Initial Application Part I

Received: **10/09/2019**

This application is placed in file for record. It has been reviewed and determined Administratively Complete.

October 9, 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: CLARA ALLEN 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") Clara Allen 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 Solaris Water Midstream, LLC's agent Lonquist & Co., LLC.

Regards,

Ramona K. 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: CLARA ALLEN SWD No. 1 **API:** TBD
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.

October 8, 2019
Date

Ramona K. Hovey
Print or Type Name

512-600-1777
Phone Number

Ramona K Hovey
Signature

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: 10/8/2019

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.

INJECTION WELL DATA SHEET

OPERATOR: Solaris Water Midstream, LLC

WELL NAME & NUMBER: Clara Allen SWD No. 1

WELL LOCATION:	275’ FNL 1,000 FEL	A	7	20S	29E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 26.000”

Casing Size: 20.000”

Cemented with: 1,400 sx.

or _____ ft^3

Top of Cement: surface

Method Determined: circulation

1st Intermediate Casing

Hole Size: 18.125”

Casing Size: 16.000”

Cemented with: 546 sx.

or _____ ft^3

Top of Cement: surface

Method Determined: circulation

2nd Intermediate Casing

Hole Size: 14.750”

Casing Size: 13.375”

Cemented with: 481 sx.

or _____ ft^3

Top of Cement: surface

Method Determined: circulation

Production Casing

Hole Size: 12.250”

Casing Size: 9.625”

Cemented with: 2,048 sx.

or _____ ft^3

Top of Cement: surface

Method Determined: circulation

Liner

Hole Size: 8.500”

Casing Size: 7.625”

Cemented with: 277 sks

or _____ ft^3

Top of Cement: 8,960’

Method Determined: calculation

Total Depth: 14,310’

Injection Interval

12,510 feet to 14,310 feet

(Open Hole)

INJECTION WELL DATA SHEET

Tubing Size: 5.5", 20 lb/ft, HCL-80, BTC from 0' – 8,760' and 5", 18 lb/ft, HCL-80 LTC from 8,760' – 12, 460'
Lining Material: Duoline

Type of Packer: 7-5/8"" X 5-1/2" Permanent Packer with High Temp Elastomer and Full Inconel 925 trim

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:

   Delaware: 2,999'
   Bone Spring: 4,660'
   Wolfcamp: 9,060'
   Strawn: 10,060'
   Atoka: 10,385'

Solaris Water Midstream, LLC

Clara Allen SWD No. 1

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1.

Well information	
Lease Name	Clara Allen SWD
Well No.	1
Location	S-7 T-20S R-29E
Footage Location	275’ FNL & 1,000’ FEL

2.

a. Wellbore Description

Casing Information					
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”	18.125”	14.75"	12.25”	8.5”
Depth Set	480”	1,374’	3,000’	9,160’	8,960’-12,510’

b. Cementing Program

Cement Information					
Casing String	Surface	Intermediate 1	Intermediate 2	Production	Liner
Lead Cement	-	NeoCem™	NeoCem™	Stage 1: NeoCem™ Stage 2: VersaCem™	-
Lead Cement Volume (sacks)	-	238	306	Stage 1: 1080 Stage 2: 341	-
Lead Cement Density (ft3/sack)	-	2.767	2.767	Stage 1: 2.731 Stage 2: 2.731	-
Tail Cement	HALCEM™	HALCEM™	HALCEM™	Stage 1: VersaCem™ Stage 2: VersaCem™	VersaCem™
Tail Cement Volume (sacks)	1400	308	175	Stage 1: 577 Stage 2: 50	277
Tail Cement Density (ft3/sack)	1.347	1.441	1.441	Stage 1: 1.222 Stage 2: 1.334	1.223
Cement Excess	150%	75%	75%	50%,	25%
Total Sacks	1400	546	481	2048	277
TOC	Surface	Surface	Surface	Surface	8,960’
Method	Circulate to Surface	Circulate to Surface	Circulate to Surface	Circulate to Surface	Logged

3. Tubing Description

Tubing Information	
OD	5.5” 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’

Tubing will be lined with Duoline.

4. Packer Description

   7-5/8" x 5-1/2" TCPC Permanent Packer with High Temp Elastomer and Full Inconel 925 trim

B. Completion Information

1. Injection Formation: Devonian
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
Delaware	2,999'
Bone Spring	4,660'
Wolfcamp	9,060'
Strawn	10,060'
Atoka	10,385'

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 Bone Spring and Wolfcamp formations. Attached are produced water sample analyses taken from the closest wells that feature samples from the Artesia, Bone Spring, Delaware, Morrow, Strawn, 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 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: Devonian-Silurian Formation

Formation	**Depth**
Salado	464’
Tansill	786’
Yates	991’
1st Capitan Reef	1,424’
Queen	2,220’
2nd Capitan Reef	2,286’
Delaware	2,999’
Bone Spring	4,660’
Wolfcamp	9,060’
Strawn	10,060’
Atoka	10,385’
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. Across the area, fresh water wells are usually drilled between 28' and 300' in depth. Water depths range from 22' – 115'. The Rustler is known to exist in this general area and may also be another USDW and will be protected by setting the surface casing at the top of the Salado at 464' and putting the Salado behind pipe with the 1st intermediate casing set 50' above the Capitan Reef at 1,374'.

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, chemical analysis of fresh water wells are not required for this application. However, attached is a chemical analysis of CP-00926, a water well that exists approximately 1.25 miles away from the proposed well. This attachment is provided solely for reference.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico

Energy Minerals 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 30-025-TBD

4. Property Code	5. Property Name	6. Well No.
	CLARA ALLEN SWD	1

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
A	7	20S	29E		275	N	1,000	E	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	3,282'
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
N	14,310'	Devonian-Silurian	TBD	ASAP

Depth to Ground water	Distance from nearest fresh water well	Distance to nearest surface water
79'	4,911'	> 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	26"	20"	94 lb/ft	480'	1,400	Surface
Intermediate 1	18-1/8"	16"	84 lb/ft	1,374'	546	Surface
Intermediate 2	14-3/4"	13-3/8"	68 lb/ft	3,000'	481	Surface
Production	12-1/4"	9-5/8"	53.5 lb/ft	9,160'	2,048	Surface
Liner	8-1/2"	7-5/8"	39 lb/ft	8,960' – 12,510'	277	8,960'
Tubing		5-1/2" & 5"	20 lb/ft & 18 lb/ft	0' – 8,760' & 8,760' – 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: October 3, 2019 / Phone: 512-600-1777	Conditions of Approval Attached

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
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1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
	97869	SWD; DEVONIAN-SILURIAN

[4] Property Code	[5] Property Name	[6] Well Number
	CLARA ALLEN SWD	1

[7] OGRID No.	[8] Operator Name	[9] Elevation
371643	SOLARIS WATER MIDSTREAM, LLC	3282'

[10] Surface Location

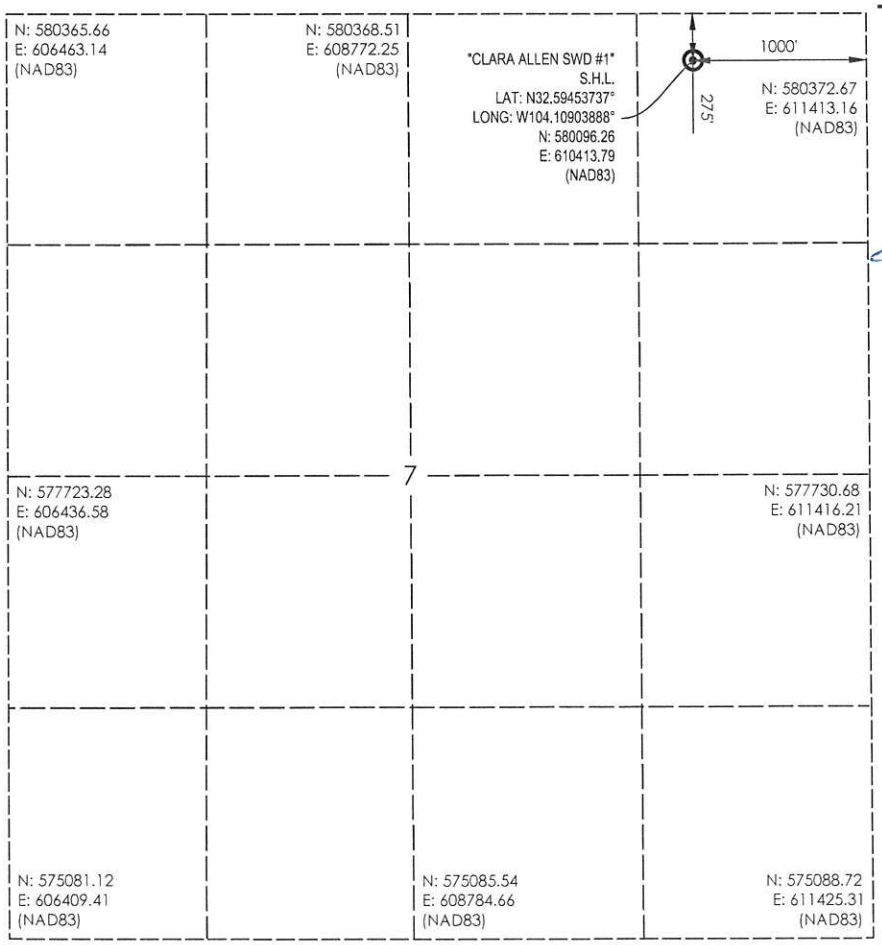
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	7	20 S	29 E		275'	NORTH	1000'	EAST	EDDY

[11] 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

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] 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.



[17] 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 Hovey 10/8/19
Signature Date

RAMONA K. HOVEY
Printed Name

ramona@longuist.com
E-mail Address

[18] SURVEYOR CERTIFICATION

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

9/17/19
Date of Survey

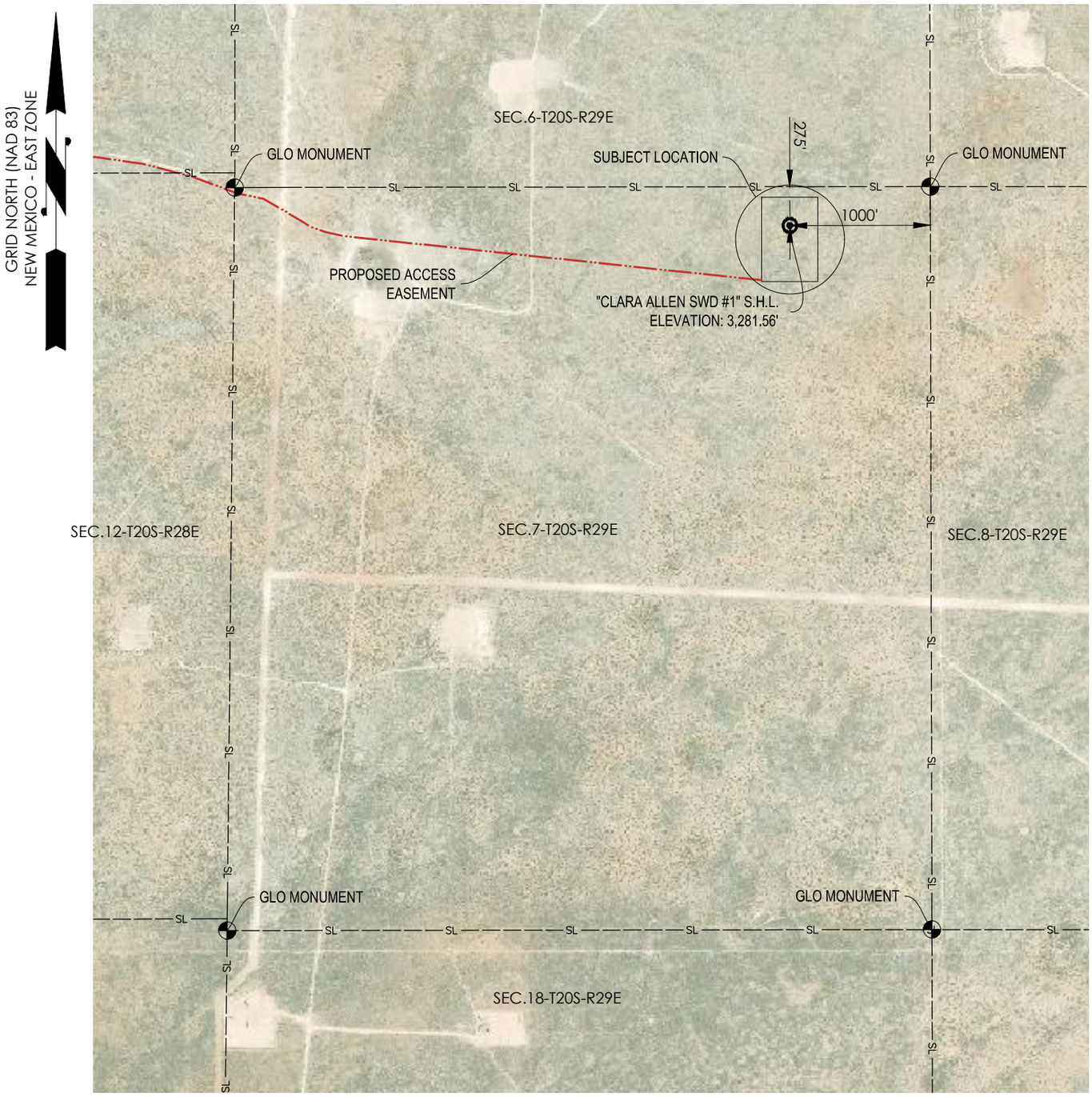
Signature and Seal of Professional Surveyor

SHANNON DOLMENT
NEW MEXICO
23783
9/17/2019
REGISTERED PROFESSIONAL SURVEYOR

Certificate Number

1000 Ledgelawn Drive
Conway, Arkansas 72034
501.328.3316 t 501.328.3325 f
www.craftontull.com
Crafton Tull
SURVEYING

WELL PAD
LOCATION OVERVIEW



REFERENCE	ELEVATION	NAD83 (1986)		NAD27	
	NAVD 88	STATE PLANE NEW MEXICO EAST	GEOGRAPHIC	STATE PLANE NEW MEXICO EAST	GEOGRAPHIC
S. H. L.	3,281.56'	N: 580096.26 E: 610413.79	LAT: 32.59453737° LONG: -104.10903888°	N: 580034.56 E: 569233.59	LAT: 32.59441933° LONG: -104.10853328°

CALLS FROM SECTION LINE

S.H.L.	275' FNL, 1,000' FEL (SEC. 7)

DISTANCE & DIRECTION
FROM HWY JCT OR TOWN: ±11.0 MILES NORTHEAST OF CARLSBUD, NEW MEXICO
FROM THE INTERSECTION OF N CANAL ST AND GEORGIA SHOUP RELIEF RTE, HEAD NORTH ON N CANAL ST FOR ±0.7 MILES TO ILLINOIS CAMP RD, CONTINUE NORTH ONTO ILLINOIS CAMP RD FOR ±7.5 MILES, TURN RIGHT ONTO ANGEL RANCH RD AND HEAD EAST FOR ±5.8 MILES, TURN LEFT ONTO BUCKSKIN RD, HEAD NORTH FOR ±2.0 MILES, TURN RIGHT ONTO THE PROPOSED LEASE ROAD, HEAD EAST FOR ±1.6 MILES TO LOCATION.

GRAPHIC SCALE IN FEET
1000' 500' 0 1000'

REVISION	
--	---

"CLARA ALLEN SWD #1"

PROPOSED PAD AND ACCESS EASEMENT SURVEY
HARLEY W. & CAROL J. BALLARD
S. 7-T20S-R29E
EDDY COUNTY, NEW MEXICO

SOLARIS WATER MIDSTREAM

SCALE: 1" = 1000'	CHECKED BY: KD	APPROVED BY: LG
PLOT DATE: 09-17-2019	DRAWN BY: L.DOW	SHEET NO.: 1 OF 4

G:\8907 SOLARIS WATER MIDSTREAM\8907SV0051 CLARA ALLEN SWD #1\CLARA ALLEN SWD #1 BASE_&_PLATS.DWG 9/17/2019 8:55:38 AM LD1165

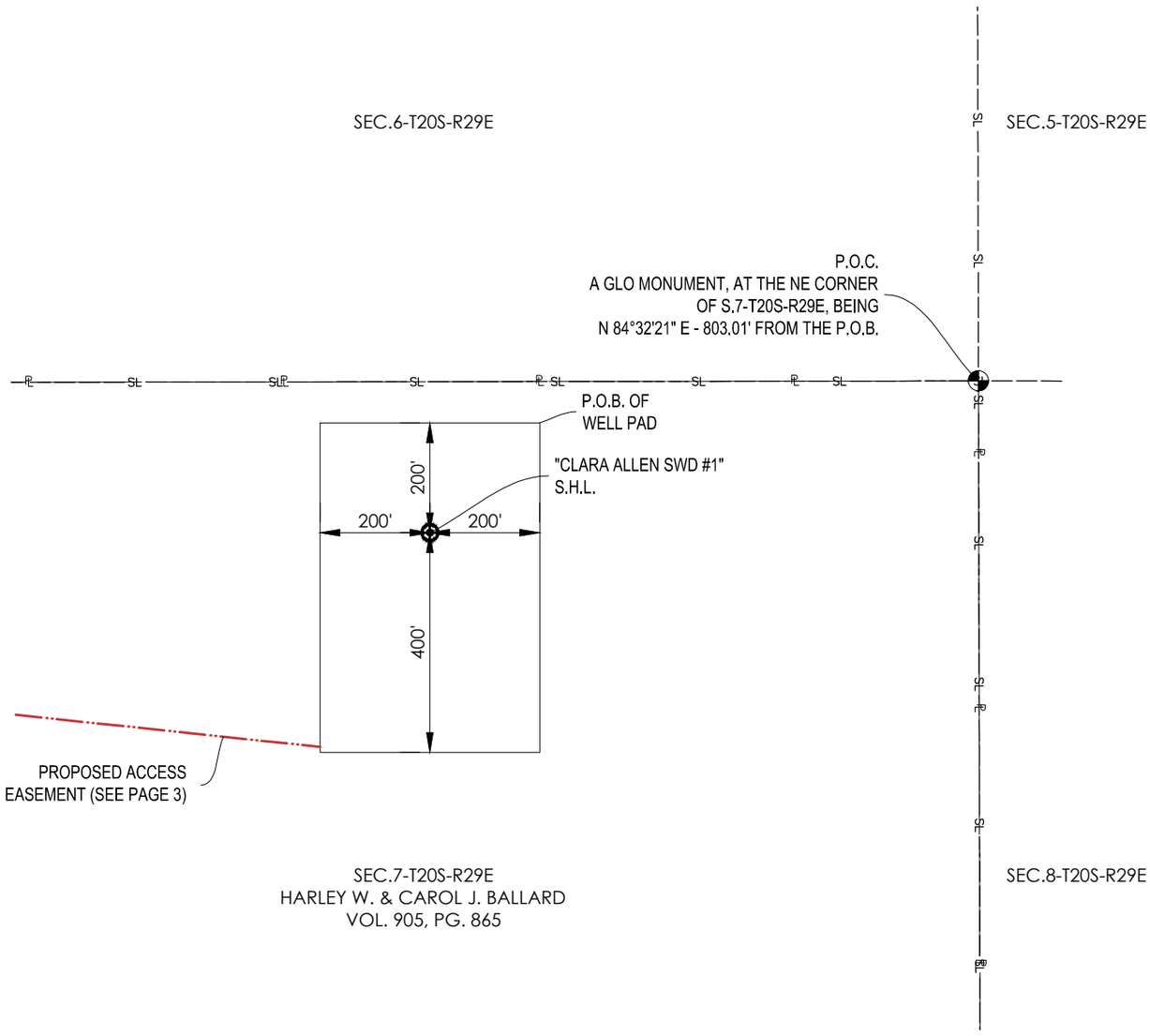
1000 Ledgelawn Drive
Conway, Arkansas 72034
501.328.3316 t 501.328.3325 f
www.craftontull.com
Crafton Tull
SURVEYING

PROPOSED PAD
(5.51 ACRES)

LEGEND

SL	SECTION LINE
PL	PROPERTY LINE
	EXISTING PIPELINE ROUTE
OHE	OVERHEAD ELECTRIC
	FENCE
	EDGE OF EXISTING ROAD
	CL OF PROPOSED ACCESS EASEMENT
	EDGE OF PROPOSED ACCESS EASEMENT
	EDGE OF PROPOSED PAD
P.O.C.	POINT OF COMMENCEMENT
P.O.B.	POINT OF BEGINNING
P.O.T.	POINT OF TERMINATION
LF	LINEAR FEET
	POWER POLE
	PROPOSED WELL LOCATION
	EXISTING WELL LOCATION
	FOUND MONUMENT (AS NOTED)

GRID NORTH (NAD 83)
NEW MEXICO - EAST ZONE



LINE #	BEARING	DISTANCE
L1	SOUTH	600'
L2	WEST	400'
L3	NORTH	600'
L4	EAST	400'

SHANNON D. OZMENT
NEW MEXICO
23783
9/17/2019
LICENSED PROFESSIONAL SURVEYOR

GRAPHIC SCALE IN FEET
300' 150' 0 300'

GENERAL NOTES
1. THE LOCATIONS OF UNDERGROUND UTILITIES AS SHOWN HEREON ARE BASED ON REASONABLE VISUAL OBSERVATION. LOCATIONS OF UNDERGROUND UTILITIES/ STRUCTURES MAY VARY FROM LOCATIONS SHOWN HEREIN. ADDITIONAL BURIED UTILITIES/ STRUCTURES MAY BE ENCOUNTERED. NO EXCAVATIONS WERE MADE DURING THE PROGRESS OF THIS SURVEY TO LOCATE BURIED UTILITIES/ STRUCTURES, BEFORE EXCAVATIONS ARE BEGUN, THE OFFICES OF THE VARIOUS UTILITIES SERVICING THIS AREA SHOULD BE CONTACTED FOR THEIR UTILITY LOCATION.
2. BASIS OF BEARINGS : NEW MEXICO STATE PLANE GRID, EAST ZONE, NAD83 AS DETERMINED BY GPS OBSERVATION.
3. VERTICAL DATUM IS NAVD 88
4. AREAS, DISTANCES, AND COORDINATES ARE "GRID" BASED ON U.S. SURVEY FEET.
5. THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY.
6. ALL LEASE AND TRACT INFORMATION SHOWN HERE ON IS DONE SO BY LIMITED DEED RECORD INFORMATION ONLY. ALL ACREAGE SHOWN ARE BY DEED AND LEASE CALL EXCEPT WHERE NOTED.

REVISION	
--	---

"CLARA ALLEN SWD #1"

PROPOSED PAD AND ACCESS EASEMENT SURVEY
HARLEY W. & CAROL J. BALLARD
S. 7-T20S-R29E
EDDY COUNTY, NEW MEXICO

SOLARIS WATER MIDSTREAM

SCALE: 1" = 300'	CHECKED BY: KD	APPROVED BY: LG
PLOT DATE: 09-17-2019	DRAWN BY: L.DOW	SHEET NO.: 2 OF 4

G:\8907 SOLARIS WATER MIDSTREAM\8907SV0051 CLARA ALLEN SWD #1\CLARA ALLEN SWD #1 BASE_&_PLATS.DWG 9/17/2019 8:56:24 AM LD1165

1000 Ledgelawn Drive
Conway, Arkansas 72034
501.328.3316 t 501.328.3325 f
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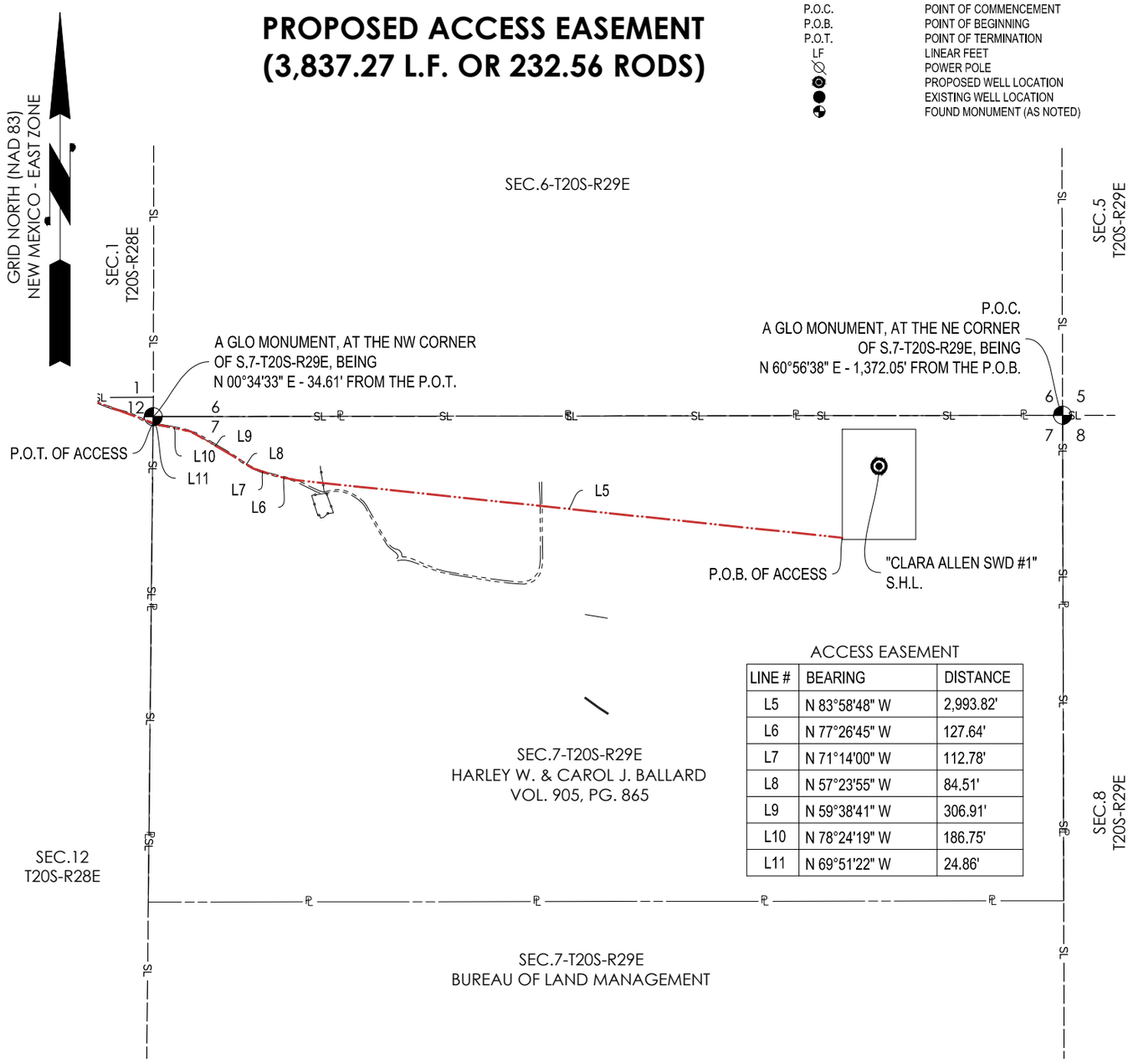
Crafton Tull
SURVEYING

PROPOSED ACCESS EASEMENT
(3,837.27 L.F. OR 232.56 RODS)

LEGEND

SL	SECTION LINE
PL	PROPERTY LINE
	EXISTING PIPELINE ROUTE
OHE	OVERHEAD ELECTRIC
	FENCE
	EDGE OF EXISTING ROAD
	CL OF PROPOSED ACCESS EASEMENT
	EDGE OF PROPOSED ACCESS EASEMENT
	EDGE OF PROPOSED PAD
P.O.C.	POINT OF COMMENCEMENT
P.O.B.	POINT OF BEGINNING
P.O.T.	POINT OF TERMINATION
LF	LINEAR FEET
	POWER POLE
	PROPOSED WELL LOCATION
	EXISTING WELL LOCATION
	FOUND MONUMENT (AS NOTED)



ACCESS EASEMENT

LINE #	BEARING	DISTANCE
L5	N 83°58'48" W	2,993.82'
L6	N 77°26'45" W	127.64'
L7	N 71°14'00" W	112.78'
L8	N 57°23'55" W	84.51'
L9	N 59°38'41" W	306.91'
L10	N 78°24'19" W	186.75'
L11	N 69°51'22" W	24.86'

SITE COORDINATES

REFERENCE	ELEVATION	NAD83 (1986)		NAD27	
	NAVD 88	STATE PLANE NEW MEXICO EAST	GEOGRAPHIC	STATE PLANE NEW MEXICO EAST	GEOGRAPHIC
P.O.B.	3,280.36'	N: 579706.31 E: 610213.79	LAT: 32.59346668° LONG: -104.10969094°	N: 579644.63 E: 569033.59	LAT: 32.59334864° LONG: -104.10918536°
P.O.T.	3,281.89'	N: 580331.05 E: 606462.79	LAT: 32.59520500° LONG: -104.12186638°	N: 580269.38 E: 565282.61	LAT: 32.59508710° LONG: -104.12136043°

GRAPHIC SCALE IN FEET

800' 400' 0 800'

SHANNON D. OZMENT
NEW MEXICO
23783
LICENSED PROFESSIONAL SURVEYOR
9/17/2019

GENERAL NOTES
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REVISION		"CLARA ALLEN SWD #1"	
--	---	PROPOSED PAD AND ACCESS EASEMENT SURVEY HARLEY W. & CAROL J. BALLARD S. 7-T20S-R29E EDDY COUNTY, NEW MEXICO	SOLARIS WATER MIDSTREAM
		SCALE: 1" = 800'	CHECKED BY: KD
		PLOT DATE: 09-17-2019	DRAWN BY: L.DOW
		APPROVED BY: LG	SHEET NO.: 3 OF 4

1000 Ledgelawn Drive
Conway, Arkansas 72034
501.328.3316 t 501.328.3325 f
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LEGAL DESCRIPTIONS

"CLARA ALLEN SWD #1 PROPOSED WELL PAD":

A METES AND BOUNDS DESCRIPTION OF A PROPOSED WELL PAD BEING OUT OF SECTION 7, TOWNSHIP 20 SOUTH, RANGE 29 EAST, EDDY COUNTY, NEW MEXICO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT A GLO MONUMENT, AT THE NORTHEAST CORNER OF SAID SECTION 7; THENCE S 84°32'21" W A DISTANCE OF 803.01 FEET TO THE POINT OF BEGINNING;

THENCE SOUTH A DISTANCE OF 600 FEET TO A POINT;
THENCE WEST A DISTANCE OF 400 FEET TO A POINT;
THENCE NORTH A DISTANCE OF 600 FEET TO A POINT;
THENCE EAST A DISTANCE OF 400 FEET TO THE POINT OF BEGINNING.

THE ABOVE DESCRIBED WELL PAD HAS A TOTAL OF 240,000 SQUARE FEET OR 5.51 ACRES, MORE OR LESS.

"CLARA ALLEN SWD 1H PROPOSED ACCESS EASEMENT":

A CENTERLINE DESCRIPTION OF A PROPOSED ACCESS EASEMENT IN, OVER, ACROSS, AND THROUGH SECTION 7, TOWNSHIP 20 SOUTH, RANGE 29 EAST, EDDY COUNTY, NEW MEXICO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

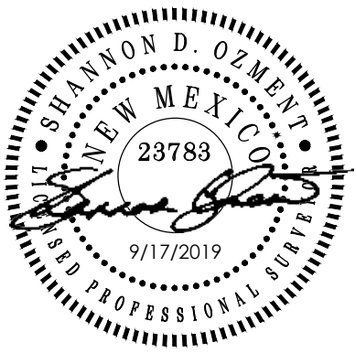
COMMENCING AT A GLO MONUMENT, AT THE NORTHEAST CORNER OF SAID SECTION 7; THENCE S 60°56'38" W A DISTANCE OF 1,372.05 FEET TO THE POINT OF BEGINNING OF THE FOLLOWING DESCRIBED CENTERLINE;

THENCE N 83°58'48" W A DISTANCE OF 2,993.82 FEET TO A POINT;
THENCE N 77°26'45" W A DISTANCE OF 127.64 FEET TO A POINT;
THENCE N 71°14'00" W A DISTANCE OF 112.78 FEET TO A POINT;
THENCE N 57°23'55" W A DISTANCE OF 84.51 FEET TO A POINT;
THENCE N 59°38'41" W A DISTANCE OF 306.91 FEET TO A POINT;
THENCE N 78°24'19" W A DISTANCE OF 186.75 FEET TO A POINT;
THENCE N 69°51'22" W A DISTANCE OF 24.86 FEET TO THE POINT OF TERMINATION, SAID POINT BEING S 00°34'33" W A DISTANCE OF 34.61 FEET FROM A GLO MONUMENT, AT THE NORTHWEST CORNER OF SAID SECTION 7.

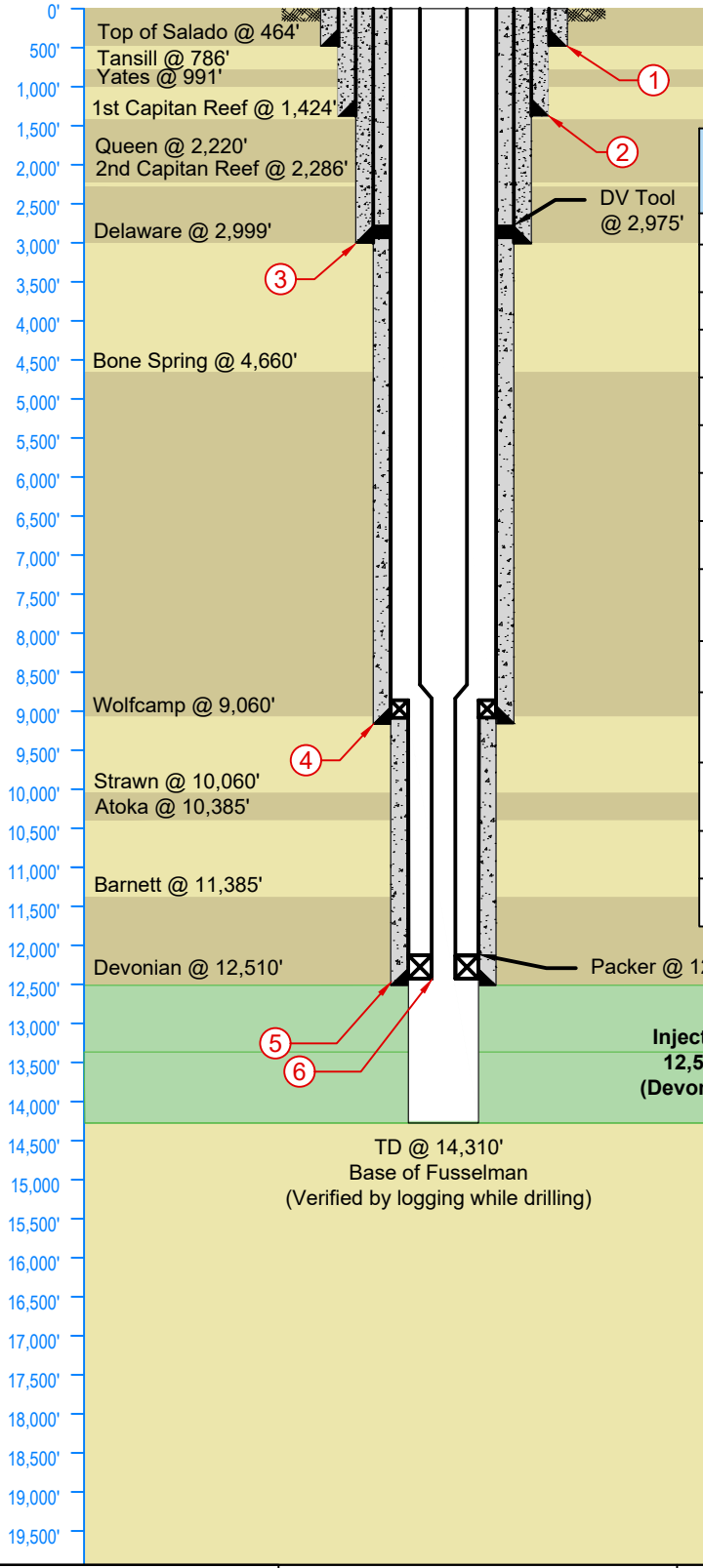
THE ABOVE DESCRIBED CENTERLINE HAS A TOTAL LENGTH OF 3,837.27 FEET OR 232.56 RODS, MORE OR LESS.

BASIS OF BEARINGS: NEW MEXICO STATE PLANE GRID, EAST ZONE, NAD83 AS DETERMINED BY GPS OBSERVATION.

ALL DISTANCES ARE GRID DISTANCES BASED ON U.S. SURVEY FEET
THIS LEGAL DESCRIPTION ACCOMPANIES A SKETCH PREPARED FOR THIS TRACT OF LAND.



REVISION		"CLARA ALLEN SWD #1"	
--	---	PROPOSED PAD AND ACCESS EASEMENT SURVEY HARLEY W. & CAROL J. BALLARD S. 7-T20S-R29E EDDY COUNTY, NEW MEXICO	SOLARIS WATER MIDSTREAM
		SCALE: 1" =	CHECKED BY: KD / APPROVED BY: LG
		PLOT DATE: 09-17-2019	DRAWN BY: L.DOW / SHEET NO.: 4 OF 4



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	480'	1,374'	3,000'	9,160'	Top: 8,960' Bottom: 12,510'
TOC	Circulate to surface	Circulate to surface	Circulate to surface	Stage 1: 2,975' Stage 2: Surface	8,960'
Volume	1,400 sks	546 sks	481 sks	2,048 sks	277 sks
% Excess	150%	75%	75%	50%	25%

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

Clara Allen SWD No. 1

Country: USA	**State/Province:** New Mexico	**County/Parish:** Eddy
Location:	**Site:** 275' FNL, 1,000' FEL	**Survey:** S7-T20S-R29E
API No: NA	**Field:** Devonian-Silurian (Code: 97869)	**Well Type/Status:** SWD
NMOCD District No: 2	**Project No:** 1916	**Date:** 9/27/2019
Drawn: TFM	**Reviewed:** RKH	**Approved:**
Rev No: 1	**Notes:** Additional casing string to protect Capitan Reef	

SOLARIS WATER MIDSTREAM, LLC

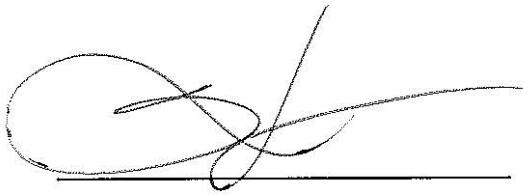
Clara Allen SWD No. 1
Section 7-T20S-R29E
275' FNL & 1,000' FEL
Eddy County, New Mexico GEOLOGICAL PROGNOSIS
7/8/2019

GL: 3,282'
Proposed Injection Interval: 12,510' – 14,310'

Tops	Depths (est.)	Subsea (est.)
Salado	464'	+2,846'
Tansill	786'	+2,524'
Yates	991'	+2,319'
1st Capitan Reef	1,424'	+1,886'
Queen	2,220'	+1,090'
2nd Capitan Reef	2,286'	+1,024'
Delaware	2,999'	+311'
Bone Spring	4,660'	-1,350'
Wolfcamp	9,060'	-5,750'
Strawn	10,060'	-6,750'
Atoka	10,385'	-7,075'
Barnett	11,385'	-8,075'
Devonian	12,510'	-9,200'

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.



Stephen Martinez
Sr. Vice President of Drilling

Project: Solaris Water Midstream, LLC
Clara Allen SWD #1

Seismicity and Faults in the Vicinity of the Proposed Solaris Water Midstream, LLC Clara Allen SWD No. 1 - A Devonian Disposal well in Eddy County, New Mexico

The proposed well is located in Eddy County, New Mexico. The proposed Clara Allen SWD No. 1 (Clara Allen) well is located in Township 20 South, Range 29 East, Section 7; thirteen miles northwest of Carlsbad. The proposed well is located near the Northwest Shelf 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 19.5 miles south of the proposed location, where a magnitude 3.9 earthquake was recorded on November 28, 1974 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. In addition to a search of the USGS Earthquake Hazards Program Earthquake Catalog, a seismic event research was conducted on the Bureau of Economic Geology's Seismic Monitoring Program, TexNet. TexNet's seismic history dates from January 1, 2017 to present date. A 15-kilometer radius of investigation detected no seismic events during this time period.

Faulting:

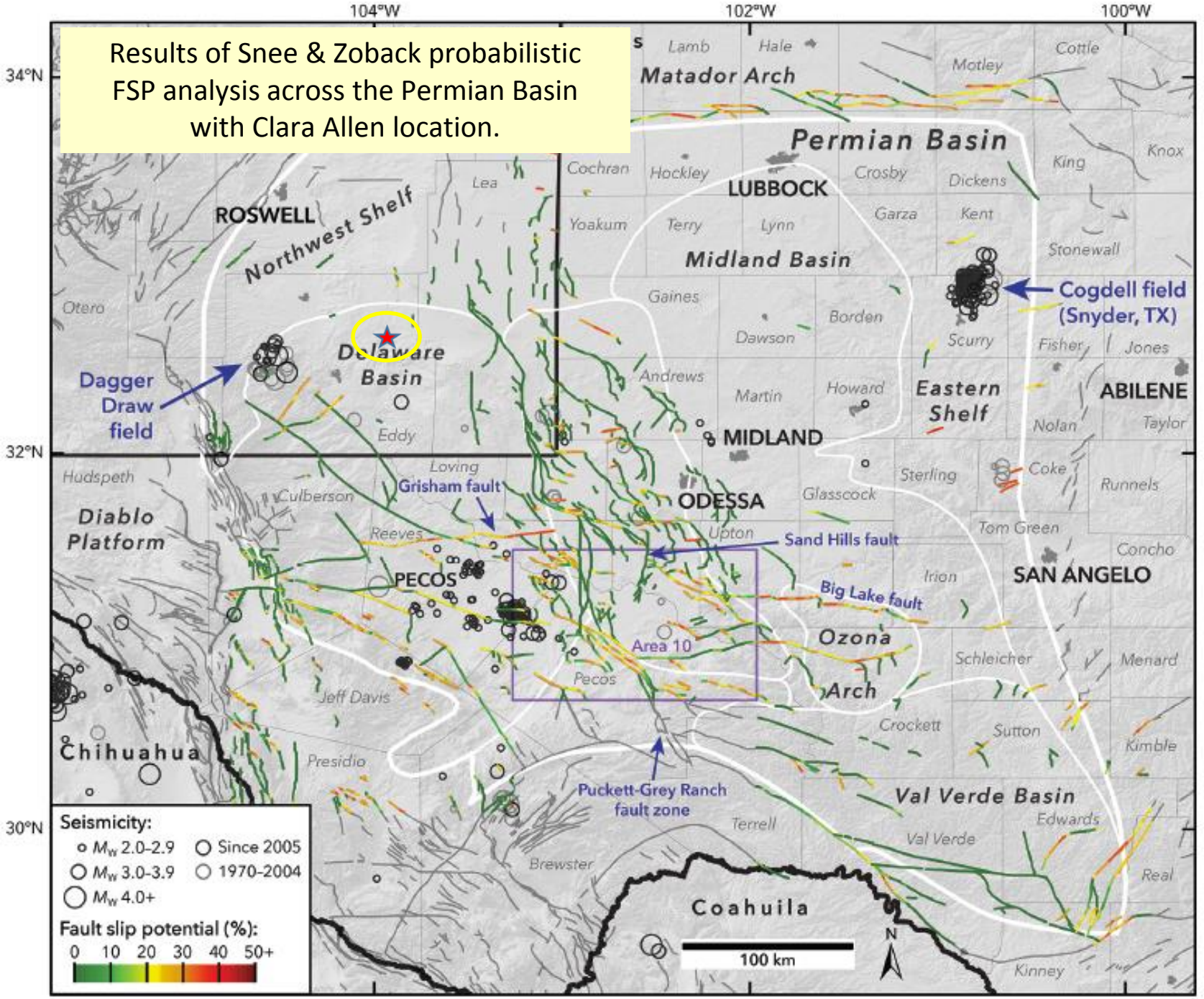
The USGS surface geologic map, a USGS published Devonian structure map, and subscription Geomap regional subsurface structure maps at the Yates, Strawn Lime and Devonian levels were reviewed for faults. The nearest faults mapped at the Devonian level were 17.3 and 20.1 miles northeast and southwest of 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 closest mapped faults yields an extremely low probability that the faults will become critically stressed by injection into the referenced wells.

Tyler F. Moehlman

Petroleum Engineer, Lonquist & Co. LLC


Results of Snee & Zoback probabilistic FSP analysis across the Permian Basin with Clara Allen location.
104°W
102°W
100°W
34°N
32°N
30°N
Matador Arch
Permian Basin
LUBBOCK
ROSWELL
Northwest Shelf
Midland Basin
Cogdell field (Snyder, TX)
Dagger Draw field
Delaware Basin
Eastern Shelf
ABILENE
MIDLAND
ODESSA
Grisham fault
Sand Hills fault
Big Lake fault
Diablo Platform
PECOS
Area 10
Ozona Arch
SAN ANGELO
Puckett-Grey Ranch fault zone
Val Verde Basin
Chihuahua
Coahuila
Seismicity:
Mw 2.0–2.9
Mw 3.0–3.9
Mw 4.0+
Since 2005
1970–2004
Fault slip potential (%):
0 10 20 30 40 50+
100 km
N

UNITED STATES GEOLOGICAL SURVEY

15 KM SEISMIC EVENT SEARCH (1900 – 2019)

Magnitude

- ○ 2.5+
- ○ 4.5+
- ◉ Custom

Minimum: 2

Maximum:

Date & Time

- ◉ Past 7 Days
- ○ Past 30 Days
- ○ Custom

Start (UTC): 2019-10-02 00:00:00

End (UTC): 2019-10-09 23:59:59

Geographic Region

- ○ World
- ○ Conterminous U.S.[1]
- ◉ Custom

Custom Circle

- 32.59453737 Latitude
- -104.10903888 Longitude
- 15 Radius (km)

Draw Rectangle on Map

- Advanced Options

Geographic Region

Decimal degree coordinates. North must be greater than South. East must be greater than West.

North:

West: East:

South:

Circle

Center Latitude: 32.59453737

Center Longitude: -104.10903888

Outer Radius (km): 15

Depth (km)

Minimum:

Maximum:

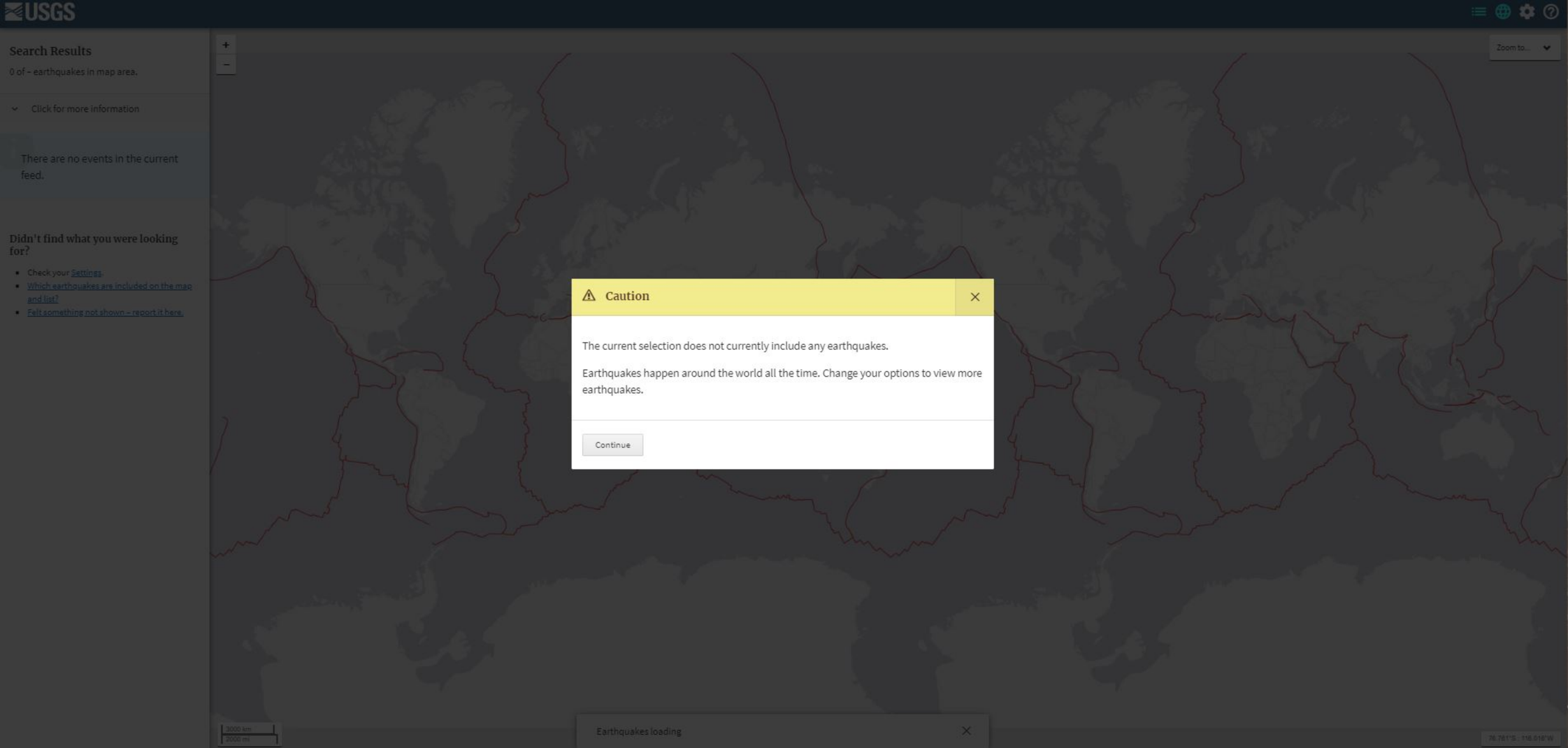
Azimuthal Gap

Minimum:

Maximum:

Review Status

- ◉ Any
- ○ Automatic
- ○ Reviewed


USGS
Search Results
0 of – earthquakes in map area.
Click for more information
There are no events in the current feed.
Didn't find what you were looking for?
Check your Settings.
Which earthquakes are included on the map and list?
Felt something not shown – report it here.
Zoom to...
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.
Continue
Earthquakes loading

UNITED STATES GEOLOGICAL SURVEY

25 KM SEISMIC EVENT SEARCH (1900 – 2019)

Basic Options

Magnitude

- ○ 2.5+
- ○ 4.5+
- ◉ Custom

Minimum: 2

Maximum:

Date & Time

- ○ Past 7 Days
- ○ Past 30 Days
- ◉ Custom

Start (UTC): 1900-01-01 00:00:00

End (UTC): 2019-10-09 23:59:59

Geographic Region

- ○ World
- ○ Conterminous U.S.[1]
- ◉ Custom

Custom Circle

- 32.59453737 Latitude
- -104.10903888 Longitude
- 25 Radius (km)

Draw Rectangle on Map

- Advanced Options

Geographic Region

Decimal degree coordinates. North must be greater than South. East must be greater than West.

North:

West: East:

South:

Circle

Center Latitude: 32.59453737

Center Longitude: -104.10903888

Outer Radius (km): 25

Depth (km)

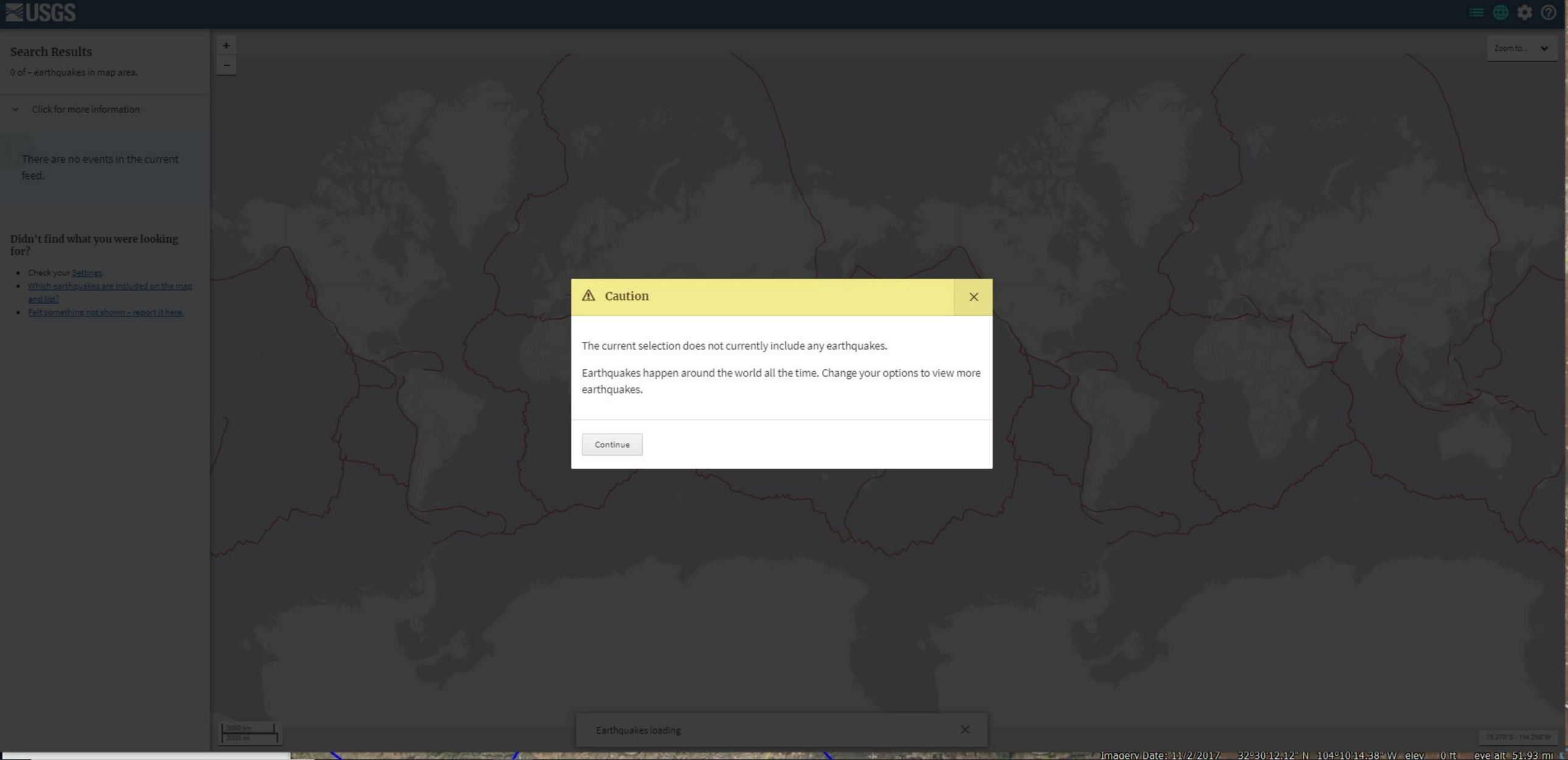
Minimum: Maximum:

Azimuthal Gap

Minimum: Maximum:

Review Status

- ◉ Any
- ○ Automatic
- ○ Reviewed


USGS
Search Results
0 of – earthquakes in map area.
Click for more information
There are no events in the current feed.
Didn't find what you were looking for?
Check your Settings.
Which earthquakes are included on the map and list?
Felt something not shown – report it here.
Zoom to...
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.
Continue
Earthquakes loading
Imagery Date: 11/2/2017 32°30'12.12" N 104°10'14.38" W elev 0 ft eye alt 51.93 mi

UNITED STATES GEOLOGICAL SURVEY

35 KM SEISMIC EVENT SEARCH (1900 – 2019)

Basic Options

Magnitude

- ○ 2.5+
- ○ 4.5+
- ◉ Custom

Minimum: 2

Maximum:

Date & Time

- ○ Past 7 Days
- ○ Past 30 Days
- ◉ Custom

Start (UTC): 1900-01-01 00:00:00

End (UTC): 2019-10-09 23:59:59

Geographic Region

- ○ World
- ○ Conterminous U.S.[1]
- ◉ Custom

Custom Circle

- 32.59453737 Latitude
- -104.10903888 Longitude
- 35 Radius (km)

Draw Rectangle on Map

- Advanced Options

Geographic Region

Decimal degree coordinates. North must be greater than South. East must be greater than West.

North:

West: East:

South:

Circle

Center Latitude: 32.59453737

Center Longitude: -104.10903888

Outer Radius (km): 35

Depth (km)

Minimum: Maximum:

Azimuthal Gap

Minimum: Maximum:

Review Status

- ◉ Any
- ○ Automatic
- ○ Reviewed

Search Results

1 of 1 earthquakes in map area.

Click for more information

3.9	New Mexico 1974-11-28 03:35:20 (UTC)	5.0 km

Didn't find what you were looking for?

- Check your Settings.
- Which earthquakes are included on the map and list?
- Felt something not shown – report it here.

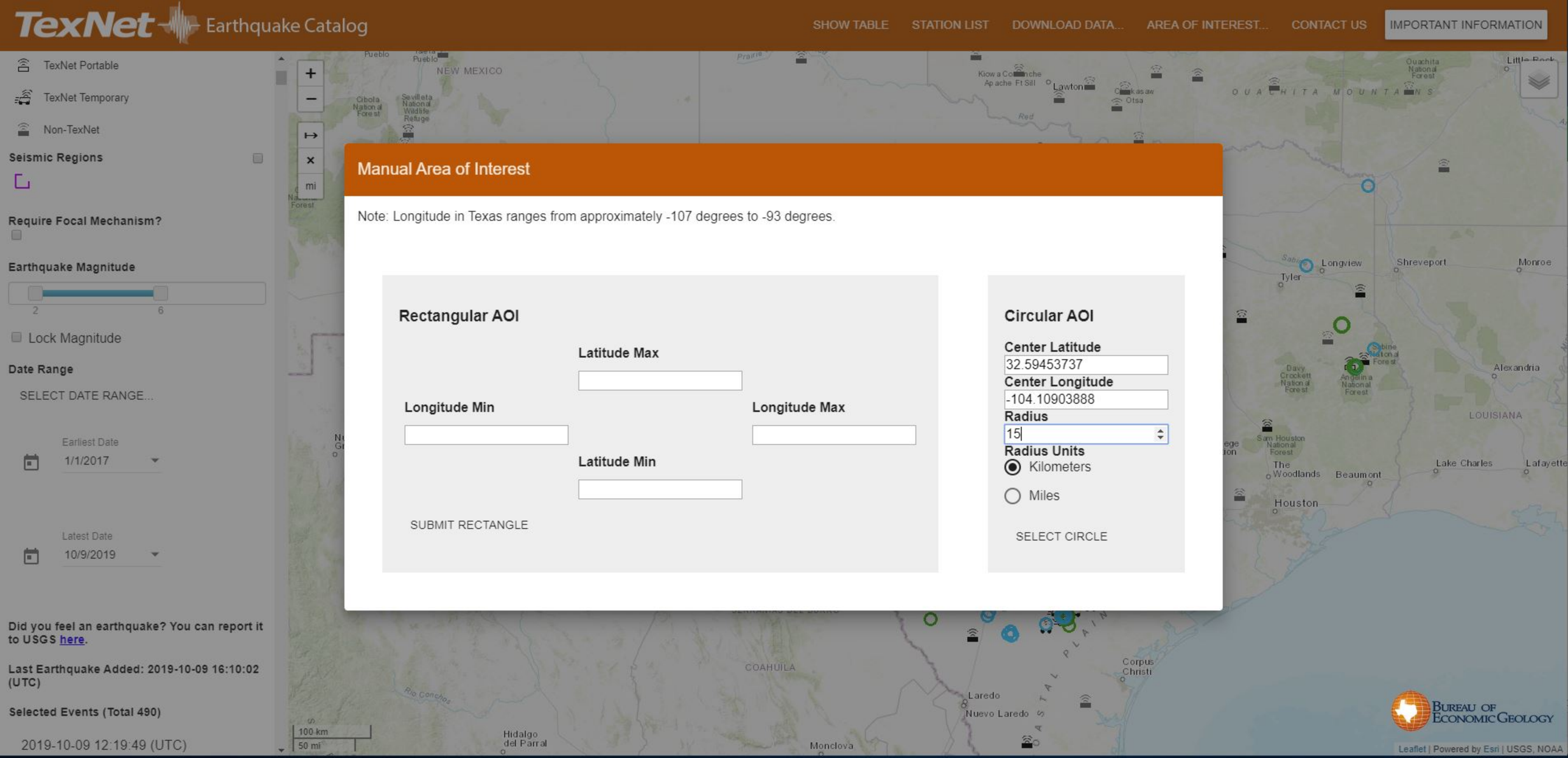
M 3.9 - New Mexico x

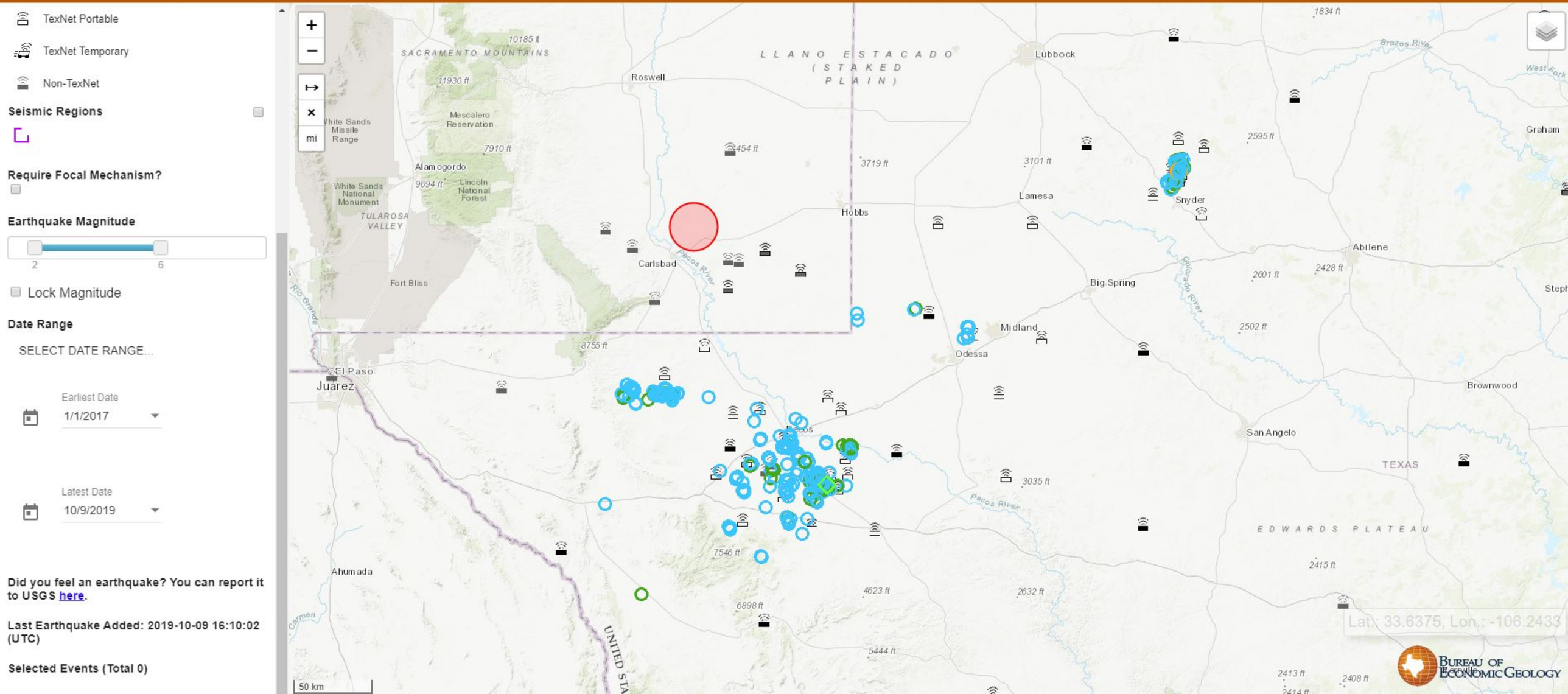
Time	1974-11-28 03:35:20 (UTC)
Location	32.311°N 104.143°W
Depth	5.0 km

BUREAU OF ECONOMIC GEOLOGY

THE UNIVERSITY OF TEXAS AT AUSTIN

15 KM SEISMIC EVENT SEARCH (2017 – 2019)


TexNet Earthquake Catalog
SHOW TABLE
STATION LIST
DOWNLOAD DATA...
AREA OF INTEREST...
CONTACT US
IMPORTANT INFORMATION
TexNet Portable
TexNet Temporary
Non-TexNet
Seismic Regions
Require Focal Mechanism?
Earthquake Magnitude
2
6
Lock Magnitude
Date Range
SELECT DATE RANGE...
Earliest Date
1/1/2017
Latest Date
10/9/2019
Did you feel an earthquake? You can report it to USGS here.
Last Earthquake Added: 2019-10-09 16:10:02 (UTC)
Selected Events (Total 490)
2019-10-09 12:19:49 (UTC)
Manual Area of Interest
Note: Longitude in Texas ranges from approximately -107 degrees to -93 degrees.
Rectangular AOI
Latitude Max
Longitude Min
Longitude Max
Latitude Min
SUBMIT RECTANGLE
Circular AOI
Center Latitude
32.59453737
Center Longitude
-104.10903888
Radius
15
Radius Units
Kilometers
Miles
SELECT CIRCLE
NEW MEXICO
COAHUILA
LOUISIANA
Lawton
Longview
Tyler
Shreveport
Monroe
Alexandria
Houston
Beaumont
Lake Charles
Lafayette
Corpus Christi
Laredo
Nuevo Laredo
Monclova
Hidalgo del Parral
Bureau of Economic Geology
Leaflet | Powered by Esri | USGS, NOAA


TexNet Portable
TexNet Temporary
Non-TexNet
Seismic Regions
Require Focal Mechanism?
Earthquake Magnitude
2
6
Lock Magnitude
Date Range
SELECT DATE RANGE...
Earliest Date
1/1/2017
Latest Date
10/9/2019
Did you feel an earthquake? You can report it to USGS here.
Last Earthquake Added: 2019-10-09 16:10:02 (UTC)
Selected Events (Total 0)
SACRAMENTO MOUNTAINS
LLANO ESTACADO (STAKED PLAIN)
Roswell
Lubbock
Graham
Snyder
Lamesa
Hobbs
Carlsbad
Abilene
Big Spring
Midland
Odessa
El Paso
Juárez
Fort Bliss
Alamogordo
White Sands Missile Range
Mescalero Reservation
White Sands National Monument
Lincoln National Forest
TULAROSA VALLEY
Brownwood
San Angelo
TEXAS
EDWARDS PLATEAU
Ahumada
Pecos River
Brazos River
Colorado River
Rio Grande
UNITED STATES
10185 ft
11930 ft
7910 ft
9694 ft
8755 ft
7546 ft
6898 ft
5444 ft
4623 ft
3719 ft
3101 ft
2595 ft
2601 ft
2502 ft
2428 ft
3035 ft
2632 ft
2415 ft
2413 ft
2408 ft
1834 ft
50 km
Lat.: 33.6375, Lon.: -106.2433
Bureau of Economic Geology

Clara Allen 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: 9/19/2019	Approved by: CBW

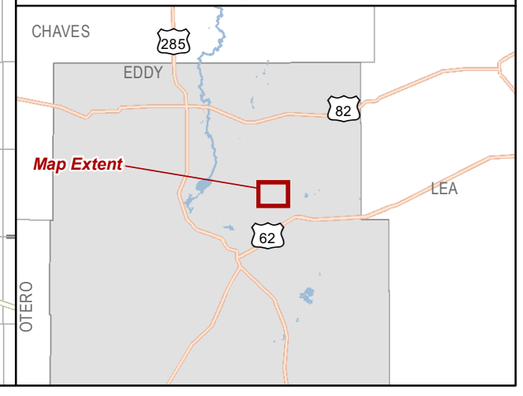
LONQUIST & CO. LLC
PETROLEUM ENGINEERS | ENERGY ADVISORS
AUSTIN · HOUSTON · WICHITA · DENVER · CALGARY

- Clara Allen 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 (67)
- Active - Oil (23)
- Active - Gas (25)
- Active - Salt Water Disposal (1)
- Active - Injection (8)
- Permitted - Oil (1)
- Permitted - Salt Water Disposal (1)
- Plugged (Site Released) - Oil (82)
- Plugged (Site Released) - Gas (14)
- Plugged (Site Released) - Injection (1)
- Expired TA - Oil (1)
- Canceled Location (17)

API (30-015-...) BHL Status - Type (Count)
- Active - Oil (45)
- Active - Gas (1)
- Permitted - Oil (11)
- Canceled Location (9)

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



Clara Allen SWD No. 1
32.594537
-104.109039

1 " = 2,292 '
1:27,500
0 ¼ ½ ¾ 1 2 Miles

Clara Allen 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
02349	THOMASON #001	O	P	PATTILLO R G	NR	32.5891418000	-104.122993500	NR	NR
03630	YATES-FEDERAL #001	O	P	DAYA OPERATING COMPANY	1055	32.5825729000	-104.112281800	4/15/1961	WILDCAT
03632	YATES #001	O	P	WILSON BROS. OIL CO.	1195	32.5907326000	-104.106918300	5/27/1952	BURTON
03633	YATES #002	O	P	MCKENZIE W R	NR	32.5925484000	-104.106918300	NR	NR
03634	COOK-IRONSIDE #002	O	P	MCKENZIE W R	1597	32.5898209000	-104.103706400	NR	BURTON
03635	YATES #001	O	P	KERSEY & COMPANY	1208	32.5825615000	-104.103706400	1/12/1960	BURTON (EXT.)
03636	COOK-IRONSIDE #001	O	P	MCKENZIE W R	NR	32.5889053000	-104.100486800	NR	NR
03637	COOK-IRONSIDE #003	O	P	MCKENZIE W R	1190	32.5889168000	-104.104774500	NR	BURTON
03638	YATES #001	O	P	NIPPER R A	NR	32.5825500000	-104.099418600	NR	NR
10246	CUCCIA & CONLEY #001	O	P	G. W. EWING	1201	32.5943527000	-104.102630600	10/24/1963	BURTON, YATES SAND
10829	YATES-FEDERAL #001	O	P	JC WILLIAMSON	3890	32.5825691000	-104.107994100	5/24/1966	BURTON, DELAWARE
10875	WILLIAMSON BC #002	O	P	YATES PETROLEUM CORPORATION	1172	32.5816612000	-104.106926000	10/6/1966	WILDCAT
20374	SUPERIOR FEDERAL #001	O	P	THE PETROLEUM CORPORATION	1352	32.6007195000	-104.112274200	1/29/1971	WILDCAT
20825	SUPERIOR FEDERAL COM #001	G	P	MARATHON OIL CO	11700	32.5907135000	-104.099418600	3/26/1973	[73200] BURTON FLAT, ATOKA, EAST (GAS)
20854	WILLIAMSON BC FED #003	O	C	YATES PETROLEUM CORPORATION	0	32.5829643271	-104.099392185	-	BURTON, YATES
20926	YATES FEDERAL COM #001	G	A	OXY USA WTP LIMITED PARTNERSHIP	11712	32.5830994000	-104.099418600	8/10/1973	[73320] BURTON FLAT, MORROW, EAST (GAS); [73400] BURTON FLAT, STRAWN, EAST (GAS)
21359	SUPERIOR FEDERAL #004	O	C	THE PETROLEUM CORPORATION OF DELAWARE	0	32.5970560613	-104.095115767	-	UND. MORROW
22049	WILLIAMSON BC #004	G	P	EOG Y RESOURCES, INC.	11640	32.5862045000	-104.115631100	6/28/1977	[87680] WINCHESTER, UPPER PENN (GAS)
22908	SUPERIOR KJ FEDERAL COM #001	G	A	EOG Y RESOURCES, INC.	11536	32.5925598000	-104.118751500	11/2/1994	[73200] BURTON FLAT, ATOKA, EAST (GAS); [73400] BURTON FLAT, STRAWN, EAST (GAS)
23975	SUPERIOR FEDERAL #005	G	P	TOM BROWN INC	11570	32.6006966000	-104.099411000	4/20/1989	[73400] BURTON FLAT, STRAWN, EAST (GAS); [84352] RUSSELL, WOLFCAMP (GAS)
23979	SUPERIOR FEDERAL #006	G	P	CIMAREX ENERGY CO. OF COLORADO	11600	32.5970917000	-104.115493800	12/19/1981	[73200] BURTON FLAT, ATOKA, EAST (GAS); [73320] BURTON FLAT, MORROW, EAST (GAS); [73400] BURTON FLAT, STRAWN, EAST (GAS)
25400	SUPERIOR FEDERAL #007	O	C	THE PETROLEUM CORPORATION OF DELAWARE	0	32.5973668566	-104.112631596	-	[73400] BURTON FLAT, STRAWN, EAST (GAS)
26301	SUPERIOR FEDERAL #007	O	P	THE PETROLEUM CORPORATION OF DELAWARE	3600	32.6003914000	-104.099746700	3/26/1990	UND. DELAWARE
31392	RUSSELL 8 FEDERAL #001	G	P	DEVON ENERGY PRODUCTION COMPANY, LP	11730	32.5931740000	-104.103706400	12/27/2000	[65010] WINCHESTER, BONE SPRING; [73200] BURTON FLAT, ATOKA, EAST (GAS); [73320] BURTON FLAT, MORROW, EAST (GAS)
32521	GATUNA CANYON 5 FEDERAL COM #001	G	A	MEWBOURNE OIL CO	11630	32.5979843000	-104.103698700	11/18/2002	[73200] BURTON FLAT, ATOKA, EAST (GAS); [73320] BURTON FLAT, MORROW, EAST (GAS)
32652	GATUNA CANYON 5 FEDERAL COM #002	G	A	MEWBOURNE OIL CO	11650	32.6046104000	-104.100486800	3/6/2003	[73320] BURTON FLAT, MORROW, EAST (GAS)
33041	COLT 6 FEDERAL #001	G	A	MEWBOURNE OIL CO	11670	32.6007195000	-104.111206100	12/13/2003	[73200] BURTON FLAT, ATOKA, EAST (GAS); [73320] BURTON FLAT, MORROW, EAST (GAS)
33905	RUGER 6 FEDERAL #001	G	A	MEWBOURNE OIL CO	11570	32.6055450000	-104.108634900	2/23/2005	[73200] BURTON FLAT, ATOKA, EAST (GAS); [73320] BURTON FLAT, MORROW, EAST (GAS)
34208	RUGER 6 FEDERAL #002	G	A	MEWBOURNE OIL CO	11500	32.6055756000	-104.116233800	9/27/2005	[73320] BURTON FLAT, MORROW, EAST (GAS)
34968	RUGER 6 FEDERAL #003	O	N	MEWBOURNE OIL CO	0	32.6073647000	-104.109062200	-	[65010] WINCHESTER, BONE SPRING
37170	COLT 5 FEDERAL #002H	O	A	MEWBOURNE OIL CO	12461	32.6096230000	-104.095062300	7/31/2009	[65010] WINCHESTER, BONE SPRING
37183	GATUNA CANYON 5 FEDERAL #004E	O	C	MEWBOURNE OIL CO	0	32.5956631292	-104.098308220	-	[65010] WINCHESTER, BONE SPRING
37198	RUGER 6 FEDERAL COM #003H	O	A	MEWBOURNE OIL CO	8979	32.6096840000	-104.111541700	4/15/2011	[65010] WINCHESTER, BONE SPRING
37199	RUGER 6 FEDERAL COM #005H	O	C	MEWBOURNE OIL CO	0	32.6097133392	-104.117345497	-	[65010] WINCHESTER, BONE SPRING
39295	THOMPSON 8 FEDERAL #002H	O	A	MEWBOURNE OIL CO	7883	32.5928307000	-104.089668300	4/18/2012	[65010] WINCHESTER, BONE SPRING
39686	RUGER 6 FEDERAL COM #004H	O	A	MEWBOURNE OIL CO	9000	32.6095314000	-104.108276400	1/24/2012	[65010] WINCHESTER, BONE SPRING
41029	WILLIAMSON BC FEDERAL #006H	O	C	EOG Y RESOURCES, INC.	0	32.5862083000	-104.121414200	-	[65010] WINCHESTER, BONE SPRING
41040	THOMPSON 8 FEDERAL #003H	O	A	MEWBOURNE OIL CO	7852	32.5890923000	-104.089157100	2/16/2013	[65010] WINCHESTER, BONE SPRING
41781	HENRY 8 IL FEDERAL #001H	O	A	MEWBOURNE OIL CO	7877	32.5855179000	-104.089157100	11/25/2013	[65010] WINCHESTER, BONE SPRING
41897	SAVAGE 5 EH FEDERAL #001H	O	A	MEWBOURNE OIL CO	6922	32.6038895000	-104.106491100	2/8/2014	[65010] WINCHESTER, BONE SPRING
41955	HENRY 8 PM FEDERAL COM #001H	O	A	MEWBOURNE OIL CO	7730	32.5822182000	-104.089164700	4/1/2014	[65010] WINCHESTER, BONE SPRING
42804	SIG 5 6 B2KL FEDERAL #001H	O	C	MEWBOURNE OIL CO	0	32.6007978187	-104.096381880	-	[65010] WINCHESTER, BONE SPRING
42805	SAVAGE 5 B1 DA FEDERAL #001H	O	C	MEWBOURNE OIL CO	0	32.6079533003	-104.105028098	-	[65010] WINCHESTER, BONE SPRING
43921	WILLIAMSON BC FEDERAL COM #007H	O	N	EOG Y RESOURCES, INC.	0	32.3537580000	-104.072650000	-	[65010] WINCHESTER, BONE SPRING
44047	SIG 5 6 B2CD FEDERAL COM #001H	O	N	MEWBOURNE OIL CO	0	32.6081352800	-104.096945100	-	[65010] WINCHESTER, BONE SPRING
44125	SIG 5 6 B2NM FEDERAL #001H	O	N	MEWBOURNE OIL CO	0	32.5965195300	-104.096182940	-	[65010] WINCHESTER, BONE SPRING
44126	SIG 5 6 B2FE FEDERAL COM #001H	O	N	MEWBOURNE OIL CO	0	32.6039010600	-104.096187833	-	[65010] WINCHESTER, BONE SPRING

Clara Allen 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: 9/19/2019	Approved by: CBW

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

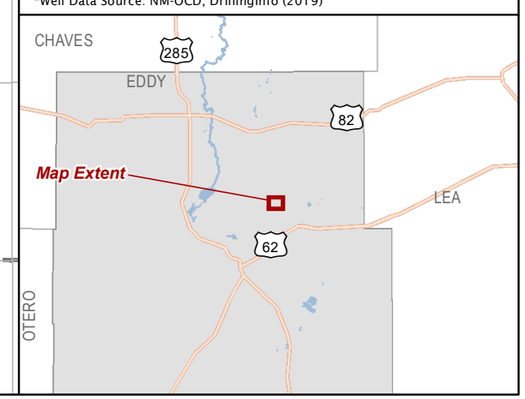
- Clara Allen SWD No. 1
- 1 Mile Radius
- QQ-Section (NM-PLSS 2nd Div.)
- Section (NM-PLSS 1st Div.)
- Township/Range (NM-PLSS)
- Surface Owner Property (BALLARD, HARLEY W & CAROL J (JT))
- Laterals

API (30-015-...) SHL Status - Type (Count)
- Horizontal Surface Location (18)
- Active - Gas (6)
- Permitted - Oil (1)
- Plugged (Site Released) - Oil (14)
- Plugged (Site Released) - Gas (5)
- Canceled Location (3)

API (30-015-...) BHL Status - Type (Count)
- Active - Oil (8)
- Active - Gas (1)
- Permitted - Oil (4)
- Canceled Location (5)

Operators
- -EOG RESOURCES INC
- -MEWBOURNE OIL CO
- -OXY USA WTP LIMITED PARTNERSHIP; -MEWBOURNE OIL CO
- -NO ACTIVE OPERATORS

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



T19S R28E
T19S R29E
T20S R28E
T20S R29E
36
31
32
33
06
05
04
01
12
07
08
09
13
18
17
16
44047
42805
34968
34208
33905
44126
41897
37199
39686
37170
-MEWBOURNE OIL CO
20374
33041
26301
23975
42804
37198
37183
32521
23979
25400
21359
Clara Allen SWD No. 1
32.594537
-104.109039
43921
22908
03633
-EOG RESOURCES INC
03632
02349
10246
31392
39295
20825
03634
03637
03636
41040
22049
41029
41781
-OXY USA WTP LIMITED PARTNERSHIP
-MEWBOURNE OIL CO
-NO ACTIVE OPERATORS
20926
20854
03635
03638
03630
10829
10875
41955

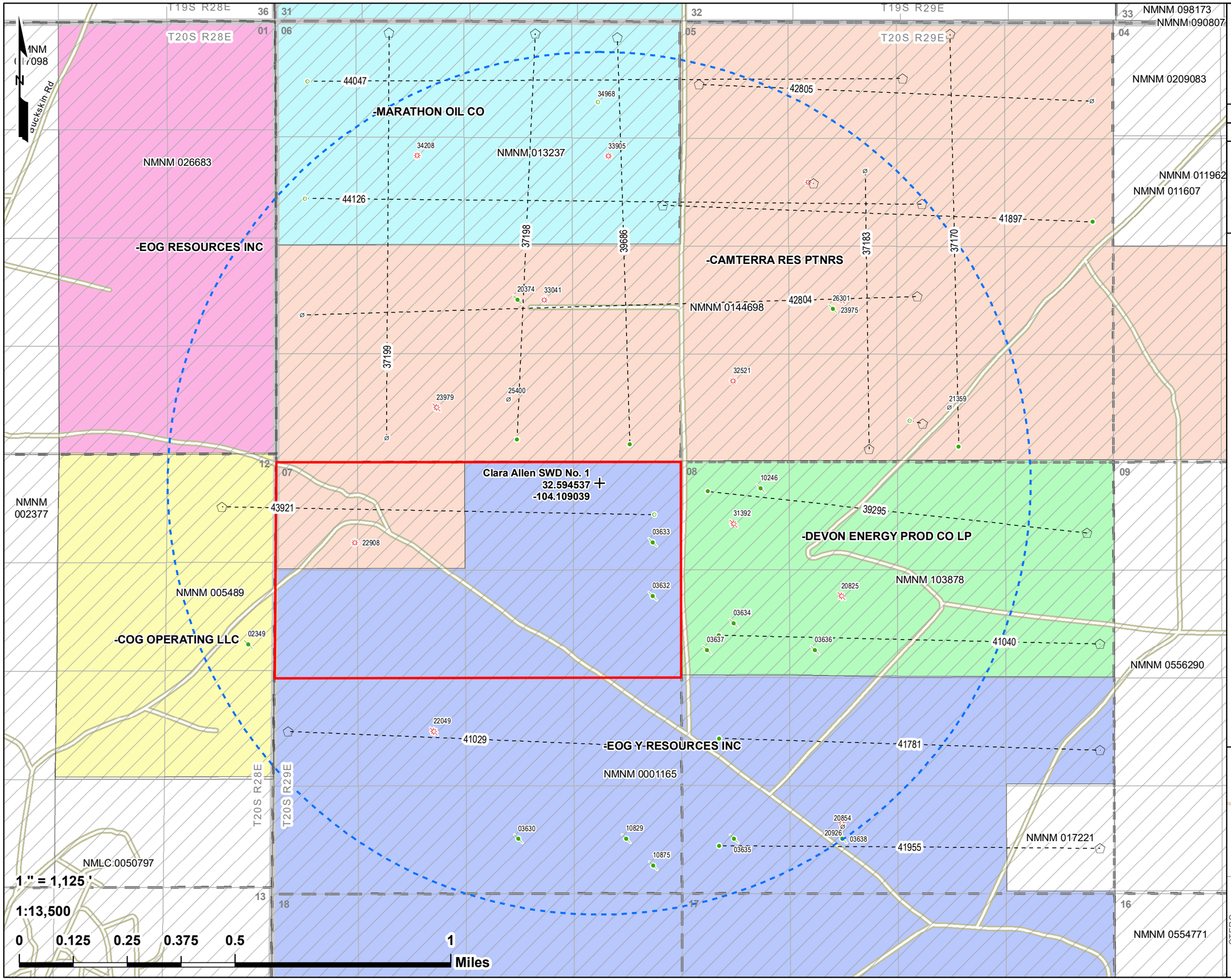
1 " = 1,125 '
1:13,500
0 0.125 0.25 0.375 0.5 1 Miles

Clara Allen 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: 9/19/2019	Approved by: CBW

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



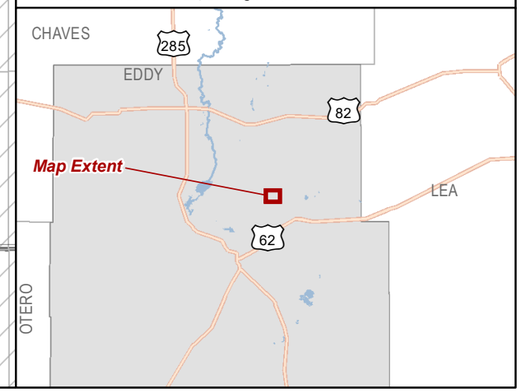
- + Clara Allen SWD No. 1
- 1 Mile Radius
- QQ-Section (NM-PLSS 2nd Div.)
- Section (NM-PLSS 1st Div.)
- Township/Range (NM-PLSS)
- Surface Owner Property (BALLARD, HARLEY W & CAROL J (JT))
- NM - BLM (O&G Leases)
- Laterals

API (30-015-...) SHL Status - Type (Count)
- Horizontal Surface Location (18)
- Active - Gas (6)
- Permitted - Oil (1)
- Plugged (Site Released) - Oil (14)
- Plugged (Site Released) - Gas (5)
- Canceled Location (3)

API (30-015-...) BHL Status - Type (Count)
- Active - Oil (8)
- Active - Gas (1)
- Permitted - Oil (4)
- Canceled Location (5)

Lessees
- -CAMTERRA RES PTNRS
- -COG OPERATING LLC
- -DEVON ENERGY PROD CO LP
- -EOG RESOURCES INC
- -EOG Y RESOURCES INC
- -MARATHON OIL CO

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



Clara Allen 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
1/20S/28E	H,I,P	EOG RESOURCES INC	-	-	-	PO BOX 2267	MIDLAND, TX 79702
6/20S/29E	Entire Section	MEWBOURNE OIL CO	-	-	-	PO BOX 5270	HOBBS, NM 88241
5/20S/29E	C,D,E,F,G,I,J,K,L,M,N,O,P	MEWBOURNE OIL CO	-	-	-	PO BOX 5270	HOBBS, NM 88241
8/20S/29E	A,B,C,D,E,F,G,H	MEWBOURNE OIL CO	-	-	-	PO BOX 5270	HOBBS, NM 88241
	J,K,L,M,N,O	MEWBOURNE OIL CO	-	-	-	PO BOX 5270	HOBBS, NM 88241
		OXY USA WTP LIMITED PARTNERSHIP	-	-	-	PO BOX 4294	HOUSTON, TX 77210
7/20S/29E	A,B,C,D,E,F,G,H	EOG RESOURCES INC	-	-	-	PO BOX 2267	MIDLAND, TX 79702
	I,J,K,L,M,N,O,P	-	EOG Y RESOURCES INC	-	-	105 S 4TH ST	ARTESIA, NM 88210
			Operating Rights on BLM Lease NMNM 0001165:				
			WHITING OG CORP	-	-	1700 BROADWAY #2300	DENVER, CO 80290
			OXY USA WTP LP	-	-	5 GREENWAY PLAZA #110	HOUSTON, TX 77046
			UNIT PETRO CO	-	-	PO BOX 702500	TULSA, OK 74170
			PALADIN INC	-	-	10265 E CLINTON	SCOTTSDALE, AZ 85260
			WILDCAT ENERGY LLC	-	-	PO BOX 13323	ODESSA, TX 79768
			ST DEVOTE LLC	-	-	919 MILAM ST STE 2475	HOUSTON, TX 77002
			TIPPERARY OG CORP	-	-	BOX 3179	MIDLAND, TX 79702
			AXIS ENERGY CORP	-	-	PO BOX 219303	HOUSTON, TX 77218
12/20S/28E	A,H,I	EOG RESOURCES INC	-	-	-	PO BOX 2267	MIDLAND, TX 79702
18/20S/29E	A,B	MEWBOURNE OIL CO	-	-	-	PO BOX 5270	HOBBS, NM 88241
		OXY USA WTP LIMITED PARTNERSHIP	-	-	-	PO BOX 4294	HOUSTON, TX 77210
17/20S/29E	D	-	EOG Y RESOURCES INC	-	-	105 S 4TH ST	ARTESIA, NM 88210
			Operating Rights on BLM Lease NMNM 0001165:				
			WHITING OG CORP	-	-	1700 BROADWAY #2300	DENVER, CO 80290
			OXY USA WTP LP	-	-	5 GREENWAY PLAZA #110	HOUSTON, TX 77046
			UNIT PETRO CO	-	-	PO BOX 702500	TULSA, OK 74170
			PALADIN INC	-	-	10265 E CLINTON	SCOTTSDALE, AZ 85260
			WILDCAT ENERGY LLC	-	-	PO BOX 13323	ODESSA, TX 79768
			ST DEVOTE LLC	-	-	919 MILAM ST STE 2475	HOUSTON, TX 77002
			TIPPERARY OG CORP	-	-	BOX 3179	MIDLAND, TX 79702
			AXIS ENERGY CORP	-	-	PO BOX 219303	HOUSTON, TX 77218
Surface Location	-	-	-	BUREAU OF LAND MANAGEMENT	BALLARD, HARLEY W & CAROL J (JT)	1819-2 N CANAL	CARLSBAD, NM 88220

Clara Allen SWD No. 1
2 Mile Offset Water Wells
Solaris Water Midstream
Eddy County, NM

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

Drawn by: SJL	Date: 9/19/2019	Approved by: CBW

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

CP-01231-POD1
32.618836
-104.122642

CP-00830-POD1
32.607911
-104.082177

CP-00926-POD1
32.601136
-104.128339

CP-00743-POD1
32.600658
-104.090765

Clara Allen SWD No. 1
32.594537
-104.109039

5541'

CP-01201-POD1
32.580444
-104.115861

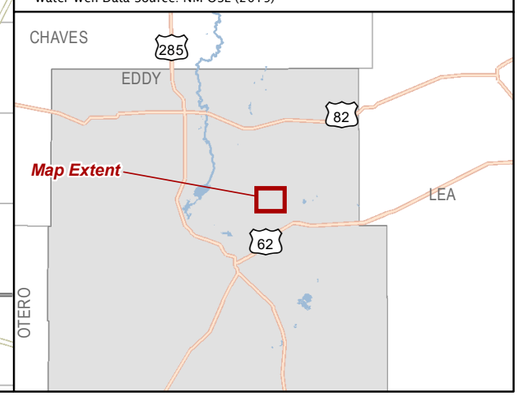
T19S R28E
T19S R29E
T20S R28E
T20S R29E

Buckskin Rd
Magnum Rd

1 " = 2,208 '
1:26,500
0 ¼ ½ ¾ 1 2 Miles

- Clara Allen SWD No. 1
- Water Wells (5)
- 1 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)



CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

March 28, 2019

TYLER MOEHLMAN

Lonquist Field Services, LLC

3345 Bee Cave Road, Suite 201

Austin, TX 78746

RE: CLARA ALLEN SWD #1

Enclosed are the results of analyses for samples received by the laboratory on 03/19/19 16:10.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Lonquist Field Services, LLC 3345 Bee Cave Road, Suite 201 Austin TX, 78746	Project: CLARA ALLEN SWD #1 Project Number: 32.59391 / -104.114741 Project Manager: TYLER MOEHLMAN Fax To: (512) 732-9816	Reported: 28-Mar-19 19:40

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
CP-00926- POD 1	H901060-01	Water	19-Mar-19 14:00	19-Mar-19 16:10

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

Lonquist Field Services, LLC 3345 Bee Cave Road, Suite 201 Austin TX, 78746	Project: CLARA ALLEN SWD #1 Project Number: 32.59391 / -104.114741 Project Manager: TYLER MOEHLMAN Fax To: (512) 732-9816	Reported: 28-Mar-19 19:40

CP-00926- POD 1

H901060-01 (Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Alkalinity, Bicarbonate	**205**		5.00	mg/L	1	9031804	AC	20-Mar-19	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	9031804	AC	20-Mar-19	310.1	
Chloride*	**980**		4.00	mg/L	1	9031903	AC	20-Mar-19	4500-Cl-B	
Conductivity*	**4970**		1.00	uS/cm	1	9032003	AC	20-Mar-19	120.1	
pH*	**7.79**		0.100	pH Units	1	9032003	AC	20-Mar-19	150.1	
Resistivity	**2.01**			Ohms/m	1	9032003	AC	20-Mar-19	120.1	
Specific Gravity @ 60° F	**1.004**		0.000	[blank]	1	9032010	AC	20-Mar-19	SM 2710F	
Sulfate*	**1840**		250	mg/L	25	9032002	AC	20-Mar-19	375.4	
TDS*	**3040**		5.00	mg/L	1	9032001	AC	22-Mar-19	160.1	
Alkalinity, Total*	**168**		4.00	mg/L	1	9031804	AC	20-Mar-19	310.1	
Sulfide, total	<0.0100		0.0100	mg/L	1	9032004	AC	20-Mar-19	376.2	
Green Analytical Laboratories										
Total Recoverable Metals by ICP (E200.7)										
Barium*	<0.250		0.250	mg/L	5	B903197	AES	26-Mar-19	EPA200.7	
Calcium*	**429**		0.500	mg/L	5	B903197	AES	26-Mar-19	EPA200.7	
Iron*	**1.21**		0.250	mg/L	5	B903197	AES	26-Mar-19	EPA200.7	
Magnesium*	**109**		0.500	mg/L	5	B903197	AES	26-Mar-19	EPA200.7	
Potassium*	**10.7**		5.00	mg/L	5	B903197	AES	26-Mar-19	EPA200.7	
Sodium*	**502**		5.00	mg/L	5	B903197	AES	26-Mar-19	EPA200.7	

Cardinal Laboratories

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CARDINAL Laboratories

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Analytical Results For:

Lonquist Field Services, LLC 3345 Bee Cave Road, Suite 201 Austin TX, 78746	Project: CLARA ALLEN SWD #1 Project Number: 32.59391 / -104.114741 Project Manager: TYLER MOEHLMAN Fax To: (512) 732-9816	Reported: 28-Mar-19 19:40

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 9031804 - General Prep - Wet Chem										
Blank (9031804-BLK1)				Prepared & Analyzed: 18-Mar-19						
Alkalinity, Carbonate	ND	1.00	mg/L							
Alkalinity, Bicarbonate	5.00	5.00	mg/L							
Alkalinity, Total	4.00	4.00	mg/L							
LCS (9031804-BS1)				Prepared & Analyzed: 18-Mar-19						
Alkalinity, Carbonate	ND	2.50	mg/L				80-120			
Alkalinity, Bicarbonate	318	12.5	mg/L				80-120			
Alkalinity, Total	260	10.0	mg/L	250		104	80-120			
LCS Dup (9031804-BSD1)				Prepared & Analyzed: 18-Mar-19						
Alkalinity, Carbonate	ND	2.50	mg/L				80-120		20	
Alkalinity, Bicarbonate	292	12.5	mg/L				80-120	8.20	20	
Alkalinity, Total	240	10.0	mg/L	250		96.0	80-120	8.00	20	
Batch 9031903 - General Prep - Wet Chem										
Blank (9031903-BLK1)				Prepared & Analyzed: 19-Mar-19						
Chloride	ND	4.00	mg/L							
LCS (9031903-BS1)				Prepared & Analyzed: 19-Mar-19						
Chloride	100	4.00	mg/L	100		100	80-120			
LCS Dup (9031903-BSD1)				Prepared & Analyzed: 19-Mar-19						
Chloride	104	4.00	mg/L	100		104	80-120	3.92	20	
Batch 9032001 - Filtration										
Blank (9032001-BLK1)				Prepared: 20-Mar-19 Analyzed: 22-Mar-19						
TDS	ND	5.00	mg/L							

Cardinal Laboratories

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Analytical Results For:

Lonquist Field Services, LLC 3345 Bee Cave Road, Suite 201 Austin TX, 78746	Project: CLARA ALLEN SWD #1 Project Number: 32.59391 / -104.114741 Project Manager: TYLER MOEHLMAN Fax To: (512) 732-9816	Reported: 28-Mar-19 19:40

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 9032001 - Filtration										
LCS (9032001-BS1)				Prepared: 20-Mar-19 Analyzed: 22-Mar-19						
TDS	524		mg/L	527		99.4	80-120			
Duplicate (9032001-DUP1)		**Source: H901029-01**		Prepared: 20-Mar-19 Analyzed: 22-Mar-19						
TDS	232	5.00	mg/L		296			24.2	20	QR-05
Batch 9032002 - General Prep - Wet Chem										
Blank (9032002-BLK1)				Prepared & Analyzed: 20-Mar-19						
Sulfate	ND	10.0	mg/L							
LCS (9032002-BS1)				Prepared & Analyzed: 20-Mar-19						
Sulfate	21.6	10.0	mg/L	20.0		108	80-120			
LCS Dup (9032002-BSD1)				Prepared & Analyzed: 20-Mar-19						
Sulfate	21.2	10.0	mg/L	20.0		106	80-120	1.91	20	
Batch 9032003 - General Prep - Wet Chem										
LCS (9032003-BS1)				Prepared & Analyzed: 20-Mar-19						
pH	7.05		pH Units	7.00		101	90-110			
Conductivity	502		uS/cm	500		100	80-120			
Duplicate (9032003-DUP1)		**Source: H901060-01**		Prepared & Analyzed: 20-Mar-19						
Conductivity	4980	1.00	uS/cm		4970			0.201	20	
pH	7.81	0.100	pH Units		7.79			0.256	20	
Resistivity	2.01		Ohms/m		2.01			0.201	20	

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Analytical Results For:

Lonquist Field Services, LLC 3345 Bee Cave Road, Suite 201 Austin TX, 78746	Project: CLARA ALLEN SWD #1 Project Number: 32.59391 / -104.114741 Project Manager: TYLER MOEHLMAN Fax To: (512) 732-9816	Reported: 28-Mar-19 19:40

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 9032004 - General Prep - Wet Chem										
Blank (9032004-BLK1)				Prepared & Analyzed: 20-Mar-19						
Sulfide, total	ND	0.0100	mg/L							
Duplicate (9032004-DUP1)		**Source: H901045-01**		Prepared & Analyzed: 20-Mar-19						
Sulfide, total	0.0753	0.0100	mg/L		0.0790			4.72	20	
Batch 9032010 - General Prep - Wet Chem										
Duplicate (9032010-DUP1)		**Source: H901045-01**		Prepared & Analyzed: 20-Mar-19						
Specific Gravity @ 60° F	1.006	0.000	[blank]		1.006			0.0318	20	

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Analytical Results For:

Lonquist Field Services, LLC 3345 Bee Cave Road, Suite 201 Austin TX, 78746	Project: CLARA ALLEN SWD #1 Project Number: 32.59391 / -104.114741 Project Manager: TYLER MOEHLMAN Fax To: (512) 732-9816	Reported: 28-Mar-19 19:40

Total Recoverable Metals by ICP (E200.7) - Quality Control

Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B903197 - Total Rec. 200.7/200.8/200.2										
Blank (B903197-BLK1)				Prepared: 21-Mar-19 Analyzed: 26-Mar-19						
Iron	ND	0.050	mg/L							
Sodium	ND	1.00	mg/L							
Barium	ND	0.050	mg/L							
Potassium	ND	1.00	mg/L							
Calcium	ND	0.100	mg/L							
Magnesium	ND	0.100	mg/L							
LCS (B903197-BS1)				Prepared: 21-Mar-19 Analyzed: 26-Mar-19						
Sodium	3.32	1.00	mg/L	3.24		102	85-115			
Potassium	8.35	1.00	mg/L	8.00		104	85-115			
Magnesium	20.0	0.100	mg/L	20.0		100	85-115			
Iron	4.11	0.050	mg/L	4.00		103	85-115			
Calcium	4.09	0.100	mg/L	4.00		102	85-115			
Barium	2.02	0.050	mg/L	2.00		101	85-115			
LCS Dup (B903197-BSD1)				Prepared: 21-Mar-19 Analyzed: 26-Mar-19						
Magnesium	19.9	0.100	mg/L	20.0		99.3	85-115	0.677	20	
Potassium	8.23	1.00	mg/L	8.00		103	85-115	1.36	20	
Sodium	3.22	1.00	mg/L	3.24		99.4	85-115	3.03	20	
Calcium	4.05	0.100	mg/L	4.00		101	85-115	0.966	20	
Barium	1.97	0.050	mg/L	2.00		98.3	85-115	2.60	20	
Iron	4.06	0.050	mg/L	4.00		101	85-115	1.29	20	

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Notes and Definitions

QR-05	The RPD exceeded historical limits.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: LONQUIST	**BILL TO**
Project Manager:	P.O. #:
Address:	Company:
City: State: Zip:	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name: CLARA ALLEN SWD #1	State: Zip:
Project Location: 32.59391 / -104.114741	Phone #:
Sampler Name: RICHARD MCBRAYER	Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST	
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	Scale	Sulfide
H901059	CP-00926-POD 1		1										3-19-19	2:00	✓	✓

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: R. Hammond	Date: 3.19.19 Time: 1610	Received By: Tamara Oldaker	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Date: Time:	Received By:	Fax Result: ☐ Yes ☐ No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other: 2.4° #197	Sample Condition Cool ☑ Yes ☐ No Intact ☑ Yes ☐ No	CHECKED BY: (Initials) TO	REMARKS: Rush!

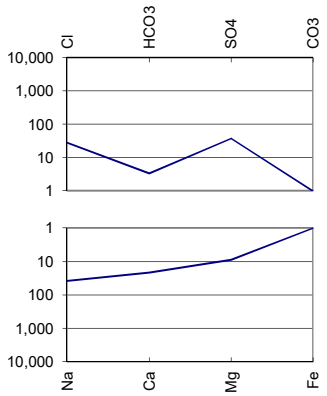
+ Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

CARDINAL LABORATORIES
SCALE INDEX WATER ANALYSIS REPORT

Company	:	LONQUIST FIELD SERVICES	Date Sampled	: 03/19/19
Lease Name	:	CLARA ALLEN SWD #1	Company Rep.	: TYLER MOEHLMAN
Well Number	:	C-00926-POD1 (H901060-01)		
Location	:	32.59391 / -104.114741		

	ANALYSIS					
1.	pH	7.79				
2.	Specific Gravity @ 60/60 F.	1.0040				
3.	CaCO3 Saturation Index @ 80 F.	+0.497	'Calcium Carbonate Scale Possible'			
	@ 140 F.	+1.197	'Calcium Carbonate Scale Possible'			
	Dissolved Gasses					
4.	Hydrogen Sulfide	0.000	PPM			
5.	Carbon Dioxide	ND	PPM			
6.	Dissolved Oxygen	ND	PPM			
	Cations		/ Eq. Wt.	=	MEQ/L	
7.	Calcium (Ca++)	429.00	/ 20.1	=	21.34	
8.	Magnesium (Mg++)	109.00	/ 12.2	=	8.93	
9.	Sodium (Na+)	502	/ 23.0	=	38.39	
10.	Barium (Ba++)	0.000	/ 68.7	=	0.00	
	Anions					
11.	Hydroxyl (OH-)	0	/ 17.0	=	0.00	
12.	Carbonate (CO3=)	0	/ 30.0	=	0.00	
13.	Bicarbonate (HCO3-)	205	/ 61.1	=	3.36	
14.	Sulfate (SO4=)	1,840	/ 48.8	=	37.70	
15.	Chloride (Cl-)	980	/ 35.5	=	27.61	
	Other					
16.	Total Iron (Fe)	1.210	/ 18.2	=	0.07	
17.	Total Dissolved Solids	3,040				
18.	Total Hardness As CaCO3	1,520.0				
19.	Calcium Sulfate Solubility @ 90 F.	1,548				
20.	Resistivity (Measured)	2.010	Ohm/Meters	@ 77	Degrees (F)	

Logarithmic Water Pattern



PROBABLE MINERAL COMPOSITION

COMPOUND	Eq. Wt.	X	MEQ/L	=	mg/L
Ca(HCO3)2	81.04	X	3.36	=	272
CaSO4	68.07	X	17.99	=	1,224
CaCl2	55.50	X	0.00	=	0
Mg(HCO3)2	73.17	X	0.00	=	0
MgSO4	60.19	X	8.93	=	538
MgCl2	47.62	X	0.00	=	0
NaHCO3	84.00	X	0.00	=	0
NaSO4	71.03	X	10.78	=	766
NaCl	58.46	X	27.61	=	1,614

ND = Not Determined

Clara Allen SWD No. 1
Offsetting Produced Water Analysis

Well Name	API	Section	Township	Range	Unit	County	Formation	ph	tds_mgL	sodium_mgL	calcium_mgL	iron_mgL	magnesium_mgL	manganese_mgL	chloride_mgL	bicarbonate_mgL	sulfate_mgL	co2_mgL
MCKEE #001	3001503642	11	20S	29E	K	EDDY	ARTESIA		29411						14350	1578	2808	
MCKEE #001	3001503642	11	20S	29E	K	EDDY	ARTESIA		28684						17030	61	612	
TEXACO FED #001	3001503645	13	20S	29E	C	EDDY	ARTESIA		26017						12160	1622	3042	
TRIGOOD ST #001	3001510002	2	20S	29E	E	EDDY	ARTESIA		23528						8526	2416	4466	
COLT FEDERAL #001	3001527288	4	20S	28E	P	EDDY	BONE SPRING	6.58	1594.98	1286	8	127	0.5		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		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		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		93828.2	678.602	1878.7	
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	0	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	0	114242.9	2196	0	4.8
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	0	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	0	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	0.4	119363	683.2	680	470
AVALON DELAWARE UNIT #262	3001524414	30	20S	28E	O	EDDY	DELAWARE	10	110018	67321	1064	0	566		105500	1320	1368	
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	
DOOLEY #001	3001510044	24	20S	29E	M	EDDY	MORROW		11718						4466	1634	1441	
DOOLEY #001	3001510044	24	20S	29E	M	EDDY	MORROW		31191						18540	188	1318	
STATE #001	3001503625	2	20S	29E	O	EDDY	MORROW		31170									
SLINKARD UR FEDERAL COM #002	3001524722	11	20S	29E	F	EDDY	STRAWN	6.2			11480	43.8	1197.8		77532	244	12.5	
SLINKARD UR FEDERAL #001	3001523698	11	20S	29E	H	EDDY	STRAWN	6.1	117276		9200	5	1949.2		72846	146	50	
TRIGG AIN FEDERAL #001	3001526697	28	20S	29E	H	EDDY	STRAWN	6.1	90200.5		8440	15	248.5		55380	244	12.5	
SLINKARD UR FEDERAL COM #004	3001526762	12	20S	29E	C	EDDY	STRAWN	6.2	113541		8520	23.8	734.3		69864	171	12.5	
YATES FEDERAL #001	3001520008	32	20S	29E	P	EDDY	STRAWN	5.9	108466						66700	146	270	
YATES FEDERAL #001	3001520008	32	20S	29E	P	EDDY	STRAWN	5.9	99199						61300	146	180	
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	
FED UNION #001	3001502416	22	20S	28E	O	EDDY	WOLFCAMP	6.7	55965						32400	252	2260	
FED UNION #001	3001502416	22	20S	28E	O	EDDY	WOLFCAMP	6.7	55965						32400	252	2260	

Carlsbad Current Argus.
PART OF THE USA TODAY NETWORK

Affidavit of Publication

Ad No.
0003824791

LONQUIST FIELD SERVI CE
1001 MCKINNEY ST., SUITE 1650

HOUSTON, TX 77002

I, legal clerk - ELP-CA Current-Argus, a newspaper published weekly in the county of Luna, 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:

October 3, 2019

Despondent further states this newspaper is duly qualified to publish legal notice or advertisements within the meaning of Sec. Chapter 167, Laws of 1937.

Kathleen Allen
Legal Clerk

Subscribed and sworn before me this October 4, 2019:

Vicky Felty
State of WI, County of Brown
NOTARY PUBLIC

9/19/22
My commission expires

Ad # 0003824791
PO #:
# of Affidavits : 1

VICKY FELTY NOTARY PUBLIC STATE OF WISCONSIN

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 Clara Allen SWD No. 1. The proposed well will be located 275' FNL & 1,000' FELin Section 7, Township 20S, Range 29E in Eddy County, New Mexico. Disposal water will be sourced from area production, and will be injected into the Devonian-Silurian formations (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.
Pub: Oct. 3, 2019 #3824791

DETERMINATION AND NOTICE OF AFFECTED PARTIES – NEW MEXICO

If an operator or mineral lessee has legal acreage or leases within one mile of the proposed salt water disposal well, their contact information is collected for notification purposes. Legal acreage of offset operators is gathered from the New Mexico Oil Conservation District's Permitting website. Minerals leased from the federal government are determined by referencing the Bureau of Land Management's Land and Mineral System Reports database. Minerals leased from the state government are determined by referencing the New Mexico State Land Office's Data Access database. Contact information for the affected parties is then extracted from the reports that were filed with the appropriate regulatory agency. Should any private minerals that are not public information fall within the one-mile radius, a title search was performed to discover the current lessee of those minerals or identifying the mineral owner of the acreage.

Notices were sent for the Clara Allen SWD No. 1 application by mailing them a copy of Form C-108 on 10/8/2019. The individual tracking numbers are attached in the following pages of this application. Receipt of each application will be monitored and presented to the Oil Conservation Division upon request.

Tyler Moehlman
Petroleum Engineer

Project: Solaris Water Midstream, LLC
Clara Allen SWD No. 1

Ramona Hovey
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002

9314 8699 0430 0064 2349 71

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Total Postage: $6.55

OIL CONSERVATION DIVISION
DISTRICT II
811 S FIRST STREET
1916-Clara Allen SWD #1
ARTESIA, NM 88210

Reference Number: 1916-Clara Allen SWD #1

Ramona Hovey
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002

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BALLARD, HARLEY W & CAROL J (JT)
1819-2 N CANAL
1916-Clara Allen SWD #1
CARLSBAD, NM 88220

Reference Number: 1916-Clara Allen SWD #1

Ramona Hovey
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002

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Bureau of Land Management
620 E. Greene Street
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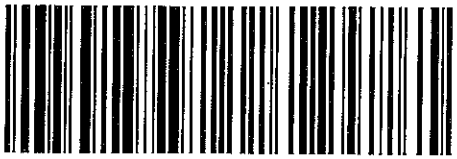
CARLSBAD, NM 88220

Reference Number: 1916-Clara Allen SWD #1

Ramona Hovey
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



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AXIS ENERGY CORP
PO BOX 219303
1916-Clara Allen SWD #1
HOUSTON, TX 77218

Reference Number: 1916-Clara Allen SWD #1

Ramona Hovey
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002

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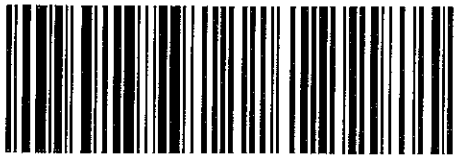
EOG RESOURCES INC
PO BOX 2267
1916-Clara Allen SWD #1
MIDLAND, TX 79702

Reference Number: 1916-Clara Allen SWD #1

Ramona Hovey
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



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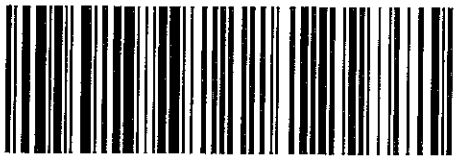
EOG Y RESOURCES INC
105 S 4TH ST
1916-Clara Allen SWD #1
ARTESIA, NM 88210

Reference Number: 1916-Clara Allen SWD #1

Ramona Hovey
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



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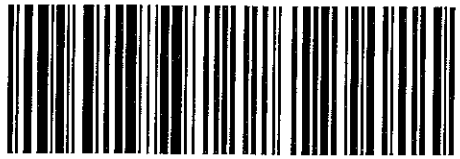
MEWBOURNE OIL CO
PO BOX 5270
1916-Clara Allen SWD #1
HOBBS, NM 88241

Reference Number: 1916-Clara Allen SWD #1

Ramona Hovey
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



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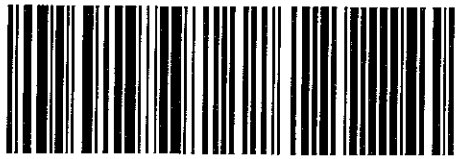
OXY USA WTP LIMITED PARTNERSHIP
PO BOX 4294
1916-Clara Allen SWD #1
HOUSTON, TX 77210

Reference Number: 1916-Clara Allen SWD #1

Ramona Hovey
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



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OXY USA WTP LP
5 GREENWAY PLAZA #110
1916-Clara Allen SWD #1
HOUSTON, TX 77046

Reference Number: 1916-Clara Allen SWD #1

Ramona Hovey
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002

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PALADIN INC
10265 E CLINTON
1916-Clara Allen SWD #1
SCOTTSDALE, AZ 85260

Reference Number: 1916-Clara Allen SWD #1

Ramona Hovey
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002

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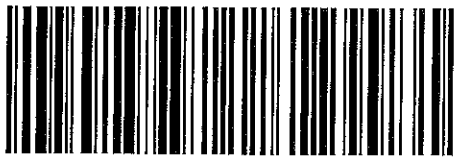
ST DEVOTE LLC
919 MILAM ST STE 2475
1916-Clara Allen SWD #1
HOUSTON, TX 77002

Reference Number: 1916-Clara Allen SWD #1

Ramona Hovey
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



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TIPPERARY OG CORP
BOX 3179
1916-Clara Allen SWD #1
MIDLAND, TX 79702

Reference Number: 1916-Clara Allen SWD #1

Ramona Hovey
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002

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UNIT PETRO CO
PO BOX 702500
1916-Clara Allen SWD #1
TULSA, OK 74170

Reference Number: 1916-Clara Allen SWD #1

Ramona Hovey
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002

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WHITING OG CORP
1700 BROADWAY #2300
1916-Clara Allen SWD #1
DENVER, CO 80290

Reference Number: 1916-Clara Allen SWD #1

Ramona Hovey
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002

9314 8699 0430 0064 2351 14

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Total Postage: $6.55

WILDCAT ENERGY LLC
PO BOX 13323
1916-Clara Allen SWD #1
ODESSA, TX 79768

Reference Number: 1916-Clara Allen SWD #1

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: 10/8/2019

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.

INJECTION WELL DATA SHEET

OPERATOR: Solaris Water Midstream, LLC

WELL NAME & NUMBER: Clara Allen SWD No. 1

WELL LOCATION:	275’ FNL 1,000 FEL	A	7	20S	29E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 26.000”

Casing Size: 20.000”

Cemented with: 1,400 sx.

or _____ ft^3

Top of Cement: surface

Method Determined: circulation

1st Intermediate Casing

Hole Size: 18.125”

Casing Size: 16.000”

Cemented with: 546 sx.

or _____ ft^3

Top of Cement: surface

Method Determined: circulation

2nd Intermediate Casing

Hole Size: 14.750”

Casing Size: 13.375”

Cemented with: 481 sx.

or _____ ft^3

Top of Cement: surface

Method Determined: circulation

Production Casing

Hole Size: 12.250”

Casing Size: 9.625”

Cemented with: 2,048 sx.

or _____ ft^3

Top of Cement: surface

Method Determined: circulation

Liner

Hole Size: 8.500”

Casing Size: 7.625”

Cemented with: 277 sks

or _____ ft^3

Top of Cement: 8,960’

Method Determined: calculation

Total Depth: 14,310’

Injection Interval

12,510 feet to 14,310 feet

(Open Hole)

INJECTION WELL DATA SHEET

Tubing Size: 5.5", 20 lb/ft, HCL-80, BTC from 0' – 8,760' and 5", 18 lb/ft, HCL-80 LTC from 8,760' – 12, 460'
Lining Material: Duoline

Type of Packer: 7-5/8"" X 5-1/2" Permanent Packer with High Temp Elastomer and Full Inconel 925 trim

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:

   Delaware: 2,999'
   Bone Spring: 4,660'
   Wolfcamp: 9,060'
   Strawn: 10,060'
   Atoka: 10,385'

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico

Energy Minerals 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 30-025-TBD

4. Property Code	5. Property Name	6. Well No.
	CLARA ALLEN SWD	1

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
A	7	20S	29E		275	N	1,000	E	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	3,282'
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
N	14,310'	Devonian-Silurian	TBD	ASAP

Depth to Ground water	Distance from nearest fresh water well	Distance to nearest surface water
79'	4,911'	> 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	26"	20"	94 lb/ft	480'	1,400	Surface
Intermediate 1	18-1/8"	16"	84 lb/ft	1,374'	546	Surface
Intermediate 2	14-3/4"	13-3/8"	68 lb/ft	3,000'	481	Surface
Production	12-1/4"	9-5/8"	53.5 lb/ft	9,160'	2,048	Surface
Liner	8-1/2"	7-5/8"	39 lb/ft	8,960' – 12,510'	277	8,960'
Tubing		5-1/2" & 5"	20 lb/ft & 18 lb/ft	0' – 8,760' & 8,760' – 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: October 3, 2019 / Phone: 512-600-1777	Conditions of Approval Attached

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
	97869	SWD; DEVONIAN-SILURIAN

[4] Property Code	[5] Property Name	[6] Well Number
	CLARA ALLEN SWD	1

[7] OGRID No.	[8] Operator Name	[9] Elevation
371643	SOLARIS WATER MIDSTREAM, LLC	3282'

[10] Surface Location

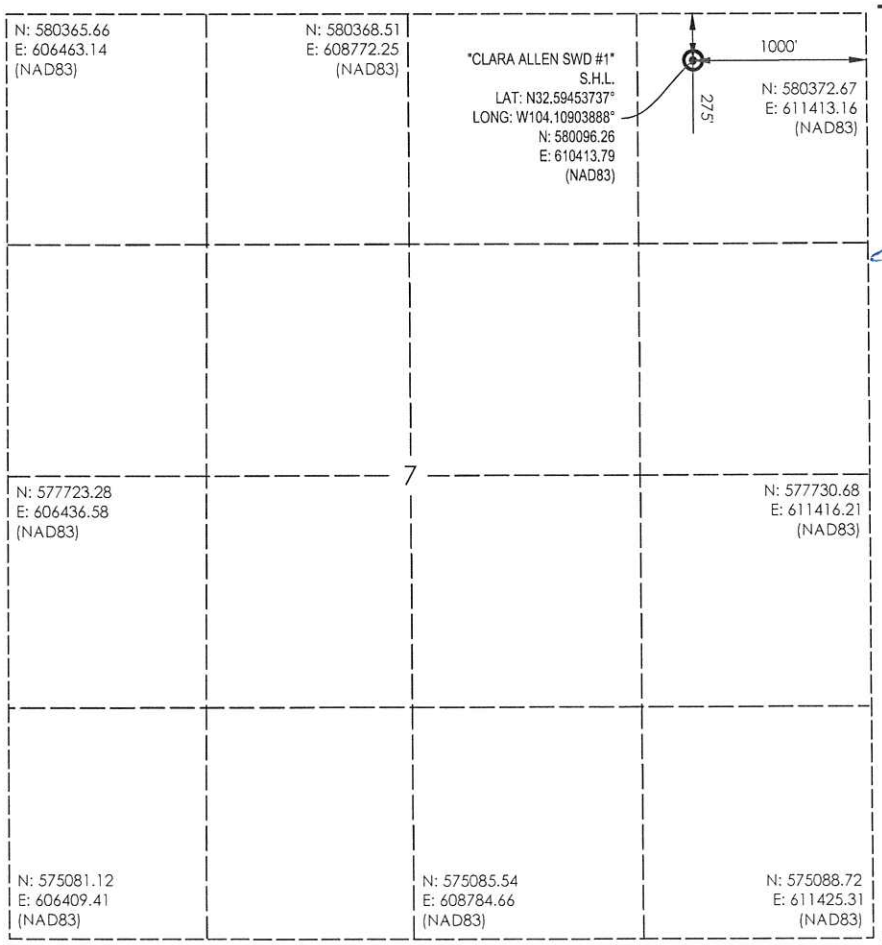
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	7	20 S	29 E		275'	NORTH	1000'	EAST	EDDY

[11] 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

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] 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.



[17] 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 Hovey 10/8/19
Signature Date

RAMONA K. HOVEY
Printed Name

ramona@longuist.com
E-mail Address

[18] SURVEYOR CERTIFICATION

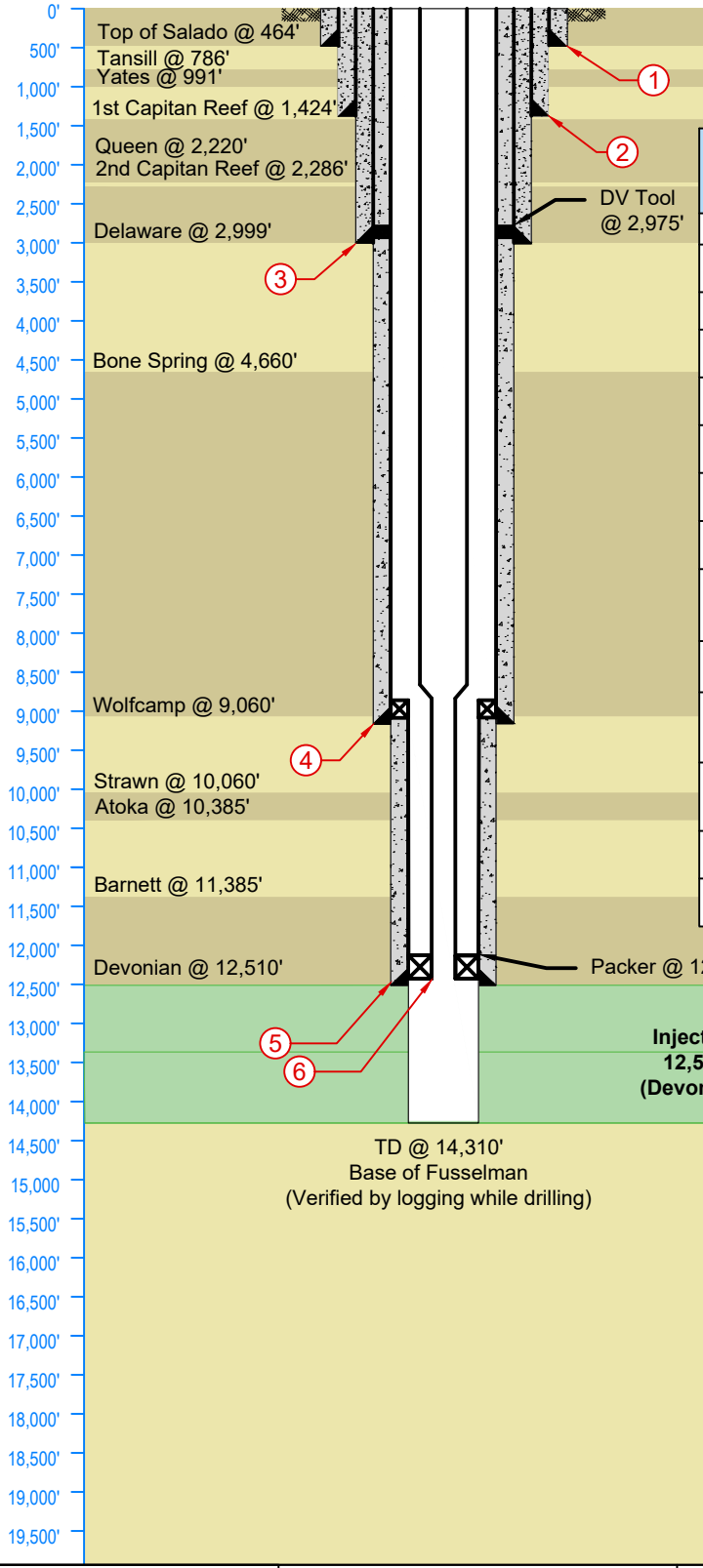
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

9/17/19
Date of Survey

Signature and Seal of Professional Surveyor

SHANNON DOLMENT
NEW MEXICO
23783
9/17/2019
REGISTERED PROFESSIONAL SURVEYOR

Certificate Number



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	480'	1,374'	3,000'	9,160'	Top: 8,960' Bottom: 12,510'
TOC	Circulate to surface	Circulate to surface	Circulate to surface	Stage 1: 2,975' Stage 2: Surface	8,960'
Volume	1,400 sks	546 sks	481 sks	2,048 sks	277 sks
% Excess	150%	75%	75%	50%	25%

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

Clara Allen SWD No. 1

Country: USA	**State/Province:** New Mexico	**County/Parish:** Eddy
Location:	**Site:** 275' FNL, 1,000' FEL	**Survey:** S7-T20S-R29E
API No: NA	**Field:** Devonian-Silurian (Code: 97869)	**Well Type/Status:** SWD
NMOCD District No: 2	**Project No:** 1916	**Date:** 9/27/2019
Drawn: TFM	**Reviewed:** RKH	**Approved:**
Rev No: 1	**Notes:** Additional casing string to protect Capitan Reef	

Solaris Water Midstream, LLC

Clara Allen SWD No. 1

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1.

Well information	
Lease Name	Clara Allen SWD
Well No.	1
Location	S-7 T-20S R-29E
Footage Location	275’ FNL & 1,000’ FEL

2.

a. Wellbore Description

Casing Information					
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”	18.125”	14.75"	12.25”	8.5”
Depth Set	480”	1,374’	3,000’	9,160’	8,960’-12,510’

b. Cementing Program

Cement Information					
Casing String	Surface	Intermediate 1	Intermediate 2	Production	Liner
Lead Cement	-	NeoCem™	NeoCem™	Stage 1: NeoCem™ Stage 2: VersaCem™	-
Lead Cement Volume (sacks)	-	238	306	Stage 1: 1080 Stage 2: 341	-
Lead Cement Density (ft3/sack)	-	2.767	2.767	Stage 1: 2.731 Stage 2: 2.731	-
Tail Cement	HALCEM™	HALCEM™	HALCEM™	Stage 1: VersaCem™ Stage 2: VersaCem™	VersaCem™
Tail Cement Volume (sacks)	1400	308	175	Stage 1: 577 Stage 2: 50	277
Tail Cement Density (ft3/sack)	1.347	1.441	1.441	Stage 1: 1.222 Stage 2: 1.334	1.223
Cement Excess	150%	75%	75%	50%,	25%
Total Sacks	1400	546	481	2048	277
TOC	Surface	Surface	Surface	Surface	8,960’
Method	Circulate to Surface	Circulate to Surface	Circulate to Surface	Circulate to Surface	Logged

3. Tubing Description

Tubing Information	
OD	5.5” 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’

Tubing will be lined with Duoline.

4. Packer Description

   7-5/8" x 5-1/2" TCPC Permanent Packer with High Temp Elastomer and Full Inconel 925 trim

B. Completion Information

1. Injection Formation: Devonian
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
Delaware	2,999'
Bone Spring	4,660'
Wolfcamp	9,060'
Strawn	10,060'
Atoka	10,385'

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 Bone Spring and Wolfcamp formations. Attached are produced water sample analyses taken from the closest wells that feature samples from the Artesia, Bone Spring, Delaware, Morrow, Strawn, 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 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: Devonian-Silurian Formation

Formation	**Depth**
Salado	464’
Tansill	786’
Yates	991’
1st Capitan Reef	1,424’
Queen	2,220’
2nd Capitan Reef	2,286’
Delaware	2,999’
Bone Spring	4,660’
Wolfcamp	9,060’
Strawn	10,060’
Atoka	10,385’
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. Across the area, fresh water wells are usually drilled between 28' and 300' in depth. Water depths range from 22' – 115'. The Rustler is known to exist in this general area and may also be another USDW and will be protected by setting the surface casing at the top of the Salado at 464' and putting the Salado behind pipe with the 1st intermediate casing set 50' above the Capitan Reef at 1,374'.

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, chemical analysis of fresh water wells are not required for this application. However, attached is a chemical analysis of CP-00926, a water well that exists approximately 1.25 miles away from the proposed well. This attachment is provided solely for reference.