

**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. 20141

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 Sparrow SWD #1 well at a surface location 405 feet from the North line and 297 feet from the West line of Section 11, Township 24 South, Range 33 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 16,940' - 18,658'.

(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 2,541 psi for this well, and it requests that a maximum pressure of 3,388 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

Post Office Box 2168

500 Fourth Street NW, Suite 1000

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 Sparrow SWD #1 well at a surface location 405 feet from the North line and 297 feet from the West line of Section 11, Township 24 South, Range 33 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 16,940' - 18,658'. 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 22.6 miles northwest of Jal, New Mexico.

RECEIVED:	REVIEWER:	TYPE:	APP NO:
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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:** SPARROW 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**2) NOTIFICATION REQUIRED TO:** Check those which apply.A. ☒ Offset operators or lease holdersB. ☐ Royalty, overriding royalty owners, revenue ownersC. ☒ Application requires published noticeD. ☒ Notification and/or concurrent approval by SLOE. ☒ Notification and/or concurrent approval by BLMF. ☒ Surface ownerG. ☐ For all of the above, proof of notification or publication is attached, and/or,H. ☐ No notice required**FOR OCD ONLY**☐ Notice Complete☐ Application
Content
Complete

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

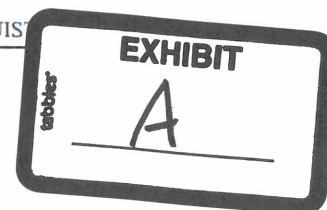
Signature

Date

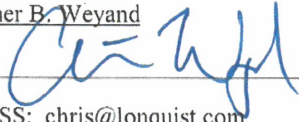
10/18/2018

512-600-1764

Phone Number

CHRIS@LONQUIST
e-mail Address

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: 10/18/2018
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: _____

III. WELL DATA

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

- (1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

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

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

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

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

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

- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and,
- (4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

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

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

INJECTION WELL DATA SHEET

OPERATOR: NGL WATER SOLUTIONS PERMIAN, LLCWELL NAME & NUMBER: SPARROW SWD #1WELL LOCATION: 405 FNL & 297' FWL
FOOTAGE LOCATION

UNIT LETTER

11

24S

33E

RANGE

WELLBORE SCHEMATICWELL CONSTRUCTION DATA
Surface CasingHole Size: 24.000"Casing Size: 20.000"Cemented with: 1.095 sx.or _____ ft³Top of Cement: SurfaceMethod Determined: Circulation1st Intermediate CasingHole Size: 17.500"Casing Size: 13.375"Cemented with: 3.815 sx.or _____ ft³Top of Cement: SurfaceMethod Determined: Circulation2nd Intermediate CasingHole Size: 12.250"Casing Size: 9.625"Cemented with: 3.361 sx.or _____ ft³Top of Cement: SurfaceMethod Determined: Circulation

Production Liner

Hole Size: 8.500"

Cemented with: 340 sx.

Top of Cement: 12.100'

Total Depth: 18.658'

Casing Size: 7.625"

or _____ ^{ft³}

Method Determined: Calculation

Injection Interval
16.940 feet to 18.658 feet
(Open Hole)

INJECTION WELL DATA SHEET

Tubing Size: 7", 26 lb/ft. P-110, TCPC from 0' - 12,000' and 5.500", 17 lb/ft. P-110 TCPC from 12,000' - 16,940'
 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: 16,915'

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: 5,236'

Bone Spring: 9,220'

Wolfcamp: 12,418'

Atoka: 14,018'

Morrow: 15,237'

NGL Water Solutions Permian, LLC

Sparrow SWD No. 1

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1.

Well information	
Lease Name	Sparrow SWD
Well No.	1
Location	S-11 T-24S R-33E
Footage Location	405' FNL & 297' FWL

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	1,300'	5,200'	12,600'	12,100' - 16,940'

b. Cementing Program

Cement Information				
Casing String	Surface	Intermediate	Production	Liner
Lead Cement	Extenda Cem	Neocem	Neocem, Neocem, Neocem	Neocem
Lead Cement Volume	499	1,968	Stage 1: 553 sx Stage 2: 508 sx Stage 3: 663 sx	139
Tail Cement	Halcem	Halcem	Versacem C, Halcem, Halcem	Halcem
Tail Cement Volume	595	1,847	Stage 1: 537 sx Stage 2: 590 sx Stage 3: 510 sx	200
Cement Excess	25%	60%	25%, 25%, 0%	35%
TOC	Surface	Surface	Surface	12,100'
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'-12,000'	12,000' -16,940'

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: 16,940' – 18,658'

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	5,236'
Bone Spring	9,220'
Wolfcamp	12,418'
Atoka	14,018'
Morrow	15,237'

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: 2,541 PSI (surface pressure)
Maximum Injection Pressure: 3,388 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, 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	1,350'
Delaware	5,236'
Bone Spring	9,220'
Wolfcamp	12,418'
Atoka	14,018'
Morrow	15,237'
Mississippian Lime	16,352'
Woodford	16,724'
Devonian	16,909'
Fusselman	18,000'
Montoya	18,558'

B. Underground Sources of Drinking Water

There are no water wells within 1-mile of the proposed Sparrow SWD #1 location. Water wells in the surrounding area have an average depth of 360 ft and an average water depth of 230 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

There are no water wells that 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 **Sparrow 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 NGL WATER SOLUTIONS PERMIAN, LLC 1509 W WALL ST, STE 306 MIDLAND, TX 79701		² OGRID Number 372338 ³ API Number TBD
⁴ Property Code	⁵ Property Name SPARROW SWD	⁶ Well No. 1

⁷ Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
A	11	24S	33E	N/A	405'	NORTH	297'	WEST	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 SWD; Silurian-Devonian	Pool Code 96101
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Additional Well Information

¹¹ Work Type N	¹² Well Type SWD	¹³ Cable/Rotary R	¹⁴ Lease Type Private	¹⁵ Ground Level Elevation 3,598'
¹⁶ Multiple N	¹⁷ Proposed Depth 18,658'	¹⁸ Formation Siluro-Devonian	¹⁹ Contractor TBD	²⁰ Spud Date ASAP
Depth to Ground water 230'		Distance from nearest fresh water well > 1 mile		Distance to nearest surface water > 1 mile

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

²¹ Proposed Casing and Cement Program

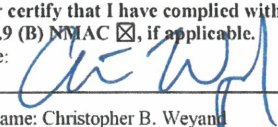
Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surface	24"	20"	133 lb/ft	1,300'	1,095	Surface
Intermediate	17.5"	13.375"	68 lb/ft	5,200'	3,815	Surface
Production	12.25"	9.625"	53.5 lb/ft	12,600'	3,361	Surface
Prod. Liner	8.5"	7.625"	39 lb/ft	16,940'	340	12,100'
Tubing	N/A	7"	26 lb/ft	0' - 12,000'	N/A	N/A
Tubing	N/A	5.5"	17 lb/ft	12,000' - 16,940'	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: 

Printed name: Christopher B. Weyant

Title: Consulting Engineer

E-mail Address: chris@lonquist.com

Date: 10/16/2018

Phone: (512) 600-1764

OIL CONSERVATION DIVISION

Approved By:

Title:

Approved Date:

Expiration Date:

Conditions of Approval Attached

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
311 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
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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 96101		³ Pool Name SWD; Silurian-Devonian	
⁴ Property Code		⁵ Property Name SPARROW SWD			⁶ Well Number 1
⁷ OGRID No. 372338		⁸ Operator Name NGL WATER SOLUTIONS PERMIAN, LLC			⁹ Elevation 3598.00"±

¹⁰ Surface Location

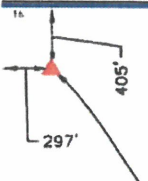
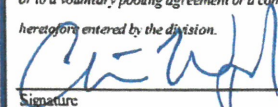

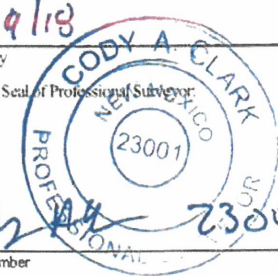
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	11	24 S	33 E	N/A	405'	NORTH	297'	WEST	LEA

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.

	PROPOSED SPARROW SWD 1 NMSP-E (NAD27) N: 451,237.79' E: 742,130.08' NMSP-E (NAD83) N: 451,296.70' E: 783,314.10' Lat: N32°14'17.76" Long: W103°33'02.57"	SECTION 11	¹⁷ OPERATOR CERTIFICATION <i>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.</i>  10/18/2018 Signature Date Chris Weyand Printed Name chris@lonquist.com E-mail Address
			¹⁸ SURVEYOR CERTIFICATION <i>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.</i> 10/19/18 Date of Survey  Signature and Seal of Professional Surveyor  Certificate Number

Sparrow 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.)

Approved by:	Date: 10/16/2018	Approved by:
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LONGQUIST & CO. LLC

PETROLEUM
ENGINEERS
ENERGY
ADVISORS

AUSTIN • HOUSTON • WICHITA • DENVER • CALGARY

+ Sparrow SWD No. 1 SHL

1 1/2-Mile

1-Mile
1/2 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 (155)

Active - Gas (13)

- Active - Oil (1)

Active SWIN (2)

(7) $QAC = 24174$

Cancelled/Abandoned Location (2)

Plugged/ Site Released - Gas (6)

Plugged/Site Released - Oil (4)

Temp. Abandoned - Gas (1)

API (30-025-...) BHL Status-Type (Count)

Active - Gas (1)

- Active - Oil (79)

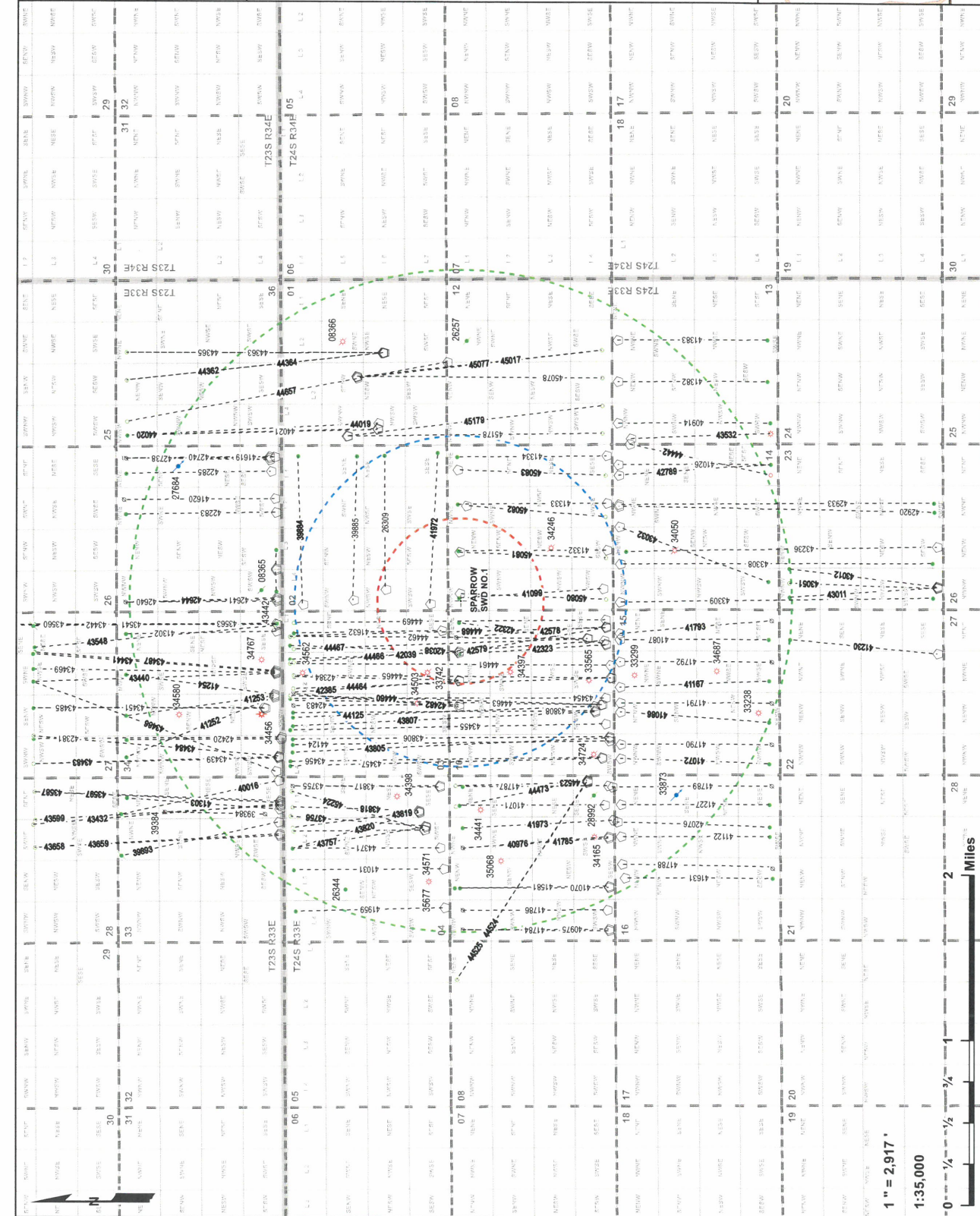
Cancelled/Abandoned Location (27)

Plugged/Not Released - Oil (3)

- Permitted - Gas (1)

- Permitted - Oil (44)

Plugged/Not Released - Oil (1)

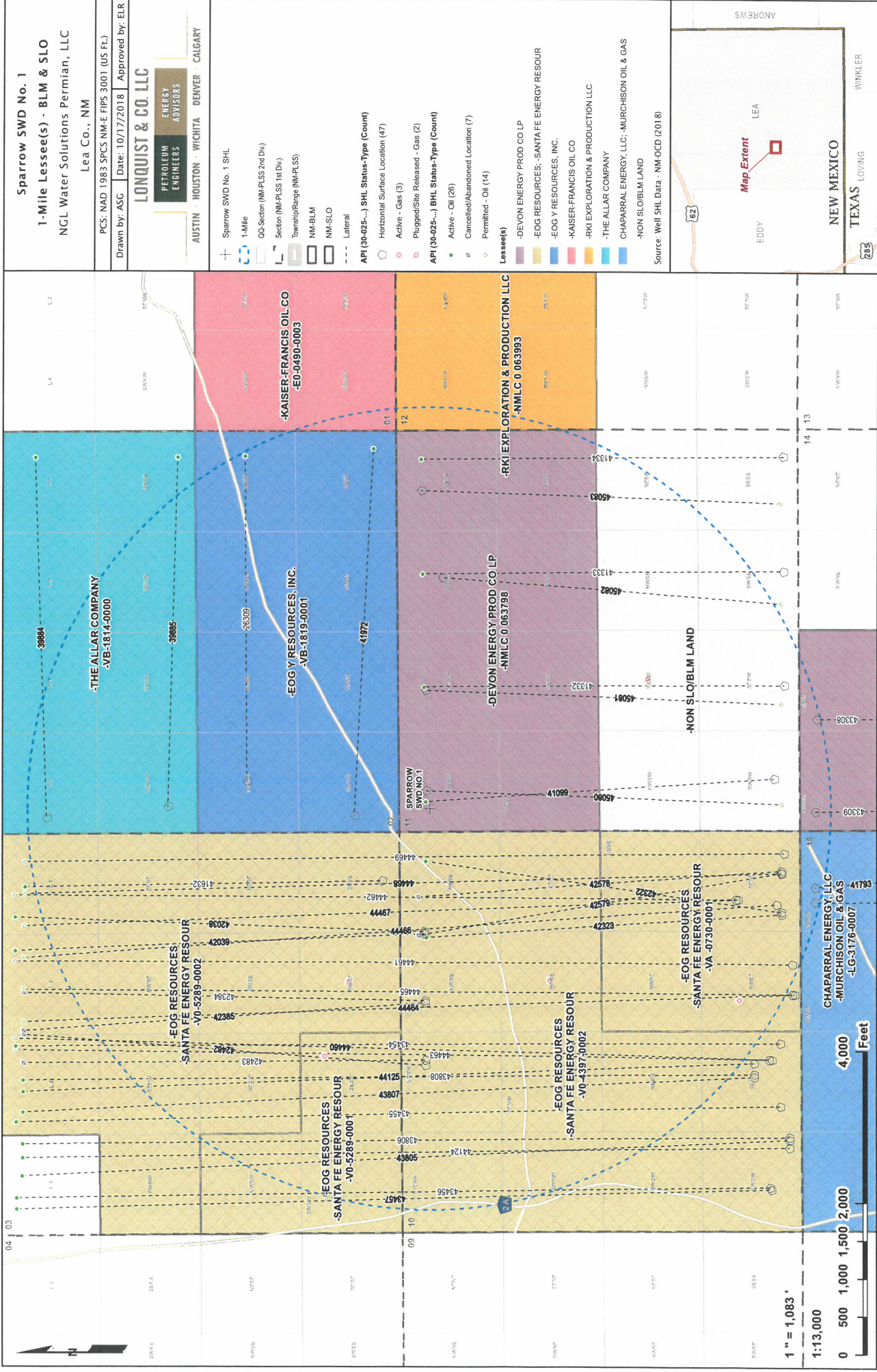


Sparrow SWD No. 1
1 Mile Area of Review List

API (30-025-...)	WELL NAME	WELL TYPE	STATUS	OPERATOR	TVD (FT.)	LATITUDE (NAD83 DD)	LONGITUDE (NAD83 DD)	DATE DRILLED
26309	TRUCKER BRK STATE #001	O	A	EOG Y RESOURCES, INC.	11121	32.24485020000	-103.54949550000	5/26/1979
33565	JACKSON 10 STATE COM #001	G	A	EOG RESOURCES INC	15560	32.22711940000	-103.558914200	9/28/1996
33742	QUEST AQS STATE COM #001	G	P	EOG Y RESOURCES, INC.	75	32.24122620000	-103.55803680000	12/31/1996
34246	STEVENS 11 #001	G	P	DEVON ENERGY PRODUCTION COMPANY, LP	15250	32.23033520000	-103.545234700	1/20/1998
34397	JACKSON 3 STATE COM #002	G	A	EOG RESOURCES INC	13660	32.23396680000	-103.558044400	5/11/1998
34503	JACKSON 10 STATE COM #001	G	A	EOG RESOURCES INC	13750	32.24213440000	-103.561218300	10/2/1998
39884	MACHO STATE #001H	O	A	COG OPERATING LLC	10998	32.25209430000	-103.551010100	3/11/2013
39885	MACHO STATE #002H	O	A	COG OPERATING LLC	9821	32.24769590000	-103.55056000000	12/26/2010
41087	JACKSON UNIT #0017H	O	A	TAP ROCK OPERATING, LLC	11186	32.22434230000	-103.554771400	3/11/2014
41099	ROY BATTY FEDERAL COM #001H	O	A	COG OPERATING LLC	10700	32.22579960000	-103.549499500	6/24/2013
41332	ROY BATTY FEDERAL COM #002H	O	A	COG OPERATING LLC	11101	32.22541430000	-103.545532200	11/1/2013
41333	ROY BATTY FEDERAL COM #003H	O	A	COG OPERATING LLC	11116	32.22541810000	-103.540679900	11/28/2013
41334	ROY BATTY FEDERAL COM #004H	O	A	COG OPERATING LLC	10899	32.22541810000	-103.53580470000	12/26/2013
41632	MARS 3 STATE #001H	O	A	EOG RESOURCES INC	11178	32.24001310000	-103.553772000	3/27/2014
41793	JACKSON UNIT #038C	O	C	MURCHISON OIL & GAS INC	0	32.22434230000	-103.554130600	12/31/9999
41972	TRUCKER BRK STATE #002H	O	A	EOG Y RESOURCES, INC.	10985	32.24098590000	-103.550987200	8/23/2014
42038	MARS 10 STATE #502H	O	A	EOG RESOURCES INC	10950	32.23851390000	-103.555938700	12/2/2014
42039	MARS 10 STATE #503H	O	A	EOG RESOURCES INC	11216	32.23851390000	-103.556037900	11/10/2014
42322	NEPTUNE 10 STATE COM #501H	O	A	EOG RESOURCES INC	11171	32.2255753020	-103.555179926	1/31/2015
42323	NEPTUNE 10 STATE COM #502H	O	A	EOG RESOURCES INC	11205	32.2255753840	-103.555277416	2/17/2015
42384	MARS 10 STATE #504C	O	C	EOG RESOURCES INC	0	32.2385064800	-103.558883490	12/31/9999
42385	MARS 10 STATE #505C	O	C	EOG RESOURCES INC	0	32.2385065730	-103.558980980	12/31/9999
42482	MARS 10 STATE COM #506C	O	C	EOG RESOURCES INC	0	32.23850916300	-103.56164487000	12/31/9999
42483	MARS 10 STATE COM #507C	O	C	EOG RESOURCES INC	0	32.2385089430	-103.561420640	2958465
42578	NEPTUNE 10 STATE COM #503C	O	C	EOG RESOURCES INC	0	32.2255710767	-103.553425108	12/31/9999
42579	NEPTUNE 10 STATE COM #701C	O	C	EOG RESOURCES INC	0	32.2255711587	-103.553522598	12/31/9999
43308	BOOMSLANG 14 23 FEDERAL #002H	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	9485	32.22424690000	-103.54696970000	8/18/2017
43309	BOOMSLANG 14 23 FEDERAL #003H	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	11451	32.22431250000	-103.550904200	8/7/2017
43454	NEPTUNE 10 STATE COM #503H	O	A	EOG RESOURCES INC	11231	32.22565330000	-103.560772100	11/25/2016
43455	NEPTUNE 10 STATE COM #504H	O	A	EOG RESOURCES INC	11194	32.22565660000	-103.563449700	11/25/2016
43456	NEPTUNE 10 STATE COM #505H	O	A	EOG RESOURCES INC	11229	32.22604090000	-103.566905200	12/11/2016
43457	NEPTUNE 10 STATE COM #701H	O	A	EOG RESOURCES INC	12530	32.22599100000	-103.567002000	12/2/2016
43805	NEPTUNE 10 STATE COM #702H	O	A	EOG RESOURCES INC	12520	32.22532620000	-103.564892800	10/3/2017
43806	NEPTUNE 10 STATE COM #703H	O	A	EOG RESOURCES INC	12469	32.22532630000	-103.564779100	10/1/2017
43807	NEPTUNE 10 STATE COM #704H	O	A	EOG RESOURCES INC	12521	32.22660110000	-103.562208100	10/7/2017
43808	NEPTUNE 10 STATE COM #705H	O	A	EOG RESOURCES INC	12512	32.22660170000	-103.562095000	10/9/2017
44124	NEPTUNE 10 STATE COM #601H	O	A	EOG RESOURCES INC	12268	32.22532930000	-103.565218500	10/25/2017
44125	NEPTUNE 10 STATE COM #602H	O	A	EOG RESOURCES INC	12267	32.22660320000	-103.561610400	10/21/2017
44460	NEPTUNE 10 STATE COM #603H	O	N	EOG RESOURCES INC	0	32.22604700000	-103.561461300	12/31/9999
44461	NEPTUNE 10 STATE COM #604H	O	N	EOG RESOURCES INC	0	32.22519620000	-103.557405600	12/31/9999
44462	NEPTUNE 10 STATE COM #605H	O	N	EOG RESOURCES INC	0	32.22715410000	-103.554651000	12/31/9999
44463	NEPTUNE 10 STATE COM #706H	O	N	EOG RESOURCES INC	0	32.22595620000	-103.561461500	12/31/9999
44464	NEPTUNE 10 STATE COM #707H	O	N	EOG RESOURCES INC	0	32.22519730000	-103.558699100	12/31/9999
44465	NEPTUNE 10 STATE COM #708H	O	N	EOG RESOURCES INC	0	32.22510660000	-103.558699200	12/31/9999
44466	NEPTUNE 10 STATE COM #709H	O	N	EOG RESOURCES INC	0	32.22574450000	-103.554858300	12/31/9999
44467	NEPTUNE 10 STATE COM #710H	O	N	EOG RESOURCES INC	0	32.22724490000	-103.554650200	12/31/9999

Sparrow SWD No. 1
1 Mile Area of Review List

44468	NEPTUNE 10 STATE COM #711H	O	N	EOG RESOURCES INC	0	32.2255506000	-103.553534600	12/31/9999
44469	NEPTUNE 10 STATE COM #712H	O	N	EOG RESOURCES INC	0	32.2255500000	-103.534376000	12/31/9999
45080	CHARLES LING FEDERAL COM #211H	O	N	MATADOR PRODUCTION COMPANY	0	32.2383833000	-103.549953400	12/31/9999
45081	CHARLES LING FEDERAL COM #212H	O	N	MATADOR PRODUCTION COMPANY	0	32.2383890000	-103.545685100	12/31/9999
45082	CHARLES LING FEDERAL COM #213H	O	N	MATADOR PRODUCTION COMPANY	0	32.2377444000	-103.540892600	12/31/9999
45083	CHARLES LING FEDERAL COM #214H	O	N	MATADOR PRODUCTION COMPANY	0	32.2384826000	-103.5371878000	12/31/9999



Sparrow 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
ANTELOPE RIDGE UNIT #002	3002520444	4	24S	34E	B	LEA	ATOKA	6.7	51475							31000	317	340
TODD 26 G FEDERAL #001	3001520242	26	23S	31E	G	EDDY	ATOKA	6.7	202478							126000	93	540
BELL LAKE UNIT #009	3002520261	18	23S	34E	K	LEA	BONE SPRING		204652							130000	512	260
THYME APY FEDERAL #002	3002533529	1	23S	32E	G	LEA	BONE SPRING	6.1	172896			0	2025			104976	781	1150
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
BELL LAKE 19 STATE #002H	3002541515	19	24S	33E	O	Lea	BONE SPRING 2ND SAND	6.8		47629	8214	18	1182		0.47	91000	220	550
BELL LAKE 19 STATE #004H	3002541517	19	24S	33E	O	Lea	BONE SPRING 2ND SAND	6.7		41736	10300	79	1689		1.7	87000	220	658
COTTON DRAW UNIT #244H	3001542331	36	24S	31E	D	EDDY	BONE SPRING 3RD SAND	6.7	108465	33597.8	4943.2	26.4	648.5		1.01	67351.3	122	0
ALDABRA 26 FEDERAL #008H	3001538624	26	23S	31E	P	EDDY	BONE SPRING 3RD SAND	6.4	173144	61249	1211	43	290		0.6	105600	2074	1603
BELL LAKE UNIT A #007	3002508367	1	24S	33E	A	LEA	DELAWARE		87686							53920	391	749
HANAGAN B FEDERAL #001	3002508151	15	24S	32E	O	LEA	DELAWARE	7.1	229813	65198	18727		3040			142188	168	491
SNAPPING 2 STATE #014H	3001542688	2	26S	31E	P	EDDY	WOLF CAMP	7.3	81366.4	26319.4	2687.4	26.1	326.7			50281.2		399.7
BELLOQ 2 STATE #002H	3001542895	2	23S	31E	C	EDDY	WOLF CAMP	6.8	119471.8	37359.2	5659.1	22.4	746.1			73172.5		1035.5
CUSTER MOUNTAIN UNIT #001	3002520756	9	24S	35E	K	LEA	MORROW		282741							176800	161	650

Water Wells 1 mile radius
Lea County New Mexico

16-1) SPARROW SWD 1

LONGITUDE: -103.550714
LATITUDE: 32.238267
Y: 451296.69492
X: 783313.950614

NMSPCS 83 E

