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. 20143

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 Viper SWD #1 well at a surface location 962 feet from the North line and 1003 feet from the East line of Section 18, Township 25 South, Range 34 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 17,180' – 19,050'.

(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 2,577 psi for this well, and it requests that a maximum pressure of 3,436 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 December 6, 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
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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 Viper SWD #1 well at a surface location 962 feet from the North line and 1003 feet from the East line of Section 18, Township 25 South, Range 34 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 17,180'– 19,050'. 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 area is located approximately 18 miles west of Jal, New Mexico.

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: VIPER 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

Signature

11/1/2018
Date

512-600-1764
Phone Number

CHRIS@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: 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.

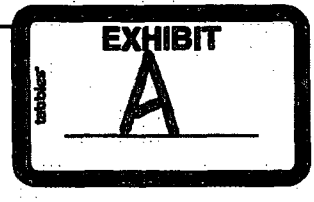
NAME: Christopher B. Weyand TITLE: Consulting Engineer

SIGNATURE: _____ DATE: 11/1/2018

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: VIPER SWD #1

WELL LOCATION: 962' FNL & 1,003' FEL (FOOTAGE LOCATION) | A (UNIT LETTER) | 18 (SECTION) | 25S (TOWNSHIP) | 34E (RANGE)

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 24.000"

Casing Size: 20.000"

Cemented with: 1,005 sx. *or* _____ ft³

Top of Cement: Surface

Method Determined: Circulation

1st Intermediate Casing

Hole Size: 17.500"

Casing Size: 13.375"

Cemented with: 3,844 sx. *or* _____ ft³

Top of Cement: Surface

Method Determined: Circulation

2nd Intermediate Casing

Hole Size: 12.250"

Casing Size: 9.625"

Cemented with: 3,295 sx. *or* _____ ft³

Top of Cement: Surface

Method Determined: Circulation

Production Liner

Hole Size: 8.500"

Casing Size: 7.625"

Cemented with: 377 sx.

or _____ ft^3

Top of Cement: 11,900'

Method Determined: Calculation

Total Depth: 19,050'

Injection Interval

17,180 feet to 19,050 feet

(Open Hole)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 7", 26 lb/ft, P-110, TCPC from 0'- 11,800' and 5.500", 17 lb/ft, P-110 TCPC from 11,800' – 17,155'
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: 17,155'

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:
   Bone Spring: 9,225'
   Wolfcamp: 12,271'
   Strawn: 13,803'
   Atoka: 14,000'
   Morrow: 14,957'

NGL Energy Partners LP

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

Location - NENE Sec 18, 22S, 34E
Drilling and Complete Cost - $10.87MM
AFE #

TD 19,050
GL/KB 3,340

Directions to Site - 1.75 mi N of Pelton, 2.5 mi ESE of Sidewinder. 3 mi W of 935-24683, 17 mi w of Jal

Geologic Tops (MD ft)		Section	Problems	Bit/BHA	Mud	Casing	Logging	Cement (HOLD)	Injection String
Rustler Anhydrite	831	**Surface** Drill 24" 0' - 1200 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	1200' of 20" K55 133ppf STC Centralizers - bottom 2 joints and every 3rd jt thereafter, Cement basket at 200'	No Logs	Lead -499 sx of HES Extenda Cem, 13.7ppg, 4.5hrs TT Tail - 506sx of Halcem 3hr TT 25% Excess 1000psi CSD after 10hrs	
Surface TD -	**1200**								
Saldado Base	1296	**1st Intermediate** Drill 4000' of 17-1/2" Hole 1150' - 5200' 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 5200' 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 1600'	Lead - 1997 sx of Neocem 12.9ppg, 5hr TT Tail - 1847sx of Halcem, 14.8ppg 60% Excess 1000psi CSD after 10 hrs Cement to Surface	11,800' of 7" P110 26# TCPC
Base of Salt	5006								
1st Int TD -	**5200**								
ECP DV Tool -	**5160**	**2nd Intermediate** Drill 7200' of 12-1/4" Hole 5200' - 12,400' 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 12400' of 9-5/8" 53.5# P110 BTC **Special Drift to 8.535"** Externally Coat Between DV Tools DV tool at at 9000' ECP DV Tool 15' Inside Previous Casing 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: 0% Excess** Lead 663sx Neocem 12.9 ppg Tail 510sx Halcem 14.8ppg 1000psi CSD after 10 hrs Cement to Surface **Stage 2: 25% Excess** Lead 508sx Neocem 12.9 ppg Tail 590sx Halcem 14.8ppg 1000psi CSD after 10 hrs **Stage 1: 25% Excess** Lead 553sx Neocem 12.9 ppg Tail 471sx Halcem 14.8ppg. 1000psi CSD after 10hrs	5355 of 5-1/2" P110 17# TCPC Duoline Internally Coated Injection Tubing
Delaware	5278								
Bell Canyon	5317								
Cherry Canyon -	6350								
Brushy Canyon	8085								
DV Tool -	**9000**								
Bone Spring -	10273								
3rd Int Liner Top -	**11,900**								
Wolfcamp -	12271								
2nd Int TD -	**12,400**								
Strawn -	13803	**3rd Intermediate** Drill 4740' of 8-1/2" Hole 12400 - 17180' 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	5240' of 7-5/8" 39# Q125 - DTL (FJ4) FJ (Gas Tight) VersaFlex Packer Hanger Sandblast Casing. Centralizers on and 1 jt above shoe jt and then every 2nd jt.	MWD GR Triple combo, CBL of 9-5/8" Casing	Lead 227sx Neocem 12.9 ppg Tail 150sx Halcem 14.8ppg. 1000psi CSD after 10hrs 8hr TT 35% Excess 1000psi CSD after 10hrs	7-5/8" x 5-1/2" TCPC Permanent Packer with High Temp Elastomer and full Inconel 925 trim
Atoka -	14000								
Morrow -	14957								
Miss Lst -	15005								
Woodford -	16963								
Perm Packer -	17,155								
3rd Int TD -	**17,180**								
Devonian - 17,140 Fusselman - 18200 Montoya - 18,950' TD - 19,050'		**Injection Interval** Drill 1870' of 6-1/2" hole 17180' - 19050'	Chert is possible Loss of Circulation is expected H2S encountered on the Striker 3 well 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	Fresh Water - possible flows	Openhole completion	MWD GR Triple Combo with FMI, CBL of 7-5/8"	Displace with 3% KCl (or heavier brine if necessary)	

NGL Water Solutions Permian, LLC

Viper SWD No. 1

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1.

Well Information	
Lease Name	Viper SWD
Well No.	1
Location	S-18 T-25S R-34E
Footage Location	962' FNL & 1,003' FEL

2.

a. Wellbore Description

Casing Information				
Type	Surface	Intermediate	Production	Liner
OD	20"	13.375"	9.625"	7.625"
WT	0.635"	0.480"	0.545"	0.500"
ID	18.730"	12.415"	8.535"	6.625"
Drift ID	18.542"	12.259"	8.535"	6.500"
COD	21.00"	14.375"	10.625"	7.625"
Weight	133 lb/ft	68 lb/ft	53.5 lb/ft	39 lb/ft
Grade	K-55	HCL-80	P-110	Q-125
Hole Size	24"	17.5"	12.25"	8.5"
Depth Set	1,200'	5,200'	12,400'	17,180'

b. Cementing Program

Cement Information				
Casing String	Surface	Intermediate	Production	Liner
Lead Cement	Extenda Cem	Neocem	Neocem, Neocem, Neocem	Neocem
Lead Cement Volume	499	1,997	Stage 1: 553 sx Stage 2: 508 sx Stage 3: 663 sx	227
Tail Cement	Halcem	Halcem	Versacem C, Halcem, Halcem	Halcem
Tail Cement Volume	506	1,847	Stage 1: 471 sx Stage 2: 590 sx Stage 3: 510 sx	150
Cement Excess	25%	60%	25%, 25%, 0%	35%
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'-11,800'	11,800' -17,155'

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: 17,180' – 19,050'

   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	9,225'
Wolfcamp	12,271'
Strawn	13,803'
Atoka	14,000'
Morrow	14,957'

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: 2,577 PSI (surface pressure)
   Maximum Injection Pressure: 3,436 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 Bone Spring, Wolfcamp, Strawn, Atoka, and Morrow 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	831'
Delaware	5,278'
Bone Spring	9,225'
Wolfcamp	12,271'
Strawn	13,803'
Atoka	14,000'
Morrow	14,957'
Mississippian	15,820'
Woodford	16,963'
Devonian	17,140'
Fusselman	18,200'
Montoya	18,950'

B. Underground Sources of Drinking Water

No water wells exist within one mile of the proposed Viper SWD #1 location. Water wells in the surrounding area have an average depth of 304 ft and an average water depth of 215 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 well 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 **Viper SWD #1**) and any underground sources of drinking water.

NAME: John C. Webb

TITLE: Sr. Geologist

SIGNATURE: John C Webb

DATE: Oct 10, 2018

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.
	Viper SWD	1

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
A	18	25S	34E	N/A	962'	NORTH	1003'	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	3,340'
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
N	19,050'	Siluro-Devonian	TBD	ASAP

Depth to Ground water	Distance from nearest fresh water well	Distance to nearest surface water
215'	>1 mile	3,650'

☐ 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"	133 lb/ft	1,200'	1,005	Surface
Intermediate	17.5"	13.375"	68 lb/ft	5,200'	3,844	Surface
Production	12.25"	9.625"	53.5 lb/ft	12,400'	3,295	Surface
Prod. Liner	8.5"	7.625"	39 lb/ft	11,900' – 17,180'	377	11,900'
Tubing	N/A	7"	26 lb/ft	0' – 11,800'	N/A	N/A
Tubing	N/A	5.5"	17 lb/ft	11,800' – 17,155'	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: 11/1/2018	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
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

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

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

[7] OGRID No.	[8] Operator Name	[9] Elevation
372338	NGL WATER SOLUTIONS PERMIAN, LLC	3340.00'±

[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
A	18	25 S	34 E	N/A	962'	NORTH	1003'	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]

962'
1003'
958'

PROPOSED VIPER SWD 1

NMSP–E (NAD27)
N: 413,836.31'
E: 756,942.21'

NMSP–E (NAD83)
N: 413,894.23'
E: 788,128.17'
Lat: N32°09'06.56"
Long: W103°30'13.46"

SECTION 18

[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: 1/1/2018

Chris Weyand
Printed Name

chris@lonquist.com
E-mail Address

[18] SURVEYOR CERTIFICATION

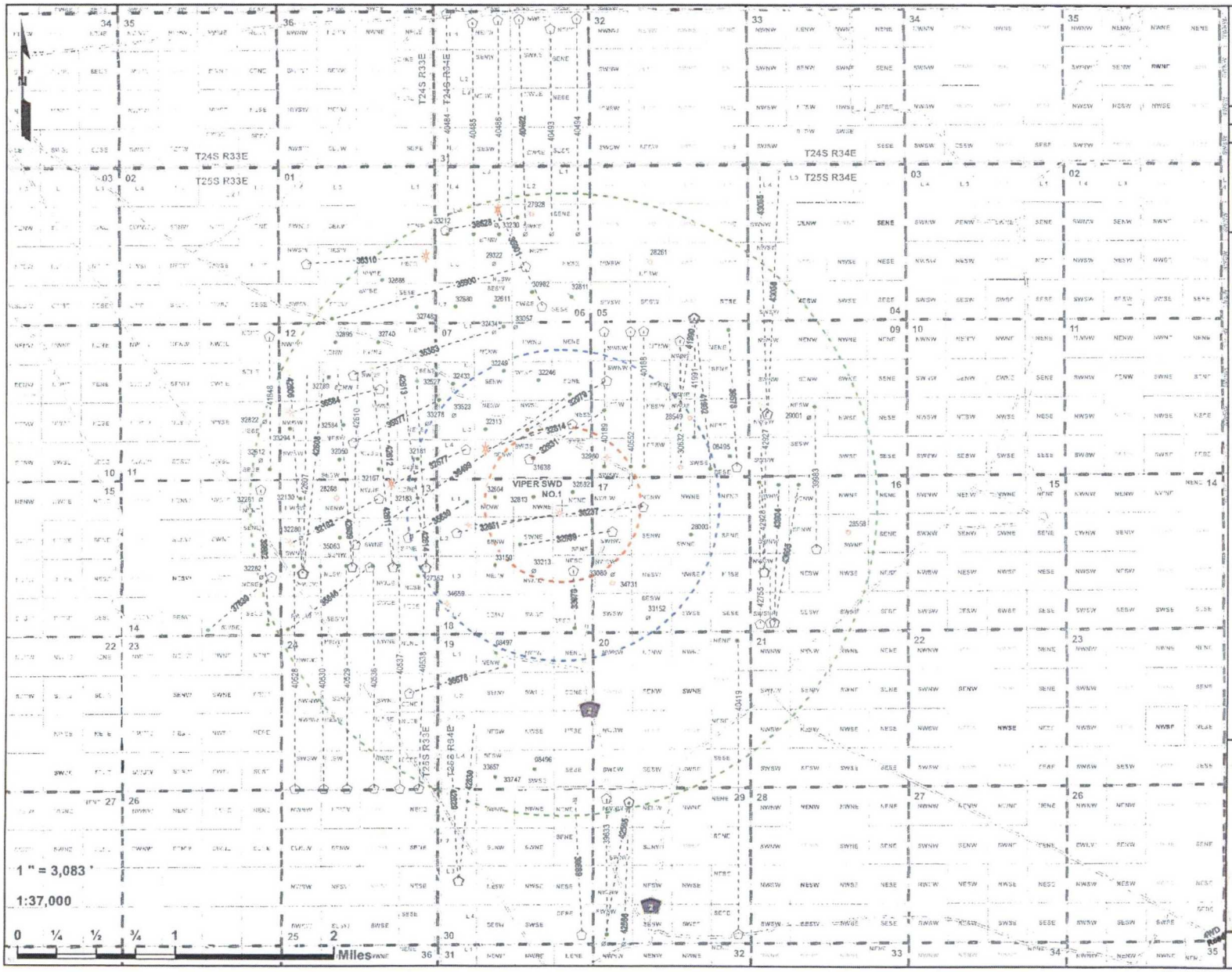
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

10/23/17
Date of Survey

Signature and Seal of Professional Surveyor:

CORY A. CLARK
NEW MEXICO
23001
PROFESSIONAL SURVEYOR

23001
Certificate Number



Viper 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: 10/25/2018 | Approved by: ELR

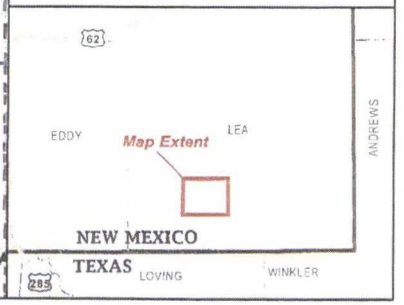
LONQUIST & CO. LLC
PETROLEUM ENGINEERS | ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY

- Viper 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 (70)
- Active - Gas (3)
- Active - Oil (27)
- Cancelled/Abandoned Location (16)
- Plugged/Site Released - Gas (3)
- Plugged/Site Released - Injection (2)
- Plugged/Site Released - Oil (7)

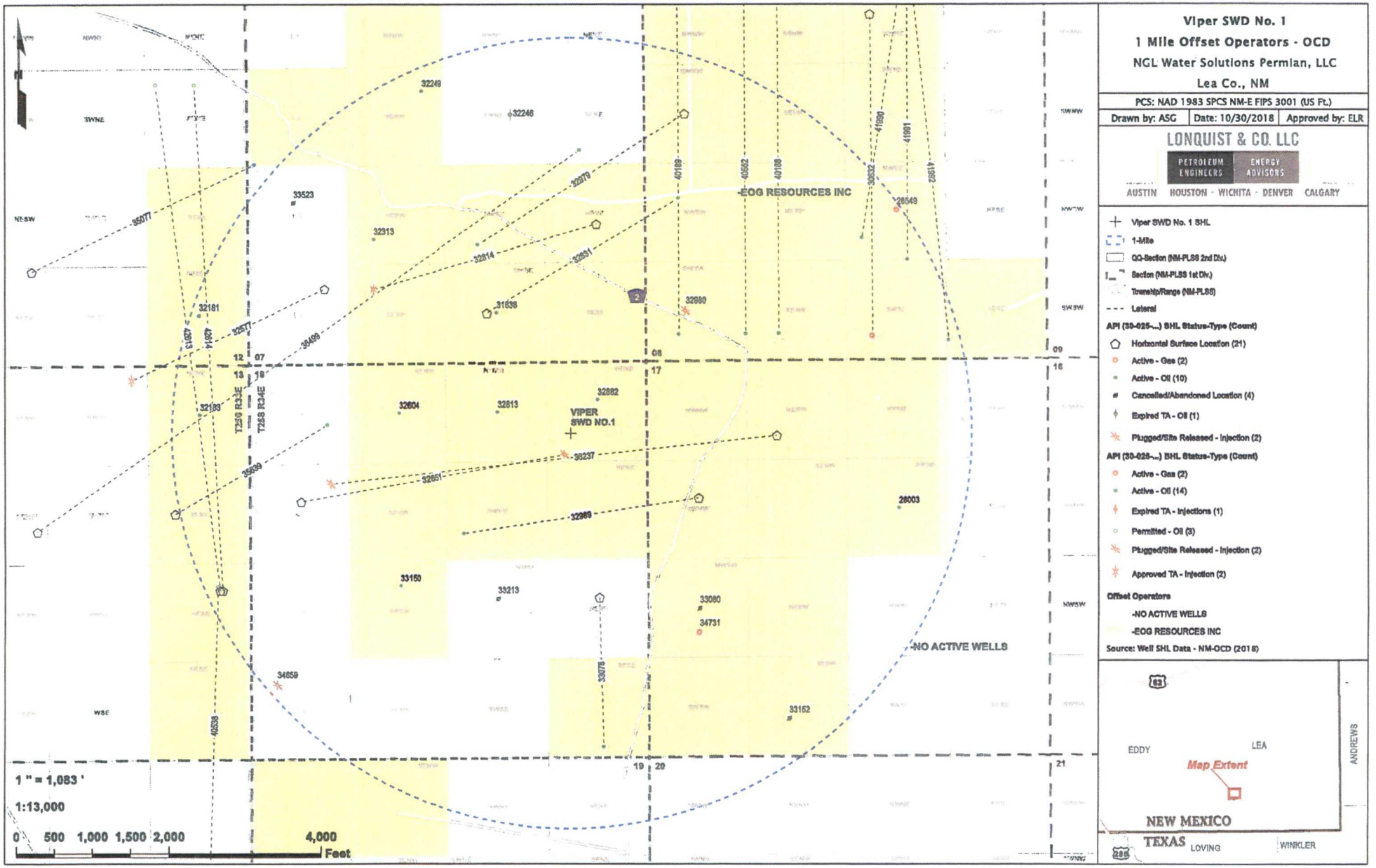
API (30-025-...) BHL Status-Type (Count)
- Active - Gas (2)
- Active - Oil (37)
- Cancelled/Abandoned Location (6)
- Expired TA - Injections (1)
- Permitted - Oil (17)
- Plugged/Site Released - Injection (4)
- Approved TA - Injection (4)

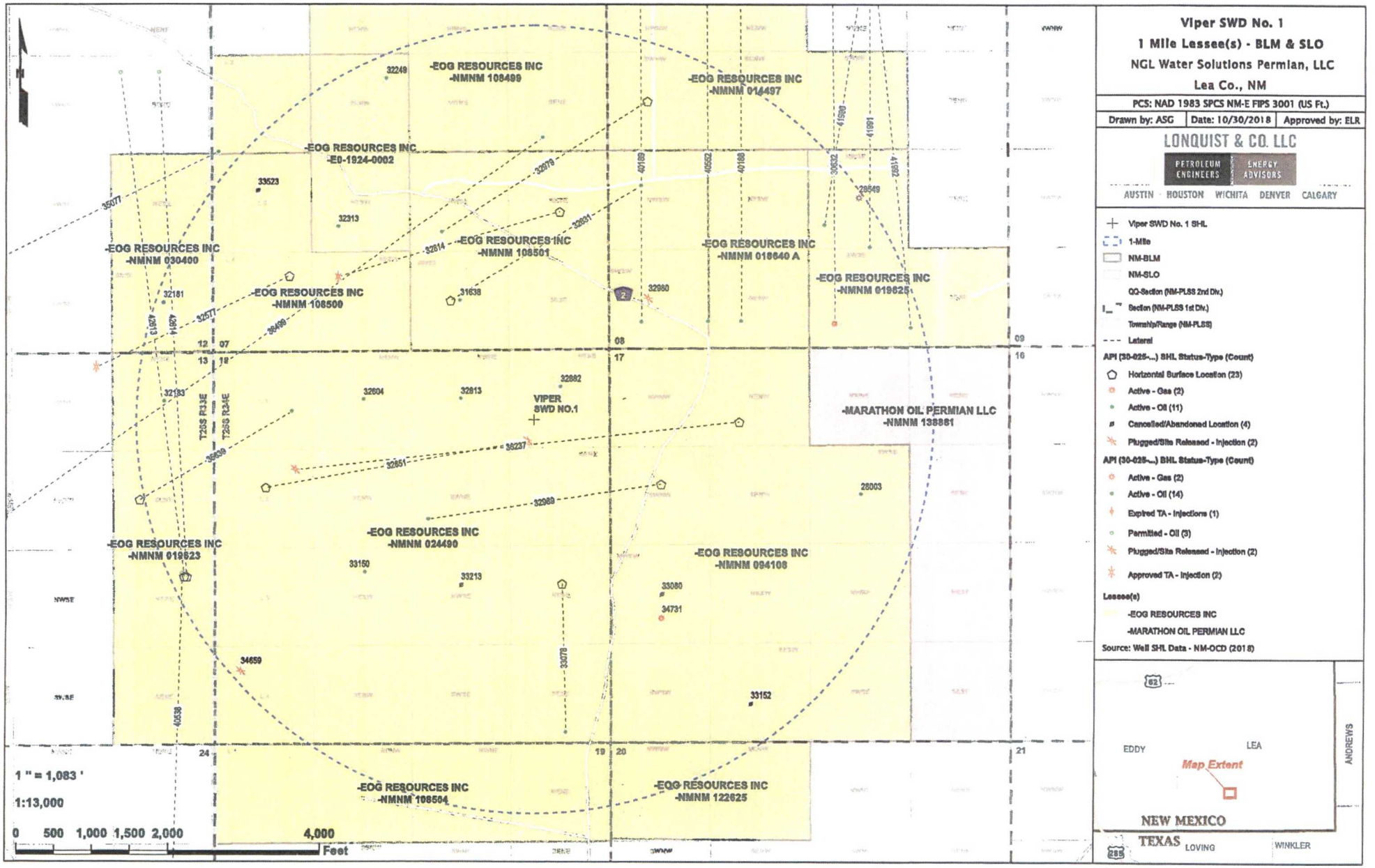
Source: Well SHL Data - NM-OCD (2018)



Viper 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
28003	RED HILLS NORTH UNIT #901	O	A	EOG RESOURCES INC	15825	32.13227080000	-103.48979190000	11/5/1982
28549	LONGWAY DRAW FEDERAL COM #001	G	A	EOG RESOURCES INC	15700	32.1431847000	-103.489799500	12/31/9999
30632	DIAMOND 8 FEDERAL #001	G	A	EOG RESOURCES INC	9507	32.15045170000	-103.49086760000	10/9/1989
31638	RED HILLS NORTH UNIT #701	O	A	EOG RESOURCES INC	15623	32.1395721000	-103.506851200	7/18/1992
32181	RED HILLS NORTH UNIT #203	O	A	EOG RESOURCES INC	12600	32.1395760000	-103.519607500	2/16/1994
32183	RED HILLS NORTH UNIT #303	O	A	EOG RESOURCES INC	12525	32.1359482000	-103.519607500	12/31/9999
32246	RED HILLS NORTH UNIT #702	O	A	EOG RESOURCES INC	12600	32.1468353000	-103.506202700	12/31/9999
32249	RED HILLS NORTH UNIT #707	O	A	EOG RESOURCES INC	12550	32.14774320000	-103.51000210000	12/31/9999
32313	RED HILLS NORTH UNIT #708	O	A	EOG RESOURCES INC	12550	32.1422920000	-103.512138400	4/15/1994
32577	RED HILLS NORTH UNIT #703H	I	T	EOG RESOURCES INC	12262	32.1404991000	-103.514274600	7/2/1994
32604	RED HILLS NORTH UNIT #802	O	A	EOG RESOURCES INC	12575	32.1359444000	-103.511077900	11/17/1994
32631	RED HILLS NORTH UNIT #705	O	A	EOG RESOURCES INC	12244	32.1395721000	-103.507270800	8/26/1994
32651	RED HILLS NORTH UNIT #801H	I	P	EOG RESOURCES INC	12260	32.13272480000	-103.51534270000	7/29/1995
32813	RED HILLS NORTH UNIT #803	O	A	EOG RESOURCES INC	12550	32.1359444000	-103.506851200	2/6/1995
32814	RED HILLS NORTH UNIT #706H	I	T	EOG RESOURCES INC	12288	32.1427917000	-103.502586400	1/19/1995
32882	RED HILLS NORTH UNIT #804	O	A	EOG RESOURCES INC	12550	32.1363564000	-103.502586400	4/19/1995
32979	RED HILLS NORTH UNIT #709H	O	A	EOG RESOURCES INC	12265	32.1468353000	-103.498802200	6/14/1996
32980	RED HILLS NORTH UNIT #811	I	P	EOG RESOURCES INC	12550	32.1395721000	-103.498809800	6/2/1995
32989	RED HILLS NORTH UNIT #902H	O	A	EOG RESOURCES INC	12265	32.1327248000	-103.498321500	7/7/1995
33078	RED HILLS NORTH UNIT #805H	O	A	EOG RESOURCES INC	12215	32.1290970000	-103.502586400	9/15/1995
33080	JAVELINA 17 FEDERAL #030	O	C	EOG RESOURCES INC	0	32.1286704053	-103.498312165	12/31/9999
33150	RED HILLS NORTH UNIT #806	O	A	EOG RESOURCES INC	12550	32.1295891000	-103.511085500	10/31/1995
33152	JAVELINA 17 FEDERAL #004	O	C	EOG RESOURCES INC	0	32.12462210090	-103.49451425400	12/31/9999
33213	DIAMOND 18 FEDERAL #007	O	C	EOG RESOURCES INC	0	32.1290896815	-103.506881862	12/31/9999
33523	HALF 7 FEDERAL #002	O	C	EOG RESOURCES INC	0	32.1436519040	-103.515576619	12/31/9999
34659	RED HILLS NORTH UNIT #807	I	P	EOG RESOURCES INC	12550	32.1259613000	-103.516418500	7/21/1999
34791	JAVELINA 17 FEDERAL #003	G	A	EOG RESOURCES INC	14080	32.12777330000	-103.49832150000	10/27/1999
35077	RED HILLS NORTH UNIT #211H	O	A	EOG RESOURCES INC	12259	32.1412125000	-103.526672400	7/10/2000
35639	RED HILLS NORTH UNIT #307H	O	A	EOG RESOURCES INC	12290	32.1329204000	-103.520675700	8/12/2001
36217	RED HILLS NORTH UNIT #710H	I	E	EOG RESOURCES INC	12261	32.1478729000	-103.506370500	5/3/2003
36237	RED HILLS NORTH UNIT #904H	I	P	EOG RESOURCES INC	12254	32.1350021000	-103.494964600	11/5/2003
36499	RED HILLS NORTH UNIT #309H	O	A	EOG RESOURCES INC	12249	32.1317253000	-103.526504500	1/12/2004
40188	DIAMOND 8 FEDERAL COM #003H	O	A	EOG RESOURCES INC	9492	32.1513634000	-103.494796800	5/28/2012
40189	DIAMOND 8 FEDERAL COM #004H	O	A	EOG RESOURCES INC	9473	32.1513710000	-103.499061600	7/16/2012
40538	VACA 24 FEDERAL COM #007H	O	N	EOG RESOURCES INC	0	32.1088600000	-103.519622800	8/29/2013
40552	DIAMOND 8 FEDERAL COM #005H	O	A	EOG RESOURCES INC	9505	32.1513672000	-103.496215800	6/22/2012
41990	DIAMOND 5 FEDERAL COM #006H	O	A	EOG RESOURCES INC	9473	32.1525650000	-103.489379900	9/19/2015
41991	DIAMOND 5 FEDERAL COM #007H	O	A	EOG RESOURCES INC	9459	32.1525650000	-103.489280700	8/28/2015
41992	DIAMOND 5 FEDERAL COM #008H	O	A	EOG RESOURCES INC	9471	32.1525650000	-103.489189100	4/11/2015
42613	LUCKY 13 FEDERAL COM #008H	O	N	EOG RESOURCES INC	0	32.1294919073	-103.518811697	12/31/9999
42614	LUCKY 13 FEDERAL COM #009H	O	N	EOG RESOURCES INC	0	32.1294944877	-103.518714313	12/31/9999


Viper 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: 10/30/2018
Approved by: ELR
LONQUIST & CO. LLC
PETROLEUM ENGINEERS
ENERGY ADVISORS
AUSTIN HOUSTON · WICHITA · DENVER CALGARY
EOG RESOURCES INC
VIPER SWD NO.1
NO ACTIVE WELLS
T24S R34E
T25S R34E
Viper 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 (21)
Active - Gas (2)
Active - Oil (10)
Cancelled/Abandoned Location (4)
Expired TA - Oil (1)
Plugged/Site Released - Injection (2)
API (30-025-...) BHL Status-Type (Count)
Active - Gas (2)
Active - Oil (14)
Expired TA - Injections (1)
Permitted - Oil (3)
Plugged/Site Released - Injection (2)
Approved TA - Injection (2)
Offset Operators
-NO ACTIVE WELLS
-EOG RESOURCES INC
Source: Well SHL Data - NM-OCD (2018)
1 " = 1,083 '
1:13,000
0 500 1,000 1,500 2,000 4,000
Feet
EDDY
LEA
Map Extent
NEW MEXICO
TEXAS
LOVING
WINKLER
ANDREWS


Viper 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: 10/30/2018
Approved by: ELR
LONQUIST & CO. LLC
PETROLEUM ENGINEERS
ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY
Viper SWD No. 1 SHL
1-Mile
NM-BLM
NM-SLO
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 (23)
Active - Gas (2)
Active - Oil (11)
Cancelled/Abandoned Location (4)
Plugged/Site Released - Injection (2)
API (30-025-...) BHL Status-Type (Count)
Active - Gas (2)
Active - Oil (14)
Expired TA - Injections (1)
Permitted - Oil (3)
Plugged/Site Released - Injection (2)
Approved TA - Injection (2)
Lessee(s)
-EOG RESOURCES INC
-MARATHON OIL PERMIAN LLC
Source: Well SHL Data - NM-OCD (2018)
-EOG RESOURCES INC -NMNM 108499
-EOG RESOURCES INC -NMNM 014497
-EOG RESOURCES INC -E0-1924-0002
-EOG RESOURCES INC -NMNM 030400
-EOG RESOURCES INC -NMNM 108501
-EOG RESOURCES INC -NMNM 018640 A
-EOG RESOURCES INC -NMNM 019625
-EOG RESOURCES INC -NMNM 108500
-MARATHON OIL PERMIAN LLC -NMNM 138881
VIPER SWD NO.1
-EOG RESOURCES INC -NMNM 024490
-EOG RESOURCES INC -NMNM 084108
-EOG RESOURCES INC -NMNM 019623
-EOG RESOURCES INC -NMNM 108504
-EOG RESOURCES INC -NMNM 122625
1 " = 1,083 '
1:13,000
0 500 1,000 1,500 2,000 4,000 Feet
EDDY
LEA
Map Extent
NEW MEXICO
TEXAS
LOVING
WINKLER
ANDREWS

Viper SWD #1: Offsetting Produced Water Analysis																	
wellname	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
BELL LAKE UNIT #009	3002520261	18	23S	34E	K	LEA	BONE SPRING		204652						130000	512	260	
CORIANDER AOC STATE #002	3002533574	1	23S	32E	H	LEA	BONE SPRING	5.2			24176	0	3815		167962	61.1	165	
THISTLE UNIT #071H	3002542425	27	23S	33E	A	Lea	BONE SPRING 1ST SAND	5.6	171476.3	55363.2	9140	40.4	1023	1.1	104576.4	244	560	770
BELL LAKE 19 STATE #002H	3002541515	19	24S	33E	O	Lea	BONE SPRING 2ND SAND	6.2		47148	6419	15	854	0	86572	232	670	240
BELL LAKE 19 STATE #004H	3002541517	19	24S	33E	O	Lea	BONE SPRING 2ND SAND	6.3		47537	6950	11	886	0	88389	171	650	210
SALADO DRAW 6 FEDERAL #001H	3002541293	6	26S	34E	M	Lea	BONE SPRING 3RD SAND	6.5	99612.7	34586.5	3244	10.3	417.7	0.39	59986.5	158.6	820	50
GAUCHO UNIT #011H	3002541184	17	22S	34E	O	Lea	BONE SPRING 3RD SAND	6.5		48879	6182	11	802	0.12	88836	122	1240	70
SNAPPING 2 STATE #014H	3001542688	2	26S	31E	P	EDDY	WOLFCAMP	7.3	81366.4	26319.4	2687.4	26.1	326.7		50281.2		399.7	100
BELLOQ 2 STATE #002H	3001542895	2	23S	31E	C	EDDY	WOLFCAMP	6.8	119471.8	37359.2	5659.1	22.4	746.1		73172.5		1035.5	250
PRONGHORN AHO FEDERAL #001	3002526496	6	23S	33E	G	LEA	STRAWN	5.5			20.1	0	12.2		35.5	61.1	48.8	
ANTELOPE RIDGE UNIT #002	3002520444	4	24S	34E	B	LEA	ATOKA	6.7	51475						31000	317	340	
CUSTER MOUNTAIN UNIT #001	3002520756	9	24S	35E	K	LEA	MORROW		282741						176800	161	650	