovey DATE: 3/21/2019

E-MAIL ADDRESS: ramona@lonquist.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

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

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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.).

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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: Ramona Hovey TITLE: Consulting Engineer – Agent for Solaris Water Midstream

SIGNATURE: _____ DATE: 3/21/2019

E-MAIL ADDRESS: ramona@lonquist.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

Side 2

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: Capt Call SWD No. 1

WELL LOCATION: 820' FSL 300' FWL
FOOTAGE LOCATION

M
UNIT LETTER

2
SECTION

20S
TOWNSHIP

28E
RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 18.125"

Cemented with: 404 sx.

Top of Cement: surface

Casing Size: 16.00"

or _____ ft³

Method Determined: circulation

Intermediate Casing

Hole Size: 14.750"

Cemented with: 476 sx.

Top of Cement: surface

Casing Size: 13.375"

or _____ ft³

Method Determined: circulation

Production Casing

Hole Size: 12.250"

Cemented with: 2,929 sx.

Top of Cement: surface

Casing Size: 9.625"

or _____ ft³

Method Determined: circulation

Liner

Hole Size: 8.500"

Cemented with: 443 sx.

Top of Cement: 9,840'

Total Depth: 14,310'

Casing Size: 7.625"

or _____ ft³

Method Determined: calculation

Injection Interval

12,510 feet to 14,310 feet

(Open Hole)

INJECTION WELL DATA SHEET

Tubing Size: 5.5", 20 lb/ft, HCL-80, LTC from 0' – 9,790' and 5", 18 lb/ft, HCL-80, LTC from 9,790'-12,460'
Lining Material: Duoline

Type of Packer: Nickel Plated Double Grip Retrievable Packer or Equivalent

Packer Setting Depth: 12,460'

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: Devonian/Fusselman,

3. Name of Field or Pool (if applicable): SWD; Devonian-Silurian 97869

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, new drill.

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

   Bone Spring: 4,660'
   Wolfcamp: 9,060'
   Strawn: 10,060'
   Atoka: 10,385'
   Morrow: 10,585'

Solaris Water Midstream, LLC

Capt Call SWD No. 1

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1.

Well information	
Lease Name	Capt Call SWD
Well No.	1
Location	S-2 T-20S R-28E
Footage Location	820' FSL & 300' FWL

2.

a. Wellbore Description

Casing Information				
Type	Surface	Intermediate	Production	Liner
OD	16"	13.375"	9.625"	7.625"
WT	0.495"	0.48"	0.545"	0.500"
ID	15.010"	12.415"	8.535"	6.625"
Drift ID	14.822"	12.259"	8.379"	6.500"
COD	17.000"	13.375"	10.625"	7.625"
Weight	84 lb/ft	68 lb/ft	53.5 lb/ft	39 lb/ft
Grade	J-55 BTC	L-80, EZ-GO FJ3	HCP-110 BTC	Q-125 EZ-GO FJ3
Hole Size	18.125"	14.75"	12.25"	8.5"
Depth Set	830'	2,635'	10,040'	9,840'-12,510'

b. Cementing Program

Cement Information					
Casing String	Conductor	Surface	Intermediate	Production	Liner
Lead Cement	EXTENDACEM™	HALCEM™	HALCEM™	HALCEM™	NeoCem™
Lead Cement Volume (sacks)	249	367	476	Stage 1: 1,274 Stage 2: 1,056 Stage 3: 599	443
Lead Cement Density (ft3/sack)	1.694	1.342	1.685	Stage 1: 1.232 Stage 2: 1.713 Stage 3: 1.777	1.418
Tail Cement	-	HALCEM™	-	-	-
Tail Cement Volume (sacks)	-	37	-	-	-
Tail Cement Density (ft3/sack)	-	1.342	-	-	-
Cement Excess	0%	50%	30%	50%, 50%, 50%	50%
Total Sacks	249	404	476	2,929	443
TOC	Surface	Surface	Surface	Surface	9,840'
Method	Circulate to Surface	Circulate to Surface	Circulate to Surface	Circulate to Surface	Logged

3. Tubing Description

Tubing Information	
OD	5.5", 5.0"
WT	0.361", 0.362"
ID	4.778", 4.276"
Drift ID	4.653", 4.151"
COD	6.050", 5.563"
Weight	20 lb/ft, 18 lb/ft
Grade	HCL-80 LTC, HCL-80 LTC
Depth Set	0 – 9,790', 9,790' - 12,460'

Tubing will be lined with Duoline.

4. Packer Description

   Nickel plated double grip retrievable packer or equivalent

B. Completion Information

1. Injection Formation: Devonian, Fusselman
2. Gross Injection Interval: 12,510' – 14,310'

   Completion Type: Open Hole
3. Drilled for injection.
4. See the attached wellbore schematic.
5. Oil and Gas Bearing Zones within area of well:

Formation	Depth
Bone Spring	4,660'
Wolfcamp	9,060'
Strawn	10,060'
Atoka	10,385'
Morrow	10,585'

VI. Area of Review

No wells within the area of review penetrate the proposed injection zone.

VII. Proposed Operation Data

1. Proposed Daily Rate of Fluids to be Injected:

   Average Volume: 30,000 BPD
   Maximum Volume: 40,000 BPD
2. Closed System
3. Anticipated Injection Pressure:

   Average Injection Pressure: 1,877 PSI (surface pressure)
   Maximum Injection Pressure: 2,502 PSI (surface pressure)

4. The injection fluid is to be locally produced water. It is expected that the source water will predominantly be from the Artesia, Bone Spring, Morrow, and Wolfcamp formations. Attached are produced water sample analyses taken from the closest wells that feature samples from the Artesia, Bone Spring, Capitan, Delaware, Morrow, Rustler, San Andreas, Tansill, and Wolfcamp formations.

5. The disposal interval is non-productive. No water samples are available from the surrounding area.

VIII. Geological Data

Devonian Formation Lithology:

The Devonian formation is a dolomitic ramp carbonate that occurs below the Woodford shale and above the Fusselman formation. Strata found in the Devonian formation include two major groups, the Wristen Buildups and the Thirtyone Deepwater Chert, with the Wristen being more abundant. The Wristen Groups is composed of mixed limestone and dolomites with mudstone to grainstone and boundstone textures. Porosity in the Wristen group is a result of both primary and secondary development. Present are moldic, vugular, karstic (including collapse breccia) features that allow for higher porosities and permeabilities. The Thirtyone Formation contains two end-member reservoir facies, skeletal packstones/grainstones and spiculitic chert, with most of the porosity and permeability found in the coarsely crystalline cherty dolomite. These particular characteristics allow for this formation to be a tremendous Salt Water Disposal horizon.

Fusselman Formation Lithology:

The Silurian/Ordovician Fusselman Formation is stratigraphically below the Wristen Group and is above and separated from the Montoya Formation by the Sylvan Shale. The Sylvan Shale is the lower confining layer for the proposed Capt Call SWD No. 1 well. Fusselman facies include a laminated skeletal wackestone in the upper part and a buildup complex in the lower part composed of ooid and bryozoan grainstones. These grainstones can also be potentially prolific zones for disposal.

A. Injection Zone: Siluro-Devonian Formation

Formation	Depth
Salado (Top of Salt)	810'
Salado (Bottom of Salt)	1,235'
Yates	1,360'
Seven Rivers	1,435'
Queen	1,935'
Grayburg	2,235'
San Andreas	2,585'
Delaware Mountain Group	3,110'
Bone Spring	4,660'
Bone Spring 1st Sand	5,810'
Bone Spring 2nd Sand	6,485'
Bone Spring 3rd Sand	8,410'
Wolfcamp	9,060'
Cisco	9,885'
Strawn	10,060'
Atoka	10,385'
Morrow	10,585'
Barnett	11,385'
Devonian	12,510'

B. Underground Sources of Drinking Water

No water wells exist within a one-mile radius of the proposed well. Water wells outside a one-mile radius in the surrounding area have an average depth of 120 feet and an average water depth of 63 feet generally producing from the Capitan Basin. The upper Rustler may also be another USDW and will be protected.

IX. Proposed Stimulation Program

50,000 gallon acid job

X. Logging and Test Data on the Well

There are no logs or test data on the well. During the process of drilling and completion resistivity, gamma ray, and density logs will be run.

XI. Chemical Analysis of Fresh Water Wells

Because no water wells exist within a one-mile radius of the proposed well, there is no chemical analysis of fresh water wells in this application.

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name

Property Code	Property Name	Well Number
	CAPT CALL SWD	1
OGRID No.	Operator Name	Elevation
	SOLARIS WATER MIDSTREAM	3277'

Surface Location

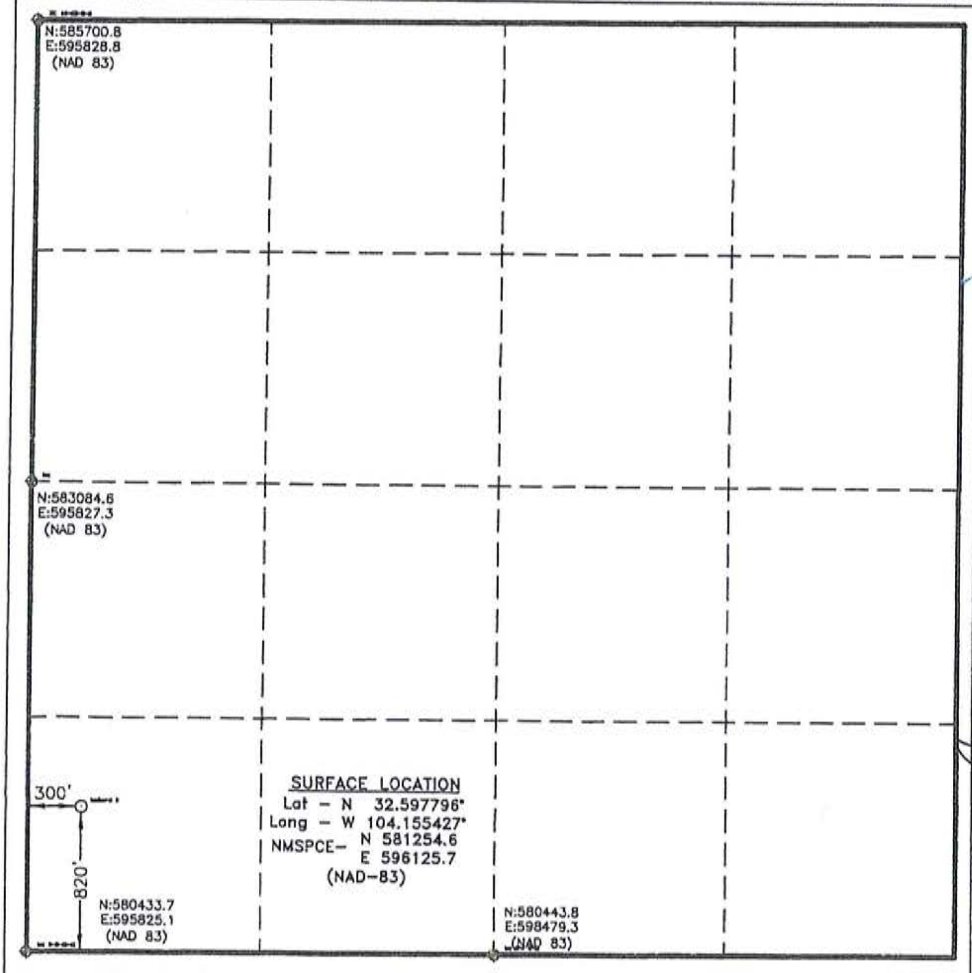
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	2	20 S	28 E		820	SOUTH	300	WEST	EDDY

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.

Ramona Thovey 3/20/19
Signature Date

RAMONA THOVEY
Printed Name

ramona@longuist.com
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.

DECEMBER 5, 2018
Date Surveyed

Signature & Seal of Professional Surveyor

NEW MEXICO 7977 REGISTERED PROFESSIONAL LAND SURVEYOR

Certificate No. Gary L. Jones 7977

0' 500' 1000' 1500' 2000'
SCALE: 1" = 1000'
WO Num.: 34226

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
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Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

Form C-101
Revised July 18, 2013

☐ AMENDED REPORT

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

1. Operator Name and Address	2. OGRID Number
SOLARIS WATER MIDSTREAM, LLC 701 TRADEWINDS BLVD., SUITE C MIDLAND, TX 79706	371643
	3. API Number TBD

4. Property Code	5. Property Name	6. Well No.
	CAPT CALL SWD	I

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E W Line	County
M	2	20S	28E		820	S	300	W	EDDY

8. Proposed Bottom Hole Location

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

9. Pool Information

Pool Name	Pool Code
SWD; Devonian-Silurian	97869

Additional Well Information

11. Work Type	12. Well Type	13. Cable/Rotary	14. Lease Type	15. Ground Level Elevation
N	SWD	R	Private	3,277'
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
N	14,310'	Silurian-Devonian	TBD	ASAP

Depth to Ground water	Distance from nearest fresh water well	Distance to nearest surface water
140'	7,325'	>1 mile

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

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surface	18.125"	16"	84 lb/ft	830'	404	Surface
Intermediate	14.75"	13.375"	68 lb/ft	2,635'	476	Surface
Production	12.25"	9.625"	53.5 lb/ft	10,040'	2,929	Surface
Liner	8.5"	7.625"	39 lb/ft	9,840'-12,510'	443	9,840'
Tubing		5.5" & 5"	20 lb/ft & 18 lb/ft	0' – 9,790' & 9,790' -12,460'	N/A	

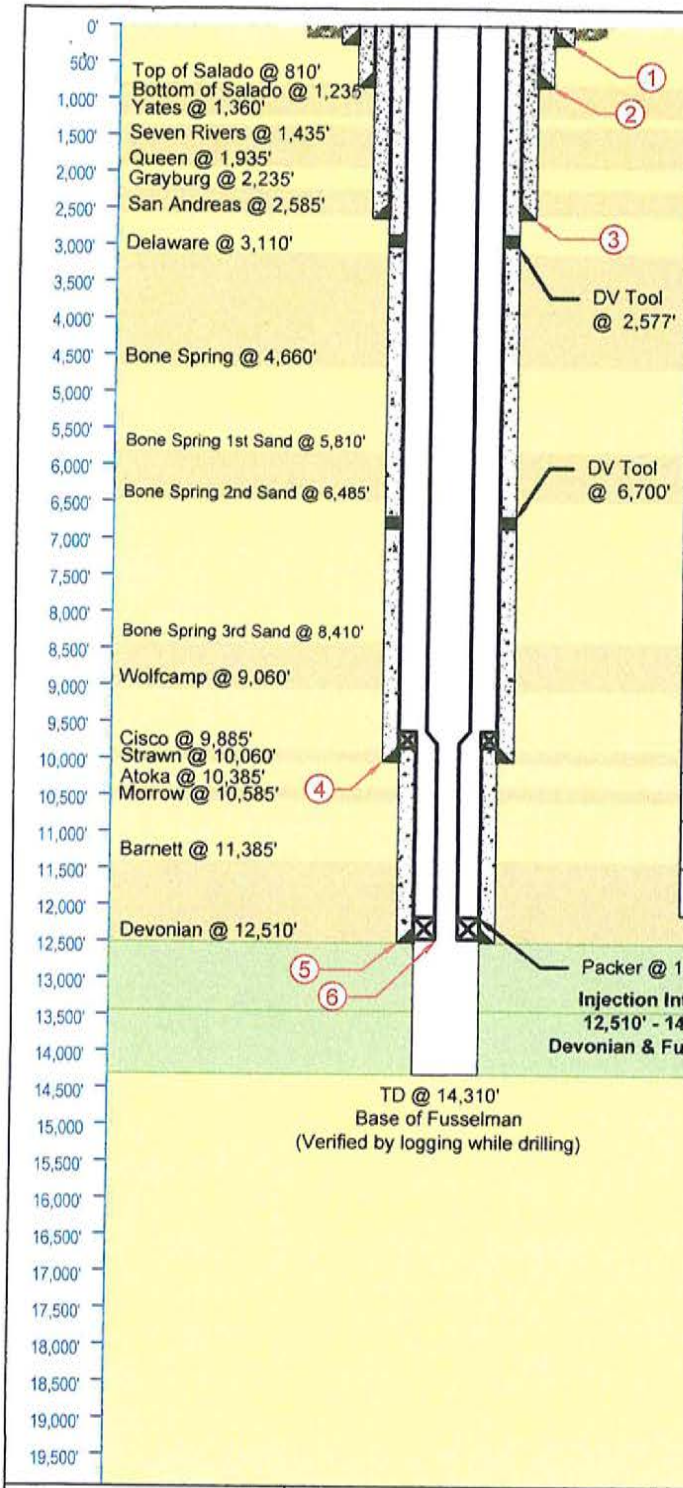
Casing/Cement Program: Additional Comments

See attached schematic.

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Hydraulic Blinds, Pipe	8,000 psi	10,000 psi	TBD – Schaffer Cameron

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief. **I further certify that I have complied with 19.15.14.9 (A) NMAC ☐ and/or 19.15.14.9 (B) NMAC ☒, if applicable.** Signature: /Ramona K Hovey	OIL CONSERVATION DIVISION Approved By:
Printed name: Ramona Hovey	Title:
Title: Consulting Engineer	Approved Date: / Expiration Date:
E-mail Address: ramona@lonquist.com	
Date: March 21, 2018 / Phone: 512-600-1777	Conditions of Approval Attached



Casing Information

Label	1	2	3	4	5
Type	Conductor	Surface	Intermediate	Production	Liner
OD	30"	16"	13-3/8"	9-5/8"	7-5/8"
WT		0.495"	0.480"	0.545"	0.500"
ID		15.010"	12.415"	8.535"	6.625"
Drift ID		14.822"	12.259"	8.379"	6.500"
COD		17.000"	13.375"	10.625"	7.625"
Weight		84 lb/ft	68 lb/ft	53.5 lb/ft	39 lb/ft
Grade		J-55 BTC	L-80 EZ-GO FJ3	HCP-110 BTC	Q-125 EZ-GO FJ3
Hole Size	Set and grouted	18-1/8"	14-3/4"	12-1/4"	8-1/2"
Depth Set	120'	830'	2,635'	10,040'	Top: 9,840' Bottom: 12,510'
TOC	Circulate to surface	Circulate to surface	Circulate to surface	Circulate to surface	9,840'
Volume	249 sacks	404 sacks	476 sacks	2,929 sacks	443 sacks
% Excess	0%	50%	30%	50%	50%

Tubing Information

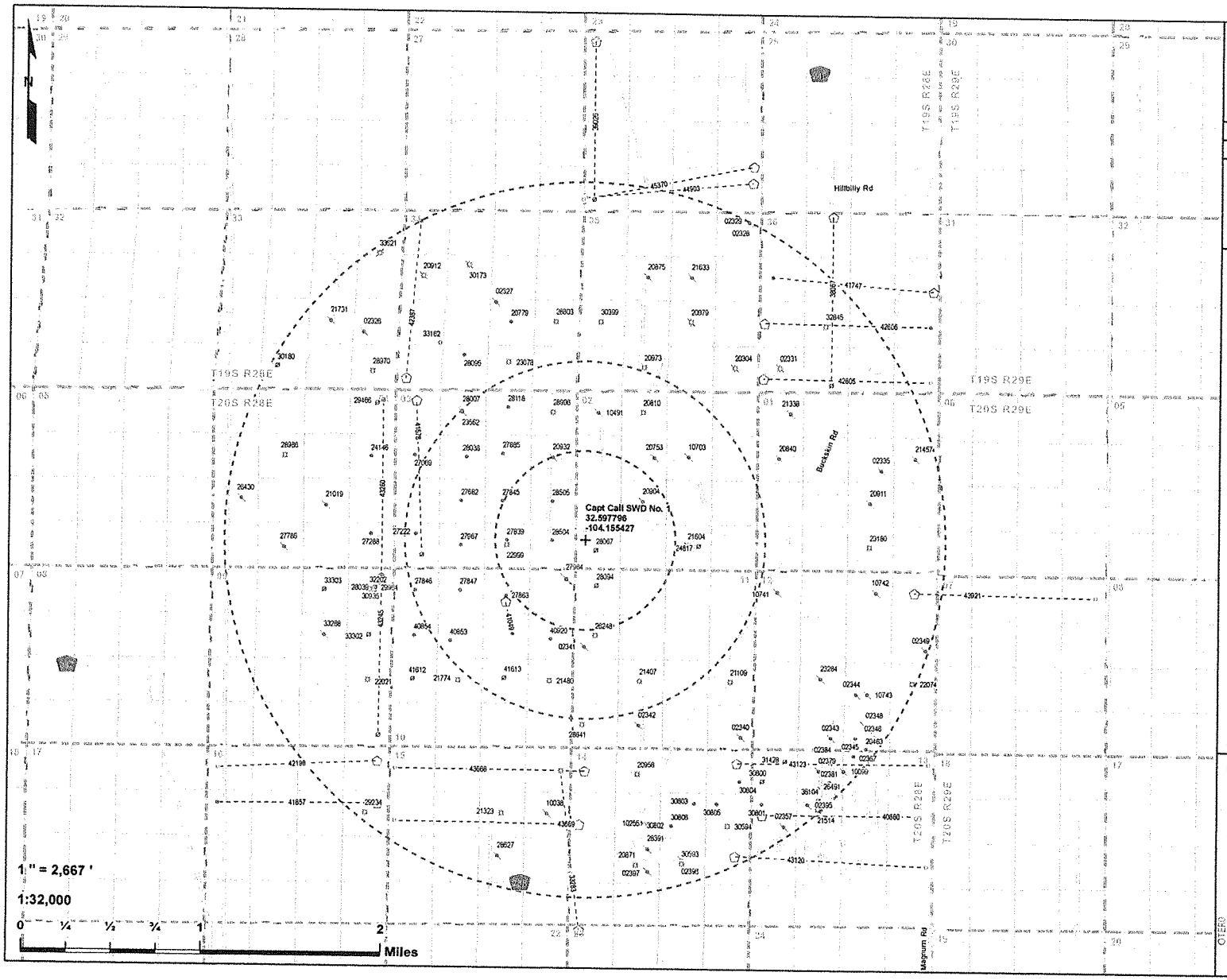
Label	6
OD	5-1/2", 5"
WT	0.361", 0.362"
ID	4.778", 4.276"
Drift ID	4.653", 4.151"
COD	6.050", 5.563"
Weight	20 lb/ft, 18 lb/ft
Grade	HCL-80 BTC, HCL-80 LTC
Depth Set	0' - 9,790' 9,790' - 12,460'

LONQUIST & CO. LLC
PETROLEUM ENGINEERS | ENERGY ADVISORS
HOUSTON CALGARY AUSTIN WICHITA DENVER
Texas License F-9147
12912 Hill Country Blvd. Ste F-200
Austin, Texas 78738
Tel: 512.732.9812
Fax: 512.732.9816

Solaris Water Midstream, LLC

Capt Call SWD No. 1

Country: USA	**State/Province:** New Mexico	**County/Parish:** Eddy
Location:	**Site:** 820' FSL & 300' FWL	**Survey:** S2-T20S-R28E
API No: NA	**Field:** Devonian-Silurian (Code: 97869)	**Well Type/Status:** SWD
NMOCD District No: 2	**Project No:** 1918	**Date:** 3/20/2019
Drawn: TFM	**Reviewed:**	**Approved:**
Rev No: 1	**Notes:**	



Capt Call SWD No. 1
2 Mile Area of Review
Solaris Water Midstream
Eddy County, NM

PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)

Drawn by: SJL	Date: 3/4/2019	Approved by: CBW

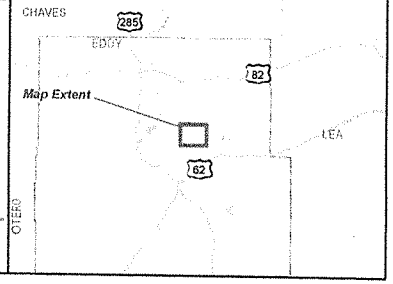
LONQUIST & CO. LLC
PETROLEUM ENGINEERS | ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY

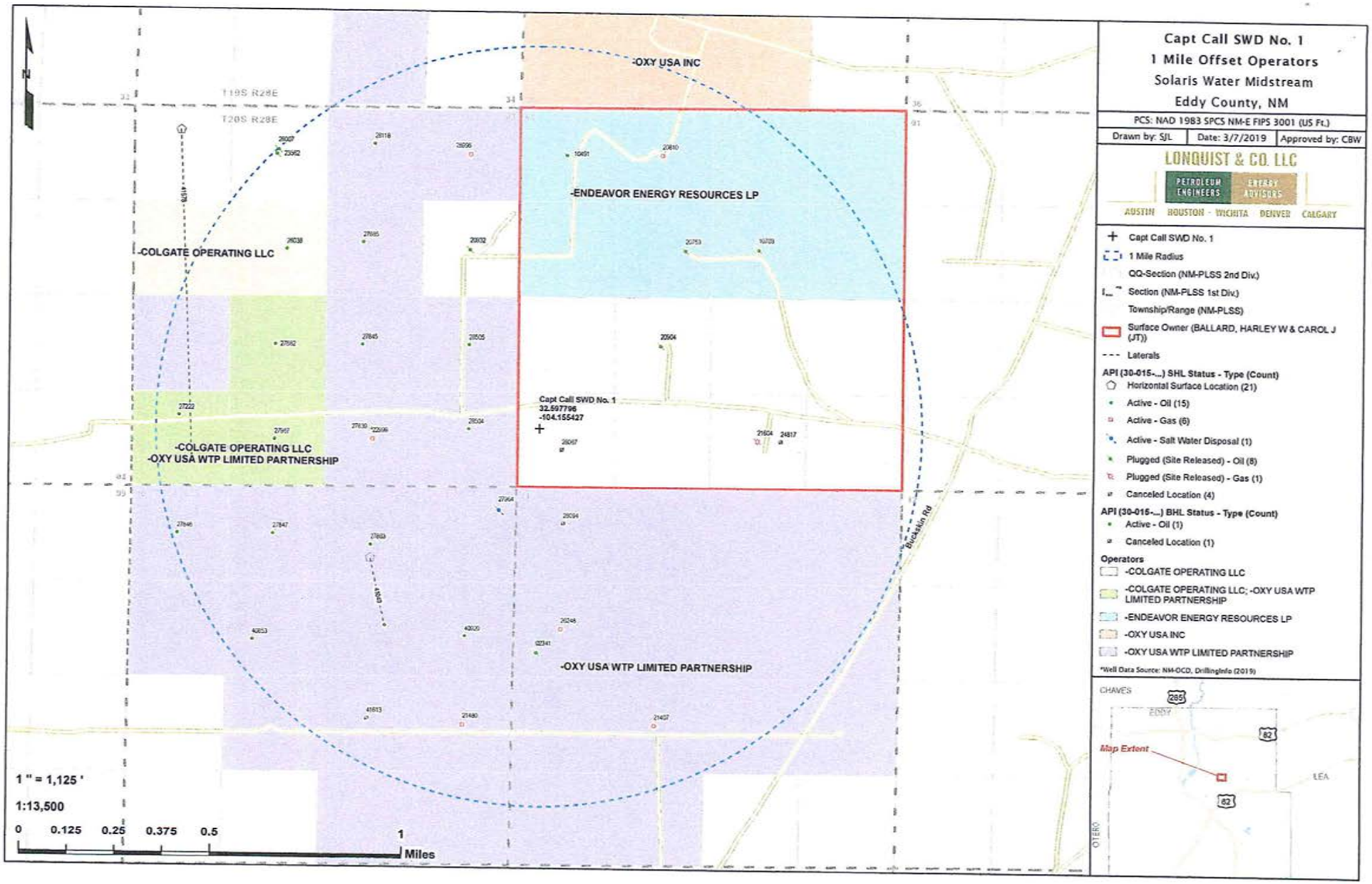
- Capt Call SWD No. 1
- 1/2 Mile Radius
- 1 Mile Radius
- 2 Mile Radius
- QQ-Section (NM-PLSS 2nd Div.)
- Section (NM-PLSS 1st Div.)
- Township/Range (NM-PLSS)
- Laterals

API (30-015-...) SHL Status - Type (Count)
- Horizontal Surface Location (21)
- Active - Oil (31)
- Active - Gas (26)
- Active - Salt Water Disposal (1)
- Active - Injection (1)
- Permitted - Gas (1)
- Plugged (Not Released) - Gas (1)
- Plugged (Site Released) - Oil (45)
- Plugged (Site Released) - Gas (7)
- Canceled Location (16)

API (30-015-...) BHL Status - Type (Count)
- Active - Oil (6)
- Active - Gas (1)
- Permitted - Oil (9)
- Canceled Location (5)

*Well Data Source: NM-OCD, DrillingInfo (2019)





Capt Call SWD No. 1
1 Mile Offset Operators
Solaris Water Midstream
Eddy County, NM

PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)

Drawn by: SJL	Date: 3/7/2019	Approved by: CBW

LONQUIST & CO. LLC
PETROLEUM ENGINEERS | ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY

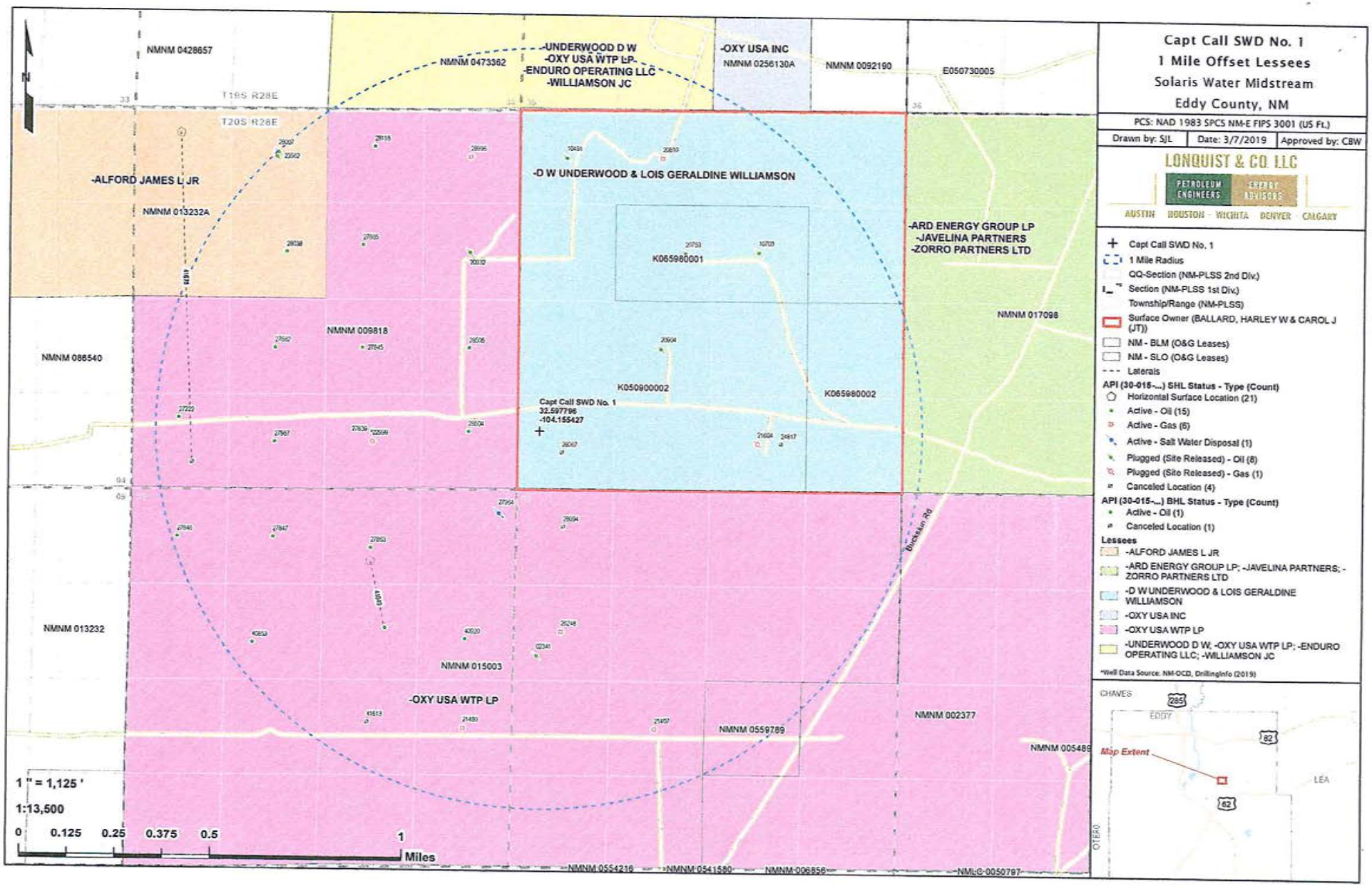
- Capt Call SWD No. 1
- 1 Mile Radius
- QQ-Section (NM-PLSS 2nd Div.)
- Section (NM-PLSS 1st Div.)
- Township/Range (NM-PLSS)
- Surface Owner (BALLARD, HARLEY W & CAROL J (JT))
- Laterals

API (30-015-...) SHL Status - Type (Count)
- Horizontal Surface Location (21)
- Active - Oil (15)
- Active - Gas (6)
- Active - Salt Water Disposal (1)
- Plugged (Site Released) - Oil (8)
- Plugged (Site Released) - Gas (1)
- Canceled Location (4)

API (30-015-...) BHL Status - Type (Count)
- Active - Oil (1)
- Canceled Location (1)

Operators
- -COLGATE OPERATING LLC
- -COLGATE OPERATING LLC; -OXY USA WTP LIMITED PARTNERSHIP
- -ENDEAVOR ENERGY RESOURCES LP
- -OXY USA INC
- -OXY USA WTP LIMITED PARTNERSHIP

*Well Data Source: NM-OCD, DrillingInfo (2019)

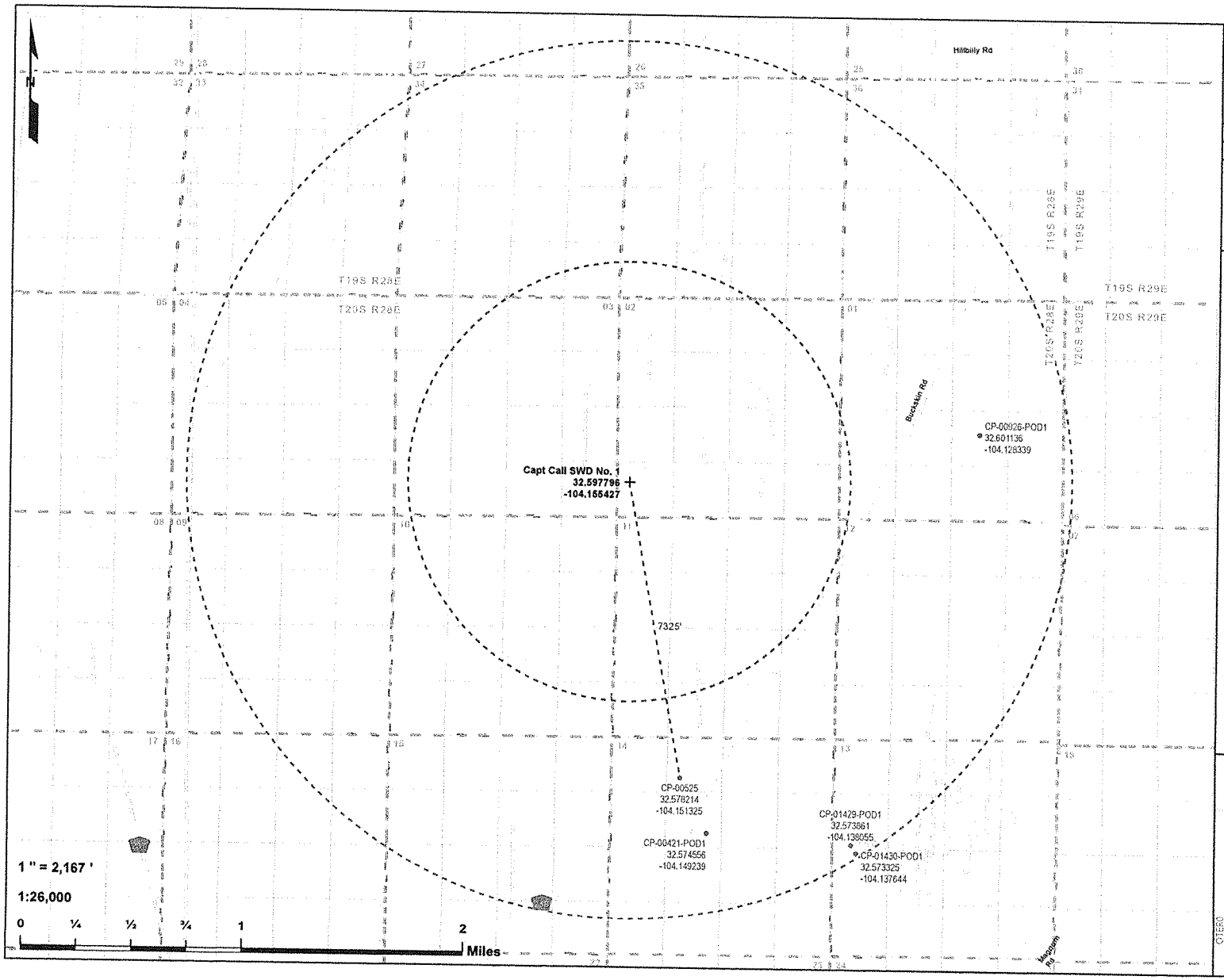

Capt Call SWD No. 1
1 Mile Offset Lessees
Solaris Water Midstream
Eddy County, NM
PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)
Drawn by: SJL
Date: 3/7/2019
Approved by: CBW
LONQUIST & CO. LLC
PETROLEUM ENGINEERS
ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY
Capt Call SWD No. 1
1 Mile Radius
QQ-Section (NM-PLSS 2nd Div.)
Section (NM-PLSS 1st Div.)
Township/Range (NM-PLSS)
Surface Owner (BALLARD, HARLEY W & CAROL J (JT))
NM - BLM (O&G Leases)
NM - SLO (O&G Leases)
Laterals
API (30-015-...) SHL Status - Type (Count)
Horizontal Surface Location (21)
Active - Oil (15)
Active - Gas (6)
Active - Salt Water Disposal (1)
Plugged (Site Released) - Oil (8)
Plugged (Site Released) - Gas (1)
Canceled Location (4)
API (30-015-...) BHL Status - Type (Count)
Active - Oil (1)
Canceled Location (1)
Lessees
-ALFORD JAMES L JR
-ARD ENERGY GROUP LP; -JAVELINA PARTNERS; -ZORRO PARTNERS LTD
-D W UNDERWOOD & LOIS GERALDINE WILLIAMSON
-OXY USA INC
-OXY USA WTP LP
-UNDERWOOD D W; -OXY USA WTP LP; -ENDURO OPERATING LLC; -WILLIAMSON JC
*Well Data Source: NM-OCD, DrillingInfo (2019)
NMNM 0428657
NMNM 0473362
-UNDERWOOD D W
-OXY USA WTP LP-
-ENDURO OPERATING LLC
-WILLIAMSON JC
-OXY USA INC
NMNM 0256130A
NMNM 0092190
E050730005
T19S R28E
T20S R28E
-ALFORD JAMES L JR
NMNM 013232A
-D W UNDERWOOD & LOIS GERALDINE WILLIAMSON
-ARD ENERGY GROUP LP
-JAVELINA PARTNERS
-ZORRO PARTNERS LTD
K065980001
NMNM 017098
NMNM 009818
NMNM 086540
K050900002
K065980002
Capt Call SWD No. 1
32.597796
-104.155427
NMNM 013232
NMNM 015003
-OXY USA WTP LP
NMNM 0559789
NMNM 002377
NMNM 005489
Brickton Rd
1 " = 1,125 '
1:13,500
0 0.125 0.25 0.375 0.5 1
Miles
NMNM 0554216
NMNM 0541580
NMNM 006856
NMLC-0050797
CHAVES
EDDY
LEA
OTERO
Map Extent
285
82

Capt Call SWD No 1
1 Mile Area of Review List

API (30-015-...)	WELL NAME	WELL TYPE	STATUS	OPERATOR	TVD (FT.)	LATITUDE (NAD83 DD)	LONGITUDE (NAD83 DD)	SPUD DATE	FIELD
02341	PRE-ONGARD WELL #003	O	P	PRE-ONGARD WELL OPERATOR	NR	32.5891914000	-104.155494700	NR	
10491	PRE-ONGARD WELL #001	O	P	PRE-ONGARD WELL OPERATOR	180	32.6082153000	-104.154274000	NR	
10703	PRE-ONGARD WELL #001	O	P	PRE-ONGARD WELL OPERATOR	9689	32.6046677000	-104.145652800	12/20/1965	LOWER WOLFCAMP
20753	PRE-ONGARD WELL #001	O	P	PRE-ONGARD WELL OPERATOR	3850	32.6046028000	-104.148925800	10/1/1972	
20810	JCW STATE COM #001	G	A	ENDEAVOR ENERGY RESOURCES, LP	11257	32.6082306000	-104.149986300	12/13/1973	[87600] WINCHESTER, MORROW (GAS); [87720] WINCHESTER, STRAWN (GAS)
20904	PRE-ONGARD WELL #002	O	P	PRE-ONGARD WELL OPERATOR	11235	32.6009941000	-104.150009200	8/9/1973	[87600] WINCHESTER, MORROW (GAS)
20932	PRE-ONGARD WELL #001	O	P	PRE-ONGARD WELL OPERATOR	11315	32.6045723000	-104.158569300	9/8/1973	WINCHESTER, ATOKA
21407	GOVERNMENT AB #001	G	A	OXY USA WTP LIMITED PARTNERSHIP	11447	32.5864220000	-104.150184600	11/17/1974	[73520] BURTON FLAT, WOLFCAMP, NORTH (GAS)
21480	GOVERNMENT AB #002	G	A	OXY USA WTP LIMITED PARTNERSHIP	11449	32.5864029000	-104.158760100	2/28/1975	[73520] BURTON FLAT, WOLFCAMP, NORTH (GAS)
21604	PRE-ONGARD WELL #001	G	P	PRE-ONGARD WELL OPERATOR	11339	32.5973701000	-104.145645100	8/19/1975	[87600] WINCHESTER, MORROW (GAS)
22999	GOVERNMENT S #002	G	A	OXY USA WTP LIMITED PARTNERSHIP	11329	32.5973206000	-104.162879900	1/21/1980	[87600] WINCHESTER, MORROW (GAS)
23562	PRE-ONGARD WELL #001	O	P	PRE-ONGARD WELL OPERATOR	11315	32.6081734000	-104.167236300	7/9/1981	WOLFCAMP
24817	PRE-ONGARD WELL #030	O	C	PRE-ONGARD WELL OPERATOR	0	32.5973733213	-104.144601168	-	
26248	GOVERNMENT AB #005	G	A	OXY USA WTP LIMITED PARTNERSHIP	11400	32.5900993000	-104.154403700	11/1/1990	[73280] BURTON FLAT, MORROW (PRO GAS)
27222	REMINGTON FEDERAL #001	O	A	COLGATE OPERATING, LLC	6520	32.5981827000	-104.171539300	12/18/1992	[48035] OLD MILLMAN RANCH, BS (ASSOC)
27682	REMINGTON FEDERAL #002	O	A	COLGATE OPERATING, LLC	6550	32.6009254000	-104.167251600	9/27/1993	[48035] OLD MILLMAN RANCH, BS (ASSOC)
27839	GOVERNMENT S #003	O	A	OXY USA WTP LIMITED PARTNERSHIP	6550	32.5977325000	-104.162879900	2/9/1994	[48035] OLD MILLMAN RANCH, BS (ASSOC)
27845	GOVERNMENT S #004	O	A	OXY USA WTP LIMITED PARTNERSHIP	6606	32.6009483000	-104.163353000	3/14/1994	[48035] OLD MILLMAN RANCH, BS (ASSOC)
27846	GOVERNMENT AB #006	O	A	OXY USA WTP LIMITED PARTNERSHIP	6554	32.5936470000	-104.171585100	2/27/1994	[48035] OLD MILLMAN RANCH, BS (ASSOC)
27847	GOVERNMENT AB #007	O	A	OXY USA WTP LIMITED PARTNERSHIP	6590	32.5936699000	-104.167297400	3/30/1994	[48035] OLD MILLMAN RANCH, BS (ASSOC)
27863	GOVERNMENT AB #008	O	A	OXY USA WTP LIMITED PARTNERSHIP	6630	32.5932808000	-104.162925700	4/26/1994	[48035] OLD MILLMAN RANCH, BS (ASSOC)
27885	GOVERNMENT S #005	O	A	OXY USA WTP LIMITED PARTNERSHIP	6600	32.6048317000	-104.163345300	4/12/1994	[48035] OLD MILLMAN RANCH, BS (ASSOC)
27964	GOVERNMENT AB #009	S	A	OXY USA WTP LIMITED PARTNERSHIP	6725	32.5946274000	-104.157218900	5/16/1994	[48035] OLD MILLMAN RANCH, BS (ASSOC); [96095] SWD, BONE SPRING
27967	REMINGTON FEDERAL #003	O	A	COLGATE OPERATING, LLC	6700	32.5972977000	-104.167259200	7/6/1994	[48035] OLD MILLMAN RANCH, BS (ASSOC); [97245] PALMILLO DRAW, DELWARE
28007	WINCHESTER FEDERAL #004	O	P	CHI OPERATING INC	6602	32.6083374000	-104.167167700	4/9/1996	[48035] OLD MILLMAN RANCH, BS (ASSOC)
28038	WINCHESTER FEDERAL #003	O	A	COLGATE OPERATING, LLC	6525	32.6045456000	-104.166755700	6/21/1995	[48035] OLD MILLMAN RANCH, BS (ASSOC)
28067	JCW STATE #001	O	C	HILLIN PRODUCTION CO	0	32.5969800000	-104.154400000	-	
28094	GOVERNMENT AB #010	O	C	OXY USA INC	0	32.5941422149	-104.154323994	-	
28118	GOVERNMENT S #006	O	A	OXY USA WTP LIMITED PARTNERSHIP	6605	32.6085968000	-104.162849400	9/21/1994	[48035] OLD MILLMAN RANCH, BS (ASSOC)
28504	GOVERNMENT S #007	O	A	OXY USA WTP LIMITED PARTNERSHIP	6680	32.5977554000	-104.158592200	6/7/1995	[48035] OLD MILLMAN RANCH, BS (ASSOC)
28505	GOVERNMENT S #008	O	A	OXY USA WTP LIMITED PARTNERSHIP	6700	32.6009712000	-104.158584600	6/23/1995	[48035] OLD MILLMAN RANCH, BS (ASSOC)
28996	GOVERNMENT S COM #009	G	A	OXY USA WTP LIMITED PARTNERSHIP	11280	32.6082001000	-104.158561700	7/16/1997	[48035] OLD MILLMAN RANCH, BS (ASSOC); [87600] WINCHESTER, MORROW (GAS)
40853	GOVERNMENT AB FEDERAL #011	O	A	OXY USA WTP LIMITED PARTNERSHIP	6993	32.5896072000	-104.168197600	12/6/2012	[48035] OLD MILLMAN RANCH, BS (ASSOC)
40920	GOVERNMENT AB FEDERAL #013	O	A	OXY USA WTP LIMITED PARTNERSHIP	6710	32.5898094000	-104.158699000	1/9/2013	[48035] OLD MILLMAN RANCH, BS (ASSOC)
41049	GOVERNMENT AB FEDERAL #012	O	A	OXY USA WTP LIMITED PARTNERSHIP	6782	32.5927849000	-104.162933300	3/18/2013	[48035] OLD MILLMAN RANCH, BS (ASSOC)
41613	GOVERNMENT AB FEDERAL #016	O	C	OXY USA WTP LIMITED PARTNERSHIP	0	32.5866051000	-104.163040200	-	
41678	WINCHESTER 3 FEDERAL COM #005H	O	C	CHI OPERATING INC	0	32.6090660000	-104.171516400	-	

Capt Call SWD No. 1
1 Mile Offset Operators and Lessees List

S/T/R	QQ UNIT LETTER(S)	OPERATOR	MINERAL LESSEE	MINERAL OWNER	SURFACE OWNER	ADDRESS 1	ADDRESS 2
34/19S/28E	O	OXY USA WTP LIMITED PARTNERSHIP	-	-	-	PO BOX 4294	HOUSTON, TX 77210
	P	-	UNDERWOOD D W	-	-	505 N BIGSPRING #100	MIDLAND, TX 79701
		-	OXY USA WTP LP	-	-	6 DESTA DR #6000	MIDLAND, TX 79705
		-	ENDURO OPERATING LLC	-	-	777 MAIN ST STE 800	FORT WORTH, TX 76102
		-	WILLIAMSON JC	-	-	BO BOX 16	MIDLAND, TX 79701
35/19S/28E	M,N,O	OXY USA INC	-	-	-	PO BOX 4294	HOUSTON, TX 77210
1/20S/28E	L,M	-	ARD ENERGY GROUP LP	-	-	222 W 4TH ST PH 5	FORT WORTH, TX 76102
		-	JAVELINA PARTNERS	-	-	616 TEXAS ST	FORT WORTH, TX 76102
		-	ZORRO PARTNERS LTD	-	-	616 TEXAS ST	FORT WORTH, TX 76102
2/20S/28E	A,B,C,D,E,F,G,H	ENDEAVOR ENERGY RESOURCES LP	-	-	-	110 NORTH MARIENFELD SUITE 200	MIDLAND, TX 79701
	I,J,K,L,M,N,O,P	-	D W UNDERWOOD & LOIS GERALDINE WILLIAMSON	-	-	PO BOX 16	MIDLAND, TX 79702
3/20S/28E	A,B,G,I,J,L,O,P	OXY USA WTP LIMITED PARTNERSHIP	-	-	-	PO BOX 4294	HOUSTON, TX 77210
	K,M,N	OXY USA WTP LIMITED PARTNERSHIP	-	-	-	PO BOX 4294	HOUSTON, TX 77210
		COLGATE OPERATING LLC	-	-	-	306 W WALL STREET SUITE 500	MIDLAND, TX 79701
	E,F	COLGATE OPERATING LLC	-	-	-	306 W WALL STREET SUITE 500	MIDLAND, TX 79701
	C	-	ALFORD JAMES L JR	-	-	PO BOX 469	MCCOMB, MS 39648
	H	-	OXY USA WTP LP	-	-	6 DESTA DR #6000	MIDLAND, TX 79705
10/20S/28E	A,B,C,D,E,F,G,H,I,J,K,O,P	OXY USA WTP LIMITED PARTNERSHIP	-	-	-	PO BOX 4294	HOUSTON, TX 77210
11/20S/28E	A,B,C,D,E,F,G,H,I,J,K,L,M,N	OXY USA WTP LIMITED PARTNERSHIP	-	-	-	PO BOX 4294	HOUSTON, TX 77210
12/20S/28E	D	-	OXY USA WTP LP	-	-	6 DESTA DR #6000	MIDLAND, TX 79705
Surface Location	-	-	-	-	BALLARD, HARLEY W & CAROL J (JT)	1819-2 N CANAL	CARLSBAD, NM 88220



Capt Call SWD No. 1
Water Wells within 2 Miles
Solaris Water Midstream
Eddy County, NM

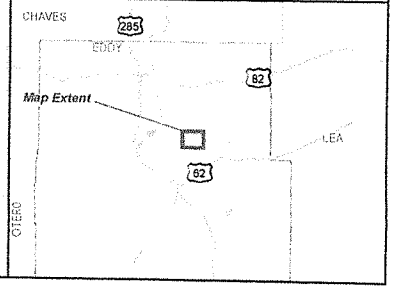
PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)

Drawn by: SJL	Date: 3/4/2019	Approved by: CBW

LONQUIST & CO. LLC
PETROLEUM ENGINEERS | ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY

- Capt Call SWD No. 1
- Water Well (5)
- 1 Mile Radius
- 2 Mile Radius
- Distance Call
- QQ-Section (NM-PLSS 2nd Div.)
- Section (NM-PLSS 1st Div.)
- Township/Range (NM-PLSS)

*Water Well Data Source: NM-OSE (2019)
**No water wells within 1 mile of SHL



Capt Call SWD No. 1 - Offset Produced Water Analysis

Well Name	API	Section	Township	Range	Unit	County	Formation	ph	tds_mgL	sodium_mgL	calcium_mgL	iron_mgL	magnesium_mgL	potassium_mgL	chloride_mgL	bicarbonate_mgL	sulfate_mgL	co2_mgL
CROSBY #001	3001502335	1	20S	28E	G	EDDY	ARTESIA		32300						14800	1430	5450	
RUSSELL USA #009	3001502356	13	20S	28E	O	EDDY	ARTESIA		81000						45500	684	4130	
RUSSELL USA #013	3001502361	13	20S	28E	O	EDDY	ARTESIA		29100						14400	658	3620	
RUSSELL USA #032	3001502381	13	20S	28E	C	EDDY	ARTESIA		40200						17400	1120	8470	
RUSSELL USA #041	3001502390	13	20S	28E	F	EDDY	ARTESIA		24308						12310	884	2381	
RUSSELL USA #007	3001502353	13	20S	28E	J	EDDY	ARTESIA		38600						17600	756	7230	
RUSSELL USA #041	3001502390	13	20S	28E	F	EDDY	ARTESIA		27048						13330	894	2969	
EDDY STATE AD #001	3001502406	19	20S	28E	E	EDDY	ARTESIA		3211						130	98	2124	
VICKERS #001	3001502419	23	20S	28E	A	EDDY	ARTESIA		25500						11500	716	4590	
RUSSELL USA #006	3001502352	13	20S	28E	L	EDDY	ARTESIA		50610						29400	861	1428	
RUSSELL USA #046	3001502395	13	20S	28E	F	EDDY	ARTESIA		28980						14640	660	3080	
COLT FEDERAL #001	3001527288	4	20S	28E	P	EDDY	BONE SPRING	6.58	1594.98	1286	8	127	0.5	10	65	93	5	
COLT FEDERAL #001	3001527288	4	20S	28E	P	EDDY	BONE SPRING	7.22	6037.86	2217.84	26.104	36.144	6.024	58.232	3352.36	220.88	141.564	
STONEWALL DS FEDERAL COM #002	3001521640	29	20S	28E	J	EDDY	BONE SPRING	8.1	131898	46843.8	6407.17	5.465	1394.67	506.059	85953.5	635.033	2418.81	
STONEWALL DS FEDERAL COM #002	3001521640	29	20S	28E	J	EDDY	BONE SPRING	8	142444	45649.6	10949.3	5.455	1820.88	442.946	93828.2	678.602	1878.7	
BURTON FLAT DEEP UNIT #047H	3001540517	28	20S	28E	J	EDDY	BONE SPRING 1ST SAND	7.7	184770.2	71077.4	1425.2	17.5	390.9		108741	719.8	0	60
BURTON FLAT DEEP STATE FEDERAL COM #048H	3001540518	28	20S	28E	I	EDDY	BONE SPRING 1ST SAND	7.8	187016.7	72900.5	1420	14.5	391.9		109200	695.4	0	70
BURTON FLAT DEEP STATE FEDERAL COM #048H	3001540518	28	20S	28E	I	EDDY	BONE SPRING 1ST SAND	6.4	185448.1	61572	1308	8.5	344		119363	683.2	680	470
BURTON FLAT DEEP UNIT #047H	3001540517	28	20S	28E	J	EDDY	BONE SPRING 1ST SAND	7.1	192409.6	72267.4	1344.2	18.2	366.9		114048.2	2074	0	4.5
BURTON FLAT DEEP STATE FEDERAL COM #048H	3001540518	28	20S	28E	I	EDDY	BONE SPRING 1ST SAND	7	197408.9	76634.4	1420.8	24	397.1		114242.9	2196	0	4.8
EDDY STATE AD #001	3001502406	19	20S	28E	E	EDDY	CAPITAN		22198						11170	274	2692	
EDDY STATE AD #001	3001502406	19	20S	28E	E	EDDY	CAPITAN	8	22205	6502	1001		559		11176	274	2692	
SPIKE FEDERAL #001	3001527070	24	20S	28E	G	EDDY	DELAWARE	5.35	7792.03	496.451	1383.62	814.663	176.225	48.336	4767.14	92.644	31.217	
AVALON DELAWARE UNIT #262	3001524414	30	20S	28E	O	EDDY	DELAWARE	10	110018	67321	1064	0	566		105500	1320	1368	
STONEWALL EP STATE #003	3001522235	19	20S	28E	N	EDDY	DELAWARE	6.1			1600	100	5125.9		41535	122	25	
AVALON DELAWARE UNIT #227	3001524710	30	20S	28E	F	EDDY	DELAWARE	10	131032	75440	1400	0	2600		125000	456	1320	
AVALON DELAWARE UNIT #262	3001524414	30	20S	28E	O	EDDY	DELAWARE	10	113918	66125	1420	0	1880		108500	358	1600	
AVALON DELAWARE UNIT #258	3001524546	30	20S	28E	M	EDDY	DELAWARE	10	100084	56097	2440	0	3660		100500	460	792	
AVALON DELAWARE UNIT #242	3001524637	30	20S	28E	L	EDDY	DELAWARE	9.5	123556	71737	1840	0	1860		118000	392	1128	
STONEWALL EP STATE #003	3001522235	19	20S	28E	N	EDDY	DELAWARE	8.5	37852	74405	2120	17	4280		130000	228	1152	
AVALON DELAWARE UNIT #242	3001524637	30	20S	28E	L	EDDY	DELAWARE	7.6	161114	53112.5	11871.7	18.904	2363	514.856	109216	691.664	1150.92	
SPIKE FEDERAL #001	3001527070	24	20S	28E	G	EDDY	DELAWARE	5.88	32128.8	5253.12	4235.26	1123.33	1028.1	361.472	20379.6	109.568	158.72	
STONEWALL EP STATE #002	3001522002	19	20S	28E	N	EDDY	MORROW	5.4			11000	8.8	1100.3		81792	122	1425	
OXY BULLDOG STATE #001	3001529234	16	20S	28E	H	EDDY	MORROW	7.15	31642.5	11185.7	919.032	104.856	160.368	176.816	19505.3	273.448	87.38	
GOVERNMENT S COM #009	3001528996	3	20S	28E	A	EDDY	MORROW	6.74	44978.3	15978.4	1345.45	197.952	251.564	43.302	27887.5	467.043	30.93	
FOXIE FEDERAL COM #001	3001521222	18	20S	28E	F	EDDY	MORROW	6.5	36641.8		1120	0	1555.2		23004	183	12.5	
STONEWALL EP STATE #002	3001522002	19	20S	28E	N	EDDY	MORROW	5.7			10360	37.5	638.4		94572	122	1375	
EDDY STATE AD #001	3001502406	19	20S	28E	E	EDDY	RUSTLER	6.8	3735	581	571		230		130	98	2124	
FED UNION #001	3001502416	22	20S	28E	O	EDDY	SAN ANDRES	7.3	210774						123500	847	4512	
STONEWALL EP STATE COM #004	3001522554	30	20S	28E	H	EDDY	STRAWN	7.2			1000	85	243.5		11502	122	2.5	
EDDY STATE AD #001	3001502406	19	20S	28E	E	EDDY	TANSILL	6.8	3237		228		56		130	120	2122	
EDDY STATE AD #001	3001502406	19	20S	28E	E	EDDY	TANSILL	6.8	3728	580	570		230		130	98	2120	
EDDY STATE AD #001	3001502406	19	20S	28E	E	EDDY	TANSILL	6.8		581	228		56		130	120	2122	
STATE AC COM #001	3001522299	21	20S	28E	J	EDDY	WOLFCAMP	6.2	41597						25000	449	76	
STATE AC COM #001	3001522299	21	20S	28E	J	EDDY	WOLFCAMP	6.2	43441						26100	446	100	
STATE AC COM #001	3001522299	21	20S	28E	J	EDDY	WOLFCAMP	7	40785						24300	688	44	
FED UNION #001	3001502416	22	20S	28E	O	EDDY	WOLFCAMP	5.1	144926						87600	37	1350	
FED UNION #001	3001502416	22	20S	28E	O	EDDY	WOLFCAMP	5.7	297557						186000	143	447	
								6.7	55965						32400	252	2260	

CARLSBAD
CURRENT-ARGUS

AFFIDAVIT OF PUBLICATION

Ad No.
0001278782

LONQUIST FIELD SERVICE
1001 MCKINNEY ST., SUITE 1650

HOUSTON TX 77002

I, a legal clerk of the **Carlsbad Current-Argus**, a newspaper published daily at the City of Carlsbad, in said county of Eddy, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the State wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

03/01/19

Legal Clerk

Subscribed and sworn before me this
1st of March 2019.

State of WI, County of Brown
NOTARY PUBLIC

9-19-21
My Commission Expires

VICKY FELTY
NOTARY PUBLIC
STATE OF WISCONSIN

Ad#:0001278782
P O : Capt. Call SWD
# of Affidavits :0.00

Legal Notice

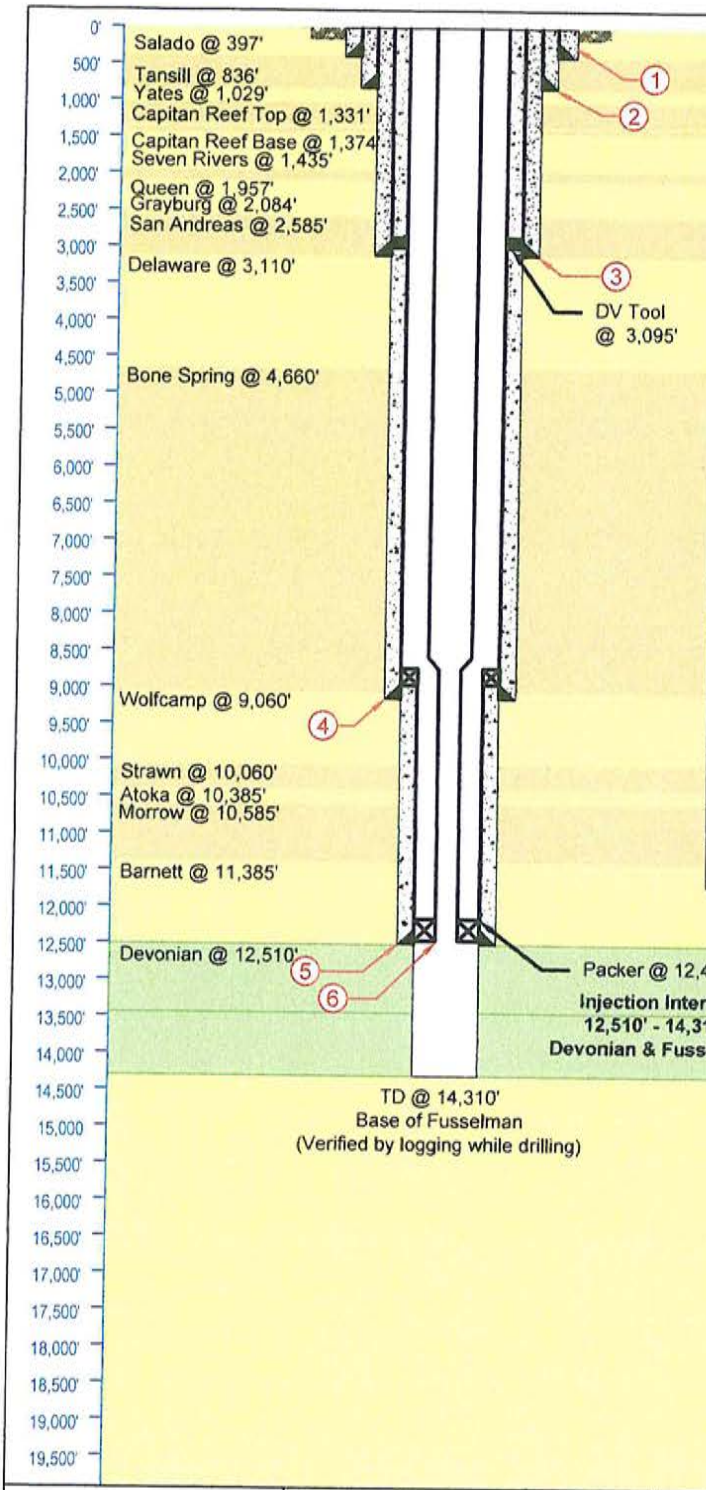
Solaris Water Midstream, LLC, 907 Tradewinds Blvd., Suite B, Midland, TX 79706, is filling Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division for administrative approval for its salt water disposal well Capt Call SWD No. 1. The proposed well will be located 820' FSL & 300' FWL in Section 2, Township 20S, Range 28E in Eddy County, New Mexico. Disposal water will be sourced from area production, and will be injected into the Siluro-Devonian formation (determined by offset log analysis) through an open hole completion between a maximum applied for top of 12,510 feet to a maximum depth of 14,310 feet. The maximum surface injection pressure will not exceed 2,502 psi with a maximum rate of 40,000 BWPD. Interested parties opposing the action must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Drive, Santa Fe, New Mexico 87505, within 15 days. Additional information can be obtained from the applicant's agent, Lonquist & Co., LLC, at (512) 600-1774.

March 1, 2019

Capt Call SWD No. 1						
Solaris Water Midstream, LLC						
TRACT ID	COUNTY CLERK	MAILING ADDRESS	PHONE	TRACKING #	DATE SHIPPED	DATE RECEIVED
	OIL CONSERVATION DIVISION DISTRICT II	811 S. FIRST ST., ARTESIA, NM 88210		USPS - 7018 1830 0000 8887 9275	3/21/2019	
	OIL CONSERVATION DIVISION DISTRICT IV	1220 S ST FRANCIS DR, SANTA FE, NM 87505				
	SURFACE LANDOWNER	**MAILING ADDRESS**				
	Harley W. and Carol J. Ballard	1819-2 N Canal Street Carlsbad, NM 88220		USPS - 7018 1830 0000 8887 9299	3/21/2019	
	GOVERNMENT AGENCY	**MAILING ADDRESS**				
	Bureau of Land Management	620 E Greene Street Carlsbad, NM 88220		USPS - 7018 1830 0000 8887 9305	3/21/2019	
	New Mexico State Land Office	310 Old Sante Fe Trail Sante Fe, NM 87501		USPS - 7018 1830 0000 8887 9312	3/21/2019	
	AFFECTED PARTIES	**MAILING ADDRESS**				
	ARD Energy Group LP	222 W 4TH Street PH 5 Fort Worth, TX 76102		USPS - 7018 1830 0000 8887 9329	3/21/2019	
	Bill Seltzer	214 W Texas Street # 507 Midland, TX 79701		USPS - 7018 1830 0000 8887 9336	3/21/2019	
	Byrl W. Harris	1205 Caprock Hobbs, NM 88240		USPS - 7018 1830 0000 8887 9343	3/21/2019	
	C & J Investment Co	101 E Lohman Avenue Las Cruces, NM 88001		USPS - 7018 1830 0000 8887 9350	3/21/2019	
	Chisholm Energy Agent Inc	801 Cherry Street Suite 1200 Unit 20 Fort Worth, TX 76102-6825		USPS - 7018 1830 0000 8887 9367	3/21/2019	
	Clarence H. Albaugh	P.O. Box 48065 Los Angeles, CA 90048		USPS - 7018 1830 0000 8887 9374	3/21/2019	
	Clay Cooper	P. O. Box 117 Canyon, TX 79015		USPS - 7018 1830 0000 8887 9381	3/21/2019	
	Clifton E Shumate	1608 Northridge Drive Arlington, TX 76012		USPS - 7018 1830 0000 8887 9398	3/21/2019	
	Clinton H. Dean	6006 Balcones #32 El Paso, TX 79912		USPS - 7018 1830 0000 8887 9404	3/21/2019	
	COG Operating, LLC	600 W Illinois Avenue Midland, TX 79701-4882		USPS - 7018 1830 0000 8887 9411	3/21/2019	
	Colgate Operating, LLC	306 W Wall Street Suite 500 Midland, TX 79701		USPS - 7018 1830 0000 8887 9428	3/21/2019	
	Colgate Production LLC	306 W Wall Street Suite 500 Midland, TX 79701-5173		USPS - 7018 1830 0000 8887 9428	3/21/2019	
	Construction Enterprises, Inc.	2179 Edward Curd Lane Suite 100 Franklin, TN 37067		USPS - 7018 1830 0000 8887 9435	3/21/2019	
	CTL Oil & Gas Corporation	P.O. Box 10 Buchanan Dam, TX 78609		USPS - 7018 1830 0000 8887 9442	3/21/2019	
	D. W. Underwood	505 N Big Spring Street Suite 100 Midland, TX 79701		USPS - 7018 1830 0000 8887 9459	3/21/2019	
	D W UNDERWOOD & LOIS GERALDINE WILLIAMSON	P.O. Box 16 Midland, TX 79702		USPS - 7018 1830 0000 8887 9466	3/21/2019	
	David Levens (Levins)	2984 Corte De Espuelas Santa Fe, NM 87501		USPS - 7018 1830 0000 8887 9473	3/21/2019	
	Devon Energy Prod Co LP	333 W Sheridan Avenue Oklahoma City, OK 73102-5010		USPS - 7018 1830 0000 8887 9480	3/21/2019	
	DH Essex Agency Acct	303 W Wall Street Suite 902 Midland, TX 79701		USPS - 7018 1830 0000 8887 9497	3/21/2019	
	Diane S. Johnson	939 Cast Blvd. Unit 6F La Jolla, CA 92037		USPS - 7018 1830 0000 8887 9503	3/21/2019	
	Don Hofman	8096 State 209 Hwy Tucumcari, NM 88401		USPS - 7018 1830 0000 8887 9510	3/21/2019	
	Elizabeth M. Locker	1610 Gulf Avenue Midland, TX 79705		USPS - 7018 1830 0000 8887 9527	3/21/2019	
	Ellwade Corporation	3520 96th Street Lubbock, TX 79423		USPS - 7018 1830 0000 8887 9534	3/21/2019	
	Endeavor Energy Resources LP	110 North Marienfeld Street Suite 200 Midland, TX 79701		USPS - 7018 1830 0000 8887 9541	3/21/2019	
	Enduro Operating LLC	777 Main Street Suite 800 Fort Worth, TX 76102-5350		USPS - 7018 1830 0000 8887 9558	3/21/2019	
	Energex Co	100 N Pennsylvania Avenue Roswell, NM 88201		USPS - 7018 1830 0000 8887 9565	3/21/2019	
	Eugene K. Jorgenson	12334 Broken Bough Houston, TX 77024		USPS - 7018 1830 0000 8887 9572	3/21/2019	
	George L Scott Jr	215 W 3RD Street Roswell, NM 88201		USPS - 7018 1830 0000 8887 9589	3/21/2019	
	Harold D Justice	1005 DE Bremond Drive Roswell, NM 88201		USPS - 7018 1830 0000 8887 9596	3/21/2019	
	Hillin Production Co	P.O. Box 152 Odessa, TX 79760		USPS - 7018 1830 0000 8887 9602	3/21/2019	
	Hutchings Oil Co	P.O. Box 1216 Albuquerque, NM 87102-1216		USPS - 7018 1830 0000 8887 9619	3/21/2019	
	J C Williamson	P.O. Box 16 Midland, TX 79702		USPS - 7018 1830 0000 8887 9626	3/21/2019	
	J. Manley Bryan	4028 Kentshire Lane Dallas, TX 75287		USPS - 7018 1830 0000 8887 9633	3/21/2019	
	J. R. Hutchens, Jr.	401 East 21 Street Tishomingo, OK 73460		USPS - 7018 1830 0000 8887 9640	3/21/2019	
	James L Alford Jr	P.O. Box 489 McComb, MS 39648		USPS - 7018 1830 0000 8887 9657	3/21/2019	
	Javelina Partners	616 Texas Street Fort Worth, TX 76102-4612		USPS - 7018 1830 0000 8887 9664	3/21/2019	
	John R. Gray	P. O. Box 400 Ruidoso, NM 88355		USPS - 7018 1830 0000 8887 9671	3/21/2019	
	JTI Inc	5801 E 41 Street Suite 603 Tulsa, OK 74135		USPS - 7018 1830 0000 8887 9688	3/21/2019	
	K. G. MacCart Estate, Robert W. Downes, Jr. (Trustee)	619 Sheridan Woods Dr. Melbourne, FL 32904		USPS - 7018 1830 0000 8887 9695	3/21/2019	
	Kennedy Oil Company, Inc.	1203 Courtesy Road. High Point, NC 27260		USPS - 7018 1830 0000 8887 9701	3/21/2019	
	L. B. Meaders Estate	P. O. Box 50766 Dallas, TX 75250		USPS - 7018 1830 0000 8887 9718	3/21/2019	
	Lariat Petroleum, Inc. (Newfield Exploration Mid-Contient)	110 W. 7 Street Suite 1300 TULSA OK 74119		USPS - 7018 1830 0000 8887 9725	3/21/2019	
	Liberty OG 1982-2	P.O. Box 430 Livonia, LA 70755-0430		USPS - 7018 1830 0000 8887 9732	3/21/2019	
	Liberty OG Corp	P.O. Box 430 Livonia, LA 70755-0430		USPS - 7018 1830 0000 8887 9732	3/21/2019	
	Lowe Partners LP	5151 San Felipe Street Suite 400 Houston, TX 77056		USPS - 7018 1830 0000 8887 9749	3/21/2019	
	M. E. Neesen	505 Lombardy Avenue El Paso, TX 79922		USPS - 7018 1830 0000 8887 9756	3/21/2019	
	Magnum Hunter Production Inc	202 S Cheyenne Avenue Suite 1000 Tulsa, OK 74103-3001		USPS - 7018 1830 0000 8887 9763	3/21/2019	
	Marathon Oil Permian LLC	5555 San Felipe Street Houston, TX 77056-2701		USPS - 7018 1830 0000 8887 9770	3/21/2019	
	Mark T Owen	P.O. Box 1799 Midland, TX 79702		USPS - 7018 1830 0000 8887 9787	3/21/2019	
	Maurice Mordka	1800 N Grady Avenue Tucson, AZ 85715-4510		USPS - 7018 1830 0000 8887 9794	3/21/2019	
	Michael D Hayes	P.O. Box 1799 Midland, TX 79702		USPS - 7018 1830 0000 8887 9800	3/21/2019	
	Michael T Halbouty	5100 Westheimer Road Houston, TX 77058		USPS - 7018 1830 0000 8887 9817	3/21/2019	

	Orion OG Properties	P.O. Box 2523 Roswell, NM 88202		USPS - 7018 1830 0000 8887 9824	3/21/2019	
	Oxy USA WTP LP	P. O. Box 4294 Houston, TX 77210-4294		USPS - 7018 1830 0000 8887 9831	3/21/2019	
	Oxy USA WTP LP	5 Greenway Plaza Suite 110 Houston, TX 77046-0521		USPS - 7018 1830 0000 8887 9848	3/21/2019	
	Oxy USA, Inc	5 Greenway Plaza Suite 110 Houston, TX 77046-0521		USPS - 7018 1830 0000 8887 9848	3/21/2019	
	Penroc Oil Corporation	P.O. Box 2769 Hobbs, NM 88241		USPS - 7018 1830 0000 8887 9855	3/21/2019	
	Petroleum Synergy Group Inc	1641 California Street Suite 410 Denver, CO 80202		USPS - 7018 1830 0000 8887 9862	3/21/2019	
	R. N. Hillin	20 Via Playa Drive Odessa, TX 79762		USPS - 7018 1830 0000 8887 9879	3/21/2019	
	Riverhill Energy Company	P.O. Box 2726 Midland, TX 79702-2726		USPS - 7018 1830 0000 8887 9886	3/21/2019	
	Robert E. Haynsworth	P.O. Box 3237 El Paso, TX 79923		USPS - 7018 1830 0000 8887 9893	3/21/2019	
	Robert K Hillin	P.O. Box 1552 Midland, TX 79702		USPS - 7018 1830 0000 8887 9909	3/21/2019	
	Sharon W Scott	215 W 3RD Street Roswell, NM 88201-4604		USPS - 7018 1830 0000 8887 9916	3/21/2019	
	SM Energy Company	1775 Sherman Street Suite 1200 Denver, CO 80203-1100		USPS - 7018 1830 0000 8887 9923	3/21/2019	
	St Mary Land & Expl	1776 Lincoln Street Suite 1100 Denver, CO 80203-1080		USPS - 7018 1830 0000 8887 9930	3/21/2019	
	Strata Production Co	P.O. Box 1030 Roswell, NM 88202-1030		USPS - 7018 1830 0000 8887 9947	3/21/2019	
	Tandem Oil Co	11759 San Vicente Suite 2 Los Angeles, CA 90049		USPS - 7018 1830 0000 8887 9954	3/21/2019	
	Te-Ray Resources Inc	1105 Sovereign Row Unit C Oklahoma City, OK 73108		USPS - 7018 1830 0000 8887 9961	3/21/2019	
	Tim N Throckmorton	6126 Longmont Drive Houston, TX 77057-1816		USPS - 7018 1830 0000 8887 9978	3/21/2019	
	Tom P Stephens Trust	3707 Camp Bowie Blvd Suite 220 Fort Worth, TX 76107-3330		USPS - 7018 1830 0000 8887 9985	3/21/2019	
	W D Kennedy	550 W Texas Avenue Suite 1225 Midland, TX 79701		USPS - 7018 1830 0000 8887 9992	3/21/2019	
	W. P. Curtis	520 Linda Avenue El Paso, TX 79922		USPS - 7018 1830 0000 8888 0004	3/21/2019	
	XTO Holdings LLC	22777 Springwoods Village Pkwy Spring, TX 77389-1425		USPS - 7018 1830 0000 8888 2510	3/21/2019	
	Zorro Partners Ltd	616 Texas Street Fort Worth, TX 76102-4612		USPS - 7018 1130 0001 5497 0032	3/21/2019	

SOLARIS EXHIBIT 2



Casing Information

Label	1	2	3	4	5
Type	Surface	Intermediate 1	Intermediate 2	Production	Liner
OD	20"	16"	13-3/8"	9-5/8"	7-5/8"
WT	0.438"	0.495"	0.480"	0.545"	0.500"
ID	19.124"	15.010"	12.415"	8.535"	6.625"
Drift ID	18.936"	14.822"	12.259"	8.379"	6.500"
COD	21.000"	17.000"	13.375"	10.625"	7.625"
Weight	94 lb/ft	84 lb/ft	68 lb/ft	53.5 lb/ft	39 lb/ft
Grade	J-55 BTC	N-80 BTC	L-80 EZ-GO FJ3	HCP-110 BTC	Q-125 EZ-GO FJ3
Hole Size	26"	18-1/8"	14-3/4"	12-1/4"	8-1/2"
Depth Set	400'	840'	3,120'	9,160	Top: 8,960' Bottom: 12,510'
TOC	Circulate to Surface	Circulate to Surface	Circulate to Surface	Stage 1: 3,095' Stage 2: Surface	8,960'
Volume	700 sx	1320 sx	840 sx	2,900 sx	475 sx
% Excess	100%	100%	100%	100%	50%

Tubing Information

Label	6
OD	5-1/2", 5"
WT	0.361", 0.362"
ID	4.778", 4.276"
Drift ID	4.653", 4.151"
COD	6.050", 5.563"
Weight	20 lb/ft, 18 lb/ft
Grade	HCL-80 BTC, HCL-80 LTC
Depth Set	0' - 8,760' 8,760' - 12,460'

LONQUIST & CO. LLC
PETROLEUM ENGINEERS | ENERGY ADVISORS
HOUSTON | CALGARY
AUSTIN | WICHITA | DENVER

Texas License F-9147

12912 Hill Country Blvd. Ste F-200
Austin, Texas 78738
Tel: 512.732.9812
Fax: 512.732.9816

Solaris Water Midstream, LLC

Capt Call SWD No. 1

Country: USA	**State/Province:** New Mexico	**County/Parish:** Eddy
Location:	**Site:** 820' FSL & 300' FWL	**Survey:** S2-T20S-R28E
API No: NA	**Field:** Devonian-Silurian (Code: 97869)	**Well Type/Status:** SWD
NMOCD District No: 2	**Project No:** 1918	**Date:** 7/8/2019
Drawn: TFM	**Reviewed:**	**Approved:**
Rev No: 1	**Notes:** Additional string of casing to protect Capitan Reef	

SOLARIS EXHIBIT 3

CARLSBAD
CURRENT-ARGUS

AFFIDAVIT OF PUBLICATION

Ad No.
0001278782

LONQUIST FIELD SERVICE
1001 MCKINNEY ST., SUITE 1650

HOUSTON TX 77002

I, a legal clerk of the **Carlsbad Current-Argus**, a newspaper published daily at the City of Carlsbad, in said county of Eddy, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the State wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

03/01/19

Legal Clerk

Subscribed and sworn before me this
1st of March 2019.

State of WI, County of Brown
NOTARY PUBLIC

9-19-21
My Commission Expires

VICKY FELTY
NOTARY
PUBLIC
STATE OF WISCONSIN

Ad#:0001278782
P O : Capt. Call SWD
# of Affidavits :0.00

Legal Notice

Solaris Water Midstream, LLC, 907 Tradewinds Blvd., Suite B, Midland, TX 79706, is filling Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division for administrative approval for its salt water disposal well Capt Call SWD No. 1. The proposed well will be located 820' FSL & 300' FWL in Section 2, Township 20S, Range 28E in Eddy County, New Mexico. Disposal water will be sourced from area production, and will be injected into the Siluro-Devonian formation (determined by offset log analysis) through an open hole completion between a maximum applied for top of 12,510 feet to a maximum depth of 14,310 feet. The maximum surface injection pressure will not exceed 2,502 psi with a maximum rate of 40,000 BWPD. Interested parties opposing the action must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Drive, Santa Fe, New Mexico 87505, within 15 days. Additional information can be obtained from the applicant's agent, Lonquist & Co., LLC, at (512) 600-1774.

March 1, 2019

County: Eddy
Printed In: Carlsbad Current-Argus
Printed On: 2019/06/27

Legal Notice
To Harley W. and Carol J. Ballard whose last known address was 1819-2 N Canal, Carlsbad, NM 88220 and to ARD Energy Group LP, whose last known address was 222 W. 4th St. Ph 5, Forth Worth, TX 76102 and PO Box 101027, Fort Worth, TX 76185, Solaris Water Midstream, LLC, 907 Tradewinds Blvd., Suite B, Midland, TX 79706, is filling Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division for administrative approval for its salt water disposal well Capt Call SWD No. 1. The proposed well will be located 820' FSL & 300' FWL in Section 2, Township 20S, Range 28E in Eddy County, New Mexico. Disposal water will be sourced from area production, and will be injected into the Siluro-Devonian formation (determined by offset log analysis) through an open hole completion between a maximum applied for top of 12,510 feet to a maximum depth of 14,310 feet. The maximum surface injection pressure will not exceed 2,502 psi with a maximum rate of 40,000 BWPD. Interested parties opposing the action must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Drive, Santa Fe, New Mexico 87505, within 15 days. Additional information can be obtained from the applicant's agent, Lonquist & Co., LLC, at (512) 600-1774.
Run: June 27, 2019 Legal ad #1289846

Public Notice ID:

Capt Call SWD No. 1

Solaris Water Midstream, LLC

TRACT ID	COUNTY CLERK	MAILING ADDRESS	PHONE	TRACKING #	DATE SHIPPED	DATE RECEIVED	
	OIL CONSERVATION DIVISION DISTRICT II	811 S. FIRST ST., ARTESIA, NM 88210		USPS - 7018 1830 0000 8887 9275	3/21/2019	3/25/2019	
	OIL CONSERVATION DIVISION DISTRICT IV	1220 S ST FRANCIS DR, SANTA FE, NM 87505	505-476-3440	FEDEX - 7747 6051 2735	3/21/2019	3/22/2019	
	SURFACE LANDOWNER	**MAILING ADDRESS**					
	Harley W. and Carol J. Ballard	1819-2 N Canal Street Carlsbad, NM 88220		USPS - 7018 1830 0000 8887 9299	3/21/2019	email consent 7/1	
	GOVERNMENT AGENCY	**MAILING ADDRESS**					
	Bureau of Land Management	620 E Greene Street Carlsbad, NM 88220		USPS - 7018 1830 0000 8887 9305	3/21/2019	3/25/2019	
	New Mexico State Land Office	310 Old Sante Fe Trail Sante Fe, NM 87501		FEDEX - 7747 6109 5892	3/21/2019	3/22/2019	
	AFFECTED PARTIES	**MAILING ADDRESS**					
	ARD Energy Group LP	222 W 4TH Street PH 5 Fort Worth, TX 76102 / PO BOX 101027 FT WORTH TX 76185		USPS - 7018 1830 0000 8887 9329	3/21/2019		Returned
	Colgate Operating, LLC	306 W Wall Street Suite 500 Midland, TX 79701		USPS - 7018 1830 0000 8887 9428	3/21/2019	3/25/2019	
	D W UNDERWOOD & LOIS GERALDINE WILLIAMSON	P.O. Box 16 Midland, TX 79702		USPS - 7018 1830 0000 8887 9466	3/21/2019	3/26/2019	
	Endeavor Energy Resources LP	110 North Marienfeld Street Suite 200 Midland, TX 79701		USPS - 7018 1830 0000 8887 9541	3/21/2019	3/25/2019	
	Enduro Operating LLC	777 Main Street Suite 800 Fort Worth, TX 76102-5350		USPS - 7018 1830 0000 8887 9558	3/21/2019	3/25/2019	
	James L Alford Jr	P.O. Box 489 McComb, MS 39648		USPS - 7018 1830 0000 8887 9657	3/21/2019	3/27/2019	Green Carc
	Javelina Partners	616 Texas Street Fort Worth, TX 76102-4612		USPS - 7018 1830 0000 8887 9664	3/21/2019	3/25/2019	
	J C Williamson	P.O. Box 16 Midland, TX 79702		USPS - 7018 1830 0000 8887 9626	3/21/2019	3/26/2019	
	Oxy USA WTP LP	P. O. Box 4294 Houston, TX 77210-4294		USPS - 7018 1830 0000 8887 9831	3/21/2019	3/26/2019	
	Oxy USA WTP LP	5 Greenway Plaza Suite 110 Houston, TX 77046-0521		USPS - 7018 1830 0000 8887 9848	3/21/2019	3/26/2019	
	Oxy USA, Inc	5 Greenway Plaza Suite 110 Houston, TX 77046-0521		USPS - 7018 1830 0000 8887 9848	3/21/2019	3/26/2019	
	Zorro Partners Ltd	616 Texas Street Fort Worth, TX 76102-4612		USPS - 7018 1130 0001 5497 0032	3/21/2019	3/25/2019	

Notices were sent on for the Capt Call SWD #1 application by mailing them a copy of the Form C-108 on TBD
Sincerely,

Ramona K. Hovey
Sr. Petroleum Engineer / Lonquist & Co., LLC
For Solaris Water Midstream, LLC

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

OIL CONSERVATION DIVISION
DISTRICT II
811 S FIRST STREET
ARTESIA NM 88210
1918-CAPT CALL SWD #1

9590 9402 4693 8323 9919 82

2. Article Number (Transfer from service label)
7018 1830 0000 8887 9275

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
☒ Agent
☐ Addressee

B. Received by (Printed Name) H Paul Stanmark
C. Date of Delivery 3/25/19

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

BUREAU OF LAND MGMT
620 E GREENE STREET
CARLSBAD NM 88220

1918-CAPT CALL SWD #1

9590 9402 4693 8323 9919 51

2. Article Number *(Transfer from service label)*

7018 1830 0000 8887 9305

PS Form 3811, July 2015 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X C R Bailey III

☐ Agent
☐ Addressee

B. Received by *(Printed Name)*

C R Bailey III

C. Date of Delivery

3-25-19

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

- ☑ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☑ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

COLGATE OPERATING LLC
COLGATE PRODUCTION LLC
306 W WALL STREET STE 500
MIDLAND TX 79701-5173
1918-CAPT CALL SWD #1

9590 9402 4693 8323 9918 38

2. Article Number *(Transfer from service label)*

7018 1830 0000 8887 9428

PS Form 3811, July 2015 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X Madelin Hiller ☐ Agent ☐ Addressee

B. Received by *(Printed Name)*

C. Date of Delivery 3-25-

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

- ☒ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☑ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

DW UNDERWOOD &
LOIS GERALDINE WILLAMSON
PO BOX 16
MIDLAND TX 79702
1918-CAPT CALL SWD #1

9590 9402 4693 8323 9917 91

2. Article Number *(Transfer from service label)*
7018 1830 0000 8887 9466

PS Form 3811, July 2015 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Leslie Moore ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Leslie Moore
C. Date of Delivery 3/26/19

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
- ☑ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☑ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

ENDEAVOR ENERGY RESOURCES LP
110 N MARIENFELD ST STE 200
MIDLAND TX 79701

1918-CAPT CALL SWD #1

9590 9402 4693 8323 9917 15

2. Article Number (Transfer from service label)
7018 1830 0000 8887 9541

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
☐ Agent
☐ Addressee

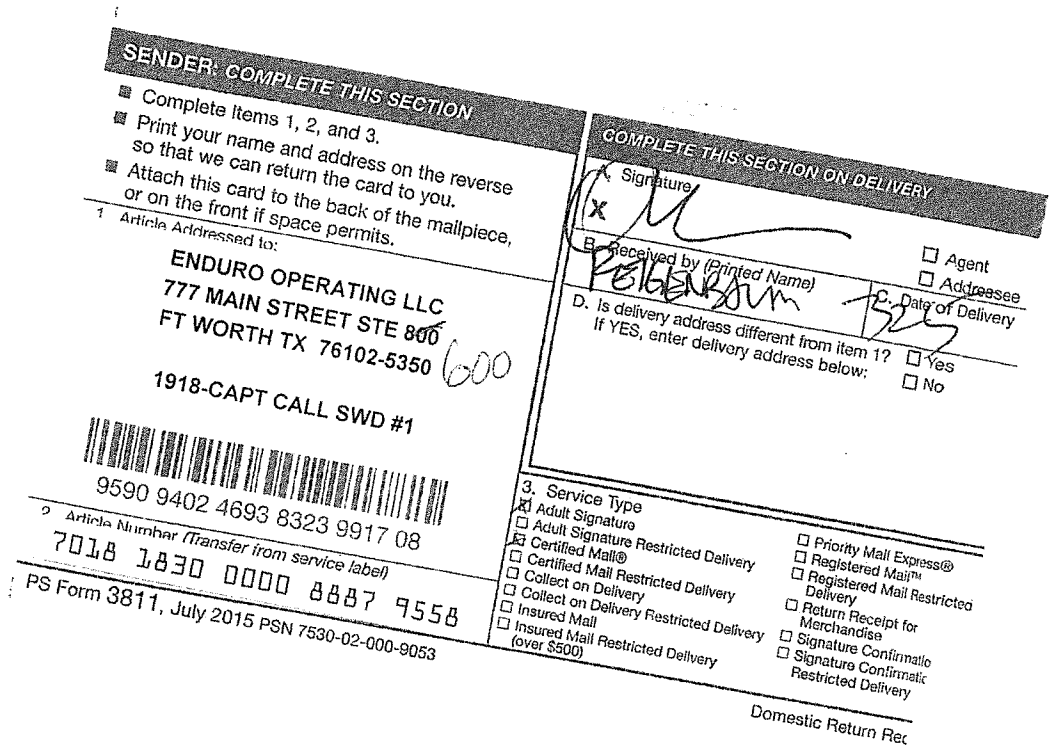
B. Received by (Printed Name)

C. Date of Delivery
3/25/19

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt



SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1 Article Addressed to:

ENDURO OPERATING LLC
777 MAIN STREET STE 800
FT WORTH TX 76102-5350 600

1918-CAPT CALL SWD #1

9590 9402 4693 8323 9917 08

2 Article Number (Transfer from service label)
7018 1830 0000 8887 9558

PS Form 3811, July 2015 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X

B. Received by (Printed Name)
PETERSON

C. Date of Delivery
5/25

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

☐ Agent
☐ Addressee

3. Service Type
☑ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Return Receipt for Merchandise
☐ Signature Confirmatio
☐ Signature Confirmatic Restricted Delivery

Domestic Return Rec

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

JAVELINA PARTNERS
616 TEXAS STREET
FT WORTH TX 76102-4612

1918-CAPT CALL SWD #1

9590 9402 4693 8323 9921 94

2. Article Number *(Transfer from service label)*

7018 1830 0000 8887 9664

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X D. Nobles ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* D. Nobles

C. Date of Delivery MAR 25 2019

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

- ☒ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☒ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

JC WILLIAMSON
PO BOX 16
MIDLAND TX 79702

1918-CAPT CALL SWD #1

9590 9402 4693 8323 9922 31

2. Article Number *(Transfer from service label)*

7018 1830 0000 8887 9626

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Leslie Moore ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Leslie Moore

C. Date of Delivery 3/26/19

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

- ☒ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☒ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

OXY USA WTP LP
PO BOX 4294
HOUSOTN TX 77210-4294

1918-CAPT CALL SWD #1

9590 9402 4693 8323 9920 26

2. Article Number *(Transfer from service label)*

7018 1830 0000 8887 9831

PS Form 3811, July 2015 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* C. Date of Delivery 8-26-15

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

James E Beard
James BEARD

3. Service Type

- ☒ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☒ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

OXY USA WTP LP
OXY USA INC
5 GREENWAY PLAZA STE 110
HOUSTON TX 77046-0521
1918-CAPT CALL SWD #1

9590 9402 4693 8323 9920 19

2. Article Number *(Transfer from service label)*
7018 1830 0000 8887 9848

PS Form 3811, July 2015 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
☐ Agent
☐ Addressee

B. Received by *(Printed Name)*
C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

- ☑ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☒ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

ZORRO PARTNERS LTD
616 TEXAS STREET
FT WORTH TX 76102-4612

1918-CAPT CALL SWD #1

9590 9402 4693 8323 9924 39

2. Article Number *(Transfer from service label)*
7018 1130 0001 5497 0032

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X D. Nobles ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* D Nobles C. Date of Delivery MAR 25 2019

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
- ☒ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☒ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

FedEx

June 26,2019

Dear Customer:

The following is the proof-of-delivery for tracking number **774761095892**.

Delivery Information:

Status:	Delivered	**Delivery location:**	SANTA FE, NM
Signed for by:	S.ROMERO	**Delivery date:**	Mar 22, 2019 10:11
Service type:	FedEx Standard Overnight		
Special Handling:	Deliver Weekday		
	Direct Signature Required		

Signature image is available. In order to view image and detailed information, the shipper or payor account number of the shipment must be provided.

Shipping Information:

Tracking number:	774761095892	**Ship date:**	Mar 21, 2019

Recipient:
SANTA FE, NM US

Shipper:
HOUSTON, TX US

Reference

1918-Capt Call #1 Legal Notice

Thank you for choosing FedEx.

USPS Tracking®

FAQs > (https://www.usps.com/faqs/uspstracking-faqs.htm)

Track Another Package +

Tracking Number: 70181830000088879657

Remove X

Your item was delivered at 4:10 pm on March 27, 2019 in MCCOMB, MS 39648.

Delivered

March 27, 2019 at 4:10 pm
Delivered
MCCOMB, MS 39648

Feedback

Tracking History

March 27, 2019, 4:10 pm
Delivered
MCCOMB, MS 39648
Your item was delivered at 4:10 pm on March 27, 2019 in MCCOMB, MS 39648.

March 25, 2019, 2:09 pm
Available for Pickup
MCCOMB, MS 39649

March 25, 2019, 9:09 am
Sorting Complete
MCCOMB, MS 39649

March 25, 2019, 8:34 am
Arrived at Unit
MCCOMB, MS 39648

March 24, 2019, 2:36 am
Departed USPS Regional Facility
JACKSON MS DISTRIBUTION CENTER

March 23, 2019, 5:21 pm
Arrived at USPS Regional Facility
JACKSON MS DISTRIBUTION CENTER

March 23, 2019
In Transit to Next Facility

March 21, 2019, 9:24 pm
Arrived at USPS Regional Facility
NORTH HOUSTON TX DISTRIBUTION CENTER

Product Information

Feedback

See Less

Tracking Number: 70181830000088879695

Remove ×

Your item arrived at the Post Office at 4:56 am on May 9, 2019 in HOUSTON, TX 77002.

In-Transit

May 9, 2019 at 4:56 am
Arrived at Unit
HOUSTON, TX 77002

See More

Can't find what you're looking for?

Go to our FAQs section to find answers to your tracking questions.

FAQs (https://www.usps.com/faqs/uspstracking-faqs.htm)

Feedback

The easiest tracking number is the one you don't have to know.

With Informed Delivery®, you never have to type in another tracking number. Sign up to:

- See images* of incoming mail.
- Automatically track the packages you're expecting.
- Set up email and text alerts so you don't need to enter tracking numbers.
- Enter USPS Delivery Instructions™ for your mail carrier.

Sign Up

(https://reg.usps.com/entreg/RegistrationAction_input?

*NOTE: Black and white (grayscale) images show the outside, front of letter-sized envelopes and mailpieces that are processed through USPS automated equipment.

app=UspsTools&appURL=https%3A%2F%2Ftools.usps.com%2Fgc

Ramona Hovey

From: Whitney McKee <whitney.mckee@solarismidstream.com>
Sent: Tuesday, July 2, 2019 7:55 AM
To: Ramona Hovey
Subject: FW: [External] Fwd: Capt Call legal description

Ramona,

Please see below. Will this be sufficient?

Thanks,
Whitney

From: Katy Welch <Katy.Welch@solarismidstream.com>
Sent: Monday, July 1, 2019 4:46 PM
To: Whitney McKee <whitney.mckee@solarismidstream.com>
Subject: Fwd: [External] Fwd: Capt Call legal description

Sent from my iPhone

Begin forwarded message:

> **From:** Winston Ballard <WBallard@concho.com>
> **Date:** July 1, 2019 at 3:45:03 PM MDT
> **To:** Katy Welch <Katy.Welch@solarismidstream.com>
> **Subject: Re: [External] Fwd: Capt Call legal description**
>
> I agree and approve of location.
>
> Sent from my iPhone
> Winston Ballard
> wballard@concho.com
> 575-513-9366
>
> On Jul 1, 2019, at 3:01 PM, Katy Welch <Katy.Welch@solarismidstream.com> wrote:
>
> > **** External email. Use caution. ****
> >
> > Winston,
> > We received notice from NMOCD that they did not receive the certified mail green receipt back indicating your notification and acceptance of the Captain Call SWD. Would you mind responding to this email stating that you have received notice and approve the location of this disposal well, specifically located at the below legal description:
> >
> > **Capt Call SWD #1**

820' FSL & 300' FWL
Sec. 2, T20S-R28E

Thank you,

Katy W. Cervantes
Solaris Water Midstream, LLC

CARLSBAD CURRENT-ARGUS

AFFIDAVIT OF PUBLICATION

Ad No.
0001289846

LONQUIST &CO
1001 MCKINNEY, SUITE 1650

HOUSTON TX 77002

I, a legal clerk of the **Carlsbad Current-Argus**, a newspaper published daily at the City of Carlsbad, in said county of Eddy, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the State wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

06/27/19

Legal Clerk

Subscribed and sworn before me this
2nd of July 2019.

State of WI, County of Brown
NOTARY PUBLIC

My Commission Expires

KAZOUA YANG
NOTARY PUBLIC
STATE OF WISCONSIN

Legal Notice
To Harley W. and Carol J. Ballard whose last known address was 1819-2 N Canal, Carlsbad, NM 88220 and to ARD Energy Group LP, whose last known address was 222 W. 4th St. Ph 5, Forth Worth, TX 76102 and PO Box 101027, Fort Worth, TX 76185, Solaris Water Midstream, LLC, 907 Tradewinds Blvd., Suite B, Midland, TX 79706, is filling Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division for administrative approval for its salt water disposal well Capt Call SWD No. 1. The proposed well will be located 820' FSL & 300' FWL in Section 2, Township 20S, Range 28E in Eddy County, New Mexico. Disposal water will be sourced from area production, and will be injected into the Siluro-Devonian formation (determined by offset log analysis) through an open hole completion between a maximum applied for top of 12,510 feet to a maximum depth of 14,310 feet. The maximum surface injection pressure will not exceed 2,502 psi with a maximum rate of 40,000 BWPD. Interested parties opposing the action must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Drive, Santa Fe, New Mexico 87505, within 15 days. Additional information can be obtained from the applicant's agent, Lonquist & Co., LLC, at (512) 600-1774.
Run: June 27, 2019 Legal ad #1289846

Ad#:0001289846
P O : Harley W. and Carol J. Ballard
# of Affidavits :0.00

SOLARIS EXHIBIT 4

LONQUIST & CO. LLC
PETROLEUM ENGINEERS | ENERGY ADVISORS
AUSTIN · HOUSTON · WICHITA · DENVER · CALGARY

GEOLOGIC AFFIRMATION

I have examined available geologic and engineering data and have found no evidence of open faults or other hydrologic connection between the disposal interval and underground sources of drinking water.

Jerry Ferguson
Geoscientist

Project: Solaris Water Midstream, LLC
Capt Call SWD No. 1

12912 Hill Country Blvd Suite F 200 | Austin, Texas 78738 USA | Tel 512.732.9812 | Fax 512.732.9816

Seismicity and Faults in the Vicinity of the Proposed Solaris Water Midstream, LLC McCrae SWD No. 1, Capt Call SWD No.1, and Clara Allen SWD No. 1 Devonian Disposal wells in Eddy County, New Mexico

Reference is made to the map titled "McCrae SWD No. 1 Capt Call SWD No. 1 Clara Allen SWD No. 1 Seismic Events".

These proposed wells are located in Eddy County, Townships 19 & 20 South, Ranges 28 & 29 East, 10 miles northeast of Carlsbad, New Mexico in the Northwest Shelf area of the Delaware Basin.

Seismicity:

Historically the area near the proposed Devonian disposal wells has not seen any major seismic activity. A search of the USGS Earthquake Hazards Program Earthquake Catalog revealed the nearest event to be located 18.88 to 22.42 miles west of the proposed locations, where a magnitude 3.0 earthquake was recorded on October 10, 2004 at a depth of 5 kilometers. Review of the USGS Earthquake Hazard map indicates a very low risk of seismic activity. The USGS surface geologic map of the area shows no Quaternary-aged faulting, also indicating no recent tectonic activity.

Faulting:

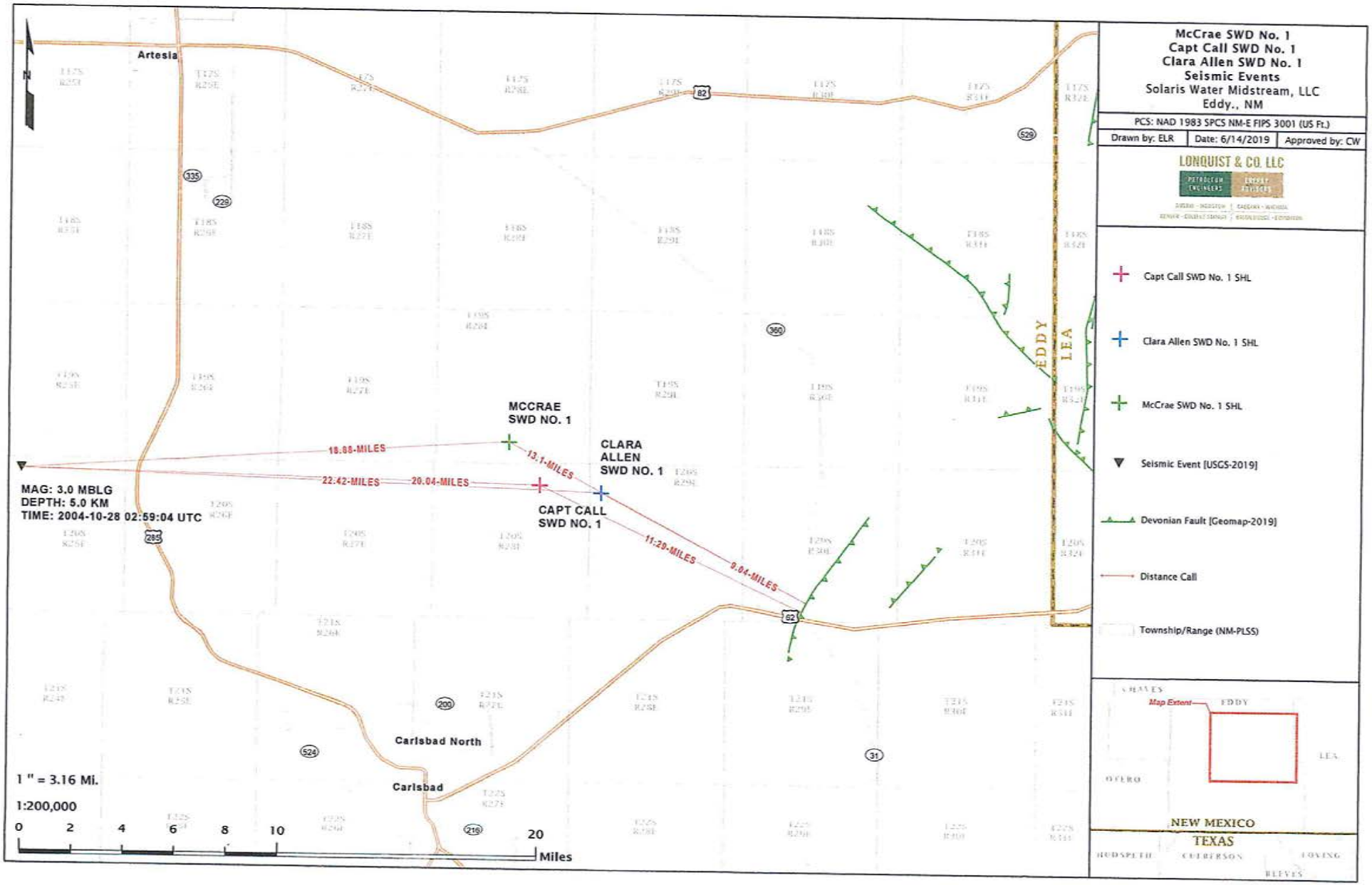
The USGS surface geologic map, a USGS published Devonian structure map, and subscription Geomap regional subsurface structure maps at the Yates, Strawn Lime and Devonian levels were reviewed for faults. The nearest fault was mapped at the Devonian level 9 to 13 miles southeast of the proposed locations.

The Snee and Zoback paper "State of stress in the Permian Basin, Texas and New Mexico: Implications for induced seismicity" was also reviewed to evaluate the presence of faults and fault slip potential risk. These regional maps show no faulting in the area of the proposed wells. Faulting in the New Mexico portion of the Delaware Basin generally shows less than a 10% probability of fault slip movement.

The distance from the proposed wells to the faults yields an extremely low probability of them becoming critically stressed by injection.

Jerry D. Ferguson

Geoscience Manger, Lonquist & Co. LLC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Eddy., NM
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Drawn by: ELR
Date: 6/14/2019
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LONQUIST & CO. LLC
Capt Call SWD No. 1 SHL
Clara Allen SWD No. 1 SHL
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Seismic Event [USGS-2019]
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NEW MEXICO
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SOLARIS EXHIBIT 5

State of stress in the Permian Basin, Texas and New Mexico: Implications for induced seismicity

Jens-Erik Lund Snee[1] and Mark D. Zoback[1]

Abstract

Since the 1960s, the Permian Basin of west Texas and southeast New Mexico has experienced earthquakes that were possibly triggered by oil and gas activities. In recent years, seismicity has been concentrated near Pecos, Texas; around the Dagger Draw Field, New Mexico; and near the Cogdell Field, Snyder, Texas. We have collected hundreds of measurements of stress orientation and relative magnitude to identify potentially active normal, normal/strike-slip, or strike-slip faults that might be susceptible to earthquake triggering in this region. In the Midland Basin and Central Basin Platform, the faulting regime is consistently normal/strike slip, and the direction of the maximum horizontal compressive stress (S_{Hmax}) is approximately east–west, although modest rotations of the S_{Hmax} direction are seen in some areas. Within the Delaware Basin, however, a large-magnitude clockwise rotation (~150°) of S_{Hmax} occurs progressively from being nearly north–south in the north to east-southeast–west-northwest in the south, including the western Val Verde Basin. A normal faulting stress field is observed throughout the Delaware Basin. We use these stress data to estimate the potential for slip on mapped faults across the Permian Basin in response to injection-related pressure changes at depth that might be associated with future oil and gas development activities in the region.

Introduction

The Permian Basin of west Texas and southeast New Mexico is one of the most important petroleum-producing regions in the United States, containing numerous vertically stacked producing intervals (Dutton et al., 2005). The basin is subdivided into several structural regions (Figure 1), including the prolific Midland and Delaware basins, which are separated by the Central Basin Platform, a crystalline-basement-involved structural high overlain by carbonate reef deposits and clastic rocks (Cartwright, 1930; Galley, 1958; Matchus and Jones, 1984).

Fluid injection and hydrocarbon production have been suspected as the triggering mechanisms for numerous earthquakes that have occurred in the Permian Basin since the 1960s (Rogers and Malkiel, 1979; Keller et al., 1981; Orr, 1984; Keller et al., 1987). The area is also naturally seismically active (Doser et al., 1991, 1992). Seismicity in the Permian Basin has historically occurred in several localized areas (Figure 1), including parts of the Central Basin Platform and around the Dagger Draw and Cogdell fields (Sanford et al., 2006; Gan and Frohlich, 2013; Pursley et al., 2013; Herzog, 2014; Frohlich et al., 2016). Since about 2009, seismicity has occurred in the southern Delaware Basin (Jing et al., 2017), an area where the USGS National Earthquake Information Center and Keller et al. (1987) report very little previous seismicity. Since the TexNet Seismological Network (Savvaidis et al., 2017) began recording earthquakes across Texas in January 2017, at least three groups of earthquakes, surrounded by more diffusely located events, have occurred in the southern Delaware Basin, near Pecos, Texas. A fourth group of events occurred mostly in mid-November 2017 farther to the west in northeastern Jeff Davis County. In addition, a group of mostly small ($M_L < 2$) earthquakes occurred between Midland and Odessa, in the Midland Basin.

As illustrated through recent studies of induced seismicity in Oklahoma (Walsh and Zoback, 2016), knowledge of the current state of stress is an essential component in estimating the pore-pressure perturbation needed to trigger an earthquake on a given fault. Such analyses enable both retrospective analyses of potential triggering conditions of past earthquakes as well as estimates of the likelihood of future slip on mapped faults due to fluid injection or extraction. As part of our work to map the state of stress in Texas, we (Lund Snee and Zoback, 2016) recently contributed more than 100 new, reliable (A–C-quality) maximum horizontal compressive stress (S_{Hmax}) orientations specifically within the Permian Basin, together with an interpolated map of the relative principal stresses expressed using the A_ϕ parameter (Simpson, 1997). In anticipation of fluid-injection activities associated with the thousands of wells to be drilled in the Permian Basin in the next few years, we report more than 100 additional S_{Hmax} orientations and a refined map of the relative stress magnitudes (Figure 1) to provide a comprehensive view of the state of stress in the Permian Basin and its relation to potential earthquake triggering on faults in the region.

In this paper, we first summarize the compilation of new stress measurements and provide an overview of relative stress magnitudes. We then discuss the stress field (especially in areas where it varies considerably, such as the Delaware Basin) and apply the new stress data to estimate the fault slip potential that would be expected due to fluid-pressure increases that might be associated with fluid injection at depth. This analysis will utilize FSP v.1.07, a freely available software tool developed by the Stanford Center for Induced and Triggered Seismicity in collaboration with ExxonMobil (Walsh et al., 2017). We use only publicly available information about faults in the region.

Methods

In the earth, a combination of tectonic driving forces and local factors such as density heterogeneities give rise to anisotropic principal stresses with consistent orientations and relative magnitudes throughout the brittle upper crust (Zoback and Zoback, 1980; Zoback, 1992). These principal stresses, which are continually replenished by tectonic activity, are modulated by the finite strength of the crust, which dissipates accumulated stresses through seismic and aseismic slip on faults. Consequently, most of the brittle crust is thought to be critically stressed, meaning

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that it is in a state of frictional equilibrium in which the faults best oriented for slip with respect to the principal stress directions are usually within one earthquake cycle of failure (Zoback et al., 2002). Thus, knowing the orientations of the principal stresses reveals the faults that are most likely to slip. Conveniently, one principal stress is usually vertical and the other two horizontal (Zoback and Zoback, 1980) because the earth's surface is an interface between a fluid (air or water) and rock, across which no shear tractions are transmitted. Knowing both the orientation of S_{Hmax} and the relative magnitudes of the principal stresses is therefore sufficient to predict the orientations (strike and dip) and type (normal, strike slip, and/or reverse) of faults most likely to slip.

Measuring the orientation and relative magnitudes of the principal stresses. *(Editor's note: Figures A1 and A2 and Tables A1–A5 are included as supplemental material to this paper in SEG's Digital Library at https://library.seg.org/doi/suppl/10.1190/tle37020127.1.)* The S_{Hmax} orientations shown in Figure 1 and reported in supplemental Tables A1 and A2 were mostly measured using well-established techniques. The vast majority of these orientations represent means of the azimuths of drilling-induced tensile fractures (DITF) or wellbore breakouts observed using image logs such as the fullbore formation microimager (FMI) and ultrasonic borehole imager. As reported in the supplemental material that accompanies this article, the quality of each measurement was assessed using Fisher et al. (1987) statistics where possible. Quality ratings were assigned to each measurement using criteria provided in Table A3, which now include criteria for aligned microseismic events that define the orientations of hydraulic fractures. Our criteria are based on those presented by Zoback and Zoback (1989), Zoback (2010), and Alt and Zoback (2017), who specify that only A–C-quality data are sufficiently robust to justify plotting on a map (D-quality measurements are reported in Tables A1 and A2 but are not mapped). These quality criteria were developed to ensure that each mapped S_{Hmax} orientation is well constrained and is based on a sufficient number and depth range of measured stress indicators.

Six orientations, previously reported by Lund Snee and Zoback (2016) and included in Figure 1, were measured by averaging the

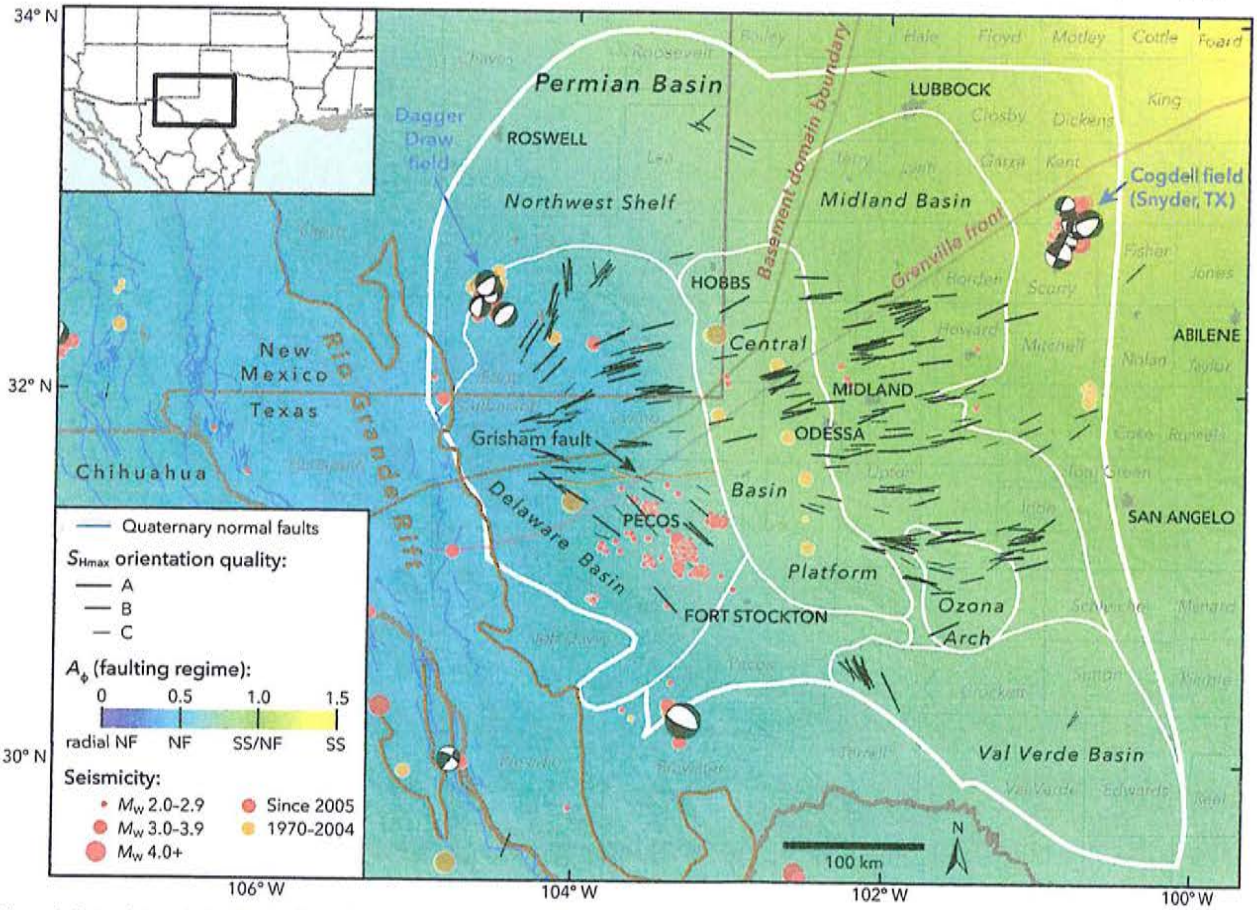

Figure 1. State of stress in the Permian Basin, Texas and New Mexico. Black lines are the measured orientations of S_{Hmax}, with line length scaled by data quality. The colored background is an interpolation of measured relative principal stress magnitudes (faulting regime) expressed using the A_ϕ parameter (see text for details) of Simpson (1997). Blue lines are fault traces known to have experienced normal-sense offset within the past 1.6 Ma, from the USGS Quaternary Faults and Folds Database (Crone and Wheeler, 2000). The boundary between the Shawnee and Mazatzal basement domains is from Lund et al. (2015), and the Precambrian Grenville Front is from Thomas (2006). The Permian Basin boundary is from the U.S. Energy Information Administration, and the subbasin boundaries are from the Texas Bureau of Economic Geology Permian Basin Geological Synthesis Project. Earthquakes are from the USGS National Earthquake Information Center, the TexNet Seismic Monitoring Program, and Gan and Frohlich (2013). Focal mechanisms are from Saint Louis University (Herrmann et al., 2011).

horizontal azimuth of the fastest shear-wave propagation in subvertical wells using measurements from crossed-dipole sonic logs. We also include several new S_{Hmax} orientations that were obtained from formal inversions of focal mechanisms from microseismic events detected during hydraulic fracturing operations. Several other S_{Hmax} orientations were obtained by measuring the orientations of aligned microseismic events thought to represent propagating hydraulic fractures. When collecting stress measurements from microseismic data, we do not account for the possibility of localized changes of stress orientations that might develop as a result of fracturing and proppant emplacement. It is unlikely that stimulation-induced changes in stress orientation would occur except in areas of very low stress anisotropy (which we demonstrate are rare). In such areas, there would not be consistent microseismic alignments orthogonal to the least principal stress that would satisfy the quality-control criterion for reliable stress orientations that we have developed (Table A3).

In addition to our new data, Figure 1 also includes previously published S_{Hmax} orientations from the Permian Basin area that we consider reliable. The 2016 release of the World Stress Map (Heidbach et al., 2016) included only a handful of S_{Hmax} orientations in the Permian Basin. We have downgraded the quality ratings for two older measurements that we suspect were made on the basis of mistaken interpretations. A large collection of S_{Hmax} orientations published by Tingay et al. (2006) and included in the World Stress Map Database were given D-quality ratings due to the lack of sufficient quality information (e.g., depth ranges, number of fractures, or standard deviations of fracture orientations), although many are in agreement with high-quality nearby measurements we utilize. Previously unpublished information contributed by R. Cornell (personal communication) is reported in Table A1, but there is not sufficient quality information to upgrade any of his measurements to C quality and be included in Figure 1. We also include S_{Hmax} orientations recently published by Forand et al. (2017), who report S_{Hmax} patterns consistent with the variations shown by Lund Snee and Zoback (2016). Although Forand et al. (2017) do not list the number and depth intervals for the stress indicators that they present, this information is included in their map because the distributions of fracture orientations shown in their rose diagrams allow us to interpret means, standard deviations, and the minimum number of fractures.

We interpolate the relative principal stress magnitudes across this area (colored background in Figure 1) using measurements reported in Table A4. We choose to represent the relative magnitudes of the three principal stresses (S_V, S_{Hmax}, and S_{hmin}) using the A_ϕ parameter (Simpson, 1997). The A_ϕ parameter (explained graphically in Figure A1) conveniently describes the ratio between the principal stress magnitudes using a single, readily interpolated value that ranges smoothly from 0 (the most extensional possible condition of radial normal faulting) to 3 (the most compressive possible condition of radial reverse faulting). The parameter is defined mathematically by

$$A_\phi = (n+0.5)+(-1)^n(\phi-0.5), \quad (1)$$

where

$$\phi = \frac{S_2 - S_3}{S_1 - S_3}. \quad (2)$$

S_1, S_2, and S_3 are the magnitudes of the maximum, intermediate, and minimum principal stresses, respectively, and n is 0 for normal faulting, 1 for strike-slip faulting, and 2 for reverse faulting.

Probabilistic analysis of fault slip potential. As mentioned earlier, we utilize FSP v.1.07 (Walsh et al., 2017) to estimate the slip potential on faults throughout the Permian Basin. The FSP tool allows operators to estimate the potential that planar fault segments will be critically stressed within a local stress field. Critically stressed conditions occur when the ratio of resolved shear stress to normal stress reaches a failure criterion, in this case the linearized Mohr-Coulomb failure envelope. The FSP program allows for either deterministic or probabilistic geomechanical analysis of the fault slip potential, the former of which treats each input as a discrete value with no uncertainty range. The probabilistic geomechanics function estimates the FSP on each fault segment using Monte Carlo-type analysis to randomly sample specified, uniform uncertainty distributions for input parameters including the fault strike and dip, ambient stress field, rock properties, and initial fluid pressure.

We conducted our analysis on fault traces compiled from Ewing et al. (1990), Green and Jones (1997), Ruppel et al. (2005), and the USGS Quaternary Faults and Folds Database (Crone and Wheeler, 2000). Most of these databases do not specify fault dips, so we make the conservative assumption that, within the generally normal and normal/strike-slip faulting environment of the Permian Basin, all potentially active faults dip in the range of 50° to 90°. This assumption implies that all fault segments could be ideally oriented for slip in either normal or strike-slip faulting environments at reasonable coefficients of friction, depending on the alignment of their strike with respect to S_{Hmax} (Figure A1).

Here we apply the probabilistic geomechanics function of the FSP tool. We apply reasonable stress values and uncertainty ranges based on the variability of the stress field we observe within 16 study areas (listed in Table A5). The study areas were selected to represent fairly uniform A_ϕ values and S_{Hmax} orientations (Figure 2) to minimize spatial variations of stress field in any given study area. As an example, Figure A2 shows input parameter distributions sampled during FSP analysis for a random fault within Area 10.

For the purposes of this demonstration, we do not hydrologically model the pressure changes associated with any known injection scenario; we instead estimate the fault slip potential in response to an increase in the fluid-pressure gradient corresponding to a 4% increase relative to hydrostatic (0.4 MPa/km or 0.018 psi/ft) to evaluate the potential for relatively modest pressure changes in crystalline basement (2 MPa [300 psi] at 5 km [16,400 ft]) associated with produced water disposal. This is the same gradient of pore-pressure perturbation applied by Walsh and Zoback (2016) for FSP analysis in north-central Oklahoma. The eventual pore-pressure increase that will occur in the uppermost parts of the crystalline basement due to injection in this area is of course unknown, and it is important to note that *relative* differences in slip potential between differently oriented faults will remain the

same regardless of the magnitude of uniform pressure increase (although the absolute fault slip potential will vary). Operators interested in screening potential sites for wastewater injection wells, for example, might alternatively use the software to test specific scenarios of pore-pressure evolution with time due to injection from wells in a localized area. Although large portions of the Permian Basin are known to be overpressured and underpressured at certain stratigraphic intervals (e.g., Orr, 1984; Doser et al., 1992; Rittenhouse et al., 2016), for the sake of simplicity in this whole-basin demonstration, we initially assume hydrostatic conditions (P_p = 9.8 MPa/km ≈ 0.43 psi/ft). In general, hypocentral depths for potentially damaging injection-triggered earthquakes are within the upper crystalline basement (e.g., Zhang et al., 2013; Walsh and Zoback, 2015), for which little pore-pressure information is available but for which hydrostatic values are reasonable (Townend and Zoback, 2000).

State of stress in the Permian Basin

Figure 1 shows all reliable S_{Hmax} orientations and an interpolated view of the A_ϕ parameter across the Permian Basin. Throughout the Midland Basin, the eastern part of the Permian Basin, the stress field is remarkably consistent, with S_{Hmax} oriented ~east–west (with modest rotations of S_{Hmax} in some areas) and $A_\phi \approx 1.0$ (indicative of normal/strike-slip faulting). The stress field is more extensional in the Val Verde Basin to the south, with $A_\phi \approx 0.7$. Few S_{Hmax} orientations are presently available in that subbasin, but S_{Hmax} is northwest–southest in the western part of the basin and appears to be ~northeast–southwest in the central part of the basin. This is similar to the stress state seen farther to the southeast, where S_{Hmax} follows the trend of the growth faults that strike subparallel to the Gulf of Mexico coastline (Lund Snee and Zoback, 2016). Along the Central Basin Platform, S_{Hmax} is generally ~east–west but rotates slightly clockwise from east to west, with A_ϕ ~ 0.8–1.0. In the Delaware Basin, the stress field is locally coherent but rotates dramatically by ~150° clockwise from north to south across the basin. In the western part of Eddy County, New Mexico, S_{Hmax} is ~north–south (consistent with the state of stress in the Rio Grande Rift; Zoback and Zoback, 1980) but rotates to ~east-northeast–west-southwest in southern Lea County, New Mexico, and the northernmost parts of Culberson and Reeves counties, Texas. It should be noted that where rapid stress rotations are observed in the Delaware Basin are areas with low values of A_ϕ (indicative of relatively small differences between the horizontal stresses) and elevated pore pressure (Rittenhouse et al., 2016), making it possible for relatively minor stress perturbations to cause significant changes in stress orientation (e.g., Moos and Zoback, 1993).

S_{Hmax} continues to rotate clockwise southward in the Delaware Basin to become ~N155°E in western Pecos County, westernmost Val Verde Basin, and northern Mexico (Suter, 1991; Lund Snee and Zoback, 2016). On the Northwest Shelf, A_ϕ varies from ~0.5 (normal faulting) in north Eddy County to ~0.9 (normal and strike-slip faulting) further east. S_{Hmax} rotates significantly across the Northwest Shelf as well, from ~north–south in northwest Eddy County to ~east-southeast–west-northwest in northern Lea and Yoakum counties.

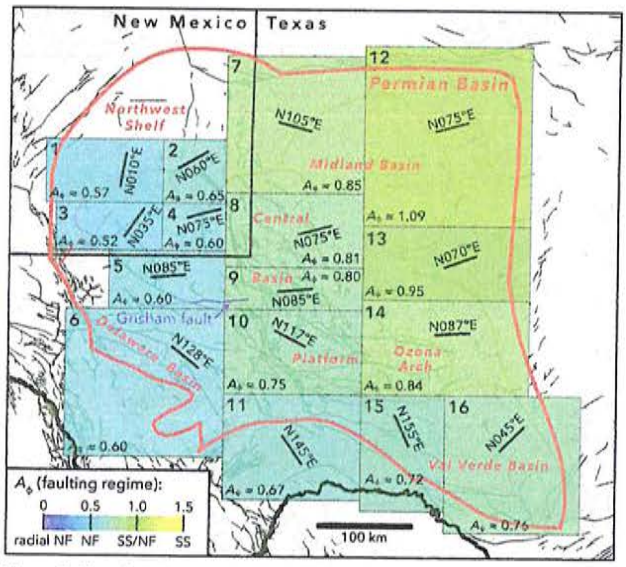

Figure 2. Map of study areas chosen for FSP analysis on the basis of broadly similar stress conditions. Text annotations indicate representative S_{Hmax} orientation and relative principal stress magnitudes (A_ϕ parameter) for each study area based on the data presented in Figure 1. Gray lines in the background indicate fault traces compiled from Ewing et al. (1990), Green and Jones (1997), Ruppel et al. (2005), and the USGS Quaternary Faults and Folds Database (Crone and Wheeler, 2000), to which we apply FSP analysis.

Slip potential on mapped faults

Figure 3 shows the results of our fault slip potential analysis for all study areas across the Permian Basin. We selected a color scale in which dark green lines represent faults with ≤5% probability of being critically stressed at the specified pore-pressure increase; dark red indicates faults with ≥45% fault slip potential; and yellow, orange, and light red represent intermediate values. The results shown in Figure 3 indicate that high fault slip potential is expected for dramatically different fault orientations across the basin, reflecting the varying stress field. In the northern Delaware Basin and much of the Central Basin Platform, for example, faults striking ~east–west are the most likely to slip in response to a fluid-pressure increase. However, farther south in the southern Delaware Basin, faults striking northwest–southeast are the most likely to slip, and ~east–west-striking faults have relatively low slip potential. Notably, we find high slip potential for large fault traces mapped across the southern Delaware Basin and Central Basin Platform, and along the Matador Arch. Figure 3 also indicates the faults that are *unlikely* to slip in response to a modest fluid-pressure increase. We find that large groups of mostly north–south-striking faults, predominantly located along the Central Basin Platform, the western Delaware Basin, and large parts of the Northwest Shelf have low fault slip potential at the modeled fluid-pressure perturbation. Knowing the orientations of faults that are unlikely to slip at a given fluid-pressure perturbation can be of great value because it provides operators with practical options for injection sites. Probabilistic geomechanical analysis of the type enabled by the FSP software is especially useful in areas with complex fault patterns. Figure 4 shows a larger-scale view of Area 10, an area of particularly dense faults. In Figure 4, it is clear that even

seemingly minor variations in fault strike can significantly change the fault slip potential.

Figures 3 and 4 illustrate the locations of earthquakes that have been recorded since 1970 in relation to the mapped faults. It is noteworthy that many earthquakes have occurred away from faults mapped at this regional scale, with the most obvious examples being groups of events described earlier, near the Dagger Draw Field (southeast New Mexico); the Cogdell Field (near Snyder, Texas); a group around the town of Pecos, Texas; and a recent group of mostly M < 2 events between the towns of Midland and Odessa, Texas. As the earthquakes undoubtedly occurred on faults, this observation underscores the necessity of developing improved subsurface fault maps, particularly for use in areas that might experience injection-related pore-pressure increases. Nevertheless, Figures 3 and 4 also show a number of earthquakes that may have occurred on mapped faults for which we estimate elevated fault slip potential. Of particular note are the recent (2009–2017) earthquakes in southeastern Reeves and northwestern Pecos counties, Texas, of which an appreciable number occurred on or near yellow or orange faults. Potentially active faults are identified near some towns in the Permian Basin, including Odessa (Figure 3) and Fort Stockton, Texas (Figure 4). In some areas, such as northern Brewster County, Texas, and parts of the northern Central Basin Platform, earthquakes occurred on or near orange or red faults that have relatively short along-strike lengths, making the faults appear fairly insignificant at this scale. In the area of active seismicity in Pecos and Reeves counties, we estimate relatively high slip potential for several significantly larger faults (>20 km along-strike length) on which few or no earthquakes have been recorded thus far (Figures 3 and 4). Larger faults are of particular concern for seismic hazard because they are more likely to extend into basement and, therefore, to potentially be associated with larger magnitude earthquakes.

As labeled in Figure 3, a number of regional-scale faults are known to exist in this area (Walper, 1977; Shumaker, 1992; Yang and Dorobek, 1995). The Permian Basin overlies a major boundary separating Precambrian-age lithospheric basement domains (Lund et al., 2015), and its crystalline "basement" hosts numerous major

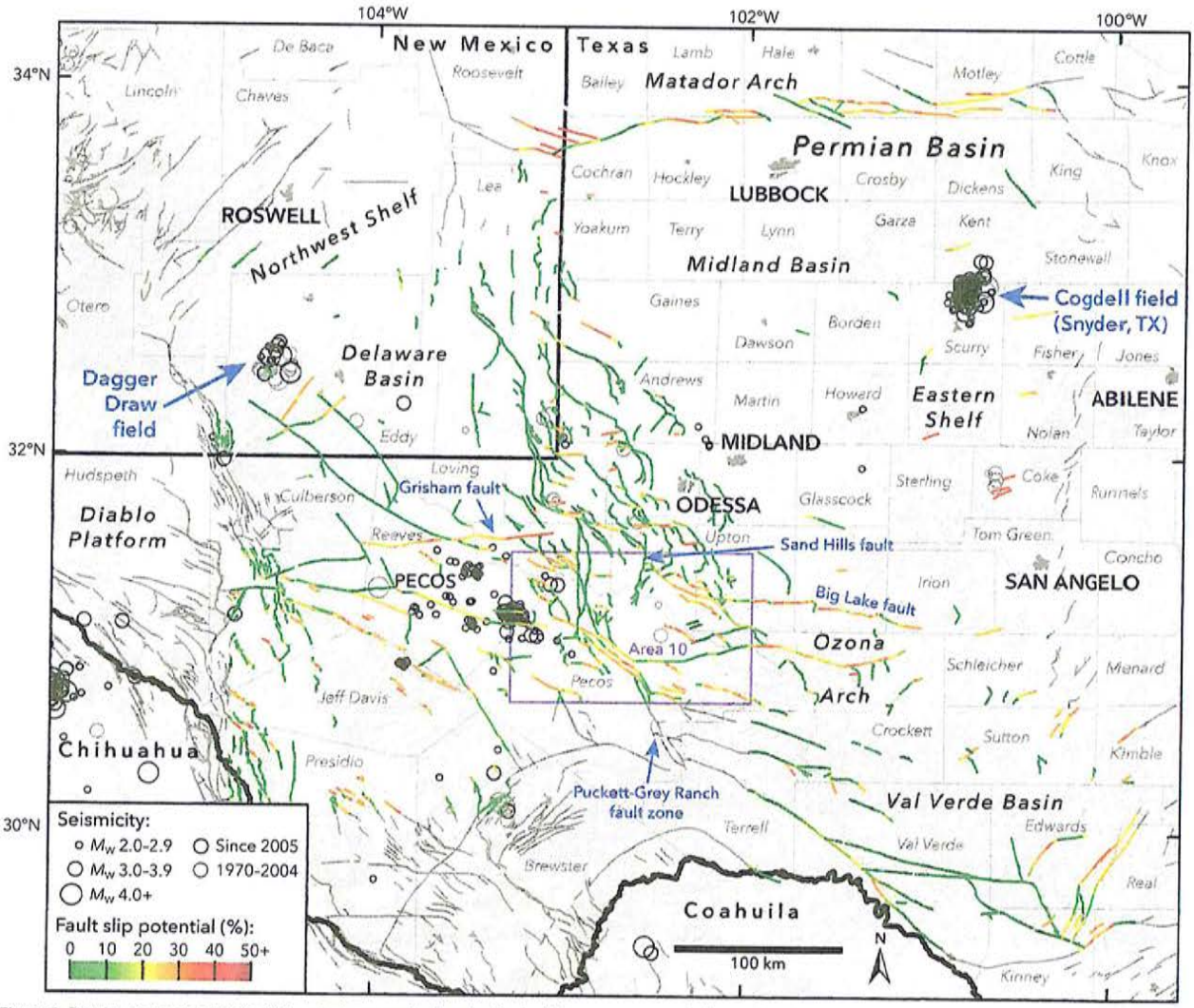

Figure 3. Results of our probabilistic FSP analysis across the Permian Basin. Data sources are as in Figures 1 and 2.

structures that have been repeatedly activated during subsequent plate collisions and rifting events (Kluth and Coney, 1981; Thomas, 2006). One notable example is the east–west-striking Grisham Fault (also referred to as the Mid-Basin Fault), which is between the rift margin of the Rodinia supercontinent and the boundary between the Shawnee and Mazatzal basement domains. The Grisham Fault is of particular importance for understanding the potential for induced seismicity in the Permian Basin because it is laterally extensive, offsets basement, and may have high slip potential. The upper part of Figure 5 (and Figure 3) shows a scenario in which the stresses resolved on the Grisham Fault are representative of Area 5, with S_{Hmax} oriented N085°E. However, the measured stress field changes dramatically from north to south across the Grisham Fault (Figures 1 and 2), presenting uncertainty about the stresses resolved upon the fault, reflected by its close proximity to Area 6, with a generalized S_{Hmax} orientation of N128°E. The lower part of Figure 5 shows the Grisham Fault in detail if the stress field shown in Area 6, just to the south, was appropriate. Needless to say, in the stress field represented by Area 5, fault segments oriented east–west are expected to have high probability of being critically stressed in response to a pore-pressure increase, but nearby west-northwest–east-southeast-striking faults have relatively low fault slip potential. In contrast, inclusion within the Area 6 stress field would result in low expected fault slip potential on the east–west segments but high values on the west-northwest–east-southeast-striking segments.

The results shown in Figures 3–5 are not intended to provide a definitive view of the fault slip potential across this complex basin, nor do they constitute a seismic hazard map. While the stress field is complicated in this area, the changes in the stress field are coherent and mappable. We consider the greatest uncertainties in the map to be the lack of knowledge of subsurface faults and the magnitude and extent of potential pore-pressure changes in areas where increased wastewater injection may occur in the future, especially wastewater injection that might change pore pressure on basement faults. Operators wishing to use the FSP tool to screen sites for fluid injection should use detailed fault maps that are specific to the injection interval, the underlying basement, and any intervening units, which take into account geometric uncertainties.

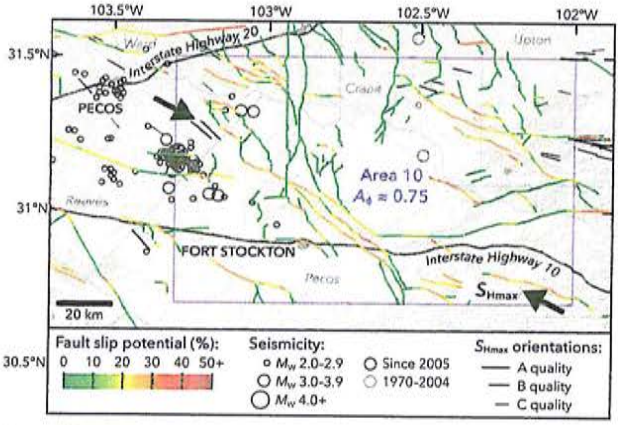

Figure 4. Large-scale view of the results of FSP analysis in Area 10 (location shown in Figures 2 and 3). Data sources are as in Figures 1 and 3.

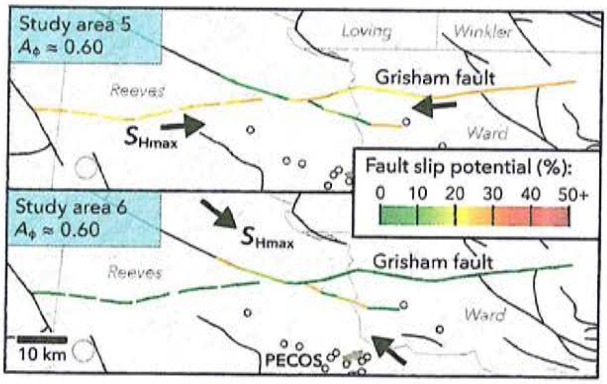

Figure 5. Map comparing the results of fault slip potential analysis on the Grisham (Mid-Basin) fault and selected nearby structures (locations shown in Figure 3) for stress conditions of Area 5 (S_{Hmax} N085°E ± 8°; top panel) and Area 6 (S_{Hmax} N128°E ± 15°; bottom panel). Symbols as in Figures 3 and 4.

Conclusions

As part of our stress mapping across the U.S. midcontinent, we have collected hundreds of S_{Hmax} orientations within the Permian Basin, and we also map the faulting regime across the region. Our new data reveal dramatic rotations of S_{Hmax} within the Delaware Basin and Northwest Shelf but relatively consistent stress orientations elsewhere. The rapid stress rotations in the Delaware Basin are observed in areas with relatively small differences between the horizontal stresses and with elevated pore pressure, making it easier for stress perturbations to cause significant changes in the stress field.

We show how the FSP software package can be used as a quantitative screening tool to estimate the fault slip potential in a region with large variations of the stress field, and accounting for uncertainties in stress measurements, rock properties, fault orientations, and fluid pressure. Although many historical earthquakes have occurred away from mapped faults in this area, we find that a number of earthquakes have occurred on or near faults for which there is high fault slip potential under the modeled conditions. TLE

Acknowledgments

The authors are grateful to Apache Corporation, Devon Energy, MicroSeismic Inc., and Pioneer Natural Resources, and to R. Cornell, for contributing new data. The authors also wish to thank F. R. Walsh III for providing scripts to assist with data handling and for helpful discussions. The authors appreciate thoughtful comments by B. Birkelo and prompt editorial assistance by J. Shemeta. This work was supported by the Stanford Center for Induced and Triggered Seismicity industrial affiliates program.

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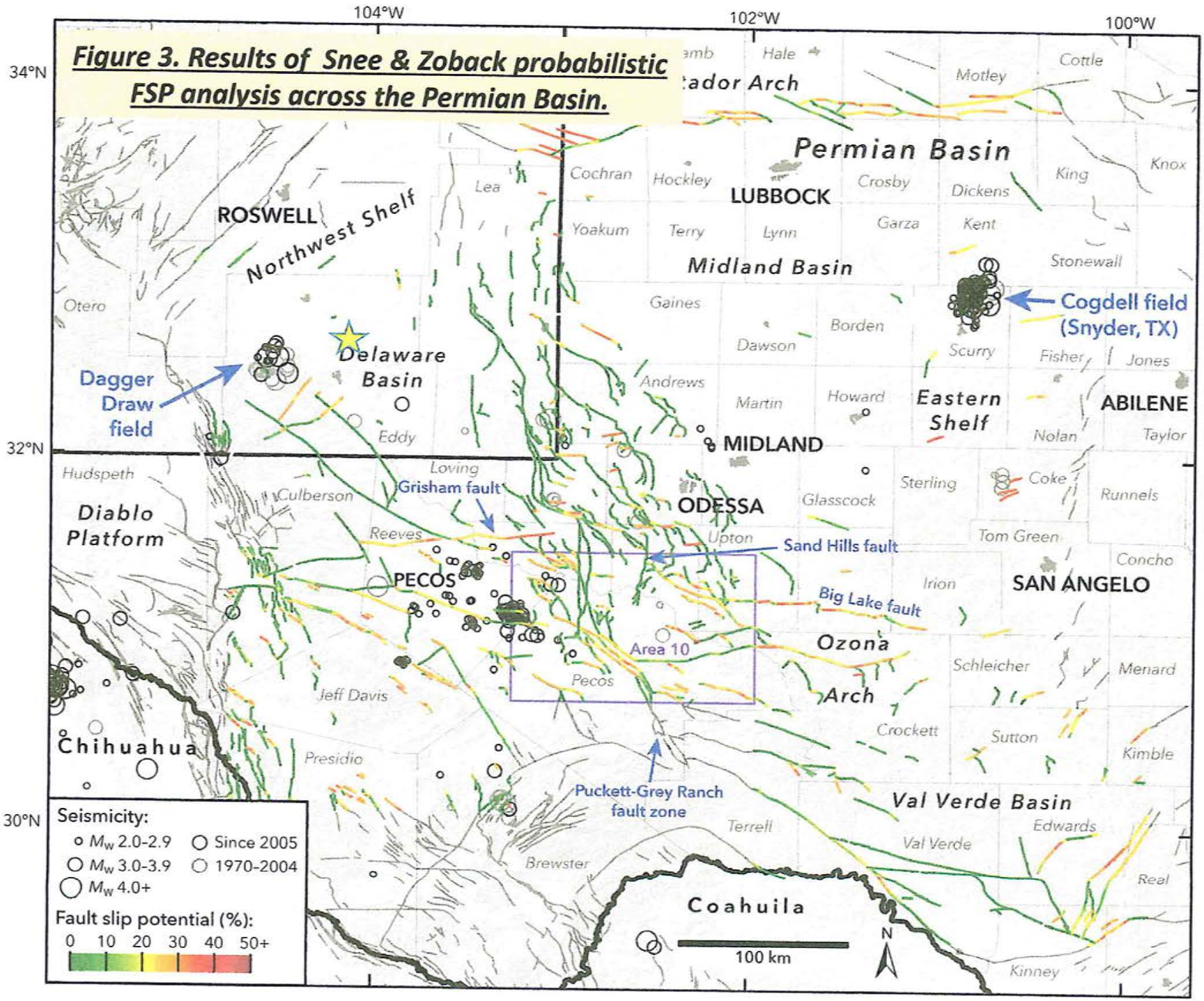
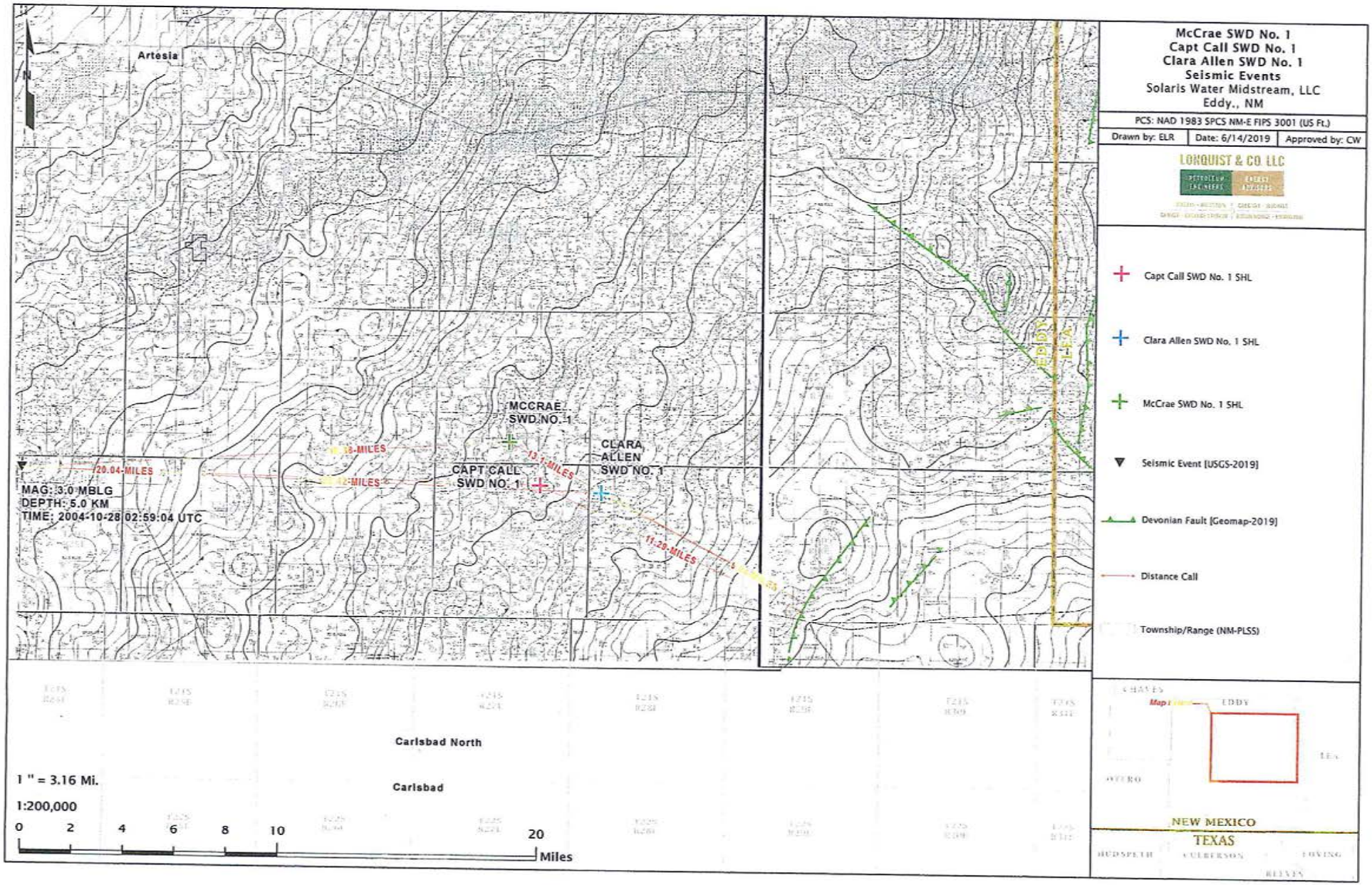


Figure 3. Results of Snee & Zoback probabilistic FSP analysis across the Permian Basin.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CLARA ALLEN SWD NO. 1
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Eddy., NM
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Drawn by: ELR
Date: 6/14/2019
Approved by: CW
LONQUIST & CO. LLC
Capt Call SWD No. 1 SHL
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McCrae SWD No. 1 SHL
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Devonian Fault [Geomap-2019]
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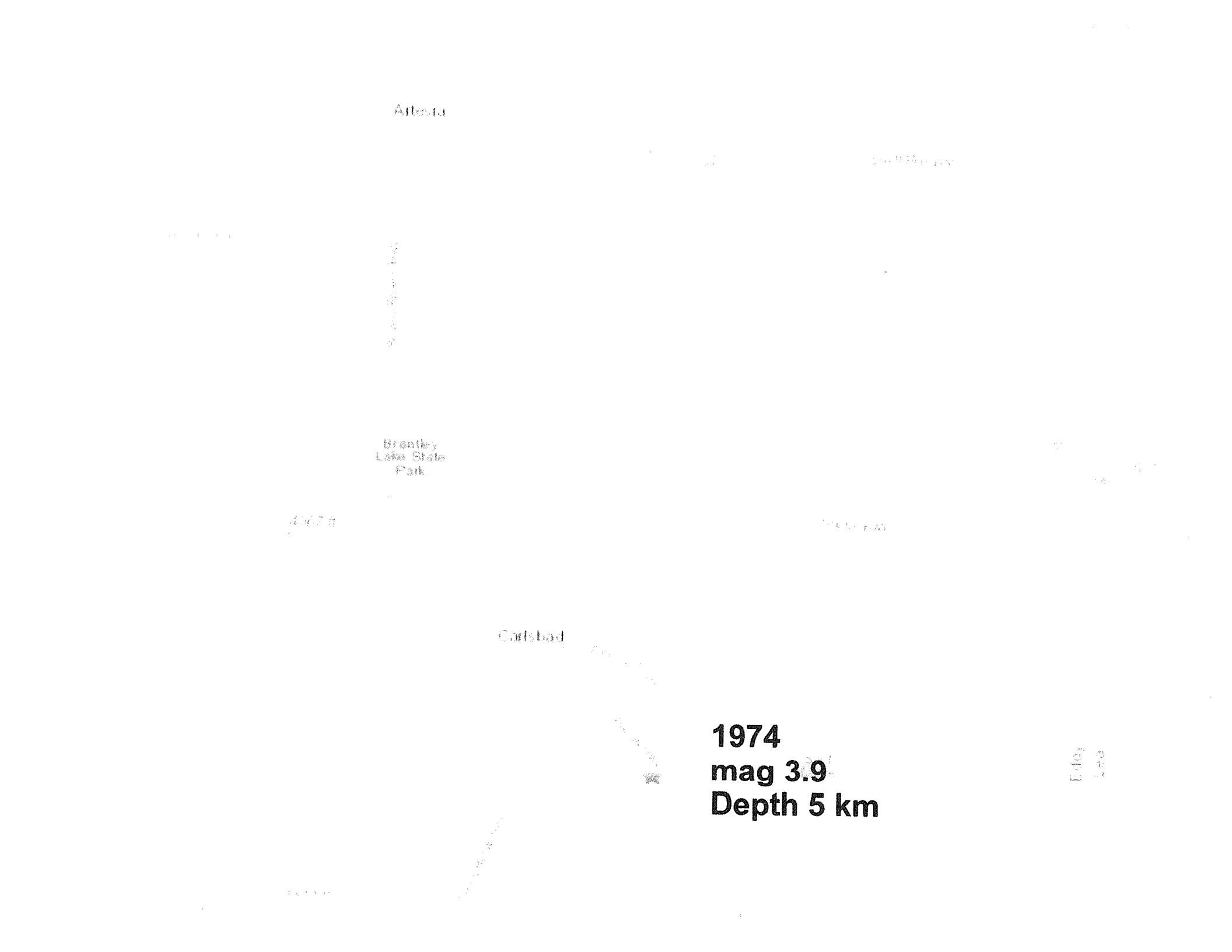
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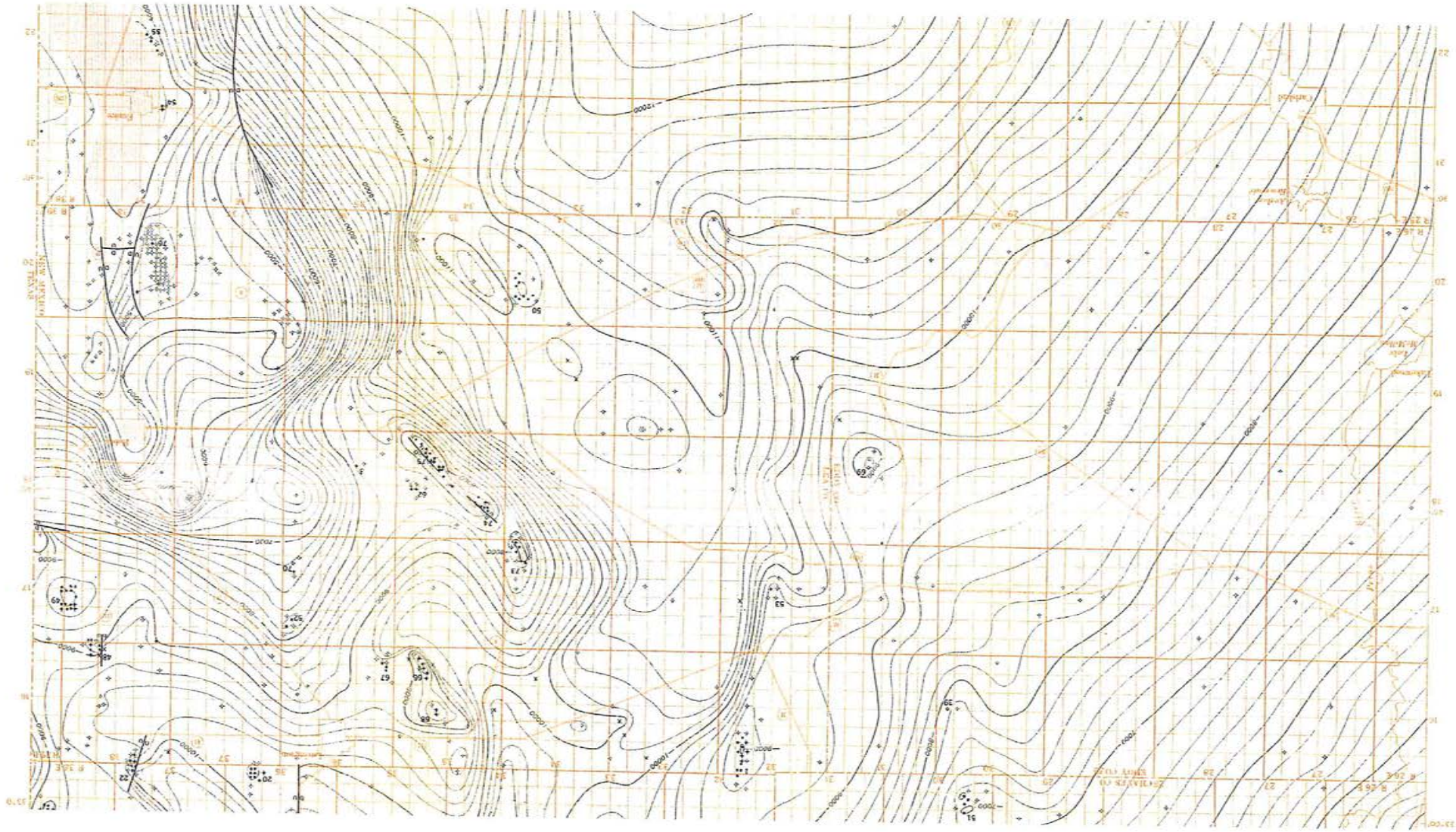

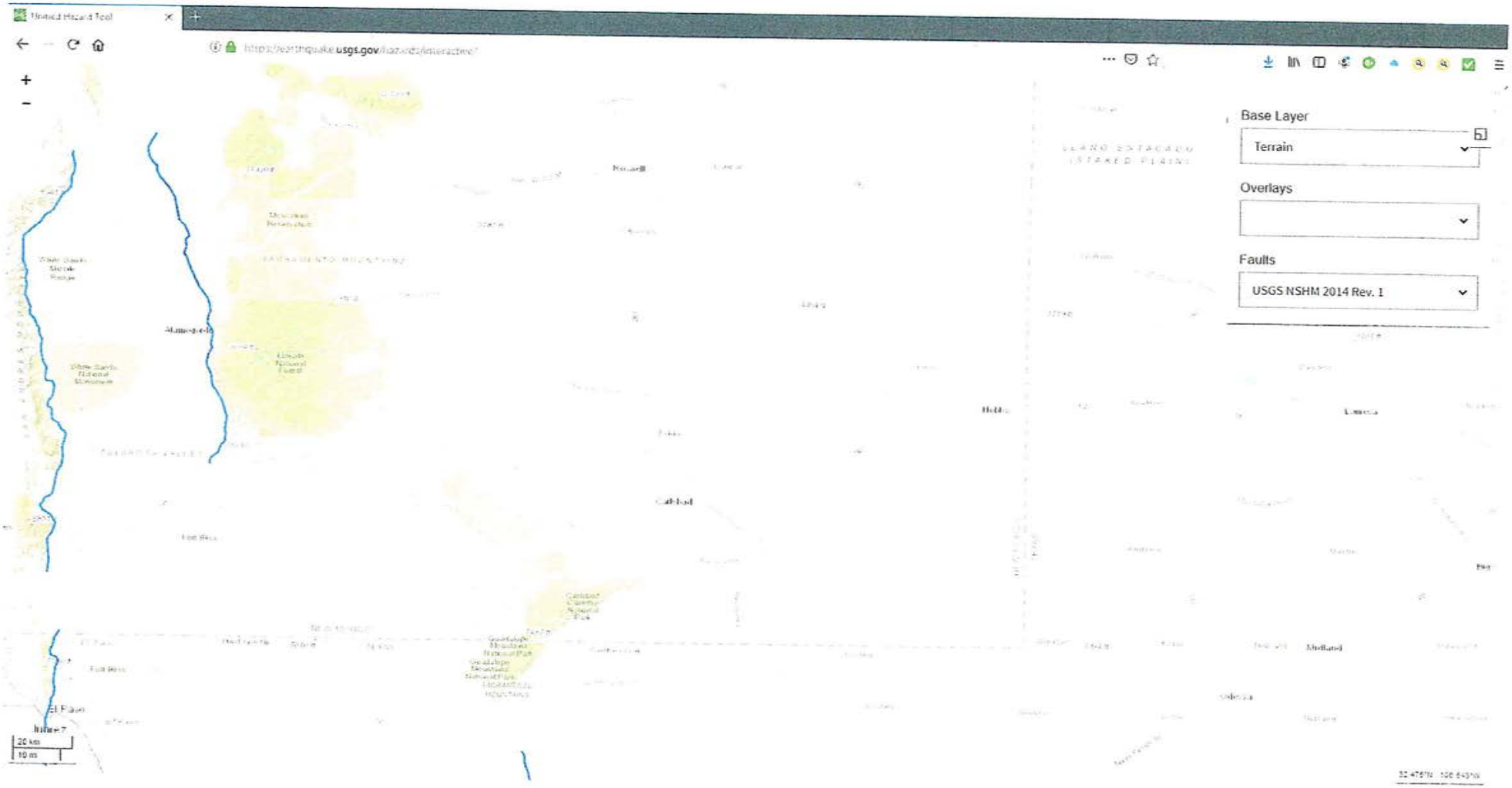
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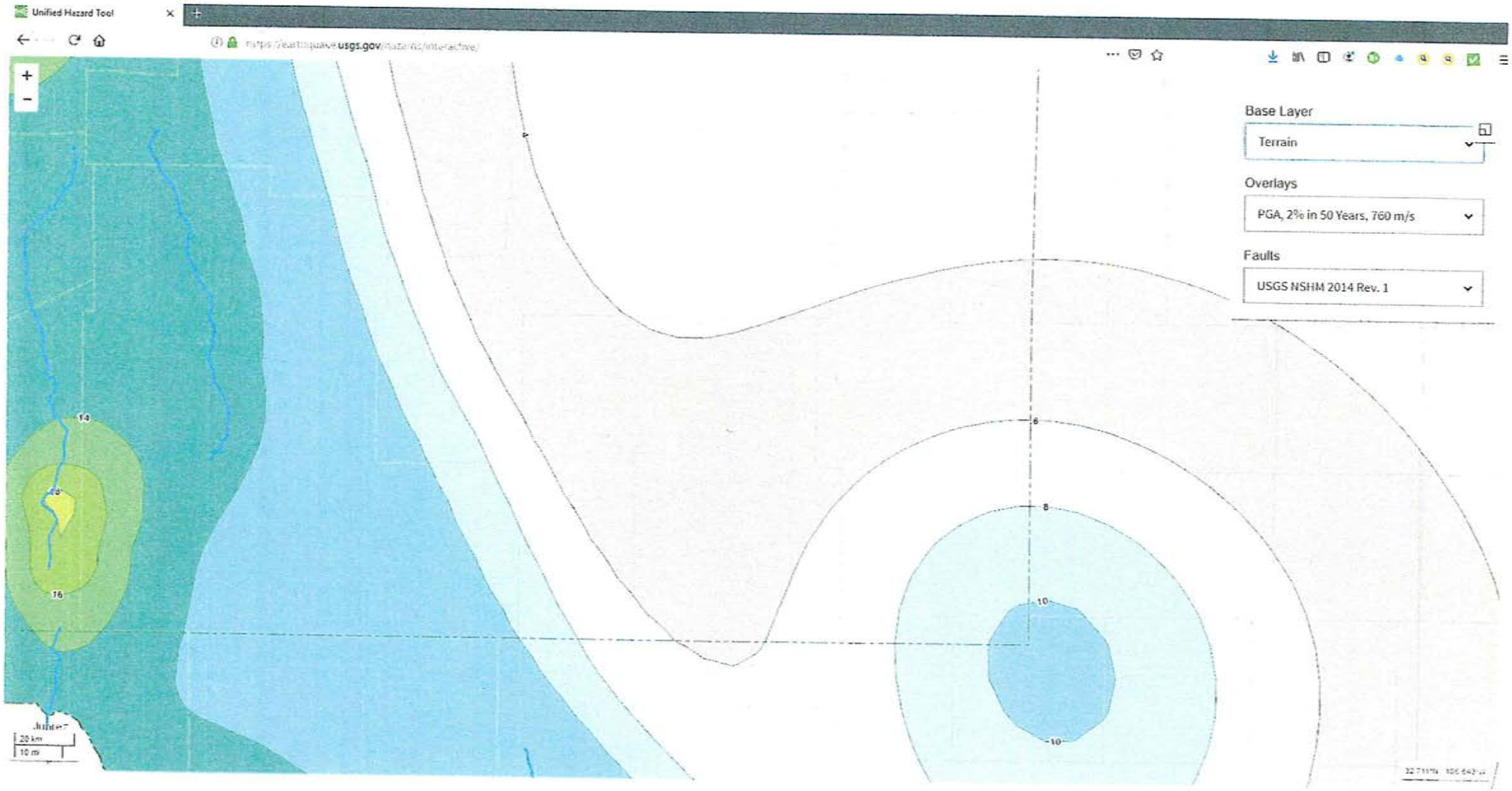
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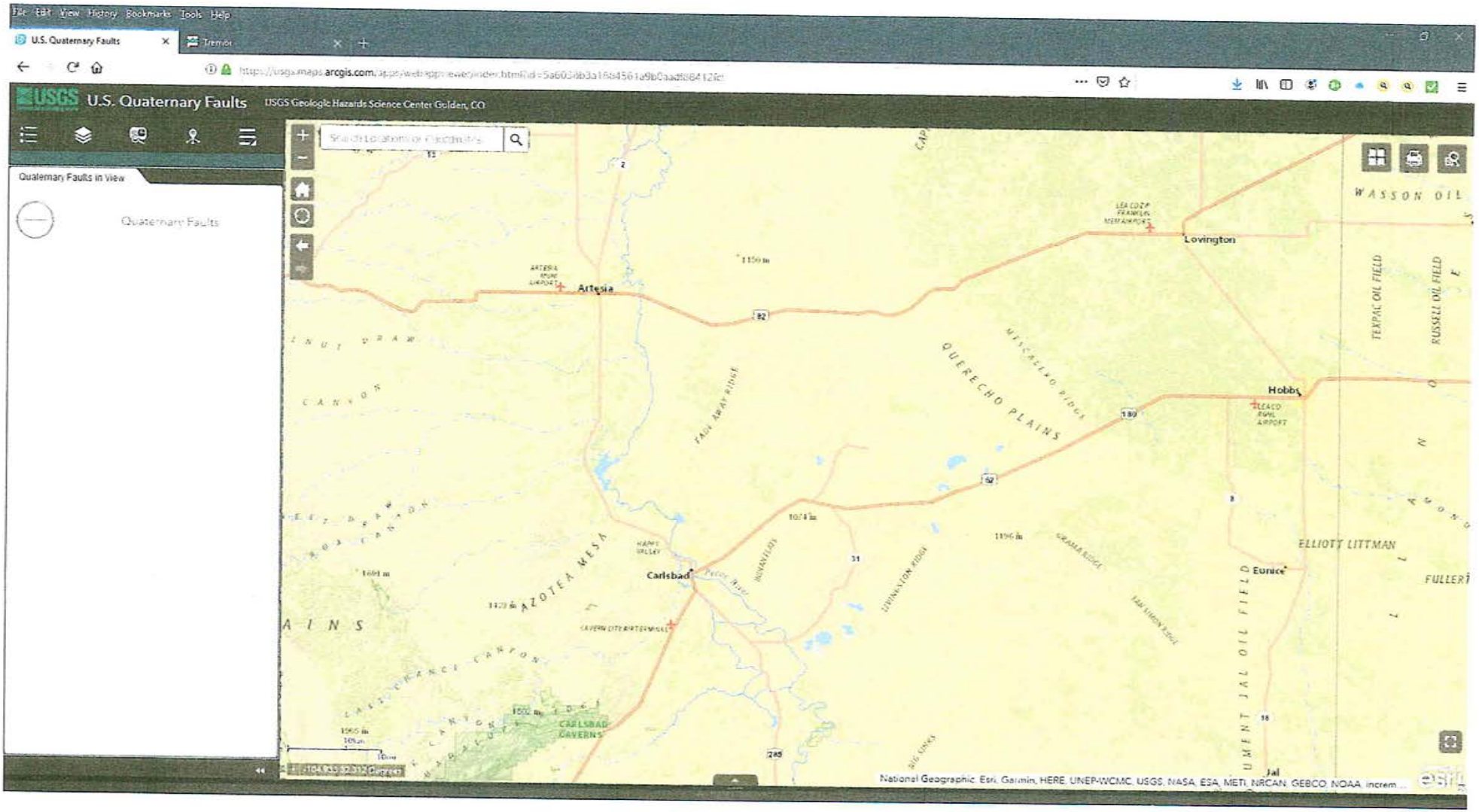
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UNITED STATES GEOLOGICAL SURVEY

15 KM SEISMIC EVENT SEARCH (1900 – 2019)

Basic Options

Magnitude

- (•) 2.5+
- ( ) 4.5+
- ( ) Custom

Minimum: 2.5

Maximum:

Date & Time

- ( ) Past 7 Days
- ( ) Past 30 Days
- (•) Custom

Start (UTC): 1900-06-05 00:00:00

End (UTC): 2019-06-12 23:59:59

Geographic Region

- ( ) World
- ( ) Conterminous U.S.
- (•) Custom

Custom Circle

- [illegible]
- [illegible]
- [illegible]

[illegible]

[-] Advanced Options

Geographic Region

[illegible]

North:

West: East:

South:

Circle

Center Latitude: 32.59391

Center Longitude: -104.11474

Outer Radius (km): 13

Depth (km)

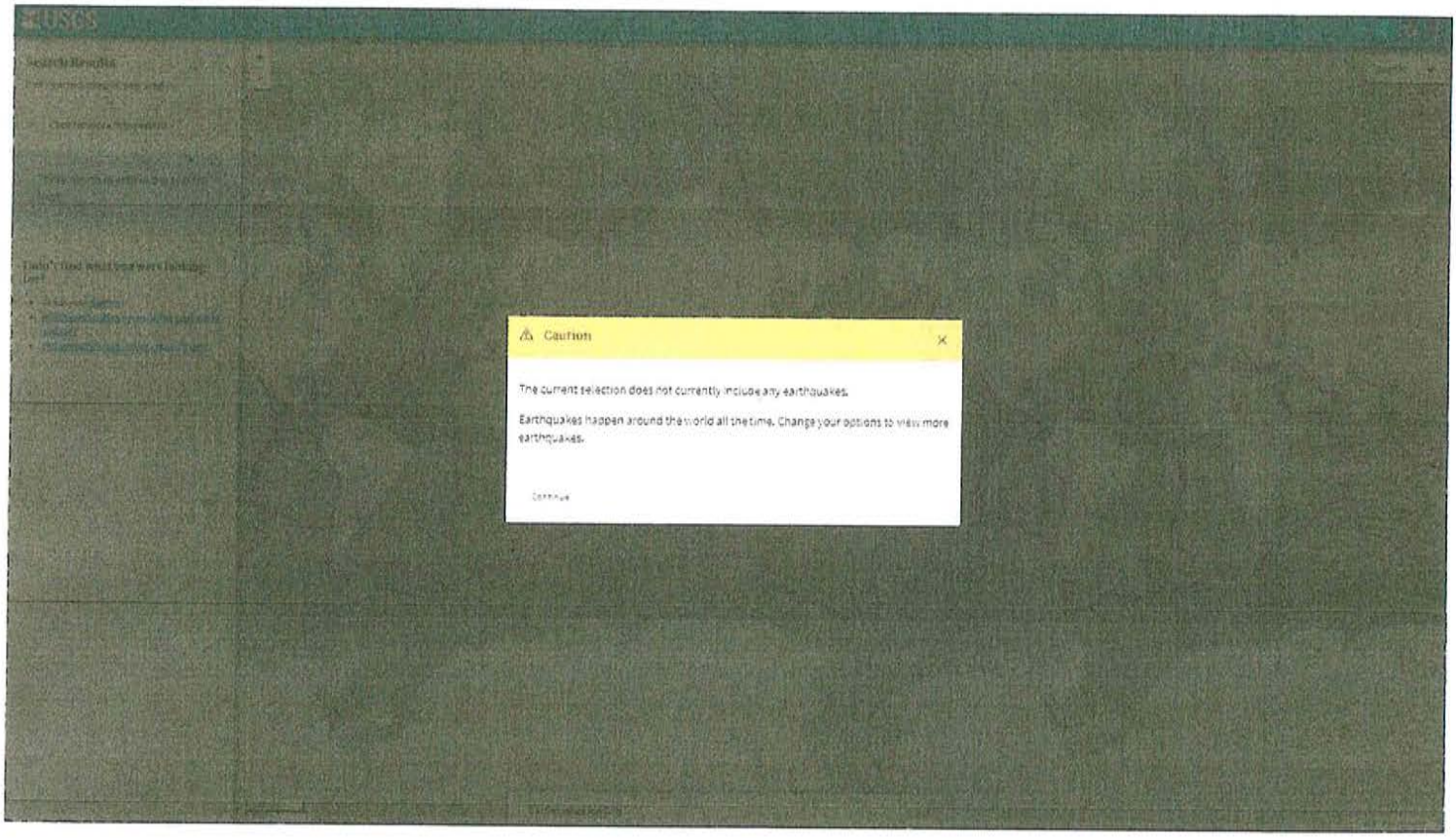
Minimum: Maximum:

Azimuthal Gap

Minimum: Maximum:

Review Status

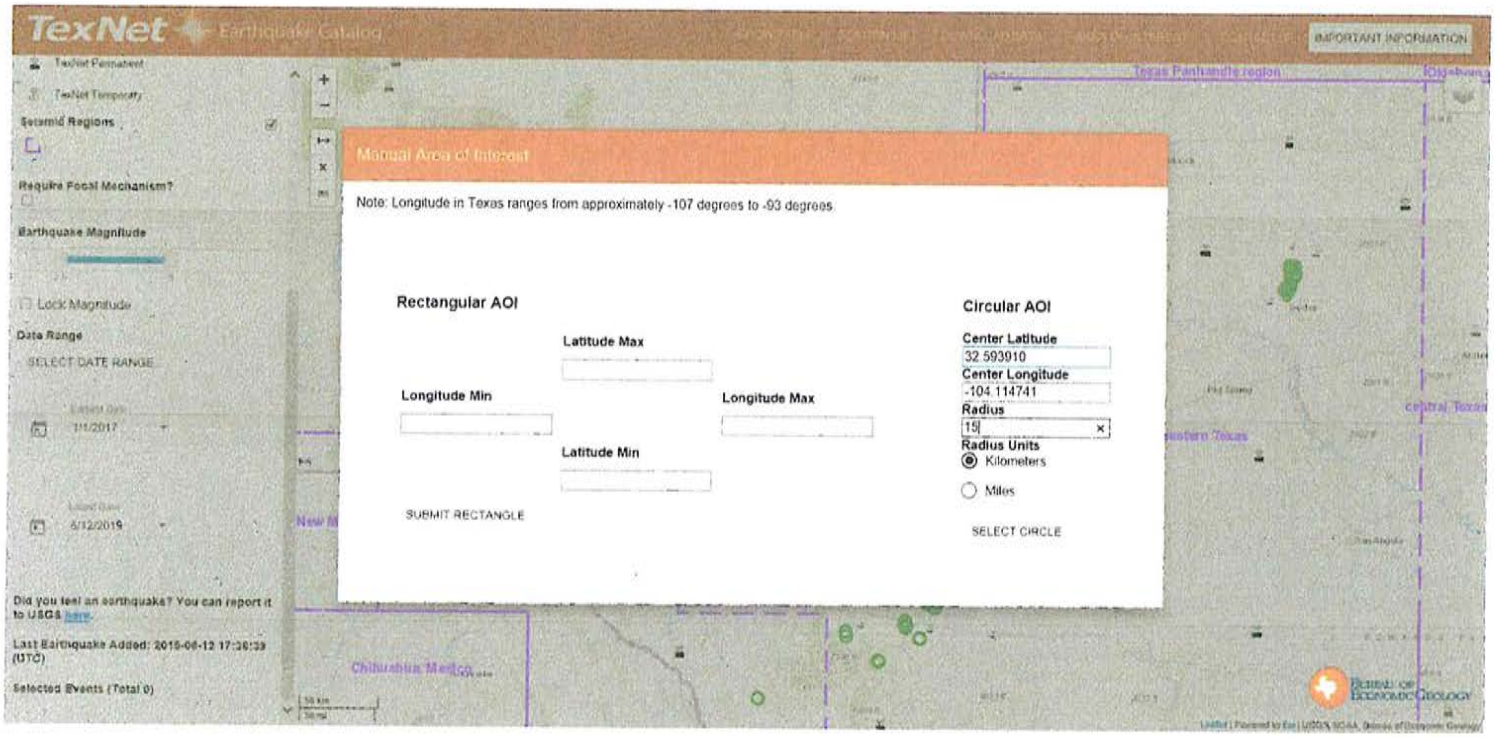
- (•) Any
- ( ) Automatic
- ( ) Reviewed


USGS
Caution
The current selection does not currently include any earthquakes.
Earthquakes happen around the world all the time. Change your options to view more earthquakes.

BUREAU OF ECONOMIC GEOLOGY

THE UNIVERSITY OF TEXAS AT AUSTIN

15 KM SEISMIC EVENT SEARCH (2017 – 2019)


TexNet Earthquake Catalog
IMPORTANT INFORMATION
TexNet Permanent
TexNet Temporary
Seismic Regions
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Earthquake Magnitude
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5/12/2019
Did you feel an earthquake? You can report it to USGS here.
Last Earthquake Added: 2019-06-12 17:36:39 (UTC)
Selected Events (Total 0)
Texas Panhandle region
Manual Area of Interest
Note: Longitude in Texas ranges from approximately -107 degrees to -93 degrees
Rectangular AOI
Latitude Max
Longitude Min
Longitude Max
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SUBMIT RECTANGLE
Circular AOI
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32.593910
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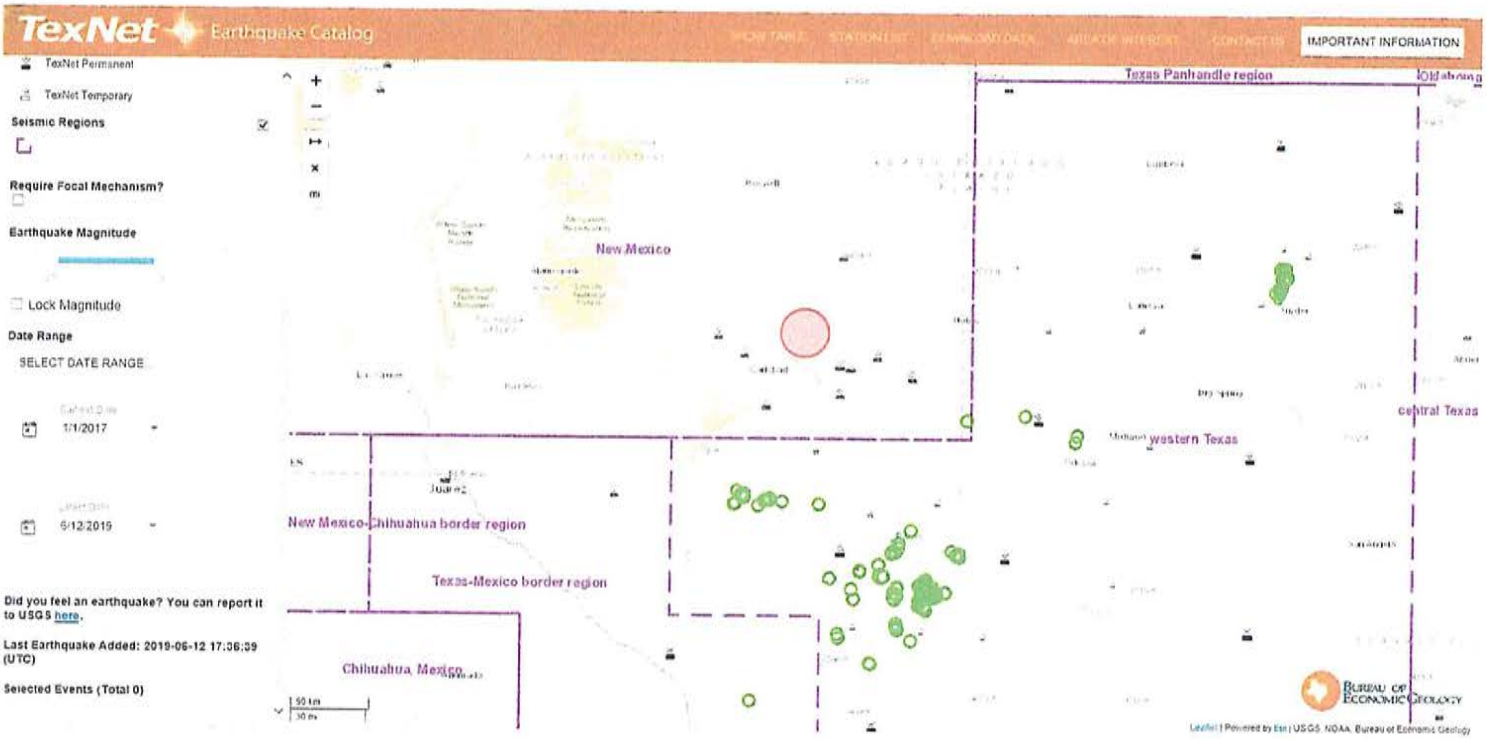
central Texas
western Texas
Chihuahua Mexico
Bureau of Economic Geology


TexNet Earthquake Catalog
IMPORTANT INFORMATION
TexNet Permanent
TexNet Temporary
Seismic Regions
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Earthquake Magnitude
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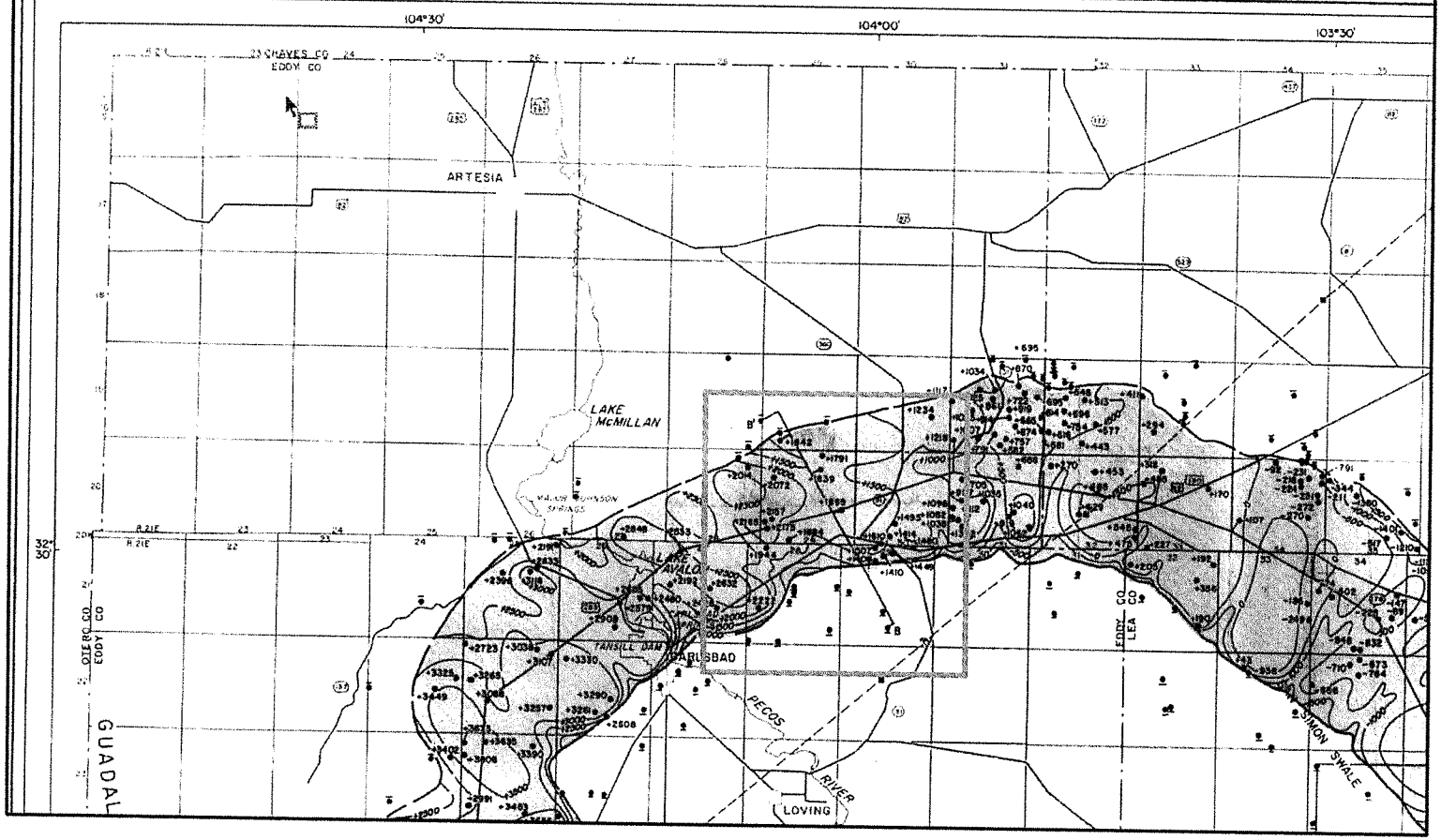
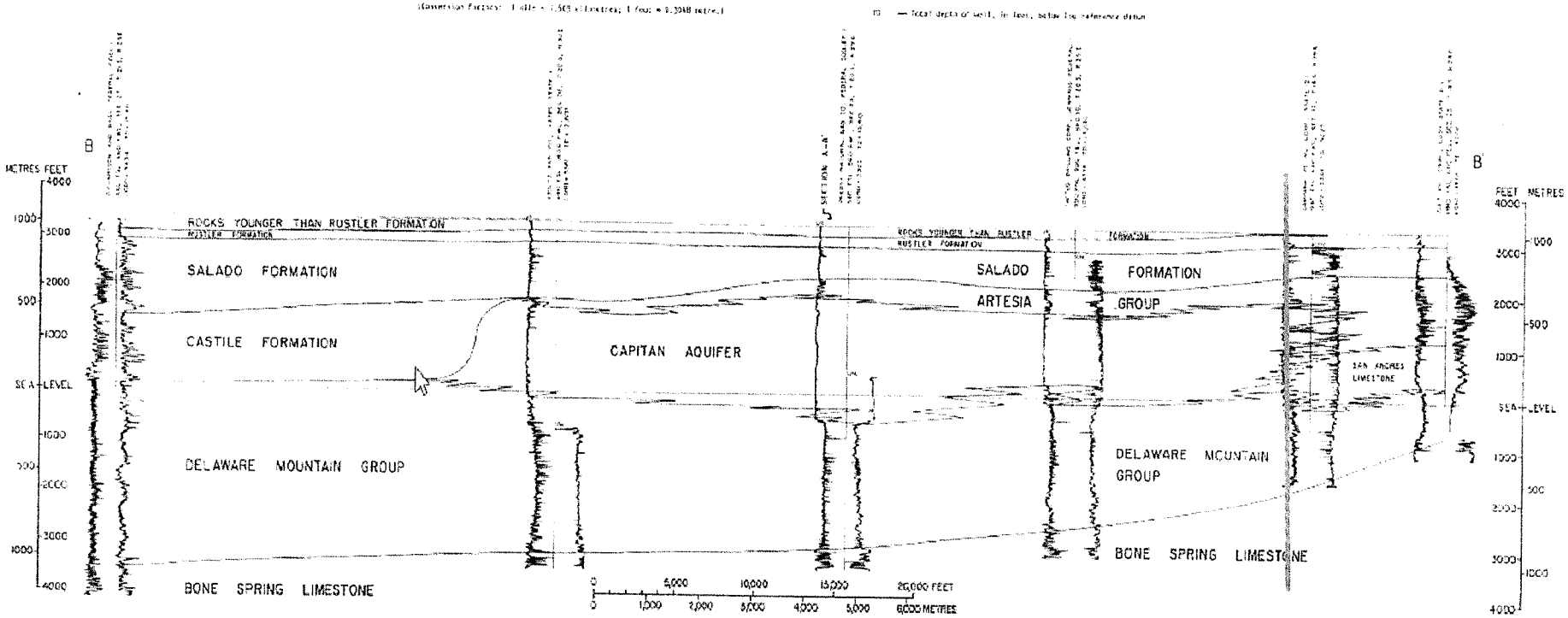
SELECT DATE RANGE
1/1/2017
6/12/2019
Did you feel an earthquake? You can report it to USGS here.
Last Earthquake Added: 2019-06-12 17:36:39 (UTC)
Selected Events (Total 0)
Texas Panhandle region
New Mexico
western Texas
central Texas
New Mexico-Chihuahua border region
Texas-Mexico border region
Chihuahua, Mexico
Bureau of Economic Geology

SOLARIS EXHIBIT 6

Published by
NEW MEXICO BUREAU OF MINES & MINERAL RESOURCES
A DIVISION OF NEW MEXICO INSTITUTE OF MINING AND TECHNOLOGY
1976

Prepared by
UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
in cooperation with
NEW MEXICO STATE ENGINEER





TRANSVERSE STRATIGRAPHIC SECTION B-B' SHOWING THE POSITION OF THE CAPITAN AQUIFER IN EASTERN EDDY COUNTY, NEW MEXICO

STRUCTURE OF THE PERMIAN GUADALUPIAN CAPITAN AQUIFER, SOUTHEAST NEW MEXICO AND WEST TEXAS

by W. L. HISS

SOLARIS EXHIBIT 7

STATE OF NEW MEXICO
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES
OIL CONSERVATION DIVISION

APPLICATION OF SOLARIS WATER MIDSTREAM, LLC FOR APPROVAL OF SALT WATER DISPOSAL WELL, EDDY COUNTY, NEW MEXICO. **CASE NO. 20587**

AFFIDAVIT OF STEPHEN M. MARTINEZ

I, Stephen M. Martinez, make the following affidavit based on my personal knowledge.

1. I am over eighteen (18) years of age and am otherwise competent to make the statements contained herein.

2. I am Sr. Vice President- Drilling for Solaris Water Midstream, LLC. My responsibilities include engineering review and management of all drilling related activities for the company.

3. I am a Petroleum Engineer with over 25 years of oil and gas experience, both domestic and international, specializing in the drilling and stimulation of both vertical and extended reach horizontal wells as well as deep, salt water disposal (SWD) wells. I hold a Bachelor of Science in Petroleum Engineering from Texas Tech University (1993).

4. I am familiar with the Solaris Water Midstream Application, filed in this matter for the Capt Call SWD #1. I have reviewed and am familiar with the data on proposed operations included in the Application, including the information required by Section VII of Form C-108.

5. I am familiar with the casing and tubing design proposed by Solaris as set forth in the Application and the wellbore diagram included in the Application.

6. The Injection Well Data Sheet includes a description of the casing information, including hole size, casing size, casing weight, setting depth, and other relevant information.

7. As set forth in Injection Well Data Sheet, Solaris proposes As set forth in Injection Well Data Sheet, Solaris proposes 5 ½" (21.4#) Internal Plastic Coated Tubing swaged down to 5" (18#) with a setting depth of 12,480 feet. A lok-set or equivalent packer will be set at 12,460 feet and representative packer details are included in Attachment 1 to the Application.

8. I have also reviewed the proposed operations set forth in Section VII of the Application, including injection rates, the use of a closed system, the proposed injection pressures, the source water analysis, and the injection formation water analysis.

9. Based on my knowledge and experience, it is my opinion that the casing and tubing proposed will be safe and adequate to prevent leakage, and will prevent the movement of injected fluid from the injection zone into another zone or to the surface around the outside of a casing string.

10. Based on my knowledge and experience, it is my opinion that the well will be equipped and operated in manner that will facilitate periodic testing and assure continued mechanical integrity and that there will be no significant leaks or movement of fluid through vertical channels adjacent to the well bore.

11. Based on my knowledge and experience, it is my opinion that the well will be operated and maintained so as to confine the injected fluids to the intervals approved and will prevent surface damage or pollution resulting from leaks, breaks or spills.

Stephen M. Martinez

SUBSCRIBED AND SWORN to before me this 10 day of July, 2019 by July

_____.

Bonnie Atwater
Notary Public

My commission expires: 1·26·21

BONNIE ATWATER
Notary Public, State of Texas
Notary ID 318441-3
My Commission Exp. 01-26-2021

SOLARIS EXHIBIT 8

June 6, 2019

Oil Conservation Division
Geological and Engineering Bureau
1220 South St. Francis Drive
Santa Fe NM 87505

Re: C-108 Application for Authorization to Inject
Solaris Water Midstream, LLC
McCrae SWD #1
Section 33, Twp 19S, Rge 28E
Eddy County, New Mexico

To Whom It May Concern:

Apache Corporation would like to express its full support for the permitting of Solaris Water Midstream, LLC's proposed McCrae SWD #1 well in Eddy County.

Apache is actively developing conventional and unconventional resources by horizontal drilling in this immediate area. Produced water disposal capacity is extremely limited in this area of Eddy County and western Lea County, and in order to effectively and efficiently develop the resources in this area Apache, as well as others, need the additional disposal capacity this project will provide.

Properly permitted and operated disposal wells such as this proposed facility, into disposal zones which alleviate concerns of seismic activity and have no negative impacts to oil and gas production, are vital to operators developing the resources of New Mexico. Apache supports the Division's favorable review and permitting of this proposed disposal well.

Thank you for the opportunity to provide support to the applicant.

Sincerely,

R. Mark Henkhaus, PE
Regulatory Manager
Permian Region

Cc: katy.welch@solarismidstream.com (via email)