Initial Application Part I

Received: **10/09/2019**

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

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

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: TEXAS RANGER SWD NO. 2 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") Texas Ranger SWD No. 2. 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: Texas Ranger SWD #2 **API:**
Pool: SWD; Devonian-Silurian **Pool Code: 97869**

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

1) **TYPE OF APPLICATION:** Check those which apply for [A]
A. Location – Spacing Unit – Simultaneous Dedication
☐ NSL ☐ NSP (PROJECT AREA) ☐ NSP (PRORATION UNIT) ☐ SD

B. Check one only for [I] or [II]
[I] Commingling – Storage – Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM
[II] Injection – Disposal – Pressure Increase – Enhanced Oil Recovery
☐ WFX ☐ PMX ■ SWD ☐ IPI ☐ EOR ☐ PPR

FOR OCD ONLY
☐ Notice Complete
☐ Application Content Complete

2) **NOTIFICATION REQUIRED TO:** Check those which apply.
A. ■ Offset operators or lease holders
B. ☐ Royalty, overriding royalty owners, revenue owners
C. ■ Application requires published notice
D. ☐ Notification and/or concurrent approval by SLO
E. ☐ Notification and/or concurrent approval by BLM
F. ■ Surface owner
G. ■ For all of the above, proof of notification or publication is attached, and/or,
H. ☐ No notice required

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

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

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

Ramona Hovey
Signature

September 26, 2019
Date

(512) 600-1777
Phone Number

ramona@lonquist.com
e-mail Address

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL
RESOURCES DEPARTMENT

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

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

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

II. OPERATOR: Solaris Water Midstream, LLC

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

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

III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? _____Yes ___X___No
If yes, give the Division order number authorizing the project: _____

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

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

IX. Describe the proposed stimulation program, if any.

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

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

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

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

XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

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

SIGNATURE: Ramona Hovey DATE: 9/26/2019

E-MAIL ADDRESS: ramona@lonquist.com

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office

Side 2

III. WELL DATA

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

(1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth.

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

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

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

(1) The name of the injection formation and, if applicable, the field or pool name.

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

(3) State if the well was drilled for injection or, if not, the original purpose of the well.

(4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.

(5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

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

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

(1) The name, address, phone number, and contact party for the applicant;

(2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;

(3) The formation name and depth with expected maximum injection rates and pressures; and,

(4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

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

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

Side 1

INJECTION WELL DATA SHEET

OPERATOR: Solaris Water Midstream, LLC

WELL NAME & NUMBER: Texas Ranger SWD No. 2

WELL LOCATION:	2,990’ FNL 344’ FEL	LOT 9	6	21S	27E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 26”

Casing Size: 20”

Cemented with: 2,130 sx.

or _____ ft^3

Top of Cement: surface

Method Determined: circulation

Intermediate Casing

Hole Size: 14.750”

Casing Size: 13.375”

Cemented with: 515 sx.

or _____ ft^3

Top of Cement: surface

Method Determined: circulation

Production Casing

Hole Size: 12.250”

Casing Size: 9.625”

Cemented with: 2,664 sx.

or _____ ft^3

Top of Cement: surface

Method Determined: circulation

Liner

Hole Size: 8.500”

Casing Size: 7.625”

Cemented with: 596 sx.

or _____ ft^3

Top of Cement: 8,483’

Method Determined: calculation

Total Depth: 14,133’

Injection Interval

12,333 feet to 14,133 feet

(Open Hole)

INJECTION WELL DATA SHEET

Tubing Size: 5.5", 20 lb/ft, HCL-80, BTC from 0' – 8,283' and 5", 18 lb/ft, HCL-80, LTC from 8,283'-12,283'
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: 12,283'

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,

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

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used.

   No, new drill.

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

   Bone Spring: 4,443'
   Wolfcamp: 8,583'
   Strawn: 10,080'
   Morrow: 10,738'

Solaris Water Midstream, LLC

Texas Ranger SWD No. 2

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1.

Well information	
Lease Name	Texas Ranger SWD
Well No.	2
Location	S-6 T-21S R-27E
Footage Location	2,990’ FNL & 344’ FEL

2.

a. Wellbore Description

Casing Information				
Type	Surface	Intermediate	Production	Liner
OD	20”	13.375”	9.625”	7.625”
WT	0.438”	0.48”	0.545”	0.500”
ID	19.124”	12.415”	8.535”	6.625”
Drift ID	18.936”	12.259”	8.379”	6.500”
COD	21”	13.375”	10.625”	7.625”
Weight	94 lb/ft	68 lb/ft	53.5 lb/ft	39 lb/ft
Grade	J-55 STC	L-80 BTC	HCP-110 BTC	Q-125 EZ-GO FJ3
Hole Size	26”	14.75"	12.25”	8.5”
Depth Set	660’	2,700’	8,683’	8,483’-12,333’

b. Cementing Program

To address recent concerns of insufficient surface casing cementing jobs in the offsetting region, the installation of this proposed cement program aims to decrease the probability of future migration of fluids due to improper placement of cement and to protect against impact to Underground Sources of Drinking Water (USDW).

The surface hole will be drilled with a 26" bit to 660' and set with 20", 94 lb/ft, J-55 STC surface casing. If loss of circulation occurs while drilling, LCM pills of up to 80-100 lbs/bbl will be spotted/circulated as necessary. If circulation is unable to be regained, an open hole thixotropic cement plug will be considered as use for LCM and drilling will resume.

A 20" rigid body centralizer and 20" cementing baskets will be added to the body of the casing in order to ensure proper standoff from the bore hole and minimize cement "fall back" while cementing. A cement slurry followed by a second lead with increased quantities of LCM material thereafter. The remaining details of the cement program can be found below:

Casing String	Surface	Intermediate	Production	Liner
1st Lead Cement	Thixotropic			
1st Lead Cement Volume (sacks)	685			
1st Lead Cement Density (ft3/sack)	12.8			
Lead Cement	93:7 Class C Premium	HALCEM™	HALCEM™	NeoCem™
Lead Cement Volume (sacks)	550	515	Stage 1: 1,176 Stage 2: 1,488	596
Lead Cement Density (ft3/sack)	12.4	1.685	Stage 1: 1.232 Stage 2: 1.713	1.418
Tail Cement	100 Class C Premium	-	-	-
Tail Cement Volume (sacks)	895	-	-	-
Tail Cement Density (ft3/sack)	14.8	-	-	-
Cement Excess	150%	100%	100%	50%
Total Sacks	2,130	515	2,664	596
TOC	Surface	Surface	Surface	8,483'
Method	Circulate to Surface	Circulate to Surface	Circulate to Surface	Logged

3. Tubing Description

Tubing Information	
OD	5.5” 5.0”
WT	0.361” 0.362”
ID	4.778” 4.276”
Drift ID	4.653” 4.151”
COD	6.050” 5.563”
Weight	20 lb/ft 18 lb/ft
Grade	HCL-80 BTC HCL-80 LTC
Depth Set	0-8,283’ 8,283’-12,283’

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: 12,333’-14,133’

Completion Type: Open Hole

3. Drilled for injection.

4. See the attached wellbore schematic.

5. Oil and Gas Bearing Zones within area of well:

Formation	Depth
Bone Spring	4,443’
Wolfcamp	8,583’
Strawn	10,080’
Morrow	10,738’

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: 1,850 PSI (surface pressure)
   Maximum Injection Pressure: 2,467 PSI (surface pressure)

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

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

VIII. Geological Data

Devonian Formation Lithology:

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

Fusselman Formation Lithology:

The Silurian/Ordovician Fusselman Formation is stratigraphically below the Wristen Group and is above and separated from the Montoya Formation by the Sylvan Shale. The Sylvan Shale is the lower confining

layer for the proposed Texas Ranger SWD No. 2 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
Yates	308’
Capitan Reef	682’
Capitan Reef Base	2,680’
Bell Canyon	2,808’
Cherry Canyon	3,473’
Brushy Canyon	3,828’
Bone Spring	4,443’
Bone Spring 1st Sand	6,323’
Bone Spring 2nd Sand	7,023’
Bone Spring 3rd Sand	8,378’
Wolfcamp	8,583’
Strawn	10,080’
Morrow	10,738’
Barnett	11,144’
Devonian	12,333’

B. Underground Sources of Drinking Water

Twenty-one (21) water wells exist within one-mile of the proposed well after the location change of the Texas Ranger. Across the area, fresh water wells are usually drilled at an average depth of 273’. Average water depth in this region is approximately 200’. The Rustler is known to exist in this general area and may also be another USDW and will be protected.

IX. Proposed Stimulation Program

50,000 gallon acid job

X. Logging and Test Data on the Well

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

XI. Chemical Analysis of Fresh Water Wells

Attached is a map of the twenty-one (21) water wells that exist within one-mile of the well location. Samples from the nearest available wells has been obtained and a chemical analysis is attached in this application. A Water Right Summary from the New Mexico Office of the State Engineer is attached for the twenty-one (21) water wells within a 1-mile radius.

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 TBD

4. Property Code	5. Property Name	6. Well No.
	TEXAS RANGER SWD	2

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
LOT 9	6	21S	27E		2,990	N	344	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	3,232'
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
N	14,133'	Silurian-Devonian	TBD	ASAP

Depth to Ground water	Distance from nearest fresh water well	Distance to nearest surface water
200'	1,803'	>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	660'	2,130	Surface
Intermediate	14.75"	13.375"	68 lb/ft	2,700'	515	Surface
Production	12.25"	9.625"	53.5 lb/ft	8,683'	2,664	Surface
Liner	8.5"	7.625"	39 lb/ft	8,483'-12,333'	596	8,483'
Tubing		5.5" & 5"	20 lb/ft & 18 lb/ft	0'-8,283' & 8,283'-12,283'	N/A	

Casing/Cement Program: Additional Comments

See attached schematic.

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Hydrualic/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 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: September 26, 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 Rd., Aztec, NM 87410
Phone (505) 334-6178 Fax: (505) 334-6170
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

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

Form C-102
Revised August 1, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
	97869	SWD; Devonian-Silurian

Property Code	Property Name	Well Number
	TEXAS RANGER SWD	2

OGRID No.	Operator Name	Elevation
371643	SOLARIS WATER MIDSTREAM	3240'

Surface Location

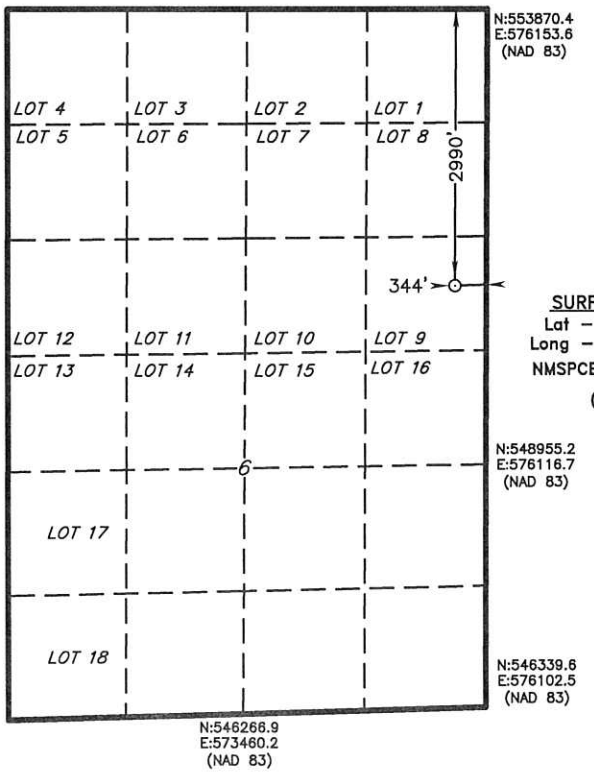
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
LOT 9	6	21 S	27 E		2990	NORTH	344	EAST	EDDY

Bottom Hole Location If Different From Surface

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

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

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



SURFACE LOCATION
Lat - N 32.514380°
Long - W 104.221571°
NMSPCE- N 550880.2
E 575787.7
(NAD-83)

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 9/26/19
Signature Date

RAMONA HOVEY
Printed Name

ramona@longuist.com
Email Address

SURVEYOR CERTIFICATION

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

AUGUST 12, 2019
Date Surveyed

Signature & Seal of Professional Surveyor

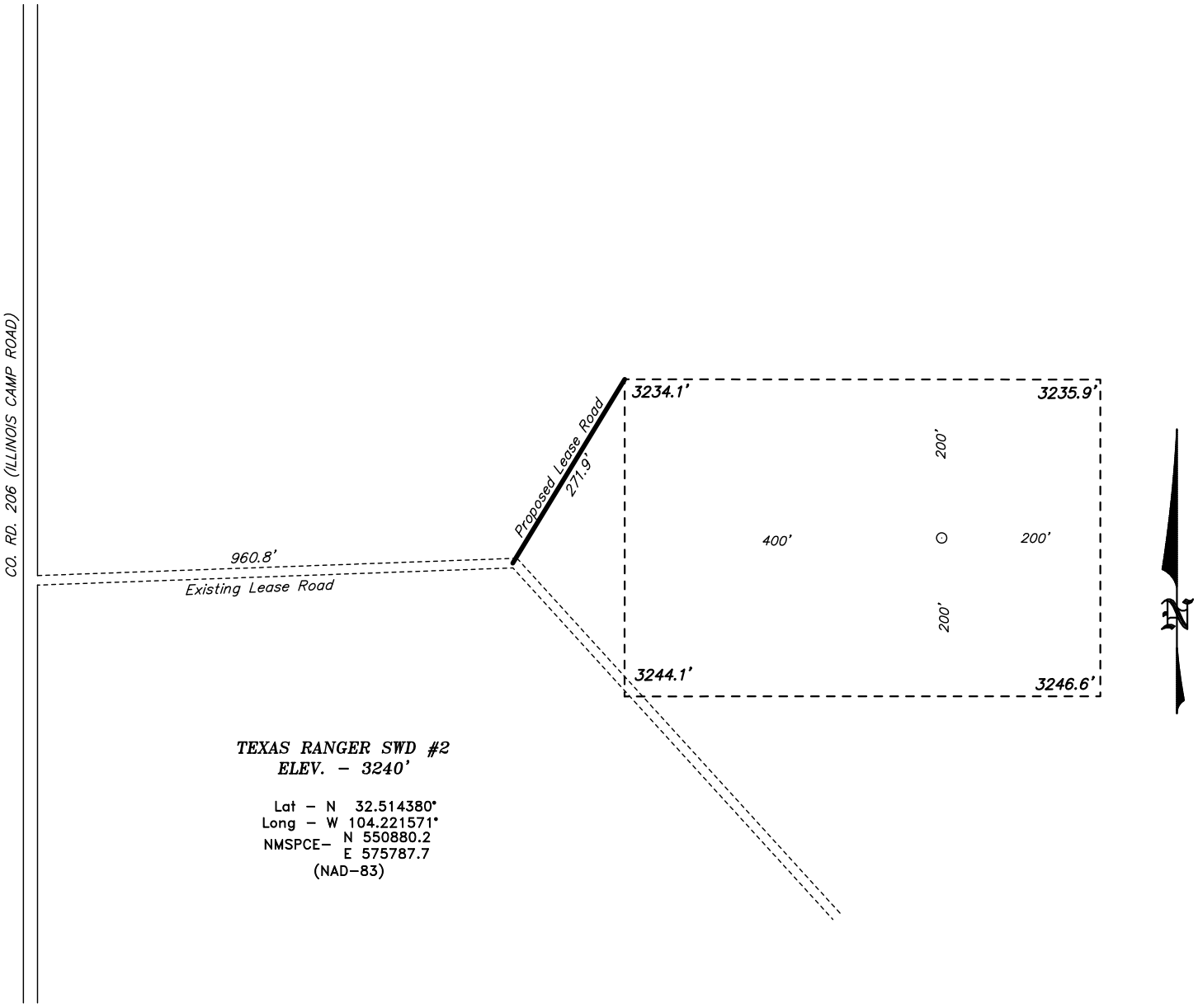
GARY L. JONES NEW MEXICO 7977 REGISTERED PROFESSIONAL LAND SURVEYOR

Certificate No. Gary L. Jones 7977
BASIN SURVEYS

0' 1000' 2000' 3000' 4000'
SCALE: 1" = 2000'
WO Num.: 34766

SECTION 6 TOWNSHIP 21 SOUTH, RANGE 27 EAST, N.M.P.M.,

EDDY COUNTY, **NEW MEXICO.**



TEXAS RANGER SWD #2
ELEV. – 3240'

Lat – N 32.514380°
Long – W 104.221571°
NMSPCE– N 550880.2
E 575787.7
(NAD–83)

CARLSBAD, NM IS ±6 MILES TO THE SOUTH OF LOCATION.

200 0 200 400 FEET

SCALE: 1" = 200'

DIRECTIONS TO LOCATION:
FROM THE JUNCTION OF CO. RD, 206 (ILLINOIS CAMP ROAD) AND CO. RD. 600 (RAINS ROAD), GO NORTH ON ILLINOIS CAMP ROAD FOR APPROX. 1.25 MILES TO EXISTING LEASE ROAD. THEN EAST ON LEASE ROAD FOR 0.2 MILES TO PROPOSED LEASE ROAD.

SOLARIS WATER MIDSTREAM

REF: TEXAS RANGER SWD 2 / WELL PAD TOPO

THE TEXAS RANGER SWD 2 LOCATED 2990' FROM THE NORTH LINE AND 344' FROM THE EAST LINE OF SECTION 6, TOWNSHIP 21 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

basin surveys
focused on excellence in the oilfield
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393–7316 – Office
(575) 392–2206 – Fax
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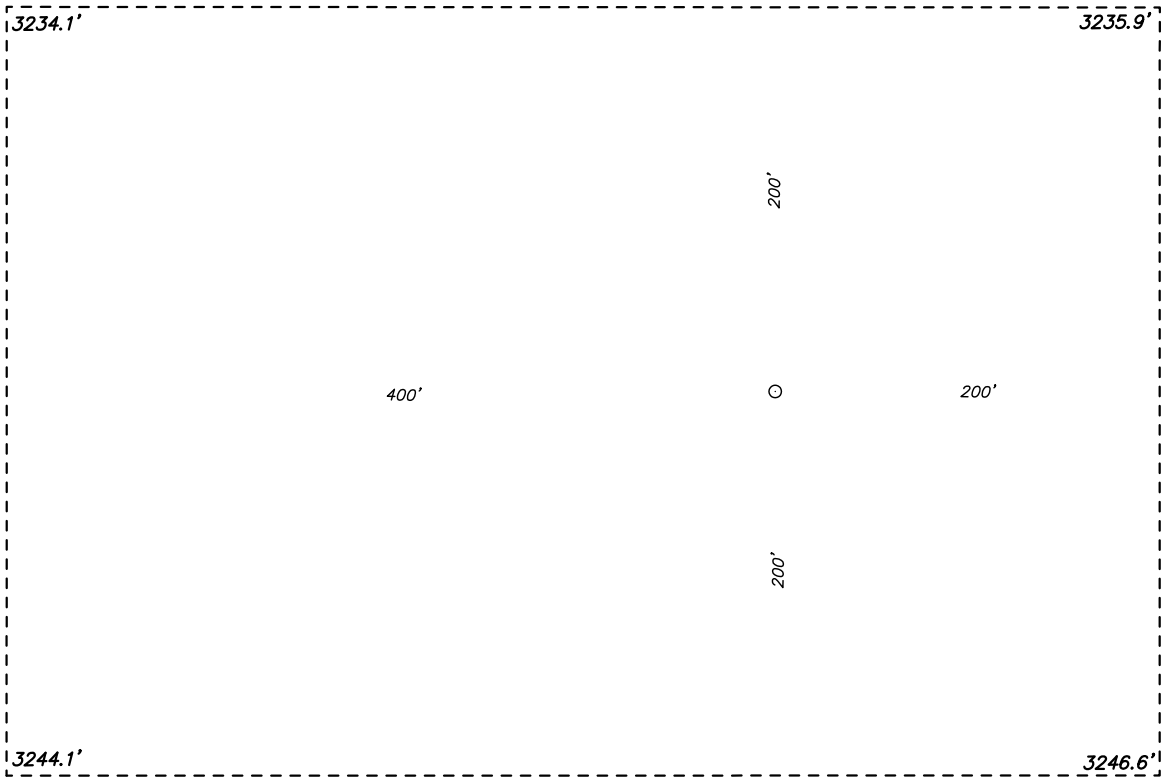
W.O. Number: 34766	Drawn By: K. GOAD	Date: 08–09–2019	Survey Date: 08–02–2019	Sheet 1 of 1 Sheets

SECTION 6 TOWNSHIP 21 SOUTH, RANGE 27 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



100 0 100 200 FEET

SCALE: 1" = 100'

SOLARIS WATER MIDSTREAM

REF: TEXAS RANGER SWD 2 / WELL• PAD TOPO

THE TEXAS RANGER SWD 2 LOCATED 2990' FROM THE NORTH LINE AND 344' FROM THE EAST LINE OF SECTION 6, TOWNSHIP 21 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

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Hobbs, New Mexico 88241
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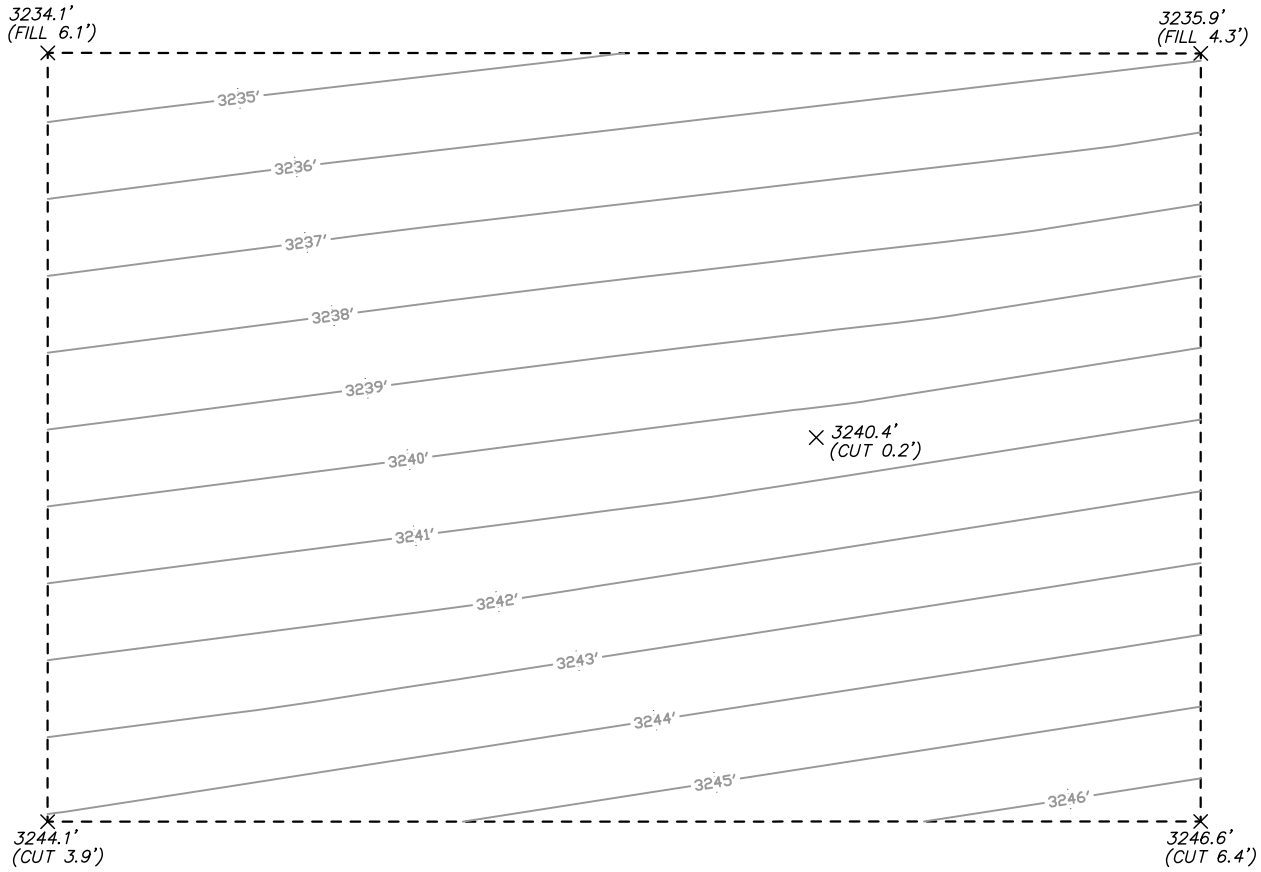
W.O. Number: 34766	Drawn By: K. GOAD	Date: 08-09-2019	Survey Date: 08-02-2019	Sheet 1 of 1 Sheets

SECTION 6 TOWNSHIP 21 SOUTH, RANGE 27 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



100 0 100 200 FEET

SCALE: 1" = 100'

SOLARIS WATER MIDSTREAM

REF: TEXAS RANGER SWD 2 / CUT & FILL

THE TEXAS RANGER SWD 2 LOCATED 2990' FROM THE NORTH LINE AND 344' FROM THE EAST LINE OF SECTION 6, TOWNSHIP 21 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

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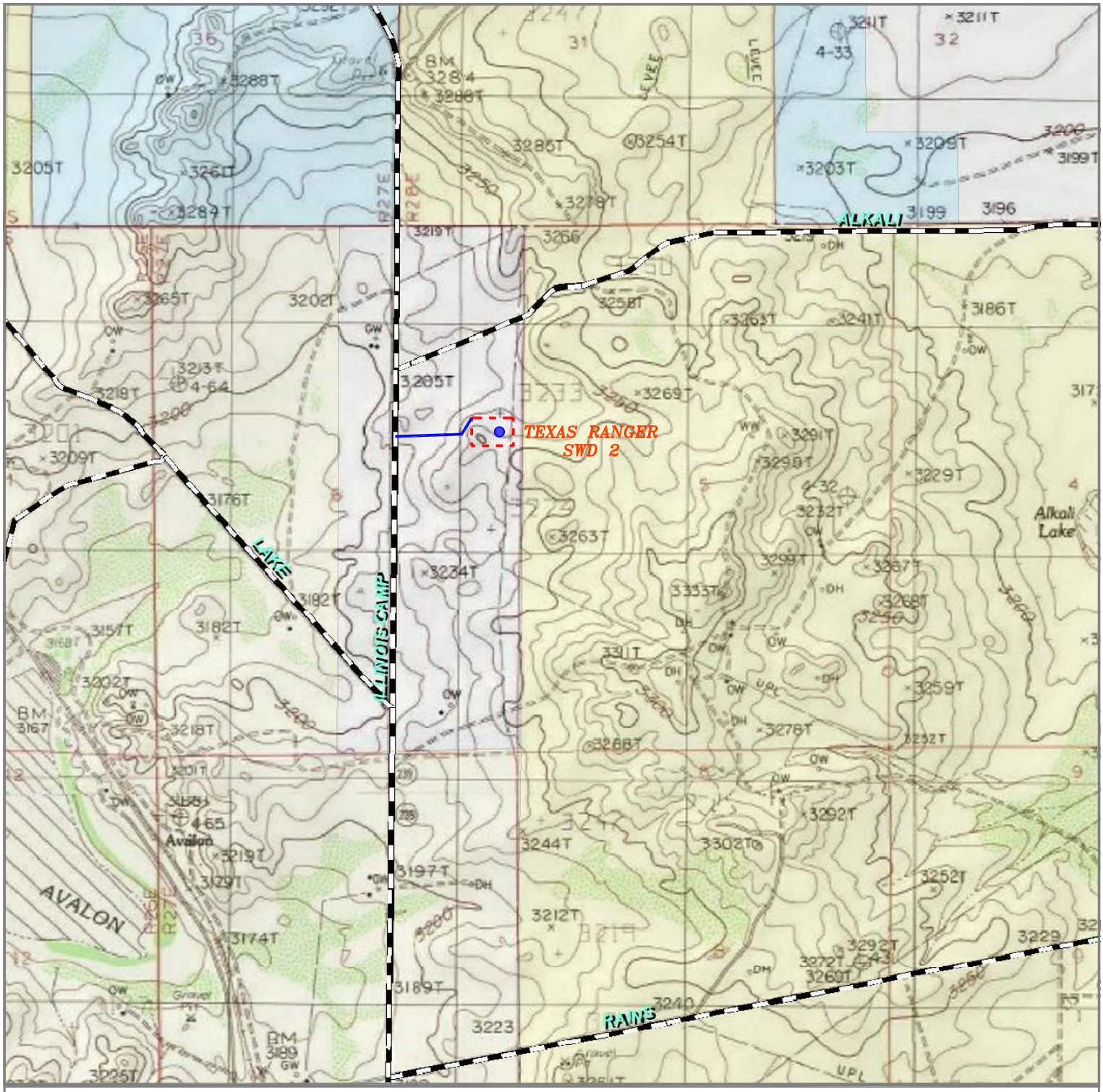
W.O. Number: 34766	Drawn By: K. GOAD	Date: 08-09-2019	Survey Date: 08-02-2019	Sheet 1 of 1 Sheets



TEXAS RANGER SWD 2

Located 2990' FNL & 344' FEL
Section 6, Township 21 South, Range 27 East,
N.M.P.M., Eddy County, New Mexico.

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

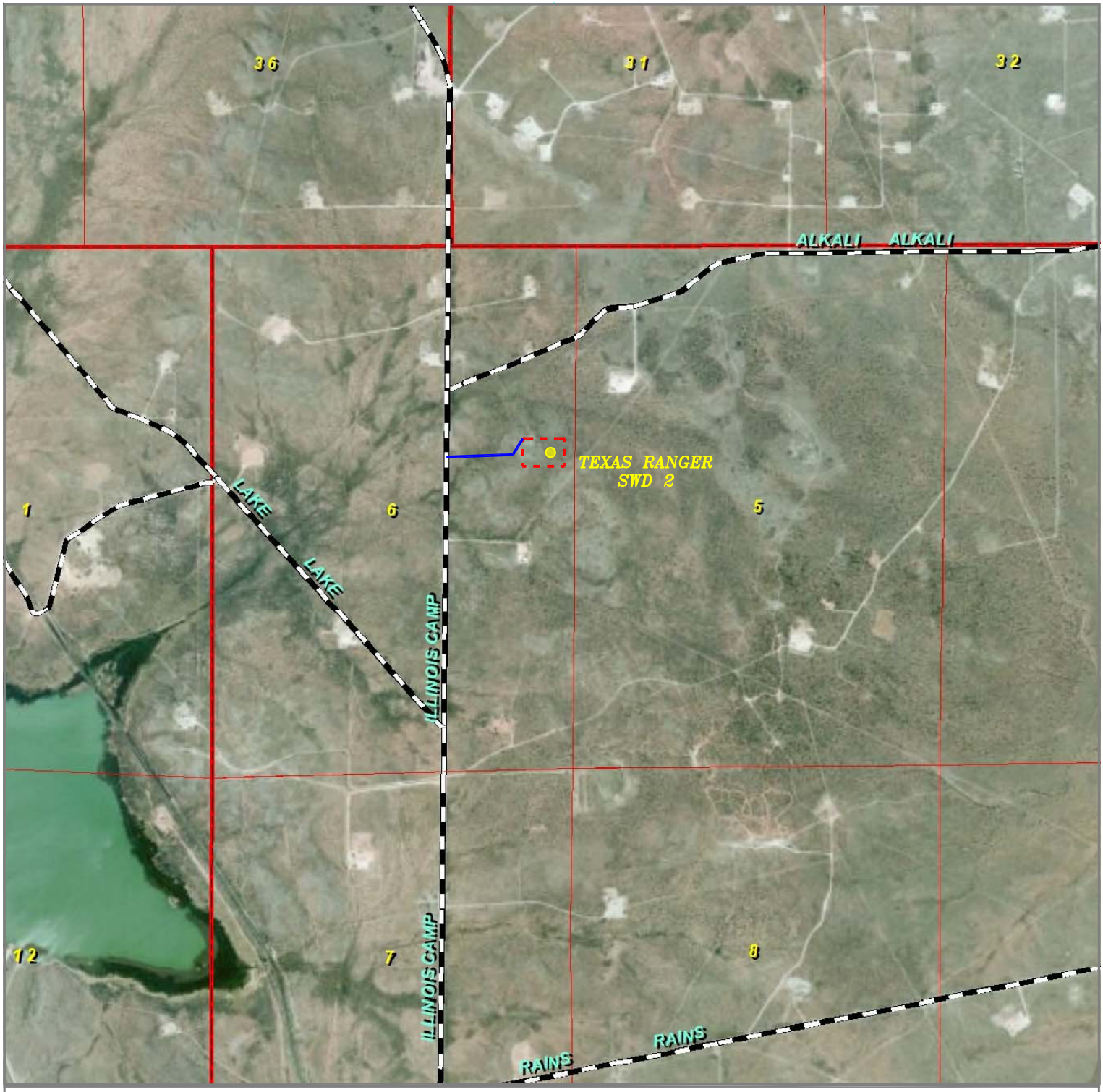
W.O. Number: KJG – 34766

Survey Date: 08-02-2019

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

N

SOLARIS WATER MIDSTREAM



TEXAS RANGER SWD 2

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

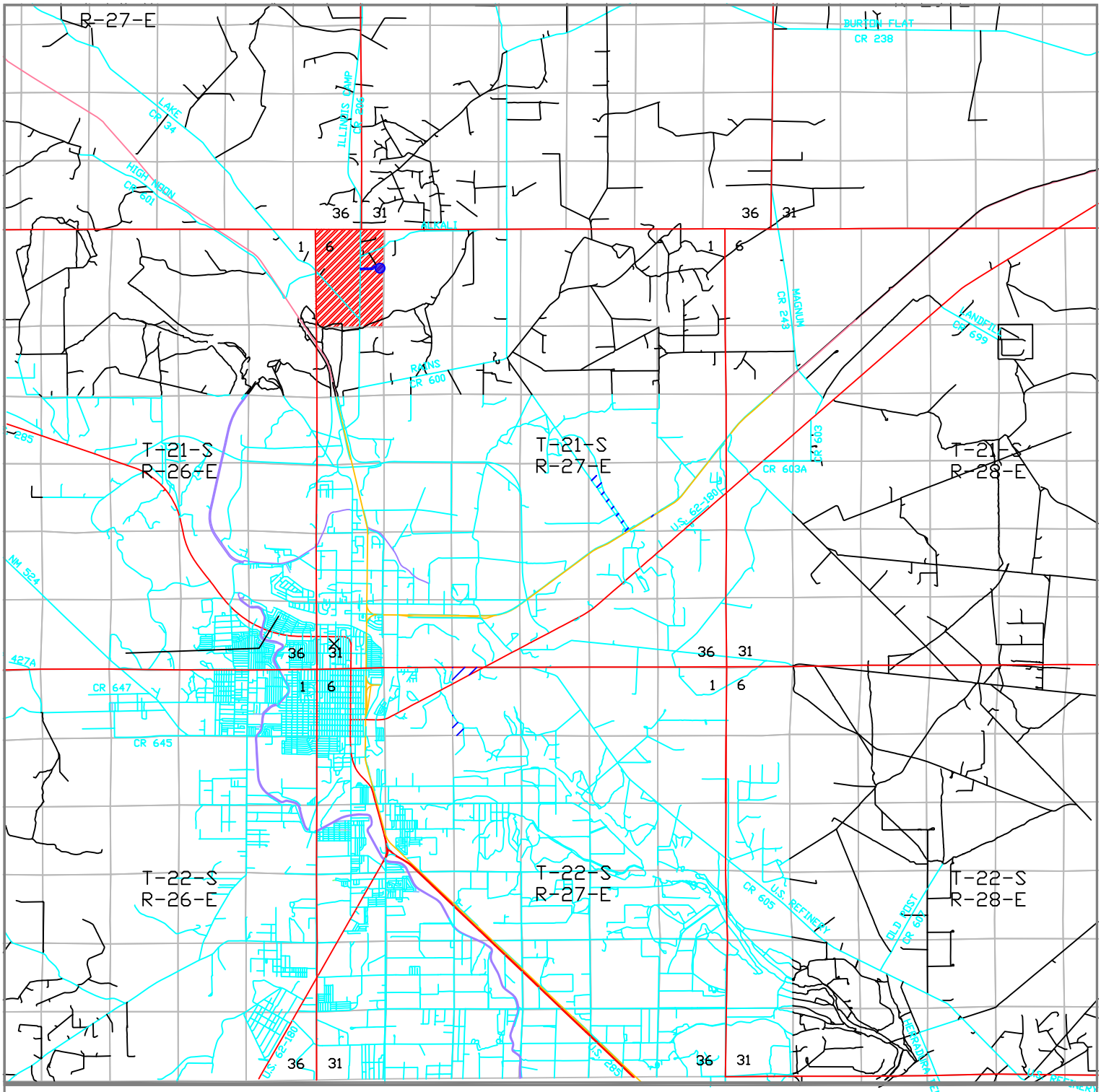
W.O. Number: KJG – 34766

Survey Date: 08-02-2019

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

N

SOLARIS WATER MIDSTREAM



TEXAS RANGER SWD 2

Located 2990' FNL & 344' FEL
Section 6, Township 21 South, Range 27 East,
N.M.P.M., Eddy County, New Mexico.

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0 1 MI 2 MI 3 MI 4 MI
SCALE: 1" = 2 MILES

W.O. Number: KJG – 34766

Survey Date: 08-02-2019

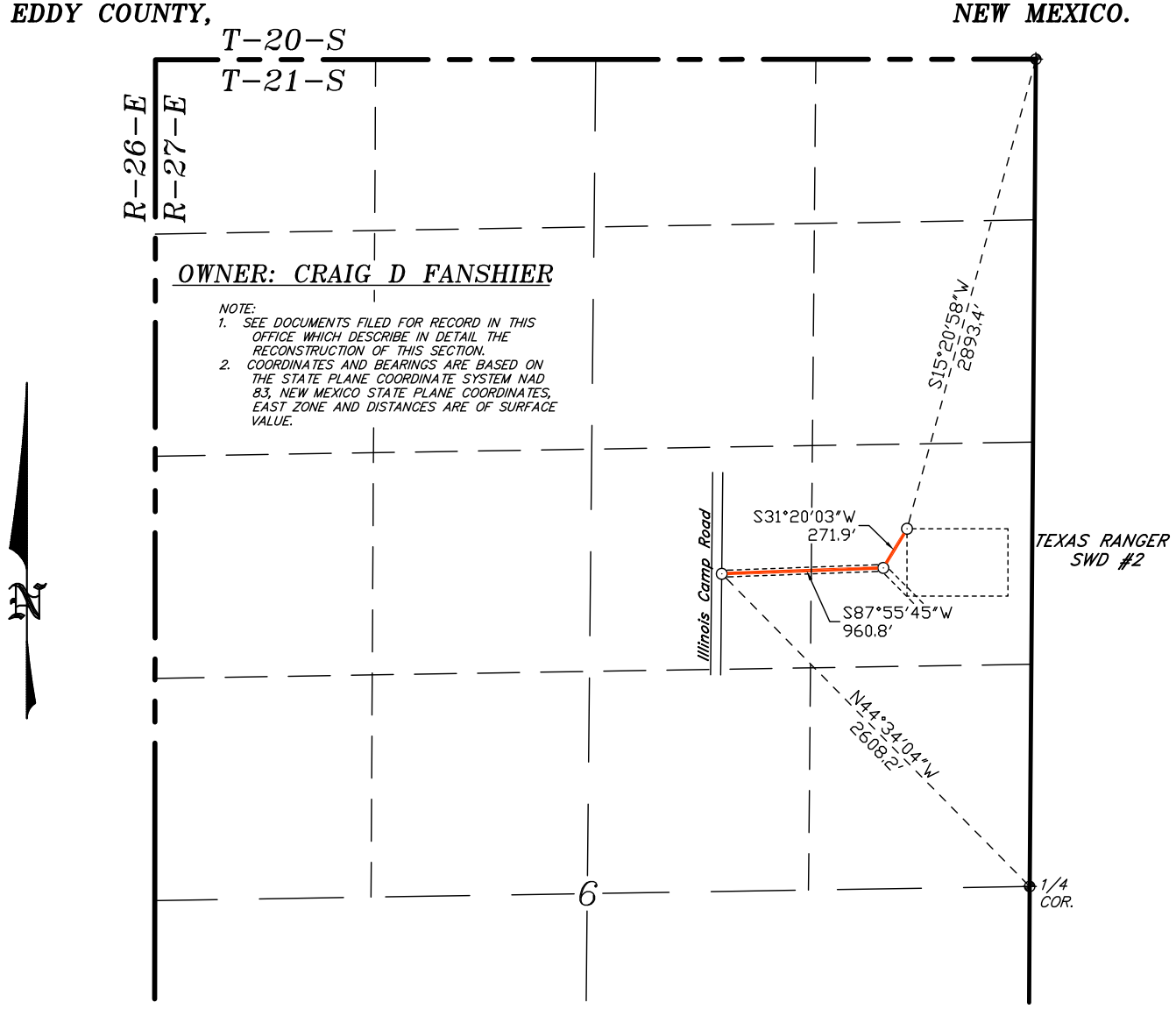
YELLOW TINT – USA LAND
BLUE TINT – STATE LAND
NATURAL COLOR – FEE LAND

N

SOLARIS WATER MIDSTREAM

SECTION 6, TOWNSHIP 21 SOUTH, RANGE 27 EAST, N.M.P.M.,

EDDY COUNTY, NEW MEXICO.



LEGAL DESCRIPTION

A STRIP OF LAND 20.0 FEET WIDE, LOCATED IN SECTION 6, TOWNSHIP 21 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING 10.0 FEET LEFT AND RIGHT OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY.

BEGINNING AT A POINT WHICH LIES S.15°20'58"W., 2893.4 FEET FROM THE NORTHEAST CORNER OF SAID SECTION 6; THENCE S.31°20'03"W., 271.9 FEET; THENCE S.87°55'45"W., 960.8 FEET TO THE END OF THIS LINE WHICH LIES N.44°34'04"W., 2608.2 FEET FROM THE EAST QUARTER CORNER OF SAID SECTION 6. SAID STRIP OF LAND BEING 1232.7 FEET OR 74.71 RODS IN LENGTH.

1000 0 1000 2000 FEET

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE.

STATE OF NEW MEXICO — GARY L. JONES — 5074 — REGISTERED PROFESSIONAL LAND SURVEYOR

GARY L. JONES, NM P.S. No. 7977
TEXAS P.L.S. No. 5074
TEXAS FIRM No. 10119700

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Hobbs, New Mexico 88241

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SOLARIS WATER MIDSTREAM, LLC

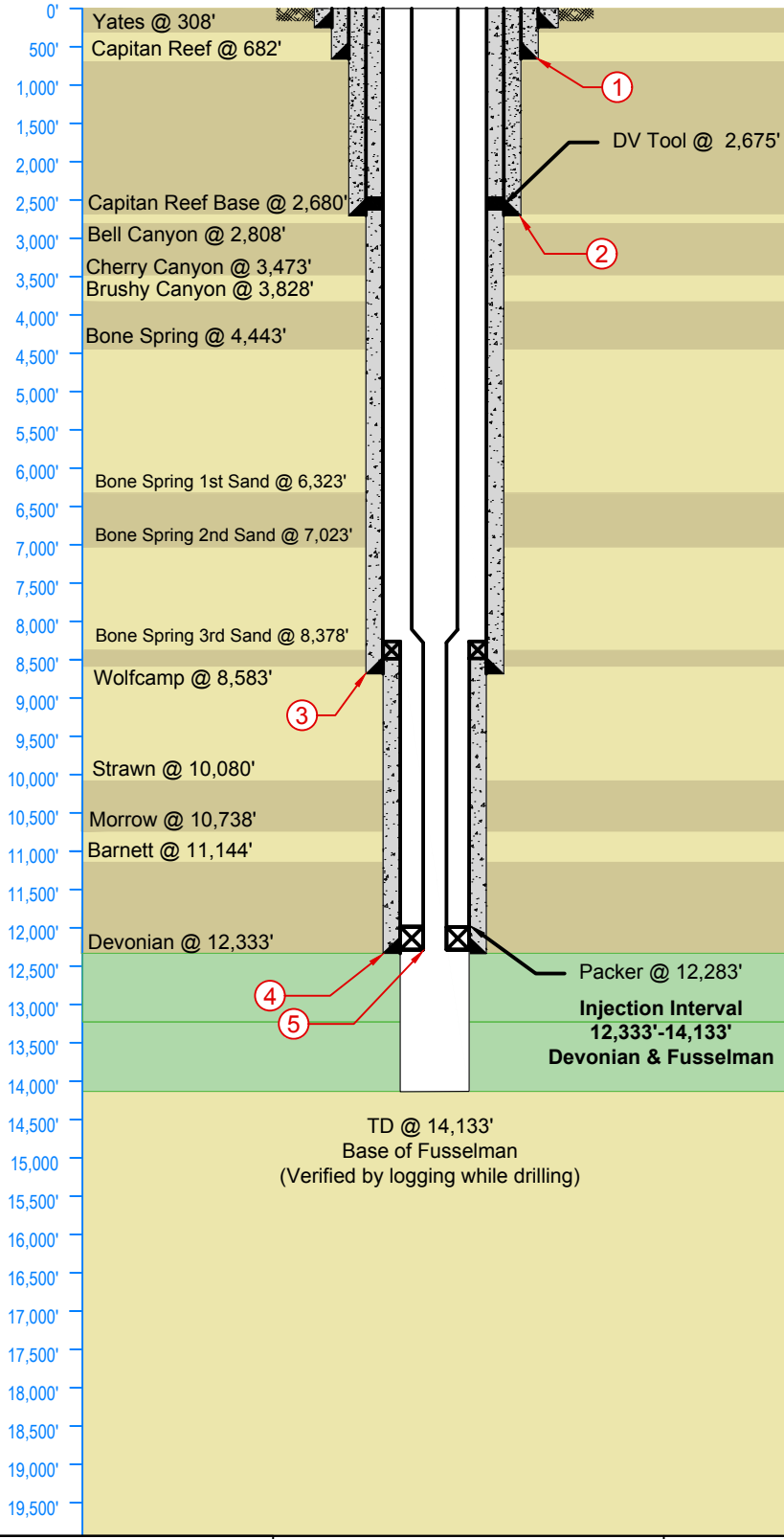
REF: LEASE ROAD TO THE TEXAS RANGER SWD #2

A LEASE ROAD CROSSING FEE LAND IN

SECTION 6, TOWNSHIP 21 SOUTH, RANGE 27 EAST,

N.M.P.M., EDDY COUNTY, NEW MEXICO.

W.O. Number: 34766	Drawn By: K. GOAD	Date: 08-09-2019	Survey Date: 08-02-2019	Sheet 1 of 1 Sheets



Casing Information

Label	1	2	3	4
Type	Surface	Intermediate	Production	Liner
OD	20"	13-3/8"	9-5/8"	7-5/8"
WT	0.438"	0.480"	0.545"	0.500"
ID	19.124"	12.415"	8.535"	6.625"
Drift ID	18.936"	12.259"	8.379"	6.500"
COD	21"	13.375"	10.625"	7.625"
Weight	94 lb/ft	68 lb/ft	53.5 lb/ft	39 lb/ft
Grade	J-55 STC	L-80 BTC	HCP-110 BTC	Q-125 EZ-GO FJ3
Hole Size	26"	14-3/4"	12-1/4"	8-1/2"
Depth Set	660'	2,700'	8,683'	Top: 8,483" Bottom: 12,333'
TOC	Circulate to surface	Circulate to surface	Circulate to surface	8,483'
Volume	2130 sacks	515 sacks	2,664 sacks	596 sacks
Excess	150 %	100%	100%	50%

Tubing Information

Label	6
OD	5-1/2", 5"
WT	0.361", 0.362"
ID	4.778", 4.276"
Drift ID	4.653", 4.151"
COD	6.050", 5.563"
Weight	20 lb/ft, 18 lb/ft
Grade	HCL-80 BTC, HCL-80 LTC
Depth Set	0' - 8,283' 8,283' - 12,283'

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

Texas Ranger SWD No. 2

Country: USA	**State/Province:** New Mexico	**County/Parish:** Eddy
Location:	**Site:** 2,990' FNL, 344' FEL	**Survey:** S9-T21S-R27E
API No: NA	**Field:** Silurian-Devonian (Code: 97869)	**Well Type/Status:** SWD
NMOCD District No: 2	**Project No:**	**Date:** 9/20/2019
Drawn: TFM	**Reviewed:**	**Approved:**
Rev No: 1	**Notes:**	

Seismicity and Faults in the Vicinity of the Proposed Solaris Water Midstream, LLC Texas Ranger SWD No. 2 Devonian Disposal wells in Eddy County, New Mexico

The proposed well is located in Eddy County, New Mexico. The Texas Ranger SWD No. 2 (Texas Ranger) well is located in Township 21 South, Range 27 East, Section 6; six miles north 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:

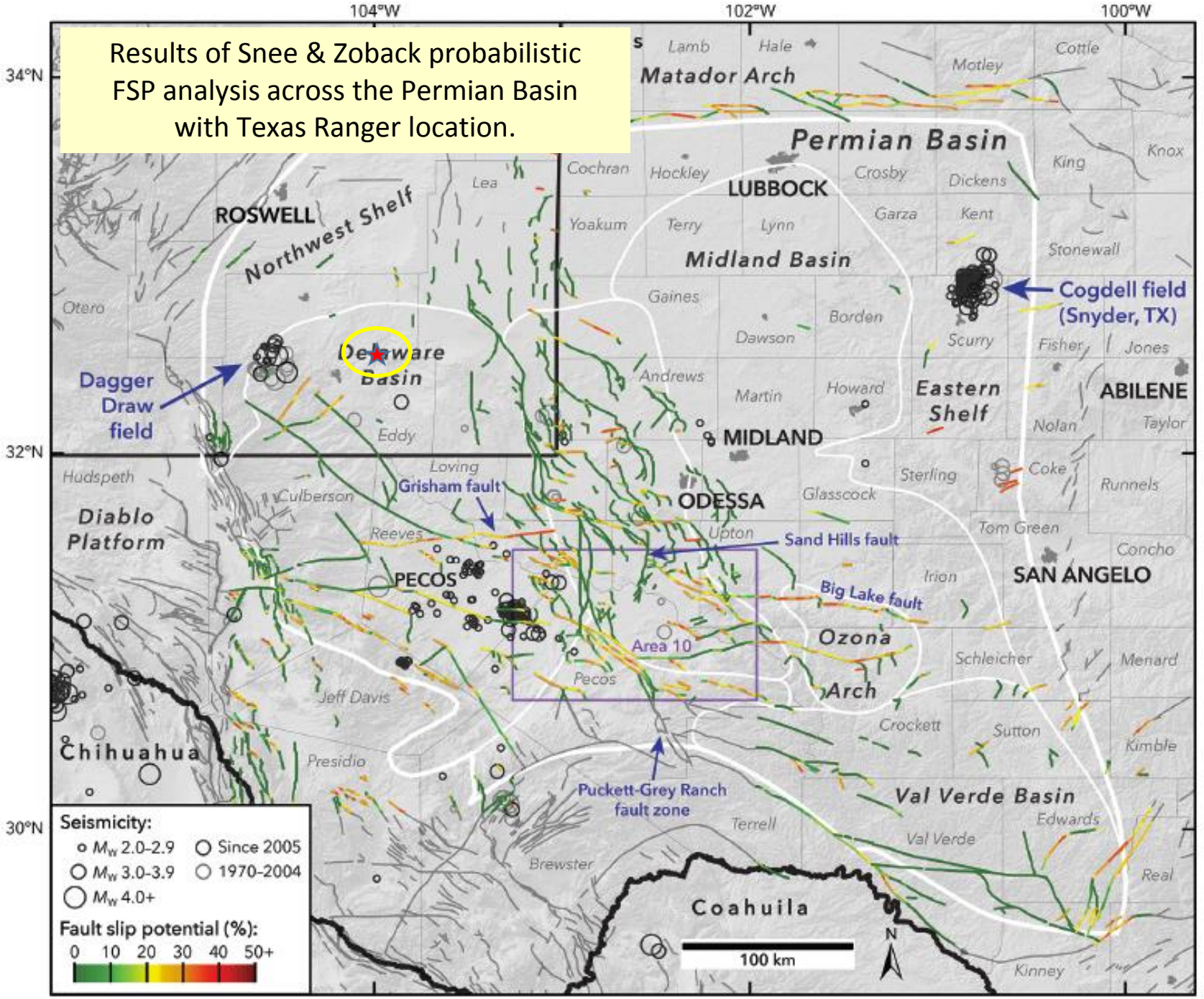
The USGS surface geologic map, a USGS published Devonian structure map, and subscription Geomap regional subsurface structure maps at the Yates, Strawn Lime and Devonian levels were reviewed for faults. The nearest faults mapped at the Devonian level were 12.0 and 15.30 miles southwest of the proposed 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 Texas Ranger 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
SAN ANGELO
Grisham fault
Sand Hills fault
Big Lake fault
Diablo Platform
PECOS
Area 10
Ozona Arch
Puckett-Grey Ranch fault zone
Val Verde Basin
Chihuahua
Coahuila
Lamb
Hale
Cottle
Motley
Knox
King
Cochran
Hockley
Crosby
Dickens
Lea
Yoakum
Terry
Lynn
Garza
Kent
Stonewall
Otero
Gaines
Borden
Dawson
Scurry
Fisher
Jones
Andrews
Martin
Howard
Nolan
Taylor
Eddy
Loving
Hudspeth
Culberson
Reeves
Upton
Glasscock
Sterling
Coke
Runnels
Tom Green
Concho
Irion
Schleicher
Menard
Pecos
Jeff Davis
Presidio
Crockett
Sutton
Kimble
Terrell
Brewster
Val Verde
Edwards
Real
Kinney
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)

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): 2019-10-02 23:59:59

Geographic Region

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

Custom Circle

- 32.51438 Latitude
- -104.221571 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: 32.51438

Center Longitude: -104.221571

Outer Radius (km): 15

Depth (km)

Minimum:

Maximum:

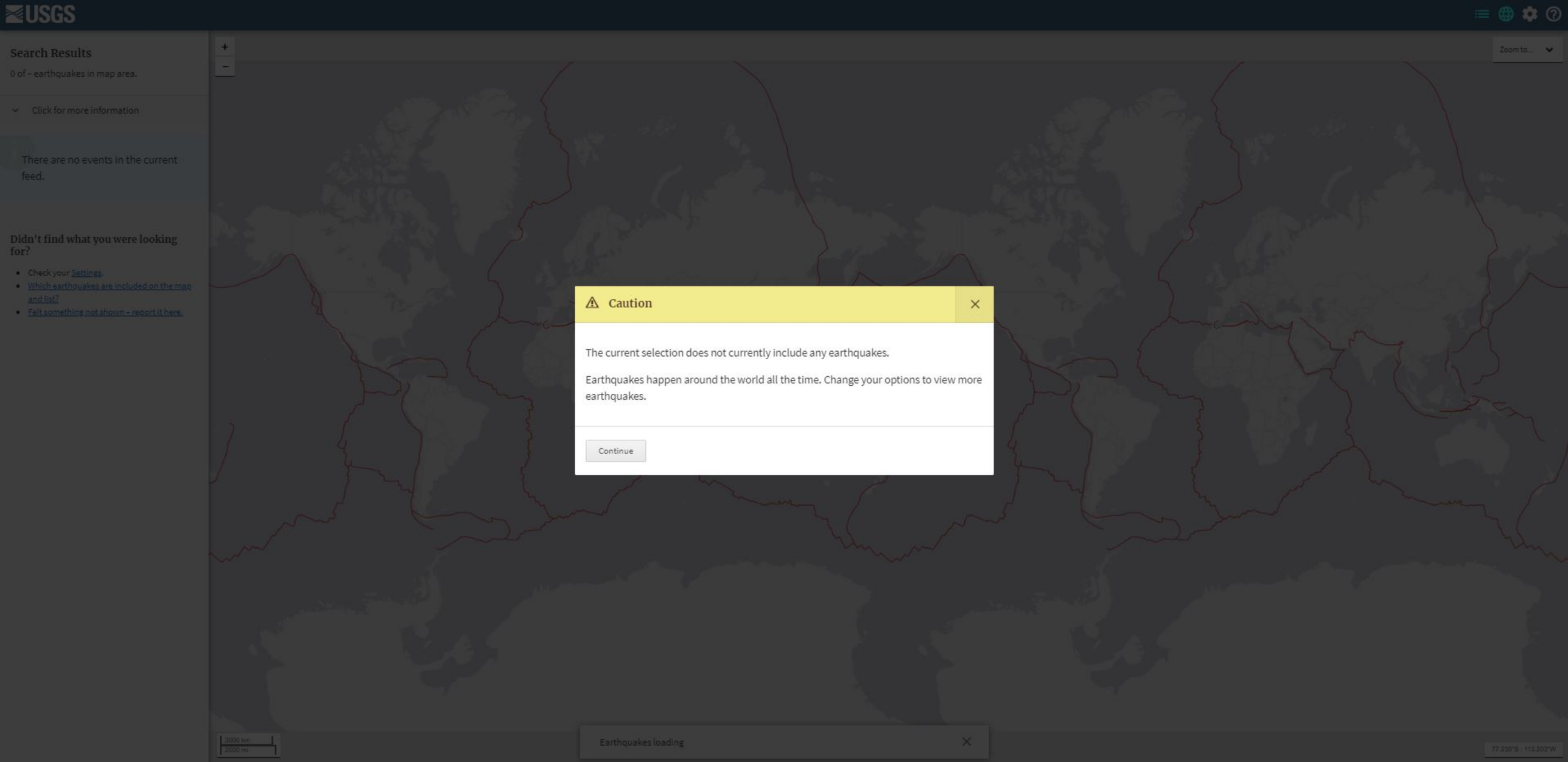
Azimuthal Gap

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): 2019-10-02 23:59:59

Geographic Region

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

Custom Circle

- 32.51438 Latitude
- -104.221571 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: 32.51438

Center Longitude: -104.221571

Outer Radius (km): 25

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

Last Updated 2019-10-02 21:00:34 (UTC)

Download

Search Parameters

starttime	1900-01-01 00:00:00
endtime	2019-10-02 23:59:59
latitude	32.51438
longitude	-104.221571
maxradiuskm	25
minmagnitude	2
orderby	time

Modify Search

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

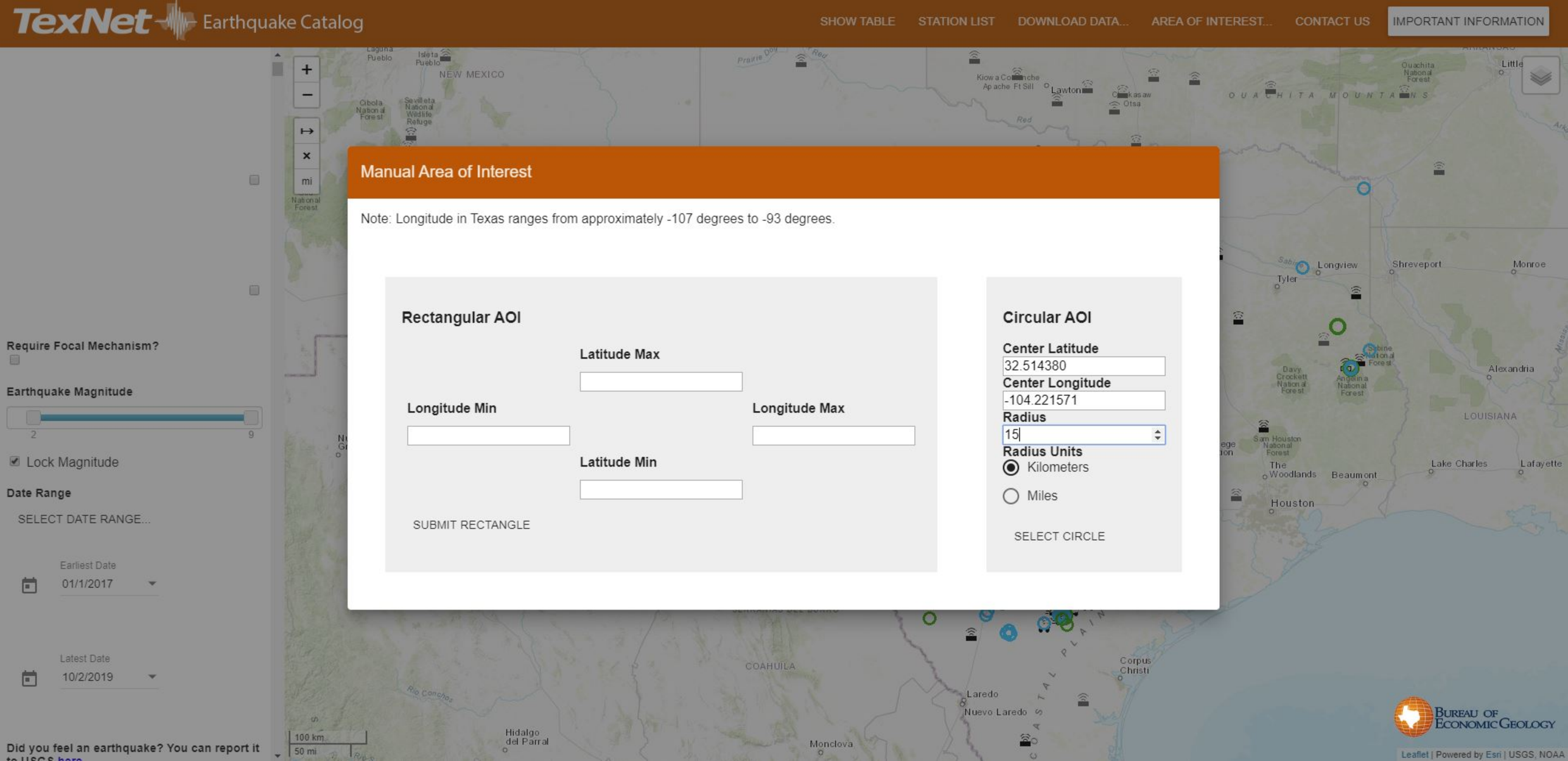
Didn't find what you were looking for?

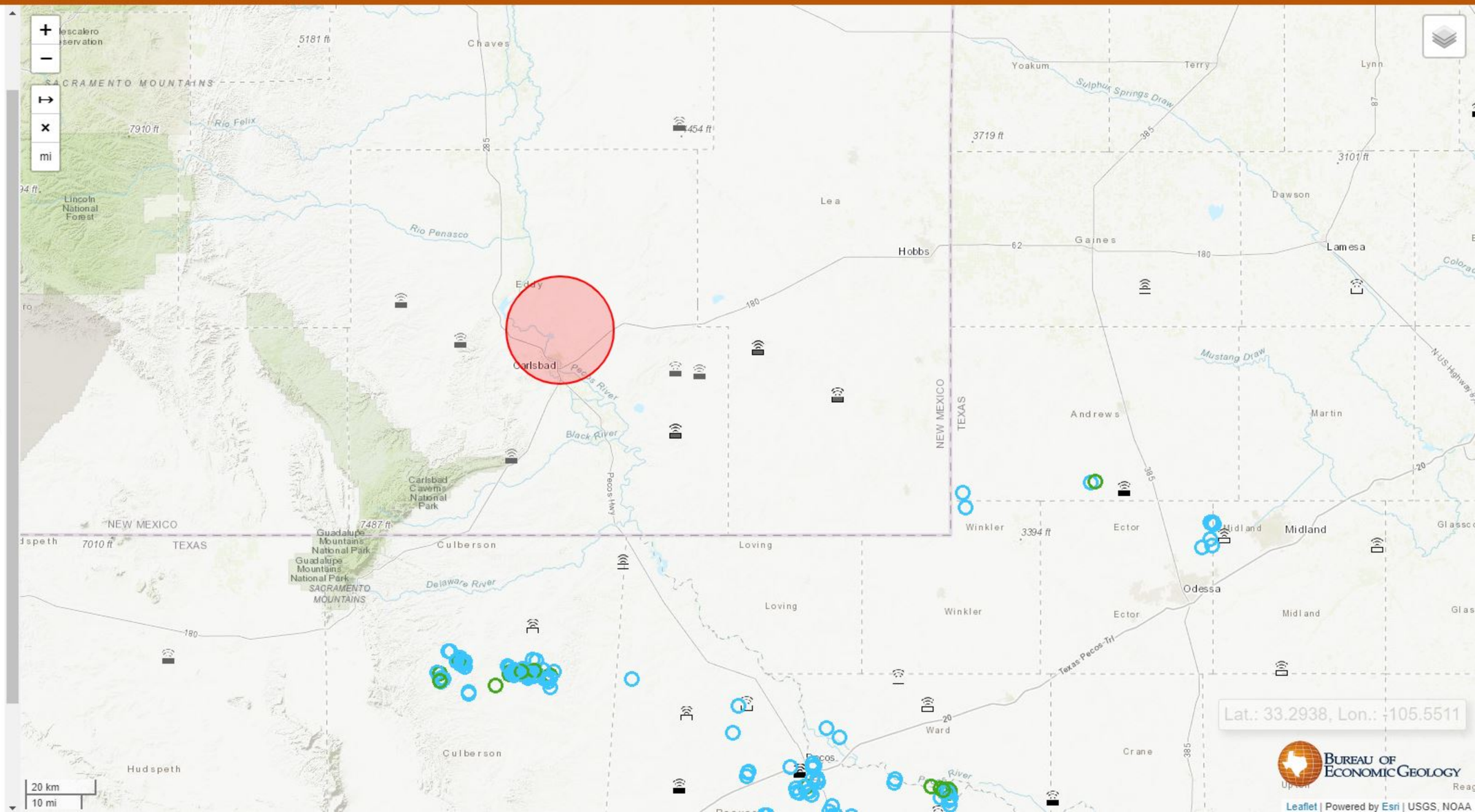
- Check your Settings.
- Which earthquakes are included on the map and list?
- Felt something not shown – report it here.

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
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
32.514380
Center Longitude
-104.221571
Radius
15
Radius Units
Kilometers
Miles
SELECT CIRCLE
Require Focal Mechanism?
Earthquake Magnitude
Lock Magnitude
Date Range
SELECT DATE RANGE...
Earliest Date
01/1/2017
Latest Date
10/2/2019
Did you feel an earthquake? You can report it
NEW MEXICO
COAHUILA
LOUISIANA
Lawton
Longview
Shreveport
Monroe
Tyler
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



Require Focal Mechanism?

Earthquake Magnitude

2 — 9

Lock Magnitude

Date Range

SELECT DATE RANGE...

Earliest Date
01/1/2017

Latest Date
10/2/2019

Did you feel an earthquake? You can report it

GEOLOGIC AFFIRMATION

I have examined available geologic and engineering data. The depth of the surface casing is sufficient to protect the known groundwaters in the area of the well.

Stephen Martinez
Sr. Vice President of Drilling

Project: Solaris Water Midstream, LLC
Texas Ranger SWD #2

Solaris Midstream

Submitted by:
Jared Booker
jbooker@compasswellservices.com
432-561-5970
8/22/2019

Prepared for:
Mr. Stephen Martinez
Operations Manager

SOLARIS MIDSTREAM - TEXAS RANGER SWD #2 - SURFACE - VERSION 2

WELL BORE DETAILS

Hole Size

Size	Depth (ft)	
26	660	TMD
	660	TVD

Casing

Size	Depth (ft)	Grade	Weight	Thread
20	660	J-55	94	STC

Formation

Mud Weight/Type	BH Temp	
8.5 ppg WBM	87°F	BHST
	81°F	BHCT

JOB AND FLUID DETAILS

Job Details

Pump 20 bbls of gel spacer with 3 lb/bbl of Plexfiber A

Pump 40 bbls of gel spacer with 20 lb/bbl of CTB-15

Mix and pump 685 sks of thixotropic lead cement at 14.5 ppg, yielding 1,404.3 cu.ft. (250.1 bbls)

Mix and pump 550 sks of lead cement at 12.4 ppg, yielding 1,248.5 cu.ft. (222.4 bbls)

Mix and pump 895 sks of tail cement at 14.8 ppg, yielding 1,208.3 cu.ft. (215.2 bbls)

Drop top rubber plug and displace with 323 bbls (actual volume and fluid type determined on location)

Slurry Properties	Yield	Density	Mix Water
Thixotropic Lead	2.05	12.8	11.43
Lead Cement	2.27	12.4	12.54
Tail Cement	1.35	14.8	6.36

Thixotropic Lead Slurry - 685 sks (0% Excess) TOC n/a	
100 Class C Premium	
C-45 Econolite	1.50 %
Calcium Chloride	1.00 %
Gyp Seal	5.00 #/sk

Lead Cement Slurry - 550 sks (150% Excess) TOC Surface	
93:7 Class C Premium:CPO-18	
Premium Gel (Bentonite)	1.50 %
Salt	1.05 #/sk
C-51 Suspension Agent	0.10 %
C-45 Econolite	0.75 %
STE	4.00 %
CTB-15 LCM	6.00 #/sk
C-503P Defoamer	0.30 %

Tail Cement Slurry - 895 sks (150% Excess) TOC 330	
100 Class C Premium	
C-45 Econolite	0.10 %
Calcium Chloride	2.00 %

COST ESTIMATE

Description	Quantity		Units	Gross Amount	Net Amount
Pump Charge 0' to 1000'	1	$2,650.00	each	$2,650.00	$1,007.00
Pump Charge - Additional Hours	-	$1,700.00	hour	$0.00	$0.00
Reserve Pump Truck	1	$9,640.00	each	$9,640.00	$3,663.20
Reserve Pump Truck after 10 hrs	-	$1,700.00	hour	$0.00	$0.00
HV Mileage	300	$11.40	mile	$3,420.00	$1,299.00
LV Mileage	450	$6.74	mile	$3,033.00	$1,152.00
Field Storage Bin delivery	450	$11.40	mile	$5,130.00	$1,948.50
Field Storage Bin - 3 Days	3	$1,700.00	each	$5,100.00	$1,938.00
20" Plug Container	1	$15,275.00	ea	$15,275.00	$5,804.50
20" Top Rubber Plug	1	$4,050.00	ea	$4,050.00	$1,539.00
Data Acquisition	1	$1,130.00	each	$1,130.00	$429.40
Thickening Time Test, Field Blend	1	$2,180.00	each	$2,180.00	$828.40
Centrifugal Pump	1	$1,130.00	each	$1,130.00	$429.40
Circulating Equipment	-	$6,000.00	each	$0.00	$0.00
Derrick Charge	-	$1,000.00	each	$0.00	$0.00
Subtotal for Pumping & Equipment Charges				$52,738.00	$20,038.40
Class C Premium	2,092	$35.92	sacks	$75,144.64	$28,555.80
CPO-18	39	$20.75	sacks	$809.25	$307.71
Premium Gel (Bentonite)	764	$0.98	lb	$748.72	$282.68
Gyp Seal	3,425	$0.72	lb	$2,466.00	$924.75
C-503P Defoamer	153	$5.93	lb	$907.29	$344.25
C-51 Suspension Agent	51	$38.04	lb	$1,940.04	$737.46
Calcium Chloride	2,327	$2.11	lb	$4,909.97	$1,861.60
CTB-15 LCM	3,300	$5.40	lb	$17,820.00	$6,765.00
C-45 Econolite	1,432	$3.34	lb	$4,782.88	$1,818.64
Salt	578	$0.50	lb	$289.00	$109.82
STE	2,038	$1.29	lb	$2,629.02	$998.62
Citric Acid	6	$13.94	lb	$83.64	$31.80
C-51 Suspension Agent	120	$38.04	lb	$4,564.80	$1,735.20
Soda Ash - pH Buffer	150	$1.50	lb	$225.00	$85.50
Plex Fiber A - Loss Circulation Material	60	$34.22	lb	$2,053.20	$780.00
CTB-15 LCM	800	$5.40	lb	$4,320.00	$1,640.00
C-503L Defoamer	20	$120.42	gal	$2,408.40	$915.20
Sugar	500	$4.20	lb	$2,100.00	$800.00
Materials Handling	2,393	$3.75	CF	$8,973.75	$3,410.03
Drayage	319,650	$0.09	sacks x miles	$28,768.50	$10,932.03
Subtotal for Materials Charges				$165,944.10	$63,036.09
Gross Price Subtotal					$218,682.10
Discount				62.0%	($135,607.62)
Pre-tax Total					**$83,074.49**

compass Cementing

DOWNHOLE PRODUCTS

Data Sheet

Cement Basket

20.000” Casing x 26.000” (27.756” OD)

Product:

The Baskets are constructed with thin overlapping high strength steel fins reinforced by spring steel ribs to provide both flexibility and fluid passage while maintaining the ability to help support the cement column. Installation of the baskets is simple, the basket is slid over the pin end, placed in the desired location on the joint and secured by means of an internal stop collar. As the cement is circulated, it will flow past the basket and up the annulus, due to the design once the cement is pumped past the tool it will aid with support which will in turn help reduce the hydrostatic weight of the cement column on the formation it was run to protect.

Features:

- Robust Construction
- Proven Design
- Simple installation

Dimensions			
Casing Size		**20.000”**	
OD	*max*	**27.756**	*inches*
ID	*min*	**20.275**	*inches*
Length		**27.560**	*inches*
Unit Weight		**25.250**	*kg*

SAP #	-
DRW Ref. #:	TBC

DOWNHOLE PRODUCTS

Data Sheet

Model Number
13H200Q
Part Number
13H200Q-24000-001

Econ-O-Glider®

20.000” Casing x 24.000” OD

Product:

The ECON-O-GLIDER® is a pressed steel spiral blade centralizer that has been specifically designed to centralize casing being run in the less demanding vertical & intermediate wells, where positive standoff is required, and torque & drag reduction is not deemed a critical requirement.

Features:

- Positive stand-off spiral blade
- Maximum flow-by
- Blades tested to withstand 15-20 tons side loading

Dimensions		
Casing Size	20.000”	
OD	24.000	*Inches*
ID	20.250	*Inches*
Length	10.000	*Inches*
Specification		
Type	Solid Body, Slip On	
Material	EN 10025 S275 or Equivalent	
Blade Qty	6 x Spiral, Right Hand	
Unit Weight	20.000	*kg*
Manufacturing Process	Rolled, Welded & Pressed	
Performance Data		
Flow-by Area	193.200	*sq-in*
Friction Factor (CH)	0.30	
Friction Factor (OH)	0.40	

Options:

- **ECON-O-GLIDER ST (straight blade) option available**
- **Integral set screw option (ST Only)**
- **Size range from 2-7/8” through 30”**
- **Centralizer placement calculations**

Lab Analysis Report

10013 W County Rd 157
Midland, Tx 79706

Project No.	C1908045-3

Report Date	8/9/2019	MD	950
Requestor	Jared Booker	TVD	950
Analyst	MA/LC	Test T. (°F)	81
Client	Solaris Midstream	BHST (°F)	87
Well	Texas Ranger SWD 2	BHCT (°F)	81
County	Eddy	BHP (psi)	400
Job	Surface	Mud Weight (ppg)	8.7
Slurry	Lead	Blend Type	Pilot

Slurry Properties

Slurry Density (ppg)	Blend Yield (ft3/sk)
12.80	2.05

Slurry Composition

Component	Concentration	Unit	Lot #
Lehigh C	100.000	% of Base Material	Silo A
C-45	1.500	% BWOB	164836001
Calcium Chloride	1.000	% BWOB	2080119
GypSeal	5.000	lb/sk	031419S

Base Fluid	
Water Source	Water Req. (gal/sk)
Lab Tap	11.43

Comments

Project No.	C1908045-3

Rheology		
Temperature (°F)	80	81
Pressure (psi)	0	0
Condition Time (min)	0	30
RPM	Average	Average
300	56	75
200	53	67
100	49	61
60	48	55
30	46	53
6	32	21
3	26	19
10 sec gel (lbf/100ft2)		
10 min gel (lbf/100ft2)		
1 min stirring (lbf/100ft2)		
Rheology Model	Bingham	Bingham
PV (cP)	23.6	48.3
YP (lbf/100ft)	38.9	36.4
n' / K' (lbf-s^n/100ft2)		
		7.1

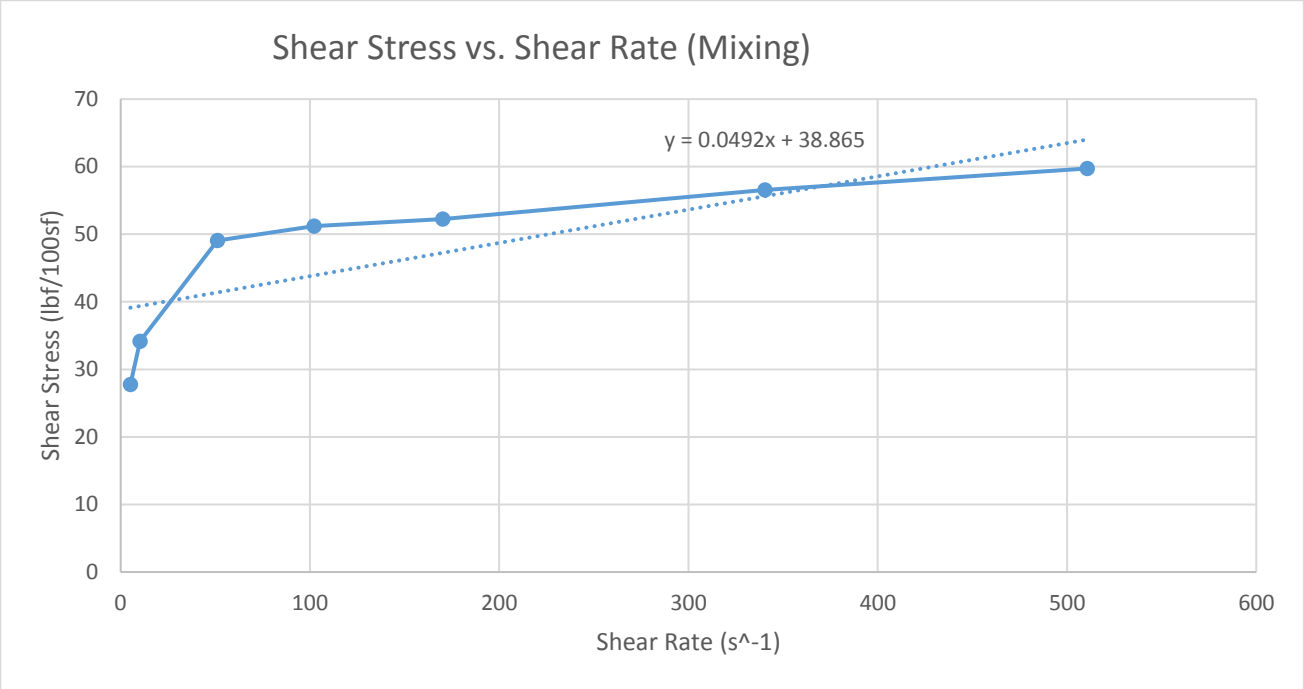
Thickening Time			
HPHT Unit Number	5	Initial	Final
Temperature (°F)		80	81
Pressure (psi)		400	400
Ramp Time (min)		1	5
Consistency (BC)		12	70
Time (hr:mm)		0:01	4:23
Batch Mixing			
Mixing Time (hr:min)			
Temperature (°F)			

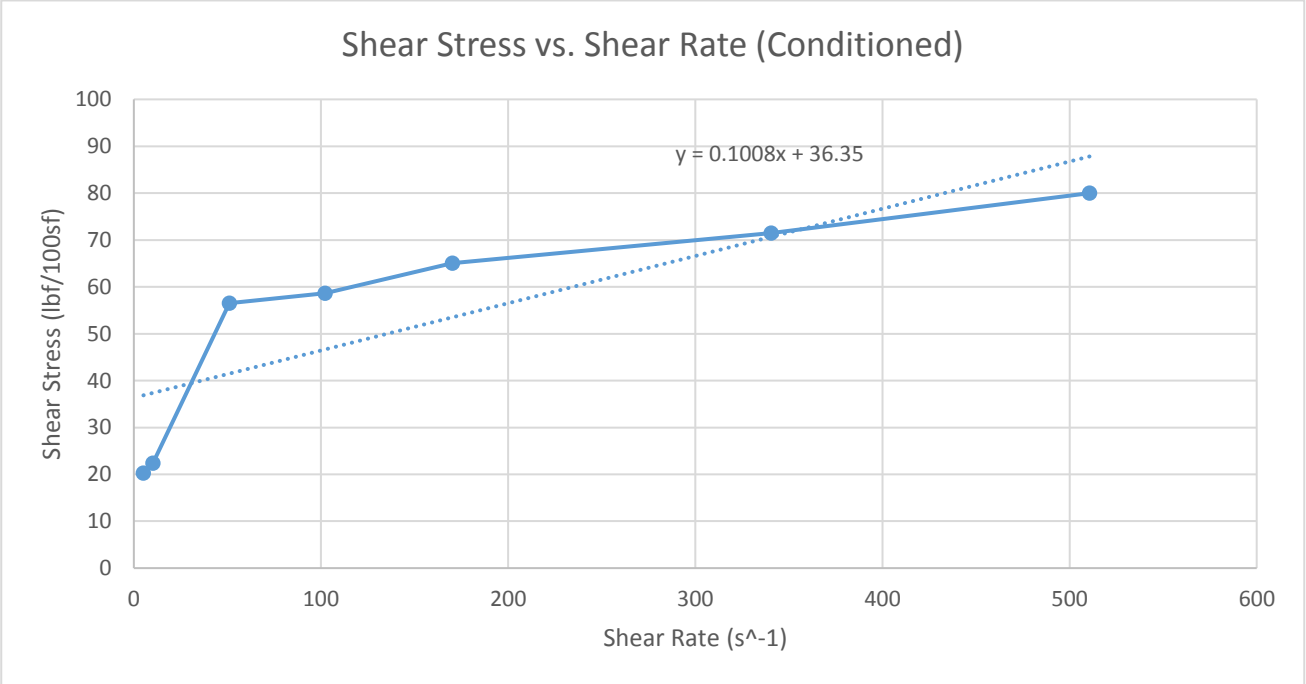
Fluid Loss	
Temperature (°F)	
Pressure (psi)	
Conditioning Time (min)	
Blow Out (Y/N)	
Test Time (min)	
API Fluid Loss (mL/30min)	

Free Fluid	
Conditioning Temp (°F)	81
Conditioning Time (min)	30
Static 2 hr Temperature (°F)	70
Inclination (deg)	90
Initial Volume (mL)	250
Free Fluid (mL)	0
% Free Fluid	0
Settling (Y/N)	N

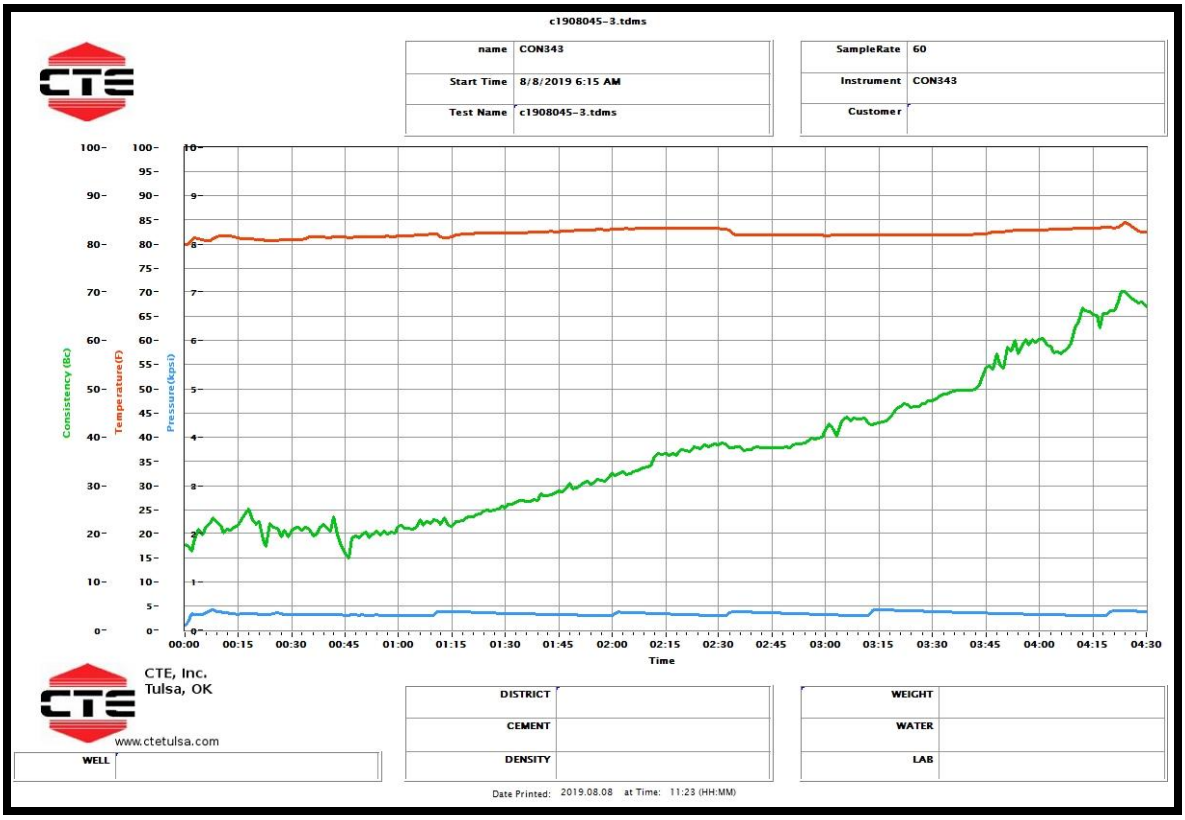
Compressive Strength							
UCA Unit Number	4	Initial		Final			
Temperature (°F)		80		80			
Pressure (psi)		3000		3000			
Ramp Time (hr:mm)		0:05					
Time (hr:mm)		3:52	17:34	12:00	24:00	48:00	72:00
Compressive Strength (psi)		50	500	348	671	1180	1441
Crush Type		Puck				**Final Time:**	72
Time (hr:mm)		12:00	24:00	48:00	72:00	**Final PSI:**	1441
Average Strength (psi)						**Algorithm:**	**A**
Conditioning Time (min)		30	Conditioning Temperature			80	

Project No.	C1908045-3





Project No.	C1908045-3



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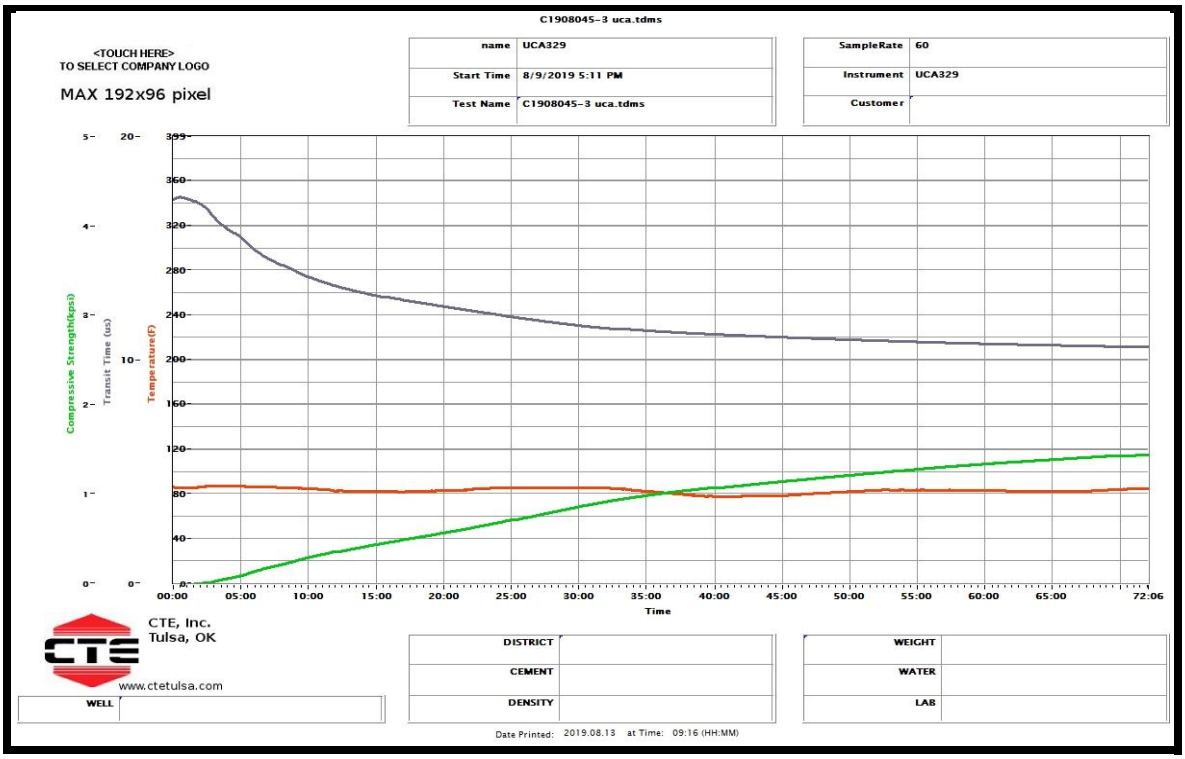


Lab Analysis Report

10013 W County Rd 157
Midland, Tx 79706

Project No.	C1907252-1

Report Date	8/2/2019	MD	950
Requestor	Jared Booker	TVD	950
Analyst	DP	Test T. (°F)	81
Client	Solaris	BHST (°F)	87
Well	Texas Ranger SWD #2	BHCT (°F)	81
County	Eddy	BHP (psi)	400
Job	Surface	Mud Weight (ppg)	8.5
Slurry	Lead	Blend Type	Pilot

Slurry Properties

Slurry Density (ppg)	Blend Yield (ft3/sk)
12.40	2.27

Slurry Composition

Component	Concentration	Unit	Lot #
Lehigh C	93.000	% of Base Material	Silo A
CPO-18	7.000	% of Base Material	Silo B
Gel	1.500	% BWOB	20190623
C-45	0.750	% BWOB	49281912A
C-51	0.100	% BWOB	1704H821
STE	4.000	% BWOB	7122019
C-503P	0.300	% BWOB	5292019
Salt	1.000	% BWOW	71719
CTB-15	6.000	lb/sk	201906017

Base Fluid	
Water Source	Water Req. (gal/sk)
Lab Tap	12.54

Comments

Project No.	C1907252-1

Rheology		
Temperature (°F)	80	
Pressure (psi)	0	
Condition Time (min)	0	
RPM	Average	Average
300	53	
200	43	
100	33	
60	29	
30	26	
6	20	
3	19	
10 sec gel (lbf/100ft2)		
10 min gel (lbf/100ft2)		
1 min stirring (lbf/100ft2)		
Rheology Model	Bingham	Bingham
PV (cP)	33.0	
YP (lbf/100ft)	22.3	
n' / K' (lbf-s^n/100ft2)		
		7.1

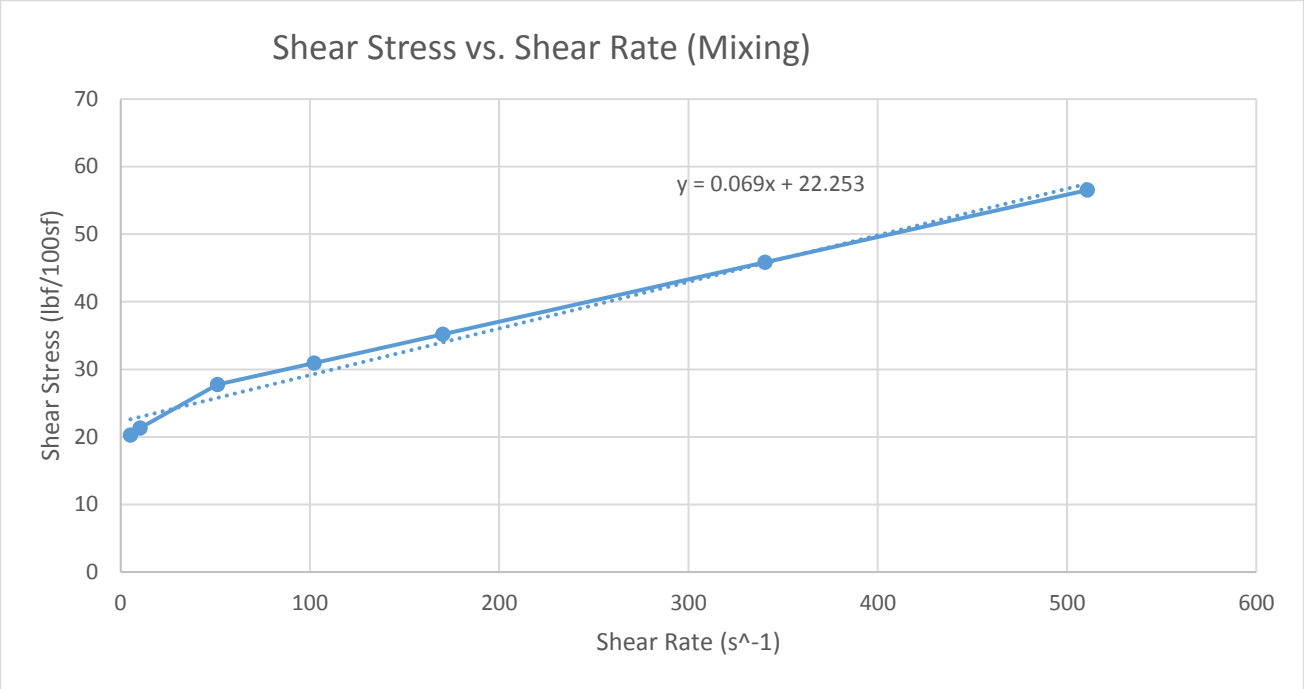
Thickening Time			
HPHT Unit Number	3	Initial	Final
Temperature (°F)		80	81
Pressure (psi)		400	400
Ramp Time (min)		1	5
Consistency (BC)		0	70
Time (hr:mm)		0:00	4:47
Batch Mixing			
Mixing Time (hr:min)			
Temperature (°F)			

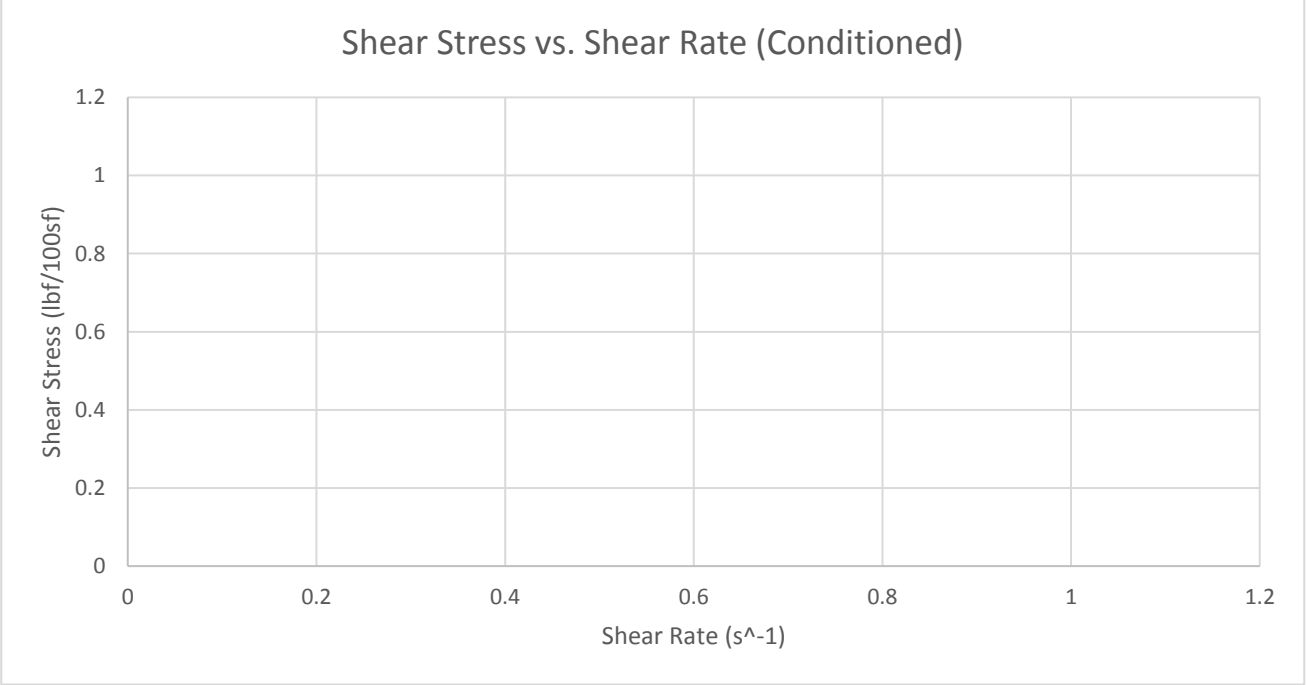
Fluid Loss	
Temperature (°F)	
Pressure (psi)	
Conditioning Time (min)	
Blow Out (Y/N)	
Test Time (min)	
API Fluid Loss (mL/30min)	

Free Fluid	
Conditioning Temp (°F)	81
Conditioning Time (min)	30
Static 2 hr Temperature (°F)	70
Inclination (deg)	90
Initial Volume (mL)	250
Free Fluid (mL)	0.75
% Free Fluid	0.3
Settling (Y/N)	N

Compressive Strength						
UCA Unit Number	2	Initial		Final		
Temperature (°F)		80		80		
Pressure (psi)		3000		3000		
Ramp Time (hr:mm)		0:05				
Time (hr:mm)		5:21	27:48	12:00	24:00	48:00	72:00
Compressive Strength (psi)		50	500	252	461	618	716
Crush Type		Puck				**Final Time:**	72
Time (hr:mm)		12:00	24:00	48:00	72:00	**Final PSI:**	716
Average Strength (psi)						**Algorithm:**	**A**
Conditioning Time (min)		30	Conditioning Temperature			80	

Project No.	C1907252-1





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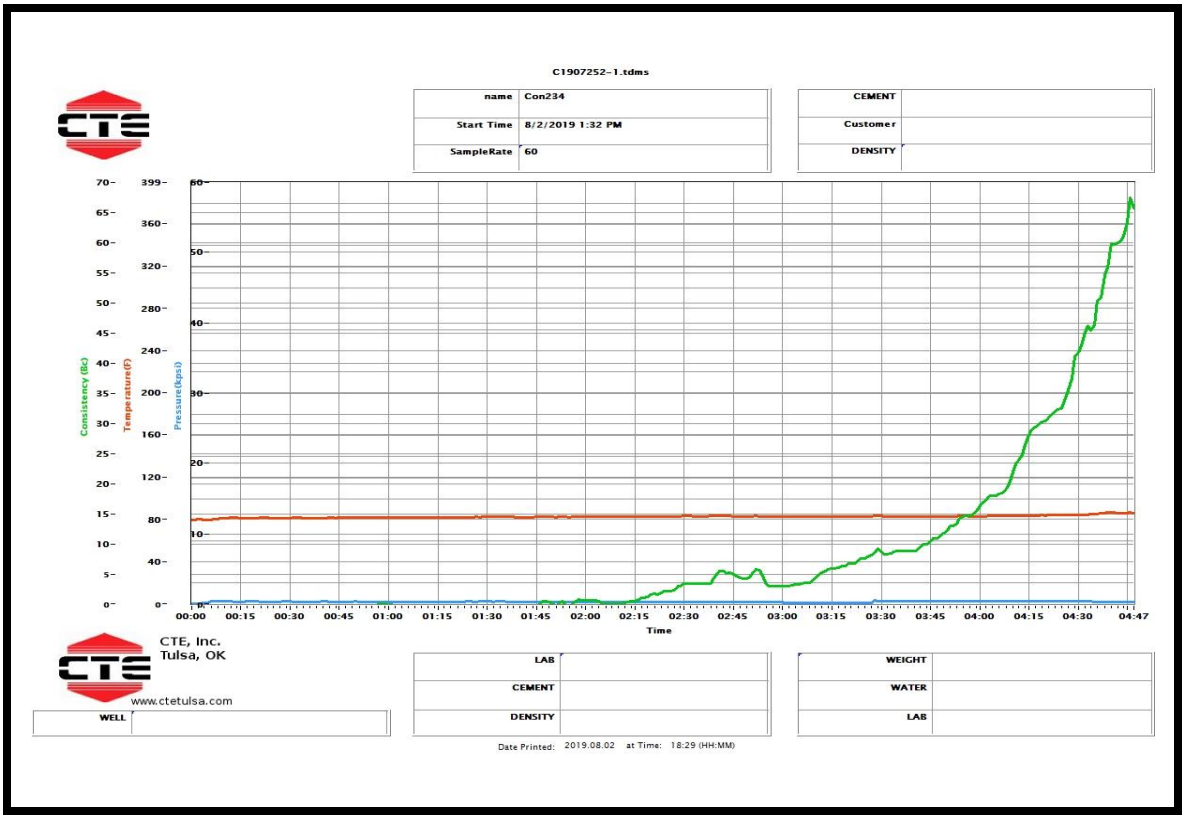

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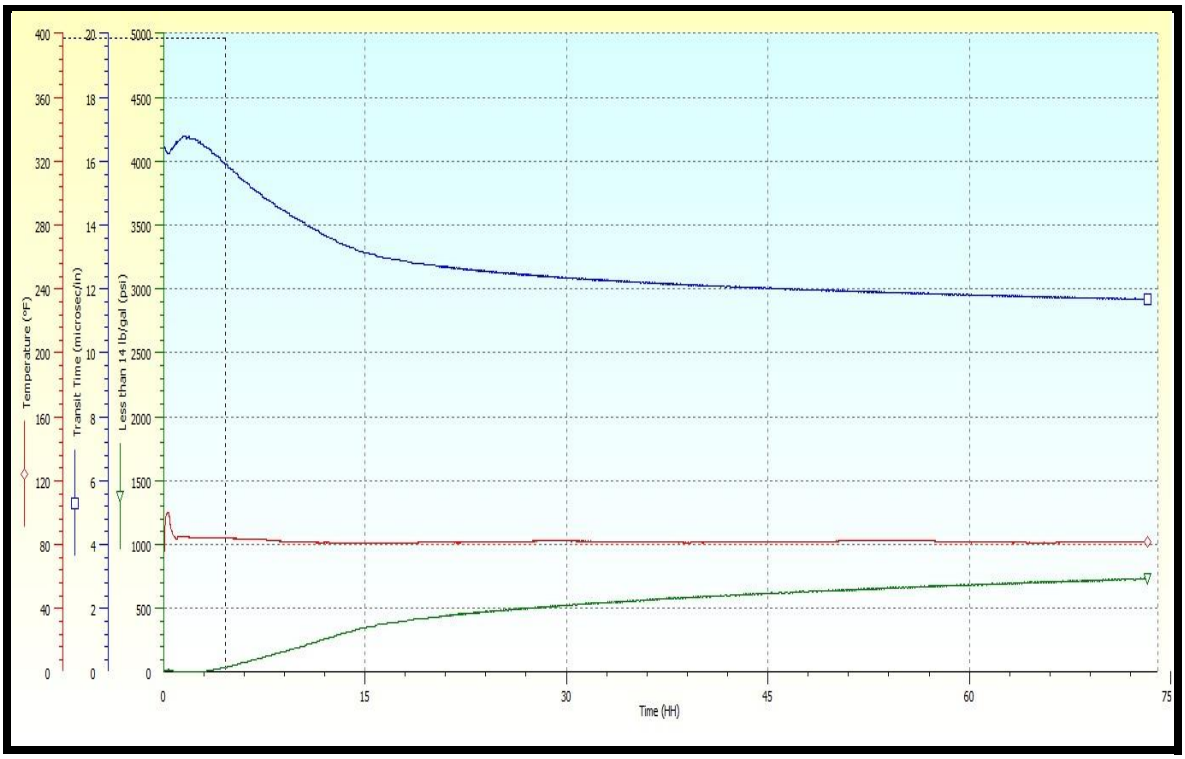


Lab Analysis Report

10013 W County Rd 157
Midland, Tx 79706

Project No.	C1907253-1

Report Date	8/2/2019	MD	950
Requestor	Jared Booker	TVD	950
Analyst	MB	Test T. (°F)	81
Client	Solaris	BHST (°F)	87
Well	Texas Ranger SWD #2	BHCT (°F)	81
County	Eddy	BHP (psi)	400
Job	Surface	Mud Weight (ppg)	8.5
Slurry	Tail	Blend Type	Pilot

Slurry Properties

Slurry Density (ppg)	Blend Yield (ft3/sk)
14.80	1.35

Slurry Composition

Component	Concentration	Unit	Lot #
Lehigh C	100.000	% of Base Material	Silo A
Calcium Chloride	2.000	% BWOB	2080119
C-45	0.100	% BWOB	49281912A

Base Fluid	
Water Source	Water Req. (gal/sk)
Lab Tap	6.36

Comments

Project No.	C1907253-1

Rheology		
Temperature (°F)	80	
Pressure (psi)	0	
Condition Time (min)	0	
RPM	Average	Average
300	102	
200	93	
100	84	
60	79	
30	73	
6	37	
3	28	
10 sec gel (lbf/100ft2)		
10 min gel (lbf/100ft2)		
1 min stirring (lbf/100ft2)		
Rheology Model	Bingham	Bingham
PV (cP)	61.4	
YP (lbf/100ft)	53.8	
n' / K' (lbf-s^n/100ft2)		
		7.1

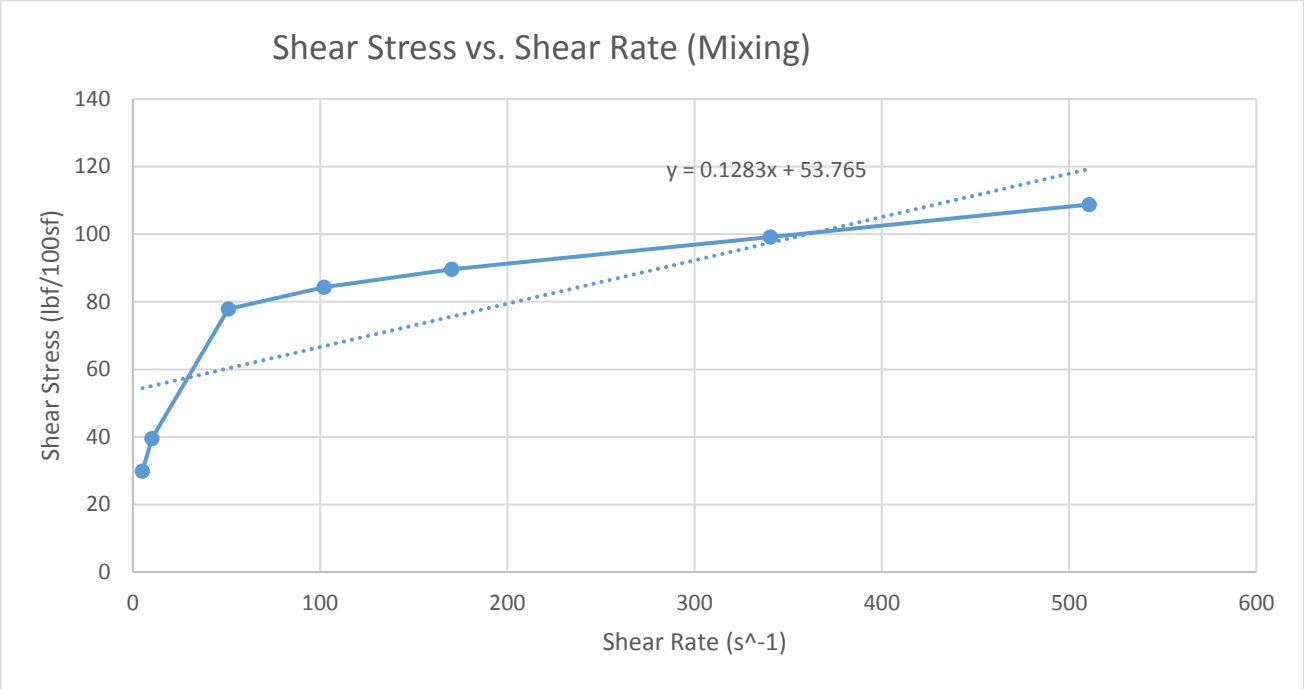
Thickening Time			
HPHT Unit Number	4	Initial	Final
Temperature (°F)		80	81
Pressure (psi)		400	400
Ramp Time (min)		1	5
Consistency (BC)		14	70
Time (hr:mm)		0:00	1:56
Batch Mixing			
Mixing Time (hr:min)			
Temperature (°F)			

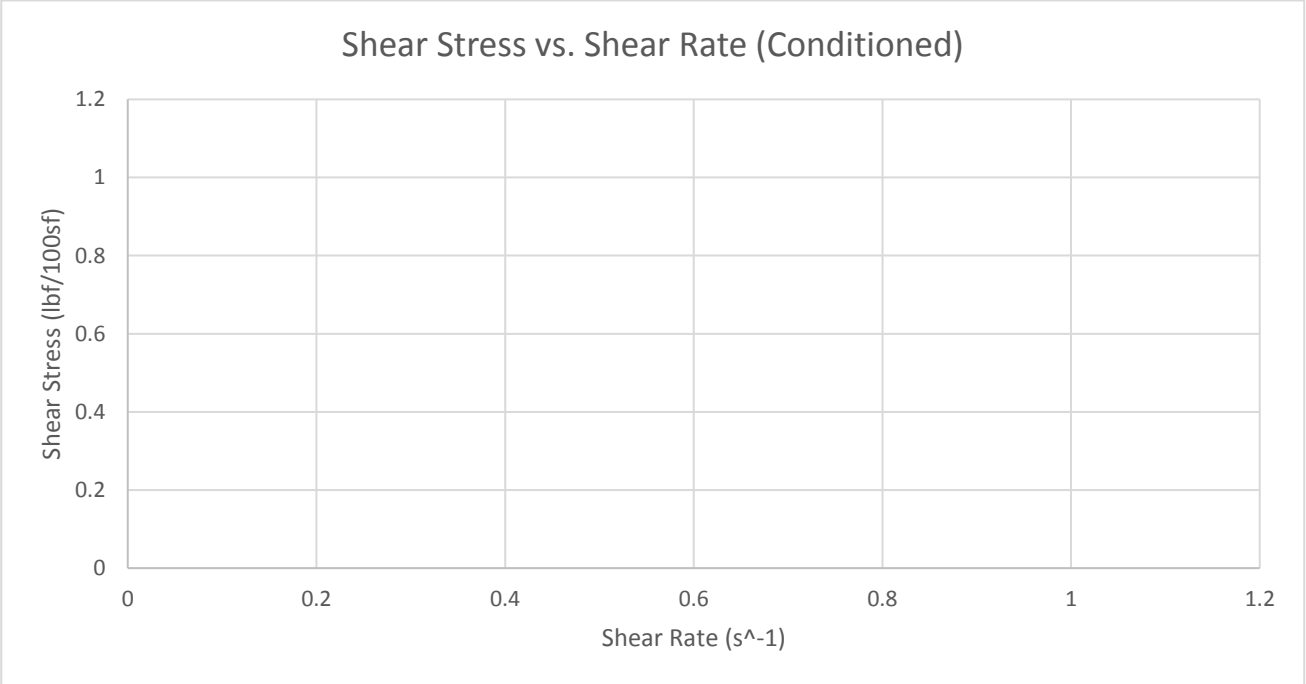
Fluid Loss	
Temperature (°F)	
Pressure (psi)	
Conditioning Time (min)	
Blow Out (Y/N)	
Test Time (min)	
API Fluid Loss (mL/30min)	

Free Fluid	
Conditioning Temp (°F)	81
Conditioning Time (min)	30
Static 2 hr Temperature (°F)	70
Inclination (deg)	90
Initial Volume (mL)	250
Free Fluid (mL)	0
% Free Fluid	0
Settling (Y/N)	N

Compressive Strength							
UCA Unit Number	3	Initial			Final		
Temperature (°F)		80			80		
Pressure (psi)		3000			3000		
Ramp Time (hr:mm)		0:05					
Time (hr:mm)		1:37	4:41	12:00	24:00	48:00	72:00
Compressive Strength (psi)		50	500	1157	1918	2593	2895
Crush Type		Puck				**Final Time:**	72
Time (hr:mm)		12:00	24:00	48:00	72:00	**Final PSI:**	2895
Average Strength (psi)						**Algorithm:**	**B**
Conditioning Time (min)		30	Conditioning Temperature			80	

Project No.	C1907253-1





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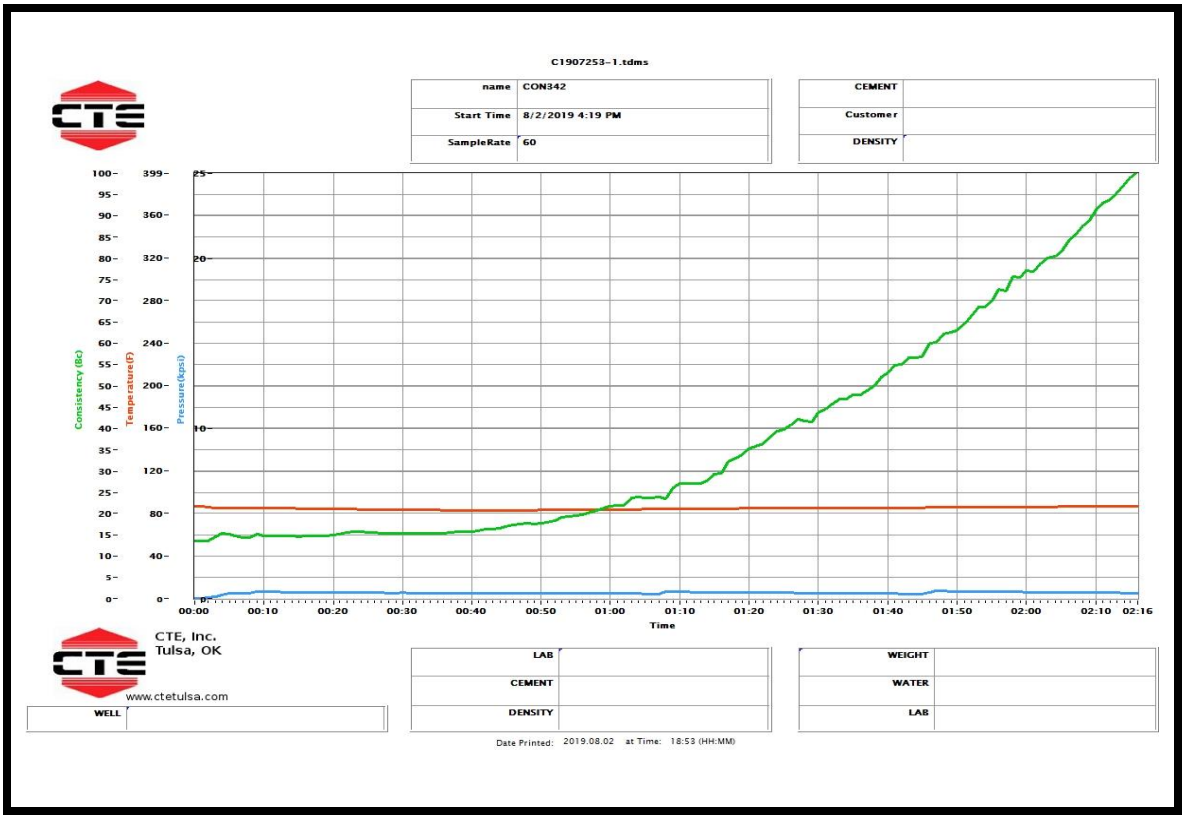

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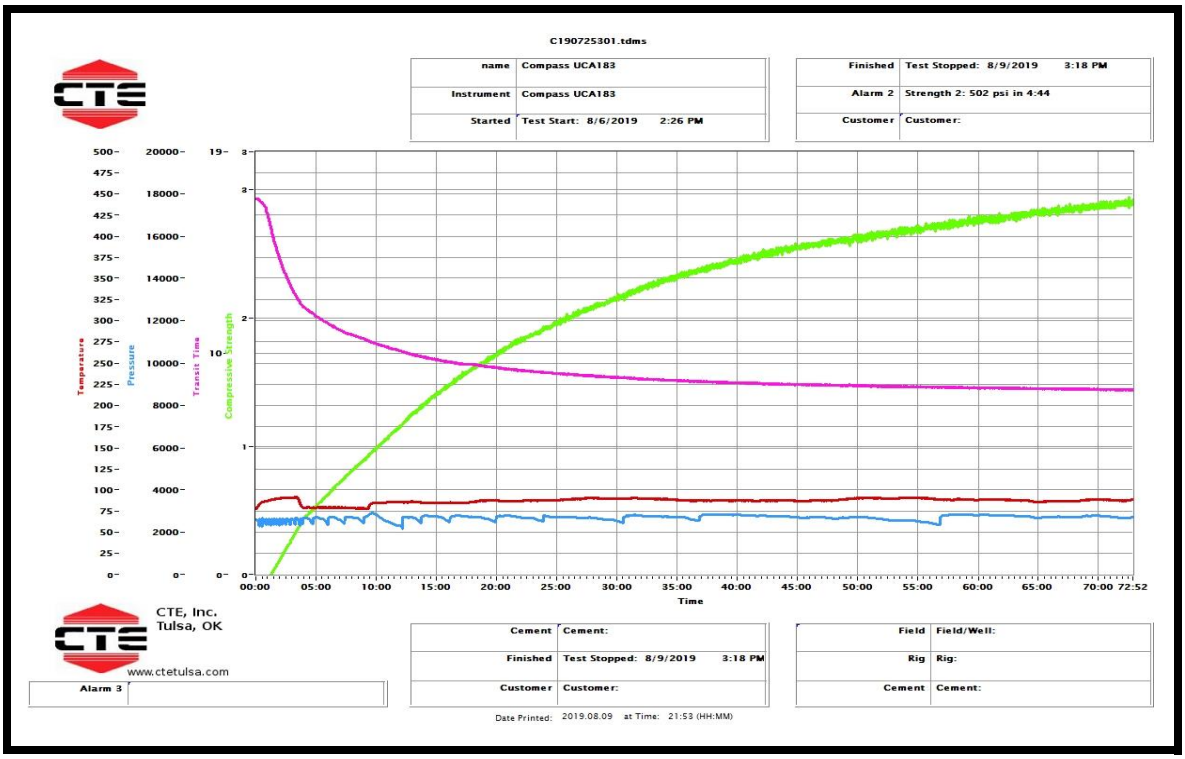


Texas Ranger SWD No. 2
2 Mile Area of Review
Solaris Water Midstream, LLC
Eddy Co., NM

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

Drawn by: ASG	Date: 8/19/2019	Approved by: ELR

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

- Texas Ranger SWD No. 2 SHL
- 1/2-Mile
- 1-Mile
- 2-Mile
- QQ-Section (NM-PLSS 2nd Div.)
- Section (NM-PLSS 1st Div.)
- Township/Range (NM-PLSS)
- Lateral

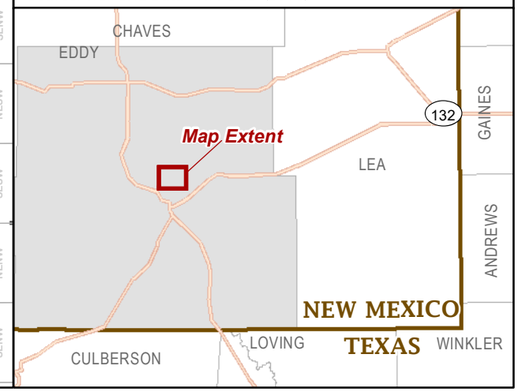
API (30-015-...) SHL Status-Type (Count)

- Horizontal Surface Location (8)
- Active - Gas (27)
- Active - Injection (15)
- Active - Oil (29)
- Active - SWD (1)
- Active - Water Source (2)
- Cancelled/Abandoned Location (35)
- Expired - Water Source (1)
- Plugged/Not Released - Gas (1)
- Plugged/Not Released - Oil (1)
- Permitted - Water Source (1)
- Plugged/Site Released - Gas (12)
- Plugged/Site Released - Oil (46)
- Plugged/Site Released - SWD (2)
- Shut In - Gas (1)

API (30-015-...) BHL Status-Type (Count)

- Active - Gas (3)
- Active - Oil (3)
- Cancelled/Abandoned Location (4)
- Permitted - Gas (1)

Source: Well SHL Data - NM-OCD (2019)



TEXAS RANGER SWD NO. 2
32.51438
-104.221571

1" = 2,524 '
1:30,287
0 ¼ ½ ¾ 1 2 Miles

Texas Ranger SWD No 2
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
01065	WELCH FEDERAL #001	O	P	BILL TAYLOR	510	32.5064774000	-104.210830700	10/20/1950	[11590] CEDAR HILLS, YATES
01067	WELCH FEDERAL #005	S	P	GEORGE D RIGGS	562	32.50649260000	-104.20869450000	10/9/1953	[11590] CEDAR HILLS, YATES
01068	WELCH FEDERAL #006	O	A	TRINITY RESOURCES LLC	540	32.5046616000	-104.210861200	2/16/1954	[11590] CEDAR HILLS, YATES
01069	WELCH FEDERAL #003	O	P	BILL TAYLOR	532	32.5101357000	-104.206489600	1/31/1952	[11590] CEDAR HILLS, YATES
01070	PRE-ONGARD WELL #001	O	P	PRE-ONGARD WELL OPERATOR	0	32.5064621000	-104.213035600	1/1/1900	-
01071	PRE-ONGARD WELL #002	O	P	PRE-ONGARD WELL OPERATOR	0	32.5046196000	-104.213050800	1/1/1900	-
01072	PRE-ONGARD WELL #003	O	P	PRE-ONGARD WELL OPERATOR	0	32.5083199000	-104.206520100	1/1/1900	-
01081	PRE-ONGARD WELL #002	O	P	PRE-ONGARD WELL OPERATOR	0	32.5009880000	-104.217361500	1/1/1900	-
05958	PRE-ONGARD WELL #000	O	P	PRE-ONGARD WELL OPERATOR	0	32.5046921000	-104.210861200	1/1/1900	-
10817	PRE-ONGARD WELL #001	O	P	PRE-ONGARD WELL OPERATOR	0	32.5141907000	-104.209686300	1/1/1900	-
21118	FEDERAL STATE COM #001	G	A	MEWBOURNE OIL CO	11700	32.5181694000	-104.227226300	4/4/1974	[73280] BURTON FLAT, MORROW (PRO GAS)
21525	KURLAND FEDERAL #001	G	A	DEVON ENERGY PRODUCTION COMPANY, LP	11380	32.5070801000	-104.230972300	8/27/1975	[73440] BURTON FLAT, STRAWN, WEST (GAS)
22080	GUACAMAYO STATE #001	O	P	PREMIER OIL & GAS INC	4700	32.5036163000	-104.223762500	11/27/1994	[76820] FOSTER DRAW, DELAWARE (GAS)
24376	AVALON DELAWARE UNIT #543	O	A	XTO ENERGY, INC	5000	32.5280228000	-104.219749500	6/1/1983	[3715] AVALON, DELAWARE
24377	AVALON DELAWARE UNIT #562	W	A	XTO ENERGY, INC	5000	32.5244026000	-104.215095500	6/14/1983	[96100] SWD, DELAWARE
24378	AVALON DELAWARE UNIT #549	O	P	EXXON MOBIL CORPORATION	3890	32.5244102000	-104.210815400	9/27/1983	[3715] AVALON, DELAWARE
24379	AVALON DELAWARE UNIT #556	O	P	EXXON MOBIL CORPORATION	4930	32.5243874000	-104.224044800	11/9/1983	[3715] AVALON, DELAWARE
24386	AVALON DELAWARE UNIT #540	O	A	XTO ENERGY, INC	4930	32.5280151000	-104.224037200	7/14/1983	[3715] AVALON, DELAWARE
24500	YATES C FEDERAL #020	G	P	EXXON MOBIL CORPORATION	10500	32.5171242000	-104.218284600	8/25/1983	[73280] BURTON FLAT, MORROW (PRO GAS); [73440] BURTON FLAT, STRAWN, WEST (GAS)
24511	PRE-ONGARD WELL #001	O	C	PRE-ONGARD WELL OPERATOR	0	32.5145318402	-104.222598459	-	-
24512	PRE-ONGARD WELL #002	O	C	PRE-ONGARD WELL OPERATOR	0	32.5072641946	-104.222995390	-	-
24565	PRE-ONGARD WELL #021	O	C	PRE-ONGARD WELL OPERATOR	0	32.5065679521	-104.209792663	-	-
24566	YATES C FEDERAL #031	G	A	XTO ENERGY, INC	11590	32.5069809000	-104.209754900	9/16/1983	[70060] ALACRAN HILLS, ATOKA (GAS); [73360] BURTON FLAT, STRAWN (PRORATED GAS)
24597	PRE-ONGARD WELL #032	O	C	PRE-ONGARD WELL OPERATOR	0	32.5146464555	-104.209664653	-	-
24598	PRE-ONGARD WELL #033	O	C	PRE-ONGARD WELL OPERATOR	0	32.5213930462	-104.218229691	-	-
24669	PRE-ONGARD WELL #030	O	C	PRE-ONGARD WELL OPERATOR	0	32.5182484695	-104.213630848	-	-
24687	AVALON DELAWARE UNIT #916	W	N	XTO ENERGY, INC	5500	32.5207634000	-104.222526600	2/18/1984	[3715] AVALON, DELAWARE; [96995] WSW, DELAWARE
24697	PRE-ONGARD WELL #036	O	C	PRE-ONGARD WELL OPERATOR	0	32.5214227405	-104.213926560	-	-
24748	AVALON DELAWARE UNIT #464	O	P	EXXON MOBIL CORPORATION	4825	32.5243797000	-104.228332500	4/5/1984	[3715] AVALON, DELAWARE
24750	PRE-ONGARD WELL #002	O	C	PRE-ONGARD WELL OPERATOR	0	32.5185073632	-104.222560043	-	-
24751	AVALON DELAWARE UNIT #914	O	P	EXXON MOBIL CORPORATION	6100	32.5207558000	-104.226814300	3/25/1984	[3715] AVALON, DELAWARE
24752	PRE-ONGARD WELL #004	O	C	PRE-ONGARD WELL OPERATOR	0	32.51817143540	-104.22595341400	-	-
24847	KURLAND A FEDERAL #001	G	P	DEVON ENERGY PRODUCTION COMPANY, LP	5077	32.51428600000	-104.23524480000	8/26/1984	[70860] AVALON, BONE SPRING (GAS)
27085	WELCH FEDERAL #008	O	P	BILL TAYLOR	583	32.5083046000	-104.208663900	5/28/1993	[11590] CEDAR HILLS, YATES
28684	AVALON DELAWARE UNIT #542	I	A	XTO ENERGY, INC	3875	32.52625270000	-104.22188570000	5/24/1996	[3715] AVALON, DELAWARE
30178	MOO COW STATE #001	G	A	PREMIER OIL & GAS INC	11531	32.51034930000	-104.22263340000	4/26/1998	[73440] BURTON FLAT, STRAWN, WEST (GAS)
30390	NE AVALON HILLS 36 STATE #001	G	A	MEWBOURNE OIL CO	11400	32.5243759000	-104.232612600	12/2/1998	[73280] BURTON FLAT, MORROW (PRO GAS); [73440] BURTON FLAT, STRAWN, WEST (GAS)
33179	AVALON LAKE 31 FEDERAL #001	G	A	MEWBOURNE OIL CO	11475	32.5271111000	-104.222534200	2/14/2004	[73280] BURTON FLAT, MORROW (PRO GAS)
33238	KURLAND 6 FEDERAL #002	G	A	DEVON ENERGY PRODUCTION COMPANY, LP	11400	32.5143089000	-104.235405000	2/22/2004	[70060] ALACRAN HILLS, ATOKA (GAS); [73320] BURTON FLAT, MORROW, EAST (GAS)
33782	FEDERAL COM #002	G	P	CHI OPERATING INC	11400	32.5192871000	-104.234161400	11/30/2004	[73280] BURTON FLAT, MORROW (PRO GAS)
35007	AVALON HILLS FEDERAL COM #001C	G	C	CHI OPERATING INC	0	32.5191969216	-104.207017101	-	[73280] BURTON FLAT, MORROW (PRO GAS)
43168	ROSCOE 6 B3AD FEDERAL COM #001H	O	A	MEWBOURNE OIL CO	8468	32.5190869185	-104.221266853	2/23/2017	[3714] AVALON, LOWER BONE SPRING; [70860] AVALON, BONE SPRING (GAS)
44076	ROSCOE 6 B3HE FEDERAL COM #001H	G	N	MEWBOURNE OIL CO	0	32.5167089600	-104.220881950	-	[70860] AVALON, BONE SPRING (GAS)

Texas Ranger SWD No. 2
1-Mile Offset Operators
Solaris Water Midstream, LLC
Eddy Co., NM

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

Drawn by: ASG	Date: 8/20/2019	Approved by: ELR

LONQUIST & CO. LLC
PETROLEUM ENGINEERS | ENERGY ADVISORS
AUSTIN · HOUSTON · CALGARY · WICHITA
DENVER · COLLEGE STATION · BATON ROUGE · EDMONTON

- Texas Ranger SWD No. 2 SHL
- 1-Mile Radius
- QQ-Section (NM-PLSS 2nd Div.)
- Section (NM-PLSS 1st Div.)
- Township/Range (NM-PLSS)
- Lateral

API (30-015-...) SHL Status-Type (Count)

- Horizontal Surface Location (2)
- Active - Gas (7)
- Active - Injection (1)
- Active - Oil (3)
- Active - Water Source (1)
- Cancelled/Abandoned Location (10)
- Permitted - Water Source (1)
- Plugged/Site Released - Gas (3)
- Plugged/Site Released - Oil (14)
- Plugged/Site Released - SWD (1)

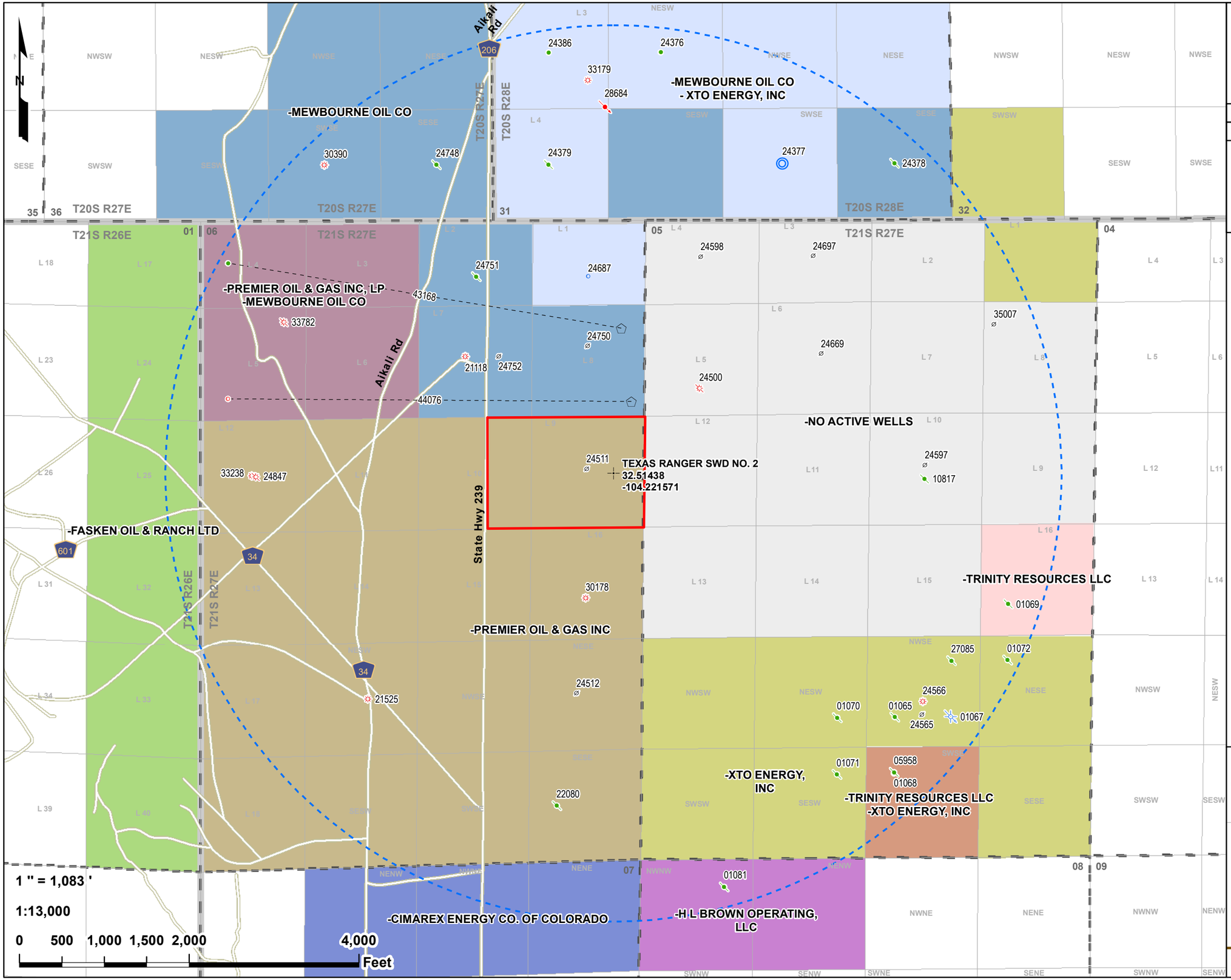
API (30-015-...) BHL Status-Type (Count)

- Active - Oil (1)
- Permitted - Gas (1)

Offset Operators

- -CIMAREX ENERGY CO. OF COLORADO
- -PREMIER OIL & GAS INC, LP; -MEWBOURNE OIL CO
- -TRINITY RESOURCES LLC
- -MEWBOURNE OIL CO; - XTO ENERGY, INC
- -DEVON ENERGY PRODUCTION COMPANY, LP
- -DEVON ENERGY PRODUCTION COMPANY, LP; -MEWBOURNE OIL CO
- -FASKEN OIL & RANCH LTD
- -H L BROWN OPERATING, LLC
- -MEWBOURNE OIL CO
- -NAUMANN OIL & GAS INC
- -PREMIER OIL & GAS INC
- -TRINITY RESOURCES LLC; -XTO ENERGY, INC
- -XTO ENERGY, INC
- -NO ACTIVE WELLS
- Surface Owner: KIMBLEY, NATALIE K

Sources: NM-BLM/ NM-SLO (2019)



Texas Ranger SWD No. 2

1-Mile Lessee(s) - BLM/SLO

Solaris Water Midstream, LLC

Eddy Co., NM

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

Drawn by: ASG	Date: 8/20/2019	Approved by: ELR

LONQUIST & CO. LLC

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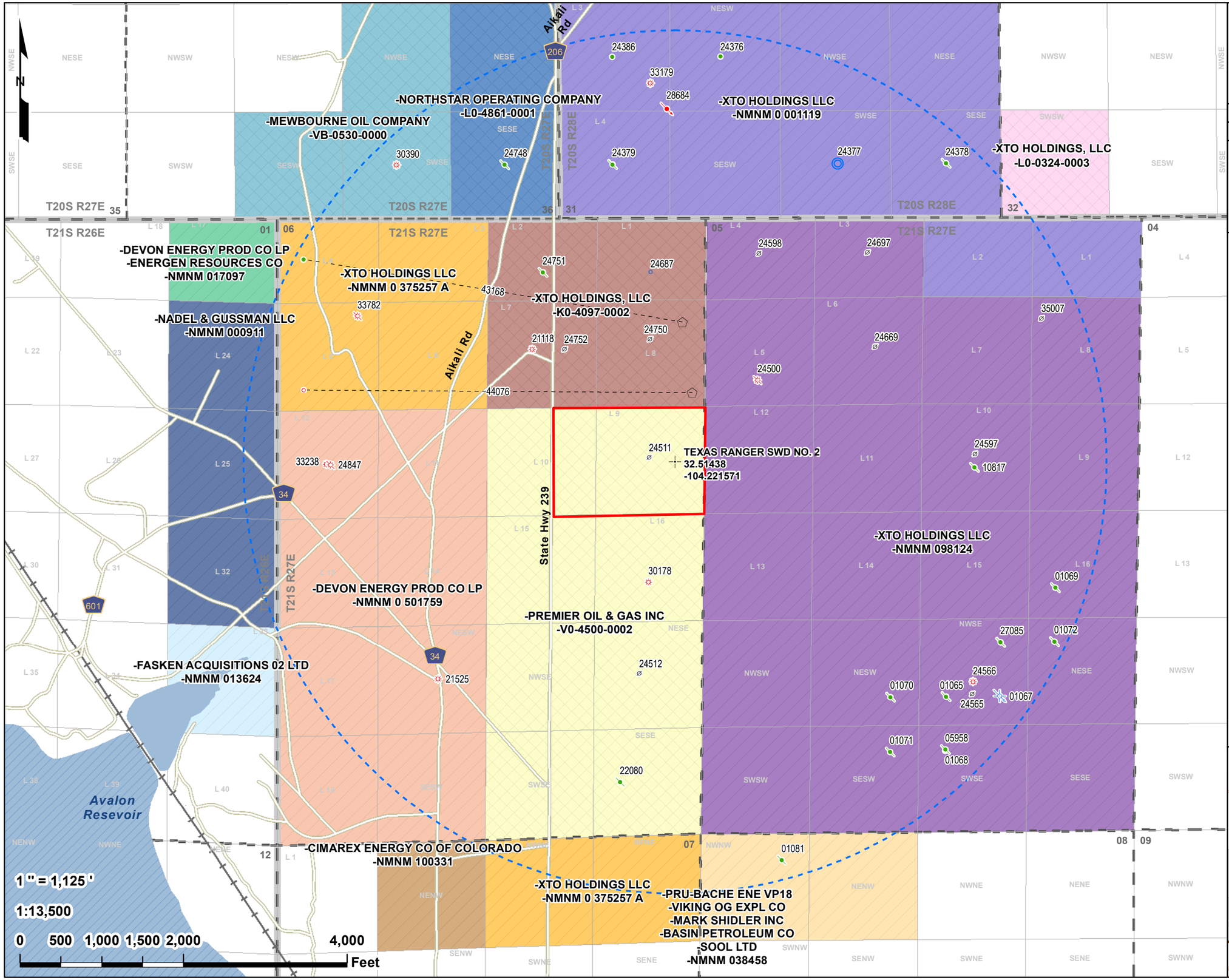

Texas Ranger SWD No. 2 SHL
1-Mile
NM-BLM
NM-SLO
QQ-Section (NM-PLSS 2nd Div.)
Section (NM-PLSS 1st Div.)
Township/Range (NM-PLSS)

API (30-015-...) SHL Status-Type (Count)

Horizontal Surface Location (2)
Active - Gas (7)
Active - Injection (1)
Active - Oil (3)
Active - Water Source (1)
Cancelled/Abandoned Location (10)
Permitted - Water Source (1)
Plugged/Site Released - Gas (3)
Plugged/Site Released - Oil (14)
Plugged/Site Released - SWD (1)

API (30-015-...) BHL Status-Type (Count)

Active - Oil (1)
Permitted - Gas (1)

Lessee

-CIMAREX ENERGY CO OF COLORADO; -NMNM 100331
-XTO HOLDINGS, LLC; -L0-0324-0003
-MEWBOURNE OIL COMPANY; -VB-0530-0000
-DEVON ENERGY PROD CO LP; -ENERGEN RESOURCES CO; -NMNM 017097
-NORTHSTAR OPERATING COMPANY; -L0-4861-0001
-XTO HOLDINGS LLC; -NMNM 0 001119
-DEVON ENERGY PROD CO LP; -NMNM 0 501759
-FASKEN ACQUISITIONS 02 LTD; -NMNM 013624
-NADEL & GUSSMAN LLC; -NMNM 000911
-PREMIER OIL & GAS INC; -V0-4500-0002
-PRU-BACHE ENE VP18; -VIKING OG EXPL CO; -MARK SHIDLER INC; -BASIN PETROLEUM CO; -SOOL LTD; -NMNM 038458
-XTO HOLDINGS LLC; -NMNM 0 375257 A
-XTO HOLDINGS LLC; -NMNM 098124
-XTO HOLDINGS, LLC; -K0-4097-0002

Surface Owner

Surface Owner: M & W WATER SALES LLC

Source: Well SHL Data - NM-OCD (2019)

Texas Ranger SWD No. 2
1-Mile Water Wells - OSE
Solaris Water Midstream, LLC
Eddy Co., NM

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

Drawn by: ASG	Date: 8/19/2019	Approved by: ELR

LONQUIST & CO. LLC
PETROLEUM ENGINEERS | ENERGY ADVISORS
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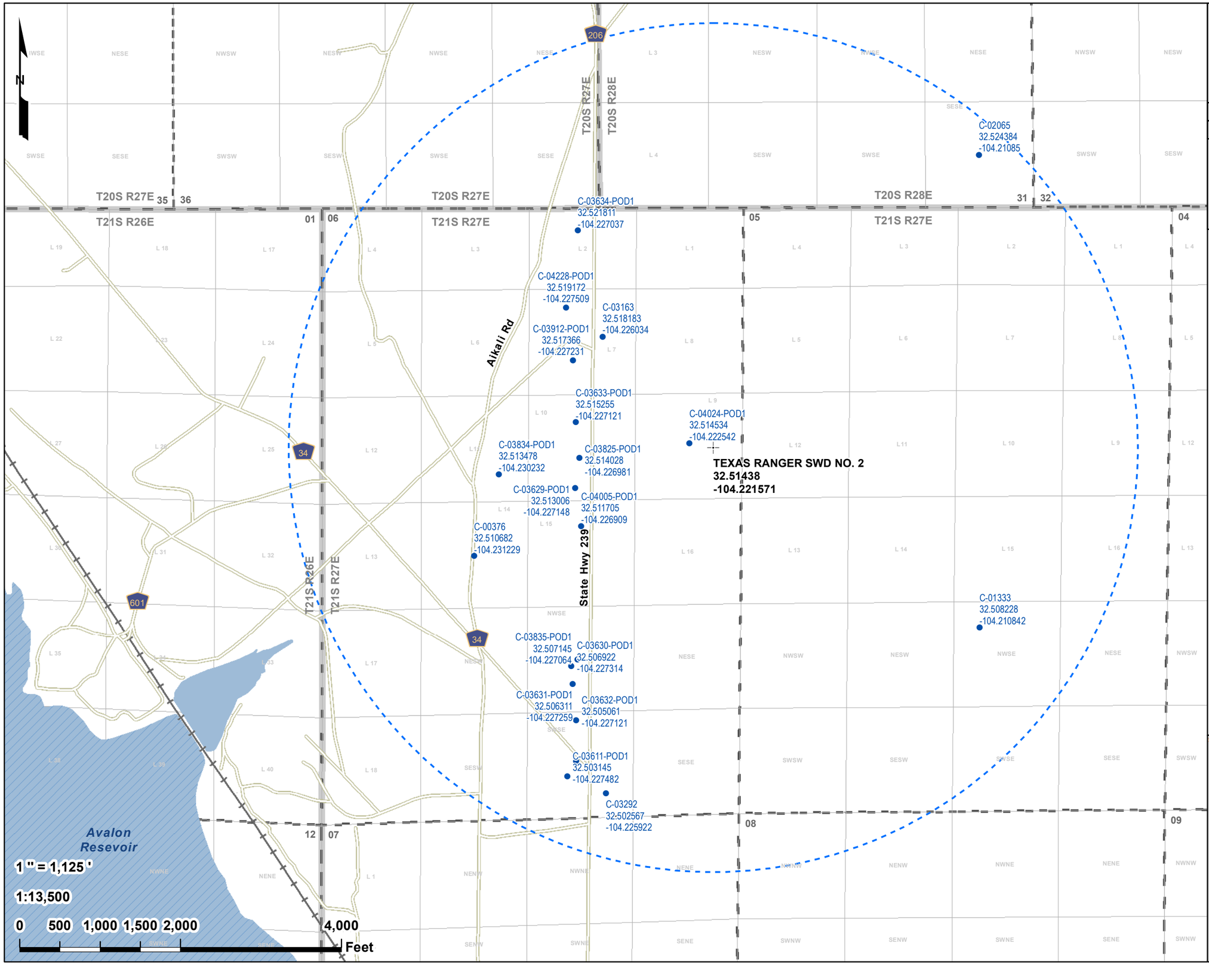
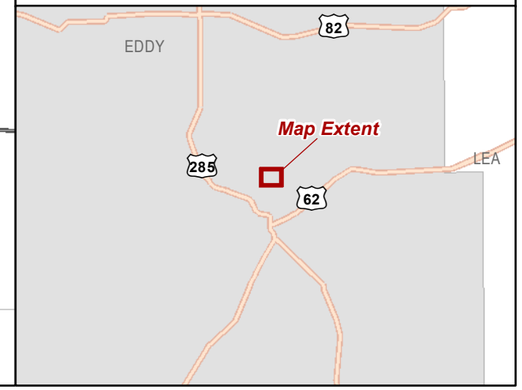


- Texas Ranger SWD No. 2 SHL
- 1-Mile
- Water Well (20) [NM-OSE 2019]
- QQ-Section (NM-PLSS 2nd Div.)
- Section (NM-PLSS 1st Div.)
- Township/Range (NM-PLSS)

Source: Well SHL Data - NM-OCD (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: TEXAS RANGER SWD #2

Enclosed are the results of analyses for samples received by the laboratory on 03/18/19 16:20.

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: TEXAS RANGER SWD #2 Project Number: 32.502333 / -104.225636 Project Manager: TYLER MOEHLMAN Fax To: (512) 732-9816	Reported: 28-Mar-19 19:30

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
C-04213 - POD 1	H901045-01	Water	18-Mar-19 14:00	18-Mar-19 16:20
C-03269 - POD 1	H901045-02	Water	18-Mar-19 14:40	18-Mar-19 16:20

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

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Analytical Results For:

Lonquist Field Services, LLC 3345 Bee Cave Road, Suite 201 Austin TX, 78746	Project: TEXAS RANGER SWD #2 Project Number: 32.502333 / -104.225636 Project Manager: TYLER MOEHLMAN Fax To: (512) 732-9816	Reported: 28-Mar-19 19:30

C-04213 - POD 1

H901045-01 (Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Alkalinity, Bicarbonate	**351**		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*	**1340**		4.00	mg/L	1	9031903	AC	19-Mar-19	4500-Cl-B	
Conductivity*	**6370**		1.00	uS/cm	1	9031901	AC	19-Mar-19	120.1	
pH*	**6.97**		0.100	pH Units	1	9031901	AC	19-Mar-19	150.1	
Resistivity	**1.57**			Ohms/m	1	9031901	AC	19-Mar-19	120.1	
Specific Gravity @ 60° F	**1.006**		0.000	[blank]	1	9032010	AC	20-Mar-19	SM 2710F	
Sulfate*	**1870**		250	mg/L	25	9031908	AC	19-Mar-19	375.4	
TDS*	**4480**		5.00	mg/L	1	9032001	AC	22-Mar-19	160.1	
Alkalinity, Total*	**288**		4.00	mg/L	1	9031804	AC	20-Mar-19	310.1	
Sulfide, total	**0.0790**		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	B903196	AES	25-Mar-19	EPA200.7	
Calcium*	**698**		0.500	mg/L	5	B903196	AES	25-Mar-19	EPA200.7	
Iron*	**0.357**		0.250	mg/L	5	B903196	AES	25-Mar-19	EPA200.7	
Magnesium*	**203**		0.500	mg/L	5	B903196	AES	25-Mar-19	EPA200.7	
Potassium*	**6.21**		5.00	mg/L	5	B903196	AES	25-Mar-19	EPA200.7	
Sodium*	**699**		5.00	mg/L	5	B903196	AES	25-Mar-19	EPA200.7	

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: TEXAS RANGER SWD #2 Project Number: 32.502333 / -104.225636 Project Manager: TYLER MOEHLMAN Fax To: (512) 732-9816	Reported: 28-Mar-19 19:30

C-03269 - POD 1

H901045-02 (Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Alkalinity, Bicarbonate	**239**		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*	**680**		4.00	mg/L	1	9031903	AC	19-Mar-19	4500-Cl-B	
Conductivity*	**4570**		1.00	uS/cm	1	9031901	AC	19-Mar-19	120.1	
pH*	**7.47**		0.100	pH Units	1	9031901	AC	19-Mar-19	150.1	
Resistivity	**2.19**			Ohms/m	1	9031901	AC	19-Mar-19	120.1	
Specific Gravity @ 60° F	**1.006**		0.000	[blank]	1	9032010	AC	20-Mar-19	SM 2710F	
Sulfate*	**1980**		250	mg/L	25	9032002	AC	20-Mar-19	375.4	
TDS*	**3470**		5.00	mg/L	1	9032001	AC	22-Mar-19	160.1	
Alkalinity, Total*	**196**		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	B903196	AES	25-Mar-19	EPA200.7	
Calcium*	**738**		0.500	mg/L	5	B903196	AES	25-Mar-19	EPA200.7	
Iron*	<0.250		0.250	mg/L	5	B903196	AES	25-Mar-19	EPA200.7	
Magnesium*	**220**		0.500	mg/L	5	B903196	AES	25-Mar-19	EPA200.7	
Potassium*	**6.17**		5.00	mg/L	5	B903196	AES	25-Mar-19	EPA200.7	
Sodium*	**287**		5.00	mg/L	5	B903196	AES	25-Mar-19	EPA200.7	

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: TEXAS RANGER SWD #2 Project Number: 32.502333 / -104.225636 Project Manager: TYLER MOEHLMAN Fax To: (512) 732-9816	Reported: 28-Mar-19 19:30

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 9031901 - General Prep - Wet Chem										
LCS (9031901-BS1)				Prepared & Analyzed: 19-Mar-19						
Conductivity	509		uS/cm	500		102	80-120			
pH	7.05		pH Units	7.00		101	90-110			
Duplicate (9031901-DUP1)	**Source: H901045-01**			Prepared & Analyzed: 19-Mar-19						
Conductivity	6360	1.00	uS/cm		6370			0.157	20	
pH	6.98	0.100	pH Units		6.97			0.143	20	
Resistivity	1.57		Ohms/m		1.57			0.157	20	
Batch 9031903 - General Prep - Wet Chem										
Blank (9031903-BLK1)				Prepared & Analyzed: 19-Mar-19						
Chloride	ND	4.00	mg/L							

Cardinal Laboratories

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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: TEXAS RANGER SWD #2 Project Number: 32.502333 / -104.225636 Project Manager: TYLER MOEHLMAN Fax To: (512) 732-9816	Reported: 28-Mar-19 19:30

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 9031903 - General Prep - Wet Chem										
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 9031908 - General Prep - Wet Chem										
Blank (9031908-BLK1)				Prepared & Analyzed: 19-Mar-19						
Sulfate	ND	10.0	mg/L							
LCS (9031908-BS1)				Prepared & Analyzed: 19-Mar-19						
Sulfate	22.7	10.0	mg/L	20.0		113	80-120			
LCS Dup (9031908-BSD1)				Prepared & Analyzed: 19-Mar-19						
Sulfate	23.0	10.0	mg/L	20.0		115	80-120	1.31	20	
Batch 9032001 - Filtration										
Blank (9032001-BLK1)				Prepared: 20-Mar-19 Analyzed: 22-Mar-19						
TDS	ND	5.00	mg/L							
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

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: TEXAS RANGER SWD #2 Project Number: 32.502333 / -104.225636 Project Manager: TYLER MOEHLMAN Fax To: (512) 732-9816	Reported: 28-Mar-19 19:30

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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 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	

Cardinal Laboratories

*=Accredited Analyte

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: TEXAS RANGER SWD #2 Project Number: 32.502333 / -104.225636 Project Manager: TYLER MOEHLMAN Fax To: (512) 732-9816	Reported: 28-Mar-19 19:30

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 B903196 - Total Rec. 200.7/200.8/200.2										
Blank (B903196-BLK1)				Prepared: 21-Mar-19 Analyzed: 25-Mar-19						
Sodium	ND	1.00	mg/L							
Potassium	ND	1.00	mg/L							
Magnesium	ND	0.100	mg/L							
Barium	ND	0.050	mg/L							
Calcium	ND	0.100	mg/L							
Iron	ND	0.050	mg/L							
LCS (B903196-BS1)				Prepared: 21-Mar-19 Analyzed: 25-Mar-19						
Sodium	3.18	1.00	mg/L	3.24		98.3	85-115			
Potassium	7.70	1.00	mg/L	8.00		96.2	85-115			
Barium	1.89	0.050	mg/L	2.00		94.5	85-115			
Calcium	3.98	0.100	mg/L	4.00		99.4	85-115			
Iron	3.93	0.050	mg/L	4.00		98.3	85-115			
Magnesium	19.7	0.100	mg/L	20.0		98.4	85-115			
LCS Dup (B903196-BSD1)				Prepared: 21-Mar-19 Analyzed: 25-Mar-19						
Barium	1.88	0.050	mg/L	2.00		93.8	85-115	0.828	20	
Potassium	7.50	1.00	mg/L	8.00		93.8	85-115	2.58	20	
Calcium	3.82	0.100	mg/L	4.00		95.5	85-115	3.98	20	
Iron	3.88	0.050	mg/L	4.00		96.9	85-115	1.46	20	
Magnesium	19.1	0.100	mg/L	20.0		95.4	85-115	3.10	20	
Sodium	3.08	1.00	mg/L	3.24		95.0	85-115	3.36	20	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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: TEXAS RANGER SWD #2	State: Zip:
Project Location: 32.502333 / -104.225080	Phone #:
Sampler Name: Rolando Hernandez	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	Sulfate											
H901045																											
1	C-04213-POD#1												3-18-19	2:00	✓	✓											
2	C-03269-POD#1												3-18-19	2:40	✓	✓											

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 consequental 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. Damron	Date: 3-18-19 Time: 14:20	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: 13.2°C #97	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

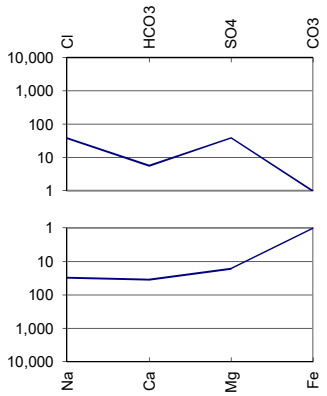
CARDINAL LABORATORIES
SCALE INDEX WATER ANALYSIS REPORT

Company : LONQUIST FIELD SERVICES
Lease Name : TEXAS RANGER SWD #2
Well Number : C-04213-POD1 H901045-01
Location : 32.502333 / -104.225636

Date Sampled : 03/18/19
Company Rep. : TYLER MOEHLMAN

	ANALYSIS				
1.	pH	6.97			
2.	Specific Gravity @ 60/60 F.	1.0060			
3.	CaCO3 Saturation Index @ 80 F.	+0.942	'Calcium Carbonate Scale Possible'		
	@ 140 F.	+1.642	'Calcium Carbonate Scale Possible'		
	Dissolved Gasses				
4.	Hydrogen Sulfide	0.079	PPM		
5.	Carbon Dioxide	ND	PPM		
6.	Dissolved Oxygen	ND	PPM		
	Cations		/ Eq. Wt.		MEQ/L
7.	Calcium (Ca++)	698.00	/ 20.1		34.73
8.	Magnesium (Mg++)	203.00	/ 12.2		16.64
9.	Sodium (Na+)	699	/ 23.0		30.45
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-)	351	/ 61.1		5.74
14.	Sulfate (SO4=)	1,870	/ 48.8		38.32
15.	Chloride (Cl-)	1,340	/ 35.5		37.75
	Other				
16.	Total Iron (Fe)	0.357	/ 18.2		0.02
17.	Total Dissolved Solids	4,480			
18.	Total Hardness As CaCO3	2,579.0			
19.	Calcium Sulfate Solubility @ 90 F.	2,326			
20.	Resistivity (Measured)	1.570	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	5.74	466
CaSO4	68.07	X	28.98	1,973
CaCl2	55.50	X	0.00	0
Mg(HCO3)2	73.17	X	0.00	0
MgSO4	60.19	X	9.34	562
MgCl2	47.62	X	7.30	348
NaHCO3	84.00	X	0.00	0
NaSO4	71.03	X	0.00	0
NaCl	58.46	X	30.45	1,780

ND = Not Determined

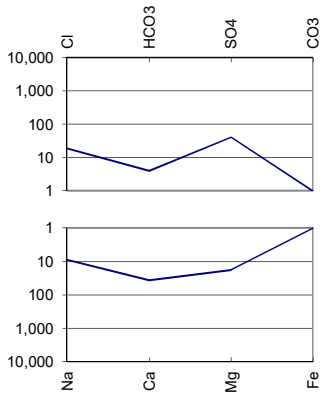
CARDINAL LABORATORIES
SCALE INDEX WATER ANALYSIS REPORT

Company : LONQUIST FIELD SERVICES
Lease Name : TEXAS RANGER SWD #2
Well Number : C-03269-POD1 H901045-02
Location : 32.502333 / -104.225636

Date Sampled : 03/18/19
Company Rep. : TYLER MOEHLMAN

	ANALYSIS				
1.	pH	7.47			
2.	Specific Gravity @ 60/60 F.	1.0060			
3.	CaCO3 Saturation Index @ 80 F.	+0.799	'Calcium Carbonate Scale Possible'		
	@ 140 F.	+1.499	'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++)	738.00	/ 20.1		36.72
8.	Magnesium (Mg++)	220.00	/ 12.2		18.03
9.	Sodium (Na+)	287	/ 23.0		8.89
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-)	239	/ 61.1		3.91
14.	Sulfate (SO4=)	1,980	/ 48.8		40.57
15.	Chloride (Cl-)	680	/ 35.5		19.15
	Other				
16.	Total Iron (Fe)	0.000	/ 18.2		0.00
17.	Total Dissolved Solids	3,470			
18.	Total Hardness As CaCO3	2,749.0			
19.	Calcium Sulfate Solubility @ 90 F.	2,317			
20.	Resistivity (Measured)	2.190	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	3.91	317
CaSO4	68.07	X	32.80	2,233
CaCl2	55.50	X	0.00	0
Mg(HCO3)2	73.17	X	0.00	0
MgSO4	60.19	X	7.77	468
MgCl2	47.62	X	10.26	489
NaHCO3	84.00	X	0.00	0
NaSO4	71.03	X	0.00	0
NaCl	58.46	X	8.89	520

ND = Not Determined

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 00376 **Subbasin:** CUB **Cross Reference:** -

Primary Purpose: CLS CLOSED FILE

Primary Status: CLS CLOSED FILE

Total Acres: **Subfile:** -

Total Diversion: 0 **Cause/Case:** -

Owner: DEKALB AGRICULTURAL ASSN. INC.

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	465105	CLOSE	1956-09-14	CLS	CLS	RENUM O-2-E-38	T	0	0	0

Place of Use

Q 256	Q 64	Q 16	Q 4	Sec	Tws	Rng	Acres	Diversion	CU	Use	Priority	Status	Other Location Desc
							0	0	0	CLS		CLS	OIL WELL - NO PLACE OF USE

New Mexico Office of the State Engineer

Water Right Summary


get image list

WR File Number: C 00382 **Subbasin:** CUB **Cross Reference:** -

Primary Purpose: CLS CLOSED FILE

Primary Status: CLS CLOSED FILE

Total Acres: **Subfile:** -

Total Diversion: 0 **Cause/Case:** -

Owner: DEKALB AGRICULTURAL ASSN. INC.

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	465118	CLOSE	1956-09-14	CLS	CLS	RENUM O-2-E-40	T	0	0	0

Place of Use

Q 256	Q 64	Q 16	Q 4	Sec	Tws	Rng	Acres	Diversion	CU	Use	Priority	Status	Other Location Desc
							0	0	0	CLS		CLS	OIL WELL - NO PLACE OF USE

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 01333 **Subbasin:** C **Cross Reference:** -

Primary Purpose: PRO 72-12-1 PROSPECTING OR DEVELOPMENT OF NATURAL RESOURCE

Primary Status: PMT PERMIT

Total Acres: **Subfile:** -

Total Diversion: 0 **Cause/Case:** -

Owner: HUMBLE OIL & REFINING COMPANY

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	463034	72121	1966-04-28	PMT	LOG	C 01333	T			3

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 01333		Shallow	1	1	4	05	21S	27E	574128	3597045*	

***An (*) after northing value indicates UTM location was derived from PLSS - see Help**

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 03292 **Subbasin:** C **Cross Reference:** -

Primary Purpose: STK 72-12-1 LIVESTOCK WATERING

Primary Status: EXP EXPIRED

Total Acres: **Subfile:** -

Total Diversion: 0 **Cause/Case:** -

Owner: DAVID MALEY

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	468630	72121	2006-06-20	EXP	EXP	C 03292	T			3

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 03292			4	3	4	06	21S	27E	572716	3596407*	ED

***An (*) after northing value indicates UTM location was derived from PLSS - see Help**

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 03611 **Subbasin:** C **Cross Reference:** -

Primary Purpose: PRO 72-12-1 PROSPECTING OR DEVELOPMENT OF NATURAL RESOURCE

Primary Status: PMT PERMIT

Total Acres: **Subfile:** -

Total Diversion: 0 **Cause/Case:** -

Owner: M & W WATER SALES

Contact: JASON MALEY

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	520186	72121	2013-01-18	EXP	EXP	C-3611 OWD	T		3	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 03611 POD1			3	3	4	06	21S	27E	572569	3596470	OWD

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 03629 **Subbasin:** CUB **Cross Reference:** -

Primary Purpose: EXP EXPLORATION

Primary Status: PMT PERMIT

Total Acres: **Subfile:** -

Total Diversion: 0 **Cause/Case:** -

Owner: M & W WATER & LAND SALES

Contact: JASON MALEY

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	526517	EXPL	2013-04-22	PMT	APR	C-3629 EXPL	T	0	0	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 03629 POD1			3	1	2	06	21S	27E	572592	3597563	SUBDIVISION

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 02065 **Subbasin:** C **Cross Reference:** -

Primary Purpose: PRO 72-12-1 PROSPECTING OR DEVELOPMENT OF NATURAL RESOURCE

Primary Status: PMT PERMIT

Total Acres: **Subfile:** - **Header:** -

Total Diversion: 0 **Cause/Case:** -

Owner: EXXON CORPORATION

Contact: MELBA KNIPLING

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	468271	72121	1983-05-27	EXP	EXP	C 02065	T			3

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 02065			4	4		31	20S	28E	574114	3598836*	

***An (*) after northing value indicates UTM location was derived from PLSS - see Help**

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 03630 **Subbasin:** CUB **Cross Reference:** -

Primary Purpose: SUB SUBDIVISION

Primary Status: PMT PERMIT

Total Acres: **Subfile:** -

Total Diversion: 0 **Cause/Case:** -

Owner: M & W WATER & LAND SALES

Contact: JASON MALEY

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	526523	EXPL	2013-04-22	PMT	APR	C-3630 EXPL	T	0	0	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 03630 POD1			3	1	4	06	21S	27E	572582	3596888	SUBDIVISION

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 03632 **Subbasin:** CUB **Cross Reference:** -

Primary Purpose: SUB SUBDIVISION

Primary Status: PMT PERMIT

Total Acres: **Subfile:** -

Total Diversion: 0 **Cause/Case:** -

Owner: M & W WATER & LAND SALES

Contact: JASON MALEY

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	526532	EXPL	2013-04-22	PMT	APR	C-3632 EXPL	T	0	0	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 03632 POD1			1	3	4	06	21S	27E	572601	3596682	SUBDIVISION

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 03633 **Subbasin:** CUB **Cross Reference:** -

Primary Purpose: SUB SUBDIVISION

Primary Status: PMT PERMIT

Total Acres: **Subfile:** -

Total Diversion: 0 **Cause/Case:** -

Owner: M & W WATER & LAND SALES

Contact: JASON MALEY

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	526533	EXPL	2013-04-22	PMT	APR	C-3633 EXPL	T	0	0	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 03633 POD1			1	1	2	06	21S	27E	572593	3597812	SUBDIVISION

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 03825 **Subbasin:** C **Cross Reference:** -

Primary Purpose: DOM 72-12-1 DOMESTIC ONE HOUSEHOLD

Primary Status: PMT PERMIT

Total Acres: **Subfile:** -

Total Diversion: 1 **Cause/Case:** -

Owner: MIKE CRAIG

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	559270	72121	2014-12-12	PMT	LOG	C 03825 POD1	T		1	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 03825 POD1		Shallow	3	1	2	06	21S	27E	572607	3597676	

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 04322 **Subbasin:** C **Cross Reference:** -

Primary Purpose: DOM 72-12-1 DOMESTIC ONE HOUSEHOLD

Primary Status: PMT PERMIT

Total Acres: **Subfile:** - **Header:** -

Total Diversion: 1 **Cause/Case:** -

Agent: TRAVIS MANN

Owner: CELEDONIO AGUILAR

Documents on File

Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images 648324	72121	2019-05-02	PMT	APR	C 04322 POD1	T		1	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 04322 POD1	2226C		3	3	2	06	21S	27E	572727	3597751	

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 04213 **Subbasin:** C **Cross Reference:** -

Primary Purpose: DOM 72-12-1 DOMESTIC ONE HOUSEHOLD

Primary Status: PMT PERMIT

Total Acres: **Subfile:** -

Total Diversion: 1 **Cause/Case:** -

Owner: KOVA CAPE

Contact: KOVA CAPE

Owner: DAVE CAPE

Contact: KOVA CAPE

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	621884	72121	2018-03-20	PMT	LOG	C 04213 POD1	T		1	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 04213 POD1	206C4	Shallow	4	3	4	06	21S	27E	572632	3596510	

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 03834 **Subbasin:** C **Cross Reference:** -

Primary Purpose: DOL 72-12-1 DOMESTIC AND LIVESTOCK WATERING

Primary Status: PMT PERMIT

Total Acres: **Subfile:** -

Total Diversion: 3 **Cause/Case:** -

Owner: JAMES S WITT III

Owner: FRANK O WITT

Contact: JAMES S WITT III

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	561016	72121	2015-01-16	PMT	LOG	C 03834 POD1	T		3	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 03834 POD1		Shallow	4	2	1	06	21S	27E	572302	3597613	

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 03631 **Subbasin:** CUB **Cross Reference:** -

Primary Purpose: SUB SUBDIVISION

Primary Status: PMT PERMIT

Total Acres: **Subfile:** -

Total Diversion: 0 **Cause/Case:** -

Owner: M & W WATER & LAND SALES

Contact: JASON MALEY

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	526531	EXPL	2013-04-22	PMT	APR	C-3631 EXPL	T	0	0	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 03631 POD1			3	1	4	06	21S	27E	572587	3596821	SUBDIVISION

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 03835 **Subbasin:** C **Cross Reference:** -

Primary Purpose: DOL 72-12-1 DOMESTIC AND LIVESTOCK WATERING

Primary Status: PMT PERMIT

Total Acres: **Subfile:** -

Total Diversion: 3 **Cause/Case:** -

Owner: DAVID K MERVINE

Owner: JENNIFER MERVINE

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	561180	72121	2015-01-21	PMT	LOG	C 03835 POD1	T		3	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 03835 POD1		Shallow	3	1	4	06	21S	27E	572605	3596913	

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 04005 **Subbasin:** C **Cross Reference:** -

Primary Purpose: STK 72-12-1 LIVESTOCK WATERING

Primary Status: PMT PERMIT

Total Acres: **Subfile:** -

Total Diversion: 3 **Cause/Case:** -

Owner: KENDRA POTTER

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	599650	72121	2016-12-02	PMT	APR	C 04005 POD1	T		3	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 04005 POD1			2	3	2	06	21S	27E	572616	3597419	IN USGS CORRECTION LOT #15

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 04024 **Subbasin:** C **Cross Reference:** -

Primary Purpose: STK 72-12-1 LIVESTOCK WATERING

Primary Status: PMT PERMIT

Total Acres: **Subfile:** -

Total Diversion: 3 **Cause/Case:** -

Owner: CRAIG FANSHIER

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	628943	72121	2018-07-19	PMT	APR	C 04024 POD1	T		3	
get images	603797	72121	2017-03-08	EXP	EXP	C 04024 POD1	T		3	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 04024 POD1			2	2	2	06	21S	27E	573024	3597735	

New Mexico Office of the State Engineer

Water Right Summary

get image list

WR File Number: C 03163 **Subbasin:** C **Cross Reference:** -

Primary Purpose: STK 72-12-1 LIVESTOCK WATERING

Primary Status: PMT PERMIT

Total Acres: **Subfile:** - **Header:** -

Total Diversion: 3 **Cause/Case:** -

Owner: DAVID MALEY

Contact: JASON MALEY

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	467888	72121	2005-03-01	PMT	LOG	C 03163	T		3	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 03163		Shallow	2	1	2	06	21S	27E	572693	3598138	

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 03634 **Subbasin:** CUB **Cross Reference:** -

Primary Purpose: SUB SUBDIVISION

Primary Status: PMT PERMIT

Total Acres: **Subfile:** - **Header:** -

Total Diversion: 0 **Cause/Case:** -

Owner: M & W WATER & LAND SALES

Contact: JASON MALEY

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	526536	EXPL	2013-04-22	PMT	APR	C-3634 EXPL	T	0	0	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 03634 POD1			1	1	2	06	21S	27E	572596	3598539	SUBDIVISION

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 03912 **Subbasin:** C **Cross Reference:** -

Primary Purpose: DOM 72-12-1 DOMESTIC ONE HOUSEHOLD

Primary Status: PMT PERMIT

Total Acres: **Subfile:** - **Header:** -

Total Diversion: 1 **Cause/Case:** -

Owner: GUILLERMO GOMEZ

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	576824	72121	2015-10-01	PMT	LOG	C 03912 POD1	T		1	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 03912 POD1		Shallow	3	1	2	06	21S	27E	572581	3598046	

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 04228 **Subbasin:** C **Cross Reference:** -

Primary Purpose: DOM 72-12-1 DOMESTIC ONE HOUSEHOLD

Primary Status: PMT PERMIT

Total Acres: **Subfile:** - **Header:** -

Total Diversion: 1 **Cause/Case:** -

Owner: FRANK WITT

Contact: TRAVIS MANN

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	624127	72121	2018-04-27	PMT	APR	C 04228 POD1	T		1	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 04228 POD1	206F4		3	1	2	06	21S	27E	572554	3598246	

Texas Ranger SWD No. 2 - Offset 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
RUSSELL USA #009	3001502356	13	20S	28E	O	EDDY	ARTESIA		81000						45500	684	4130	
RUSSELL USA #013	3001502361	13	20S	28E	O	EDDY	ARTESIA		29100						14400	658	3620	
WELCH FEDERAL #006	3001501068	5	21S	27E	O	EDDY	ARTESIA		10050						4050	9	2533	
WELCH FEDERAL #003	3001501069	5	21S	27E	P	EDDY	ARTESIA		11250						4553	936	2281	
EXXON STATE #001	3001501091	15	21S	27E	J	EDDY	ARTESIA		11800						5250	336	2150	
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	
ROOKIE STATE #001	3001510060	7	22S	26E	B	EDDY	BONE SPRING		67985						39150	61	1148	
BURTON FLAT DEEP UNIT #052H	3001540693	3	21S	27E	H	EDDY	BONE SPRING 1ST SAND	6.72	155191.3	53329	1222	13	315	0.7	97600	658.8	725	240
BURTON FLAT DEEP UNIT #052H	3001540693	3	21S	27E	H	EDDY	BONE SPRING 1ST SAND	6.78	173977.9	61147	1147	7.5	299	0.4	108457	793	667	
BURTON FLAT DEEP UNIT #051H	3001540681	3	21S	27E	A	EDDY	BONE SPRING 1ST SAND	7.3	190277.3	71261.7	1111	11.5	299	0	114751.2	634	0	260
BURTON FLAT DEEP UNIT #055H	3001540682	3	21S	27E	A	EDDY	BONE SPRING 1ST SAND	7	175293.2	60700.8	1015.4	21.3	279.1	0	110483.2	793	0	330
BURTON FLAT DEEP UNIT #049H	3001540707	3	21S	27E	A	EDDY	BONE SPRING 1ST SAND	7	192123.7	72088.7	1374.2	54.3	373.3	0	113742.1	2200	0	3.6
BURTON FLAT DEEP UNIT #054H	3001540503	2	21S	27E	L	EDDY	BONE SPRING 2ND SAND	7.3	214072.7	66538.1	12714.3	48.2	1761.4	1.29	129855.2	671	0	360
LONE TREE DRAW 13 STATE #007H	3001541650	13	21S	27E	C	EDDY	BONE SPRING 2ND SAND	6.9	210720.3	68253.3	12837.8	48.5	1788.7	1.48	125168.4	183	0	4.1
LONE TREE DRAW 13 STATE #007H	3001541650	13	21S	27E	C	EDDY	BONE SPRING 2ND SAND	6.7	191807.5	57602.5	11751.7	38	1581.6	1.42	118330	158.6	0	40
LONE TREE DRAW 13 STATE COM #002H	3001540372	13	21S	27E	D	EDDY	DELAWARE-BRUSHY CANYON	7	207014.4	49363.9	23129	37	3612	10	127509	183	1724	300
LONE TREE DRAW 13 STATE COM #002H	3001540372	13	21S	27E	D	EDDY	DELAWARE-BRUSHY CANYON	6.9	234863.1	59083.5	26546.3	27	4191.8	10.33	142662.1	159	0	3
LONE TREE DRAW 13 STATE COM #004H	3001540522	13	21S	27E	B	EDDY	DELAWARE-BRUSHY CANYON	5.89	241475.8	61967.4	28031.6	29.3	4407.4	10.3	144690.2	76.5	0	3.9
LONE TREE DRAW 13 STATE #003H	3001541134	13	21S	27E	C	EDDY	DELAWARE-BRUSHY CANYON	7.1	239078.6	60109.4	27296.2	30.7	4313.7	10.16	144881.5	220	0	4
LONE TREE DRAW 13 STATE COM #005	3001541135	13	21S	27E	A	EDDY	DELAWARE-BRUSHY CANYON	7	245934.8	62907.6	28628.2	28.2	4488.6	10.56	147320.7	244	0	4
N CEDAR HILLS #001	3001510817	5	21S	27E	J	EDDY	CAPITAN		27900						13600	588	3800	
N CEDAR HILLS #001	3001510817	5	21S	27E	J	EDDY	CAPITAN		27400						13200	630	3880	
N CEDAR HILLS #001	3001510817	5	21S	27E	J	EDDY	CAPITAN		28000						13800	626	3690	
N CEDAR HILLS #001	3001510817	5	21S	27E	J	EDDY	CAPITAN		28200						14000	636	3570	
N CEDAR HILLS #001	3001510817	5	21S	27E	J	EDDY	CAPITAN		28700						14800	646	3040	
PECOS RIVER DEEP UNIT #001	3001510051	28	19S	27E	F	EDDY	MORROW		19307						9384	859	2122	
MIDWEST L FEDERAL GAS COM #001	3001520828	34	22S	26E	K	EDDY	MORROW	6.2	179513						109000	161	1800	
MIDWEST L FEDERAL GAS COM #001	3001520828	34	22S	26E	K	EDDY	MORROW	6.3	180083						109000	210	1900	
SEVEN RIVERS #029	3001505919	29	20S	26E	H	EDDY	SAN ANDRES		102968						57510	1789	4814	
SEVEN RIVERS #029	3001505919	29	20S	26E	H	EDDY	SAN ANDRES		120793						68800	2752	3655	
SEVEN RIVERS #029	3001505919	29	20S	26E	H	EDDY	SAN ANDRES		117506						66650	2236	3655	
EDDY STATE AD #001	3001502406	19	20S	28E	E	EDDY	TANSILL	6.8	3237		228		56		130	120	2122	
EDDY STATE AD #001	3001502406	19	20S	28E	E	EDDY	TANSILL	6.8		581	228		56		130	120	2122	
EDDY STATE AD #001	3001502406	19	20S	28E	E	EDDY	TANSILL	6.8	3728	580	570		230		130	98	2120	
FED UNION #001	3001502416	22	20S	28E	O	EDDY	WOLFCAMP	6.7	55965						32400	252	2260	
STATE AC COM #001	3001522299	21	20S	28E	J	EDDY	WOLFCAMP	7	40785						24300	688	44	
STATE AC COM #001	3001522299	21	20S	28E	J	EDDY	WOLFCAMP	5.1	144926						87600	37	1350	
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	

CARLSBAD
CURRENT-ARGUS

AFFIDAVIT OF PUBLICATION

Ad No.
0001297200

LONQUIST FIELD SERVICE
1001 MCKINNEY ST., SUITE 1650

HOUSTON TX 77002

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

09/24/19

Kathleen Allen
Legal Clerk

Subscribed and sworn before me this
24th of September 2019.

Vicky Felty
State of WI, County of Brown
NOTARY PUBLIC

9/9/21
My Commission Expires

VICKY FELTY
NOTARY
PUBLIC
STATE OF WISCONSIN

Ad#:0001297200
P O : Solaris Water
# of Affidavits :0.00

Legal Notice
Solaris Water Midstream, LLC, 907 Tradewinds Blvd., Suite B, Midland, TX 79706, is filling Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division for administrative approval for its salt water disposal well Texas Ranger SWD No. 2. The proposed well will be located 2,990' FNL & 344' FEL in Section 6, Township 21S, Range 27E in Eddy County, New Mexico. Disposal water will be sourced from area production, and will be injected into the Devonian-Silurian formation (determined by offset log analysis) through an open hole completion between a maximum applied for top of 12,333 feet to a maximum depth of 14,133 feet. The maximum surface injection pressure will not exceed 2,467 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.
September 24, 2019

Texas Ranger SWD No. 2
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
36/T20S/R27E	I,J,N,O,P	MEWBOURNE OIL CO	-		-	P.O. BOX 5270	HOBBS, NM 88241
31/T20S/R28E	I,J,K,L,M,O	XTO ENERGY, INC	-		-	6401 HOLIDAY HILL ROAD BUILDING #5	MIDLAND, TX 79707
	I,J,K,L,M,N,O,P	MEWBOURNE OIL CO	-		-	P.O. BOX 5270	HOBBS, NM 88241
32/T20S/R28E	M	XTO ENERGY, INC	-		-	6401 HOLIDAY HILL ROAD BUILDING #5	MIDLAND, TX 79707
01/T21S/R26E	L17, L24, L25, L32, L33	FASKEN OIL & RANCH LTD	-		-	6101 HOLIDAY HILL ROAD	MIDLAND TX 79707
05/T21S/R27E	L16, O	TRINITY RESOURCES LLC	-		-	11438 LOVINGTON HIGHWAY	ARTESIA, NM 88210
	L1,I,J,K,L,M,N,O,P	XTO ENERGY, INC	-		-	6401 HOLIDAY HILL ROAD BUILDING #5	MIDLAND, TX 79707
	EMTIRE SECTION	-	XTO HOLDINGS LLC		-	22777 SPRINGWOODS VILLAGE PKWY	SPRING TX 773891425
06/T21S/R27E	L1, L2, L2, L3, L4, L5, L6, L7, L8	MEWBOURNE OIL CO	-		-	P.O. BOX 5270	HOBBS, NM 88241
	L9, L10, L11, L12, L13, L14, L15, L16 I, J, K, L17, L18, N, O, P	PREMIER OIL & GAS INC	-		-	P.O. BOX 1246	ARTESIA, NM 88211-1246
	L1	XTO ENERGY, INC	-		-	6401 HOLIDAY HILL ROAD BUILDING #5	MIDLAND, TX 79707
07/T21S/R27E	A,B,C	CIMAREX ENERGY CO. OF COLORADO	-		-	600 N. MARIENFELD STREET SUITE 600	MIDLAND, TX 79701
08/T21S/R27E	C, D	H L BROWN OPERATING, LLC	-		-	P.O. BOX 2237	MIDLAND, TX 79702
Surface Location	-	-	-	STATE LAND OFFICE	FANSHIER, CRAIG D	15315 SW GOPHER VALLEY RD	SHERIDAN, OR 97378

DETERMINATION AND NOTICE OF AFFECTED PARTIES – NEW MEXICO

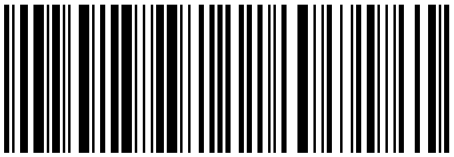
If an operator or mineral lessee has legal acreage or leases within one mile of the proposed salt water disposal well, their contact information is collected for notification purposes. Legal acreage of offset operators is gathered from the New Mexico Oil Conservation District's Permitting website. Minerals 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 Texas Ranger SWD No. 2 application by mailing them a copy of Form C-108 on 9/27/2019. 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
Texas Ranger SWD No. 2

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



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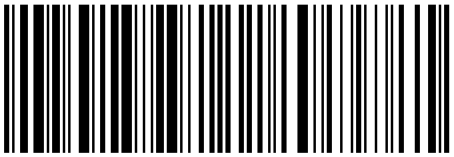
BUREAU OF LAND MANAGEMENT
620 E GREENE STREET
2206-TEXAS RANGER SWD #2
CARLSBAD, NM 88220

Reference Number: 2206-TEXAS RANGER SWD #2

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



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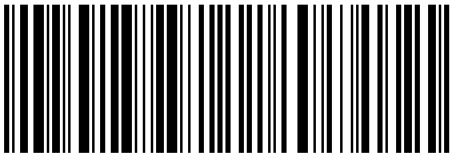
CIMAREX ENERGY CO OF COLORADO
600 N MARIENFELD STREET
STE 600
2206-TEXAS RANGER SWD #2
MIDLAND, TX 79701

Reference Number: 2206-TEXAS RANGER SWD #2

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



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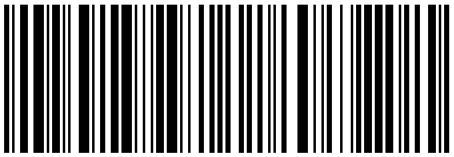
FAITH CROSBY, OGMD/WATER
NM STATE LAND OFFICE
310 OLD SANTA FE TRAIL
2206-TEXAS RANGER SWD #2
SANTA FE, NM 87501

Reference Number: 2206-TEXAS RANGER SWD #2

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



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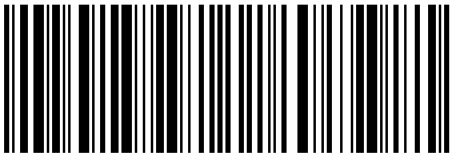
CRAIG D FANSHIER
15315 SW GOPHER VALLEY RD
2206-TEXAS RANGER SWD #2
SHERIDAN, OR 97378

Reference Number: 2206-TEXAS RANGER SWD #2

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



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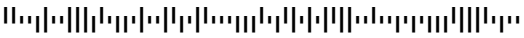

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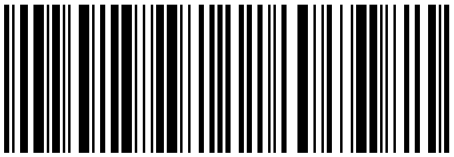
FASKEN OIL & RANCH LTD
6101 HOLIDAY HILL ROAD
2206-TEXAS RANGER SWD #2
MIDLAND, TX 79707

Reference Number: 2206-TEXAS RANGER SWD #2

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



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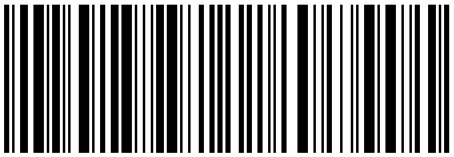
H L BROWN OPERATING, LLC
P.O. BOX 2237
2206-TEXAS RANGER SWD #2
MIDLAND, TX 79702

Reference Number: 2206-TEXAS RANGER SWD #2

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



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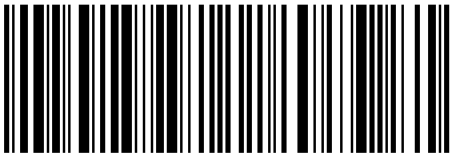
MEWBOURNE OIL CO
P.O. BOX 5270
2206-TEXAS RANGER SWD #2
HOBBS, NM 88241

Reference Number: 2206-TEXAS RANGER SWD #2

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



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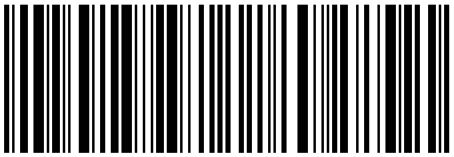
OIL CONSERVATION DIVISION DISTRICT II
811 S. FIRST ST.
2206-TEXAS RANGER SWD #2
ARTESIA, NM 88210

Reference Number: 2206-TEXAS RANGER SWD #2

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



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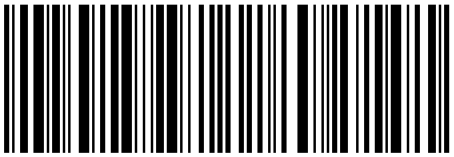
OIL CONSERVATION DIVISION DISTRICT IV
1220 S ST FRANCIS DR,
2206-TEXAS RANGER SWD #2
SANTA FE, NM 87505

Reference Number: 2206-TEXAS RANGER SWD #2

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



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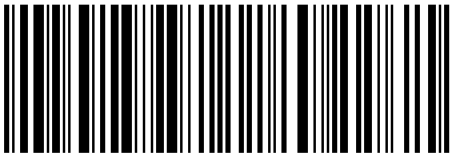
Total Postage: $6.55

PREMIER OIL & GAS INC
P.O. BOX 1246
2206-TEXAS RANGER SWD #2
ARTESIA, NM 88211-1246

Reference Number: 2206-TEXAS RANGER SWD #2

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



9314 8699 0430 0063 8842 21

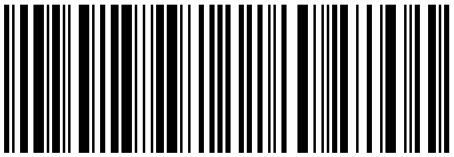
RETURN RECEIPT (ELECTRONIC)

Total Postage: $6.55

TRINITY RESOURCES LLC
11438 LOVINGTON HIGHWAY
2206-TEXAS RANGER SWD #2
ARTESIA, NM 88210

Reference Number: 2206-TEXAS RANGER SWD #2

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



9314 8699 0430 0063 8842 38

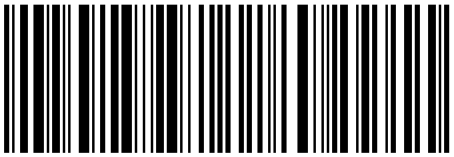
RETURN RECEIPT (ELECTRONIC)

Total Postage: $6.55

XTO ENERGY, INC
6401 HOLIDAY HILL ROAD BUILDING #5
2206-TEXAS RANGER SWD #2
MIDLAND, TX 79707

Reference Number: 2206-TEXAS RANGER SWD #2

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



9314 8699 0430 0063 8842 45

RETURN RECEIPT (ELECTRONIC)

Total Postage: $6.55

XTO HOLDINGS LLC
22777 SPRINGWOODS VILLAGE PKWY
2206-TEXAS RANGER SWD #2
SPRING, TX 77389

Reference Number: 2206-TEXAS RANGER SWD #2

September 27, 2019

Bureau of Land Management
620 E Greene Street
Carlsbad, NM 88220

Subject: **Texas Ranger SWD No. 2 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 Texas Ranger SWD No. 2 well. Section XIV of Form C-108 requires that the surface land owner on which the well is located and each leasehold operator within a one-half mile radius of the proposed well location be furnished with the application. The notice of application has been extended to a one-mile radius.

According to the New Mexico Oil Conservation Division, surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date in which this application was mailed to them.

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

September 27, 2019

CIMAREX ENERGY CO. OF COLORADO
600 N. MARIENFELD STREET SUITE 600
MIDLAND, TX 79701

Subject: **Texas Ranger SWD No. 2 Authorization to Inject**

To Whom It May Concern:

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Regards,

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

(512) 600-1777
ramona@lonquist.com

September 27, 2019

Faith Crosby, OGMD/Water, NM State Land Office
310 Old Sante Fe Trail
Sante Fe, NM 87501

Subject: Texas Ranger SWD No. 2 Authorization to Inject

To Whom It May Concern:

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Regards,

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

(512) 600-1777
ramona@lonquist.com

September 27, 2019

FANSHIER, CRAIG D
15315 SW GOPHER VALLEY RD
SHERIDAN, OR 97378

Subject: **Texas Ranger SWD No. 2 Authorization to Inject**

To Whom It May Concern:

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Regards,

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

(512) 600-1777
ramona@lonquist.com

September 27, 2019

FASKEN OIL & RANCH LTD
6101 HOLIDAY HILL ROAD
MIDLAND TX 79707

Subject: **Texas Ranger SWD No. 2 Authorization to Inject**

To Whom It May Concern:

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Regards,

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

(512) 600-1777
ramona@lonquist.com

September 27, 2019

H L BROWN OPERATING, LLC
P.O. BOX 2237
MIDLAND, TX 79702

Subject: **Texas Ranger SWD No. 2 Authorization to Inject**

To Whom It May Concern:

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Regards,

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

(512) 600-1777
ramona@lonquist.com

September 27, 2019

MEWBOURNE OIL CO
P.O. BOX 5270
HOBBS, NM 88241

Subject: **Texas Ranger SWD No. 2 Authorization to Inject**

To Whom It May Concern:

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Regards,

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

(512) 600-1777
ramona@lonquist.com

September 27, 2019

OIL CONSERVATION DIVISION DISTRICT II
811 S. FIRST ST.
ARTESIA, NM 88210

Subject: **Texas Ranger SWD No. 2 Authorization to Inject**

To Whom It May Concern:

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Regards,

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

(512) 600-1777
ramona@lonquist.com

September 27, 2019

OIL CONSERVATION DIVISION DISTRICT IV
1220 S ST FRANCIS DR,
SANTA FE, NM 87505

Subject: **Texas Ranger SWD No. 2 Authorization to Inject**

To Whom It May Concern:

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Regards,

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

(512) 600-1777
ramona@lonquist.com

September 27, 2019

PREMIER OIL & GAS INC
P.O. BOX 1246
ARTESIA, NM 88211-1246

Subject: **Texas Ranger SWD No. 2 Authorization to Inject**

To Whom It May Concern:

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Regards,

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

(512) 600-1777
ramona@lonquist.com

September 27, 2019

TRINITY RESOURCES LLC
11438 LOVINGTON HIGHWAY
ARTESIA, NM 88210

Subject: **Texas Ranger SWD No. 2 Authorization to Inject**

To Whom It May Concern:

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Regards,

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

(512) 600-1777
ramona@lonquist.com

September 27, 2019

XTO ENERGY, INC
6401 HOLIDAY HILL ROAD BUILDING #5
MIDLAND, TX 79707

Subject: **Texas Ranger SWD No. 2 Authorization to Inject**

To Whom It May Concern:

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Regards,

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

(512) 600-1777
ramona@lonquist.com

September 27, 2019

XTO HOLDINGS LLC
22777 SPRINGWOODS VILLAGE PKWY
SPRING TX 773891425

Subject: **Texas Ranger SWD No. 2 Authorization to Inject**

To Whom It May Concern:

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Sr. Petroleum Engineer
Lonquist & Co., LLC

(512) 600-1777
ramona@lonquist.com

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 Hovey DATE: 9/26/2019

E-MAIL ADDRESS: ramona@lonquist.com

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office

Side 2

III. WELL DATA

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

(1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth.

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

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

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

(1) The name of the injection formation and, if applicable, the field or pool name.

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

(3) State if the well was drilled for injection or, if not, the original purpose of the well.

(4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.

(5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

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

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

(1) The name, address, phone number, and contact party for the applicant;

(2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;

(3) The formation name and depth with expected maximum injection rates and pressures; and,

(4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

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

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

Side 1

INJECTION WELL DATA SHEET

OPERATOR: Solaris Water Midstream, LLC

WELL NAME & NUMBER: Texas Ranger SWD No. 2

WELL LOCATION:	2,990’ FNL 344’ FEL	LOT 9	6	21S	27E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 26”

Casing Size: 20”

Cemented with: 2,130 sx.

or _____ ft^3

Top of Cement: surface

Method Determined: circulation

Intermediate Casing

Hole Size: 14.750”

Casing Size: 13.375”

Cemented with: 515 sx.

or _____ ft^3

Top of Cement: surface

Method Determined: circulation

Production Casing

Hole Size: 12.250”

Casing Size: 9.625”

Cemented with: 2,664 sx.

or _____ ft^3

Top of Cement: surface

Method Determined: circulation

Liner

Hole Size: 8.500”

Casing Size: 7.625”

Cemented with: 596 sx.

or _____ ft^3

Top of Cement: 8,483’

Method Determined: calculation

Total Depth: 14,133’

Injection Interval

12,333 feet to 14,133 feet

(Open Hole)

INJECTION WELL DATA SHEET

Tubing Size: 5.5", 20 lb/ft, HCL-80, BTC from 0' – 8,283' and 5", 18 lb/ft, HCL-80, LTC from 8,283'-12,283'
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: 12,283'

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,

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

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used.

   No, new drill.

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

   Bone Spring: 4,443'
   Wolfcamp: 8,583'
   Strawn: 10,080'
   Morrow: 10,738'

Solaris Water Midstream, LLC

Texas Ranger SWD No. 2

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1.

Well information	
Lease Name	Texas Ranger SWD
Well No.	2
Location	S-6 T-21S R-27E
Footage Location	2,990’ FNL & 344’ FEL

2.

a. Wellbore Description

Casing Information				
Type	Surface	Intermediate	Production	Liner
OD	20”	13.375”	9.625”	7.625”
WT	0.438”	0.48”	0.545”	0.500”
ID	19.124”	12.415”	8.535”	6.625”
Drift ID	18.936”	12.259”	8.379”	6.500”
COD	21”	13.375”	10.625”	7.625”
Weight	94 lb/ft	68 lb/ft	53.5 lb/ft	39 lb/ft
Grade	J-55 STC	L-80 BTC	HCP-110 BTC	Q-125 EZ-GO FJ3
Hole Size	26”	14.75"	12.25”	8.5”
Depth Set	660’	2,700’	8,683’	8,483’-12,333’

b. Cementing Program

To address recent concerns of insufficient surface casing cementing jobs in the offsetting region, the installation of this proposed cement program aims to decrease the probability of future migration of fluids due to improper placement of cement and to protect against impact to Underground Sources of Drinking Water (USDW).

The surface hole will be drilled with a 26" bit to 660' and set with 20", 94 lb/ft, J-55 STC surface casing. If loss of circulation occurs while drilling, LCM pills of up to 80-100 lbs/bbl will be spotted/circulated as necessary. If circulation is unable to be regained, an open hole thixotropic cement plug will be considered as use for LCM and drilling will resume.

A 20" rigid body centralizer and 20" cementing baskets will be added to the body of the casing in order to ensure proper standoff from the bore hole and minimize cement "fall back" while cementing. A cement slurry followed by a second lead with increased quantities of LCM material thereafter. The remaining details of the cement program can be found below:

Casing String	Surface	Intermediate	Production	Liner
1st Lead Cement	Thixotropic			
1st Lead Cement Volume (sacks)	685			
1st Lead Cement Density (ft3/sack)	12.8			
Lead Cement	93:7 Class C Premium	HALCEM™	HALCEM™	NeoCem™
Lead Cement Volume (sacks)	550	515	Stage 1: 1,176 Stage 2: 1,488	596
Lead Cement Density (ft3/sack)	12.4	1.685	Stage 1: 1.232 Stage 2: 1.713	1.418
Tail Cement	100 Class C Premium	-	-	-
Tail Cement Volume (sacks)	895	-	-	-
Tail Cement Density (ft3/sack)	14.8	-	-	-
Cement Excess	150%	100%	100%	50%
Total Sacks	2,130	515	2,664	596
TOC	Surface	Surface	Surface	8,483'
Method	Circulate to Surface	Circulate to Surface	Circulate to Surface	Logged

3. Tubing Description

Tubing Information	
OD	5.5” 5.0”
WT	0.361” 0.362”
ID	4.778” 4.276”
Drift ID	4.653” 4.151”
COD	6.050” 5.563”
Weight	20 lb/ft 18 lb/ft
Grade	HCL-80 BTC HCL-80 LTC
Depth Set	0-8,283’ 8,283’-12,283’

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: 12,333’-14,133’

Completion Type: Open Hole

3. Drilled for injection.

4. See the attached wellbore schematic.

5. Oil and Gas Bearing Zones within area of well:

Formation	Depth
Bone Spring	4,443’
Wolfcamp	8,583’
Strawn	10,080’
Morrow	10,738’

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: 1,850 PSI (surface pressure)
   Maximum Injection Pressure: 2,467 PSI (surface pressure)

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

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

VIII. Geological Data

Devonian Formation Lithology:

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

Fusselman Formation Lithology:

The Silurian/Ordovician Fusselman Formation is stratigraphically below the Wristen Group and is above and separated from the Montoya Formation by the Sylvan Shale. The Sylvan Shale is the lower confining

layer for the proposed Texas Ranger SWD No. 1 well. Fusselman facies include a laminated skeletal wackestone in the upper part and a buildup complex in the lower part composed of ooid and bryozoan grainstones. These grainstones can also be potentially prolific zones for disposal.

A. Injection Zone: Devonian-Silurian Formation

Formation	Depth
Yates	308’
Capitan Reef	682’
Capitan Reef Base	2,680’
Bell Canyon	2,808’
Cherry Canyon	3,473’
Brushy Canyon	3,828’
Bone Spring	4,443’
Bone Spring 1st Sand	6,323’
Bone Spring 2nd Sand	7,023’
Bone Spring 3rd Sand	8,378’
Wolfcamp	8,583’
Strawn	10,080’
Morrow	10,738’
Barnett	11,144’
Devonian	12,333’

B. Underground Sources of Drinking Water

Twenty-one (21) water wells exist within one-mile of the proposed well after the location change of the Texas Ranger. Across the area, fresh water wells are usually drilled at an average depth of 273’. Average water depth in this region is approximately 200’. The Rustler is known to exist in this general area and may also be another USDW and will be protected.

IX. Proposed Stimulation Program

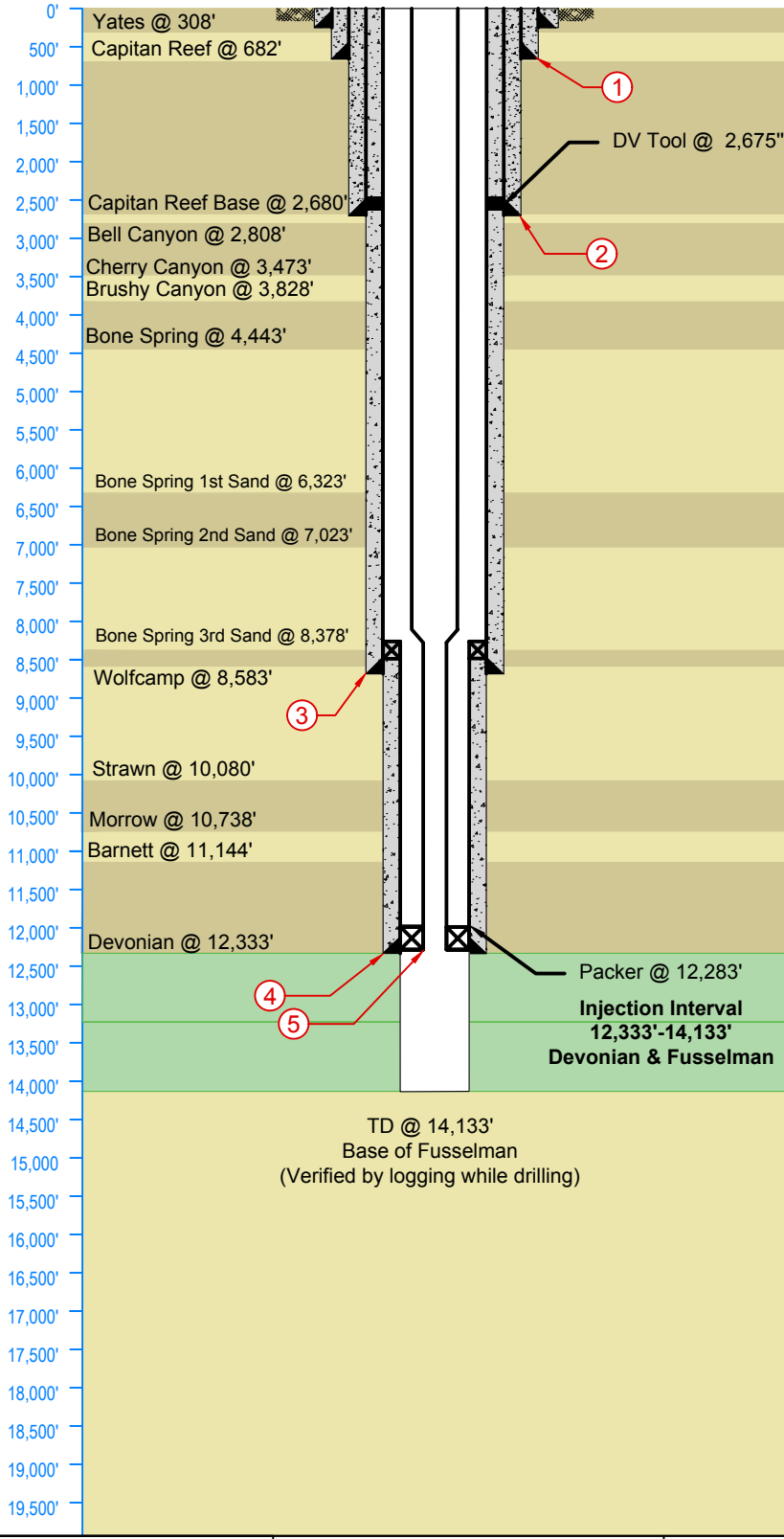
50,000 gallon acid job

X. Logging and Test Data on the Well

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

XI. Chemical Analysis of Fresh Water Wells

Attached is a map of the twenty-one (21) water wells that exist within one-mile of the well location. Samples from the nearest available wells has been obtained and a chemical analysis is attached in this application. A Water Right Summary from the New Mexico Office of the State Engineer is attached for the twenty-one (21) water wells within a 1-mile radius.



Casing Information

Label	1	2	3	4
Type	Surface	Intermediate	Production	Liner
OD	20"	13-3/8"	9-5/8"	7-5/8"
WT	0.438"	0.480"	0.545"	0.500"
ID	19.124"	12.415"	8.535"	6.625"
Drift ID	18.936"	12.259"	8.379"	6.500"
COD	21"	13.375"	10.625"	7.625"
Weight	94 lb/ft	68 lb/ft	53.5 lb/ft	39 lb/ft
Grade	J-55 STC	L-80 BTC	HCP-110 BTC	Q-125 EZ-GO FJ3
Hole Size	26"	14-3/4"	12-1/4"	8-1/2"
Depth Set	660'	2,700'	8,683'	Top: 8,483" Bottom: 12,333'
TOC	Circulate to surface	Circulate to surface	Circulate to surface	8,483'
Volume	2130 sacks	515 sacks	2,664 sacks	596 sacks
Excess	150 %	100%	100%	50%

Tubing Information

Label	6
OD	5-1/2", 5"
WT	0.361", 0.362"
ID	4.778", 4.276"
Drift ID	4.653", 4.151"
COD	6.050", 5.563"
Weight	20 lb/ft, 18 lb/ft
Grade	HCL-80 BTC, HCL-80 LTC
Depth Set	0' - 8,283' 8,283' - 12,283'

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

Texas Ranger SWD No. 2

Country: USA	**State/Province:** New Mexico	**County/Parish:** Eddy
Location:	**Site:** 2,990' FNL, 344' FEL	**Survey:** S9-T21S-R27E
API No: NA	**Field:** Silurian-Devonian (Code: 97869)	**Well Type/Status:** SWD
NMOCD District No: 2	**Project No:**	**Date:** 9/20/2019
Drawn: TFM	**Reviewed:**	**Approved:**
Rev No: 1	**Notes:**	

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

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

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

Form C-102
Revised August 1, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name

Property Code	Property Name	Well Number
	TEXAS RANGER SWD	2
OGRID No.	**Operator Name**	**Elevation**
	SOLARIS WATER MIDSTREAM	3240'

Surface Location

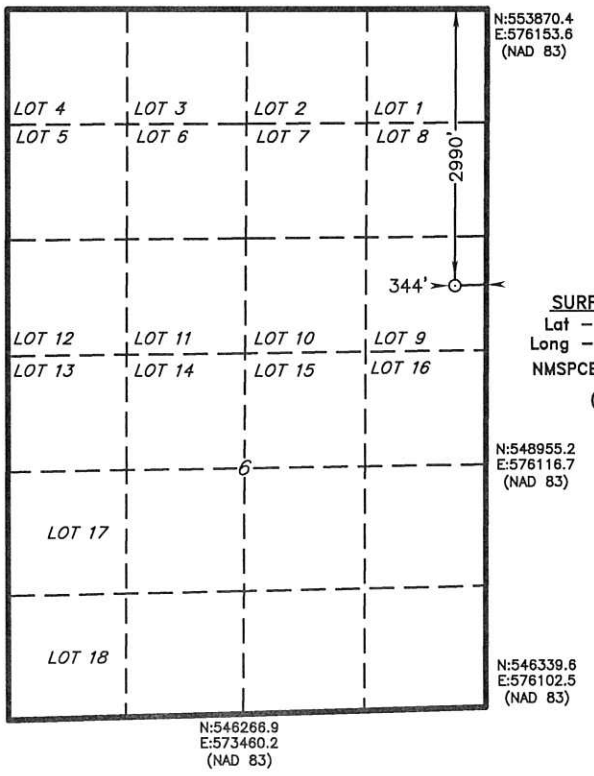
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
LOT 9	6	21 S	27 E		2990	NORTH	344	EAST	EDDY

Bottom Hole Location If Different From Surface

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

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

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



SURFACE LOCATION
Lat - N 32.514380°
Long - W 104.221571°
NMSPCE- N 550880.2
E 575787.7
(NAD-83)

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 9/26/19
Signature Date

RAMONA HOVEY
Printed Name

ramona@longuist.com
Email Address

SURVEYOR CERTIFICATION

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

AUGUST 12, 2019
Date Surveyed

Signature & Seal of Professional Surveyor

GARY L. JONES NEW MEXICO 7977 REGISTERED PROFESSIONAL LAND SURVEYOR

Certificate No. Gary L. Jones 7977
BASIN SURVEYS

0' 1000' 2000' 3000' 4000' N
SCALE: 1" = 2000'
WO Num.: 34766

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

Form C-101
Revised July 18, 2013

☐ AMENDED REPORT

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

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

4. Property Code	5. Property Name	6. Well No.
	TEXAS RANGER SWD	2

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
LOT 9	6	21S	27E		2,990	N	344	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	3,232'
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
N	14,133'	Silurian-Devonian	TBD	ASAP

Depth to Ground water	Distance from nearest fresh water well	Distance to nearest surface water
200'	1,803'	>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	660'	2,130	Surface
Intermediate	14.75"	13.375"	68 lb/ft	2,700'	515	Surface
Production	12.25"	9.625"	53.5 lb/ft	8,683'	2,664	Surface
Liner	8.5"	7.625"	39 lb/ft	8,483'-12,333'	596	8,483'
Tubing		5.5" & 5"	20 lb/ft & 18 lb/ft	0'-8,283' & 8,283'-12,283'	N/A	

Casing/Cement Program: Additional Comments

See attached schematic.

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Hydrualic/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 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: September 26, 2019 / Phone: 512-600-1777	Conditions of Approval Attached

GEOLOGIC AFFIRMATION

I have examined available geologic and engineering data. The depth of the surface casing is sufficient to protect the known groundwaters in the area of the well.

Stephen Martinez
Sr. Vice President of Drilling

Project: Solaris Water Midstream, LLC
Texas Ranger SWD #2