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

APPLICATION OF NGL WATER SOLUTIONS PERMIAN, LLC TO APPROVE SALT WATER DISPOSAL WELL IN LEA COUNTY, NEW MEXICO.

CASE NO. 20236

APPLICATION

NGL Water Solutions Permian, LLC ("NGL"), OGRID No. 372338, through its undersigned attorneys, hereby makes this application to the Oil Conservation Division pursuant to the provisions of N.M. Stat. Ann. § 70-2-12, for an order approving drilling of a salt water disposal well in Lea County, New Mexico. In support of this application, NGL states as follows:

(1) NGL proposes to drill the Thunderbolt SWD #1 well at a surface location 1,152 feet from the North line and 1,436 feet from the East line of Section 19, Township 26 South, Range 35 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well.

(2) NGL seeks authority to inject salt water into the Silurian-Devonian formation at a depth of 18,966' to 20,722'.

(3) NGL further seeks approval of the use of 7 inch tubing inside the surface and intermediate casings and 5 ½ inch tubing inside the liner and requests that the Division approve a maximum daily injection rate for the well of 50,000 bbls per day.

(4) NGL anticipates using an average pressure of 2,844 psi for this well, and it requests that a maximum pressure of 3,793 psi be approved for the well.

(5) A proposed C-108 for the subject well is attached hereto in Attachment A.

(6) The granting of this application will avoid the drilling of unnecessary wells, will prevent waste, and will protect correlative rights.

WHEREFORE, NGL requests that this application be set for hearing before an Examiner of the Oil Conservation Division on January 24, 2018; and that after notice and hearing, the Division enter its order approving this application.

Respectfully submitted,

MODRALL, SPERLING, ROEHL, HARRIS
& SISK, P.A.

By: Deana M Bennett

Jennifer Bradfute
Deana Bennett
Post Office Box 2168
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Albuquerque, New Mexico 87103-2168
Telephone: 505.848.1800
Attorneys for Applicant

CASE NO. _____: Application of NGL Water Solutions Permian, LLC for approval of salt water disposal well in Lea County, New Mexico. Applicant seeks an order approving disposal into the Silurian-Devonian formation through the Thunderbolt SWD #1 well at a surface location 1,152 feet from the North line and 1,436 feet from the East line of Section 19, Township 26 South, Range 35 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well. NGL seeks authority to inject salt water into the Silurian-Devonian formation at a depth of 18,966' to 20,722'. NGL further seeks approval of the use of 7 inch tubing inside the surface and intermediate casings and 5 ½ inch tubing inside the liner and requests that the Division approve a maximum daily injection rate for the well of 50,000 bbls per day. Said location is 11.6 miles southwest of Bennett, NM.

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: NGL WATER SOLUTIONS PERMIAN LLC **OGRID Number:** 372338
Well Name: THUNDERBOLT SWD #1 **API:** TBD
Pool: SWD; SILURIAN-DEVONIAN **Pool Code:** 96101

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.

CHRIS WEYAND
Print or Type Name

12/04/2018
Date

512-600-1764
Phone Number

Signature

CHRIS@LONQUIST.COM
e-mail Address

EXHIBIT A

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: NGL WATER SOLUTIONS PERMIAN, LLC

ADDRESS: 1509 W WALL ST // STE 306 // MIDLAND, TX 79701

CONTACT PARTY: SARAH JORDAN PHONE: (432) 685-0005 x1989

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: Christopher B. Weyand TITLE: Consulting Engineer

SIGNATURE: _____ DATE: 12/13/2018

E-MAIL ADDRESS: chris@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: NGL WATER SOLUTIONS PERMIAN, LLC

WELL NAME & NUMBER: THUNDERBOLT SWD #1

WELL LOCATION: 1,152' FNL & 1,436' FEL | B | 19 | 26S | 35E

FOOTAGE LOCATION | UNIT LETTER | SECTION | TOWNSHIP | RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 24.000" Casing Size: 20.000"

Cemented with: 1,490 sx. *or* _____ ft³

Top of Cement: Surface Method Determined: Circulation

1st Intermediate Casing

Hole Size: 17.500" Casing Size: 13.375"

Cemented with: 2,973 sx. *or* _____ ft³

Top of Cement: Surface Method Determined: Circulation

2nd Intermediate Casing

Hole Size: 12.250" Casing Size: 9.625"

Cemented with: 3,719 sx. *or* _____ ft³

Top of Cement: Surface Method Determined: Circulation

Production Liner

Hole Size: 8.500"

Casing Size: 7.625"

Cemented with: 546 sx.

or _____ ft^3

Top of Cement: 12,150'

Method Determined: Calculation

Total Depth: 20,722'

Injection Interval

18,966' feet to 20,722' feet

(Open Hole)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 7", 26 lb/ft, P-110, TCPC from 0'- 12,050' and 5.500", 17 lb/ft, P-110 TCPC from 12,050' – 18,906'
Lining Material: Duoline

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

Packer Setting Depth: 18,906'

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? N/A

2. Name of the Injection Formation: Devonian, Silurian, Fusselman and Montoya (Top 100')

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

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. No, new drill.

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:
   Delaware: 5,333'
   Bone Spring: 9,299'
   Wolfcamp: 12,511'
   Penn: 13,606'
   Strawn: 14,481'
   Atoka: 14,999'

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
NGL WATER SOLUTIONS PERMIAN, LLC 1509 W WALL ST, STE 306 MIDLAND, TX 79701	372338
	3. API Number TBD

4. Property Code	5. Property Name	6. Well No.
	THUNDERBOLT SWD	1

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
B	19	26S	35E	N/A	1152'	NORTH	1436'	EAST	LEA

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; Silurian-Devonian	96101

Additional Well Information

11. Work Type	12. Well Type	13. Cable/Rotary	14. Lease Type	15. Ground Level Elevation
N	SWD	R	Private	3,180'
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
N	20,722'	Siluro-Devonian	TBD	ASAP
Depth to Ground water 264'	Distance from nearest fresh water well > 1 mile		Distance to nearest surface water 4,200'	

☐ 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	24"	20"	106.5 lb/ft	1,500'	1,431	Surface
Intermediate	17.5"	13.375"	68 lb/ft	5,300'	2,973	Surface
Production	12.25"	9.625"	53.5 lb/ft	12,650'	3,719	Surface
Prod. Liner	8.5"	7.625"	39 lb/ft	12,150 - 18,966'	546	12,150'
Tubing	N/A	7"	26 lb/ft	0' – 12,050'	N/A	N/A
Tubing	N/A	5.5"	17 lb/ft	12,050' – 18,906'	N/A	N/A

Casing/Cement Program: Additional Comments

See attached schematic.

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Hydraulic/Blinds, Pipe	10,000 psi	8,000 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:	OIL CONSERVATION DIVISION Approved By:
Printed name: Christopher B. Weyand	Title:
Title: Consulting Engineer	Approved Date: / Expiration Date:
E-mail Address: chris@lonquist.com	
Date: 12/4/2018 / Phone: (512) 600-1764	Conditions of Approval Attached

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
	96101	SWD; Silurian-Devonian

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

[7] OGRID No.	[8] Operator Name	[9] Elevation
372338	NGL WATER SOLUTIONS PERMIAN, LLC	3180.00'±

[10] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	19	26 S	35 E	N/A	1152'	NORTH	1436'	EAST	LEA

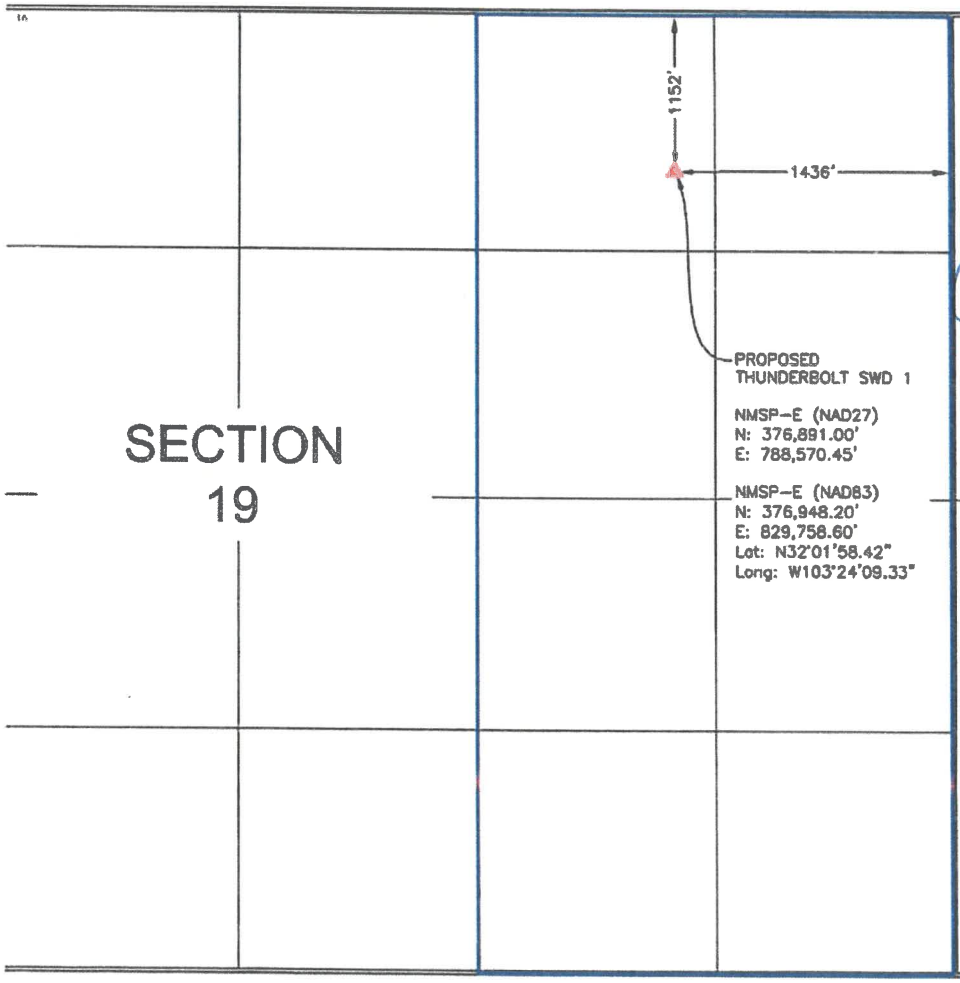
[11] Bottom Hole Location If Different From Surface

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

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

[16]



[17] OPERATOR CERTIFICATION

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

Signature — Date: 12/13/2018

Chris Weyand
Printed Name

chris@lonquist.com
E-mail Address

[18] SURVEYOR CERTIFICATION

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

9/18/2018
Date of Survey

Signature and Seal of Professional Surveyor:

CODY A. CLARK
NEW MEXICO
23001
PROFESSIONAL SURVEYOR

23001
Certificate Number

NGL Water Solutions Permian, LLC

Thunderbolt SWD No. 1

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1.

Well information	
Lease Name	Thunderbolt SWD
Well No.	1
Location	S-19 T-26S R-35E
Footage Location	1,152' FNL & 1,436' FEL

2.

a. Wellbore Description

Casing Information				
Type	Surface	Intermediate	Production	Liner
OD	20"	13.375"	9.625"	7.625"
WT	0.500"	0.480"	0.545"	0.500"
ID	19"	12.415"	8.535"	6.625"
Drift ID	18.812"	12.259"	8.535"	6.500"
COD	21.00"	14.375"	10.625"	7.625"
Weight	106.5 lb/ft	68 lb/ft	53.5 lb/ft	39 lb/ft
Grade	J-55	HCL-80	P-110	Q-125
Hole Size	24"	17.5"	12.25"	8.5"
Depth Set	1,500'	5,300'	12,650'	12,150' - 18,966'

b. Cementing Program

Cement Information				
Casing String	Surface	Intermediate	Production	Liner
Lead Cement	Extenda Cem	-	-	-
Lead Cement Volume	680	-	-	-
Tail Cement	Halcem	Halcem	Halcem	NeoCem
Tail Cement Volume	751	2,973 sx	Stage 1: 1,402 sx Stage 2: 1,206 sx Stage 3: 1,111 sx	546
Cement Excess	50%	30%	50%, 50%, 10%	50%
TOC	Surface	Surface	Surface	11,900'
Method	Circulate to Surface	Circulate to Surface	Circulate to Surface	Logged

3. Tubing Description

Tubing Information		
OD	7"	5.5"
WT	0.362"	0.304"
ID	6.276"	4.892"
Drift ID	7.875"	6.050"
COD	6.151"	4.653"
Weight	26 lb/ft	17 lb/ft
Grade	P-110 TCPC	P-110 TCPC
Depth Set	0'-12,050'	12,050' -18,906

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, Silurian, Fusselman, Montoya (Top 100')
2. Gross Injection Interval: 18,966' – 20,722'

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

Formation	Depth
Delaware	5,333'
Bone Spring	9,299'
Wolfcamp	12,511'
Penn	13,606'
Strawn	14,481'
Atoka	14,999'

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 Injection:

   Average Volume: 40,000 BPD
   Maximum Volume: 50,000 BPD

2. Closed System

3. Anticipated Injection Pressure:

   Average Injection Pressure: 2,844 PSI (surface pressure)
   Maximum Injection Pressure: 3,793 PSI (surface pressure)

4. The injection fluid is to be locally produced water. It is expected that the source water will predominantly be from the Bone Spring and Wolfcamp formations. Attached are produced water sample analyses taken from the closest wells that feature samples from the Delaware, Bone Spring, Wolfcamp, Pennsylvanian, Strawn, and Atoka formations.

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

VIII. Geological Data

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.

A. Injection Zone: Siluro-Devonian Formation

Formation	Depth
Rustler Anhydrite	1,027'
Delaware	5,333'
Bone Spring	9,299'
Wolfcamp	12,511'
Penn	13,606'
Strawn	14,481'
Atoka	14,999'
Morrow	15,557'
Mississippian	16,647'
Woodford	18,652'
Devonian	18,946'
Fusselman	20,217'
Montoya	20,622'

B. Underground Sources of Drinking Water

No water well exists within one mile of the proposed Thunderbolt SWD #1 location. Water wells in the surrounding area have an average depth of 524 ft and an average water depth of 264 ft generally producing from the Santa Rosa. The upper Rustler may also be another USDW and will be protected.

IX. Proposed Stimulation Program

Stimulate with up to 50,000 gallons of acid.

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

No water wells exist within one mile of the proposed Thunderbolt SWD #1 location.

XII. Affirmative Statement of Examination of Geologic and Engineering Data

Based on the available engineering and geologic data we find no evidence of open faults or any other hydrologic connection between the disposal zone (in the proposed **Thunderbolt SWD #1**) and any underground sources of drinking water.

NAME: John C. Webb

TITLE: Sr. Geologist

SIGNATURE: John C Webb

DATE: Oct. 10, 2018

NGL Energy Partners LP

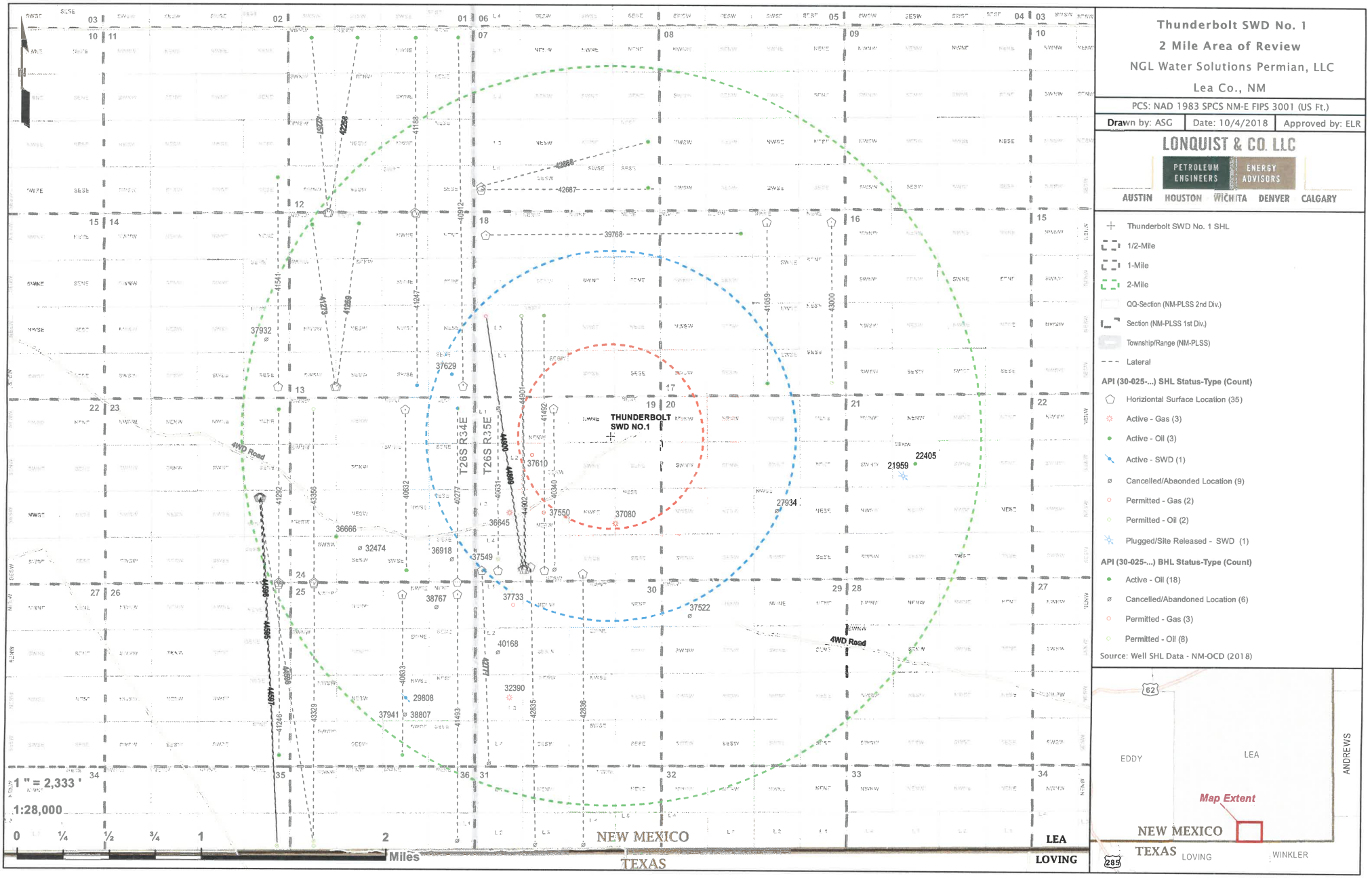
Thunderbolt SWD
Lea County NM
Vertical Injection - Devonian, Silurian, Fusselman, Montoya

Location - NWNE Sec 19, Twp 26S, R 35E
Drilling Cost - $11.53MM
AFE #

TD 20,722
GL/KB 3180'

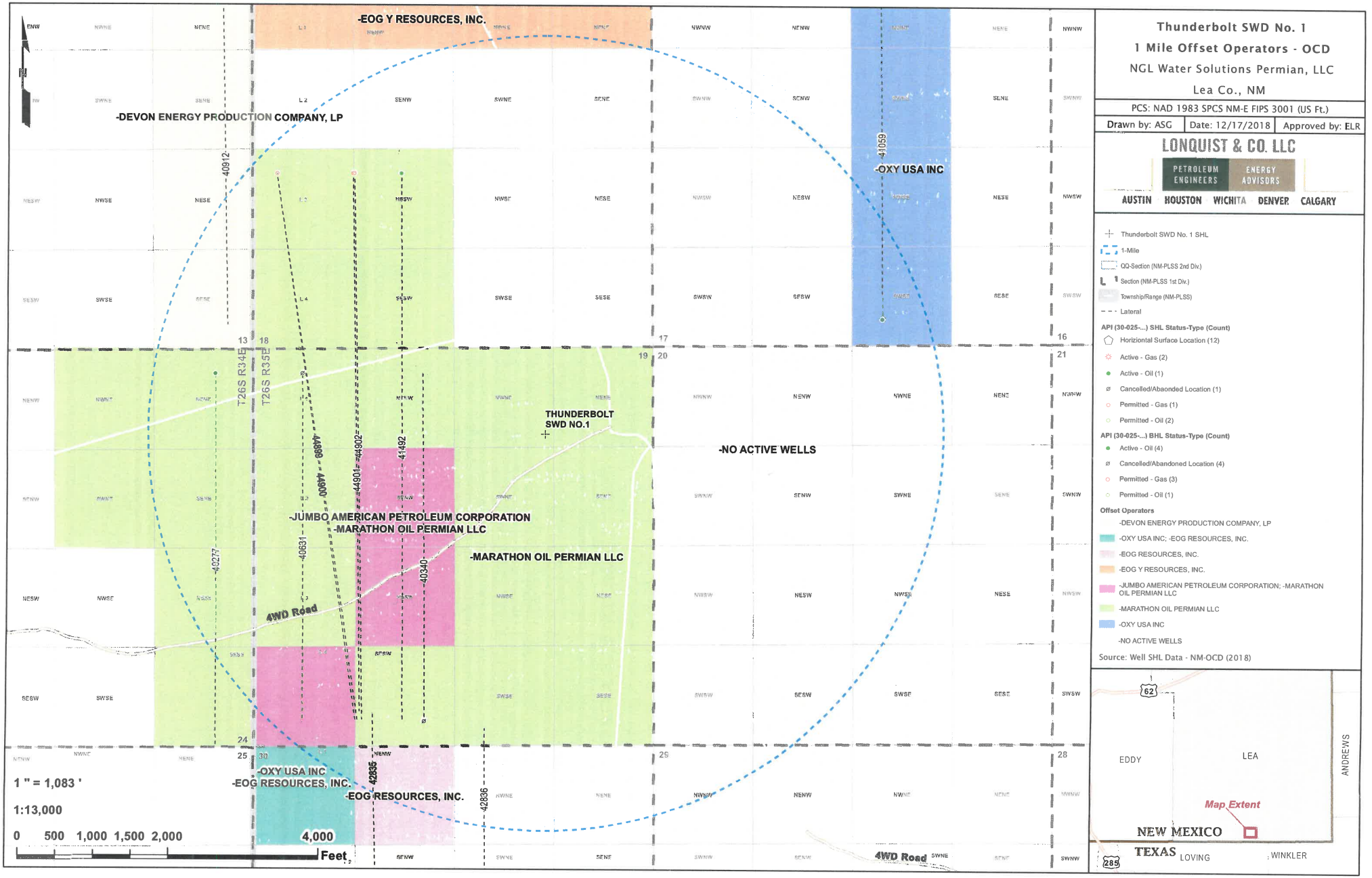
Directions to Site - Travel SW on Hwy 205 18.3 miles from Jal NM Lat/Long: 32.03289444, -103.40250000

Geologic Tops (MD ft)	Section	Problems	Bit/BHA	Mud	Casing	Logging	Cement	Injection String
Rustler 1027 **Surface TD - 1500**	**Surface** Drill 24" 0' - 1500 Set and Cement 20" Casing	Loss Circulation Hole Cleaning Wellbore stability in the Red Beds Anhydrite in the Rustler	24" Tricone 9-5/8" x 8" MM 9 jts: 8" DC 21 jts: 5" HWDP 5 " DP to surface	Spud Mud MW< 9.0	1500' of 20" 106.5# J55 STC Centralizers - bottom 2 joints and every 3rd jt thereafter, Cement basket at 200'	No Logs	Lead - 680sx of HES Extenda Cem, 13.7ppg, 4.5hrs TT Tail - 751sx of Halcem 3hr TT 50% Excess 1000psi CSD after 10hrs	
Salado 1,574' Top of Salt 1799 Base of Salt 4781 **1st Int TD - 5300**	**1st Intermediate** Drill 3800' of 17-1/2" Hole 1500' - 5300' Set and Cement 13-3/8" Casing	Seepage Losses Possible H2S Anhydrite Salt Sections	17-1/2" PDC 9-5/8" x 8" MM 9 jts: 8" DC 21 jts: 5" HWDP 5 " DP to surface		5M A Section Casing Bowl 5300' of 13-3/8" 68# HCL80 BTC Centralizers - bottom jt, every 3rd joint in open hole and 2 jt inside the surface casing	Mudlogger on site by 1080'	2973sx of Halcem, 13.7ppg 30% Excess 1000psi CSD after 10 hrs Cement to Surface	12050' of 7" P110 26# TCPC
ECP DV Tool - 5350 Delaware 5333 Bell Canyon 5371 Cherry Canyon - 6581 Brushy Canyon - 7816 **DV Tool - 9000** Bone Spring - 9299 **3rd Int Liner Top - 12,150** Wolfcamp - 12511 **2nd Int TD - 12,650**	**2nd Intermediate** Drill 7350' of 12-1/4" Hole 5300' - 12650' Set 9-5/8" Intermediate Casing and Cement in 3 Stages	Hard Drilling in the Brushy Canyon Seepage to Complete Loss Water Flows Some Anhydrite H2S possible Production in the Bone Spring and Wolfcamp Ballooning is possible in Cherry Canyon and Brushy if Broken Down	12-1/4" PDC 8" MM 9jts: 8" DC 8" Drilling Jars 21 jts: 5" HWDP 5" DP to Surface	8.5 ppg OBM High Vis Sweeps UBD/MPD usig ADA	10M B Section 12650' of 9-5/8" 53.5# P110 **BTC** **Special Drift to 8.535"** **Externally Coat 3650' Between DV Tools** DV tool at at 9000' ECP DV Tool below 1st int shoe Centralizers - bottom jt, 100' aside of DV tool, every 3rd joint in open hole and 5 within the surface casing	MWD GR Triple combo + CBL of 13-3/8" Casing	**Stage 3: 10% Excess** 1402sx Halcem 13.7ppg 1000psi CSD after 10 hrs Cement to Surface **Stage 2: 50% Excess** 1206sx Halcem 13.7ppg 1000psi CSD after 10 hrs **Stage 1: 50% Excess** 1402sx Halcem 15.6ppg. 1000psi CSD after 10hrs	6856' of 5-1/2" P110 17# TCPC Duoline Internally Coated Injection Tubing
Strawn - 14481 Atoka - 14999 Morrow - 15557 Miss Lst - 15583 Woodford - 18652 Perm Packer - 18,906 **3rd Int TD - 18,966**	**3rd Intermediate** Drill 6316' of 8-1/2" Hole 12650' - 18966' Set 7-5/8" Liner and Cement in Single Stage	High Pressure (up to 15ppg) and wellbore instability (fracturing) expected in the Atoka 150 target radius Hard Drilling in the Morrow Clastic	8-1/2" PDC 6-3/4" MM 9 jts: 6" DC 21 jts: 5" HWDP 5" DP to Surface	12.5 ppg OBM UBD/MPD using ADA	6818' of 7-5/8" 39# Q125 - **DTL (FJ4) FJ (Gas Tight) VersaFlex Packer Hanger** Centralizers on and 1 jt above shoe jt and then every 2nd jt.	MWD GR Triple combo, CBL of 9-5/8" Casing	564sx Neocem 12.9 ppg 50% Excess 1000psi CSD after 12hrs	7-5/8" x 5-1/2" TCPC Permanent Packer with High Temp Elastomer and full Inconel 925 trim
Devonian - 18,946 **Fusselman - 20217** **Montoya - 20,622'** **TD - 20,722'**	**Injection Interval** Drill 1756' of 6-1/2" hole 18,966' - 20,722'	Chert is possible Loss of Circulation and or Flows are expected BHT estimated at 280F	6-1/2" PDC 4-3/4"MM 9 jts: 4-3/4" DC 4-3/4" Drilling Jars 18 jts: 4" FH HWDP 4" FH DP to Surface	Brine Water - flows possible	Openhole completion	MWD GR Triple Combo with FMI, CBL of 7-5/8"	Displace with 3% KCl (or heavier brine if necessary)	


Thunderbolt SWD No. 1
2 Mile Area of Review
NGL Water Solutions Permian, LLC
Lea Co., NM
PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)
Drawn by: ASG
Date: 10/4/2018
Approved by: ELR
LONQUIST & CO. LLC
PETROLEUM ENGINEERS
ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY
Thunderbolt SWD No. 1 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 (30-025-...) SHL Status-Type (Count)
Horizontal Surface Location (35)
Active - Gas (3)
Active - Oil (3)
Active - SWD (1)
Cancelled/Abaonded Location (9)
Permitted - Gas (2)
Permitted - Oil (2)
Plugged/Site Released - SWD (1)
API (30-025-...) BHL Status-Type (Count)
Active - Oil (18)
Cancelled/Abandoned Location (6)
Permitted - Gas (3)
Permitted - Oil (8)
Source: Well SHL Data - NM-OCD (2018)
THUNDERBOLT SWD NO.1
T26S R34E
T26S R35E
4WD Road
1" = 2,333 '
1:28,000
0 1/4 1/2 3/4 1 2 Miles
NEW MEXICO
TEXAS
LEA
LOVING
EDDY
ANDREWS
WINKLER
Map Extent
62
285

Thunderbolt SWD No. 1
1 Mile Area of Review List

API (30-025-...)	WELL NAME	WELL TYPE	STATUS	OPERATOR	TVD (FT.)	LATITUDE (NAD83 DD)	LONGITUDE (NAD83 DD)	DATE DRILLED
27934	PRE-ONGARD WELL #001	O	C	PRE-ONGARD WELL OPERATOR	0	32.0269502482	-103.387363047	12/31/9999
36645	MADERA 19 FEDERAL #001	G	A	MARATHON OIL PERMIAN LLC	15456	32.0269737000	-103.411941500	5/28/2004
37080	BECKHAM 19 #001	G	A	MARATHON OIL PERMIAN LLC	15823	32.0260544000	-103.402221700	4/12/2005
37549	MADERA 19 FEDERAL #002	O	N	JUMBO AMERICAN PETROLEUM CORPORATION	0	32.0233459000	-103.413040200	12/31/9999
37550	MADERA 19 FEDERAL #003	O	N	JUMBO AMERICAN PETROLEUM CORPORATION	0	32.0269699000	-103.408775300	12/31/9999
37610	MADERA 19 FEDERAL #004	G	N	JUMBO AMERICAN PETROLEUM CORPORATION	0	32.0315056000	-103.409835800	12/31/9999
37629	RATTLESNAKE FEDERAL UNIT #006	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	9600	32.0378685000	-103.417274500	12/26/2006
40277	MADERA 24 FEDERAL #002H	O	A	MARATHON OIL PERMIAN LLC	9070	32.0215645000	-103.416786200	10/26/2011
40340	MADERA 19 FEDERAL #003C	O	C	RMR OPERATING, LLC	0	32.0351334000	-103.407859800	12/31/9999
40631	MADERA 19 FEDERAL #002C	O	C	RMR OPERATING, LLC	0	32.0224380000	-103.413047800	12/31/9999
40912	RATTLESNAKE 13 12 FEDERAL COM #001H	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8961	32.0369568000	-103.416214000	2/19/2013
41059	MADERA 17 FEDERAL #001H	O	A	OXY USA INC	9264	32.0496407000	-103.388176000	4/10/2013
41492	MADERA 19 FEDERAL COM #004H	O	A	MARATHON OIL PERMIAN LLC	9046	32.0224342000	-103.408783000	11/29/2013
42835	MADERA 30 FEDERAL #002C	O	C	OXY USA INC	0	32.0227172000	-103.410053900	12/31/9999
42836	MADERA 30 FEDERAL #003C	O	C	OXY USA INC	0	32.0221583600	-103.405233900	12/31/9999
44899	MADERA 19 FEDERAL 26 35 19 TB #001H	O	N	MARATHON OIL PERMIAN LLC	0	32.0225297800	-103.410704080	12/31/9999
44900	MADERA 19 FEDERAL 26 35 19 WA #002H	G	N	MARATHON OIL PERMIAN LLC	0	32.0225304900	-103.410800860	12/31/9999
44901	MADERA 19 FEDERAL 26 35 19 WB #005H	G	N	MARATHON OIL PERMIAN LLC	0	32.0228290800	-103.410607290	12/31/9999
44902	MADERAL 19 FEDERAL 26 35 19 WXY #006H	G	N	MARATHON OIL PERMIAN LLC	0	32.0225284000	-103.410510510	12/31/9999



Thunderbolt SWD No. 1
1 Mile Offset Operators - OCD
NGL Water Solutions Permian, LLC
Lea Co., NM

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

Drawn by: ASG	Date: 12/17/2018	Approved by: ELR

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

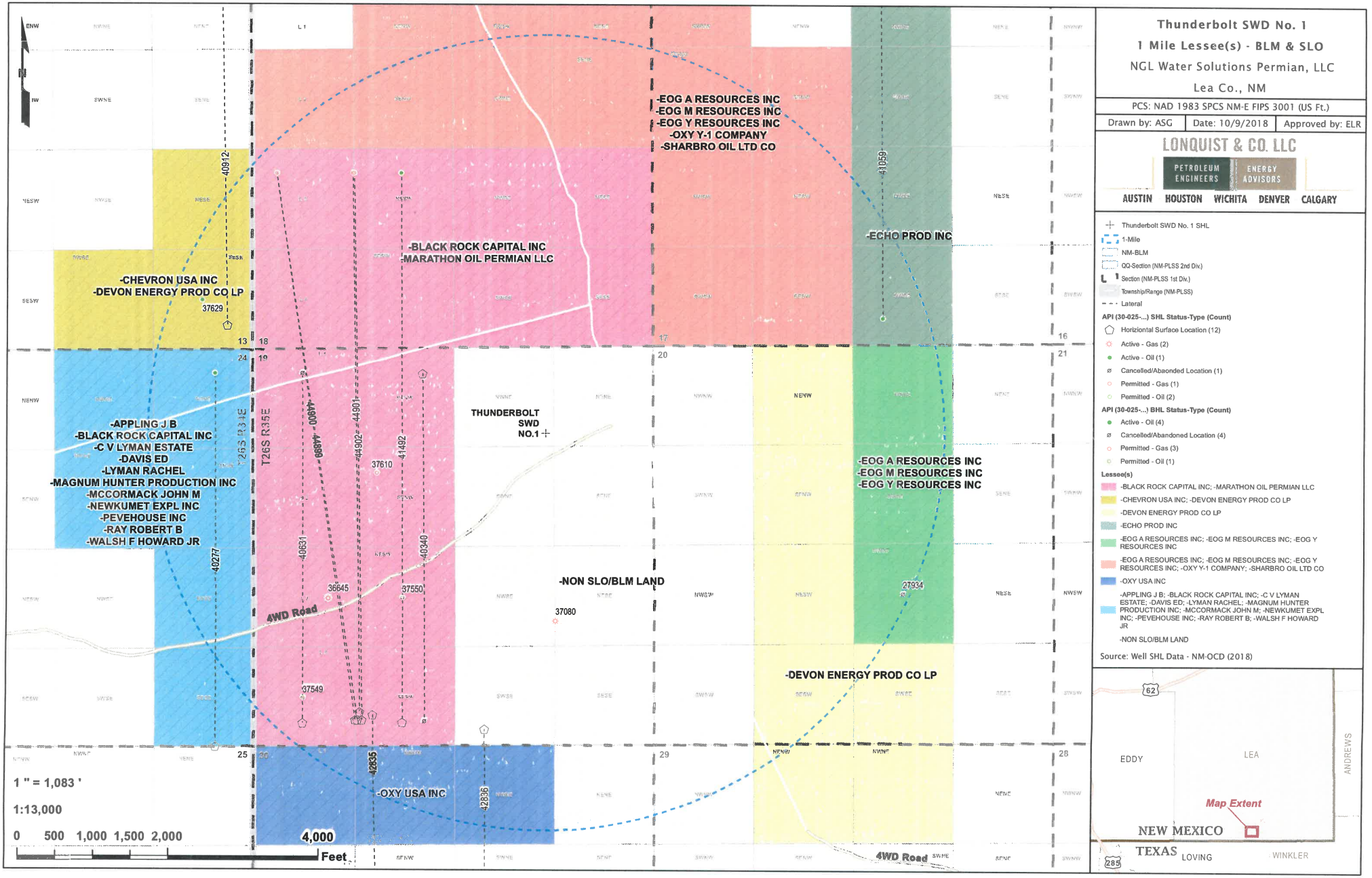
- Thunderbolt SWD No. 1 SHL
- 1-Mile
- QQ-Section (NM-PLSS 2nd Div.)
- Section (NM-PLSS 1st Div.)
- Township/Range (NM-PLSS)
- Lateral

API (30-025-...) SHL Status-Type (Count)
- Horizontal Surface Location (12)
- Active - Gas (2)
- Active - Oil (1)
- Cancelled/Abaonded Location (1)
- Permitted - Gas (1)
- Permitted - Oil (2)

API (30-025-...) BHL Status-Type (Count)
- Active - Oil (4)
- Cancelled/Abandoned Location (4)
- Permitted - Gas (3)
- Permitted - Oil (1)

Offset Operators
- -DEVON ENERGY PRODUCTION COMPANY, LP
- -OXY USA INC; -EOG RESOURCES, INC.
- -EOG RESOURCES, INC.
- -EOG Y RESOURCES, INC.
- -JUMBO AMERICAN PETROLEUM CORPORATION; -MARATHON OIL PERMIAN LLC
- -MARATHON OIL PERMIAN LLC
- -OXY USA INC
- -NO ACTIVE WELLS

Source: Well SHL Data - NM-OCD (2018)



Thunderbolt SWD No. 1
1 Mile Lessee(s) - BLM & SLO
NGL Water Solutions Permian, LLC
Lea Co., NM

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

Drawn by: ASG	Date: 10/9/2018	Approved by: ELR

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

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

API (30-025-...) SHL Status-Type (Count)
- Horizontal Surface Location (12)
- Active - Gas (2)
- Active - Oil (1)
- Cancelled/Abaonded Location (1)
- Permitted - Gas (1)
- Permitted - Oil (2)

API (30-025-...) BHL Status-Type (Count)
- Active - Oil (4)
- Cancelled/Abandoned Location (4)
- Permitted - Gas (3)
- Permitted - Oil (1)

Lessee(s)
- -BLACK ROCK CAPITAL INC; -MARATHON OIL PERMIAN LLC
- -CHEVRON USA INC; -DEVON ENERGY PROD CO LP
- -DEVON ENERGY PROD CO LP
- -ECHO PROD INC
- -EOG A RESOURCES INC; -EOG M RESOURCES INC; -EOG Y RESOURCES INC
- -EOG A RESOURCES INC; -EOG M RESOURCES INC; -EOG Y RESOURCES INC; -OXY Y-1 COMPANY; -SHARBRO OIL LTD CO
- -OXY USA INC
- -APPLING J B; -BLACK ROCK CAPITAL INC; -C V LYMAN ESTATE; -DAVIS ED; -LYMAN RACHEL; -MAGNUM HUNTER PRODUCTION INC; -MCCORMACK JOHN M; -NEWKUMET EXPL INC; -PEVEHOUSE INC; -RAY ROBERT B; -WALSH F HOWARD JR
- -NON SLO/BLM LAND

Source: Well SHL Data - NM-OCD (2018)

Thunderbolt SWD #1: Offsetting Produced Water Analysis														
wellname	api	county	formation	ph	tds_mgL	sodium_mgL	calcium_mgL	iron_mgL	magnesium_mgL	manganese_mgL	chloride_mgL	bicarbonate_mgL	sulfate_mgL	co2_mgL
RAGIN CAJUN 13 FEDERAL #001H	3002541259	Lea	DELAWARE-BRUSHY CANYO	6.2	194590	55244.8	15260	22.6	2592	2.88	119973	48.8	710	200
MEAN GREEN 23 FEDERAL #001H	3002541292	Lea	DELAWARE-BRUSHY CANYO	7.5	172606	56152.9	9156	24.6	1515	3.5	104576.4	183	675	1800
BELL LAKE UNIT #009	3002520261	LEA	BONE SPRING		204652						130000	512	260	
THISTLE UNIT #071H	3002542425	Lea	BONE SPRING 1ST SAND	5.6	171476	55363.2	9140	40.4	1023	1.1	104576.4	244	560	770
BELL LAKE 19 STATE #004H	3002541517	Lea	BONE SPRING 2ND SAND	6.3		76378	6238	11	834	0	131397	159	670	200
COTTON DRAW UNIT #237H	3002541996	Lea	BONE SPRING 2ND SAND	6.5	207155	68477	4041.6	41.3	1744.6	1.53	126763.4	122	0	200
SALADO DRAW 6 FEDERAL #001H	3002541293	Lea	BONE SPRING 3RD SAND	6.7	95604	31066	3196	10	394	0.5	59071	183	0	100
SALADO DRAW 6 FEDERAL #001H	3002541293	Lea	BONE SPRING 3RD SAND	6.6	99401.9	34493.3	3295	0.4	396.8	0.37	59986.5	109.8	710	70
SNAPPING 2 STATE #014H	3001542688	EDDY	WOLFCAMP	7.3	81366.4	26319.4	2687.4	26.1	326.7		50281.2		399.7	100
SOUTHWEST JAL UNIT F #001	3002520843	LEA	PENNSYLVANIAN	7.8	35220						20000	621	1039	
STATE A A/C 1 #017	3002509401	LEA	PENNSYLVANIAN		196831						120300	208	1271	
PRONGHORN AHO FEDERAL #001	3002526496	LEA	STRAWN	5.5			20.1	0	12.2		35.5	61.1	48.8	
ANTELOPE RIDGE UNIT #002	3002520444	LEA	ATOKA	6.7	51475						31000	317	340	