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

No. 16439 - APPLICATION OF NGL WATER SOLUTIONS PERMIAN, LLC FOR APPROVAL OF SALT WATER DISPOSAL WELLS IN LEA COUNTY, NEW MEXICO. (McCloy Central)

No. 16441 - APPLICATION OF NGL WATER SOLUTIONS PERMIAN, LLC FOR APPROVAL OF SALT WATER DISPOSAL WELLS IN LEA COUNTY, NEW MEXICO. (Minute Man)

No. 16442 - APPLICATION OF NGL WATER SOLUTIONS PERMIAN, LLC FOR APPROVAL OF SALT WATER DISPOSAL WELLS IN LEA COUNTY, NEW MEXICO. (Red Road)

HEARING 10/18/18

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

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

CASE NO. 16439

AMENDED 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 McCloy Central SWD #1 well at a surface location 762 feet from the North line and 383 feet from East line of Section 24, Township 24 South, Range 32 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 Devonian and Silurian formations at a depth of 17,424' – 18,533'.

(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 2,614 psi for this well, and it requests that a maximum pressure of 3,484 psi be approved for the well.

(5) A 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 October 4, 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: _____
Jennifer Bradfute
Deana Bennett
Post Office Box 2168
Bank of America Centre
500 Fourth Street NW, Suite 1000
Albuquerque, New Mexico 87103-2168
Telephone: 505.848.1800
Attorneys for Applicant

CASE NO. 16440: Amended 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 Devonian and Silurian formations through the McCloy Central SWD #1 well. NGL proposes to drill this well at a surface location 762 feet from the North line and 383 feet from East line of Section 24, Township 24 South, Range 32 East, NMPM, Lea County, New Mexico. The target injection interval is the Devonian and Silurian formations at a depth of 17,424' – 18,533'. 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 26 miles west of Jal, New Mexico.

DATE IN	SUSPENSE	ENGINEER	LOGGED IN	TYPE	APP NO.

ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
- 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

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

[1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]

[A] Location - Spacing Unit - Simultaneous Dedication
☐ NSL ☐ NSP ☐ SD

Check One Only for [B] or [C]

[B] Commingling - Storage - Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
☐ WFX ☐ PMX ■ SWD ☐ IPI ☐ EOR ☐ PPR

[D] Other: Specify _____

[2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or ☐ Does Not Apply

[A] ☐ Working, Royalty or Overriding Royalty Interest Owners

[B] ■ Offset Operators, Leaseholders or Surface Owner

[C] ■ Application is One Which Requires Published Legal Notice

[D] ■ Notification and/or Concurrent Approval by BLM or SLO
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office

[E] ■ For all of the above, Proof of Notification or Publication is Attached, and/or,

[F] ☐ Waivers are Attached

[3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **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		Consulting Engineer	
Print or Type Name	Signature	Title	Date

chris@lonquist.com
e-mail Address

EXHIBIT
tabbies
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).

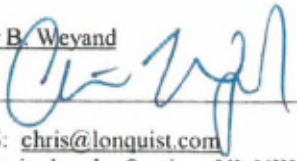
*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

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: 8/20/2018

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: MCCLOY CENTRAL SWD #1

WELL LOCATION (surface hole):	762' FNL & 383' FEL	A	24	24S	32E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE
WELL LOCATION (bottom hole):	762' FNL & 256' FEL	A	24	24S	32E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 24.000" Casing Size: 20.000"

Cemented with: 1,555 sx. *or* _____ ft^3

Top of Cement: Surface Method Determined: Circulation

1st Intermediate Casing

Hole Size: 17.500" Casing Size: 13.375"

Cemented with: 2,465 sx. *or* _____ ft^3

Top of Cement: Surface Method Determined: Circulation

2nd Intermediate Casing

Hole Size: 12.250" Casing Size: 9.625"

Cemented with: 2,909 sx. *or* _____ ft^3

Top of Cement: Surface Method Determined: Circulation

Production Liner

Hole Size: 8.500"

Casing Size: 7.625"

Cemented with: 391 sx.

or _____ ft^3

Top of Cement: 11,800'

Method Determined: Calculation

Total Depth: 17,424'

Injection Interval

17,424 feet to 18,533 feet

(Open Hole)

INJECTION WELL DATA SHEET

Tubing Size: 7", 26 lb/ft, P-110, TCPC from 0'- 11,700' and 5.500", 17 lb/ft, P-110 TCPC from 11,700'- 17,380'
Lining Material: Duoline

Type of Packer: 7.625"x5.5" TCPC Permanent Packer with High Temp Elastomer and Full Inconel

Packer Setting Depth: 17,380'

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: 9,023'
   Wolfcamp: 12,193'
   Strawn: 14,005'

NGL McCloy Central SWD #1

Energy Partners LP

Vertical Injection - Devonian, Silurian, Fusselman | **Location - Lea County NM** | **TD: 18,533** | **GL / KB: 3595'/3623'** | **Directions to Site** - Lat/Long - 32.208497506001, -103.620315651

Geologic Tops (MD ft)	Section	Bit/BHA	Casing	Logging	Cement (HOLD)	Injection String
Triassic - 182' Permian Dewey Lake - 602 Rustler Anhydrite - 1147 **Surface TD - 1250'**	**Surface** Drill 24" 0' - 1250 Set and Cement 20" Casing	24" Tricone 9-5/8" x 8" MM 9 jts: 8" DC 21 jts: 5" HWDP 5 " DP to surface	1250' of 20" 106.5# J55 BTC Centralizers - bottom 2 joints and every 3rd jt thereafter, Cement basket 5th jt from surface	No Logs	Thixotropic Cement 13.2 ppg Class C - 1,555 sks 3hr TT 25% Excess 1000psi CSD after 10hrs	
Base of Silicates 1482 Top Salt - 1,482' Castile - 3412' Base Salt - 4911 **ECP DV Tool - 4900'** **1st Int TD - 4950**	**1st Intermediate** Drill 3700' of 17-1/2" Hole 1250' - 4950' Set and Cement 13-3/8" Casing	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 4950' 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 1250'	13.2 ppg Class C -2,465 sks 4hr TT 10% Excess 1000psi CSD after 10 hrs Cement to Surface	11700' of 7" P110 26# TCPC
Delaware Mtn Group - 5003 Lamar Limestone - 5005 Bell Canyon - 5043 Cherry Canyon - 6073 Brushy Canyon - 7803 **DV Tool - 8940'** Bone Spring - 9023 **3rd Int Liner Top - 11,800** Wolfcamp - 12193 **2nd Int TD - 12,300**	**2nd Intermediate** Drill 7350' of 12-1/4" Hole 4950' - 12300' Set 9-5/8" Intermediate Casing and Cement in 3 Stages	12-1/4" PDC 8" MM 9jts: 8" DC 8" Drilling Jars 21 jts: 5" HWDP 5" DP to Surface	10M B Section 12300' of 9-5/8" 53.5# P110 BTC **Special Drift to 8.535"** Externally Coat 4000' Between DV Tools DV tool at at 8940' 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:** 13.2 ppg Class C - 981 sks 5hr TT 10% XS 1000psi CSD after 10 hrs Cement to Surface **Stage 2:** 13.2 ppg Class H - 1,038 sks 5hr TT 10% XS 1000psi CSD after 10 hrs Cement to Surface **Stage 1:** 13.2 ppg Class H - 891 sks 6hr TT 10% XS 1000psi CSD after 10 hrs Cement to Surface	5680' of 5-1/2" P110 17# TCPC Duoline Internally Coated Injection Tubing
Penn - 13651 Strawn - 14005 Atoka - 14238 Morrow - 15015 Miss Lst - 16863 Woodford - 17235 **Perm Packer - 17380** **3rd Int TD - 17424'**	**3rd Intermediate** Drill 5124' of 8-1/2" Hole 12300' - 17424' Set 7-5/8" Liner and Cement in Single Stage	8-1/2" PDC 6-3/4" MM 9 jts: 6" DC 21 jts: 5" HWDP 5" DP to Surface	5624' 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	15.6 ppg Class H - 391 sks 8hr TT 10% Excess 1000psi CSD after 10hrs	7-5/8" x 5-1/2" TCPC Permanent Packer with High Temp Elastomer and full Inconel 925 trim
Devonian - 17,424 Silurian - 17798 Fusselman - 17978 Montoya - 18,433' TD - 18533	**Injection Interval** Drill 1009' of 6-1/2" hole 17424' - 18533'	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	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 - McCloy Central SWD No. 1

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1.

Well information	
Lease Name	McCloy Central SWD
Well No.	1
Location	S-24 T-24S R-32E
Footage Location (SHL)	762' FNL & 383' FEL
Footage Location (SHL)	762' FNL & 256' FEL

2.

a. Wellbore Description

Casing Information				
Type	Surface	Intermediate	Production	Liner
OD	20"	13.375"	9.625"	7.625"
WT	0.438"	0.480"	0.545"	0.500"
ID	19.000"	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	1,250'	4,950'	12,300	17,424'

b. Cementing Program

Cement Information				
Casing String	Surface	Intermediate	Production	Liner
Lead Cement	C	C	H, H, C	H
Lead Cement Volume	623	1,283	Stage 1: 235 sks Stage 2: 465 sks Stage 3: 532 sk	194
Tail Cement	C	C	H,H,C	H
Tail Cement Volume	931	1,182	Stage 1: 656 sks Stage 2: 573 sks Stage 3: 449 sks	197
Cement Excess	25%	10%	10%	10%
TOC	Surface	Surface	Surface	11,800'
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"	4.767"
Weight	26 lb/ft	17 lb/ft
Grade	P-110 TCPC	P-110 TCPC
Depth Set	0'-11,700'	11,700-17,380

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

B. Completion Information

1. Injection Formation: Devonian, Silurian, Fusselman, Montoya (Top 100')

2. Gross Injection Interval: 17,424' – 18,533'

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	9,023'
Wolfcamp	12,193'

VI. Area of Review

No wells within the area of review (1-mile) 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: 2,614 PSI (surface pressure)
   Maximum Injection Pressure: 3,484 PSI (surface pressure)

4. The injection fluid is to be locally produced water. Attached are produced water sample analyses taken from the closest wells that feature samples from the Bone Spring and Wolfcamp 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	1,147'
Salado	1,482'
Delaware	5,003'
Bone Spring	9,023'
Wolfcamp	12,193'
Penn	13,651'
Atoka	14,238'
Morrow	15,015'
Mississippian Lime	16,863'
Woodford	17,235'
Devonian	17,424'

B. Underground Sources of Drinking Water

There are no fresh water wells within one mile of the well location. Water wells in the surrounding area have an average depth of 410 ft and an average water depth of 246 ft. This is not a know fresh water aquifer, but rather represents a sporadic alluvial source.

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 fresh water wells 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 **McCloy Central SWD #1**) and any underground sources of drinking water.

NAME: John C. Webb

TITLE: Sr. Geologist

SIGNATURE: John C Webb

DATE: 8/22/2018

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.
	MCCLOY CENTRAL SWD	1

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
A	24	24S	32E	N/A	762'	NORTH	383'	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
A	24	24S	32E	N/A	762'	NORTH	256'	EAST	EDDY

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	3,565'
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
N	17,809'	Siluro-Devonian	TBD	ASAP
Depth to Ground water	Distance from nearest fresh water well		Distance to nearest surface water	
374'	>1 mile		> 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"	106.5 lb/ft	1,250'	1,555	Surface
Intermediate	17.5"	13.375"	68 lb/ft	4,950'	2,465	Surface
Production	12.25"	9.625"	53.5 lb/ft	12,300'	2,909	Surface
Prod. Liner	8.5"	7.625"	39 lb/ft	17,424'	391	11,800
Tubing	N/A	7"	26 lb/ft	0' – 11,700'	N/A	N/A
Tubing	N/A	5.5"	17 lb/ft	11,700' – 17,380'	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: 8/20/2018 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
	McCLOY CENTRAL SWD	1

[7] OGRID No.	[8] Operator Name	[9] Elevation
372338	NGL WATER SOLUTIONS PERMIAN, LLC	3565.00'±

[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	24	24 S	32 E	N/A	762'	NORTH	383'	EAST	LEA

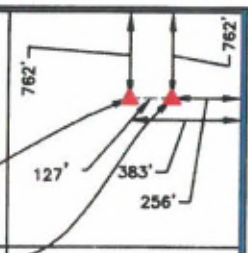
[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	24	24 S	32 E	N/A	762'	NORTH	256'	EAST	LEA

[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]



PROPOSED
McCLOY CENTRAL SWD 1

NMSP–E (NAD27)
N: 440,280.0'
E: 720,592.5'

NMSP–E (NAD83)
N: 440,338.7'
E: 761,777.0'
Lat: N32°12'30.81"
Long: W103°37'14.16"

PROPOSED
McCLOY CENTRAL BHL
SWD 1

NMSP–E (NAD27)
N: 440,280.02'
E: 720,719.52'

NMSP–E (NAD83)
N: 440,338.70'
E: 761,904.00'
Lat: N32°12'30.80"
Long: W103°37'12.68"

SECTION
24

[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

Chris Weyand
Printed Name

chris@lonquist.com
E-mail Address

[18] SURVEYOR CERTIFICATION

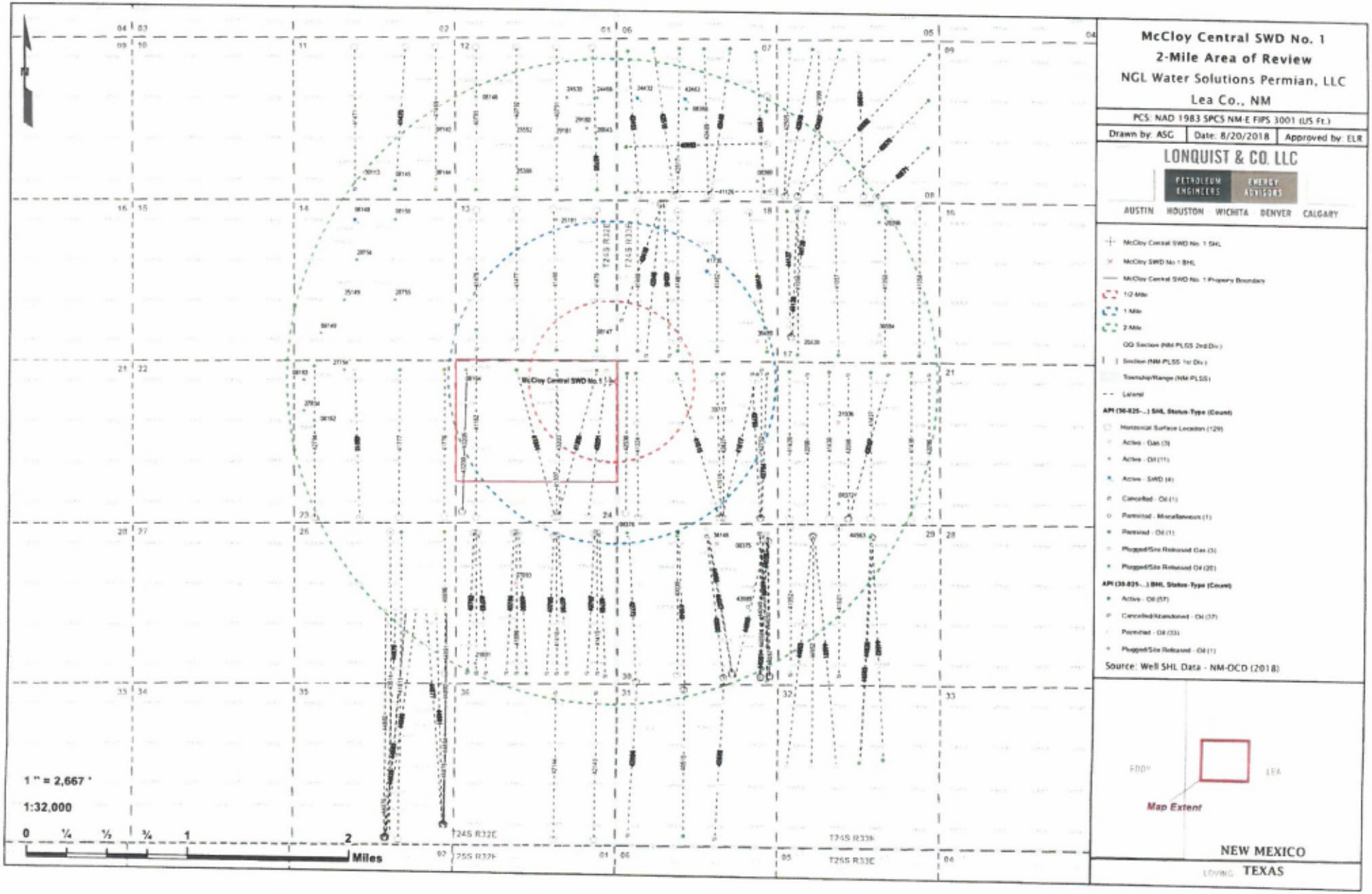
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

08/18/2018
Date of Survey

Signature and Seal of Professional Surveyor:

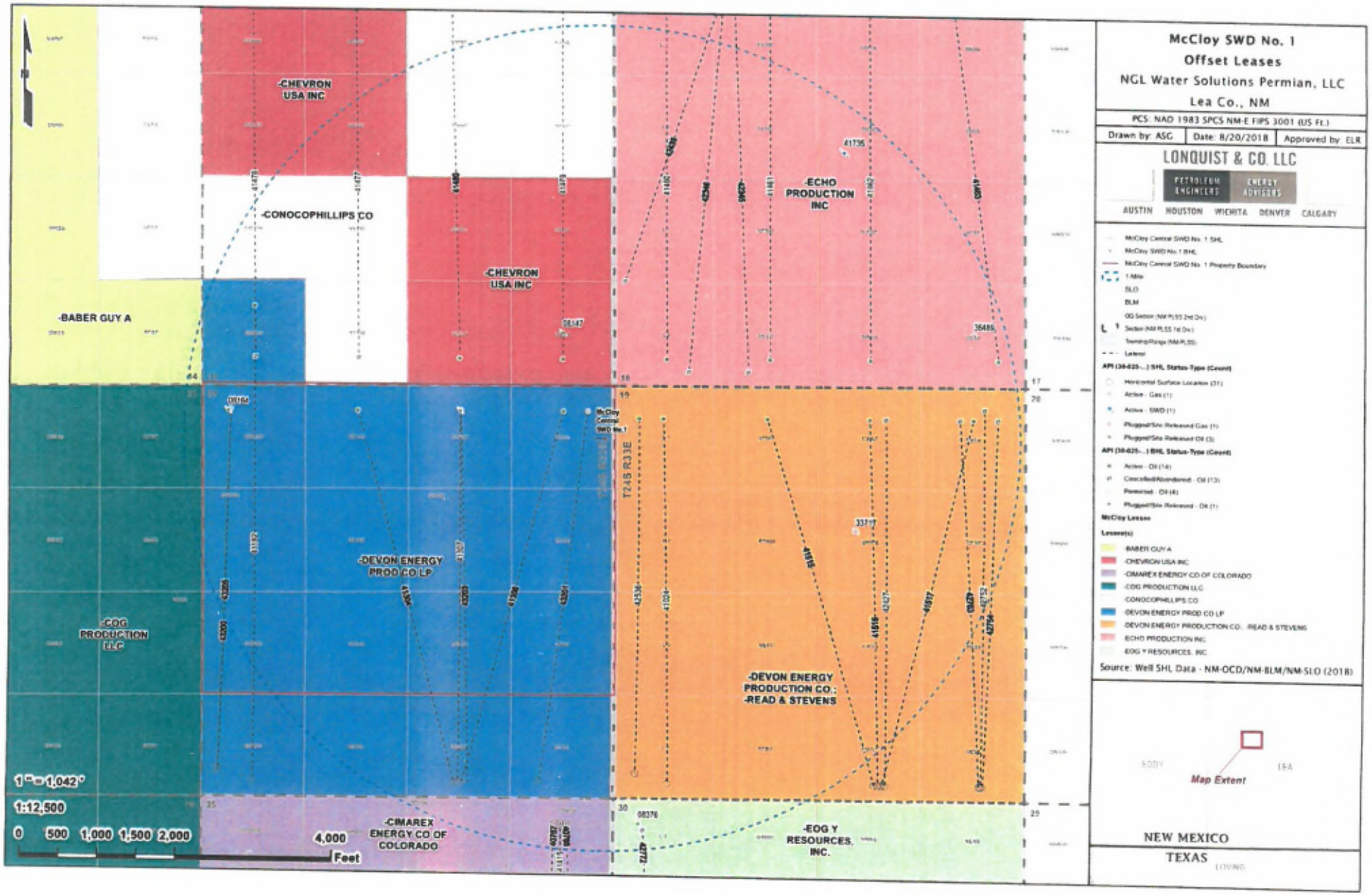
CODY A. CLARK
NEW MEXICO
23001
PROFESSIONAL SURVEYOR

23001
Certificate Number


McCloy Central 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: 8/20/2018
Approved by: ELR
LONQUIST & CO. LLC
PETROLEUM ENGINEERS
ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY
McCloy Central SWD No. 1 SHL
McCloy SWD No 1 BHL
McCloy Central SWD No. 1 Property Boundary
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 (129)
Active - Gas (3)
Active - Oil (11)
Active - SWD (4)
Cancelled - Oil (1)
Permitted - Miscellaneous (1)
Permitted - Oil (1)
Plugged/Site Released Gas (3)
Plugged/Site Released Oil (20)
API (30-025-...) BHL Status-Type (Count)
Active - Oil (57)
Cancelled/Abandoned - Oil (37)
Permitted - Oil (33)
Plugged/Site Released - Oil (1)
Source: Well SHL Data - NM-OCD (2018)
McCloy Central SWD No. 1
T24S R32E
T24S R33E
T25S R32E
T25S R33E
1 " = 2,667 '
1:32,000
0 ¼ ½ ¾ 1 2
Miles
EDDY
LEA
Map Extent
NEW MEXICO
LOVING
TEXAS

McCloy Central 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
08147	PRE-ONGARD WELL #001	Oil	Plugged	PRE-ONGARD WELL OPERATOR	5063	32.2122650	-103.6219711	1/1/1900
08164	PRE-ONGARD WELL #001	Oil	Plugged	PRE-ONGARD WELL OPERATOR	5080	32.2095070	-103.6358109	1/1/1900
08376	PRE-ONGARD WELL #001	Oil	Plugged	PRE-ONGARD WELL OPERATOR	5108	32.1950150	-103.6188202	1/1/1900
33717	STATE 19 #001	Gas	Plugged	DEVON ENERGY PRODUCTION COMPANY, LP	15966	32.2053223	-103.6099014	1/31/1997
36489	COPPERHEAD 18 STATE #001	Gas	Active	OXY USA INC	14627	32.2122612	-103.6050262	1/1/2004
40767	DOUBLE X 25 FEDERAL #007C	Oil	Cancelled/Abandoned	CIMAREX ENERGY CO.	0	32.1950111	-103.6222610	12/31/9999
40768	DOUBLE X 25 FEDERAL #008C	Oil	Cancelled/Abandoned	CIMAREX ENERGY CO.	0	32.1950111	-103.6217804	12/31/9999
41024	BELL LAKE 19 STATE #001H	Oil	Active	DEVON ENERGY PRODUCTION COMPANY, LP	11054	32.1964722	-103.6176224	5/12/2013
41182	BELL LAKE 24 FEDERAL #001H	Oil	Active	DEVON ENERGY PRODUCTION COMPANY, LP	10991	32.1964340	-103.6347809	9/8/2013
41304	BELL LAKE 24 FEDERAL #004H	Oil	Active	DEVON ENERGY PRODUCTION COMPANY, LP	11056	32.1964569	-103.6264496	4/12/2014
41306	BELL LAKE 24 FEDERAL #002H	Oil	Active	DEVON ENERGY PRODUCTION COMPANY, LP	11082	32.1964569	-103.6261215	2/12/2014
41307	BELL LAKE 24 FEDERAL #003H	Oil	Plugged/Site Released	DEVON ENERGY PRODUCTION COMPANY, LP	11064	32.1964569	-103.6262817	3/15/2014
41415	DOUBLE X 25 FEDERAL #012C	Oil	Cancelled/Abandoned	CIMAREX ENERGY CO.	0	32.1950111	-103.6220245	12/31/9999
41460	COPPERHEAD 18 STATE #002H	Oil	Active	OXY USA INC	11060	32.2240466	-103.6176758	41676
41461	COPPERHEAD 18 STATE #003H	Oil	Active	OXY USA INC	11076	32.2240448	-103.6134033	3/18/2014
41462	COPPERHEAD 18 STATE #004H	Oil	Active	OXY USA INC	10980	32.2240410	-103.6092911	4/16/2014
41463	COPPERHEAD 18 STATE #005H	Oil	Active	OXY USA INC	11109	32.2239838	-103.6058502	6/11/2014
41477	DOS EQUIS 13 FEDERAL COM #003H	Oil	Cancelled/Abandoned	CIMAREX ENERGY CO.	0	32.2240562	-103.6304398	12/31/9999
41478	DOS EQUIS 13 FEDERAL COM #004H	Oil	Cancelled/Abandoned	CIMAREX ENERGY CO.	0	32.2240486	-103.6347046	12/31/9999
41479	DOS EQUIS 13 FEDERAL COM #001H	Oil	Active	CIMAREX ENERGY CO.	10988	32.2240753	-103.6219406	3/14/2014
41480	DOS EQUIS 13 FEDERAL COM #002H	Oil	Active	CIMAREX ENERGY CO.	10937	32.2242012	-103.6265335	10/9/2014
41515	BELL LAKE 19 STATE #002H	Oil	Active	DEVON ENERGY PRODUCTION COMPANY, LP	11105	32.1964722	-103.6091060	7/10/2014
41516	BELL LAKE 19 STATE #003H	Oil	Active	DEVON ENERGY PRODUCTION COMPANY, LP	11114	32.1964722	-103.6089478	6/13/2014
41517	BELL LAKE 19 STATE #004H	Oil	Active	DEVON ENERGY PRODUCTION COMPANY, LP	11088	32.1964722	-103.6087875	5/11/2014
41735	COPPERHEAD 18 STATE SWD #001	SWD	Active	OXY USA INC	6800	32.2186279	-103.6103592	6/13/2014
42345	COPPERHEAD 18 CN STATE #001C	Oil	Cancelled/Abandoned	OXY USA INC	0	32.2247391	-103.6148897	12/31/9999
42346	COPPERHEAD 18 DM STATE #002C	Oil	Cancelled/Abandoned	OXY USA INC	0	32.2247393	-103.6152131	12/31/9999
42427	BELL LAKE 19 STATE #005C	Oil	Cancelled/Abandoned	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.1964634	-103.6086541	12/31/9999
42439	COPPERHEAD 18 DM CN STATE #001C	Oil	Cancelled/Abandoned	OXY USA INC	0	32.2245330	-103.6152076	12/31/9999
42536	BELL LAKE 19 STATE #006H	Oil	Active	DEVON ENERGY PRODUCTION COMPANY, LP	9716	32.1968232	-103.6189568	5/23/2015
42752	BELL LAKE 19 STATE #011C	Oil	Cancelled/Abandoned	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.1964680	-103.6047188	12/31/9999
42753	BELL LAKE 19 STATE #009C	Oil	Cancelled/Abandoned	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.1964680	-103.6047998	12/31/9999
42754	BELL LAKE 19 STATE #007C	Oil	Cancelled/Abandoned	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.1964680	-103.6046380	12/31/9999
42772	MAMBA BQN STATE COM #005C	Oil	Cancelled/Abandoned	EOG Y RESOURCES, INC.	0	32.1815690	-103.6178720	12/31/9999
43200	BELL LAKE 24 FEDERAL #005H	Oil	Permitted	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.1969342	-103.6362254	12/31/9999
43201	BELL LAKE 24 FEDERAL #006H	Oil	Permitted	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.1965410	-103.6228970	12/31/9999
43205	BELL LAKE 24 FEDERAL #009H	Oil	Permitted	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.1957966	-103.6362258	12/31/9999
43203	DEVON ENERGY PRODUCTION COMPANY, LP	Oil	Permitted	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.1813820	-103.4039750	12/31/9999



McCloy SWD No. 1
Offset Leases
NGL Water Solutions Permian, LLC
Lea Co., NM

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

Drawn by: ASG	Date: 8/20/2018	Approved by: ELR

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

McCloy Central SWD No. 1 SHL
McCloy SWD No.1 BHL
McCloy Central SWD No. 1 Property Boundary
1 Mile
SLO
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 (31)
Active - Gas (1)
Active - SWD (1)
Plugged/Site Released-Gas (1)
Plugged/Site Released-Oil (3)

API (30-025-...) BHL Status-Type (Count)
Active - Oil (14)
Cancelled/Abandoned - Oil (13)
Permitted - Oil (4)
Plugged/Site Released - Oil (1)

McCloy Leases

Lessee(s)
-BABER GUY A
-CHEVRON USA INC
-CIMAREX ENERGY CO OF COLORADO
-COG PRODUCTION LLC
-CONOCOPHILLIPS CO
-DEVON ENERGY PROD CO LP
-DEVON ENERGY PRODUCTION CO. : READ & STEVENS
-ECHO PRODUCTION INC
-EOG Y RESOURCES, INC.

Source: Well SHL Data - NM-OCD/NM-BLM/NM-SLO (2018)

NEW MEXICO
TEXAS
LOVING

McCloy Central SWD #1: Offsetting Produced Water Analysis

wellname	api	section	township	range	county	state	formation	ph	tds_mgl	sodium_mgl	calcium_mgl	iron_mgl	magnesium_mgl	manganese_mgl	chloride_mgl	bicarbonate_mgl	sulfate_mgl	co2_mgl
BELL LAKE 19 STATE #001H	3002541024	19	24S	33E	Lea	NM	BONE SPRING 2ND SAND	6.77	134649.2	44572.9	6715	37.9	759.3	0.93	83681.6	244	765	200
BELL LAKE 19 STATE #002H	3002541515	19	24S	33E	Lea	NM	BONE SPRING 2ND SAND	7.01	128413.3	44427.6	4207	41.9	706.9	0.78	77482.5	366	930	300
BELL LAKE 19 STATE #003H	3002541516	19	24S	33E	Lea	NM	BONE SPRING 2ND SAND	6.67	128617.3	46648.4	5778	45.1	731.5	1.1	84081	244	730	300
BELL LAKE 19 STATE #004H	3002541537	19	24S	33E	Lea	NM	BONE SPRING 2ND SAND	6.68	133460.5	44483.1	5917	30.5	718.2	0.83	80981.7	244	675	300
BELL LAKE 24 FEDERAL #001H	3002541182	24	24S	32E	Lea	NM	BONE SPRING 2ND SAND	6.8		49221	8660	63	1324	1.9	95000	195	133	330
BELL LAKE 24 FEDERAL #002H	3002541306	24	24S	32E	Lea	NM	BONE SPRING 2ND SAND	6.8		48200	7820	38	1083	0.8	93000	171	436	330
BELL LAKE 24 FEDERAL #004H	3002541304	24	24S	32E	Lea	NM	BONE SPRING 2ND SAND	6.7		44730	12294	38	1595	1	95000	122	586	264
BELLOIO 2 STATE #002H	3001562895	2	23S	31E	EDDY	NM	WOLFCAMP	6.8	119471.8	37359.2	5659.1	22.4	746.1		73172.5		1035.5	260

McClay Cen' (

Zina Crum
Modrall Sperling
500 4th Street NW
Suite 1000
Albuquerque NM 87102

PS Form 3877

Type of Mailing: CERTIFIED
09/18/2018

ALBUQUERQUE NM 87101 SEP 18 2018 USPS

Firm Mailing Book ID: 151689

Line	Article Number	Name, Street & P.O. Address	Postage	Fee	R.R.Fee	Reference	Rest.Del.Fee Contents
1	9314 8699 0430 0050 9148 32	BABER GUY A PO BOX 1772 Hobbs NM 88240	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
2	9314 8699 0430 0050 9148 49	BUREAU OF LAND MGMT 301 Dinosaur Trail Santa Fe Santa Fe NM 87508	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
3	9314 8699 0430 0050 9148 56	CHEVRON USA INC 6301 DEAUVILLE Midland TX 79706	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
4	9314 8699 0430 0050 9148 63	CIMAREX ENERGY CO. OF COLORADO 1700 LINCOLN ST STE 1800 Denver CO 80203	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
5	9314 8699 0430 0050 9148 70	COG PRODUCTION LLC 600 W. ILLINOIS AVENUE Midland TX 79701	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
6	9314 8699 0430 0050 9148 87	CONOCOPHILLIPS CO PO BOX 7500 Bartlesville OK 74005	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
7	9314 8699 0430 0050 9148 94	DEVON ENERGY PRODUCTION COMPANY, LP 20 N Broadway Oklahoma City OK 73102	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
8	9314 8699 0430 0050 9149 00	DEVON ENERGY PRODUCTION COMPANY, LP 1700 LINCOLN ST STE 1800 Denver CO 80203	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
9	9314 8699 0430 0050 9149 17	EOG Y RESOURCES 104 S. FOURTH STREET Denver CO 80203	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
10	9314 8699 0430 0050 9149 24	NEW MEXICO STATE LAND OFFICE P.O. Box 1148 Santa Fe NM 87504	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
11	9314 8699 0430 0050 9149 31	NGL WATER SOLUTIONS PERMIAN, LLC 1509 W Wall St., Ste. 306 Midland TX 79701	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
12	9314 8699 0430 0050 9149 48	Oil Conservation Division District I - Hobbs 1625 N. French Drive Hobbs NM 88240	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
13	9314 8699 0430 0050 9149 55	Oil Conservation Division District IV 1220 South St. Francis Drive Santa Fe NM 87505	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
14	9314 8699 0430 0050 9149 62	OXY USA INC P.O. BOX 4294 HOUSTON TX 77210	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
15	9314 8699 0430 0050 9149 79	ROVER OPERATING, LLC 55 Old Sante Fe Trail, Second Floor Santa Fe NM 87501	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice

Zina Crum
Modrall Sperling
500 4th Street NW
Suite 1000
Albuquerque NM 87102

PS Form 3877

Type of Mailing: CERTIFIED
09/18/2018

Firm Mailing Book ID: 151689

Line	Article Number	Name, Street & P.O. Address	Postage	Fee	R.R.Fee	Reference	Rest.Del.Fee Contents
		Totals:	$21.30	$51.75	$22.50		$0.00
						Grand Total:	$95.55

List Number of Pieces Listed by Sender	Total Number of Pieces Received at Post Office	Postmaster: Name of receiving employee	Dated:
15			

2

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

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

CASE NO. 16441

AMENDED 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 Minuteman SWD #1 well at a surface location 659 feet from the South line and 449 feet from West line of Section 14, 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 Devonian and Silurian formations at a depth of 16,691' – 18,326'.

(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 2,504 psi for this well, and it requests that a maximum pressure of 3,338 psi be approved for the well.

(5) A 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 October 4, 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: _____

Jennifer Bradfute
Deana Bennett
Post Office Box 2168
Bank of America Centre
500 Fourth Street NW, Suite 1000
Albuquerque, New Mexico 87103-2168
Telephone: 505.848.1800
Attorneys for Applicant

CASE NO. 16441: Amended 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 Devonian and Silurian formations through the Minuteman SWD #1 well. NGL proposes to drill this well at a surface location 659 feet from the South line and 449 feet from West line of Section 14, Township 24 South, Range 33 East, NMPM, Lea County, New Mexico. The target injection interval is the Devonian and Silurian formations at a depth of 16,691' – 18,326'. 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 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: MINUTEMAN 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

09/05/2018
Date

512-600-1764
Phone Number

Signature

CHRIS@LONQUIST.COM
e-mail Address

EXHIBIT
tabbies
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).

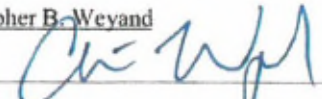
*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

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: 8/20/2018

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

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: MINUTEMAN SWD #1

WELL LOCATION: 659 FSL & 449' FWL (FOOTAGE LOCATION) | M (UNIT LETTER) | 14 (SECTION) | 24S (TOWNSHIP) | 33E (RANGE)

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 24.000" Casing Size: 20.000"

Cemented with: 1,730 sx. *or* _____ ft^3

Top of Cement: Surface Method Determined: Circulation

1st Intermediate Casing

Hole Size: 17.500" Casing Size: 13.375"

Cemented with: 2,600 sx. *or* _____ ft^3

Top of Cement: Surface Method Determined: Circulation

2nd Intermediate Casing

Hole Size: 12.250" Casing Size: 9.625"

Cemented with: 2,771 sx. *or* _____ ft^3

Top of Cement: Surface Method Determined: Circulation

Production Liner

Hole Size: 8.500"

Casing Size: 7.625"

Cemented with: 325 sx.

or _____ ft^3

Top of Cement: 11,800'

Method Determined: Calculation

Total Depth: 18,326'

Injection Interval

16,691 feet to 18,326 feet

(Open Hole)

INJECTION WELL DATA SHEET

Tubing Size: 7", 26 lb/ft, P-110, TCPC from 0'- 11,700' and 5.500", 17 lb/ft, P-110 TCPC from 11,700'- 16,641'
Lining Material: Duoline

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

Packer Setting Depth: 16,641'

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: 9,130'
   Wolfcamp: 12,100'

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 **Minuteman SWD #1**) and any underground sources of drinking water.

NAME: John C. Webb

TITLE: Sr. Geologist

SIGNATURE: John C Webb

DATE: 8/22/2018

NGL Water Solutions Permian, LLC

Minuteman SWD No. 1

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1.

Well information	
Lease Name	Minuteman SWD
Well No.	1
Location	S-14 T-24S R-33E
Footage Location	659' FSL & 449' FWL

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	19.000"	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	1,400'	5,200'	12,300'	16,691'

b. Cementing Program

Cement Information				
Casing String	Surface	Intermediate	Production	Liner
Lead Cement	C	C	H,H,C	H
Lead Cement Volume	727	1,274	Stage 1: 443 sks Stage 2: 521 sks Stage 3: 709 sks	95
Tail Cement	C	C	H,H,C	H
Tail Cement Volume	1,004	1,327	Stage 1: 384 sks Stage 2: 443 sks Stage 3: 272 sks	230
Cement Excess	25%	10%	10%	10%
TOC	Surface	Surface	Surface	11,800'
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"	4.767"
Weight	26 lb/ft	17 lb/ft
Grade	P-110 TCPC	P-110 TCPC
Depth Set	0'-11,700'	11,700'-16,641'

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

B. Completion Information

1. Injection Formation: Devonian, Silurian, Fusselman, Montoya (Top 100')
2. Gross Injection Interval: 16,691' – 18,326'

   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	9,130'
Wolfcamp	12,100'

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: 2,504 PSI (surface pressure)
   Maximum Injection Pressure: 3,338 PSI (surface pressure)

4. The injection fluid is to be locally produced water. Attached are produced water sample analyses taken from the closest wells that feature samples from the Bone Spring and Wolfcamp 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	1,234'
Salado	1,494'
Delaware	5,232'
Bone Spring	9,130'
Wolfcamp	12,100'
Penn	13,230'
Atoka	13,695'
Morrow	14,425'
Mississippian Lime	16,111'
Woodford	16,481'
Devonian	16,691'

B. Underground Sources of Drinking Water

Within 1-mile of the proposed Minuteman SWD #1 location, there are 9 reported water wells. The water wells have an average depth of 360 ft and an average water depth of 229 ft generally producing from the Santa Rosa. The upper Rustler may also be another USDW and will be protected.

IX. Proposed Stimulation Program

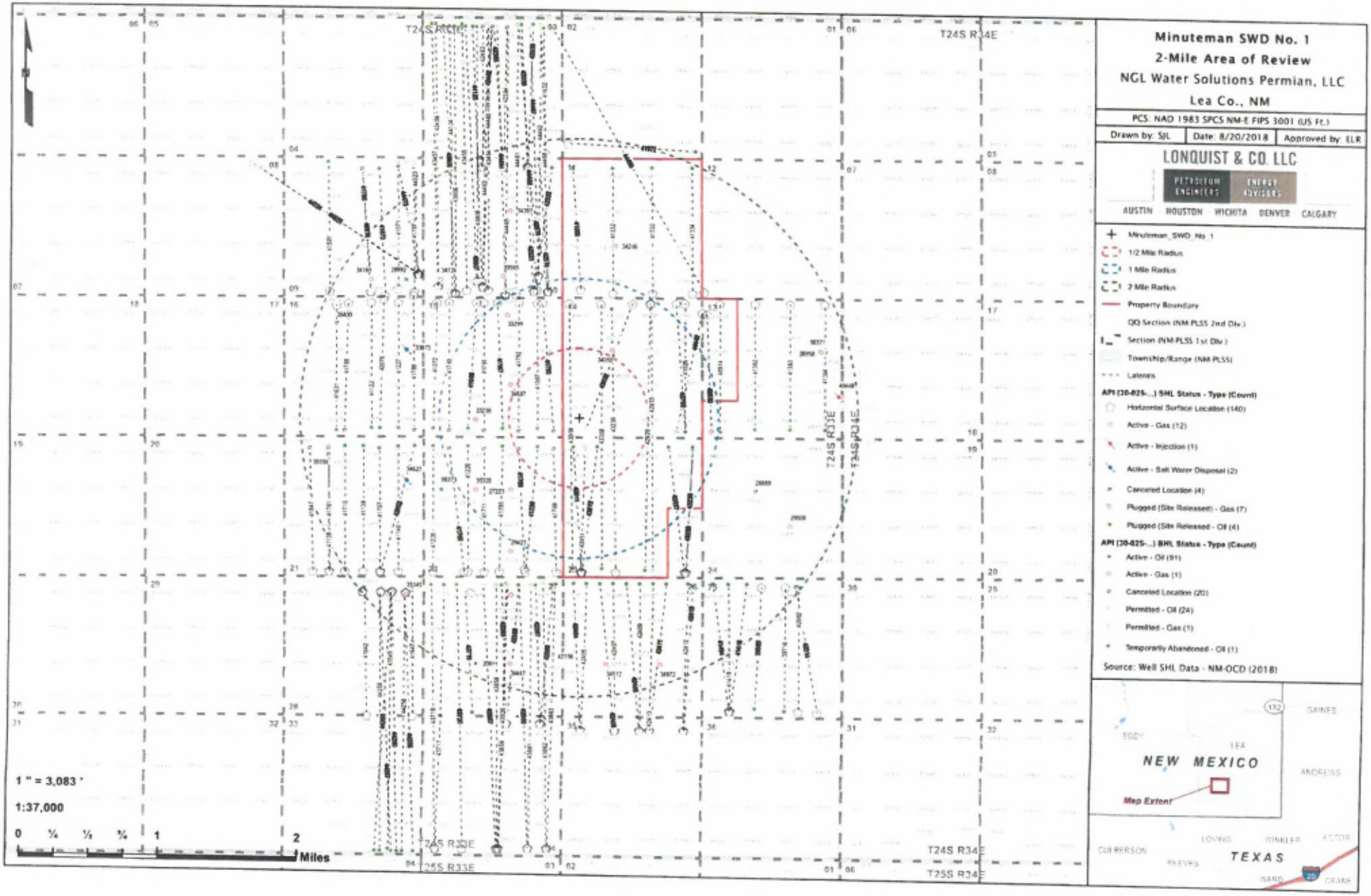
Stimulate with up to 50,000 gallons of acid.

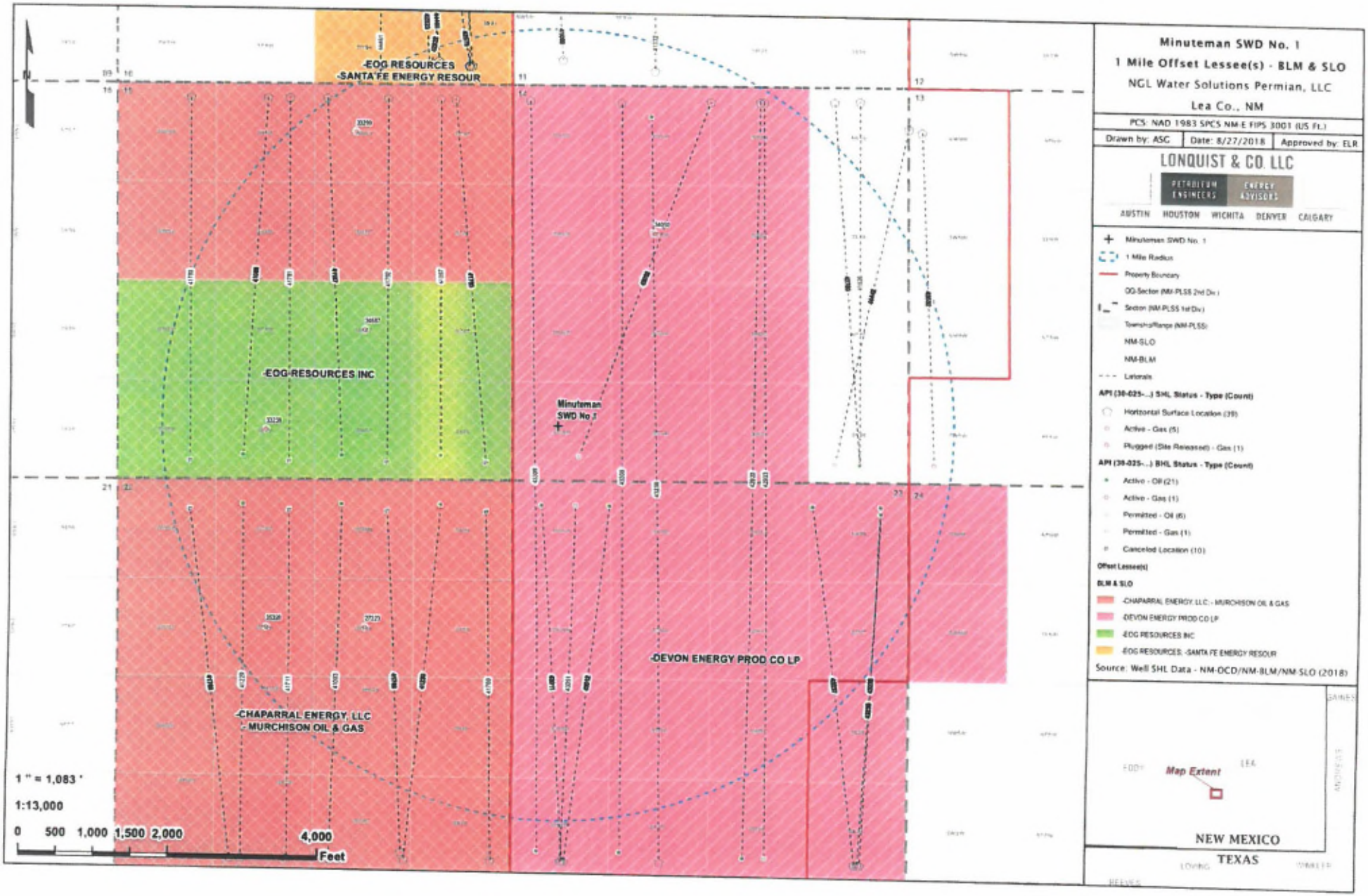
X. Logging and Test Data on the Well

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

Even though there are 9 fresh water wells within 1-mile of the proposed Minuteman SWD #1 location, there were no fresh water samples obtained. A 3rd party sampling and analysis company determined that all wells were plugged. A map of the nearby water wells is attached.


T24S R33E
T24S R34E
T24S R33E
T24S R34E
T25S R33E
T25S R34E
1 " = 3,083 '
1:37,000
0 ¼ ½ ¾ 1 2
Miles
Minuteman 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: SJL
Date: 8/20/2018
Approved by: ELR
LONQUIST & CO. LLC
PETROLEUM ENGINEERS
ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY
Minuteman_SWD_No_1
1/2 Mile Radius
1 Mile Radius
2 Mile Radius
Property Boundary
QQ Section (NM PLSS 2nd Div.)
Section (NM PLSS 1st Div.)
Township/Range (NM PLSS)
Laterals
API (30-025-...) SHL Status - Type (Count)
Horizontal Surface Location (140)
Active - Gas (12)
Active - Injection (1)
Active - Salt Water Disposal (2)
Canceled Location (4)
Plugged (Site Released) - Gas (7)
Plugged (Site Released) - Oil (4)
API (30-025-...) BHL Status - Type (Count)
Active - Oil (91)
Active - Gas (1)
Canceled Location (20)
Permitted - Oil (24)
Permitted - Gas (1)
Temporarily Abandoned - Oil (1)
Source: Well SHL Data - NM-OCD (2018)
NEW MEXICO
Map Extent
TEXAS
EDDY
LEA
GAINES
ANDREWS
CULBERSON
LOVING
WINKLER
ECTOR
REEVES
WARD
CRANE


EOG RESOURCES -SANTA FE ENERGY RESOUR
EOG RESOURCES INC
Minuteman SWD No. 1
DEVON ENERGY PROD CO LP
CHAPARRAL ENERGY, LLC - MURCHISON OIL & GAS
1 " = 1,083 '
1:13,000
0 500 1,000 1,500 2,000 4,000
Feet
Minuteman SWD No. 1
1 Mile Offset Lessee(s) - BLM & SLO
NGL Water Solutions Permian, LLC
Lea Co., NM
PCS: NAD 1983 SPCS NM-E FIPS 3001 (US FT.)
Drawn by: ASC
Date: 8/27/2018
Approved by: ELR
LONQUIST & CO. LLC
PETROLEUM ENGINEERS
ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY
Minuteman SWD No. 1
1 Mile Radius
Property Boundary
QQ-Section (NM-PLSS 2nd Div.)
Section (NM-PLSS 1st Div.)
Township/Range (NM-PLSS)
NM-SLO
NM-BLM
Laterals
API (30-025-...) SHL Status - Type (Count)
Horizontal Surface Location (39)
Active - Gas (5)
Plugged (Site Released) - Gas (1)
API (30-025-...) BHL Status - Type (Count)
Active - Oil (21)
Active - Gas (1)
Permitted - Oil (6)
Permitted - Gas (1)
Canceled Location (10)
Offset Lessee(s)
BLM & SLO
CHAPARRAL ENERGY, LLC. - MURCHISON OIL & GAS
DEVON ENERGY PROD CO LP
EOG RESOURCES INC
EOG RESOURCES -SANTA FE ENERGY RESOUR
Source: Well SHL Data - NM-OCD/NM-BLM/NM-SLO (2018)
Map Extent
NEW MEXICO
TEXAS

Minuteman 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
27223	JACKSON UNIT #001	G	A	TAP ROCK OPERATING, LLC	15860	32.20493700000	-103.55804440000	1/29/1981
33238	JACKSON UNIT #003	G	A	TAP ROCK OPERATING, LLC	13920	32.21219640000	-103.56231690000	2/9/1996
33299	JACKSON UNIT #004	G	A	EOG RESOURCES INC	15534	32.22308350000	-103.55842590000	3/14/1996
34050	LELA MAE STEVENS FEDERAL COM #001	G	P	EOG RESOURCES INC	13840	32.21944810000	-103.54556270000	10/23/1997
34687	JACKSON UNIT #007	G	A	TAP ROCK OPERATING, LLC	13841	32.21582030000	-103.55804440000	10/16/1999
35328	JACKSON UNIT #008	G	A	TAP ROCK OPERATING, LLC	13920	32.20493700000	-103.56231690000	3/28/2001
41026	TYRELL FEE #001H	O	A	COG OPERATING LLC	10951	32.22437290000	-103.53671260000	4/24/2013
41072	JACKSON UNIT #014H	O	A	TAP ROCK OPERATING, LLC	11187	32.22435380000	-103.56703950000	11/3/2013
41086	JACKSON UNIT #015H	O	A	TAP ROCK OPERATING, LLC	11184	32.22435000000	-103.56224060000	12/12/2013
41087	JACKSON UNIT #017H	O	A	TAP ROCK OPERATING, LLC	11186	32.22434230000	-103.55477140000	3/11/2014
41093	JACKSON UNIT #024H	O	A	TAP ROCK OPERATING, LLC	11102	32.19641110000	-103.55950930000	6/1/2013
41099	ROY BATTY FEDERAL COM #001H	O	A	COG OPERATING LLC	10700	32.22579960000	-103.54949950000	6/24/2013
41167	JACKSON UNIT #016H	O	A	TAP ROCK OPERATING, LLC	11180	32.22434620000	-103.55967710000	1/30/2014
41229	JACKSON UNIT #023H	O	A	TAP ROCK OPERATING, LLC	11111	32.19641490000	-103.56332400000	6/23/2014
41230	JACKSON UNIT #025H	O	A	TAP ROCK OPERATING, LLC	11121	32.19640730000	-103.55626680000	5/15/2014
41332	ROY BATTY FEDERAL COM #002H	O	A	COG OPERATING LLC	11101	32.22541430000	-103.54553220000	11/1/2013
41711	JACKSON UNIT #040C	O	C	MURCHISON OIL & GAS INC	0	32.19641110000	-103.56132510000	12/31/9999
41766	JACKSON UNIT #041C	O	C	MURCHISON OIL & GAS INC	0	32.19668580000	-103.55641170000	12/31/9999
41768	JACKSON UNIT #039C	O	C	MURCHISON OIL & GAS INC	0	32.19641490000	-103.56381230000	12/31/9999
41769	JACKSON UNIT #042C	O	C	MURCHISON OIL & GAS INC	0	32.19640730000	-103.55252840000	12/31/9999
41790	JACKSON UNIT #035C	O	C	MURCHISON OIL & GAS INC	0	32.22435380000	-103.56556700000	12/31/9999
41791	JACKSON UNIT #036C	O	C	MURCHISON OIL & GAS INC	0	32.22435000000	-103.56130220000	12/31/9999
41792	JACKSON UNIT #037C	O	C	MURCHISON OIL & GAS INC	0	32.22434620000	-103.55703740000	12/31/9999
41793	JACKSON UNIT #038C	O	C	MURCHISON OIL & GAS INC	0	32.22434230000	-103.55413060000	12/31/9999
42322	NEPTUNE 10 STATE COM #501H	O	A	EOG RESOURCES INC	11171	32.22557530200	-103.55517992600	1/31/2015
42323	NEPTUNE 10 STATE COM #502H	O	A	EOG RESOURCES INC	11205	32.22557538400	-103.55527741600	2/17/2015
42578	NEPTUNE 10 STATE COM #503C	O	C	EOG RESOURCES INC	0	32.22557107670	-103.55342510800	12/31/9999
42579	NEPTUNE 10 STATE COM #701C	O	C	EOG RESOURCES INC	0	32.22557115870	-103.55352259800	12/31/9999
42789	TYRELL FEE #002H	O	A	COG OPERATING LLC	9359	32.22433799000	-103.53780440000	11/4/2015
42920	BOOMSLANG 14 23 FEDERAL #001H	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	9517	32.22431530000	-103.54100470000	7/28/2017
42933	BOOMSLANG 14 23 FEDERAL #004H	O	N	DEVON ENERGY PRODUCTION COMPANY, LP	11476	32.22431510000	-103.54084320000	7/5/2017
43011	BLUE KRAIT 23 14 FEDERAL #001H	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	9370	32.19639980000	-103.54944480000	7/8/2017
43012	BLUE KRAIT 23 14 FEDERAL #005H	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	9398	32.19639980000	-103.54934780000	7/12/2017
43032	BOOMSLANG 14 23 FEDERAL #009H	O	N	DEVON ENERGY PRODUCTION COMPANY, LP	10658	32.22431260000	-103.54313220000	8/13/2017
43051	BLUE KRAIT 23 FEDERAL #010H	O	N	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.19639980000	-103.54950950000	12/31/9999
43236	BLUE KRAIT 23 14 FEDERAL #002H	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	11851	32.19639900000	-103.54524320000	6/18/2017
43237	BLUE KRAIT 23 FEDERAL #003H	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	9399	32.19639820000	-103.53686120000	7/1/2017
43238	BLUE KRAIT 23 FEDERAL #004H	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	11130	32.19639810000	-103.53662280000	6/21/2017
43239	BLUE KRAIT 23 FEDERAL #006H	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	9408	32.19639800000	-103.53671980000	6/26/2017
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	-103.55090420000	8/7/2017
44442	STRONG 14 24 33 AR #214H	G	N	MATADOR PRODUCTION COMPANY	0	32.22337350000	-103.53461800000	12/31/9999
44461	NEPTUNE 10 STATE COM #604H	O	N	EOG RESOURCES INC	0	32.22519620000	-103.55740560000	12/31/9999
44466	NEPTUNE 10 STATE COM #709H	O	N	EOG RESOURCES INC	0	32.22574450000	-103.55485830000	12/31/9999
44468	NEPTUNE 10 STATE COM #711H	O	N	EOG RESOURCES INC	0	32.22555060000	-103.55353460000	12/31/9999

Minuteman SWD #1: Offsetting Produced Water Analysis															
wellname	api	county	state	formation	ph	tds_mgL	sodium_mgL	calcium_mgL	iron_mgL	magnesium_mgL	manganese_mgL	chloride_mgL	bicarbonate_mgL	sulfate_mgL	co2_mgL
BELL LAKE 19 STATE #001H	3002541024	Lea	NM	BONE SPRING 2ND SAND	6.77	134649.2	44572.9	6215	37.9	759.3	0.93	81681.6	244	765	200
BELL LAKE 19 STATE #002H	3002541515	Lea	NM	BONE SPRING 2ND SAND	7.01	128413.3	44427.6	4207	41.9	705.9	0.78	77482.5	366	910	300
BELL LAKE 19 STATE #003H	3002541516	Lea	NM	BONE SPRING 2ND SAND	6.67	138617.2	46648.4	5778	41.1	731.5	1.1	84081	244	710	300
BELL LAKE 19 STATE #004H	3002541517	Lea	NM	BONE SPRING 2ND SAND	6.68	133460.5	44483.1	5917	30.5	718.2	0.83	80981.7	244	675	300
BELLOQ 2 STATE #002H	3001542895	EDDY	NM	WOLFCAMP	6.8	119471.8	37359.2	5659.1	22.4	746.1		73172.5		1035.5	250

NGL McCloy Minuteman SWD #1

Energy Partners LP

Vertical Injection - Devonian, Silurian, Fusselman

Location - 23.2 miles west of Jal NM on Hwy 128.

Lea County NM

TD: 18,326

GL/KB: 3593'/3617'

Directions to Site - Lat/Long 32.211719/-103.550778

Geologic Tops (MD ft)	Section	Bit/BHA	Casing	Logging	Cement (HOLD)	Injection String
Triassic - 209 Permian Dewey Lake - 659 Rustler Anhydrite - 1234 **Surface TD - 1400**	**Surface** Drill 24" 0' - 1400 Set and Cement 20" Casing	24" Tricone 9-5/8" x 8" MM 9 jts: 8" DC 21 jts: 5" HWDP 5 " DP to surface	1400' of 20" 106.5# J55 BTC Centralizers - bottom 2 joints and every 3rd jt thereafter, Cement basket 5th jt from surface	No Logs	Thixotropic Cement 13.2 ppg Class C - 1,730 sks 3hr TT 25% Excess 1000psi CSD after 10hrs	11700' of 7" P110 26# TCPC 4941' of 5-1/2" P110 17# TCPC Duoline Internally Coated Injection Tubing
Base of Silicates 1494 Top Salt - 1,494' Castile - 3680 Base Salt - 5140 **ECP DV Tool - 5150** **1st Int TD - 5200**	**1st Intermediate** Drill 3800' of 17-1/2" Hole 1400' - 5200' Set and Cement 13-3/8" Casing	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 1250'	13.2 ppg Class C - 2,600 sks 4hr TT 10% Excess 1000psi CSD after 10 hrs Cement to Surface	
Delaware Mtn Group - 5232 Lamar Limestone - 5234 Bell Canyon - 5270 Cherry Canyon - 6265 Brushy Canyon - 7860 **DV Tool - 9000** Bone Spring - 9130 **3rd Int Liner Top - 11,800** Wolfcamp - 12100 **2nd Int TD - 12,300**	**2nd Intermediate** Drill 7100' of 12-1/4" Hole 5200' - 12300' Set 9-5/8" Intermediate Casing and Cement in 3 Stages	12-1/4" PDC 8" MM 9jts: 8" DC 8" Drilling Jars 21 jts: 5" HWDP 5" DP to Surface	10M B Section 12300' of 9-5/8" 53.5# P110 BTC **Special Drift to 8.535"** Externally Coat 4000' Between DV Tools DV tool at at 8940' 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:** 13.2 ppg Class C - 981 sks 5hr TT 10% XS 1000psi CSD after 10 hrs Cement to Surface **Stage 2:** 13.2 ppg Class H - 964 sks 5hr TT 10% XS 1000psi CSD after 10 hrs Cement to Surface **Stage 1:** 13.2 ppg Class H - 827 sks 6hr TT 10% XS 1000psi CSD after 10 hrs Cement to Surface	
Penn - 13230 Strawn - 13470 Atoka - 13695 Morrow - 14425 Miss Lst - 14476 Woodford - 16481 **Perm Packer - 16641** **3rd Int TD - 16691**	**3rd Intermediate** Drill 4381' of 8-1/2" Hole 12300' - 16691' Set 7-5/8" Liner and Cement in Single Stage	8-1/2" PDC 6-3/4" MM 9 jts: 6" DC 21 jts: 5" HWDP 5" DP to Surface	4891' 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	15.6 ppg Class H - 325 sks 8hr TT 10% Excess 1000psi CSD after 10hrs	7-5/8" x 5-1/2" TCPC Permanent Packer with High Temp Elastomer and full Inconel 925 trim
Devonian - 16,691 Silurian - 17071 Fusselman - 17651 Montoya - 18,226' TD - 18,326'	**Injection Interval** Drill 1635' of 6-1/2" hole 16691+L57' - 18,326'	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	Openhole completion	MWD GR Triple Combo with FMI, CBL of 7-5/8"	Displace with 3% KCl (or heavier brine if necessary)	

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.
	MINUTEMAN SWD	1

[7] Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
M	14	24S	33E	N/A	659'	SOUTH	449'	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	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	3,594'
[16] Multiple	**[17] Proposed Depth**	**[18] Formation**	**[19] Contractor**	**[20] Spud Date**
N	18,326'	Siluro-Devonian	TBD	ASAP

Depth to Ground water	Distance from nearest fresh water well	Distance to nearest surface water
229'	767'	> 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"	106.5 lb/ft	1,400'	1,730	Surface
Intermediate	17.5"	13.375"	68 lb/ft	5,200	2,600	Surface
Production	12.25"	9.625"	53.5 lb/ft	12,300'	2,771	Surface
Prod. Liner	8.5"	7.625"	39 lb/ft	16,691	325	11,800
Tubing	N/A	7"	26 lb/ft	0' – 11,700'	N/A	N/A
Tubing	N/A	5.5"	17 lb/ft	11,700' – 16,641'	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: 8/20/2018 / Phone: (512) 600-1764	Conditions of Approval Attached

District I
1625 N. French Dr., Hobbs, NM 88240
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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
	MINUTEMAN SWD	1

[7] OGRID No.	[8] Operator Name	[9] Elevation
372338	NGL WATER SOLUTIONS PERMIAN, LLC	3594.00'±

[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
M	14	24 S	33 E	N/A	659'	SOUTH	449'	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.

[16]

SECTION 14

PROPOSED MINUTEMAN SWD 1

NMSP–E (NAD27)
N: 441,826.46'
E: 742,500.05'

NMSP–E (NAD83)
N: 441,885.13'
E: 783,684.53'
Lat: N32°12'44.61"
Long: W103°32'59.06"

449'

659'

[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

Chris Weyand
Printed Name

chris@lonquist.com
E-mail Address

[18] SURVEYOR CERTIFICATION

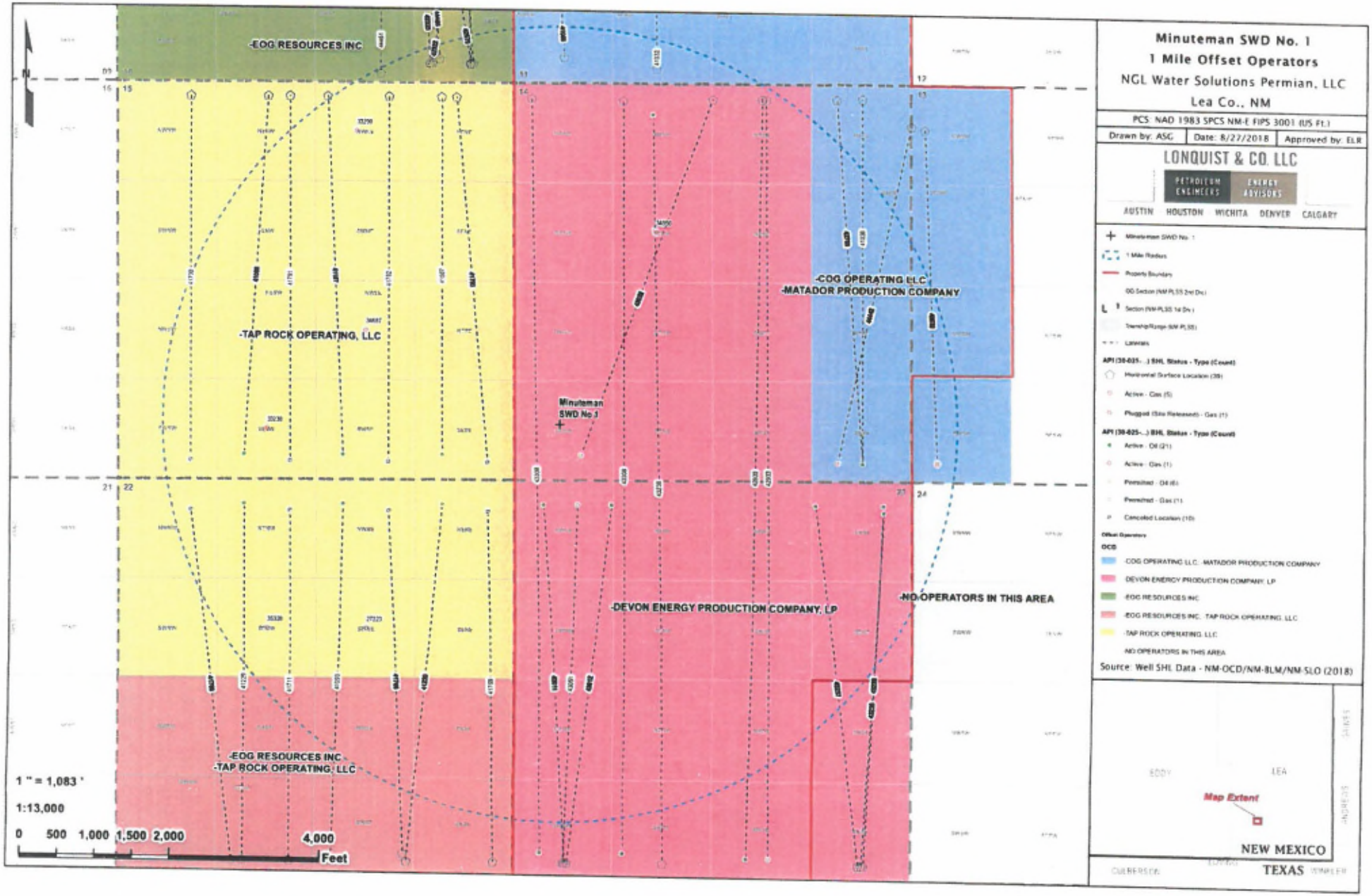
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

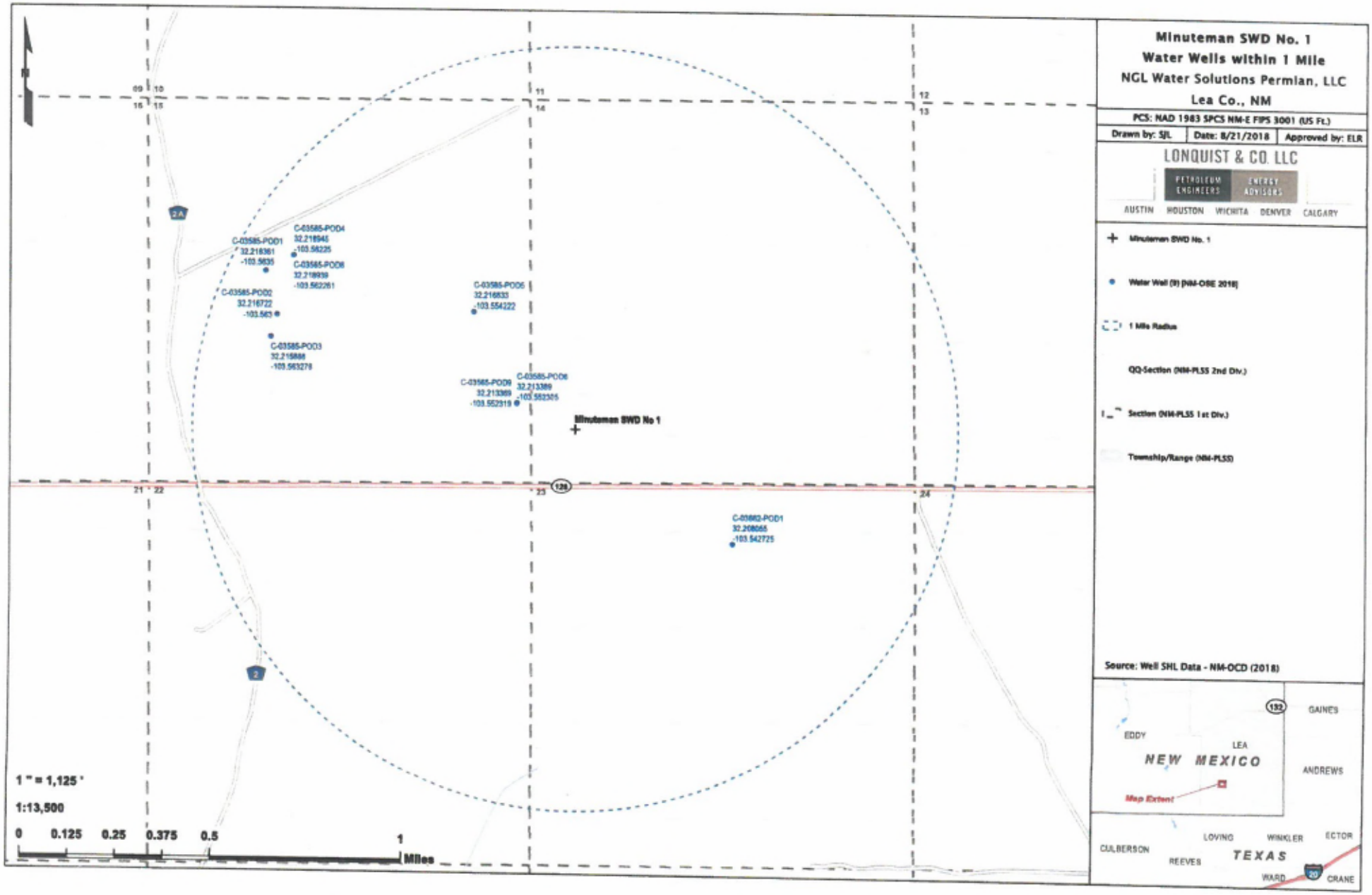
09/17/2016
Date of Survey

Signature and Seal of Professional Surveyor:

CODY A. CLARK
NEW MEXICO
23001
PROFESSIONAL SURVEYOR

23001
Certificate Number


-EOG RESOURCES INC
-TAP ROCK OPERATING, LLC
-COG OPERATING LLC
-MATADOR PRODUCTION COMPANY
Minuteman SWD No.1
-DEVON ENERGY PRODUCTION COMPANY, LP
-NO OPERATORS IN THIS AREA
-EOG RESOURCES INC
-TAP ROCK OPERATING, LLC
1 " = 1,083 '
1:13,000
0 500 1,000 1,500 2,000 4,000
Feet
Minuteman SWD No. 1
1 Mile Offset Operators
NGL Water Solutions Permian, LLC
Lea Co., NM
PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)
Drawn by: ASC
Date: 8/27/2018
Approved by: ELR
LONQUIST & CO. LLC
PETROLEUM ENGINEERS
ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY
Minuteman SWD No. 1
1 Mile Radius
Property Boundary
Section (NM PLSS 1st Div.)
Township/Range (NM PLSS)
Laterals
Horizontal Surface Location (39)
Active - Gas (5)
Plugged (Site Released) - Gas (1)
Active - Oil (21)
Active - Gas (1)
Permitted - Oil (6)
Permitted - Gas (1)
Canceled Location (10)
Offset Operators
OCD
COG OPERATING LLC, MATADOR PRODUCTION COMPANY
DEVON ENERGY PRODUCTION COMPANY, LP
EOG RESOURCES INC
EOG RESOURCES INC, TAP ROCK OPERATING, LLC
TAP ROCK OPERATING, LLC
NO OPERATORS IN THIS AREA
Source: Well SHL Data - NM-OCD/NM-BLM/NM-SLO (2018)
EDDY
LEA
Map Extent
NEW MEXICO
TEXAS


Minuteman SWD No. 1
Water Wells within 1 Mile
NGL Water Solutions Permian, LLC
Lea Co., NM
PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)
Drawn by: SJL
Date: 8/21/2018
Approved by: ELR
LONQUIST & CO. LLC
PETROLEUM ENGINEERS
ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY
Minuteman SWD No. 1
Water Well (9) [NM-OSE 2018]
1 Mile Radius
QQ-Section (NM-PLSS 2nd Div.)
Section (NM-PLSS 1st Div.)
Township/Range (NM-PLSS)
Source: Well SHL Data - NM-OCD (2018)
C-03585-POD1
32.218361
-103.5635
C-03585-POD4
32.218945
-103.56225
C-03585-POD8
32.218939
-103.562261
C-03585-POD2
32.216722
-103.563
C-03585-POD3
32.215888
-103.563278
C-03585-POD5
32.216833
-103.554222
C-03585-POD9
32.213369
-103.562319
C-03585-POD6
32.213389
-103.562305
Minuteman SWD No 1
C-03582-POD1
32.208065
-103.542725
1 " = 1,125 '
1:13,500
0 0.125 0.25 0.375 0.5 1
Miles
EDDY
LEA
NEW MEXICO
Map Extent
GAINES
ANDREWS
CULBERSON
REEVES
LOVING
WINKLER
WARD
CRANE
ECTOR
TEXAS

Mundt

Zina Crum
Modrall Sperling
500 4th Street NW
Suite 1000
Albuquerque NM 87102

PS Form 3877

Type of Mailing: CERTIFIED
09/18/2018

ALBUQUERQUE NM 871
SEP 18 2018
USPS

Firm Mailing Book ID: 151701

Line	Article Number	Name, Street & P.O. Address	Postage	Fee	R.R.Fee	Reference	Rest.Del.Fee Contents
1	9314 8699 0430 0050 9165 60	Oil Conservation Division District I - Hobbs 1625 N. French Drive Hobbs NM 88240	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
2	9314 8699 0430 0050 9165 77	BUREAU OF LAND MGMT 301 Dinosaur Trail Santa Fe NM 87508	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
3	9314 8699 0430 0050 9165 84	NEW MEXICO STATE LAND OFFICE P.O. Box 1148 Santa Fe NM 87504	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
4	9314 8699 0430 0050 9165 91	DEVON ENERGY PRODUCTION COMPANY, LP 20 N Broadway Oklahoma City OK 73102	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
5	9314 8699 0430 0050 9166 07	EOG RESOURCES INC P.O. Box 2267 Midland TX 79702	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
6	9314 8699 0430 0050 9166 14	MATADOR PRODUCTION COMPANY One Lincoln Centre 5400 Lbj Freeway, Ste 1500 Dallas TX 75240	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
7	9314 8699 0430 0050 9166 21	COG OPERATING LLC 550 W Texas Midland TX 79701	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
8	9314 8699 0430 0050 9166 38	TAP ROCK OPERATING, LLC 602 PARK POINT DRIVE Golden CO 80401	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
		Totals:	**$13.04**	**$27.60**	**$12.00**		**$0.00**
						Grand Total:	**$52.64**

List Number of Pieces Listed by Sender	Total Number of Pieces Received at Post Office	Postmaster: Name of receiving employee	Dated:
8			

3

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

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

CASE NO. 16442

AMENDED 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 Eddy County, New Mexico. In support of this application, NGL states as follows:

(1) NGL proposes to drill the Red Road SWD #1 well at a surface location 510 feet from the South line and 1,167 feet from East line of Section 26, Township 23 South, Range 31 East, NMPM, Eddy County, New Mexico for the purpose of operating a salt water disposal well.

(2) NGL seeks authority to inject salt water into the Devonian formation at a depth of 16,450' – 17,458'.

(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 2,467 psi for this well, and it requests that a maximum pressure of 3,290 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 October 4, 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: _____

Jennifer Bradfute
Deana Bennett
Post Office Box 2168
Bank of America Centre
500 Fourth Street NW, Suite 1000
Albuquerque, New Mexico 87103-2168
Telephone: 505.848.1800
Attorneys for Applicant

CASE NO. 16442: Amended Application of NGL Water Solutions Permian, LLC for approval of salt water disposal well in Eddy County, New Mexico. Applicant seeks an order approving disposal into the Devonian formation through the Red Road SWD #1 well. NGL proposes to drill this well at a surface location 510 feet from the South line and 1,167 feet from East line of Section 26, Township 23 South, Range 31 East, NMPM, Eddy County, New Mexico. The target injection interval is the Devonian formation at a depth of 16,450' – 17,458'. 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 34 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: RED ROAD 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

09/10/2018
Date

512-600-1764
Phone Number

Signature

CHRIS@LONQUIST.COM
e-mail Address

EXHIBIT
tabbies
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).

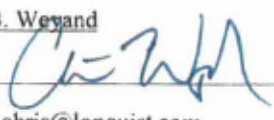
*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

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: 8/20/2018

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.

NGL Water Solutions Permian, LLC

Red Road SWD No. 1

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1.

Well information	
Lease Name	Red Road SWD
Well No.	1
Location	S-26 T-23S R-31E
Footage Location	510' FSL & 1,167' FEL

2.

a. Wellbore Description

Casing Information				
Type	Surface	Intermediate	Production	Liner
OD	20"	13.375"	9.625"	7.625"
WT	0.438"	0.480"	0.545"	0.500"
ID	19.124"	12.415"	8.535"	6.625"
Drift ID	18.937"	12.259"	8.535"	6.500"
COD	21.00"	14.375"	10.625"	7.625"
Weight	94 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	1,000'	4,420'	11,800	16,450'

b. Cementing Program

Cement Information				
Casing String	Surface	Intermediate	Production	Liner
Lead Cement	C	C	H,H,C	H
Lead Cement Volume	519	1,297	Stage 1: 399 sks Stage 2: 465 sks Stage 3: 443 sks	218
Tail Cement	C	C	H,H,C	H
Tail Cement Volume	717	857	Stage 1: 532 sks Stage 2: 502 sks Stage 3: 449 sks	118
Cement Excess	25%	10%	10%	10%
TOC	Surface	Surface	Surface	11,300'
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"	4.767"
Weight	26 lb/ft	17 lb/ft
Grade	P-110 TCPC	P-110 TCPC
Depth Set	0'-11,200'	11,200'-16,400'

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

B. Completion Information

1. Injection Formation: Devonian, Silurian, Fusselman, Montoya (Top 100')
2. Gross Injection Interval: 16,450' – 17,458'

   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	4,408'
Bone Spring	8,208'
Wolfcamp	11,618'
Morrow	14,238'

VI. Area of Review

API No. 30-015-20242 penetrates the proposed injection zone within 1-mile of the proposed Red Road SWD #1. The completion report is attached. The well was drilled to the Devonian (16,400') and plugged back 800' with 200 sks of cement into the Morrow. A CIBP was set at 14,950'.

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: 2,463 PSI (surface pressure)
   Maximum Injection Pressure: 3,284 PSI (surface pressure)

4. The injection fluid is to be locally produced water. Attached are produced water sample analyses taken from the closest wells that feature samples from the Atoka, Delaware, Bone Spring, and Wolfcamp 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	786'
Salado	1,098'
Delaware	4,408'
Bone Spring	8,208'
Wolfcamp	11,618'
Penn	13,001'
Atoka	13,378'
Morrow	14,238'
Mississippian Lime	15,823'
Woodford	16,218'
Devonian	16,418'

B. Underground Sources of Drinking Water

Within 1-mile of the proposed Red Road SWD #1 location, there are two water wells with depths of 700 ft and 662 ft and a water depth of 430 ft. Water wells in the surrounding area have an average depth of 1,017 ft and an average water depth of 270 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 three water wells that exist within one mile of the well location. Only C-02348 was producing and fresh water analysis is attached. A map and Water Right Summaries from the New Mexico Office of the State Engineer are also attached.

Chris Weyand

From:	James Rutley <jrutley@blm.gov>
Sent:	Wednesday, August 08, 2018 12:21 PM
To:	Chris Weyand
Cc:	jcantwell@sam.biz; Steve Pattee
Subject:	Re: [EXTERNAL] Sec. 26-23S-31E
Attachments:	image001.jpg

Good Morning Chris,

We try not to be too restrictive with non-federal surface but I would encourage your location to be as close to the southern section line of 26 as possible. Because the ore body is confined to the northwestern part of the section, there is some flexibility. A SWD in Unit P, of Section 26 in 23S 31E would not be confined to a drill island. BLM would not interfere with your staking out here.

Thanks

Jim

James S. Rutley

Geologist (Potash Specialist)

Carlsbad Field Office

Bureau of Land Management

(575) 234-5904

N. M. O. C. C.

Copy to S F

Form 9-330
(Rev. 5-63)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLIC. * (See other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: NM 0405444-A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ DRY ☐ Other

RECEIVED
DEC 23 1969
O. C. C.
ARTESIA, OFFICE

b. TYPE OF COMPLETION: NEW WELL ☒ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other

8. FARM OR LEASE NAME: Todd Federal "26"

2. NAME OF OPERATOR: Texas American Oil Corporation

9. WELL NO.: 1

3. ADDRESS OF OPERATOR: 1012 Midland Savings Building, Midland, Texas 79701

10. FIELD AND POOL, OR WILDCAT: Wildcat Atoka Gas (Sand Dunes)

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface: 1980' FNL, 1980' FEL
At top prod. interval reported below: Same
At total depth: Same

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: R 3417 2-3-70 Sec 26, T-23-S, R-31-E

14. PERMIT NO.	DATE ISSUED	12. COUNTY OR PARISH	13. STATE
		Eddy	New Mex.

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
July 29, 69	Dec 1, 1969	Dec 12, 1969	3437 GR	3437

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
16,486'	14,980		→	Rotary	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: Atoka 13,679' to 13,907'

25. WAS DIRECTIONAL SURVEY MADE: No

26. TYPE ELECTRIC AND OTHER LOGS RUN: Dual Induction - Laterolog, Gamma Ray - Accoustic, Micrelog

27. WAS WELL CORED: No

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
20"	94#	619'	26"	1160 sx	None
13-3/8"	61,68,72#	4414'	17½"	3000 sxs	None
10-3/4"	60.7#	12,721'	13½"	1000 sxs	None
7-5/8"	39#	15,800'	9½"	1070 sxs	None

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2⅜"	13,614'	13,600'

31. PERFORATION RECORD (Interval, size and number)

13,679	13,710	13,822	13,865
13,683	13,722	13,827	13,900
13,704	13,726	13,863	13,902
13,707	13,782	13,857	13,905
13,713	13,786	13,860	13,907
13,716	13,789	13,862	(23-32" holes)

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
13,679-13,907	15,000 gals retarded acid

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
	Flowing	Shut-in

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
12-12-69	5	various		0	Approx 2,000	0	Dry

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
				75,000		

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.): Vented

TEST WITNESSED BY:

35. LIST OF ATTACHMENTS: Form C-122, Tabulation of deviation tests

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED Keith Valla TITLE Chief Engineer DATE 12-16-69

*(See Instructions and Spaces for Additional Data on Reverse Side)

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.
If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.
Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.
Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.
Items 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.
Item 29: *"Sacks Cement"*: Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.
Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

NOTE: The well was plugged back w/200 sxs of cement from 16,400' to 15,600' and a cast iron bridge was set at 14,950'.

37. SUMMARY OF POROUS ZONES:
SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.
Cherry Canyon	6002'	6116'	DST#1-6013-6053', Tool open 3 hrs., 15 min., recovered 3300' oil ([illegible]grav). IHP-[illegible], ISIP(45min)-[illegible], IFP-2170, FFP-7234, FSIP-[illegible] ([illegible]min), FHP-26360
Brushy Canyon	6372'	6400'	DST#2-[illegible], Tool open 3 hrs., recovered 630' [illegible] formation wtr. [illegible]
Atoka	13,672'	14,320'	[illegible] rate of 10.5 MMCF per day, [illegible] Tool failed.
Morrow	14,320'	14,906'	DST#5-16,306'-16,406', Tool open 30 mins. gas to surface in 10 mins. Recovered [illegible] formation wtr. [illegible] FHP-71[illegible].
Devonian	16,390'	-	

38. GEOLOGIC MARKERS

NAME	TOP MEAS. DEPTH	TOP TRUE VERT. DEPTH
Delaware	4497'	Same
Cherry Canyon	6002'	"
Brushy Canyon	6372'	"
Wolfcamp Lime	12,350'	"
Atoka	13,672'	"
Morrow	14,320'	"
Mississippi Lime	15,750'	"
Woodford	16,180'	"
Devonian	16,390'	"

Red Road SWD #1 : Offsetting Produced Water Analysis																	
wellname	api	section	township	range	county	state	formation	ph	tds_mgL	sodium_m	calcium_m	iron_mgL	magnesiur	manganes	chloride_m	bicarbonat	sulfate_mg	co2_mgL
ALDABRA 25 FEDERAL #003H	3001538614	25	23S	31E	EDDY	NM	BONE SPRING 3RD SAND	7	113319.3	33920.5	4990.4	35.1	650.5		71731.5		670.9	150
ALDABRA 25 FEDERAL COM #001H	3001538612	25	23S	31E	EDDY	NM	BONE SPRING 3RD SAND	7.1	113140.8	34009.4	5050	17.3	651.3		71436.8		660.8	170
ALDABRA 26 FEDERAL #008H	3001538624	26	23S	31E	EDDY	NM	BONE SPRING 3RD SAND	6.3	104667.4	33685.5	4535.1	29.7	602.7	1.05	63457.3	284	17	250
ALDABRA 27 FEDERAL #001H	3001538625	27	23S	31E	EDDY	NM	BONE SPRING 3RD SAND	6.4	128846	40078.5	5902.6	22.3	772	1.13	80073.4	61	17	300
APRIL APZ STATE #001	3002533354	12	23S	32E	LEA	NM	BONE SPRING	5.21			20.1	0	12.2		35.5	61.1	48.8	
BELLOQ 2 STATE #002H	3001542895	2	23S	31E	EDDY	NM	WOLFCAMP	6.8	119471.8	37359.2	5659.1	22.4	746.1		73172.5		1035.5	250
BELLOQ 2 STATE #005H	3001542896	2	23S	31E	EDDY	NM	BONE SPRING 2ND SAND	7	139843.1	44494.8	5639.9	34.2	829.6		85890.3		1377.7	230
BELLOQ 2 STATE #006H	3001542897	2	23S	31E	EDDY	NM	BONE SPRING 2ND SAND	7	143382.3	45080.1	6738.9	39.1	958.4		87791.3		1303.7	220
BOUNDARY RAIDER 6 FEDERAL #002H	3002541884	7	23S	32E	Lea	NM	BONE SPRING 2ND SAND	5.5	198828.3	63822.8	9826.5	65.2	1403.5	2.6	121113.4	183	17	480
CORIANDER ADC STATE #002	3002533574	1	23S	32E	LEA	NM	BONE SPRING	5.23			24176	0	3815		167962	61.1	165	
FALCON 32 STATE #005Y	3002539661	32	23S	32E	Lea	NM	DELAWARE-BRUSHY CANYON	5.9	239678.9	74767.3	13436.5	40.6	2234	2.32	146645.4	73.2	0	420
GARDNER TL #001	3001505847	34	23S	31E	EDDY	NM	DELAWARE		383600									
LILY ALY FEDERAL #006	3001527276	3	24S	31E	EDDY	NM	DELAWARE	5.2	293782		17720	37.5	1080.5		180198	159	25	
MEDANO VA STATE #003	3001526591	16	23S	31E	EDDY	NM	DELAWARE	5.6			10960	2.5	833.1		109108	537	125	
NORTH PURE GOLD 10 FEDERAL #001H	3001536427	10	23S	31E	EDDY	NM	DELAWARE-BRUSHY CANYON	5.15	291342.3	81651.6	22710.7	51.3	3767.5	5.47	179798.5	52	34	460
NORTH PURE GOLD 4 FEDERAL #002	3001534756	9	23S	31E	EDDY	NM	DELAWARE-BRUSHY CANYON	5.3	292449.3	80357.4	25579.5	58.6	4080.6	7.1	178738.7	73.2	0	510
NORTH PURE GOLD 5 FEDERAL #001H	3001535761	5	23S	31E	EDDY	NM	DELAWARE-BRUSHY CANYON	5.6	279914.1	73775.3	25103.3	48.3	3894.1	7.33	173723.7	61	17	700
NORTH PURE GOLD 5 FEDERAL #002H	3001535850	5	23S	31E	EDDY	NM	DELAWARE-BRUSHY CANYON	5.7	281807.3	68738	25490.8	48.2	4054.4	7.23	180260.1	73	0	750
NORTH PURE GOLD 5 FEDERAL #003H	3001535892	5	23S	31E	EDDY	NM	DELAWARE-BRUSHY CANYON	5.6	278201.6	70390	25192.2	50.2	3952	7.18	175284	61	17	700
NORTH PURE GOLD 8 FEDERAL #012H	3001537172	8	23S	31E	EDDY	NM	DELAWARE-BRUSHY CANYON	6.67	284845.1	73935.3	25239.6	51.2	3882.7	7.23	177831.8	488	0	540
NORTH PURE GOLD 9 FEDERAL #010H	3001536377	9	23S	31E	EDDY	NM	DELAWARE-BRUSHY CANYON	6.9	275813	73464	24062	38	4064	6	170397	61	337	60
NORTH PURE GOLD 9 FEDERAL #011H	3001536370	9	23S	31E	EDDY	NM	DELAWARE-BRUSHY CANYON	6.9	285732.9	83635.2	19665	37	3323	4.5	175730	73.2	347	50
THYME APY FEDERAL #002	3002533529	1	23S	32E	LEA	NM	BONE SPRING	6.1	172896		0	0	2025		104976	781	1150	
TODD 26 G FEDERAL #001	3001520242	26	23S	31E	EDDY	NM	ATOKA	6.7	202478						126000	93	540	
TOMB RAIDER 1 FEDERAL #001H	3001542655	1	23S	31E	EDDY	NM	BONE SPRING 2ND SAND	6.3	146749.4	47947.3	7556.1	41	940		87902.2		952.5	460

New Mexico Office of the State Engineer
Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Twns	Rng	(NAD83 UTM in meters) X	Y
	C 02348	1	4	3	26	23S	31E	617648	3571068

Driller License:	1654	**Driller Company:**	NOT WORKING FOR HIRE--SIRMAN DRILLING AND CONSTRUC		
Driller Name:	JOHN SIRMAN				
Drill Start Date:	10/31/2013	**Drill Finish Date:**	11/01/2013	**Plug Date:**	
Log File Date:	11/07/2013	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	10 GPM
Casing Size:	6.00	**Depth Well:**	700 feet	**Depth Water:**	430 feet

Water Bearing Stratifications:	Top	Bottom	Description
	15	125	Sandstone/Gravel/Conglomerate
	315	700	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	560	620
	680	700

Side 1

INJECTION WELL DATA SHEET

OPERATOR: NGL WATER SOLUTIONS PERMIAN, LLC

WELL NAME & NUMBER: RED ROAD SWD #1

WELL LOCATION: 510 FSL & 1,167' FEL (FOOTAGE LOCATION) | P (UNIT LETTER) | 26 (SECTION) | 23S (TOWNSHIP) | 31E (RANGE)

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 24.000" Casing Size: 20.000"

Cemented with: 1,236 sx. *or* _____ ft^3

Top of Cement: Surface Method Determined: Circulation

1st Intermediate Casing

Hole Size: 17.500" Casing Size: 13.375"

Cemented with: 2,154 sx. *or* _____ ft^3

Top of Cement: Surface Method Determined: Circulation

2nd Intermediate Casing

Hole Size: 12.250" Casing Size: 9.625"

Cemented with: 2,789 sx. *or* _____ ft^3

Top of Cement: Surface Method Determined: Circulation

Production Liner

Hole Size: 8.500"

Casing Size: 7.625"

Cemented with: 335 sx.

or _____ ft^3

Top of Cement: 11,300'

Method Determined: Calculation

Total Depth: 17,458'

Injection Interval

16,450 feet to 17,458 feet

(Open Hole)

INJECTION WELL DATA SHEET

Tubing Size: 7", 26 lb/ft, P-110, TCPC from 0'- 11,200' and 5.500", 17 lb/ft, P-110 TCPC from 11,200'- 16,400'
Lining Material: Duoline

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

Packer Setting Depth: 16,400'

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: 4,408'
   Bone Spring: 8,208'
   Wolfcamp: 11,618'
   Atoka: 13,378'
   Morrow: 14,238'

XII. Affirmative Statement of Examination of Geologic and Engineering Data

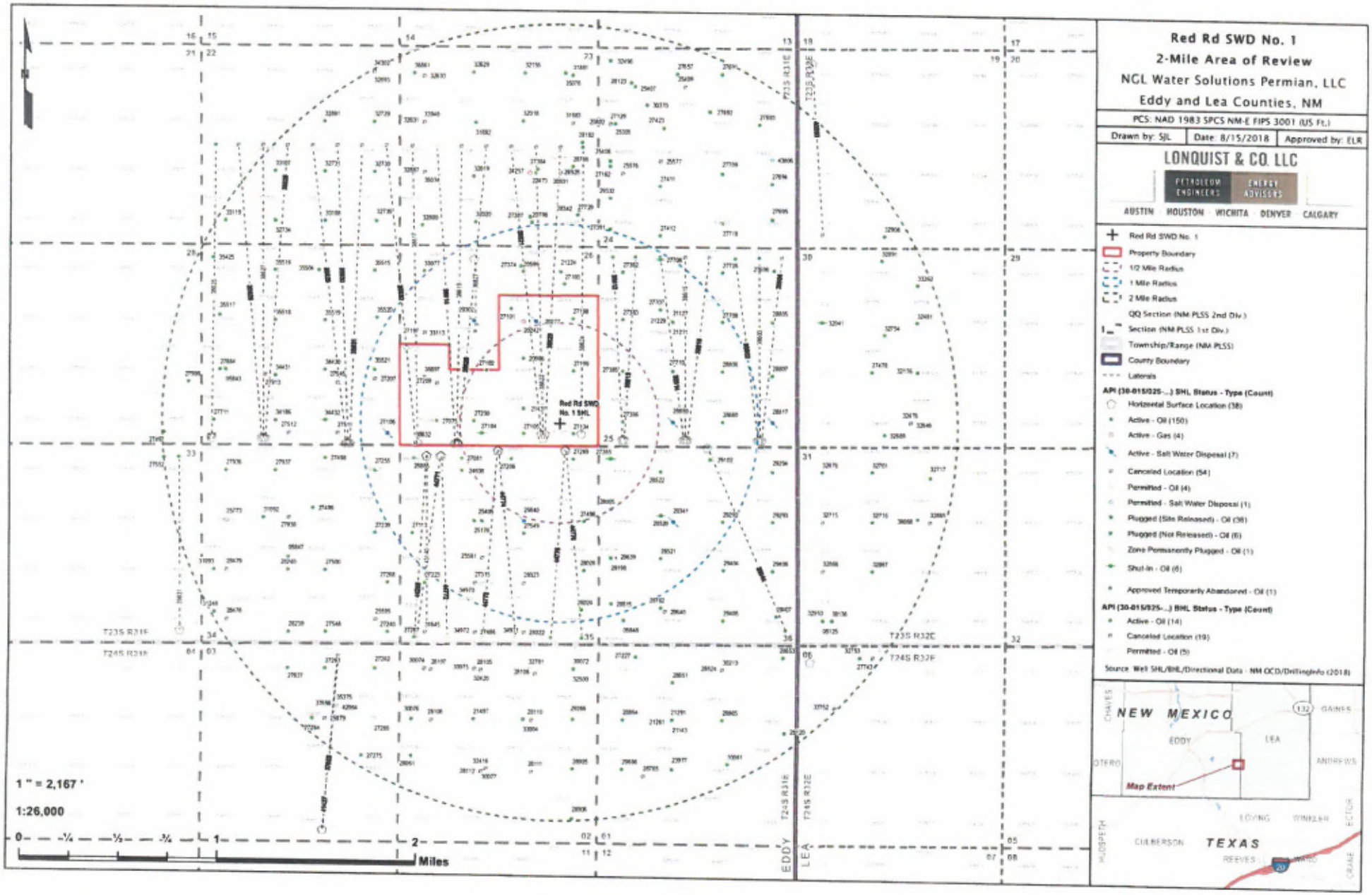
Based on the available engineering and geologic data we find no evidence of open faults or any other hydrologic connection between the disposal zone (in the proposed **Red Road SWD #1**) and any underground sources of drinking water.

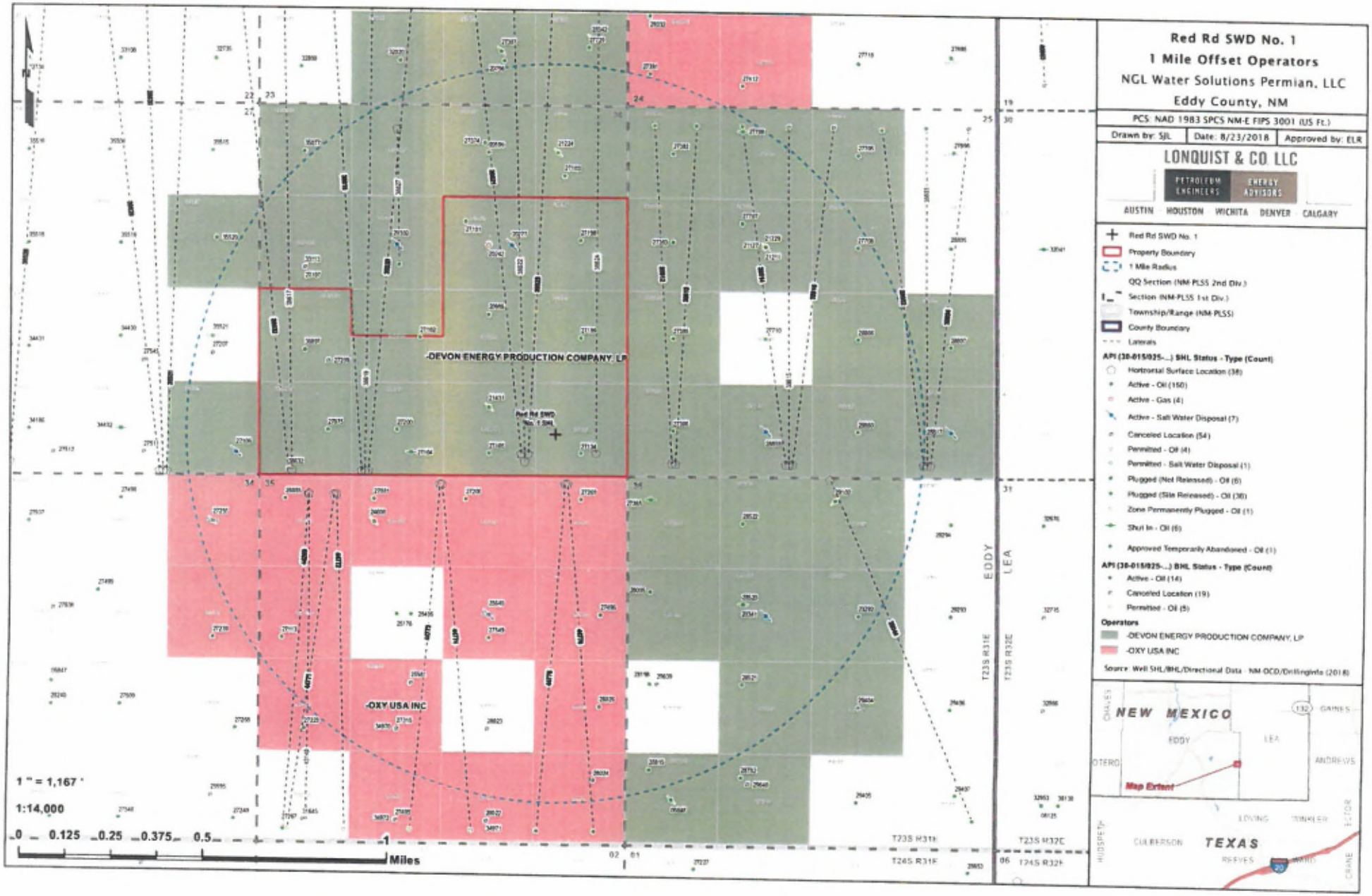
NAME: John C. Webb

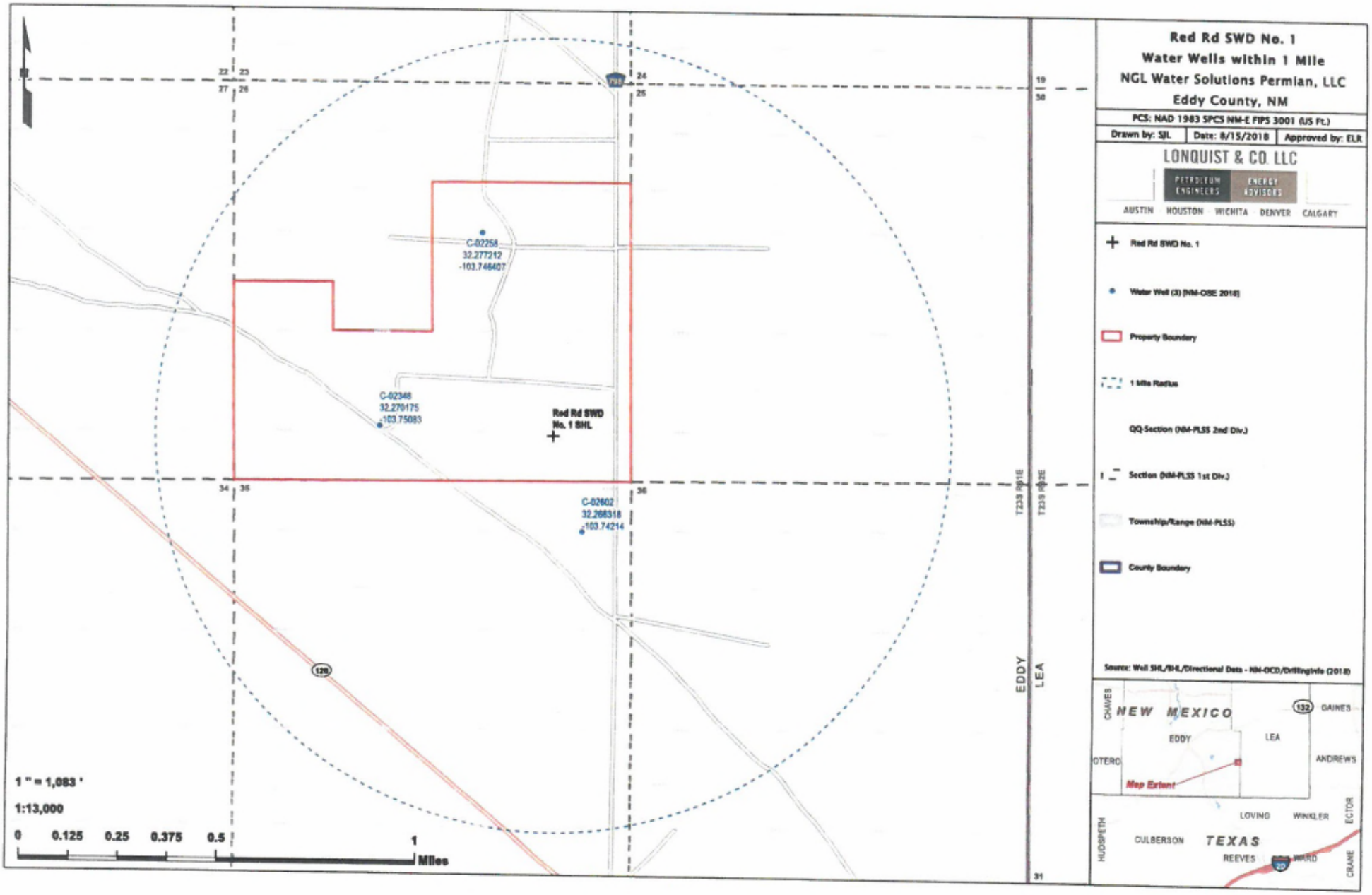
TITLE: Sr. Geologist

SIGNATURE: John Webb

DATE: 8/22/2018


Red Rd SWD No. 1
2-Mile Area of Review
NGL Water Solutions Permian, LLC
Eddy and Lea Counties, NM
PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)
Drawn by: SJL
Date: 8/15/2018
Approved by: ELR
LONQUIST & CO. LLC
PETROLEUM ENGINEERS
ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY
Red Rd SWD No. 1
Property Boundary
1/2 Mile Radius
1 Mile Radius
2 Mile Radius
QQ Section (NM PLSS 2nd Div.)
Section (NM PLSS 1st Div.)
Township/Range (NM PLSS)
County Boundary
Laterals
API (30-015/025-...) SHL Status - Type (Count)
Horizontal Surface Location (38)
Active - Oil (150)
Active - Gas (4)
Active - Salt Water Disposal (7)
Canceled Location (54)
Permitted - Oil (4)
Permitted - Salt Water Disposal (1)
Plugged (Site Released) - Oil (36)
Plugged (Not Released) - Oil (6)
Zone Permanently Plugged - Oil (1)
Shut-In - Oil (6)
Approved Temporarily Abandoned - Oil (1)
API (30-015/025-...) BHL Status - Type (Count)
Active - Oil (14)
Canceled Location (19)
Permitted - Oil (5)
Source: Well SHL/BHL/Directional Data - NM OCD/DrillingInfo (2018)
Red Rd SWD No. 1 SHL
T23S R31E
T23S R32E
T24S R31E
T24S R32E
EDDY
LEA
1 " = 2,167 '
1:26,000
0 ¼ ½ ¾ 1 2 Miles
NEW MEXICO
EDDY
LEA
CHAVES
GAINES
ANDREWS
OTERO
Map Extent
HUDSPETH
CULBERSON
LOVING
WINKLER
TEXAS
REEVES
CRANE
ECTOR


Red Rd SWD No. 1
1 Mile Offset Operators
NGL Water Solutions Permian, LLC
Eddy County, NM
PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)
Drawn by: SJL
Date: 8/23/2018
Approved by: ELR
LONQUIST & CO LLC
PETROLEUM ENGINEERS
ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY
Red Rd SWD No. 1
Property Boundary
1 Mile Radius
QQ Section (NM PLSS 2nd Div.)
Section (NM PLSS 1st Div.)
Township/Range (NM PLSS)
County Boundary
Laterals
API (30-015/025-...) SHL Status - Type (Count)
Horizontal Surface Location (38)
Active - Oil (150)
Active - Gas (4)
Active - Salt Water Disposal (7)
Canceled Location (54)
Permitted - Oil (4)
Permitted - Salt Water Disposal (1)
Plugged (Not Released) - Oil (6)
Plugged (Site Released) - Oil (30)
Zone Permanently Plugged - Oil (1)
Shut In - Oil (6)
Approved Temporarily Abandoned - Oil (1)
API (30-015/025-...) BHL Status - Type (Count)
Active - Oil (14)
Canceled Location (19)
Permitted - Oil (5)
Operators
-DEVON ENERGY PRODUCTION COMPANY, LP
-OXY USA INC
Source: Well SHL/BHL/Directional Data - NM OCD/Drillinginfo (2018)
DEVON ENERGY PRODUCTION COMPANY, LP
OXY USA INC
Red Rd SWD No. 1 SHL
EDDY
LEA
T23S R31E
T23S R32E
T24S R31E
T24S R32E
1 " = 1,167 '
1:14,000
0 0.125 0.25 0.375 0.5
Miles
NEW MEXICO
EDDY
LEA
CHAVES
OTERO
ANDREWS
GAINES
Map Extent
TEXAS
LOVING
WINKLER
CULBERSON
REEVES
HUDSPETH
CRANE
TAYLOR


Red Rd SWD No. 1
Water Wells within 1 Mile
NGL Water Solutions Permian, LLC
Eddy County, NM
PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)
Drawn by: SJL
Date: 8/15/2018
Approved by: ELR
LONQUIST & CO. LLC
PETROLEUM ENGINEERS
ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY
Red Rd SWD No. 1
Water Well (3) (NM-OSE 2018)
Property Boundary
1 Mile Radius
QQ-Section (NM-PLSS 2nd Div.)
Section (NM-PLSS 1st Div.)
Township/Range (NM-PLSS)
County Boundary
Source: Well SHL/BHL/Directional Data - NM-OCD/Drillinginfo (2018)
C-02258
32.277212
-103.746407
C-02348
32.279175
-103.75083
Red Rd SWD
No. 1 SHL
C-02602
32.268318
-103.74214
T23S R31E
T23S R32E
EDDY
LEA
1 " = 1,083 '
1:13,000
0 0.125 0.25 0.375 0.5 1
Miles
NEW MEXICO
TEXAS
CHAVES
OTERO
EDDY
LEA
GAINES
ANDREWS
LOVING
WINKLER
ECTOR
CULBERSON
HUDSPETH
REEVES
WARD
CRANE
Map Extent

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 02602 **Subbasin:** C **Cross Reference:**-

Primary Purpose: SAN 72-12-1 SANITARY IN CONJUNCTION WITH A COMMERCIAL USE

Primary Status: EXP EXPIRED

Total Acres: **Subfile:** -

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

Owner: POGO PRODUCING COMPANY

Contact: JERRY A COOPER

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	466110	72121	1998-09-15	EXP	EXP	C 02602	T			3

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Source	Q 64	Q16	Q4	Sec	Tws	Rng	X	Y	Other Location Desc
C 02602		2	2		35	23S	31E	618471	3570650*	

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

9/8/18 7:57 AM

WATER RIGHT SUMMARY

NGL Red Road SWD #1 — Location - — TD: 17650' — Directions to Site -

Vertical Injection - Devonian, Silurian, Fusselman — Eddy County NM

Geologic Tops (MD ft)	Section	Bit/BHA	Casing	Logging	Cement (HOLD)	Injection String
Triassic - 418' Permian Dewey Lake - 656' Rustler Anhydrite - 786' Salado Anh - 1098' **Surface TD - 1000'**	**Surface** Drill 24" 0' - 1000' Set and Cement 20" Casing	24" Tricone 9-5/8" x 8" MM 9 jts: 8" DC 21 jts: 5" HWDP 5 " DP to surface	1000' of 20" 94# J55 BTC Centralizers - bottom 2 joints and every 3rd jt thereafter, Cement basket 5th jt from surface	No Logs	Thixotropic Cement 13.2 ppg Class C - 1,236 sks 3hr TT 25% Excess 1000psi CSD after 10hrs	
Top Salt - 1098' Base Salt - 4188' Delaware Mtn Group - 4408' **ECP DV Tool - 4400'** **1st Int TD - 4420'**	**1st Intermediate** Drill 3420' of 17-1/2" Hole 1000' - 4420' Set and Cement 13-3/8" Casing	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 4420' 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 1250'	13.2 ppg Class C -2,154 sks 4hr TT 10% Excess 1000psi CSD after 10 hrs Cement to Surface	11200' of 7" P110 26# TCPC
Lamar Limestone - 4421' Bell Canyon - 4473' Cherry Canyon - 5542' Brushy Canyon - 7323' **DV Tool - 8200'** Bone Spring - 8208' **3rd Int Liner Top - 11300'** Wolfcamp - 11618' **2nd Int TD - 11800'**	**2nd Intermediate** Drill 7380' of 12-1/4" Hole 4420' - 11800' Set 9-5/8" Intermediate Casing and Cement in 3 Stages	12-1/4" PDC 8" MM 9jts: 8" DC 8" Drilling Jars 21 jts: 5" HWDP 5" DP to Surface	10M B Section 11800' of 9-5/8" 53.5# P110 BTC **Special Drift to 8.535"** Externally Coat 3800' Between DV Tools DV tool at at 8200' 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:** 13.2 ppg Class C - 892 sks 6hr TT 10% XS 1000psi CSD after 10 hrs Cement to Surface **Stage 2:** 13.2 ppg Class H - 967 sks 5hr TT 10% XS 1000psi CSD after 10 hrs Cement to Surface **Stage 1:** 13.2 ppg Class H - 930 sks 6hr TT 10% XS 1000psi CSD after 10 hrs Cement to Surface	5200' of 5-1/2" P110 17# TCPC Duoline Internally Coated Injection Tubing
Penn - 13001' Strawn - 13218' Atoka - 13378' Morrow - 14238' Miss Lst - 15823' Woodford - 16218' **Perm Packer - 16400'** **3rd Int TD - 16450'**	**3rd Intermediate** Drill 4650' of 8-1/2" Hole 11800' - 16450' Set 7-5/8" Liner and Cement in Single Stage	8-1/2" PDC 6-3/4" MM 9 jts: 6" DC 21 jts: 5" HWDP 5" DP to Surface	5150' 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	15.6 ppg Class H - 335 sks 8hr TT Silica Flour 10% Excess 1000psi CSD after 10hrs	7-5/8" x 5-1/2" TCPC Permanent Packer with High Temp Elastomer and full Inconel 925 trim
Devonian - 16418' Fusselman - 16878' Montoya - 17358' TD - 17458'	**Injection Interval** Drill 1008' of 6-1/2" hole 16450' - 17458'	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	Openhole completion	MWD GR Triple Combo with FMI, CBL of 7-5/8"	Displace with 3% KCl (or heavier brine if necessary)	

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.
	RED ROAD SWD	1

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
P	26	23S	31E	N/A	510'	SOUTH	1,167'	EAST	EDDY

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
	-	-	-		-	-	-	-	-

9. Pool Information

Pool Name	Pool Code
SWD; 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	3,465'
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
N	17,458'	Siluro-Devonian	TBD	ASAP
Depth to Ground water	**Distance from nearest fresh water well**		**Distance to nearest surface water**	
269'	1,333'		> 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"	94 lb/ft	1,000'	1,236	Surface
Intermediate	17.5"	13.375"	68 lb/ft	4,420'	2,154	Surface
Production	12.25"	9.625"	53.5 lb/ft	11,800'	2,789	Surface
Prod. Liner	8.5"	7.625"	39 lb/ft	16,450'	335	11,300'
Tubing	N/A	7"	26 lb/ft	0' – 11,200'	N/A	N/A
Tubing	N/A	5.5"	17 lb/ft	11,200' – 16,400'	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@looquist.com		
Date: 8/20/2018 Phone: (512) 600-1764	Conditions of Approval Attached	

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

Form C-10
Revised August 1
201
Submit one copy to appropriat
District Offic

☐ AMENDED REPOR

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 RED RD SWD		[6] Well Number 1
[7] OGRID No. 372338	[8] Operator Name NGL WATER SOLUTIONS PERMIAN, LLC		[9] Elevation 3465.00'±

[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
P	26	23 S	31 E	N/A	510'	SOUTH	1167'	EAST	EDDY

[11] Bottom Hole Location If Different From Surface

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

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

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

[16]

SECTION
26

PROPOSED
RED RD SWD 1

NMSP-E (NAD27)
N: 462,330.40'
E: 682,491.52'

NMSP-E (NAD83)
N: 462,389.70'
E: 723,675.10'
Lat: N32°16'11.30"
Long: W103°44'36.22"

1167'

510'

[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 locatio 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

Chris Weyand
Printed Name

chris@lonquist.com
E-mail Address

[18] SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat wa 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.

3/17/202

Date of Survey

Signature and Seal of Professional Surveyor

CODY A. CLARK
NEW MEXICO
23001
PROFESSIONAL SURVEYOR

23001

Certificate Number

Red Rd SWD No. 1

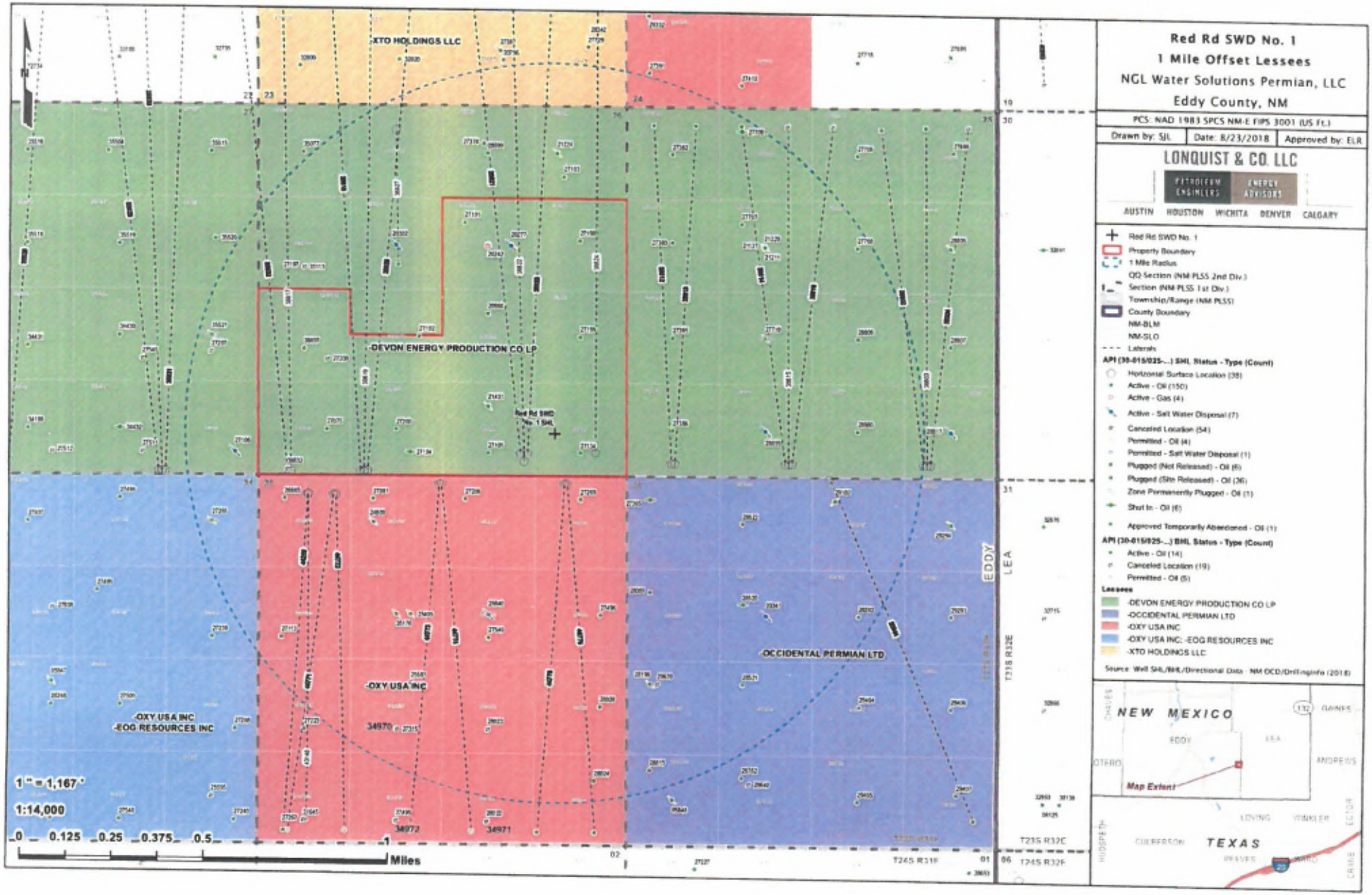
1 Mile Area of Review List

API (30-015-...)	WELL NAME	WELL TYPE	STATUS	OPERATOR	TVD (FT.)	LATITUDE (NAD83 DD)	LONGITUDE (NAD83 DD)	DATE DRILLED
20242	TODD 26 G FEDERAL #001	G	A	DEVON ENERGY PRODUCTION COMPANY, LP	16406	32.27719120000	-103.74645230000	7/27/1968
20277	TODD 26 G FEDERAL #002	S	A	DEVON ENERGY PRODUCTION COMPANY, LP	6140	32.27719120000	-103.74538420000	1/27/1970
20302	TODD 26 F FEDERAL #003	S	A	DEVON ENERGY PRODUCTION COMPANY, LP	5800	32.27719880000	-103.75071720000	5/27/1971
20341	TODD 36 STATE #001	S	A	DEVON ENERGY PRODUCTION COMPANY, LP	15400	32.26268770000	-103.73362730000	11/6/1970
20599	TODD 26 B FEDERAL #004	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	6150	32.28081890000	-103.74646000000	4/13/1972
20986	TODD 26 J FEDERAL #005	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	6100	32.27448650000	-103.74645230000	11/28/1973
21127	PRE-ONGARD WELL #001	O	P	PRE-ONGARD WELL OPERATOR	0	32.27717970000	-103.73364260000	1/1/1900
21211	PRE-ONGARD WELL #001	O	P	PRE-ONGARD WELL OPERATOR	0	32.27717970000	-103.73364260000	1/1/1900
21224	TODD 26 A FEDERAL #006	O	P	DEVON ENERGY PRODUCTION COMPANY, LP	6110	32.28081510000	-103.74325560000	12/31/9999
21229	TODD 25 FEDERAL #001Z	G	A	DEVON ENERGY PRODUCTION COMPANY, LP	15714	32.27717970000	-103.73367310000	4/16/1974
21431	TODD 26 O FEDERAL #007	O	P	DEVON ENERGY PRODUCTION COMPANY, LP	6103	32.27085880000	-103.74645230000	2/6/1975
24608	PRE-ONGARD WELL #001	O	P	PRE-ONGARD WELL OPERATOR	0	32.26632690000	-103.75177760000	1/1/1900
25176	CAL-MON #002	O	P	POGO PRODUCING CO	99999	32.26269530000	-103.75070950000	12/31/9999
25405	CAL-MON #003	O	P	POGO PRODUCING CO	6400	32.26269530000	-103.75006100000	12/31/9999
25581	PRE-ONGARD WELL #004	O	C	PRE-ONGARD WELL OPERATOR	0	32.25999472490	-103.75002544000	12/31/9999
25640	CAL MON #005	S	A	OXY USA INC	6382	32.26269150000	-103.74644470000	7/23/1986
26885	CAL MON #006	O	A	OXY USA INC	99999	32.26723480000	-103.75588230000	2/21/1992
27075	TODD 26 M FEDERAL #009	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8400	32.26995470000	-103.75391390000	9/15/1992
27081	CAL MON #007	O	A	OXY USA INC	99999	32.26723100000	-103.75177760000	8/9/1992
27101	TODD 26 G FEDERAL #008	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8340	32.27809910000	-103.74752040000	12/29/1992
27102	TODD 26 K FEDERAL #010	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8400	32.27358250000	-103.74964140000	10/21/1992
27103	TODD 26 A FEDERAL #011	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8400	32.27990720000	-103.74292760000	10/3/1992
27104	TODD 26 N FEDERAL #014	O	S	DEVON ENERGY PRODUCTION COMPANY, LP	8400	32.26904680000	-103.75006100000	12/12/1992
27105	TODD 26 O FEDERAL #015	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8388	32.26904300000	-103.74645230000	11/25/1992
27106	TODD 27 P FEDERAL #016	S	A	DEVON ENERGY PRODUCTION COMPANY, LP	8328	32.26905060000	-103.75818630000	11/7/1992
27113	CAL MON #008	O	A	OXY USA INC	99999	32.26179120000	-103.75604250000	11/7/1992
27134	TODD 26 P FEDERAL #016	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8425	32.26903920000	-103.74217990000	1/15/1993
27197	PRE-ONGARD WELL #018	O	C	PRE-ONGARD WELL OPERATOR	0	32.27630080040	-103.75497563200	12/31/9999
27198	TODD 26 H FEDERAL #019	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8350	32.27739330000	-103.74218750000	3/1/1993
27199	TODD 26 I FEDERAL #020	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8340	32.27357480000	-103.74217990000	4/9/1993
27200	TODD 26 J FEDERAL #021	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8300	32.26995470000	-103.75070950000	3/18/1993
27206	CAL MON #009	O	A	OXY USA INC	99999	32.26723100000	-103.74751280000	12/6/1992
27207	PRE-ONGARD WELL #002	O	C	PRE-ONGARD WELL OPERATOR	0	32.27296088710	-103.75926492200	12/31/9999
27209	PRE-ONGARD WELL #017	O	C	PRE-ONGARD WELL OPERATOR	0	32.27268173000	-103.75390027400	12/31/9999
27255	SAND DUNES 34 FEDERAL #001	O	P	OXY USA INC	8338	32.26633070000	-103.75925450000	12/29/1992
27269	CAL MON #010	O	A	OXY USA INC	8374	32.26722720000	-103.74217990000	3/2/1993
27315	CAL-MON #013E	O	C	POGO PRODUCING CO	0	32.25818061380	-103.75067460200	12/31/9999
27365	TODD 36 D STATE #002	O	S	DEVON ENERGY PRODUCTION COMPANY, LP	8400	32.26722340000	-103.73897550000	6/8/1994
27374	TODD 26 B FEDERAL #022	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8350	32.28119280000	-103.74665070000	10/5/1993
27382	TODD 25 D FED #004	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8400	32.28081130000	-103.73791500000	6/16/1993
27383	TODD 25 E FEDERAL #005	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8412	32.27734760000	-103.73791500000	7/31/1993
27385	TODD 25 L FEDERAL #012	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8400	32.27357860000	-103.73790740000	8/30/1993
27386	TODD 25 M FEDERAL #013	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8370	32.26995090000	-103.73790740000	10/21/1993
27496	CAL MON #019	O	A	OXY USA INC	8400	32.26268770000	-103.74126430000	9/22/1993
27549	CAL MON #020	O	A	OXY USA INC	8350	32.26178360000	-103.74644470000	7/16/1993
27706	TODD 25 C FEDERAL #003	O	S	DEVON ENERGY PRODUCTION COMPANY, LP	8400	32.28171540000	-103.73471070000	12/8/1993

Red Rd SWD No. 1

1 Mile Area of Review List

27707	TODD 25 F FEDERAL #006	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8570	32.27808760000	-103.73471070000	7/27/1996
27708	TODD 25 G FEDERAL #007	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8648	32.27717970000	-103.72937010000	12/26/1996
27710	TODD 25 K FEDERAL #011	O	P	DEVON ENERGY PRODUCTION COMPANY, LP	8630	32.27357480000	-103.73363490000	5/28/1996
28005	TODD 36 E STATE #003	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8400	32.26359560000	-103.73896790000	8/8/1994
28023	CAL-MON #016	O	C	POGO PRODUCING CO	0	32.25817983790	-103.74646783100	12/31/9999
28024	CAL MON #017	O	A	OXY USA INC	8440	32.25619890000	-103.74151610000	1/2/1997
28026	CAL MON #018	O	A	OXY USA INC	8402	32.25908660000	-103.74127960000	9/30/1994
28198	TODD 36 L STATE #004	O	P	DEVON ENERGY PRODUCTION COMPANY, LP	8450	32.25999450000	-103.73896790000	2/23/1995
28520	TODD 36 F STATE #006	O	S	DEVON ENERGY PRODUCTION COMPANY, LP	8707	32.26311490000	-103.73469540000	11/18/1995
28521	TODD 36 K STATE #005	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8672	32.25999070000	-103.73469540000	3/30/1996
28522	TODD 36 C STATE #007	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8623	32.26631550000	-103.73470310000	10/14/1995
28806	TODD 25 J FEDERAL #010	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8642	32.27357480000	-103.72936250000	11/12/1996
28815	TODD 36 M STATE #013	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8625	32.25663760000	-103.73896030000	6/17/1996
28859	TODD 25 N FEDERAL #014	S	A	DEVON ENERGY PRODUCTION COMPANY, LP	8673	32.26994320000	-103.73363490000	4/19/1996
28860	TODD 25 O FEDERAL #015	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8671	32.26994320000	-103.72936250000	2/4/1997
29102	TODD 36 B STATE #015	O	H	DEVON ENERGY PRODUCTION COMPANY, LP	8581	32.26722340000	-103.73043060000	9/9/1996
29292	TODD 36 G STATE #008	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8636	32.26268770000	-103.72935490000	2/22/1997
29639	TODD 36 L STATE #020	O	C	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.25998702290	-103.73863556700	12/31/9999
33113	TODD 26 E FEDERAL #018	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8300	32.27629470000	-103.75498200000	2/12/2004
34970	CAL MON #013	O	N	OXY USA INC	0	32.25817870000	-103.75070190000	12/31/9999
35521	TODD 27 I FEDERAL #009	O	P	DEVON ENERGY PRODUCTION COMPANY, LP	8255	32.27358630000	-103.75925450000	1/10/2008
36827	TODD 26 C FEDERAL COM #012H	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8087	32.28173450000	-103.75071720000	12/23/2009
36897	TODD 26 L FEDERAL #017	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8400	32.27309040000	-103.75498200000	12/10/2009
38044	TODD 36 B STATE #020H	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	9024	32.26810460000	-103.73067470000	10/11/2010
38602	ALDABRA 25 FEDERAL #006H	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	9147	32.26868060000	-103.72634890000	4/1/2011
38612	ALDABRA 25 FEDERAL COM #001H	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	11611	32.26868060000	-103.73798370000	3/29/2014
38613	ALDABRA 25 FEDERAL COM #002H	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	10440	32.26868060000	-103.73782350000	5/11/2014
38614	ALDABRA 25 FEDERAL #003H	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	11694	32.26868060000	-103.73272710000	3/31/2013
38615	ALDABRA 25 FEDERAL #004H	O	C	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.26868060000	-103.73256680000	12/31/9999
38616	ALDABRA 25 FEDERAL #005H	O	C	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.26868060000	-103.73240660000	12/31/9999
38617	ALDABRA 26 FEDERAL COM #001H	O	C	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.26837540000	-103.75559230000	12/31/9999
38618	ALDABRA 26 FEDERAL COM #002H	O	N	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.26834490000	-103.75237270000	12/31/9999
38619	ALDABRA 26 FEDERAL COM #003H	O	C	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.26834490000	-103.75221250000	12/31/9999
38620	ALDABRA 26 FEDERAL COM #004H	O	C	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.26834490000	-103.75205230000	12/31/9999
38621	ALDABRA 26 FEDERAL COM #005H	G	C	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.26904300000	-103.74496460000	12/31/9999
38622	ALDABRA 26 FEDERAL COM #006H	G	C	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.26873780000	-103.74479680000	12/31/9999
38623	ALDABRA 26 FEDERAL COM #007H	G	C	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.26904300000	-103.74463650000	12/31/9999
38624	ALDABRA 26 FEDERAL #008H	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	11603	32.26909260000	-103.74148560000	10/28/2013
38632	ALDABRA 27 FEDERAL COM #008H	O	C	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.26837540000	-103.75576020000	12/31/9999
43140	CAL MON 35 FEDERAL #041H	O	A	OXY USA INC	10390	32.26745990530	-103.75480758000	11/29/2016
44269	CAL MON 35 FEDERAL #171H	O	A	OXY USA INC	11705	32.26741840000	-103.75482590000	6/22/2017
44771	CAL MON MDP1 35 FEDERAL #001H	O	N	OXY USA INC	10101	32.26742580000	-103.75363850000	12/31/9999
44772	CAL MON MDP1 35 FEDERAL #002H	O	N	OXY USA INC	10101	32.26742570000	-103.75352540000	3/29/2018
44773	CAL MON MDP1 35 FEDERAL #003H	O	N	OXY USA INC	10098	32.26785340000	-103.74873080000	12/31/9999
44774	CAL MON MDP1 35 FEDERAL #004H	O	N	OXY USA INC	10366	32.26785330000	-103.74863370000	12/31/9999
44775	CAL MON MDP1 35 FEDERAL #005H	O	A	OXY USA INC	10147	32.26787360000	-103.74292860000	3/11/2018
44776	CAL MON MDP1 35 FEDERAL #006H	O	A	OXY USA INC	10149	32.26787350000	-103.74281560000	3/13/2018


XTO HOLDINGS LLC
DEVON ENERGY PRODUCTION CO LP
Red Rd SWD No. 1 SHL
OCCIDENTAL PERMIAN LTD
OXY USA INC
OXY USA INC
EOG RESOURCES INC
34970
34972
34971
EDDY
LEA
T21S R32E
T23S R32E
T24S R31E
T24S R32E
1 " = 1,167 '
1:14,000
0 0.125 0.25 0.375 0.5 1
Miles
Red Rd SWD No. 1
1 Mile Offset Lessees
NGL Water Solutions Permian, LLC
Eddy County, NM
PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)
Drawn by: SJL
Date: 8/23/2018
Approved by: ELR
LONQUIST & CO. LLC
PETROLEUM ENGINEERS
ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY
Red Rd SWD No. 1
Property Boundary
1 Mile Radius
QQ Section (NM PLSS 2nd Div.)
Section (NM PLSS 1st Div.)
Township/Range (NM PLSS)
County Boundary
NM-BLM
NM-SLO
Laterals
API (30-015/025-...) SHL Status - Type (Count)
Horizontal Surface Location (38)
Active - Oil (150)
Active - Gas (4)
Active - Salt Water Disposal (7)
Canceled Location (54)
Permitted - Oil (4)
Permitted - Salt Water Disposal (1)
Plugged (Not Released) - Oil (6)
Plugged (Site Released) - Oil (36)
Zone Permanently Plugged - Oil (1)
Shut In - Oil (6)
Approved Temporarily Abandoned - Oil (1)
API (30-015/025-...) BHL Status - Type (Count)
Active - Oil (14)
Canceled Location (19)
Permitted - Oil (5)
Lessees
-DEVON ENERGY PRODUCTION CO LP
-OCCIDENTAL PERMIAN LTD
-OXY USA INC
-OXY USA INC; -EOG RESOURCES INC
-XTO HOLDINGS LLC
Source: Well SHL/BHL/Directional Data - NM OCD/DrillingInfo (2018)
NEW MEXICO
EDDY
LEA
Map Extent
TEXAS

New Mexico Office of the State Engineer
Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Twws	Rng	(NAD83 UTM in meters) X	Y
	C 02258	3	2		26	23S	31E	618055	3571853*

Driller License:	421	**Driller Company:**	GLENN'S WATER WELL SERVICE		
Driller Name:	CORKY GLENN				
Drill Start Date:	09/18/1992	**Drill Finish Date:**	09/18/1992	**Plug Date:**	
Log File Date:	09/25/1992	**PCW Rcv Date:**		**Source:**	
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:		**Depth Well:**	662 feet	**Depth Water:**	

***UTM location was derived from PLSS - see Help**

CARDINAL Laboratories

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

August 30, 2018

CHRIS WEYAND

Lonquist Field Services, LLC

3345 Bee Cave Road, Suite 201

Austin, TX 78746

RE: RED ROAD SWD #1

Enclosed are the results of analyses for samples received by the laboratory on 08/23/18 15:45.

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

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

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

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

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

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

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

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

Lonquist Field Services, LLC 3345 Bee Cave Road, Suite 201 Austin TX, 78746	Project: RED ROAD SWD #1 Project Number: 32.270175-103.75083 Project Manager: CHRIS WEYAND Fax To: (512) 732-9816	Reported: 30-Aug-18 11:38

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
C-02348	H802369-01	Water	23-Aug-18 13:00	23-Aug-18 15:45

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

Lonquist Field Services, LLC 3345 Bee Cave Road, Suite 201 Austin TX, 78746	Project: RED ROAD SWD #1 Project Number: 32.270175-103.75083 Project Manager: CHRIS WEYAND Fax To: (512) 732-9816	Reported: 30-Aug-18 11:38

C-02348

H802369-01 (Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Alkalinity, Bicarbonate	**273**		5.00	mg/L	1	8082501	AC	27-Aug-18	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	8082501	AC	27-Aug-18	310.1	
Chloride*	**132**		4.00	mg/L	1	8082002	AC	27-Aug-18	4500-Cl-B	
Conductivity*	**3310**		1.00	uS/cm	1	8082502	AC	27-Aug-18	120.1	
pH*	**7.43**		0.100	pH Units	1	8082502	AC	25-Aug-18	150.1	
Resistivity	**3.02**			Ohms/m	1	8082502	AC	27-Aug-18	120.1	
Specific Gravity @ 60° F	**1.004**		0.000	[blank]	1	8082505	AC	27-Aug-18	SM 2710F	
Sulfate*	**1710**		250	mg/L	25	8082503	AC	27-Aug-18	375.4	
TDS*	**2930**		5.00	mg/L	1	8082506	AC	28-Aug-18	160.1	
Alkalinity, Total*	**224**		4.00	mg/L	1	8082501	AC	27-Aug-18	310.1	
Sulfide, total	<0.0100		0.0100	mg/L	1	8082504	AC	27-Aug-18	376.2	
Green Analytical Laboratories										
Total Recoverable Metals by ICP (E200.7)										
Barium*	<0.050		0.050	mg/L	1	B808268	JDA	28-Aug-18	EPA200.7	
Calcium*	**464**		0.100	mg/L	1	B808268	JDA	28-Aug-18	EPA200.7	
Iron*	<0.050		0.050	mg/L	1	B808268	JDA	28-Aug-18	EPA200.7	
Magnesium*	**180**		1.00	mg/L	10	B808268	JDA	28-Aug-18	EPA200.7	
Potassium*	**4.97**		1.00	mg/L	1	B808268	JDA	28-Aug-18	EPA200.7	
Sodium*	**175**		1.00	mg/L	1	B808268	JDA	28-Aug-18	EPA200.7	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

Lonquist Field Services, LLC 3345 Bee Cave Road, Suite 201 Austin TX, 78746	Project: RED ROAD SWD #1 Project Number: 32.270175-103.75083 Project Manager: CHRIS WEYAND Fax To: (512) 732-9816	Reported: 30-Aug-18 11:38

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8082002 - General Prep - Wet Chem										
Blank (8082002-BLK1)				Prepared & Analyzed: 20-Aug-18						
Chloride	ND	4.00	mg/L							
LCS (8082002-BS1)				Prepared & Analyzed: 20-Aug-18						
Chloride	92.0	4.00	mg/L	100		92.0	80-120			
LCS Dup (8082002-BSD1)				Prepared & Analyzed: 20-Aug-18						
Chloride	96.0	4.00	mg/L	100		96.0	80-120	4.26	20	
Batch 8082501 - General Prep - Wet Chem										
Blank (8082501-BLK1)				Prepared: 25-Aug-18 Analyzed: 27-Aug-18						
Alkalinity, Carbonate	ND	1.00	mg/L							
Alkalinity, Bicarbonate	5.00	5.00	mg/L							
Alkalinity, Total	4.00	4.00	mg/L							
LCS (8082501-BS1)				Prepared: 25-Aug-18 Analyzed: 27-Aug-18						
Alkalinity, Carbonate	ND	2.50	mg/L				80-120			
Alkalinity, Bicarbonate	302	12.5	mg/L				80-120			
Alkalinity, Total	250	10.0	mg/L	250		100	80-120			
LCS Dup (8082501-BSD1)				Prepared: 25-Aug-18 Analyzed: 27-Aug-18						
Alkalinity, Carbonate	ND	2.50	mg/L				80-120		20	
Alkalinity, Bicarbonate	318	12.5	mg/L				80-120	4.84	20	
Alkalinity, Total	260	10.0	mg/L	250		104	80-120	3.92	20	
Batch 8082502 - General Prep - Wet Chem										
LCS (8082502-BS1)				Prepared & Analyzed: 25-Aug-18						
pH	7.09		pH Units	7.00		101	90-110			
Conductivity	495		uS/cm	500		99.0	80-120			

Cardinal Laboratories

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Analytical Results For:

Lonquist Field Services, LLC 3345 Bee Cave Road, Suite 201 Austin TX, 78746	Project: RED ROAD SWD #1 Project Number: 32.270175-103.75083 Project Manager: CHRIS WEYAND Fax To: (512) 732-9816	Reported: 30-Aug-18 11:38

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8082502 - General Prep - Wet Chem										
Duplicate (8082502-DUP1)		**Source: H802368-01**		Prepared: 25-Aug-18 Analyzed: 27-Aug-18						
Conductivity	1290	1.00	uS/cm		1290			0.155	20	
pH	7.47	0.100	pH Units		7.42			0.672	20	
Resistivity	7.75		Ohms/m		7.76			0.155	20	
Batch 8082503 - General Prep - Wet Chem										
Blank (8082503-BLK1)				Prepared: 25-Aug-18 Analyzed: 27-Aug-18						
Sulfate	ND	10.0	mg/L							
LCS (8082503-BS1)				Prepared: 25-Aug-18 Analyzed: 27-Aug-18						
Sulfate	23.4	10.0	mg/L	20.0		117	80-120			
LCS Dup (8082503-BSD1)				Prepared: 25-Aug-18 Analyzed: 27-Aug-18						
Sulfate	20.8	10.0	mg/L	20.0		104	80-120	11.5	20	
Batch 8082504 - General Prep - Wet Chem										
Blank (8082504-BLK1)				Prepared: 25-Aug-18 Analyzed: 27-Aug-18						
Sulfide, total	ND	0.0100	mg/L							
Duplicate (8082504-DUP1)		**Source: H802368-01**		Prepared: 25-Aug-18 Analyzed: 27-Aug-18						
Sulfide, total	0.00828	0.0100	mg/L		0.00792			4.44	20	
Batch 8082505 - General Prep - Wet Chem										
Duplicate (8082505-DUP1)		**Source: H802368-01**		Prepared: 25-Aug-18 Analyzed: 27-Aug-18						
Specific Gravity @ 60° F	1.003	0.000	[blank]		1.004			0.0837	20	

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Analytical Results For:

Lonquist Field Services, LLC 3345 Bee Cave Road, Suite 201 Austin TX, 78746	Project: RED ROAD SWD #1 Project Number: 32.270175-103.75083 Project Manager: CHRIS WEYAND Fax To: (512) 732-9816	Reported: 30-Aug-18 11:38

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8082506 - Filtration										
Blank (8082506-BLK1)				Prepared: 26-Aug-18 Analyzed: 28-Aug-18						
TDS	ND	5.00	mg/L							
LCS (8082506-BS1)				Prepared: 26-Aug-18 Analyzed: 28-Aug-18						
TDS	514		mg/L	527		97.5	80-120			
Duplicate (8082506-DUP1)	**Source: H802342-01**			Prepared: 26-Aug-18 Analyzed: 28-Aug-18						
TDS	5240	5.00	mg/L		5410			3.12	20	

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Analytical Results For:

Lonquist Field Services, LLC 3345 Bee Cave Road, Suite 201 Austin TX, 78746	Project: RED ROAD SWD #1 Project Number: 32.270175-103.75083 Project Manager: CHRIS WEYAND Fax To: (512) 732-9816	Reported: 30-Aug-18 11:38

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

Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B808268 - Total Rec. 200.7/200.8/200.2										
Blank (B808268-BLK1)				Prepared: 27-Aug-18 Analyzed: 28-Aug-18						
Iron	ND	0.050	mg/L							
Potassium	ND	1.00	mg/L							
Barium	ND	0.050	mg/L							
Magnesium	ND	0.100	mg/L							
Calcium	ND	0.100	mg/L							
Sodium	ND	1.00	mg/L							
LCS (B808268-BS1)				Prepared: 27-Aug-18 Analyzed: 28-Aug-18						
Sodium	3.14	1.00	mg/L	3.24		97.0	85-115			
Potassium	7.89	1.00	mg/L	8.00		98.7	85-115			
Magnesium	19.9	0.100	mg/L	20.0		99.6	85-115			
Iron	3.83	0.050	mg/L	4.00		95.8	85-115			
Calcium	3.86	0.100	mg/L	4.00		96.6	85-115			
Barium	1.94	0.050	mg/L	2.00		97.0	85-115			
LCS Dup (B808268-BSD1)				Prepared: 27-Aug-18 Analyzed: 28-Aug-18						
Magnesium	19.9	0.100	mg/L	20.0		99.3	85-115	0.348	20	
Potassium	7.95	1.00	mg/L	8.00		99.4	85-115	0.778	20	
Calcium	3.88	0.100	mg/L	4.00		97.1	85-115	0.476	20	
Sodium	3.15	1.00	mg/L	3.24		97.1	85-115	0.104	20	
Barium	1.91	0.050	mg/L	2.00		95.7	85-115	1.30	20	
Iron	3.81	0.050	mg/L	4.00		95.3	85-115	0.511	20	

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Longust	**BILL TO** P.O. #:
Project Manager:	Company:
Address:	Attn:
City: State: Zip:	Address:
Phone #: Fax #:	City:
Project #: Project Owner:	State: Zip:
Project Name: Red Road SWD	Phone #:
Project Location: 32.270175 / -103.750837	Fax #:
Sampler Name:	

FOR LAB USE ONLY				MATRIX							PRESERV.			SAMPLING		ANALYSIS REQUEST	
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	Sulfide	Sulfide
H802369															↓	↓
1	C-02348		1										8.23	1:00		

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

Relinquished By:	Date: 8.23.18	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 3:45		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: Samples taken & brought directly to lab.
	Time:		RUSH!!

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 6.4°C #97

Sample Condition: Cool ☐ Yes ☐ No / Intact ☑ Yes ☐ No

CHECKED BY: (Initials)

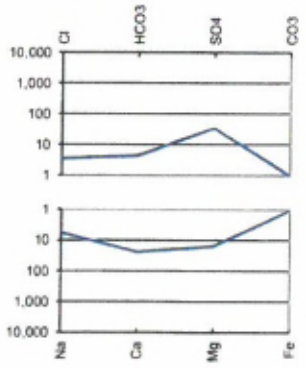
Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

CARDINAL LABORATORIES
SCALE INDEX WATER ANALYSIS REPORT

Company	: LONQUIST FIELD SERVICES	Date Sampled	: 08/23/18
Lease Name	: RED ROAD SWD #1	Company Rep.	: CHRIS WEYAND
Well Number	: C-02348 (H802369-01)		
Location	: 32.270175-103.75083		

ANALYSIS						
1. pH	7.43					
2. Specific Gravity @ 60/60 F.	1.0040					
3. CaCO3 Saturation Index @ 80 F.	+0.655	'Calcium Carbonate Scale Possible'				
@ 140 F.	+1.355	'Calcium Carbonate Scale Possible'				
Dissolved Gasses						
4. Hydrogen Sulfide	0.000	PPM				
5. Carbon Dioxide	ND	PPM				
6. Dissolved Oxygen	ND	PPM				
Cations		/	Eq. Wt.	=	MEQ/L	
7. Calcium (Ca++)	464.00	/	20.1	=	23.08	
8. Magnesium (Mg++)	180.00	/	12.2	=	14.75	
9. Sodium (Na+)	175	/	23.0	=	5.39	
10. Barium (Ba++)	0.000	/	68.7	=	0.00	
Anions						
11. Hydroxyl (OH-)	0	/	17.0	=	0.00	
12. Carbonate (CO3=)	0	/	30.0	=	0.00	
13. Bicarbonate (HCO3-)	273	/	61.1	=	4.47	
14. Sulfate (SO4=)	1,710	/	48.8	=	35.04	
15. Chloride (Cl-)	132	/	35.5	=	3.72	
Other						
16. Total Iron (Fe)	0.000	/	18.2	=	0.00	
17. Total Dissolved Solids	2,930					
18. Total Hardness As CaCO3	1,900.0					
19. Calcium Sulfate Solubility @ 90 F.	1,664					
20. Resistivity (Measured)	3.020	Ohm/Meters	@ 77	Degrees (F)		

Logarithmic Water Pattern



PROBABLE MINERAL COMPOSITION

COMPOUND	Eq. Wt.	X	MEQ/L	=	mg/L
Ca(HCO3)2	81.04	X	4.47	=	362
CaSO4	68.07	X	18.62	=	1,267
CaCl2	55.50	X	0.00	=	0
Mg(HCO3)2	73.17	X	0.00	=	0
MgSO4	60.19	X	14.75	=	888
MgCl2	47.62	X	0.00	=	0
NaHCO3	84.00	X	0.00	=	0
NaSO4	71.03	X	1.67	=	119
NaCl	58.46	X	3.72	=	217

ND = Not Determined

4

4

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
	RED ROAD SWD	1

[7] OGRID No.	[8] Operator Name	[9] Elevation
372338	NGL WATER SOLUTIONS PERMIAN LLC	3468.00'±

[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
P	26	23 S	31 E	N/A	1107'	SOUTH	1057'	EAST	EDDY

[11] Bottom Hole Location If Different From Surface

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

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

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

[16]

SECTION 26

PROPOSED
RED RD SWD 1

NMSP-E (NAD27)
N: 462,844.22'
E: 682,465.93'

NMSP-E (NAD83)
N: 462,903.53'
E: 723,649.50'
Lat: N32°16'16.39"
Long: W103°44'36.49"

1057'
1107'

[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: 10/16/2018

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.

10/16/18
Date of Survey

Signature and Seal of Professional Surveyor:

CODY A. CLARK
NEW MEXICO
23001
PROFESSIONAL SURVEYOR

23001
Certificate Number

Jennifer L. Bradfute

From: Chris Weyand <chris@lonquist.com>
Sent: Monday, October 15, 2018 12:07 PM
To:
Cc:
Subject:
Attachments:

Chris Weyand
Staff Engineer
Lonquist & Co., LLC
(512) 600-1764 Direct
(210) 846-2673 Mobile

From: Rutley, James [mailto:jrutley@blm.gov]
Sent: Friday, October 12, 2018 1:43 PM
To: Chris Weyand
Cc: Steve Pattee; jcantwell@sam.biz; neel.duncan@iptenergyservices.com
Subject: Re: [EXTERNAL] RE: Section 26 23S 31E - NGL Red Road SWD

Thank you Chris.

Jim

James S. Rutley

Geologist (Potash Specialist)

Carlsbad Field Office

Bureau of Land Management

575) 234-5904

On Fri, Oct 12, 2018 at 10:10 AM Chris Weyand <chris@lonquist.com> wrote:

Justin,

Can you please confirm the feasibility of putting a pad in the proposed location? Otherwise, I don't see any issues with the relocation.

Thanks,

Chris Weyand

Staff Engineer

Lonquist & Co., LLC

(512) 600-1764 Direct

(210) 846-2673 Mobile

From: Rutley, James [mailto:jrutley@blm.gov]
Sent: Friday, October 12, 2018 10:58 AM
To: Chris Weyand
Cc: Steve Pattee; jcantwell@sam.biz
Subject: Section 26 23S 31E

Good Morning Gentlemen:

I was wondering if we could discuss relocating that SWD to a less arbitrary location so that Devon can plan around it? BLM is enforcing Devon to submit a development area notification which requires them to drill from the southern section line of Section 26 to develop north through Section 23. Devon shared this map with

me displaying the difficulty staging pads and CTBs around the existing infrastructure. I understand there is some dialogue between NGL and Devon already so I am just inquiring on Devon's behalf whether you could relocate to the "blue box". Devon is concerned about well collision and feel that a SWD along the western line of Unit P or possibly the eastern section line of Unit I, would be out of there way.

I am sorry for the inconvenience of a late notice. I would enjoy an opportunity to discuss with you if you are able.

Thanks

Jim

James S. Rutley

Geologist (Potash Specialist)

Carlsbad Field Office

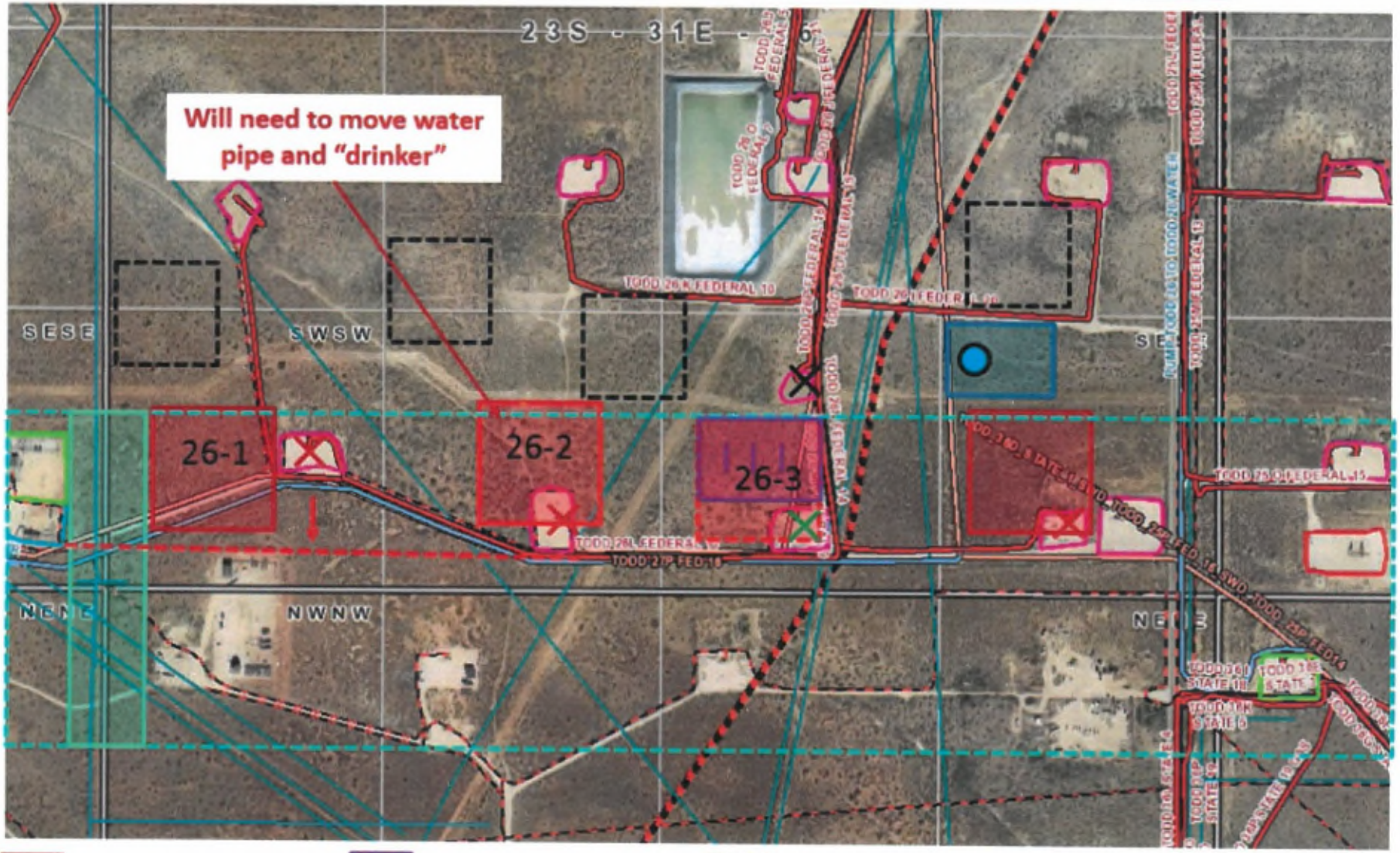
Bureau of Land Management

(575) 234-5904

Drill Island – Uber South

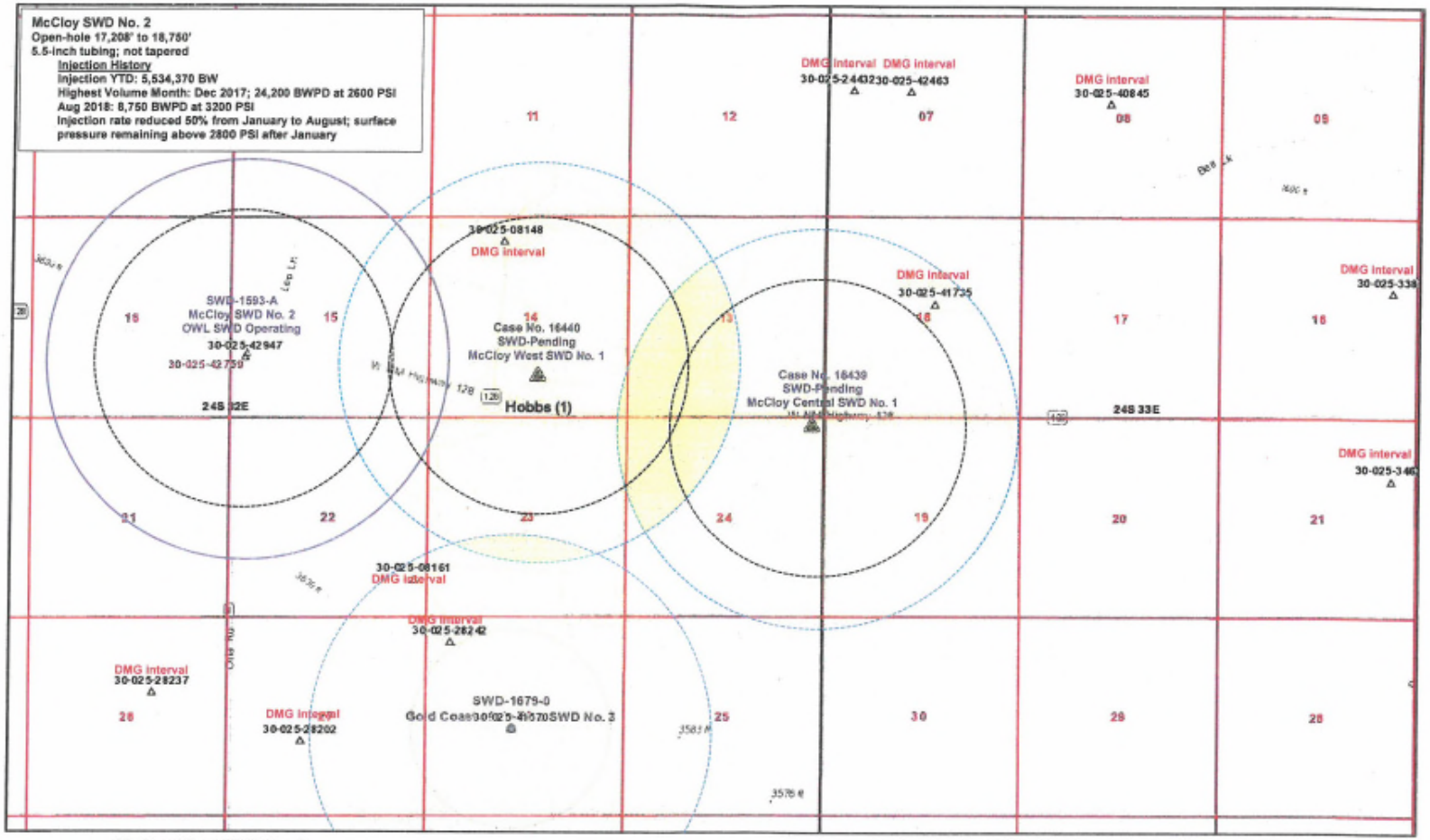
Aldabra 26-23

devon



5

Pending Application for High-Volume Devonian Disposal Well
C-108 Applications for McCloy Central SWD No. 1 and McCloy West SWD No. 1 – NGL Water Solutions

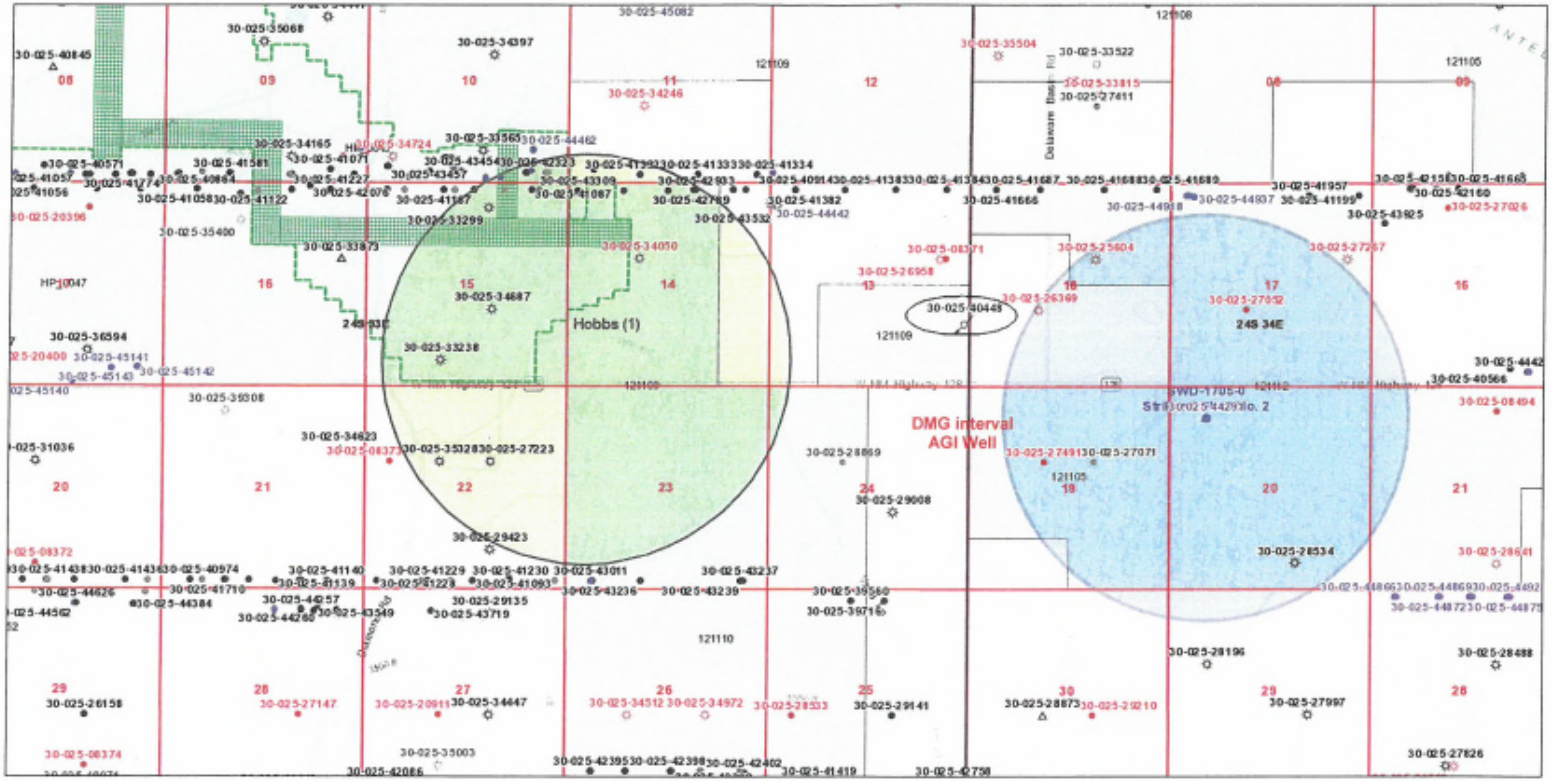


McCloy West SWD No. 1
API 30-025-Pending; Case No. 16440
Proposed interval: 17,350'-18,451'
Proposed tapered tubing: 7-in. x 5.5-in.; max injection rate: 50,000 BWPD

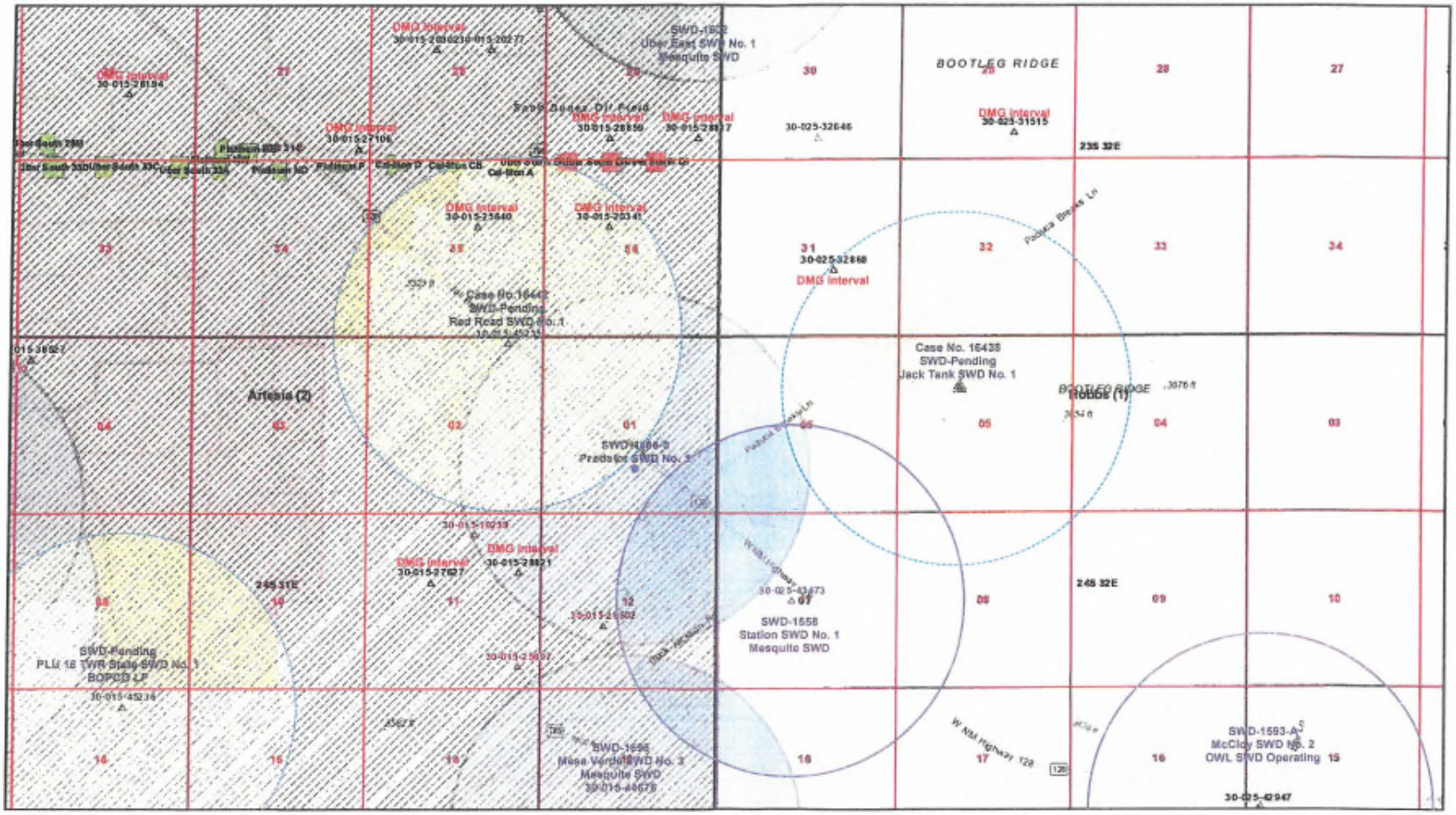
McCloy Central SWD No. 1
API 30-025-Pending; Case No. 16439
Proposed interval: 17,424' – 18,533'
Proposed tapered tubing: 7-in. x 5.5-in.; max injection rate: 50,000 BWPD

Closest Devonian Wells with Large-Volume Potential: Approved: McCloy SWD No. 2 (30-025-42947); OWL SWD Operating LLC. Remaining SWD locations are shallower disposal intervals (DMG).

Pending Application for High-Volume Devonian Disposal Well
C-108 Applications for Minuteman SWD No. 1 – NGL Water Solutions



Pending Application for High-Volume Devonian Disposal Well
C-108 Applications for Red Road SWD No. 1 and Jack Tank SWD No. 1 – NGL Water Solutions



Red Road SWD No. 1
API 30-015-45235; Case No. 16442
Proposed interval: 16,450' – 17,458'
Proposed tapered tubing: 7-in. x 5.5-in.; max injection rate: 50,000 BWPD

Jack Tank SWD No. 1
API 30-025-Pending; Case No. 16438
Proposed interval: 16,800' – 17,809'
Proposed tapered tubing: 7-in. x 5.5-in.; max injection rate: 50,000 BWPD

Closest Devonian Wells with Large-Volume Potential: Approved: Predator SWD No. 1 (30-015-Pending) and Station SWD No. 1 (30-025-43473); both are Mesquite SWD Inc. permits. Remaining SWD locations are shallower disposal intervals (DMG).

6

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

AMENDED APPLICATION OF NGL WATER SOLUTIONS PERMIAN, LLC FOR APPROVAL OF SALT WATER DISPOSAL WELL IN LEA COUNTY, NEW MEXICO

CASE NO. 16439

AMENDED APPLICATION OF NGL WATER SOLUTIONS PERMIAN, LLC FOR APPROVAL OF SALT WATER DISPOSAL WELL IN LEA COUNTY, NEW MEXICO

CASE NO. 16441

AMENDED APPLICATION OF NGL WATER SOLUTIONS PERMIAN, LLC FOR APPROVAL OF SALT WATER DISPOSAL WELL IN EDDY COUNTY, NEW MEXICO

CASE NO. 16442

AFFIDAVIT OF SCOTT J. WILSON

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

I, Scott J. Wilson, make the following affidavit based upon my own personal knowledge.

1. I am over eighteen (18) years of age and am otherwise competent to make the statements contained herein.

2. I am the Senior Vice President for Ryder Scott Company in Denver, Colorado. My responsibilities at Ryder Scott Company include the performance of reserve appraisals, technical evaluations, and reservoir analysis.

3. I have obtained a bachelor's degree in petroleum engineering from the Colorado School of Mines, and a master's degree business from the University of Colorado. I have worked as a petroleum engineer since 1983.

4. I am familiar with the application that NGL Water Solutions Permian, LLC ("NGL") has filed in this matter, and I have conducted a nodal analysis and reservoir study related to the area which is the subject matter of that application. Copies of my study are attached hereto as Exhibit A.

5. The applicant, NGL (OGRID No. 372338), seeks an order the McCloy Central SWD #1, Minuteman SWD #1, and Red Road SWD #1 salt water disposal wells.

6. The wells will be spaced out and not located closer than approximately 1 mile from other disposal wells, approved for injection into the Devonian and Silurian formations.

7. The approved injection zone for the wells is located below the base of the Woodford Shale formation and above the Ordovician formation, which consists of significant shale deposits.

8. The well will primarily be injecting fluids into the Wristen Group and Fusselman formations, with some fluids potentially being injected into the Upper Montoya Group. Each of these sub-formations or zones are located within what is commonly referred to by operators and the Division as the "Devonian Silurian" formations. These zones consist of a very thick sequence of limestone and dolostone which has significant primary and secondary porosity and permeability that is collectively between 800 to 1,800 feet thick.

9. I have reviewed step rate tests for similar disposal wells drilled within the area and conducted a nodal analysis. It is my opinion that a large percentage of surface pressure was a result of friction pressure when using smaller diameter tubing. In Case No. 15720 evidence had been presented to the Division showing that up to 85% of this surface pressure was due to friction.

Increasing the tubing size would reduce friction and would conserve pump horsepower, fuel and reduce emissions.

10. My nodal analysis indicates that increasing the tubing size to 7" by 5 ½" would not significantly increase reservoir pressures over a twenty-year time period. The injection zone is located within a thick, high permeability reservoir which disperses injected fluids easily and quickly. Only small local pressure increases result when injecting 40,000 barrels per day over a 20 year period.

11. It is my opinion that increasing the tubing size will not cause fractures in the formation. Wellhead pressures are set at a maximum that is below the formation fracture pressure and, as a result, it is impossible to get above the formation fracture pressure while honoring wellhead pressure constraints. Consequently, it is highly unlikely that increasing the tubing size in the wells would result in fractures to the formation.

12. I have also studied the potential impact on pore pressures and put together a simulation of the radial influence that the wells would have if larger tubing is used for a period of time. A copy of this study is included within Exhibit A to this affidavit. This study shows that it is anticipated that there will be a minimal impact on reservoir pressures and that the majority of fluids will not travel greater than 1 mile in 20 years.

13. My studies further indicate that additional injection wells located one mile away from the wells, will not create any materially adverse pressures in the formation.

14. I attest that the information provided herein is correct and complete to the best of my knowledge and belief.

15. The granting of this application is in the interests of conservation and the prevention of waste.

Scott J. Wilson

SUBSCRIBED AND SWORN to before me this 16 th day of October, 2018 by Scott J. Wilson.

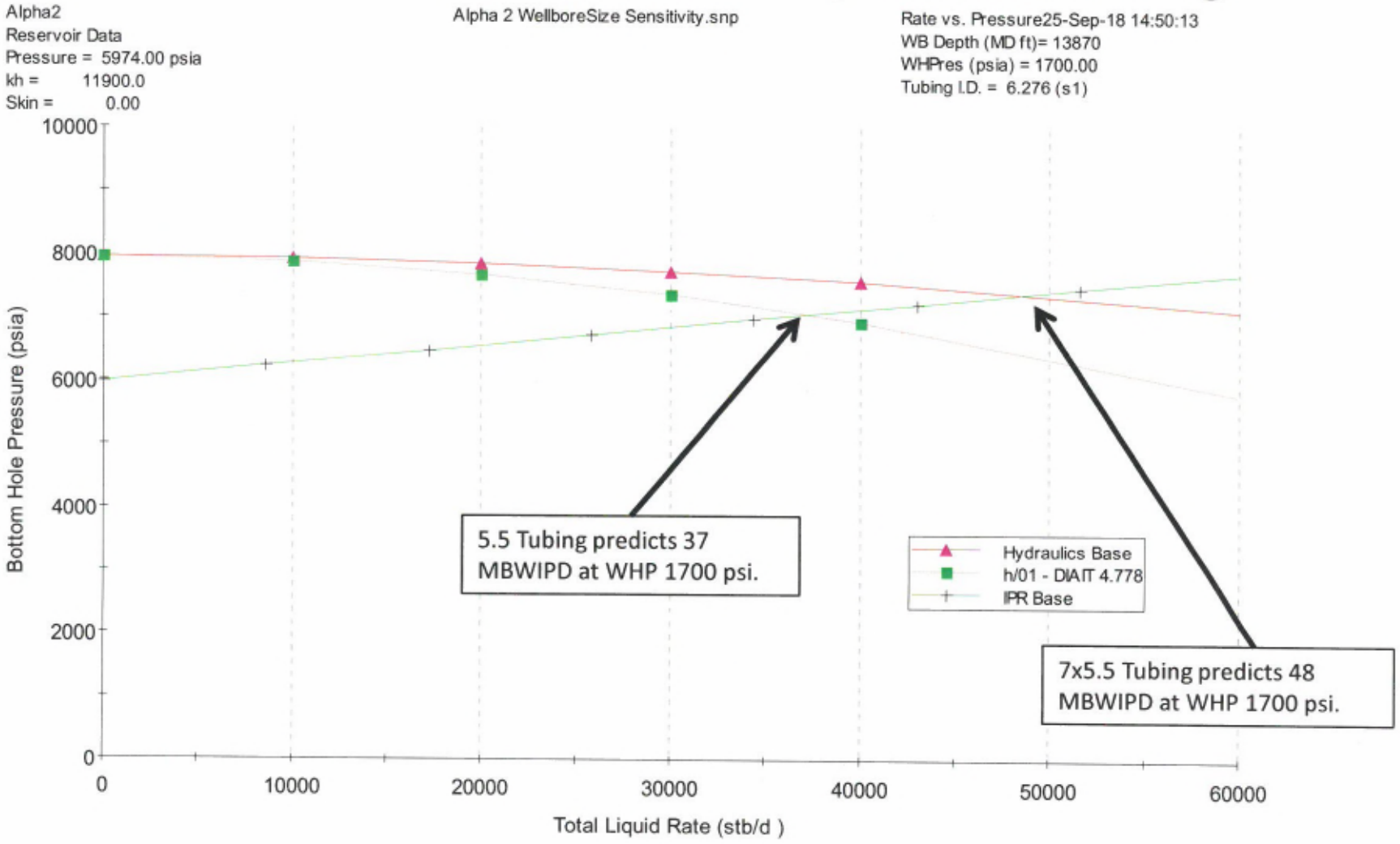
Notary Public

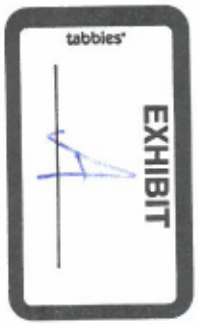
My commission expires: 12-1-18

JOE S. MARTINEZ IV
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20114075115
MY COMMISSION EXPIRES DEC. 1, 2019

NGL Water Solutions, LLC

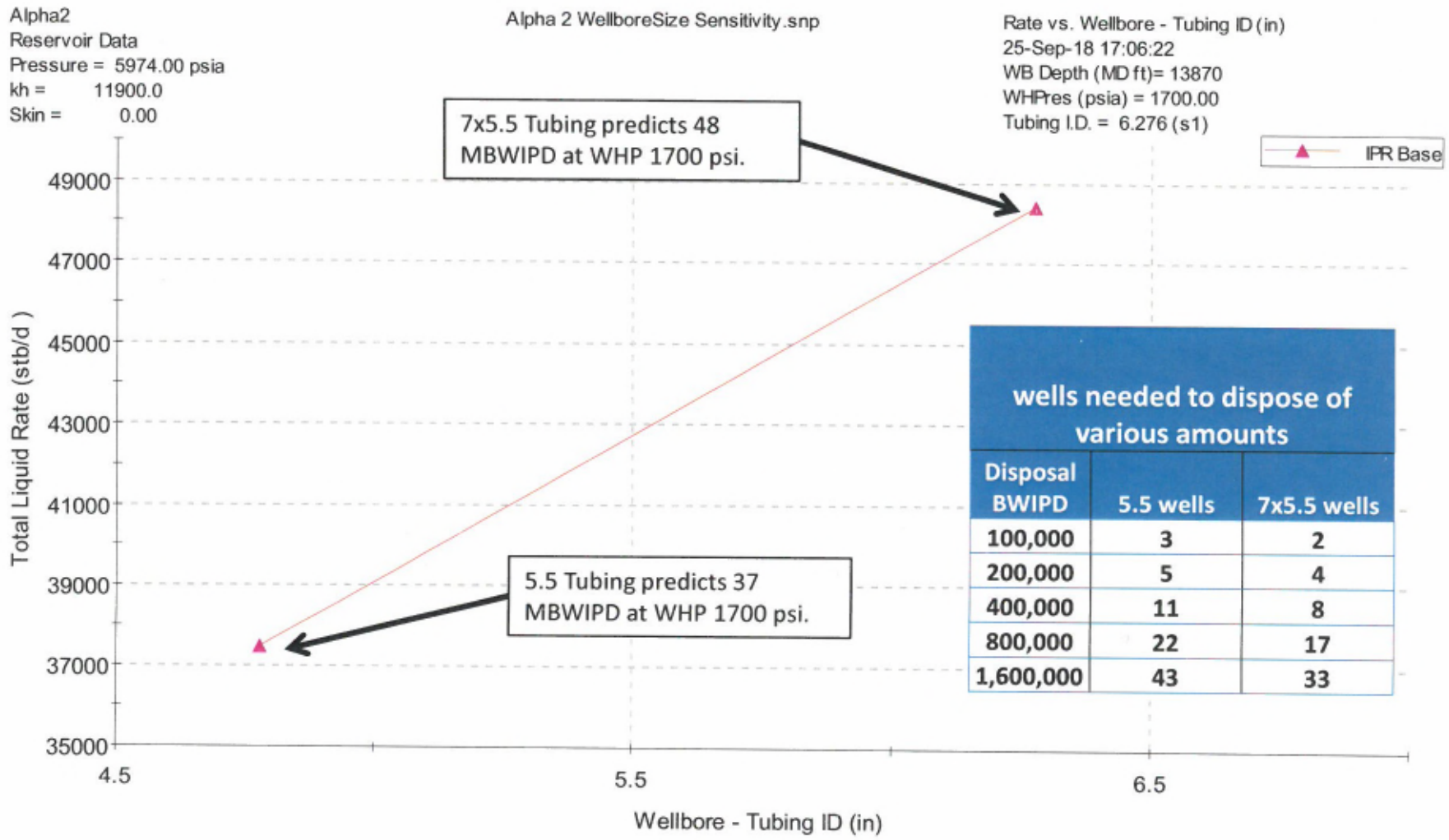
Typical Wellbore Hydraulics Models predict a 30% increase in maximum injection rate between 5.5 tubing and 7x5.5 tubing.





NGL Water Solutions, LLC

Increased injection rate per well equates to fewer injectors.

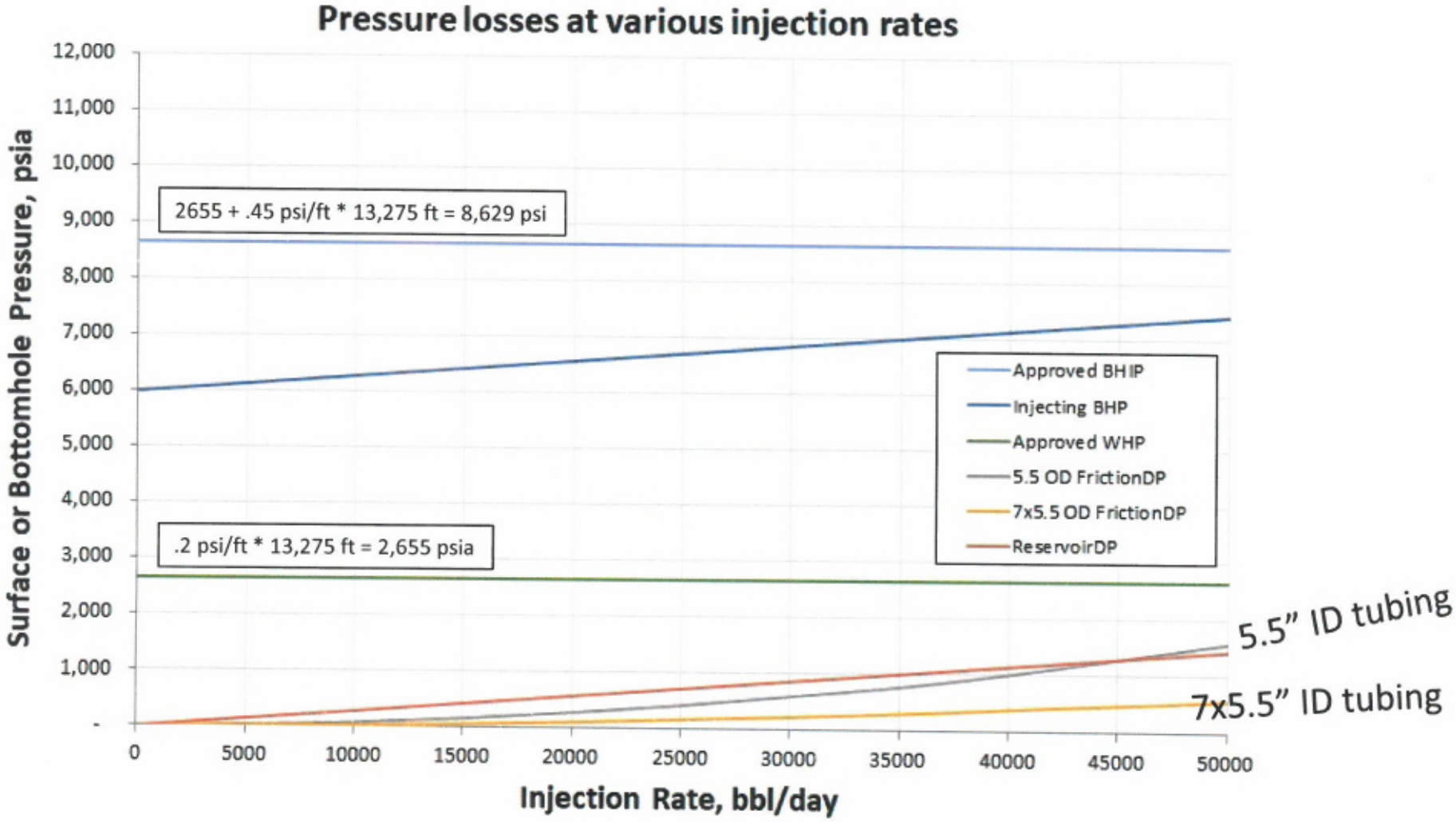


wells needed to dispose of various amounts		
Disposal BWIPD	5.5 wells	7x5.5 wells
100,000	3	2
200,000	5	4
400,000	11	8
800,000	22	17
1,600,000	43	33

NGL Water Solutions, LLC

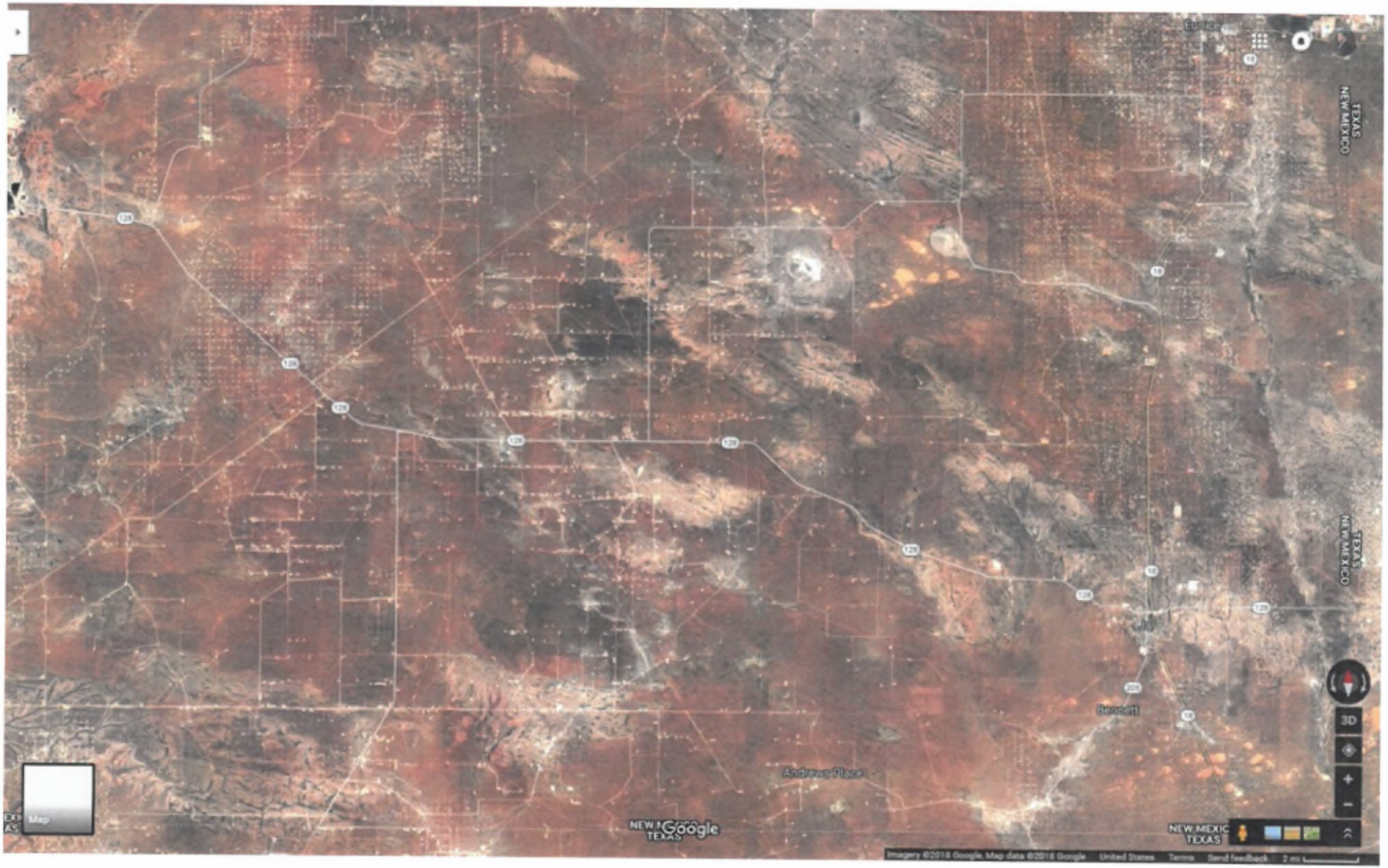
Increasing tubing size will decrease friction losses and conserve horsepower

2 example tubing sizes and their impact on friction losses



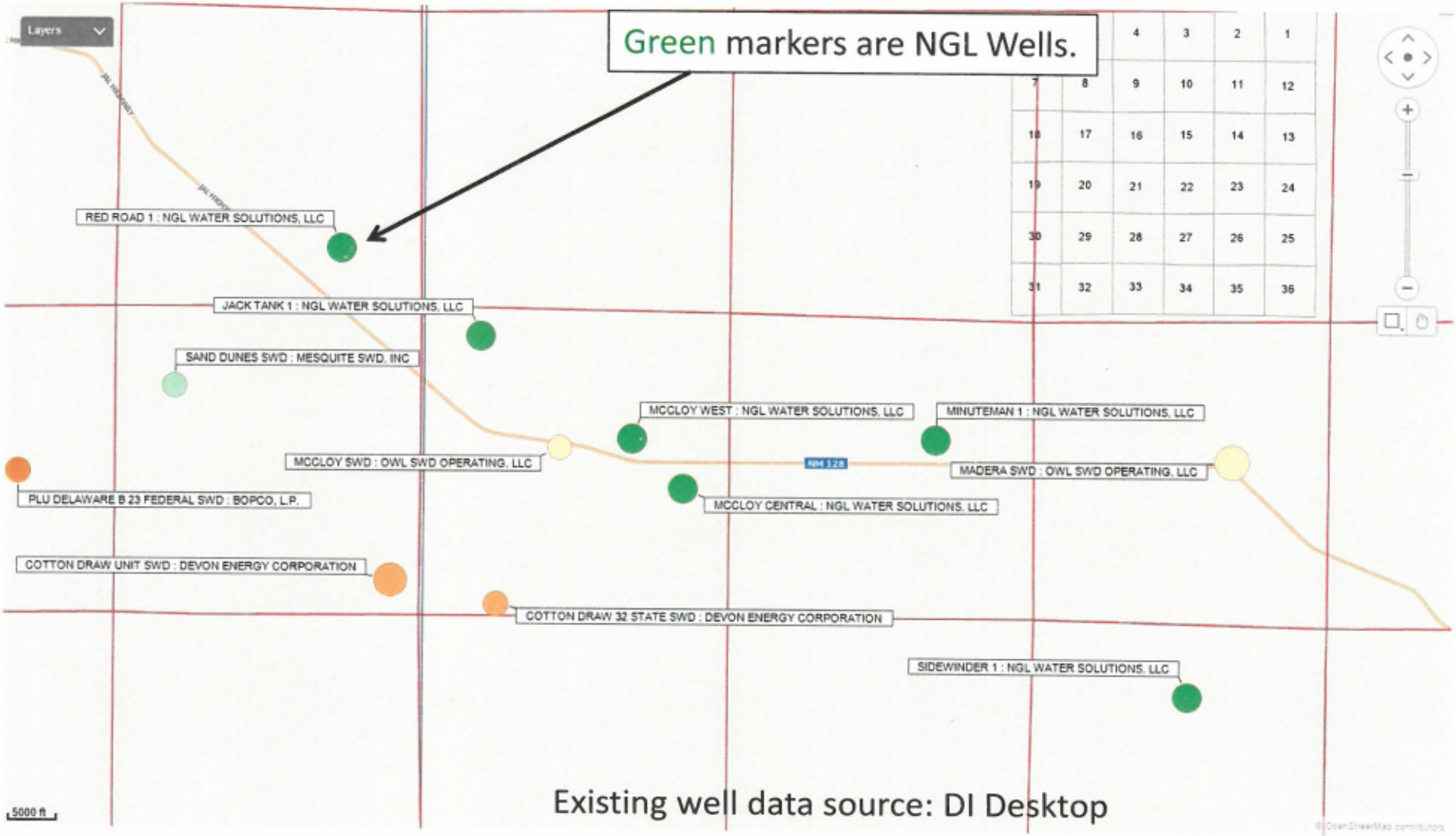
NGL Water Solutions, LLC

Terrain is level and infrastructure is plentiful.



NGL Water Solutions, LLC

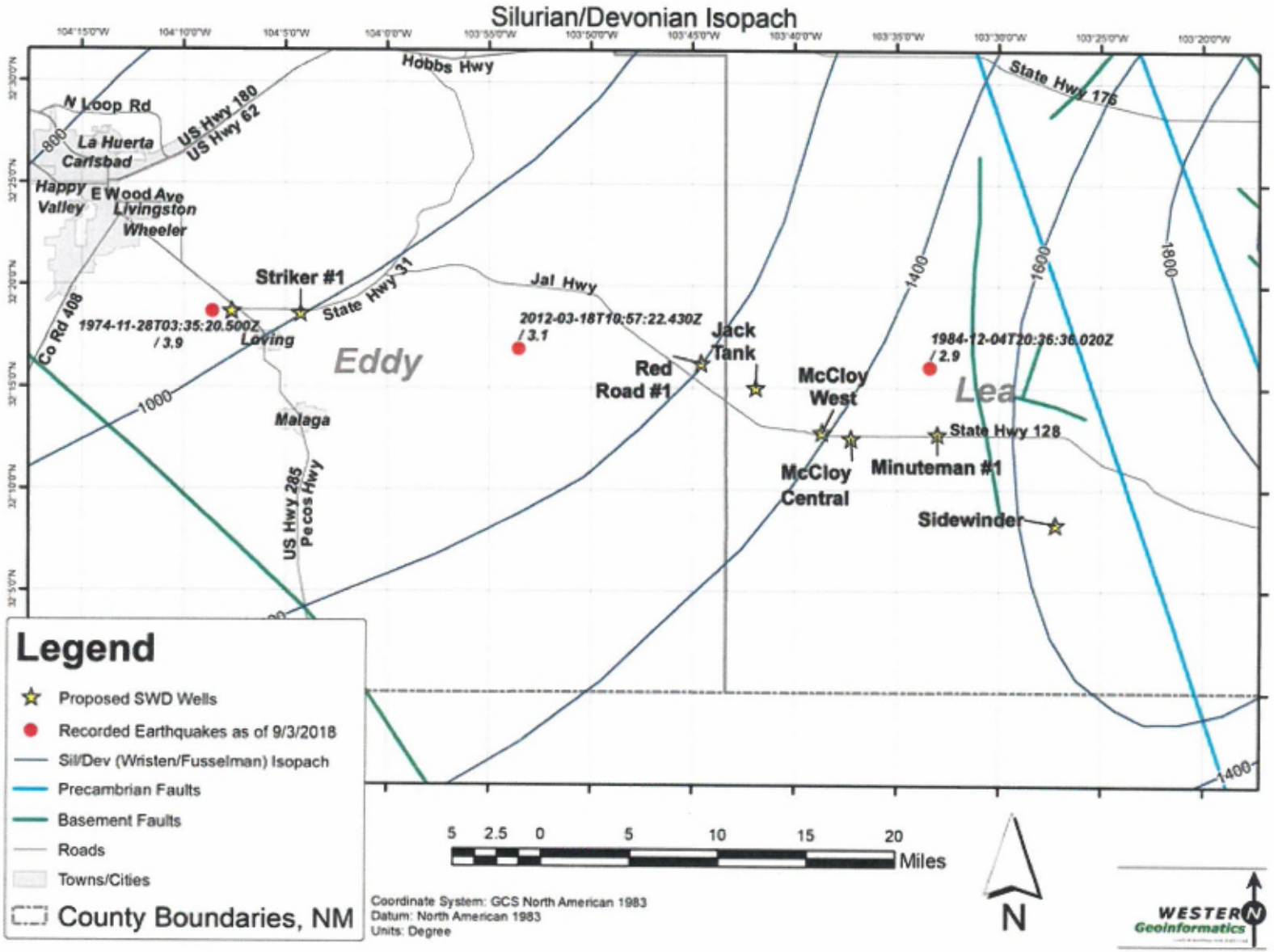
Wells injecting water into the Devonian formation in the area.
Area is roughly 30 miles (E-W) by 20 miles (N-S)



Existing well data source: DI Desktop

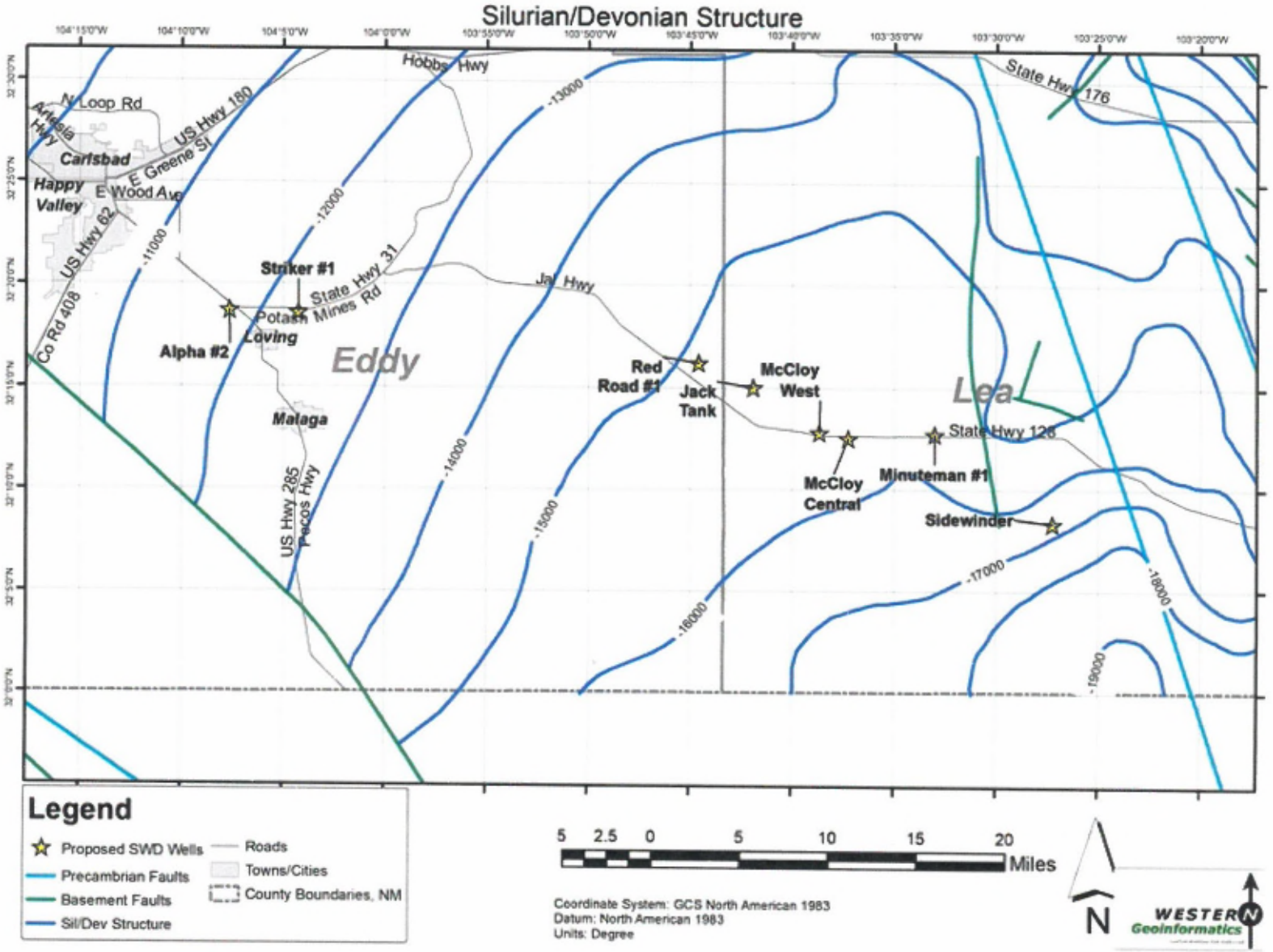
NGL Water Solutions, LLC

Sil/Dev Thickness increases from NW to E-SE



NGL Water Solutions, LLC

Sil/Dev structure dips from NW to SE

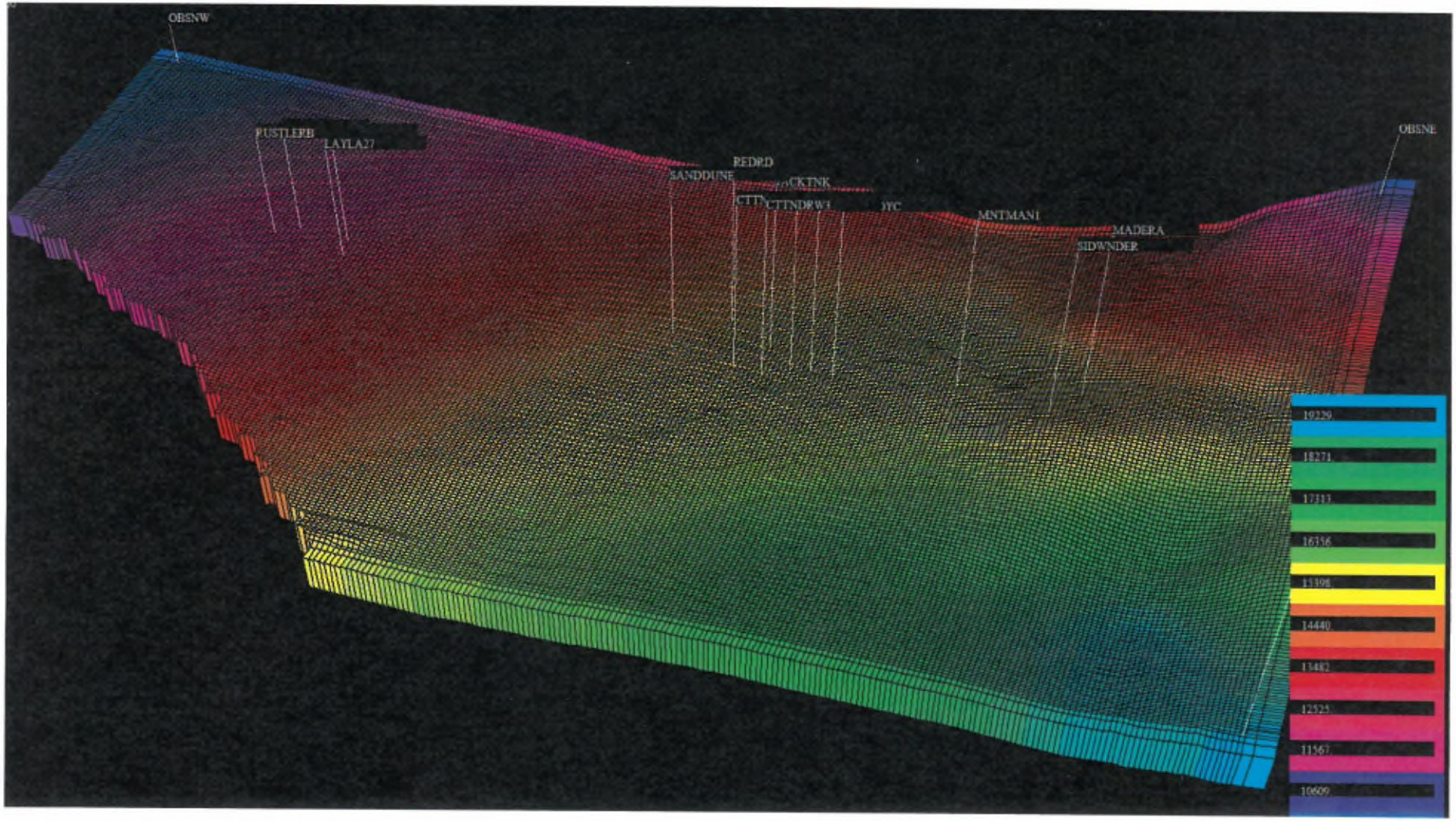


NGL Water Solutions, LLC

Simulation Grid matches Structure and Thickness

Reservoir Simulation grid incorporates the NGL proposed wells and the close offsets.

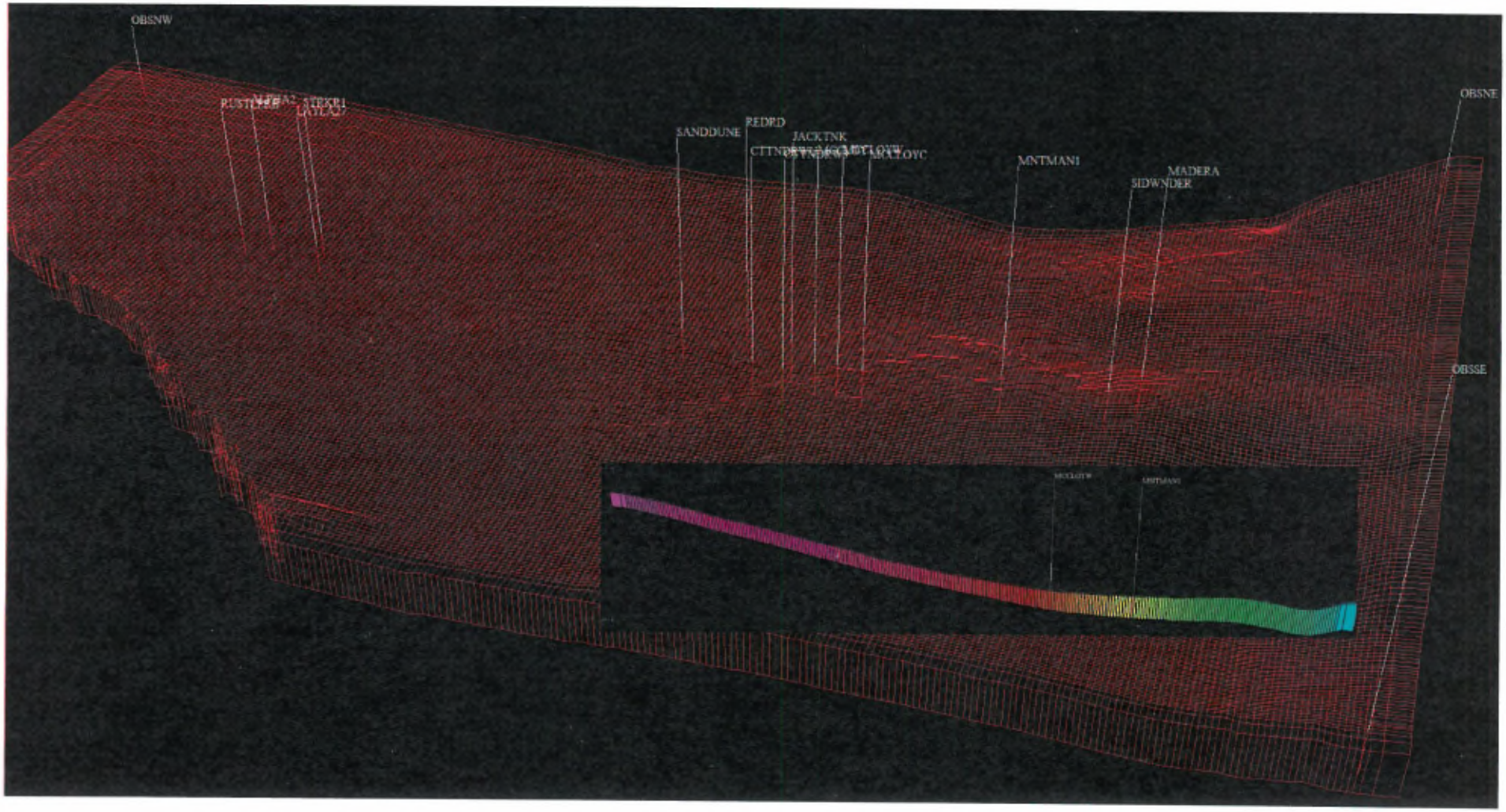
Observation wells are placed in grid corners to monitor the large scale pressure distribution.



NGL Water Solutions, LLC

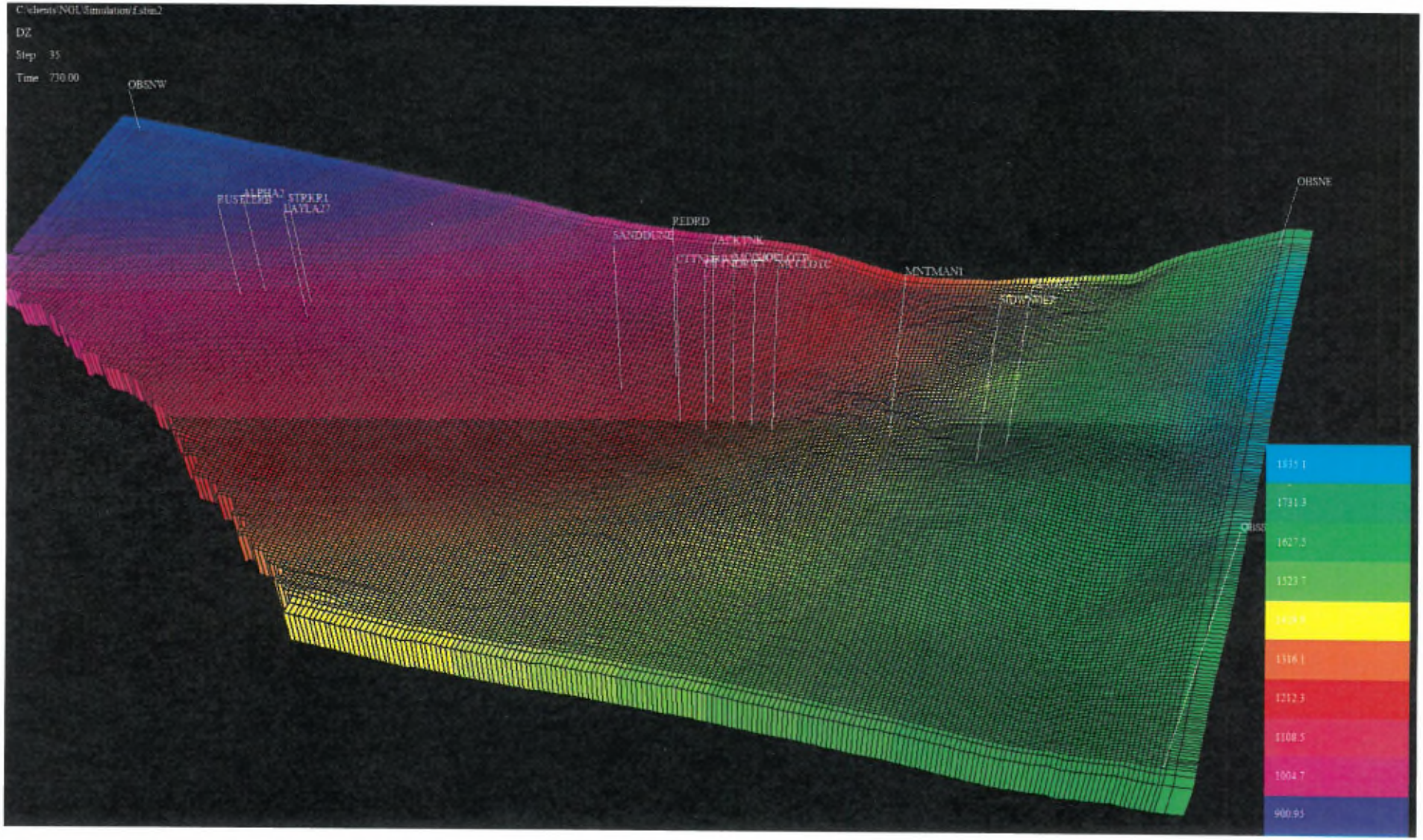
3D view of grid shows Structural Relief.

Thickness is accurate but not easy to see at this aspect ratio.



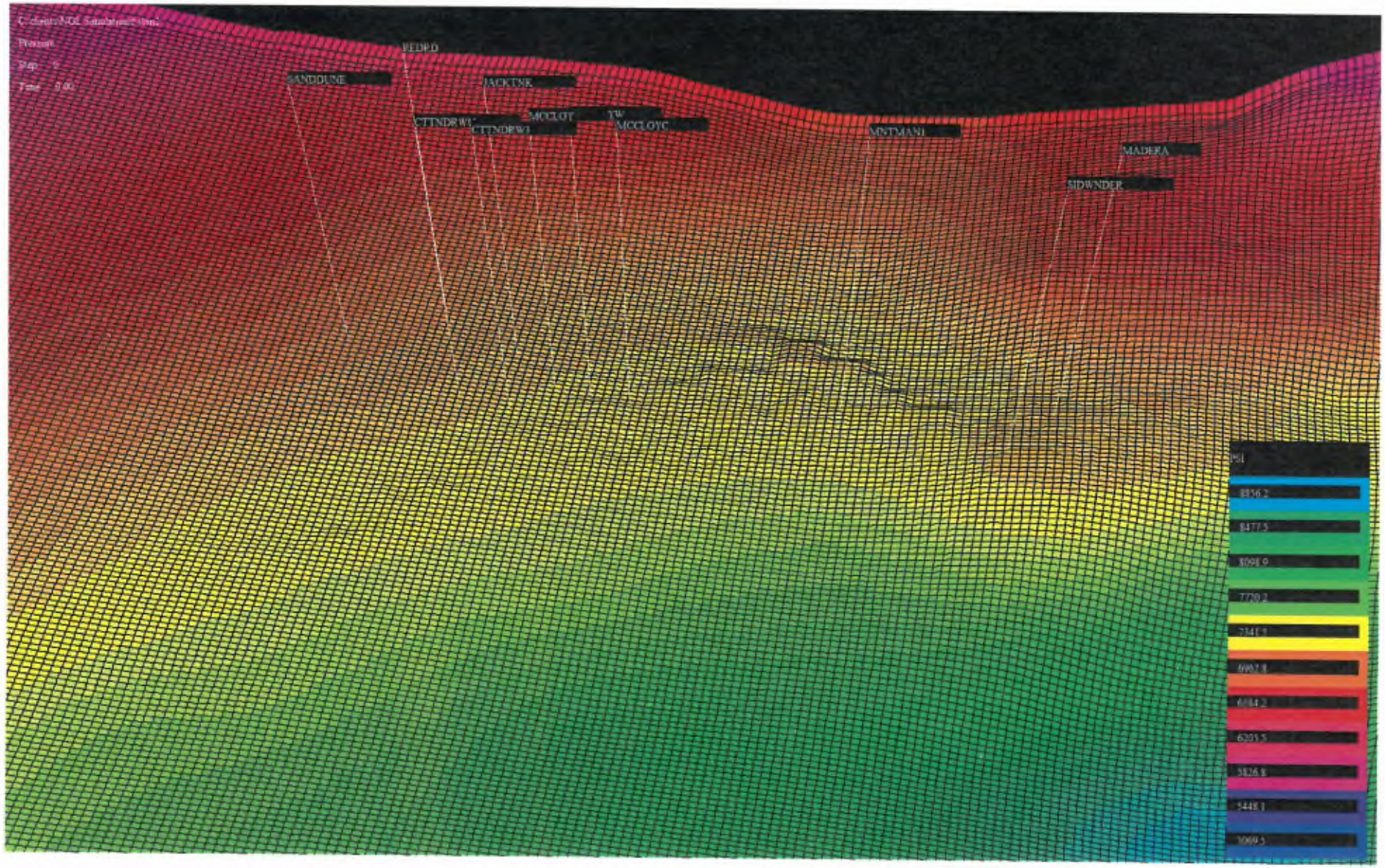
NGL Water Solutions, LLC

Light Blue color to the North East represents the thickest Sil/Dev.



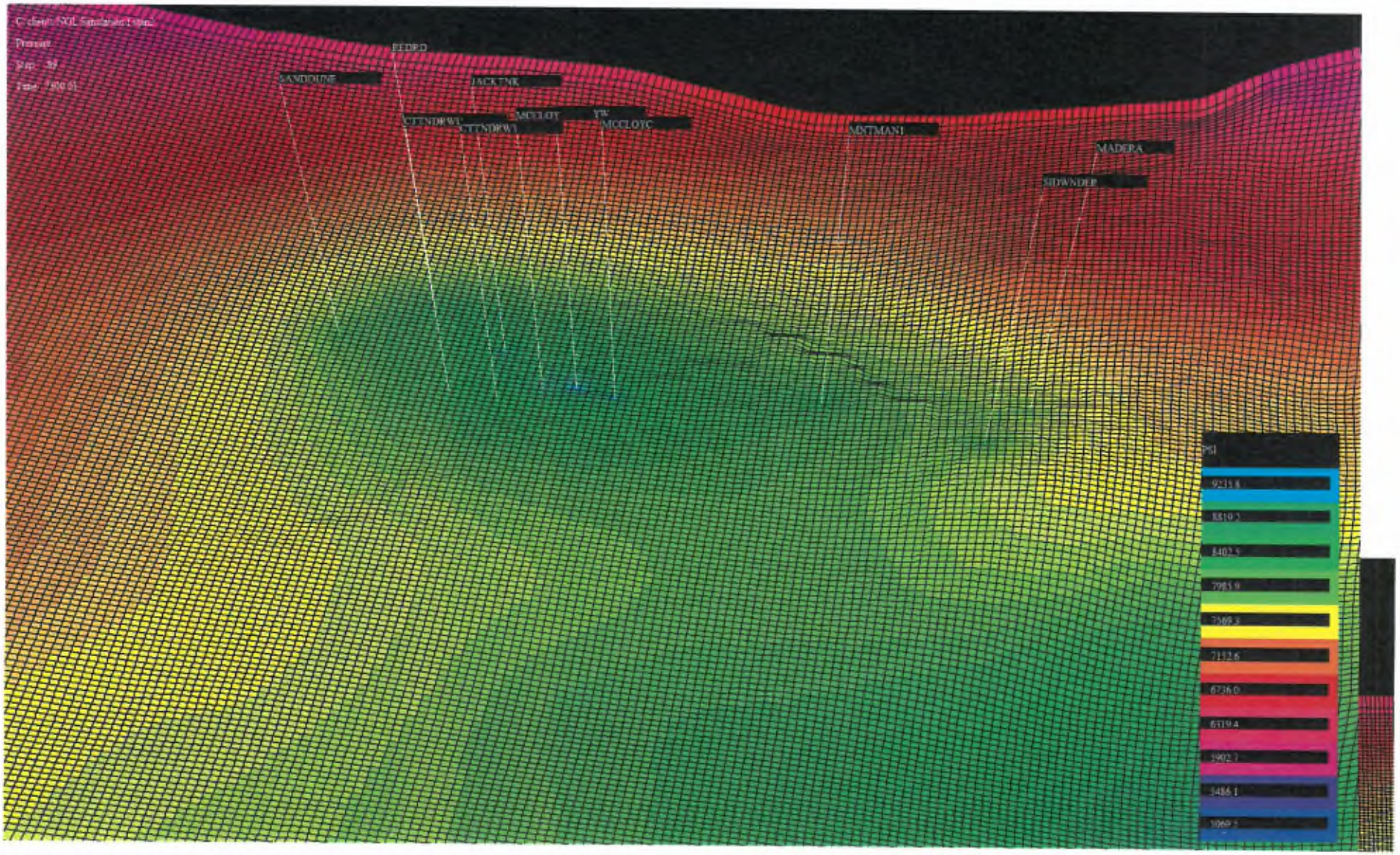
NGL Water Solutions, LLC

Initial pressure is equilibrated by the model based on grid cell depth, fluids(water) and capillary pressure.



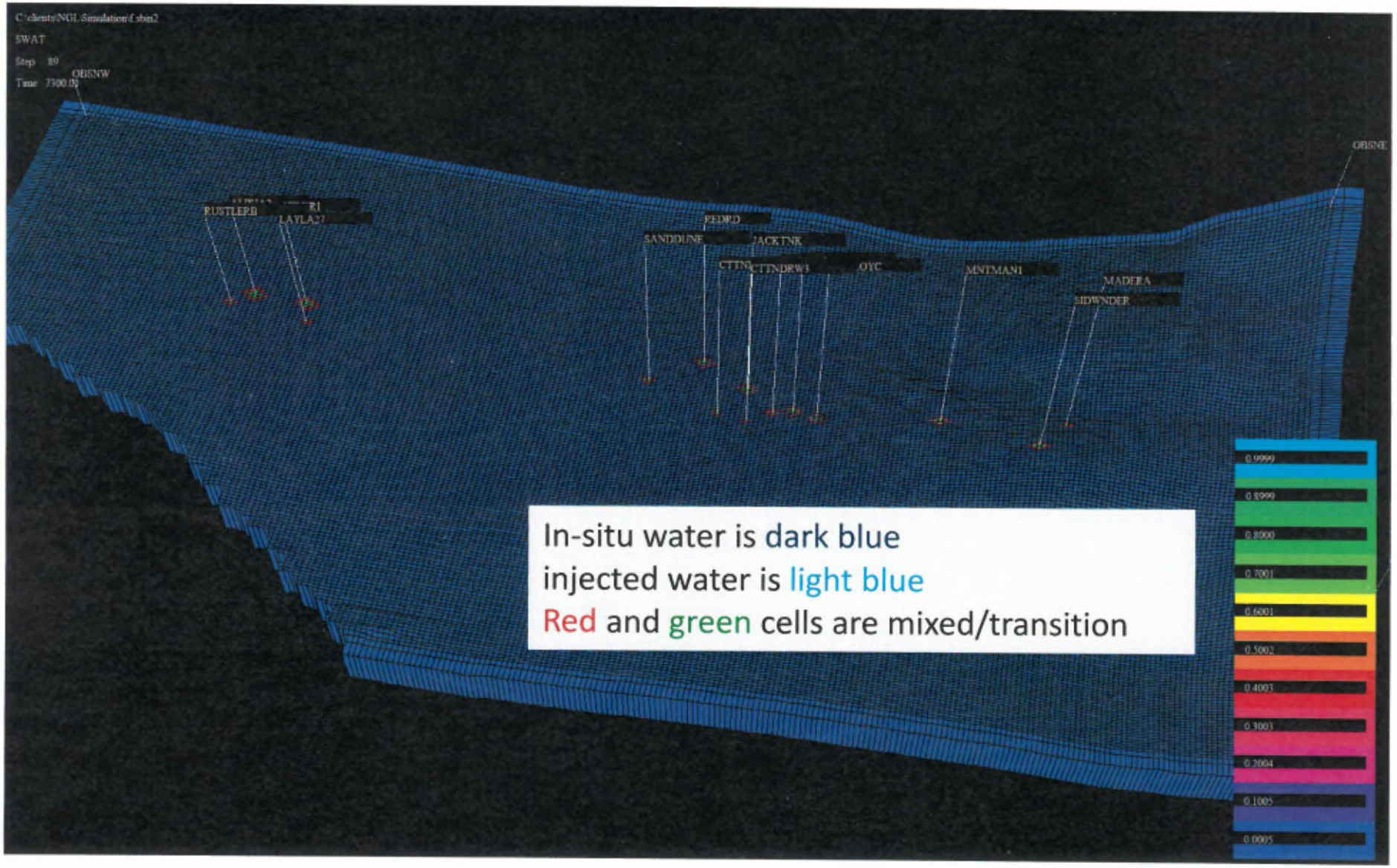
NGL Water Solutions, LLC

Pressure at 20 years is affected by original pressure, injected volumes, and the ability of the reservoir to dissipate pressure.



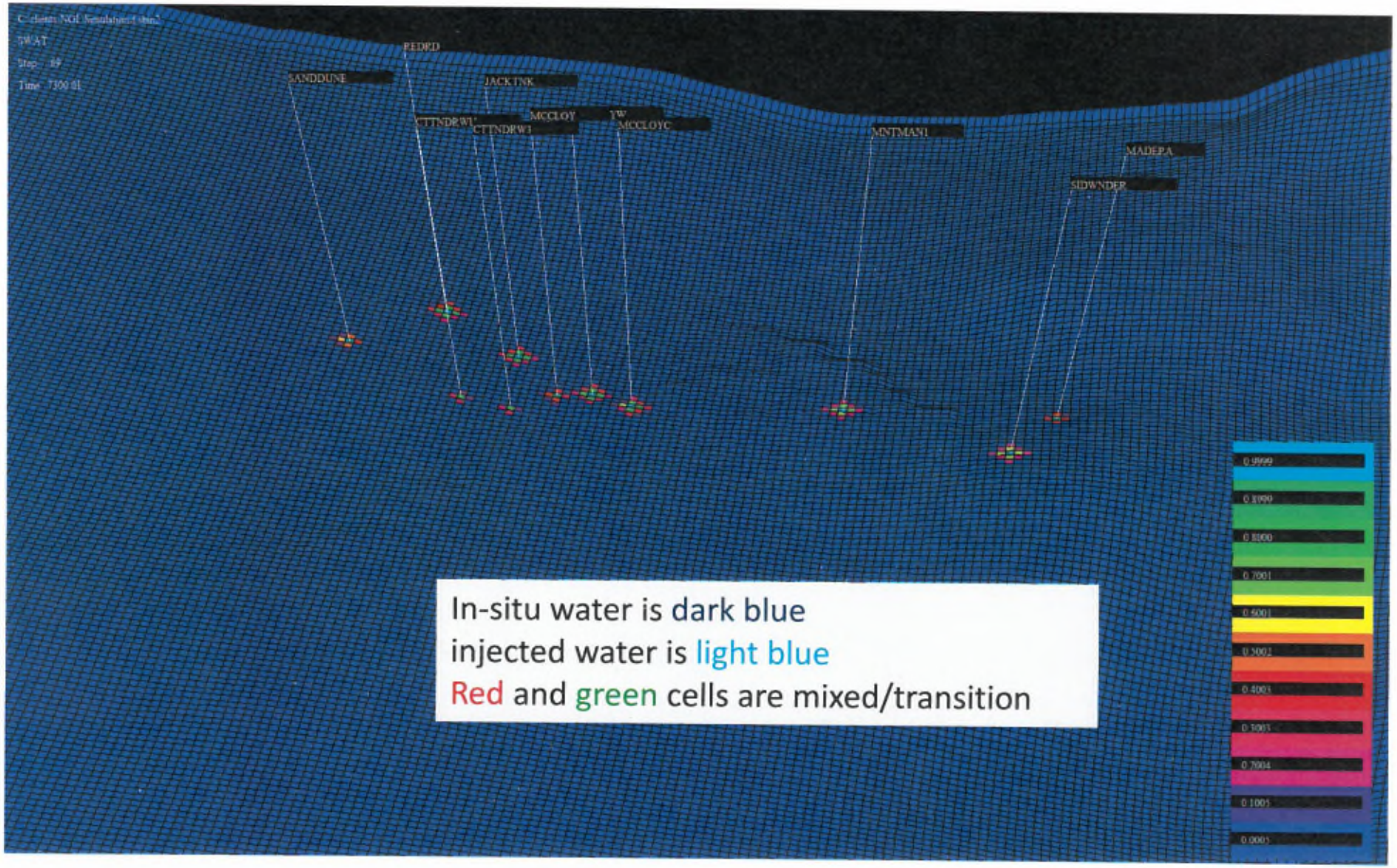
NGL Water Solutions, LLC

Large scale saturation profiles after 20 years of injection.



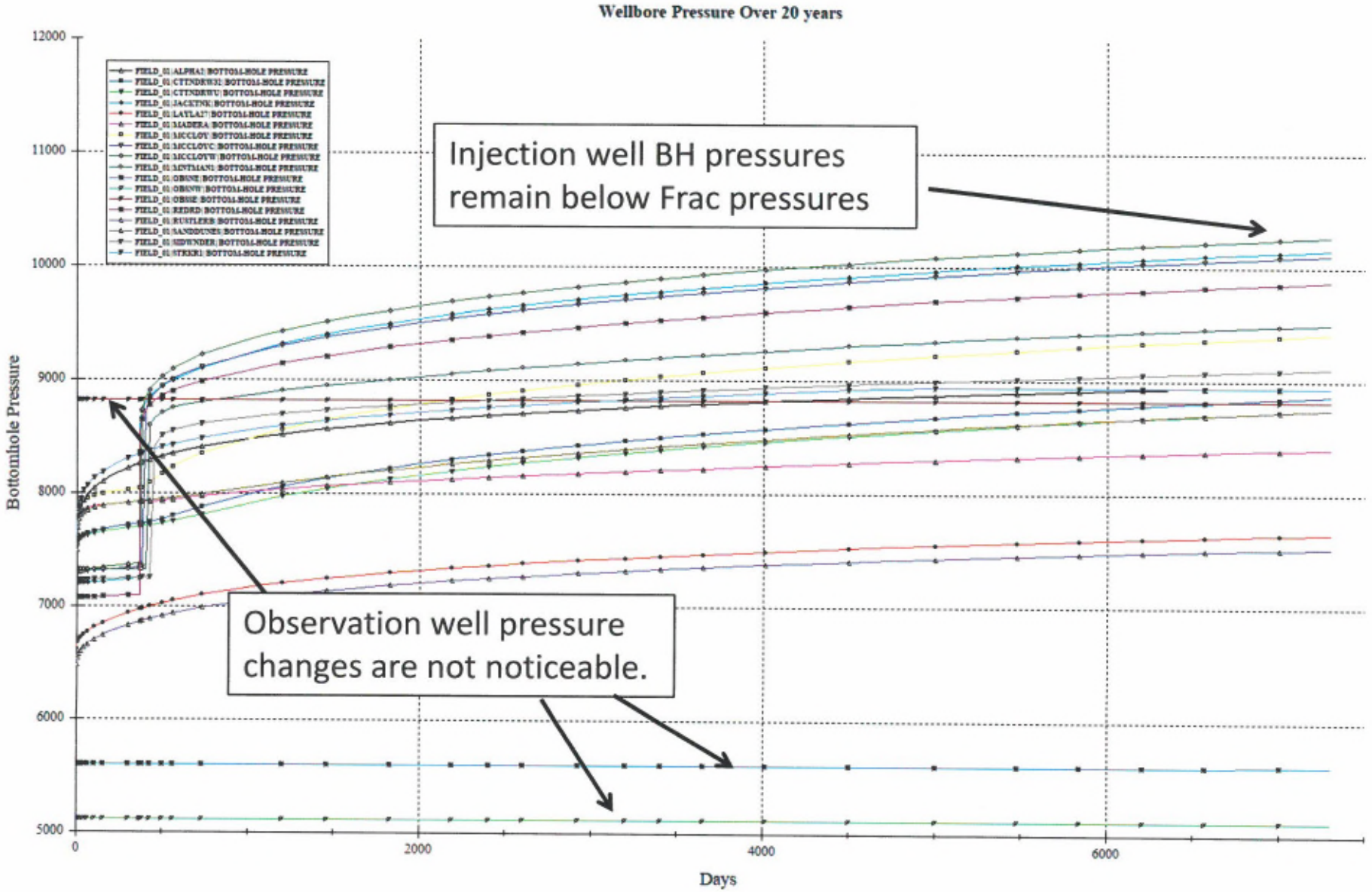
NGL Water Solutions, LLC

Detailed saturation profiles after 20 years of injection.



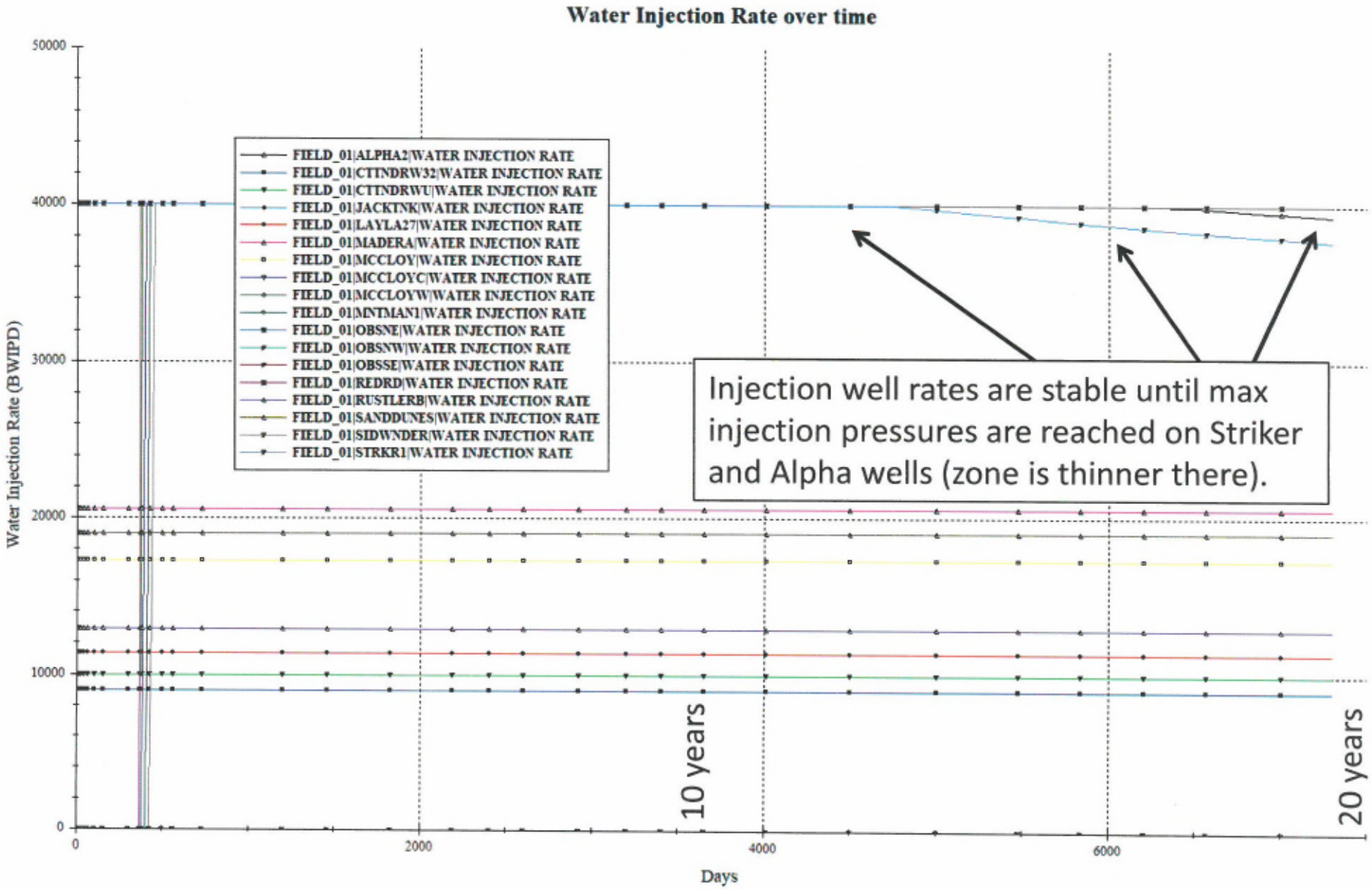
NGL Water Solutions, LLC

Simulation predictions for individual wells over time



NGL Water Solutions, LLC

Simulation predictions for individual wells over time



7

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

AMENDED APPLICATION OF NGL WATER SOLUTIONS PERMIAN, LLC FOR APPROVAL OF SALT WATER DISPOSAL WELL IN LEA COUNTY, NEW MEXICO

CASE NO. 16439

AMENDED APPLICATION OF NGL WATER SOLUTIONS PERMIAN, LLC FOR APPROVAL OF SALT WATER DISPOSAL WELL IN LEA COUNTY, NEW MEXICO

CASE NO. 16441

AMENDED APPLICATION OF NGL WATER SOLUTIONS PERMIAN, LLC FOR APPROVAL OF SALT WATER DISPOSAL WELL IN EDDY COUNTY, NEW MEXICO
CASE NO. 16442

AFFIDAVIT OF KATE ZEIGLER

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

I, Kate Zeigler, make the following affidavit based upon my own personal knowledge.

1. I am over eighteen (18) years of age and am otherwise competent to make the statements contained herein.

2. I am the senior geologist at Zeigler Geologic Consulting, and I provide a wide range of geoscience related services to companies and other entities in Southeastern New Mexico.

3. I have obtained a bachelor's degree in geology from Rice University, a master's degree in paleontology from the University of New Mexico, and a Ph.D. in stratigraphy and paleomagnetism from the University of New Mexico. Additionally, I have completed several surface geologic maps for the New Mexico Bureau of Geology and Mineral Resource's Geologic Mapping Program as well as for independent operators who are exploring prospects within the western Permian Basin. I have also conducted a prior geologic study concerning what is commonly referred to as the Devonian and Silurian formations in Southeastern New Mexico to help determine whether the approval of 7" by 5 ½" tubing is appropriate in Devonian and Silurian salt water disposal wells approved by the New Mexico Oil Conservation Division.

4. I am familiar with the application that NGL Water Solutions Permian, LLC ("NGL") has filed in this matter, and I have conducted a geologic study of the lands which are the subject matter of that application. A copy of my geologic study, including cross sections, a structure map and isopach are is included in Attachment A to this affidavit.

5. The applicant, NGL (OGRID No. 372338), seeks an order for the McCloy Central SWD #1, Minuteman SWD #1, and Red Road SWD #1 salt water disposal wells.

6. I have been informed that the injection intervals for the wells will be isolated to the Devonian and Silurian formations (also referred to as the Wristen Group and Fusselman Formation) and the wells will have four strings of casing protecting the fresh water aquifer, the salt-bearing interval, and the Permian aged rocks through the Wolfcamp Formation. The deepest casing is 7 5/8", which is cemented and cement is circulated on the 7 5/8" casing.

7. The wells will be spaced out and not located closer than approximately 1 mile from other disposal wells that have been approved for injection into the Devonian and Silurian formations.

8. The injection zone for the wells is located below the Woodford Shale. The Woodford Shale is an Upper Devonian unit which has low porosity and permeability and consists predominantly of shale and mudstone with some carbonate beds. The Woodford Shale acts as a permeability boundary to prevent fluids from moving upward out of the underlying formations. The Woodford Shale formation in the areas where the wells are located is between 80 feet to 140 feet thick.

9. Below the injection zone for the wells is the Ordovician formation, also referred to as the Simpson Group. which contains sequences of shale that make up approximately 55% of the total thickness of the formation in any given place and can likewise act as a permeability boundary which prevents fluids from migrating downwards into deeper formations and the basement rock. In the areas where the wells are located, the Ordovician formation is between 300' and 500' feet thick and, as a result, there is a significant thickness in this lower shale. Below the Ordovician is the Ellenburger Formation, which is up to 1,000 feet thick.

10. Based on my geologic study of the area, it is my opinion that the approved injection zone for the wells is located below the base of the Woodford Shale formation and above the Simpson Group formation, both of which consist of significant shale deposits. Evidence indicates that shale formations located above and below the approved injection zones will likely restrict fluids from migrating beyond the approved injection zones for the wells.

11. The wells will primarily be injecting fluids into the Wristen Group and Fusselman Formation, with some fluids potentially being injected into the Upper Montoya Group. Each of these rock units are located within what is commonly referred to by operators and the Division as the "Devonian-Silurian" formations. These zones consist of a very thick sequence of limestone

and dolostone which has significant primary and secondary porosity and permeability that is collectively between 1,500 to 3,000 feet thick.

12. It is my opinion that there is no risk to freshwater resources for injection within the Wristen Group, Fusselman, and Upper Montoya Group because of the depth of these sub-formations and the upper shale permeability boundary created by the Woodford Shale.

13. I have also studied the location of known fault lines within the area where the wells are proposed to be drilled and the closest known fault line to the wells is located a minimum of approximately 4 miles away from where the wells are proposed to be drilled.

14. There are no currently recognized production shales within the Wristen Group, Fusselman Formation, and Upper Montoya Group in this part of the western Permian Basin. While there may be some isolated traps located within these sub-formations, it takes significant ability with imaging to be able to locate these deposits in order to properly target them.

15. I attest that the information provided herein is correct and complete to the best of my knowledge and belief.

16. The granting of this application is in the interests of conservation and the prevention of waste.

Kate Zeigler 10.16.18
Kate Zeigler

SUBSCRIBED AND SWORN to before me this 16th day of October, 2018 by Kate Zeigler.

Notary Public

My commission expires: 4/20/22

OFFICIAL SEAL
EMELI R. FERRERO
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires 4/20/22

Delaware Basin Stratigraphic Unit Descriptions

Lower Paleozoic

Woodford Shale (Upper Devonian)

The Woodford Shale is dominated by organic-rich mudstone interbedded with carbonate (limestone and/or dolostone) beds, chert beds and radiolarian laminae. This unit has been interpreted to include sedimentary gravity-flow deposits. Dominantly shale means lower porosity and permeability than the limestone/dolostone units above and below. The Woodford Shale is unconformable on the units below it. Locally this contact includes solution cavities and fissures down into the underlying carbonate unit(s), creating a complex boundary. It is up to 150' thick locally.

Thirtyone Formation (Lower Devonian)

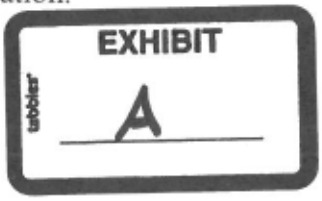
The Thirtyone Formation is part of a wedge of sedimentary rocks that thins to the north and the west where the wedge ends up truncated beneath the base of the overlying Woodford Shale. The Thirtyone Formation is only present in southeastern Lea County and consists of an upper coarsely crystalline dolostone unit and lower chert unit. This unit is not present in the area of concern.

Wristen Group (Middle-Upper Silurian)

The Wristen Group consists of interbedded limestone and dolostone that has a maximum thickness in Lea County, then thins to the north and the west. Thicknesses range from 0 to 1,400' thick. In the Delaware Basin, it occurs up to 19,000' below land surface, then rises to 10,000' to 12,000' subsurface to the north and west. It represents deposition in a shelf-margin environment and includes buildups of coral reefs, stromatoporoids and other invertebrate colonialists. The carbonate beds include boundstones, rudstones and oolitic grainstones with significant primary porosity. To the north, reservoirs targeted for production are dolomitic with vugular and fracture-related porosity.

Fusselman Formation (Late Ordovician-Lower Silurian)

The Fusselman Formation is almost entirely dolostone and can be up to 1,500' thick. As with the overlying Thirtyone Formation and Wristen Group, the Fusselman Formation thinks to the north and west where it is truncated beneath the Woodford Shale to the north of where the Wristen Group pinches out. In Lea County, the Fusselman Formation can be 18,000' or more below land surface. It is primarily coarsely crystalline dolostone that is vugular, fractured and/or brecciated, with significant secondary porosity due to the fracturing and brecciation.



Montoya Group (Middle-Upper Ordovician)

The Montoya Formation includes three dolostone members overlying a sandstone unit. The three upper carbonate units include the Upham, Aleman and Cutter Members and the lower sandstone unit is the Cable Canyon Sandstone. The entire package can be up to 600' thick and depth to the top of the unit ranges from 5,500' near the northern pinchout in Chaves County to as much as 20,000' in southern Lea County. The Montoya Group was stripped from the higher parts of the Central Basin Platform by erosion in the Late Pennsylvanian and Early Permian.

Simpson Group (Middle-Upper Ordovician)

The Simpson Group in a heterogeneous unit with limestone, dolostone, sandstone and green shale horizons. Up to 1000' thick, it is dominated by the shale beds (55% of total thickness), followed by the dolostone and limestone beds (40%) and finally sandstone (5%). The shale horizons can serve as a permeability barrier between the underlying Precambrian basement rocks and overlying reservoirs where the Simpson Group is present and has sufficient thickness. Depths to the Simpson Group range from 6,700' on parts of the Central Basin Platform to up to 21,000' in the Delaware Basin.

Ellenburger Formation (Lower Ordovician)

The Ellenburger Formation is up to 1000' thick and composed of limestone and dolostone that represent cyclic deposition in waters of the inner platform with restricted circulation. Porosity in the Ellenburger Formation includes porosity in the matrix, vugs, major karst dissolution features, collapse karst breccias and fractures. Depths to the top of the unit range from 7,500' on the Central Basin Platform to up to 22,000' in the Delaware Basin.

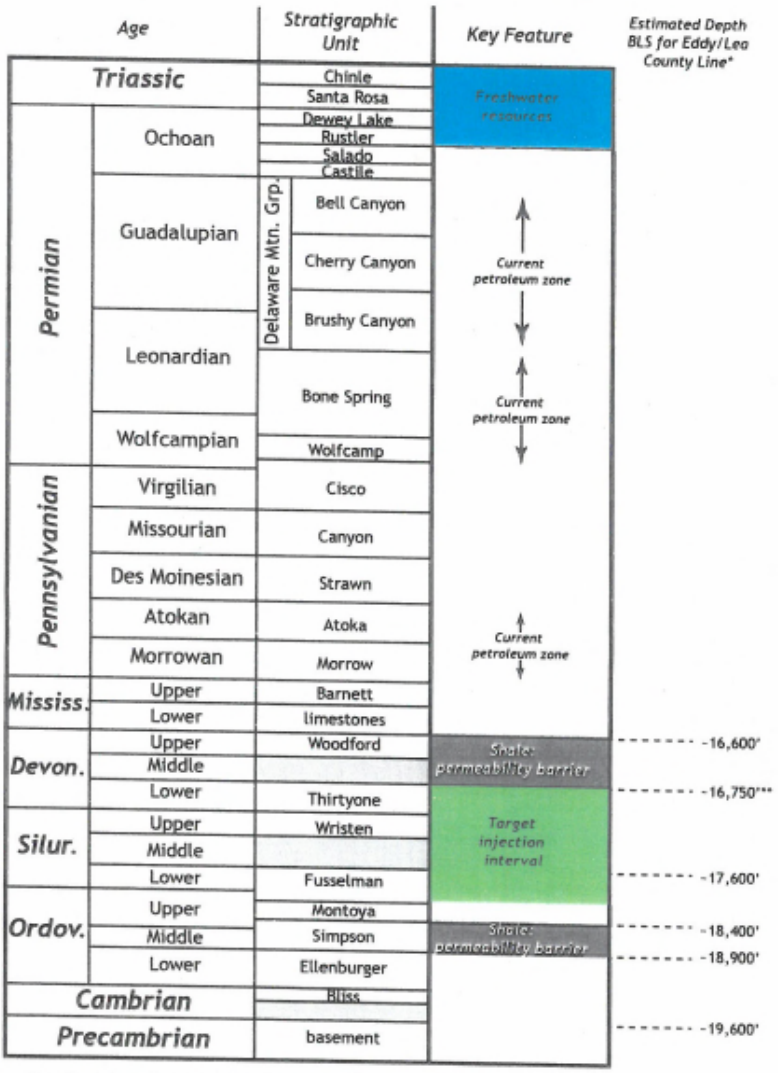
References

Broadhead, R.F., 2017, Petroleum Geology: *in* V.T. McLemore, S. Timmons and M. Wilks (eds.), Energy and Mineral Resources of New Mexico, New Mexico Bureau of Geology and Mineral Resources Memoir 50, vol. A, 90 p.

Comer, J.B., 1991, Stratigraphic analysis of the Upper Devonian Woodford Formation, Permian Basin, West Texas and southeastern New Mexico: Bureau of Economic Geology, University of Texas at Austin, Report of Investigations no. 201, 63 p.

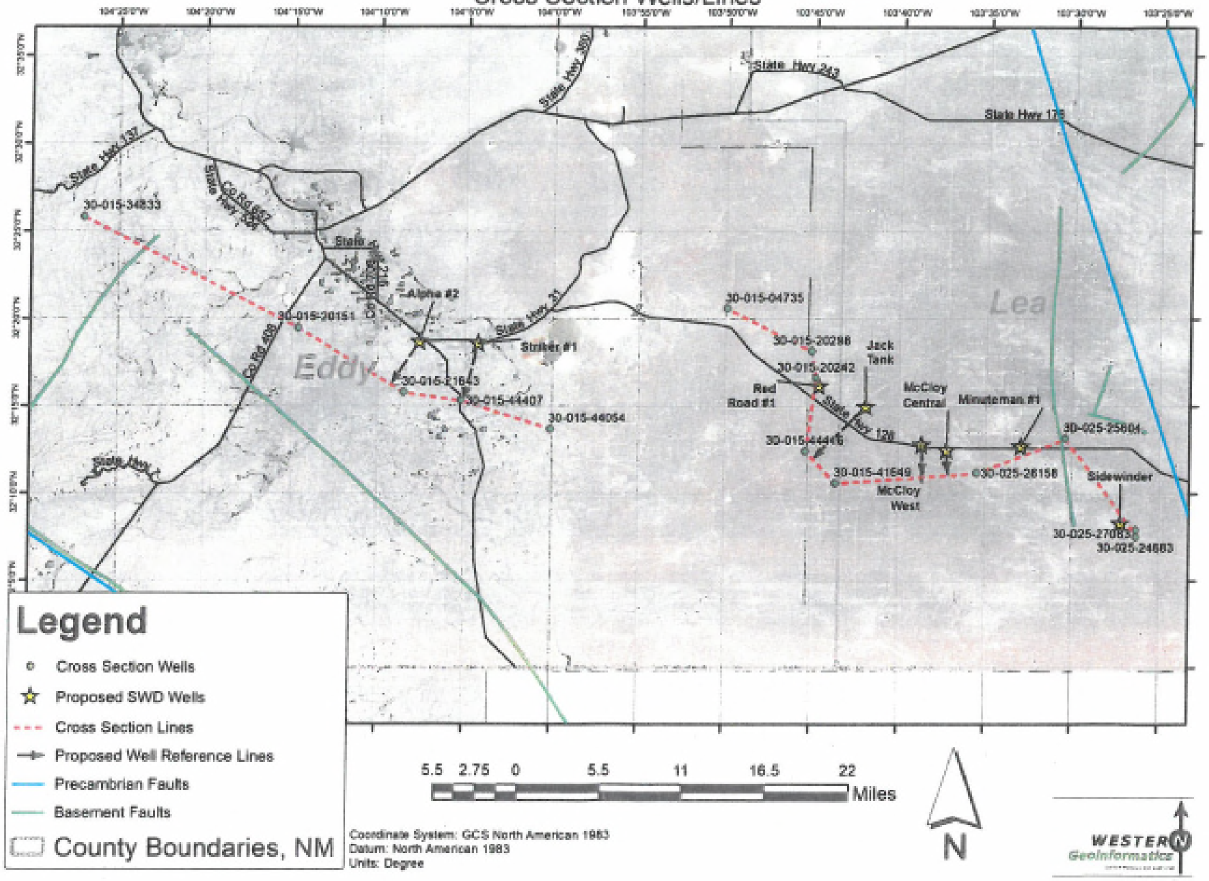
Hemmesch, N.T., Harris, N.B., Mnich, C.A. and Selby, D., 2014, A sequence-stratigraphic framework for the Upper Devonian Woodford Shale, Permian Basin, west Texas: American Association of Petroleum Geologists Bulletin, v. 98, no. 1, p. 23-47, doi:10.1306/05221312077

Texas Bureau of Economic Geology, 2009, Integrated Synthesis of the Permian Basin: Data and Models for Recovering Existing and Undiscovered Oil Resources from the Largest Oil-Bearing Basin in the U.S.: Department of Energy Final Technical Report, Award No: DE-FC26-04NT15509, 964 p.



Stratigraphic chart for the Delaware Basin from Broadhead (2017).
* Based on data from 30-015-44416 Striker 2 SWD #1 (23-24S-31E).
**Note the Thirtyone Formation is not present in the project area.

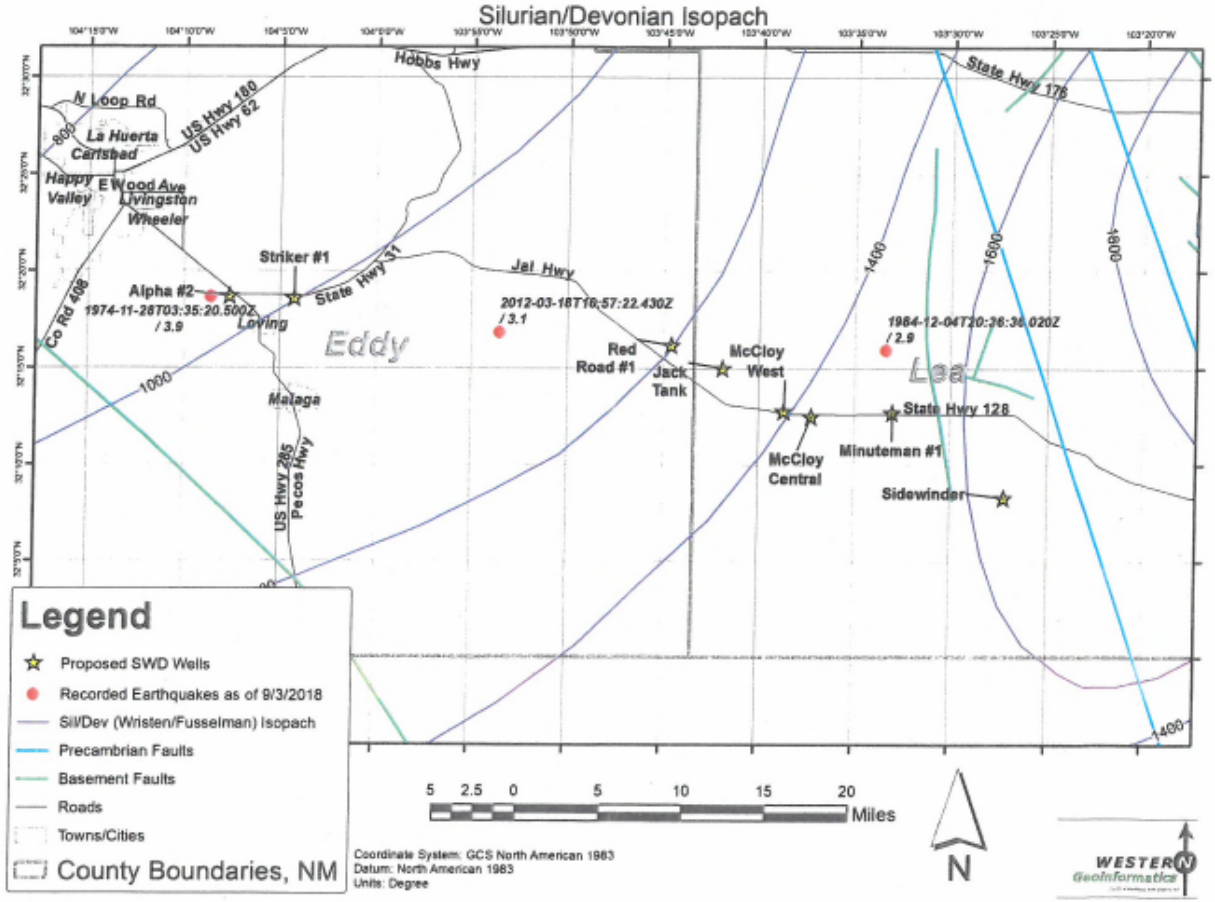
Cross Section Wells/Lines

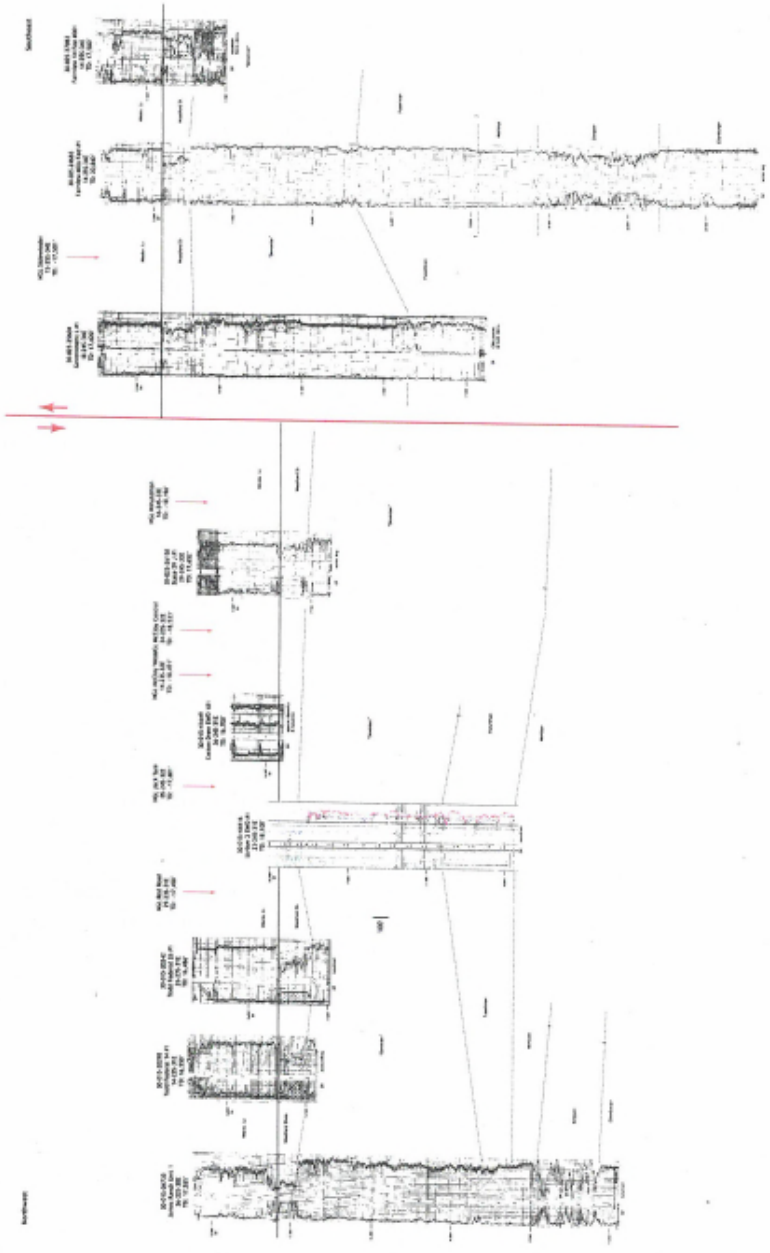


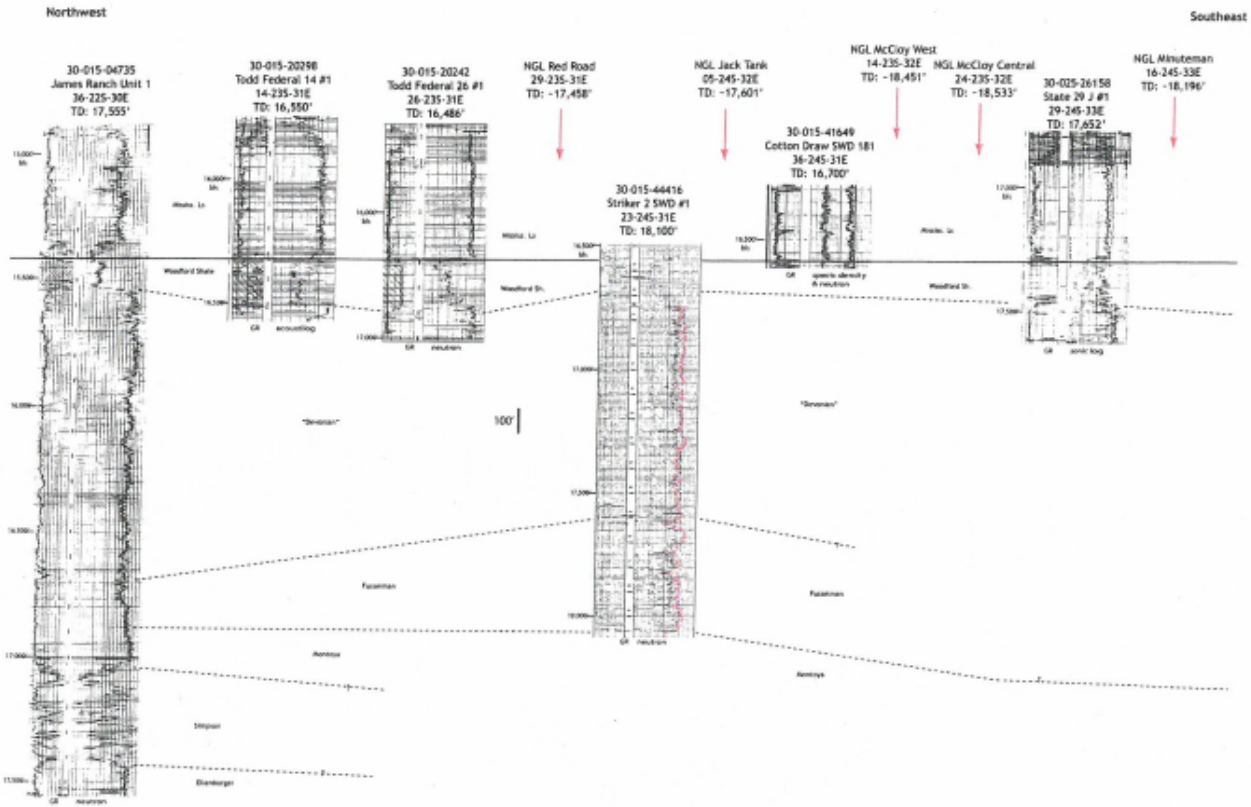
Legend

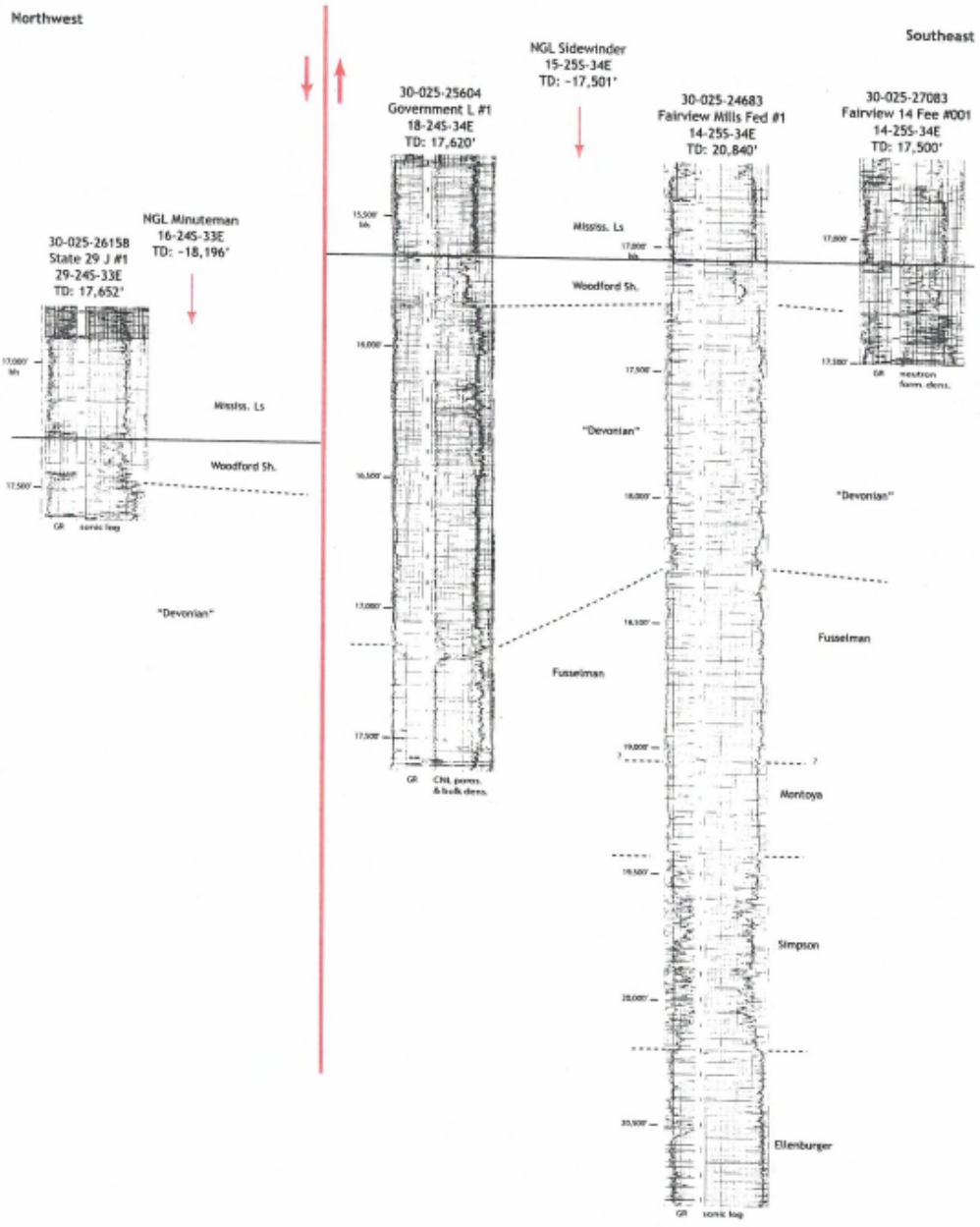
- Cross Section Wells
- Proposed SWD Wells
- Cross Section Lines
- Proposed Well Reference Lines
- Precambrian Faults
- Basement Faults
- County Boundaries, NM

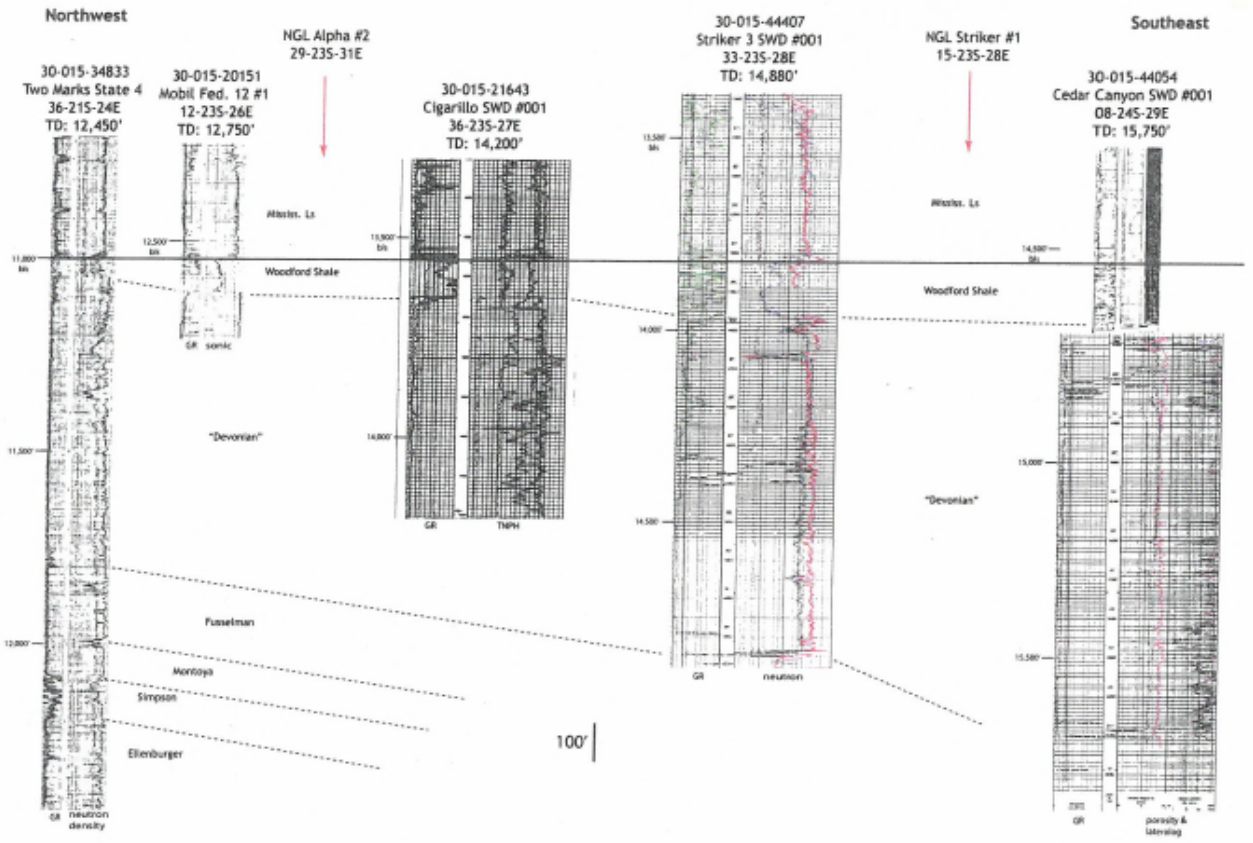
Coordinate System: GCS North American 1983
Datum: North American 1983
Units: Degree


Silurian/Devonian Isopach
Hobbs Hwy
State Hwy 176
N Loop Rd
US Hwy 180
US Hwy 62
La Huerta
Carlsbad
Happy Valley
E Wood Ave
Livingston
Wheeler
Striker #1
Jal Hwy
State Hwy 31
Alpha #2
1974-11-28T03:35:20.500Z
/ 3.9
Loving
Co Rd 408
Eddy
2012-03-18T16:57:22.430Z
/ 3.1
1984-12-04T20:26:36.020Z
/ 2.9
Lea
Red
Road #1
Jack
Tank
McCloy
West
McCloy
Central
State Hwy 128
Minuteman #1
Sidewinder
Malaga
US Hwy 285
Pecos Hwy
1000
1400
1600
1800
Legend
Proposed SWD Wells
Recorded Earthquakes as of 9/3/2018
Sil/Dev (Wristen/Fusselman) Isopach
Precambrian Faults
Basement Faults
Roads
Towns/Cities
County Boundaries, NM
5 2.5 0 5 10 15 20
Miles
N
Coordinate System: GCS North American 1983
Datum: North American 1983
Units: Degree
WESTERN
GeoInformatics




Northwest
Southeast
30-015-04735
James Ranch Unit 1
36-22S-30E
TD: 17,555'
30-015-20298
Todd Federal 14 #1
14-23S-31E
TD: 16,550'
30-015-20242
Todd Federal 26 #1
26-23S-31E
TD: 16,486'
NGL Red Road
29-23S-31E
TD: ~17,458'
30-015-44416
Striker 2 SWD #1
23-24S-31E
TD: 18,100'
NGL Jack Tank
05-24S-32E
TD: ~17,601'
30-015-41649
Cotton Draw SWD 181
36-24S-31E
TD: 16,700'
NGL McCloy West
14-23S-32E
TD: ~18,451'
NGL McCloy Central
24-23S-32E
TD: ~18,533'
30-025-26158
State 29 J #1
29-24S-33E
TD: 17,652'
NGL Minuteman
16-24S-33E
TD: ~18,196'
Woodford Shale
Woodford Sh.
"Devonian"
Fusselman
Montoya
Simpson
Ellenburger
100'


Northwest
Southeast
30-025-26158
State 29 J #1
29-24S-33E
TD: 17,652'
NGL Minuteman
16-24S-33E
TD: ~18,196'
30-025-25604
Government L #1
18-24S-34E
TD: 17,620'
NGL Sidewinder
15-25S-34E
TD: ~17,501'
30-025-24683
Fairview Mills Fed #1
14-25S-34E
TD: 20,840'
30-025-27083
Fairview 14 Fee #001
14-25S-34E
TD: 17,500'
Mississ. Ls
Woodford Sh.
"Devonian"
Fusselman
Montoya
Simpson
Ellenburger
GR
sonic log
CNL perm. & bulk dens.
GR neutron form. dens.


Northwest
Southeast
30-015-34833
Two Marks State 4
36-21S-24E
TD: 12,450'
30-015-20151
Mobil Fed. 12 #1
12-23S-26E
TD: 12,750'
NGL Alpha #2
29-23S-31E
30-015-21643
Cigarillo SWD #001
36-23S-27E
TD: 14,200'
30-015-44407
Striker 3 SWD #001
33-23S-28E
TD: 14,880'
NGL Striker #1
15-23S-28E
30-015-44054
Cedar Canyon SWD #001
08-24S-29E
TD: 15,750'
Mississ. Ls
Woodford Shale
"Devonian"
Fusselman
Montoya
Simpson
Ellenburger
GR
neutron
density
GR
sonic
GR
THPH
GR
neutron
GR
porosity &
laterolog
100'

8

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

AMENDED APPLICATION OF NGL WATER SOLUTIONS PERMIAN, LLC FOR APPROVAL OF SALT WATER DISPOSAL WELL IN LEA COUNTY, NEW MEXICO

CASE NO. 16439

AMENDED APPLICATION OF NGL WATER SOLUTIONS PERMIAN, LLC FOR APPROVAL OF SALT WATER DISPOSAL WELL IN LEA COUNTY, NEW MEXICO

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AMENDED APPLICATION OF NGL WATER SOLUTIONS PERMIAN, LLC FOR APPROVAL OF SALT WATER DISPOSAL WELL IN EDDY COUNTY, NEW MEXICO

CASE NO. 16442

AFFIDAVIT OF STEVEN TAYLOR

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

I, Dr. Steven Taylor, make the following affidavit based upon my own personal knowledge.

1. I am over eighteen (18) years of age and am otherwise competent to make the statements contained herein.

2. I have worked at the Los Alamos National Labs from 1991 to 2006. I currently am the secretary of GeoEnergy Monitoring Systems, Inc., a company that builds and conducts seismic monitoring.

3. I have obtained a Bachelor of Science degree in geology at Ohio University (1975) and a Ph.D. in Geophysics at the Massachusetts Institute of Technology (1980).

4. I am familiar with the applications that NGL Water Solutions Permian, LLC ("NGL") has filed in this matter and I have conducted a study related to the areas which is the subject matter of those applications.

5. The applicant, NGL (OGRID No. 372338), seeks an order approving the McCloy Central SWD #1, Minuteman SWD #1, and Red Road SWD #1 salt water disposal wells.

6. In its applications, NGL requests approval to use larger diameter tubing in both wells which is 7" by 5 ½".

7. The wells will be spaced out and not located closer than approximately 1 mile from other disposal wells, approved for injection into the Devonian and Silurian formations.

8. The approved injection zone for the wells is located below the base of the Woodford Shale formation and above the Ordovician formation, which consists of significant shale deposits.

9. The wells will primarily be injecting fluids into the Wristen Group and Fusselman formations, with some fluids potentially being injected into the Upper Montoya Group. Each of these sub-formations or zones are located within what is commonly referred to by operators and the Division as the "Devonian and Silurian" formations. These zones consist of a very thick sequence of limestone and dolostone which has significant primary and secondary porosity and permeability that is collectively between 1,500 to 3,000 feet thick.

10. The closest known fault line is located approximately 2 to 20 miles away from where the wells are located.

11. I have studied seismic catalogs, unpublished catalogs and USGS catalogs for the time period of 2010 – 2017 selective events within 50 km of one the Striker SWD wells. Attached as Exhibit A is a copy of my study. We have detected and located 4 small events since the NGL seismic stations have been installed (see Exhibit A). Although more monitoring time is required my study concludes that at this time there is very little seismic activity in the areas where the wells are located.

12. I have also reviewed information provided by FTI Platt Sparks involving several different fault slip probability analysis conducted, using a tool created by Stanford University. These fault slip potential models showed low probability of slip or earthquakes to known mapped faults located closest to the wells. A copy of the studies are attached hereto as Exhibit B.

13. I attest that the information provided herein is correct and complete to the best of my knowledge and belief.

14. The granting of this application is in the interests of conservation and the prevention of waste.

Steven Taylor

Steven Taylor

SUBSCRIBED AND SWORN to before me this 17 th day of October, 2018 by Steven Taylor.

Notary Public

My commission expires: June 5, 2022

OFFICIAL SEAL
MAURICIO JAVIER GARCIA TERRIQUEZ
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires June 5, 2022

Seismic Catalog Analysis Within 50 km of McCloy Central SWD #1, Minuteman SWD #1 and Red Road SWD #1

Prepared for NGL-Permian
by
GeoEnergy Monitoring Systems
October 17, 2018

Analysis is based on NMT seismic catalogs, unpublished catalogs and USGS catalogs for the time period 2010-2017 selecting events within 50 km of one of the Striker 2 SWD well. Additionally, seismic monitoring through October 15, 2018 from the three NGL seismic stations installed at Striker 2, Striker 3 and Striker 6 SWD wells on September 6, 2018.

Striker Two, Sand Dunes well, Lat/Long: 32.2072820/-103.7557370
Striker Three, Gossett well, Lat/Long: 32.2551110/-104.0868610
Striker Six, Madera well, Lat/Long: 32.2091150/-103.5359570

Figure 1 shows seismic station locations for three wells (blue pushpins) with estimated detection levels for M 1.0 (green circles) and M 1.5 (red circles) along with NGL-Permian stations (yellow pushpins). **Figure 2** shows seismicity listed in Table 1 shown as red circles and additional regional stations from TexNet and NMT (green pushpins). These regional stations will be used along with the 3 Striker SWD seismic stations for regional monitoring.

Striker Two, Sand Dunes well, Lat/Long: 32.2072820/-103.7557370
Striker Three, Gossett well, Lat/Long: 32.2551110/-104.0868610
Striker Six, Madera well, Lat/Long: 32.2091150/-103.5359570

The USGS reports only two events in the vicinity since 2010. New Mexico Tech runs a seismic network (SC) north of the wells for the DOE Waste Isolation Plant (only short-period vertical components). There are a total of seven seismic events in this time period ranging in magnitude from 1.0 to 3.1.

Since the seismic deployment, we had four single-station detections at the STR6 station and made preliminary locations using available regional data (**Figure 3**). The waveform similarity between events suggests that they were closely spaced. Due to the small magnitudes, the signal-to-noise levels at other stations were very poor so the locations have large uncertainty and there is little constraint on depth. It is doubtful that the events were reported by any other network such as that operated by New Mexico Tech.

Table 1: Seismicity Within 50 km of Striker SWD Wells 2010-2017

Date	Origin Time GMT	Latitude	Longitude	Depth (km)	Magnitude
20111227	23:10:37	32.37	-103.95	NaN	1.6
20120318	10:57:22	32.281	-103.892	5.0	3.1

20170211	14:34:27	32.29	-103.92	NaN	1.5
20170302	11:38:53	32.37	-103.88	NaN	1.7
20170325	22:46:01	32.13	-103.77	NaN	1
20170503	17:47:21	32.082	-103.023	5.0	2.6
20170814	01:09:56	32.39	-103.56	NaN	1.2

Table 2. New Mexico Area Reporting Period Seismicity (km units)

Date	Origin Time (GMT)	Lat	Long	Depth	Loc Error	M	(+/-)
09/10/18	23:35:43.942	32.1793	-103.5283	1	5.58	1.25	0.23
09/14/18	06:57:47.614	32.1540	-103.5030	1	5.58	1.11	0.41
09/15/18	16:48:21.041	32.1630	-103.5211	1	5.37	1.50	NaN
10/13/18	22:07:22.259	32.0998	-103.456	6	5.64	1.6	0.119

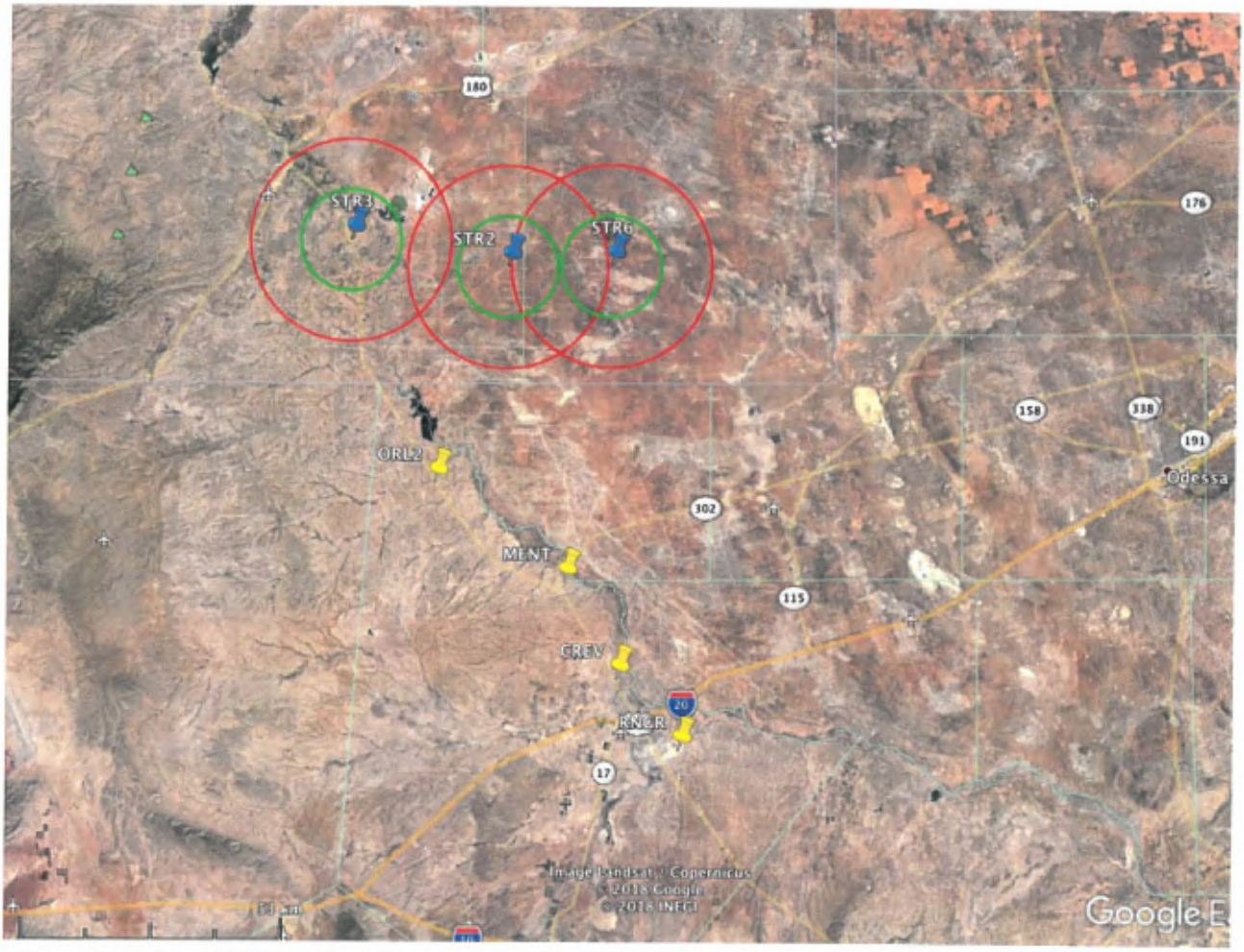


Figure 1. Striker SWD wells seismic station locations (blue push pins) and existing NGL-Permian seismic stations (yellow pushpins). Green and red circles around stations show approximate detection levels for ML 1.0 and 1.5, respectively.

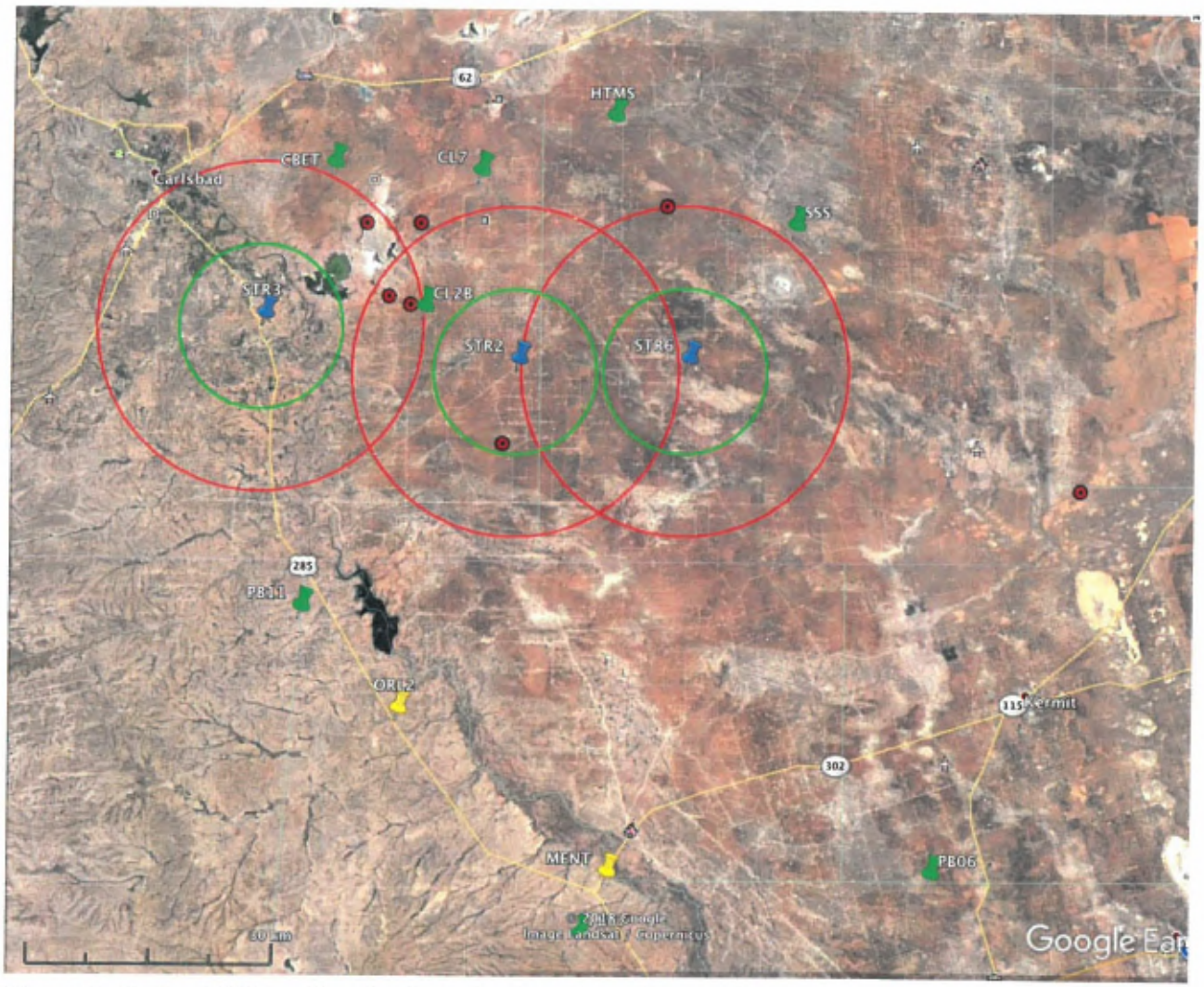


Figure 2. Striker SWD wells seismic station locations (blue push pins) and existing NGL-Permian seismic stations (yellow pushpins). Green and red circles around stations show approximate detection levels for ML 1.0 and 1.5, respectively. Other regional seismic stations run by TexNet and New Mexico Tech are shown as green pushpins. Seismicity listed in Table 1 shown as red circles.

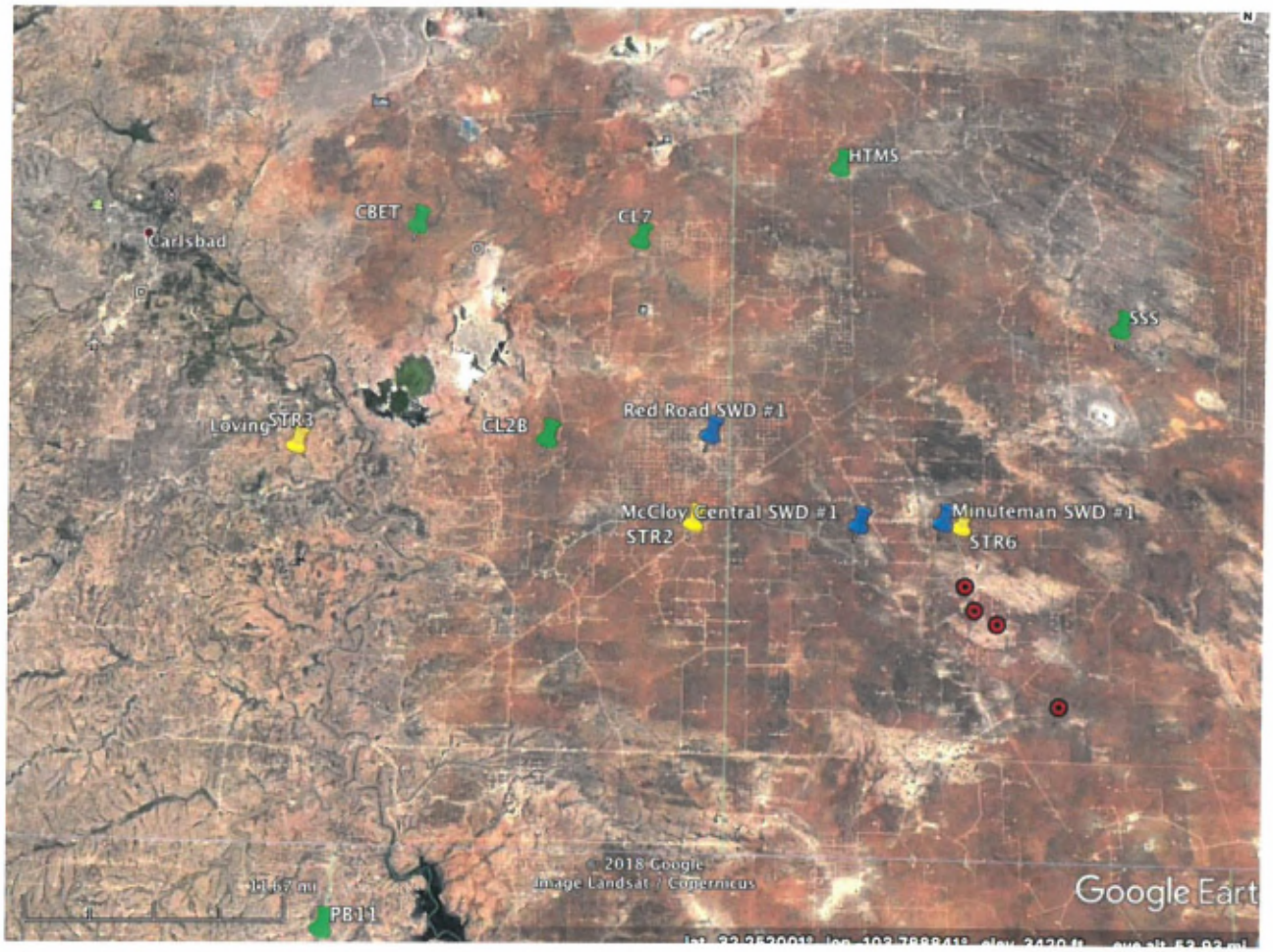


Figure 3. Seismic events in between September 6 and October 13, 2018 as red circles (Table 2).

FTI™
PLATT SPARKS

Texas Registered Engineering Firm No F – 16381

October 1, 2018

RE: Striker 1 SWD and Alpha 2 SWD
Eddy County, New Mexico
30-015-44406 and 30-015-44530

I have reviewed the geology, seismic activity, production and injection history near the Alpha SWD 2 and Striker 1 SWD and I would conclude that the Subject wells do not pose a substantial risk of increasing seismicity in the area.

1. Geologic mapping and cross-sections through the area of review did not reveal any faults that would present any type of concern regarding confinement or provide a conduit that might induce seismicity at deeper depths. (see enclosed maps and cross-sections). The localized mapping did not reveal any faults however I have included regional basement faults in the FSP analysis.
2. FSP analysis was conducted in the area to analyze the potential for fault slip and induced seismicity related to SWD injection. Regional basement fault trends mapped and published by the Texas Bureau of Economic Geology and referenced in the Lund Snee and Zoback paper (State of Stress in the Permian Basin - 2018) were digitized and input into the FSP analysis. None of the faults reached a critical pressure that would initiate fault slip based on the FSP analysis.

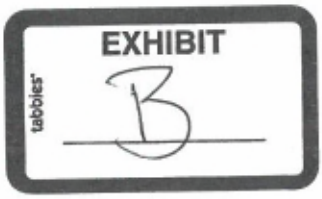
1 - Geologic mapping

The cross-sections and maps show simple "layer-cake" geology within the injection interval with no evidence of faulting or significant changes in interval thickness. The enclosed maps and cross-sections illustrate the geologic setting near the Subject wells:

- Map 1 - Devonian Structure Area of Review (Striker 1 SWD, and Alpha 2 SWD)
- Cross-section A-A'
- Cross-section B-B'

925-A Capital of Texas Highway, South | Austin, TX 78746
512.327.6930 telephone | 512.327.7069 fax | ftiplattsparks.com

Exhibit B



- Cross-section C-C'

Map 1 is a structure map on the top of the Devonian and top of the proposed injection interval in the Area of Review (Striker 1 SWD, and Alpha 2 SWD). This map also shows ESE dip and there is no evidence of faulting or any specific structural anomaly indicative of faulting within the 100 sq. mile area of review. There are published fault locations for basement faults approximately 10 km WNW and SW of the Subject wells. It is likely that the 3.9 Mw event of 11-28-74 occurred along the fault system to the west which is approximately 5 miles west of the USGS location for this earthquake. It would not be uncommon for locations to be in error by +/- 5.0 miles for this time period due to the sparsity of seismographs in the area at this time. These faults were digitized and imported into the FSP analysis to determine the potential for fault slip or induced seismicity as a result of SWD injection.

Cross-sections A-A', B-B', and C-C' provide visual representations of the geology in the area of review. Each of these cross-sections demonstrate simple "layer-cake" geology with no indication of significant faulting in the areas of review.

2 – FSP Analysis

Fault slip potential (FSP) was analyzed in the area of review. Fault segment orientation/azimuth is shown on **Map 2**. Additional input values for the model are shown in **Figure 1.** Depths were determined from the cross-sections and structure maps included in this report. All other input values are typical for the targeted formations.

Figure 2 shows the location of existing Devonian SWD injection wells and the proposed Subject wells (Striker 1 SWD, and Alpha 2 SWD). The estimated locations of basement faults are shown as fault segments F1-F9. Faults are segmented to account for deviations in fault azimuth since that input value is most critical in determining fault slip potential.

Figure 3 shows the historical Devonian injection and potential future injection that was input into the FSP analysis. The existing injection wells were held constant and the Subject wells were held constant at 40,000 bbls/day for 10 years and then stepped down to a rate of 25,000 bbls/day by 2038.

Figure 4 – Figure 12 shows the sensitivity analysis of varying the input stress data values by 10% for fault segments F1-F9. The orientation of SHmax used in the analysis is estimated from the values reported by Lund Snee and Zoback (2018). The faults F1-F5 in this area are not optimally oriented for slip in the current stress environment with a difference of +/- 100 deg. which yields very high pressures to initiate slip even with the 10% variance. Thus, the conclusion in this area is that faults F1-F5 are not likely to slip as a result of SWD injection.

Faults F6-F9 are more optimally oriented for potential slip and represent some cause for concern. These faults are fortunately still over 5 miles from the Subject wells and thus pressure increases at the fault remain below critical values. Fault segment F6 represents the most concerning fault which shows a potential for slip at 1,300 psi increase for the input values and 400 psi for the 10% varied inputs. The 400 psi value assumes a shallower dipping fault.

Figure 13 – Figure 15 shows the calculated pressure front resulting from the modelled injection at time periods ending in years 2025, 2035, and 2045. This analysis indicates modest pressure change (5 -84 psi) along faults F1-F5 however these faults require substantial pressure increases to slip due to their orientation relative to SHmax. The primary fault segment of concern is F6 which is more optimally oriented to slip. The calculated pressure along F6 by 2045 is 152 psi. which remains below the 400-psi pressure that would initiate fault slip. This scenario is only if the fault dip angle is 10% shallower than the assumed 80 deg angle. (Figure 9 Sensitivity analysis Fault 6)

Conclusion

At this time there is no indication that any wells should be rate restricted. The majority of the faults and fault trends in the area of review are not optimally oriented to slip. In the event that seismicity occurs in the future in this area modifications could be made to all injectors in the area to mitigate the potential for seismicity. I would recommend monitoring of injection rates and seismicity in the area to determine if rate adjustments should be made over the operating life of the injection wells within the area of review.

Should you have any questions, please do not hesitate to call me at (512) 327-6930 or email me at todd.reynolds@ftiplattsparks.com.

Regards,

Todd W. Reynolds – Geologist/Geophysicist
Senior Director, Economics/FTI Platt Sparks

Todd W. Reynolds

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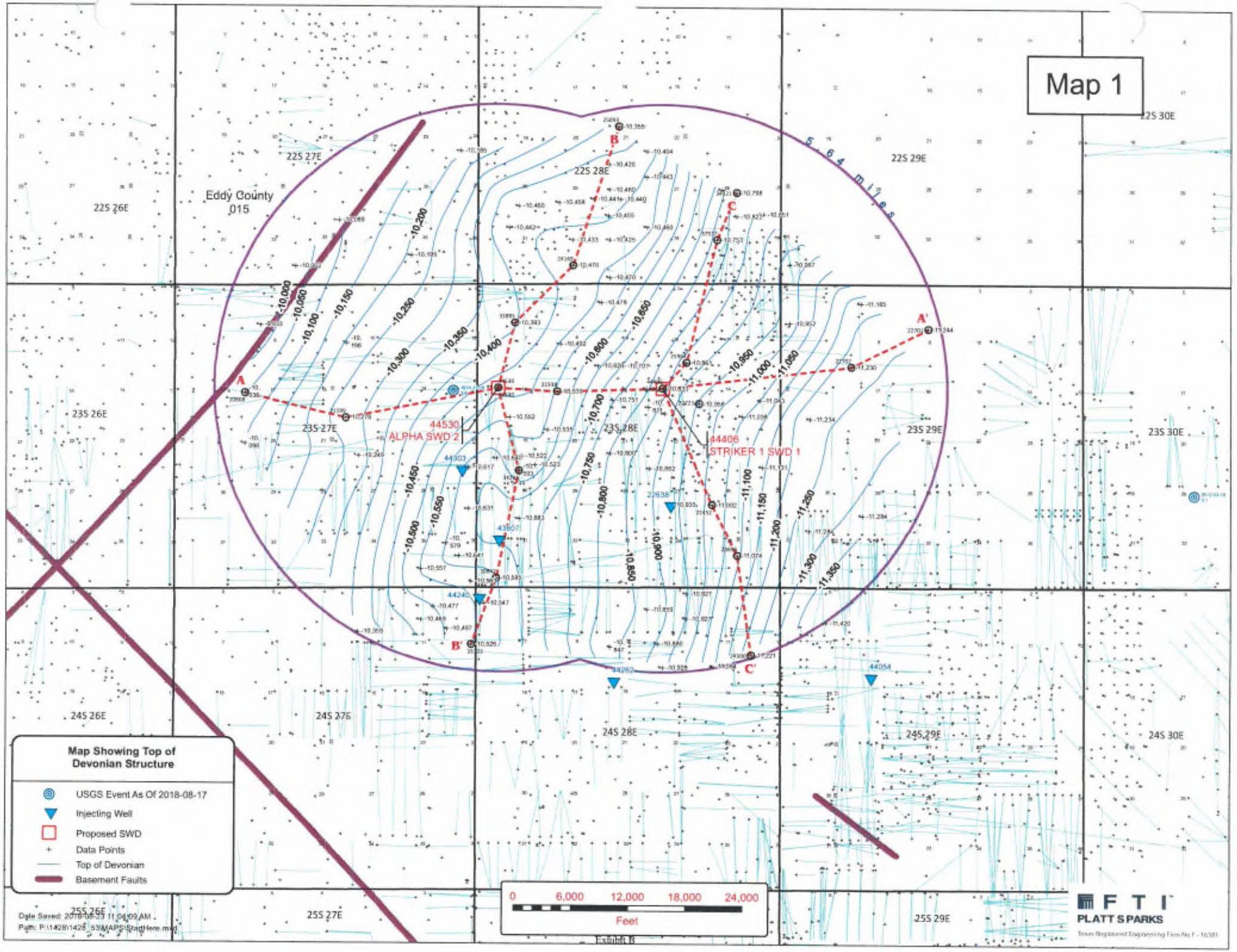
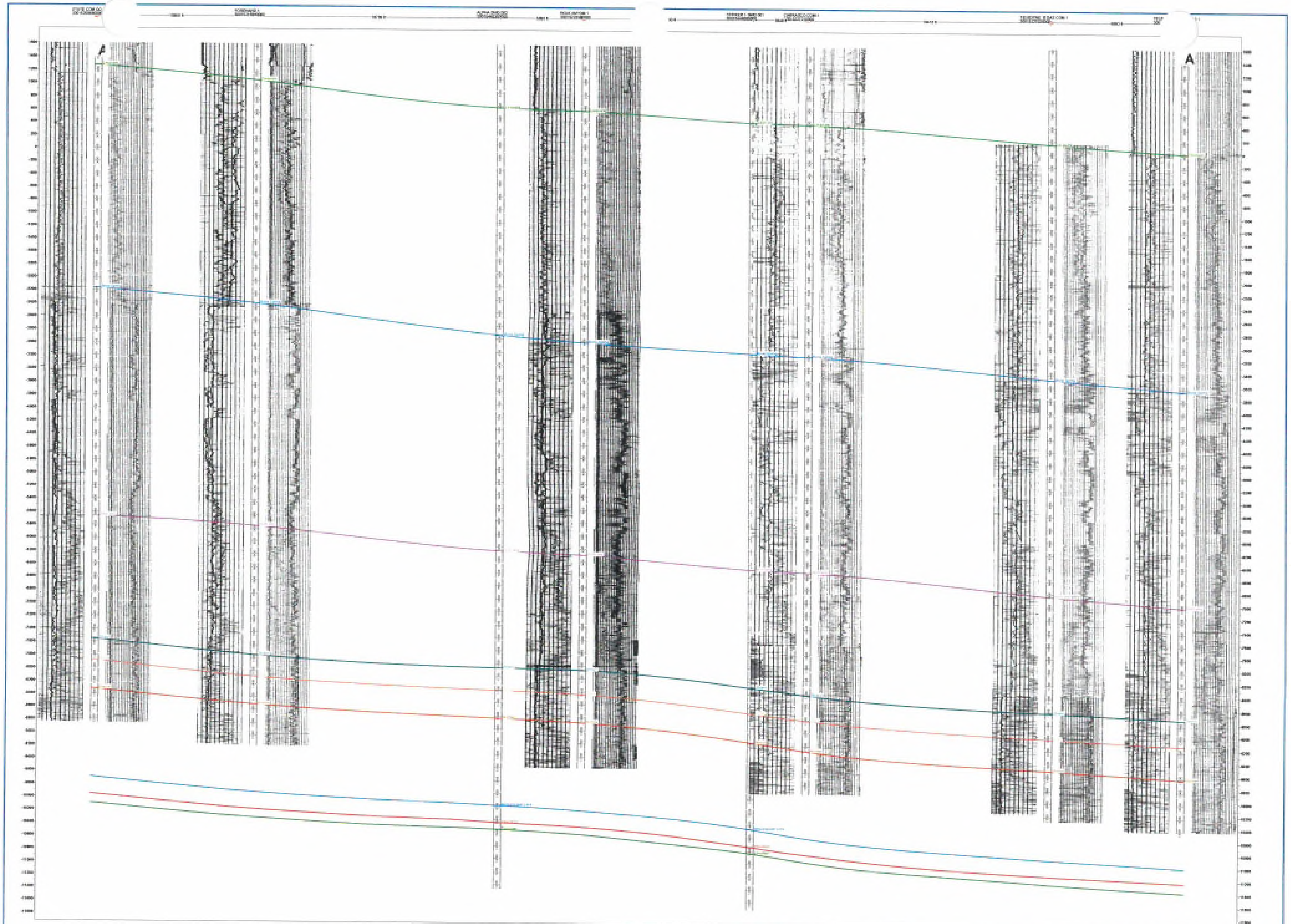
512.327.6930 office

FTI PLATT SPARKS


Map 1
5.64 miles
Eddy County
015
44530
ALPHA SWD 2
44406
STRIKER 1 SWD 1
A
A'
B
B'
C
C'
22S 26E
22S 27E
22S 28E
22S 29E
22S 30E
23S 26E
23S 27E
23S 28E
23S 29E
23S 30E
24S 26E
24S 27E
24S 28E
24S 29E
24S 30E
25S 26E
25S 27E
25S 29E
Map Showing Top of Devonian Structure
USGS Event As Of 2018-08-17
Injecting Well
Proposed SWD
Data Points
Top of Devonian
Basement Faults
0
6,000
12,000
18,000
24,000
Feet
FTI
PLATT S PARKS

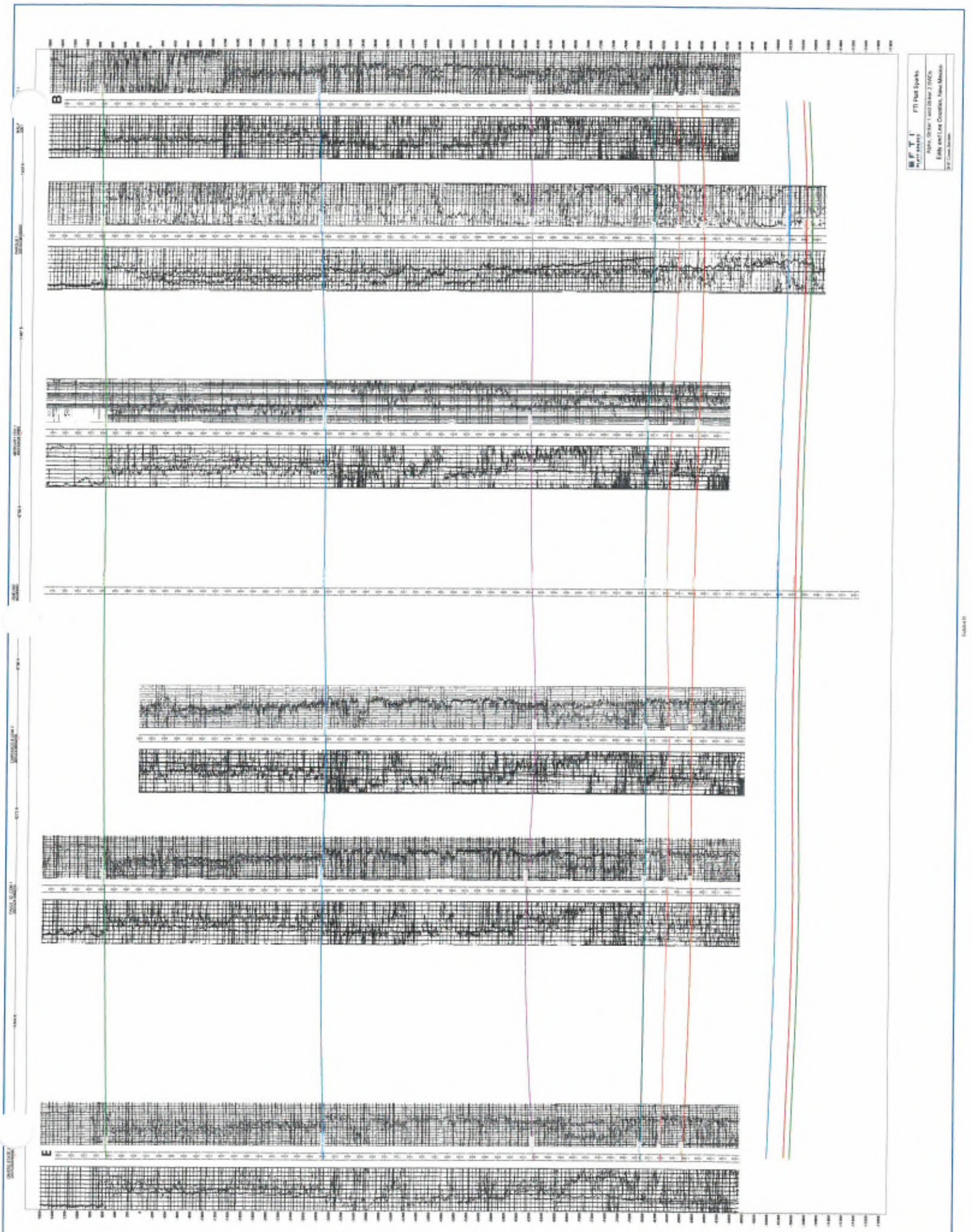


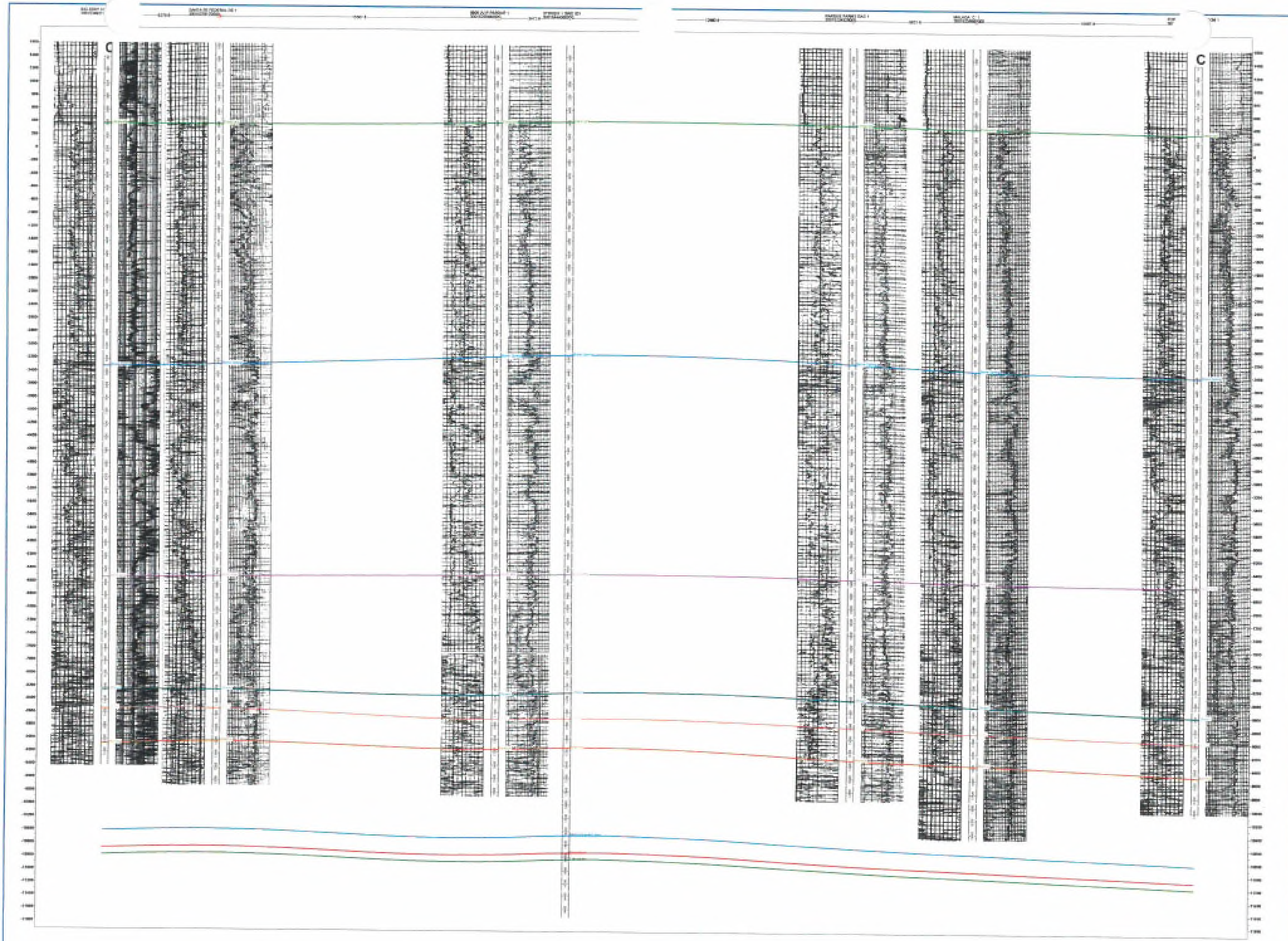
FTI Platt Sparks

Alpha, Striker 1 and Striker 2 SWDs

Eddy and Lea Counties, New Mexico

A-A' Cross Section


B
E



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Alpha, Striker 1 and Striker 2 SWDs

Eddy and Lea Counties, New Mexico

C-C' Cross Section

Map 2

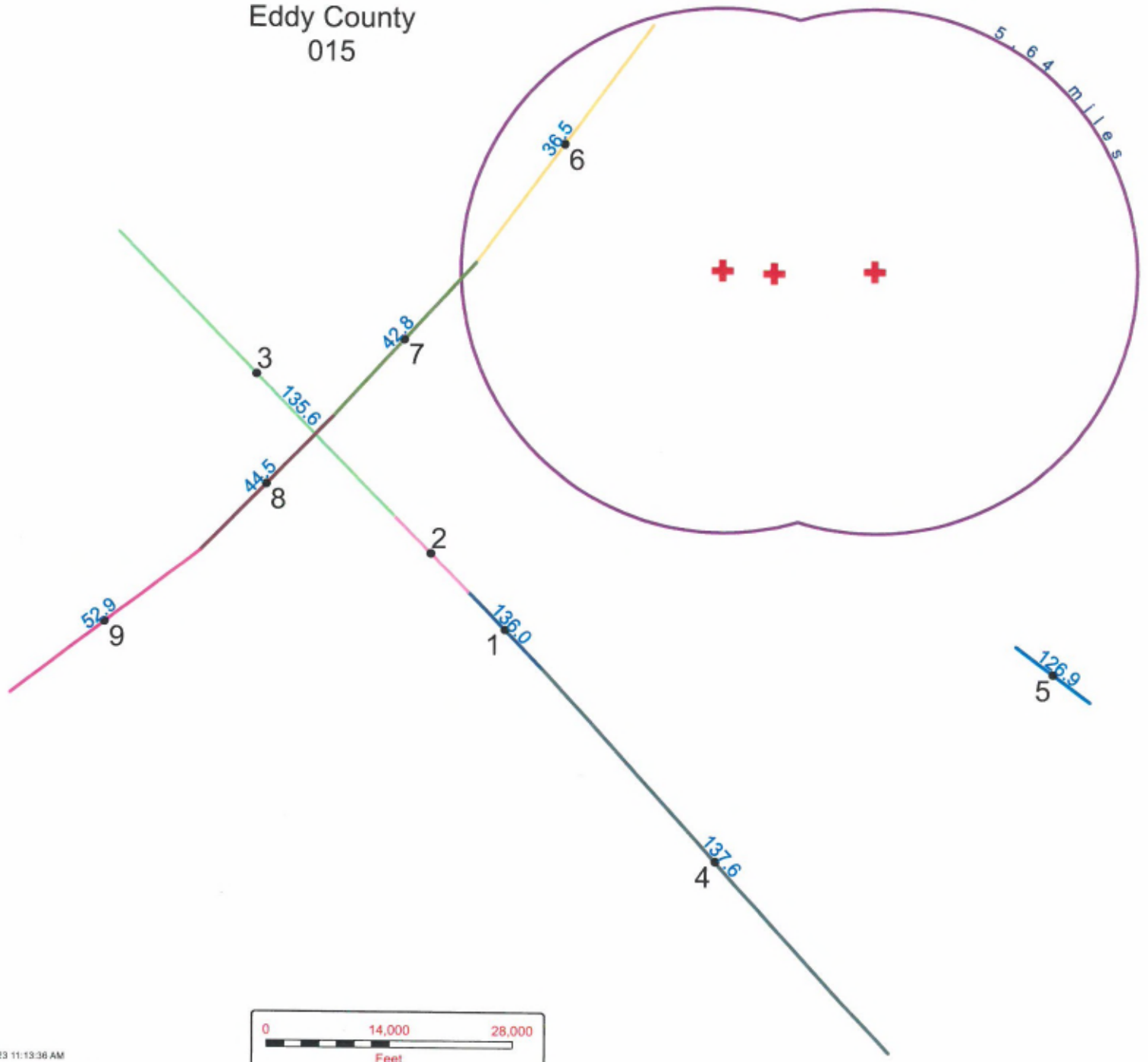

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Exhibit B

Subject wells: Striker 1 SWD & Alpha 2 SWD

MODEL INPUTS

Mid Injection Depth	14,425	ft
Injection Gross Interval	1,469	ft
Injection Net Interval	500	ft
Avg. Porosity	5.0%	
Permeability	20	mD
Vertical Stress Gradient	1.1	psi/ft
Max Horiz. Stress Gradient	Aϕ	0.52 (Snee/Zoback)
Min Horiz. Stress Gradient	Aϕ	0.52 (Snee/Zoback)
Initial Res. Pressure Gradient	0.465	psi/ft
Max Horiz Stress Dir.	55	deg
Fault friction	0.6	mu
Fault dip	**80**	deg

The analysis was conducted based on the existence of faults that are approximately 10 km NW andSW of the subject wells noted by A2 & S1. The faulting is broken into 9 fault segments to account for azimuth change along the fault system

Figure 1 – Input parameters

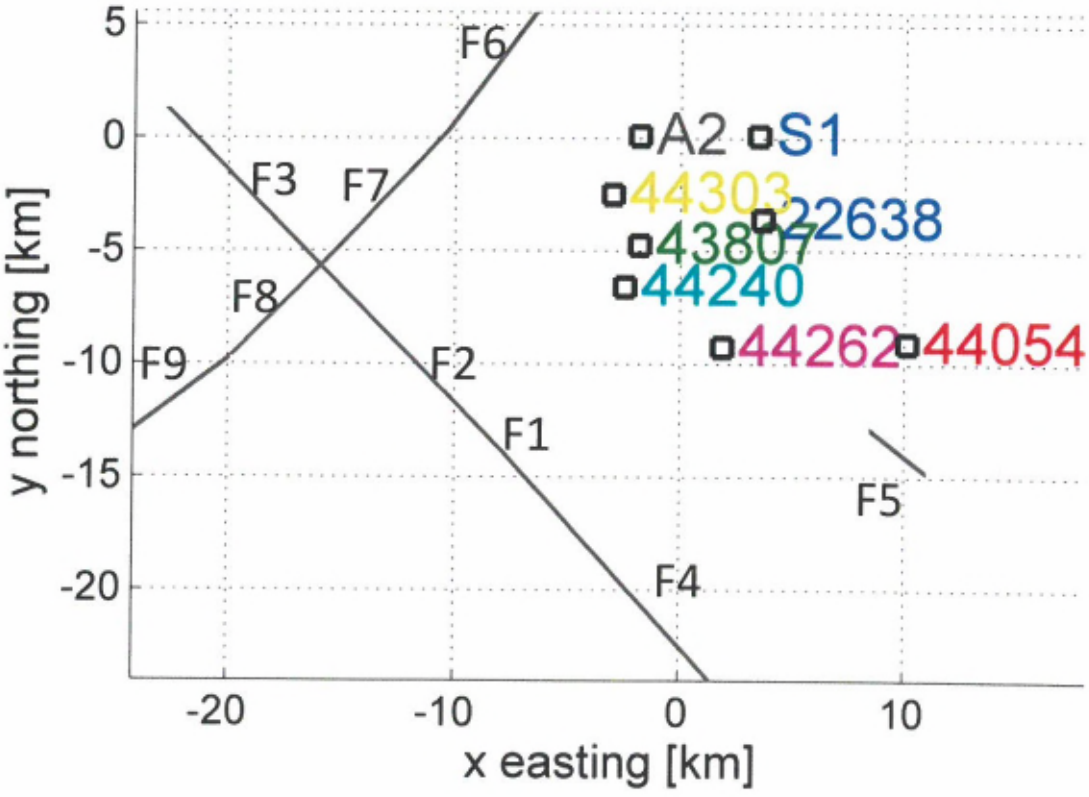
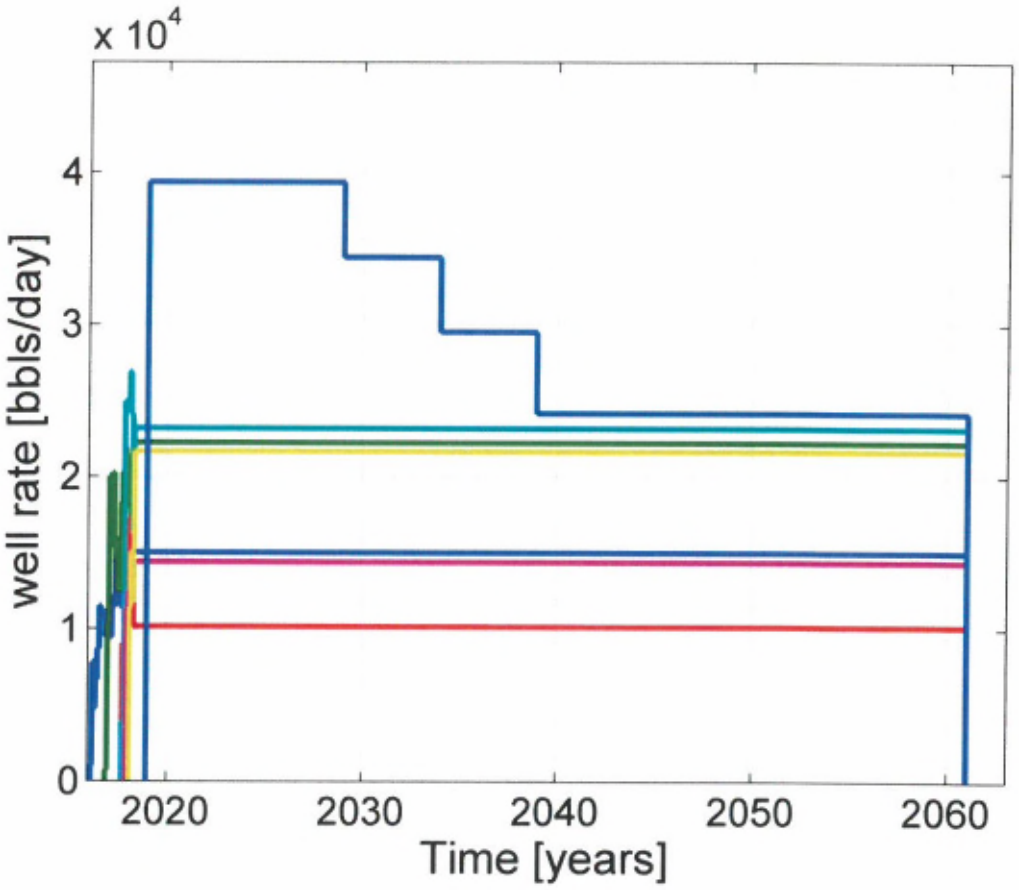


Figure 2 – Locations of Inj. Wells and Faults

WELL INJECTION RATES FOR MODEL
West Area of Review



Historical rates for deep injection in the area of review held constant through the end of the model. Subject wells proposed injection rate of 40,000 bbls per day (blue line) initially for 10 years then steps down over the next 10 years to 25,000 bbls per day through the end of the model.

Figure 3

Input parameters were varied by +/- 10% from the expected input values to arrive at the range of pore pressure changes that would initiate slip. Faults F1-F5 strike generally NW-SE near an azimuth of 135 and Shmax direction is generally 35 deg which leads to high values of pressure to initiate fault slip (low likelihood). The plots for faults F1-F5 indicate a change in pore pressure, at the fault, in excess of 2,900 psi is needed to initiate fault slip.

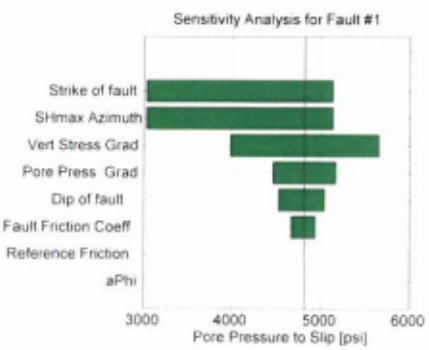


Figure 4

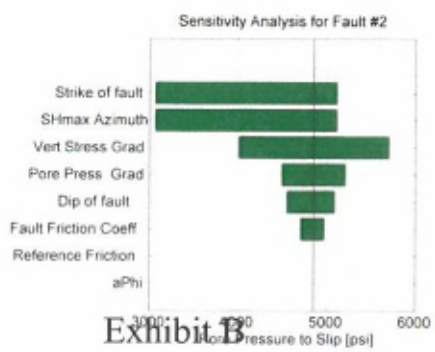


Figure 5

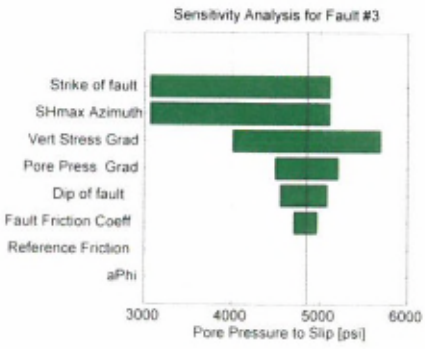


Figure 6

+2,900 psi F1-F5

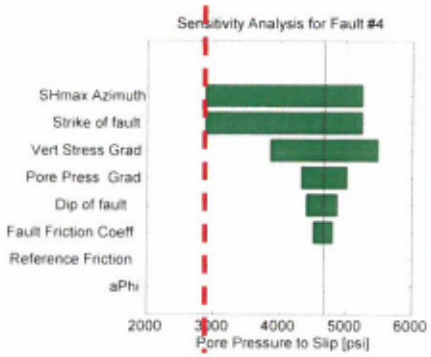


Figure 7

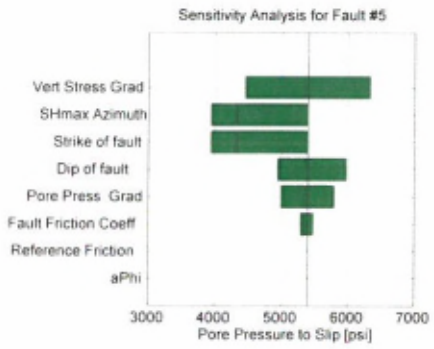


Figure 8

400 psi F6 lower angle fault

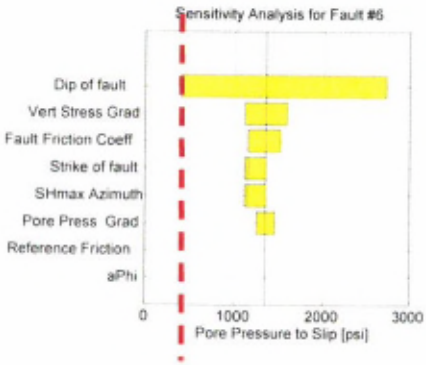


Figure 9

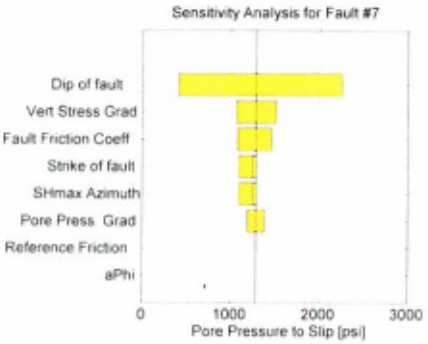


Figure 10

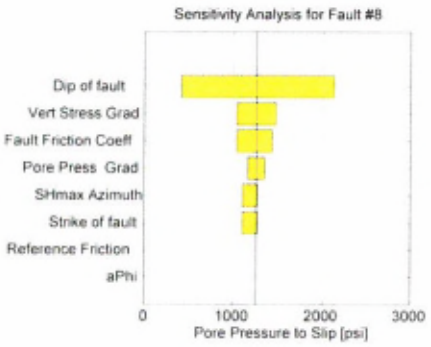


Figure 11

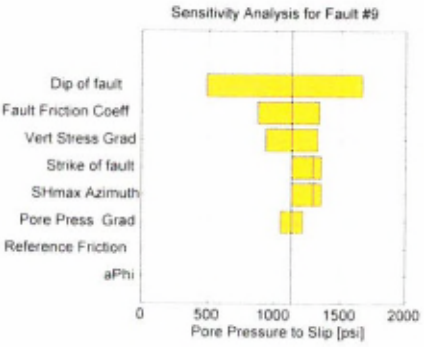


Figure 12

Faults F6-F9 strike generally NE-SW between an azimuth of 37-53 deg. and Shmax direction is generally 35 deg which leads to low values of pressure to initiate fault slip (higher likelihood). The plots for faults F6-F9 indicate a change in pore pressure, at the fault, of 400 psi could initiate fault slip along fault segment F6 which is the fault most proximal to Subject well A2 (Alpha 2 SWD). Fault segment F6 is the fault to be concerned with since the calculated pressure change at this fault is 152 psi in 2045.

It should be noted that the 400 psi pressure needed to initiate fault slip is based on a more shallow fault dip angle than the 80 degrees expected value. If faults are steep (80 deg. as expected) the pressure needed to initiate fault slip is much higher, near 1,200 psi.

Faults F7-F9 are more distal to the injection activity and these faults experience considerably lower pressure increases well below the calculated values needed to initiate fault slip.

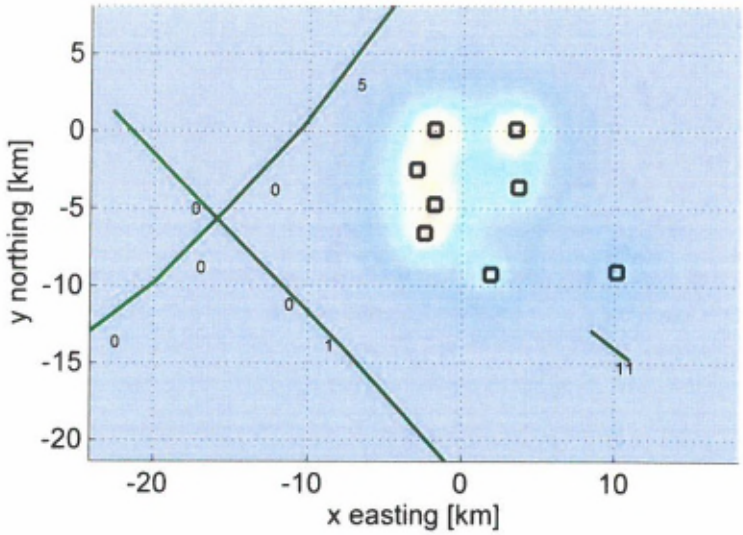


Figure 13 – Pressure Front 2025

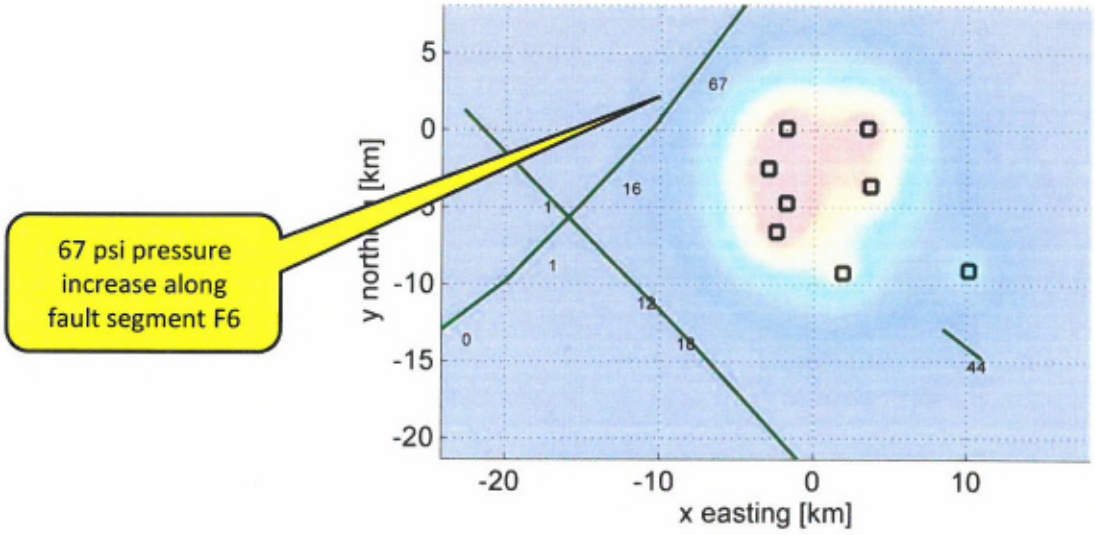


Figure 14 – Pressure Front 2035

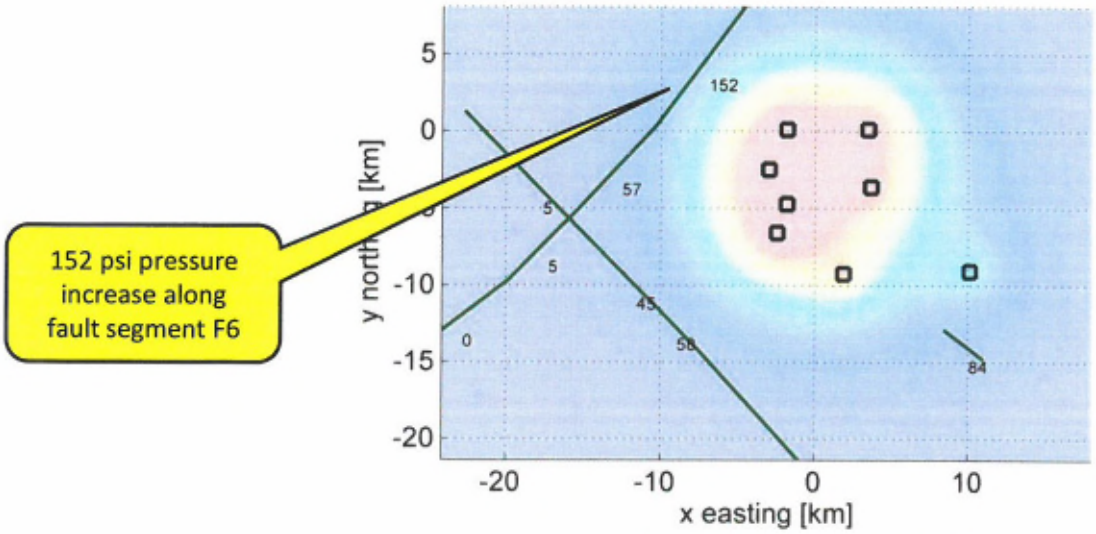


Figure 15 – Pressure Front 2045

State of stress in the Permian Basin, Texas and New Mexico: Implications for induced seismicity

Jens-Erik Lund Snee[1] and Mark D. Zoback[1]

Abstract

Since the 1960s, the Permian Basin of west Texas and southeast New Mexico has experienced earthquakes that were possibly triggered by oil and gas activities. In recent years, seismicity has been concentrated near Pecos, Texas; around the Dagger Draw Field, New Mexico; and near the Cogdell Field, Snyder, Texas. We have collected hundreds of measurements of stress orientation and relative magnitude to identify potentially active normal, normal/strike-slip, or strike-slip faults that might be susceptible to earthquake triggering in this region. In the Midland Basin and Central Basin Platform, the faulting regime is consistently normal/strike slip, and the direction of the maximum horizontal compressive stress (S_{Hmax}) is approximately east–west, although modest rotations of the S_{Hmax} direction are seen in some areas. Within the Delaware Basin, however, a large-magnitude clockwise rotation (~150°) of S_{Hmax} occurs progressively from being nearly north–south in the north to east-southeast–west-northwest in the south, including the western Val Verde Basin. A normal faulting stress field is observed throughout the Delaware Basin. We use these stress data to estimate the potential for slip on mapped faults across the Permian Basin in response to injection-related pressure changes at depth that might be associated with future oil and gas development activities in the region.

Introduction

The Permian Basin of west Texas and southeast New Mexico is one of the most important petroleum-producing regions in the United States, containing numerous vertically stacked producing intervals (Dutton et al., 2005). The basin is subdivided into several structural regions (Figure 1), including the prolific Midland and Delaware basins, which are separated by the Central Basin Platform, a crystalline-basement-involved structural high overlain by carbonate reef deposits and clastic rocks (Cartwright, 1930; Galley, 1958; Matchus and Jones, 1984).

Fluid injection and hydrocarbon production have been suspected as the triggering mechanisms for numerous earthquakes that have occurred in the Permian Basin since the 1960s (Rogers and Malkiel, 1979; Keller et al., 1981; Orr, 1984; Keller et al., 1987). The area is also naturally seismically active (Doser et al., 1991, 1992). Seismicity in the Permian Basin has historically occurred in several localized areas (Figure 1), including parts of the Central Basin Platform and around the Dagger Draw and Cogdell fields (Sanford et al., 2006; Gan and Frohlich, 2013; Pursley et al., 2013; Herzog, 2014; Frohlich et al., 2016). Since about 2009, seismicity has occurred in the southern Delaware Basin (Jing et al., 2017), an area where the USGS National Earthquake Information Center and Keller et al. (1987) report very little previous seismicity. Since the TexNet Seismological Network (Savvaidis et al., 2017) began recording earthquakes across Texas in January 2017, at least three groups of earthquakes, surrounded by more diffusely located events, have occurred in the southern Delaware Basin, near Pecos, Texas. A fourth group of events occurred mostly in mid-November 2017 farther to the west in northeastern Jeff Davis County. In addition, a group of mostly small ($M_L < 2$) earthquakes occurred between Midland and Odessa, in the Midland Basin.

As illustrated through recent studies of induced seismicity in Oklahoma (Walsh and Zoback, 2016), knowledge of the current state of stress is an essential component in estimating the pore-pressure perturbation needed to trigger an earthquake on a given fault. Such analyses enable both retrospective analyses of potential triggering conditions of past earthquakes as well as estimates of the likelihood of future slip on mapped faults due to fluid injection or extraction. As part of our work to map the state of stress in Texas, we (Lund Snee and Zoback, 2016) recently contributed more than 100 new, reliable (A–C-quality) maximum horizontal compressive stress (S_{Hmax}) orientations specifically within the Permian Basin, together with an interpolated map of the relative principal stresses expressed using the A_ϕ parameter (Simpson, 1997). In anticipation of fluid-injection activities associated with the thousands of wells to be drilled in the Permian Basin in the next few years, we report more than 100 additional S_{Hmax} orientations and a refined map of the relative stress magnitudes (Figure 1) to provide a comprehensive view of the state of stress in the Permian Basin and its relation to potential earthquake triggering on faults in the region.

In this paper, we first summarize the compilation of new stress measurements and provide an overview of relative stress magnitudes. We then discuss the stress field (especially in areas where it varies considerably, such as the Delaware Basin) and apply the new stress data to estimate the fault slip potential that would be expected due to fluid-pressure increases that might be associated with fluid injection at depth. This analysis will utilize FSP v.1.07, a freely available software tool developed by the Stanford Center for Induced and Triggered Seismicity in collaboration with ExxonMobil (Walsh et al., 2017). We use only publicly available information about faults in the region.

Methods

In the earth, a combination of tectonic driving forces and local factors such as density heterogeneities give rise to anisotropic principal stresses with consistent orientations and relative magnitudes throughout the brittle upper crust (Zoback and Zoback, 1980; Zoback, 1992). These principal stresses, which are continually replenished by tectonic activity, are modulated by the finite strength of the crust, which dissipates accumulated stresses through seismic and aseismic slip on faults. Consequently, most of the brittle crust is thought to be critically stressed, meaning

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https://doi.org/10.1190/tle37020127.1.

Exhibit B

that it is in a state of frictional equilibrium in which the faults best oriented for slip with respect to the principal stress directions are usually within one earthquake cycle of failure (Zoback et al., 2002). Thus, knowing the orientations of the principal stresses reveals the faults that are most likely to slip. Conveniently, one principal stress is usually vertical and the other two horizontal (Zoback and Zoback, 1980) because the earth's surface is an interface between a fluid (air or water) and rock, across which no shear tractions are transmitted. Knowing both the orientation of S_{Hmax} and the relative magnitudes of the principal stresses is therefore sufficient to predict the orientations (strike and dip) and type (normal, strike slip, and/or reverse) of faults most likely to slip.

Measuring the orientation and relative magnitudes of the principal stresses. (*Editor's note: Figures A1 and A2 and Tables A1–A5 are included as supplemental material to this paper in SEG's Digital Library at https://library.seg.org/doi/suppl/10.1190/tle37020127.1.*) The S_{Hmax} orientations shown in Figure 1 and reported in supplemental Tables A1 and A2 were mostly measured using well-established techniques. The vast majority of these orientations represent means of the azimuths of drilling-induced tensile fractures (DITF) or wellbore breakouts observed using image logs such as the fullbore formation microimager (FMI) and ultrasonic borehole imager. As reported in the supplemental material that accompanies this article, the quality of each measurement was assessed using Fisher et al. (1987) statistics where possible. Quality ratings were assigned to each measurement using criteria provided in Table A3, which now include criteria for aligned microseismic events that define the orientations of hydraulic fractures. Our criteria are based on those presented by Zoback and Zoback (1989), Zoback (2010), and Alt and Zoback (2017), who specify that only A–C-quality data are sufficiently robust to justify plotting on a map (D-quality measurements are reported in Tables A1 and A2 but are not mapped). These quality criteria were developed to ensure that each mapped S_{Hmax} orientation is well constrained and is based on a sufficient number and depth range of measured stress indicators.

Six orientations, previously reported by Lund Snee and Zoback (2016) and included in Figure 1, were measured by averaging the

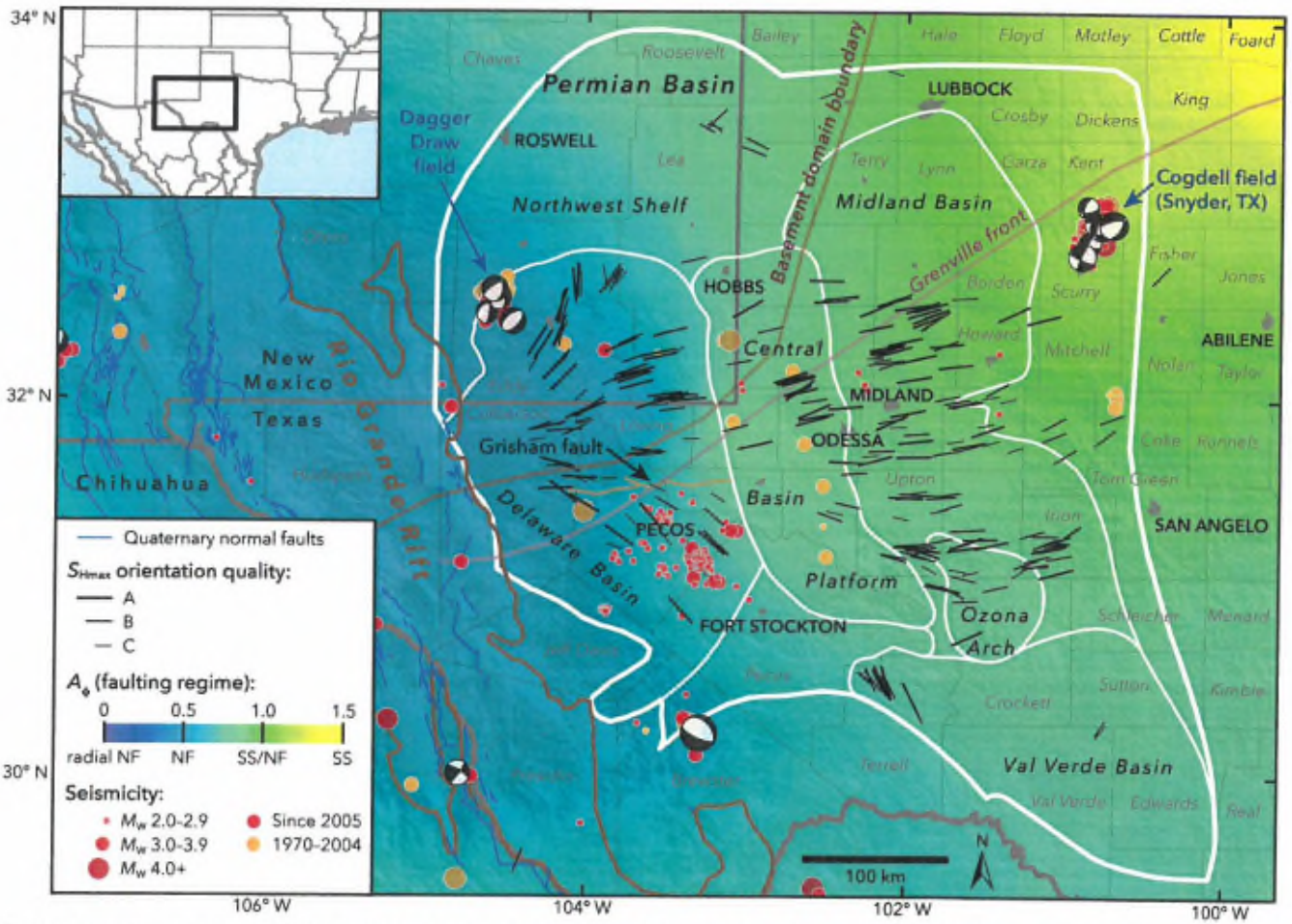

Figure 1. State of stress in the Permian Basin, Texas and New Mexico. Black lines are the measured orientations of S_{Hmax}, with line length scaled by data quality. The colored background is an interpolation of measured relative principal stress magnitudes (faulting regime) expressed using the A_ϕ parameter (see text for details) of Simpson (1997). Blue lines are fault traces known to have experienced normal-sense offset within the past 1.6 Ma, from the USGS Quaternary Faults and Folds Database (Crone and Wheeler, 2000). The boundary between the Shawnee and Mazatzal basement domains is from Lund et al. (2015), and the Precambrian Grenville Front is from Thomas (2006). The Permian Basin boundary is from the U.S. Energy Information Administration, and the subbasin boundaries are from the Texas Bureau of Economic Geology Permian Basin Geological Synthesis Project. Earthquakes are from the USGS National Earthquake Information Center, the TexNet Seismic Monitoring Program, and Gan and Frohlich (2013). Focal mechanisms are from Saint Louis University (Herrmann et al., 2011).

Exhibit B

horizontal azimuth of the fastest shear-wave propagation in subvertical wells using measurements from crossed-dipole sonic logs. We also include several new S_{Hmax} orientations that were obtained from formal inversions of focal mechanisms from microseismic events detected during hydraulic fracturing operations. Several other S_{Hmax} orientations were obtained by measuring the orientations of aligned microseismic events thought to represent propagating hydraulic fractures. When collecting stress measurements from microseismic data, we do not account for the possibility of localized changes of stress orientations that might develop as a result of fracturing and proppant emplacement. It is unlikely that stimulation-induced changes in stress orientation would occur except in areas of very low stress anisotropy (which we demonstrate are rare). In such areas, there would not be consistent microseismic alignments orthogonal to the least principal stress that would satisfy the quality-control criterion for reliable stress orientations that we have developed (Table A3).

In addition to our new data, Figure 1 also includes previously published S_{Hmax} orientations from the Permian Basin area that we consider reliable. The 2016 release of the World Stress Map (Heidbach et al., 2016) included only a handful of S_{Hmax} orientations in the Permian Basin. We have downgraded the quality ratings for two older measurements that we suspect were made on the basis of mistaken interpretations. A large collection of S_{Hmax} orientations published by Tingay et al. (2006) and included in the World Stress Map Database were given D-quality ratings due to the lack of sufficient quality information (e.g., depth ranges, number of fractures, or standard deviations of fracture orientations), although many are in agreement with high-quality nearby measurements we utilize. Previously unpublished information contributed by R. Cornell (personal communication) is reported in Table A1, but there is not sufficient quality information to upgrade any of his measurements to C quality and be included in Figure 1. We also include S_{Hmax} orientations recently published by Forand et al. (2017), who report S_{Hmax} patterns consistent with the variations shown by Lund Snee and Zoback (2016). Although Forand et al. (2017) do not list the number and depth intervals for the stress indicators that they present, this information is included in their map because the distributions of fracture orientations shown in their rose diagrams allow us to interpret means, standard deviations, and the minimum number of fractures.

We interpolate the relative principal stress magnitudes across this area (colored background in Figure 1) using measurements reported in Table A4. We choose to represent the relative magnitudes of the three principal stresses (S_V, S_{Hmax}, and S_{hmin}) using the A_ϕ parameter (Simpson, 1997). The A_ϕ parameter (explained graphically in Figure A1) conveniently describes the ratio between the principal stress magnitudes using a single, readily interpolated value that ranges smoothly from 0 (the most extensional possible condition of radial normal faulting) to 3 (the most compressive possible condition of radial reverse faulting). The parameter is defined mathematically by

$$A_\phi = (n+0.5)+(-1)^n(\phi-0.5), \quad (1)$$

where

$$\phi = \frac{S_2 - S_3}{S_1 - S_3}. \quad (2)$$

S_1, S_2, and S_3 are the magnitudes of the maximum, intermediate, and minimum principal stresses, respectively, and n is 0 for normal faulting, 1 for strike-slip faulting, and 2 for reverse faulting.

Probabilistic analysis of fault slip potential. As mentioned earlier, we utilize FSP v.1.07 (Walsh et al., 2017) to estimate the slip potential on faults throughout the Permian Basin. The FSP tool allows operators to estimate the potential that planar fault segments will be critically stressed within a local stress field. Critically stressed conditions occur when the ratio of resolved shear stress to normal stress reaches a failure criterion, in this case the linearized Mohr-Coulomb failure envelope. The FSP program allows for either deterministic or probabilistic geomechanical analysis of the fault slip potential, the former of which treats each input as a discrete value with no uncertainty range. The probabilistic geomechanics function estimates the FSP on each fault segment using Monte Carlo-type analysis to randomly sample specified, uniform uncertainty distributions for input parameters including the fault strike and dip, ambient stress field, rock properties, and initial fluid pressure.

We conducted our analysis on fault traces compiled from Ewing et al. (1990), Green and Jones (1997), Ruppel et al. (2005), and the USGS Quaternary Faults and Folds Database (Crone and Wheeler, 2000). Most of these databases do not specify fault dips, so we make the conservative assumption that, within the generally normal and normal/strike-slip faulting environment of the Permian Basin, all potentially active faults dip in the range of 50° to 90°. This assumption implies that all fault segments could be ideally oriented for slip in either normal or strike-slip faulting environments at reasonable coefficients of friction, depending on the alignment of their strike with respect to S_{Hmax} (Figure A1).

Here we apply the probabilistic geomechanics function of the FSP tool. We apply reasonable stress values and uncertainty ranges based on the variability of the stress field we observe within 16 study areas (listed in Table A5). The study areas were selected to represent fairly uniform A_ϕ values and S_{Hmax} orientations (Figure 2) to minimize spatial variations of stress field in any given study area. As an example, Figure A2 shows input parameter distributions sampled during FSP analysis for a random fault within Area 10.

For the purposes of this demonstration, we do not hydrologically model the pressure changes associated with any known injection scenario; we instead estimate the fault slip potential in response to an increase in the fluid-pressure gradient corresponding to a 4% increase relative to hydrostatic (0.4 MPa/km or 0.018 psi/ft) to evaluate the potential for relatively modest pressure changes in crystalline basement (2 MPa [300 psi] at 5 km [16,400 ft]) associated with produced water disposal. This is the same gradient of pore-pressure perturbation applied by Walsh and Zoback (2016) for FSP analysis in north-central Oklahoma. The eventual pore-pressure increase that will occur in the uppermost parts of the crystalline basement due to injection in this area is of course unknown, and it is important to note that *relative* differences in slip potential between differently oriented faults will remain the

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same regardless of the magnitude of uniform pressure increase (although the absolute fault slip potential will vary). Operators interested in screening potential sites for wastewater injection wells, for example, might alternatively use the software to test specific scenarios of pore-pressure evolution with time due to injection from wells in a localized area. Although large portions of the Permian Basin are known to be overpressured and underpressured at certain stratigraphic intervals (e.g., Orr, 1984; Doser et al., 1992; Rittenhouse et al., 2016), for the sake of simplicity in this whole-basin demonstration, we initially assume hydrostatic conditions (P_p = 9.8 MPa/km ≈ 0.43 psi/ft). In general, hypocentral depths for potentially damaging injection-triggered earthquakes are within the upper crystalline basement (e.g., Zhang et al., 2013; Walsh and Zoback, 2015), for which little pore-pressure information is available but for which hydrostatic values are reasonable (Townend and Zoback, 2000).

State of stress in the Permian Basin

Figure 1 shows all reliable S_{Hmax} orientations and an interpolated view of the A_ϕ parameter across the Permian Basin. Throughout the Midland Basin, the eastern part of the Permian Basin, the stress field is remarkably consistent, with S_{Hmax} oriented ~east–west (with modest rotations of S_{Hmax} in some areas) and A_ϕ = 1.0 (indicative of normal/strike-slip faulting). The stress field is more extensional in the Val Verde Basin to the south, with A_ϕ ≈ 0.7. Few S_{Hmax} orientations are presently available in that subbasin, but S_{Hmax} is northwest–southest in the western part of the basin and appears to be ~northeast–southwest in the central part of the basin. This is similar to the stress state seen farther to the southeast, where S_{Hmax} follows the trend of the growth faults that strike subparallel to the Gulf of Mexico coastline (Lund Snee and Zoback, 2016). Along the Central Basin Platform, S_{Hmax} is generally ~east–west but rotates slightly clockwise from east to west, with A_ϕ ~ 0.8–1.0. In the Delaware Basin, the stress field is locally coherent but rotates dramatically by ~150° clockwise from north to south across the basin. In the western part of Eddy County, New Mexico, S_{Hmax} is ~north–south (consistent with the state of stress in the Rio Grande Rift; Zoback and Zoback, 1980) but rotates to ~east-northeast–west-southwest in southern Lea County, New Mexico, and the northernmost parts of Culberson and Reeves counties, Texas. It should be noted that where rapid stress rotations are observed in the Delaware Basin are areas with low values of A_ϕ (indicative of relatively small differences between the horizontal stresses) and elevated pore pressure (Rittenhouse et al., 2016), making it possible for relatively minor stress perturbations to cause significant changes in stress orientation (e.g., Moos and Zoback, 1993).

S_{Hmax} continues to rotate clockwise southward in the Delaware Basin to become ~N155°E in western Pecos County, westernmost Val Verde Basin, and northern Mexico (Suter, 1991; Lund Snee and Zoback, 2016). On the Northwest Shelf, A_ϕ varies from ~0.5 (normal faulting) in north Eddy County to ~0.9 (normal and strike-slip faulting) further east. S_{Hmax} rotates significantly across the Northwest Shelf as well, from ~north–south in northwest Eddy County to ~east-southeast–west-northwest in northern Lea and Yoakum counties.

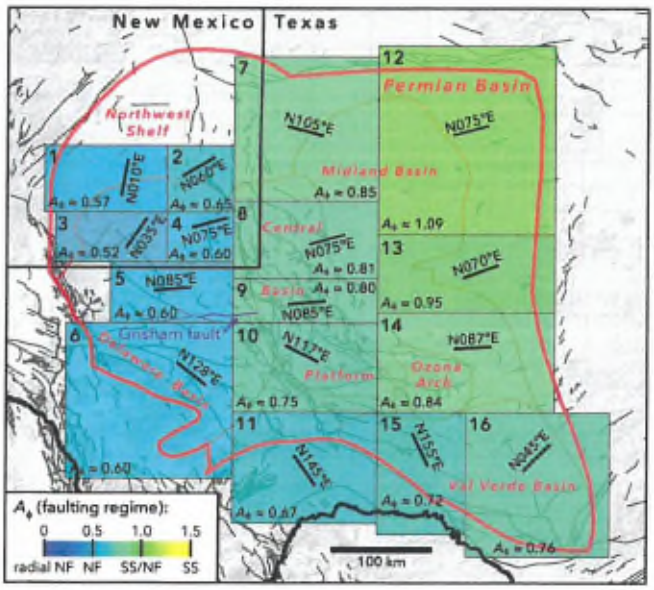

Figure 2. Map of study areas chosen for FSP analysis on the basis of broadly similar stress conditions. Text annotations indicate representative S_{Hmax} orientation and relative principal stress magnitudes (A_ϕ parameter) for each study area based on the data presented in Figure 1. Gray lines in the background indicate fault traces compiled from Ewing et al. (1990), Green and Jones (1997), Ruppel et al. (2005), and the USGS Quaternary Faults and Folds Database (Crone and Wheeler, 2000), to which we apply FSP analysis.

Slip potential on mapped faults

Figure 3 shows the results of our fault slip potential analysis for all study areas across the Permian Basin. We selected a color scale in which dark green lines represent faults with ≤5% probability of being critically stressed at the specified pore-pressure increase; dark red indicates faults with ≥45% fault slip potential; and yellow, orange, and light red represent intermediate values. The results shown in Figure 3 indicate that high fault slip potential is expected for dramatically different fault orientations across the basin, reflecting the varying stress field. In the northern Delaware Basin and much of the Central Basin Platform, for example, faults striking ~east–west are the most likely to slip in response to a fluid-pressure increase. However, farther south in the southern Delaware Basin, faults striking northwest–southeast are the most likely to slip, and ~east–west-striking faults have relatively low slip potential. Notably, we find high slip potential for large fault traces mapped across the southern Delaware Basin and Central Basin Platform, and along the Matador Arch. Figure 3 also indicates the faults that are *unlikely* to slip in response to a modest fluid-pressure increase. We find that large groups of mostly north–south-striking faults, predominantly located along the Central Basin Platform, the western Delaware Basin, and large parts of the Northwest Shelf have low fault slip potential at the modeled fluid-pressure perturbation. Knowing the orientations of faults that are unlikely to slip at a given fluid-pressure perturbation can be of great value because it provides operators with practical options for injection sites. Probabilistic geomechanical analysis of the type enabled by the FSP software is especially useful in areas with complex fault patterns. Figure 4 shows a larger-scale view of Area 10, an area of particularly dense faults. In Figure 4, it is clear that even

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seemingly minor variations in fault strike can significantly change the fault slip potential.

Figures 3 and 4 illustrate the locations of earthquakes that have been recorded since 1970 in relation to the mapped faults. It is noteworthy that many earthquakes have occurred away from faults mapped at this regional scale, with the most obvious examples being groups of events described earlier, near the Dagger Draw Field (southeast New Mexico); the Cogdell Field (near Snyder, Texas); a group around the town of Pecos, Texas; and a recent group of mostly M < 2 events between the towns of Midland and Odessa, Texas. As the earthquakes undoubtedly occurred on faults, this observation underscores the necessity of developing improved subsurface fault maps, particularly for use in areas that might experience injection-related pore-pressure increases. Nevertheless, Figures 3 and 4 also show a number of earthquakes that may have occurred on mapped faults for which we estimate elevated fault slip potential. Of particular note are the recent (2009–2017) earthquakes in southeastern Reeves and northwestern Pecos counties, Texas, of which an appreciable number occurred on or near yellow or orange faults. Potentially active faults are identified near some towns in the Permian Basin, including Odessa (Figure 3) and Fort Stockton, Texas (Figure 4). In some areas, such as northern Brewster County, Texas, and parts of the northern Central Basin Platform, earthquakes occurred on or near orange or red faults that have relatively short along-strike lengths, making the faults appear fairly insignificant at this scale. In the area of active seismicity in Pecos and Reeves counties, we estimate relatively high slip potential for several significantly larger faults (>20 km along-strike length) on which few or no earthquakes have been recorded thus far (Figures 3 and 4). Larger faults are of particular concern for seismic hazard because they are more likely to extend into basement and, therefore, to potentially be associated with larger magnitude earthquakes.

As labeled in Figure 3, a number of regional-scale faults are known to exist in this area (Walper, 1977; Shumaker, 1992; Yang and Dorobek, 1995). The Permian Basin overlies a major boundary separating Precambrian-age lithospheric basement domains (Lund et al., 2015), and its crystalline "basement" hosts numerous major

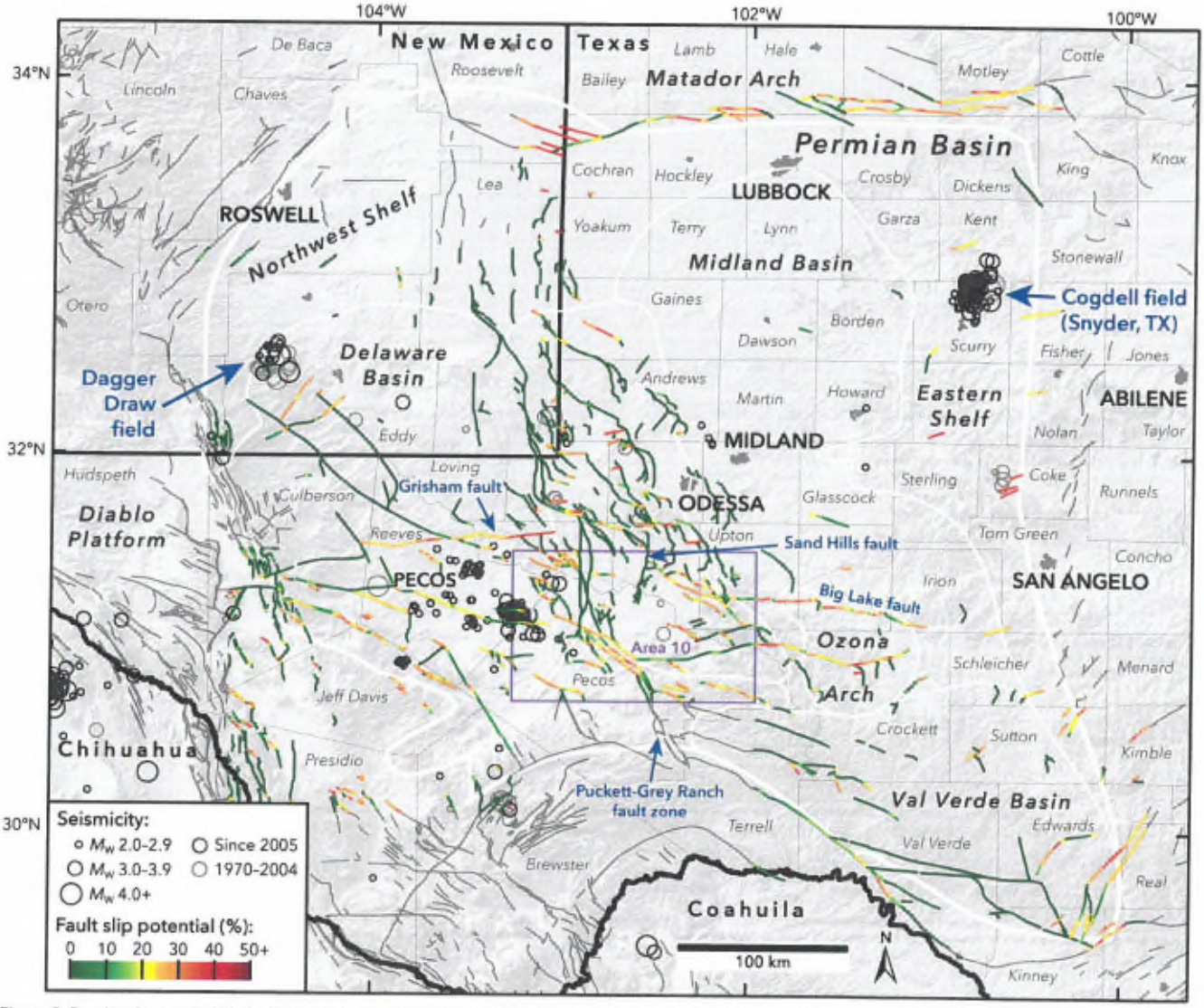

Figure 3. Results of our probabilistic FSP analysis across the Permian Basin. Data sources are as in Figures 1 and 2.

structures that have been repeatedly activated during subsequent plate collisions and rifting events (Kluth and Coney, 1981; Thomas, 2006). One notable example is the east–west-striking Grisham Fault (also referred to as the Mid-Basin Fault), which is between the rift margin of the Rodinia supercontinent and the boundary between the Shawnee and Mazatzal basement domains. The Grisham Fault is of particular importance for understanding the potential for induced seismicity in the Permian Basin because it is laterally extensive, offsets basement, and may have high slip potential. The upper part of Figure 5 (and Figure 3) shows a scenario in which the stresses resolved on the Grisham Fault are representative of Area 5, with S_{Hmax} oriented N085°E. However, the measured stress field changes dramatically from north to south across the Grisham Fault (Figures 1 and 2), presenting uncertainty about the stresses resolved upon the fault, reflected by its close proximity to Area 6, with a generalized S_{Hmax} orientation of N128°E. The lower part of Figure 5 shows the Grisham Fault in detail if the stress field shown in Area 6, just to the south, was appropriate. Needless to say, in the stress field represented by Area 5, fault segments oriented east–west are expected to have high probability of being critically stressed in response to a pore-pressure increase, but nearby west-northwest–east-southeast-striking faults have relatively low fault slip potential. In contrast, inclusion within the Area 6 stress field would result in low expected fault slip potential on the east–west segments but high values on the west-northwest–east-southeast-striking segments.

The results shown in Figures 3–5 are not intended to provide a definitive view of the fault slip potential across this complex basin, nor do they constitute a seismic hazard map. While the stress field is complicated in this area, the changes in the stress field are coherent and mappable. We consider the greatest uncertainties in the map to be the lack of knowledge of subsurface faults and the magnitude and extent of potential pore-pressure changes in areas where increased wastewater injection may occur in the future, especially wastewater injection that might change pore pressure on basement faults. Operators wishing to use the FSP tool to screen sites for fluid injection should use detailed fault maps that are specific to the injection interval, the underlying basement, and any intervening units, which take into account geometric uncertainties.

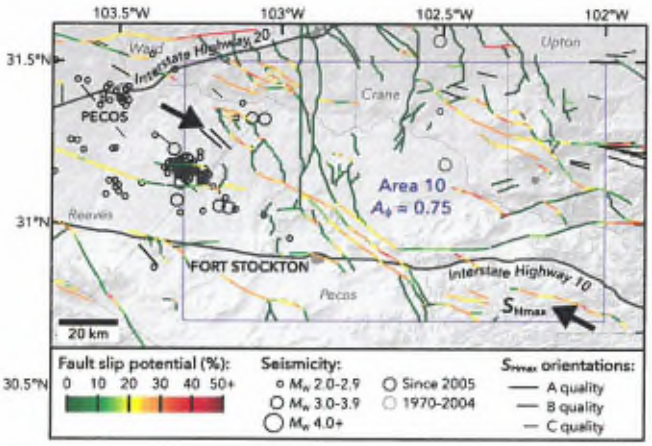

Figure 4. Large-scale view of the results of FSP analysis in Area 10 (location shown in Figures 2 and 3). Data sources are as in Figures 1 and 3.

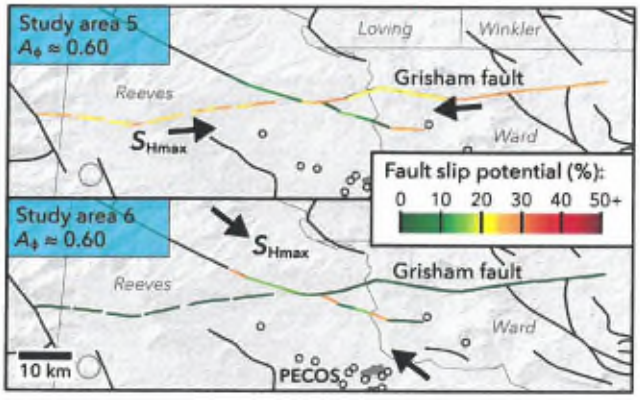

Figure 5. Map comparing the results of fault slip potential analysis on the Grisham (Mid-Basin) fault and selected nearby structures (locations shown in Figure 3) for stress conditions of Area 5 (S_{Hmax} N085°E ± 8°; top panel) and Area 6 (S_{Hmax} N128°E ± 15°; bottom panel). Symbols as in Figures 3 and 4.

Conclusions

As part of our stress mapping across the U.S. midcontinent, we have collected hundreds of S_{Hmax} orientations within the Permian Basin, and we also map the faulting regime across the region. Our new data reveal dramatic rotations of S_{Hmax} within the Delaware Basin and Northwest Shelf but relatively consistent stress orientations elsewhere. The rapid stress rotations in the Delaware Basin are observed in areas with relatively small differences between the horizontal stresses and with elevated pore pressure, making it easier for stress perturbations to cause significant changes in the stress field.

We show how the FSP software package can be used as a quantitative screening tool to estimate the fault slip potential in a region with large variations of the stress field, and accounting for uncertainties in stress measurements, rock properties, fault orientations, and fluid pressure. Although many historical earthquakes have occurred away from mapped faults in this area, we find that a number of earthquakes have occurred on or near faults for which there is high fault slip potential under the modeled conditions. TLE

Acknowledgments

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Exhibit B

9

DECLARATION OF STEVEN NAVE

I, Steven Nave, declare under penalty of perjury under the law of New Mexico that the following is true and correct to the best of my knowledge and belief.

1. I am over eighteen (18) years of age and am otherwise competent to make this declaration.

2. I am the president of Nave Oil and Gas, which is a fishing tool company that performs fishing operations in several areas, including the area of Southeastern, New Mexico.

3. I worked as a fisherman for Star Tool Company, a fishing tool company, from 1980 until 2001. I later became a partner in Star Tool Company until that company was sold. I then later started my own company, Nave Oil and Gas, which also performs fishing operations. Over the years, I have developed expertise in fishing operations and I have performed fishing operations on Devonian salt water disposal wells located within Southeastern, New Mexico.

4. I am familiar with tubing and casing design requested by NGL Water Solutions Permian, LLC which consists of using tapered string tubing that is 7" x 5 1/2".

5. I have been informed that NGL's wells will be isolated to the Devonian and Silurian formations and will have four strings of casing protecting the fresh water, the salt interval, the Permian aged rocks through the Wolfcamp formation, and the depths to the top of the Devonian. There is a liner, and the deepest casing is 7 5/8", which will be cemented and cement will be circulated.

6. Based on my experience as a fisherman, it is my opinion that there is sufficient clearance between the 7 5/8" 39 pounds per foot or less casing and the proposed 5 ½" tubing to

perform fishing operations. My company regularly performs fishing operations in situations involving similar dimensions and clearances.

7. Fishing can be performed through different methods when 7 5/8" 39 pounds per foot or less casing and the proposed 5 ½" tubing is utilized; such as through the use of overshot tools, spear fishing tools, and (if needed) cutting tools.

8. The use of 7 5/8" 39 pounds per foot or less casing and the proposed 5 ½" tubing will actually allow for the use of a wider variety of fishing tools that cannot typically be used within salt water disposal wells equipped with smaller tubing and casing sizes. This is because there is more room to run tools through the inside of the tubing. Additionally, it is my opinion that it is easier to perform fishing operations when 5 ½" tubing is used.

9. Recently, I supervised a fishing job which involved a horizontal Wolfcamp well which was equipped with casing with a diameter of 7 5/8" 39 pounds per foot or less and casing with a diameter of 5 ½". In that situation, my company was able to mill off the collar and use overshot tools to latch on to the piping that needed to be fished out of the well.

10. In my opinion, fishing operations could be successfully performed even at deeper depths for Devonian disposal wells provided that a sufficient rig is obtained for the operation.

[Signature Page Follows.]

Steven Nave

STEPHAN NAVE

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10

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

AMENDED APPLICATION OF NGL WATER SOLUTIONS PERMIAN, LLC FOR APPROVAL OF SALT WATER DISPOSAL WELL IN LEA COUNTY, NEW MEXICO

CASE NO. 16439

AMENDED APPLICATION OF NGL WATER SOLUTIONS PERMIAN, LLC FOR APPROVAL OF SALT WATER DISPOSAL WELL IN LEA COUNTY, NEW MEXICO

CASE NO. 16441

AMENDED APPLICATION OF NGL WATER SOLUTIONS PERMIAN, LLC FOR APPROVAL OF SALT WATER DISPOSAL WELL IN EDDY COUNTY, NEW MEXICO

CASE NO. 16442

AFFIDAVIT

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

Jennifer L. Bradfute, attorney in fact and authorized representative of NGL Water Solutions Permian, LLC, the Applicant herein, being first duly sworn, upon oath, states that the above-referenced Applications were provided via notice letter and that proof of receipt is attached hereto

Jennifer L. Bradfute

SUBSCRIBED AND SWORN to before me this 17h day of October, 2018 by Jennifer L. Bradfute.

Notary Public

My commission expires: 12-07-2019

OFFICIAL SEAL
Zina Crum
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: 12-07-2019

A

McClay Central

Zina Crum
Modrall Sperling
500 4th Street NW
Suite 1000
Albuquerque NM 87102

PS Form 3877

Type of Mailing: CERTIFIED
09/18/2018

ALBUQUERQUE NM 87101 SEP 18 2018 USPS

Firm Mailing Book ID: 151689

Line	Article Number	Name, Street & P.O. Address	Postage	Fee	R.R.Fee	Reference	Rest.Del.Fee Contents
1	9314 8699 0430 0050 9148 32	BABER GUY A PO BOX 1772 Hobbs NM 88240	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
2	9314 8699 0430 0050 9148 49	BUREAU OF LAND MGMT 301 Dinosaur Trail Santa Fe Santa Fe NM 87508	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
3	9314 8699 0430 0050 9148 56	CHEVRON USA INC 6301 DEAUVILLE Midland TX 79706	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
4	9314 8699 0430 0050 9148 63	CIMAREX ENERGY CO. OF COLORADO 1700 LINCOLN ST STE 1800 Denver CO 80203	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
5	9314 8699 0430 0050 9148 70	COG PRODUCTION LLC 600 W. ILLINOIS AVENUE Midland TX 79701	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
6	9314 8699 0430 0050 9148 87	CONOCOPHILLIPS CO PO BOX 7500 Bartlesville OK 74005	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
7	9314 8699 0430 0050 9148 94	DEVON ENERGY PRODUCTION COMPANY, LP 20 N Broadway Oklahoma City OK 73102	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
8	9314 8699 0430 0050 9149 00	DEVON ENERGY PRODUCTION COMPANY, LP 1700 LINCOLN ST STE 1800 Denver CO 80203	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
9	9314 8699 0430 0050 9149 17	EOG Y RESOURCES 104 S. FOURTH STREET Denver CO 80203	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
10	9314 8699 0430 0050 9149 24	NEW MEXICO STATE LAND OFFICE P.O. Box 1148 Santa Fe NM 87504	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
11	9314 8699 0430 0050 9149 31	NGL WATER SOLUTIONS PERMIAN, LLC 1509 W Wall St., Ste. 306 Midland TX 79701	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
12	9314 8699 0430 0050 9149 48	Oil Conservation Division District I - Hobbs 1625 N. French Drive Hobbs NM 88240	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
13	9314 8699 0430 0050 9149 55	Oil Conservation Division District IV 1220 South St. Francis Drive Santa Fe NM 87505	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
14	9314 8699 0430 0050 9149 62	OXY USA INC P.O. BOX 4294 HOUSTON TX 77210	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
15	9314 8699 0430 0050 9149 79	ROVER OPERATING, LLC 55 Old Sante Fe Trail, Second Floor Santa Fe NM 87501	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice

Zina Crum
Modrall Sperling
500 4th Street NW
Suite 1000
Albuquerque NM 87102

PS Form 3877

Type of Mailing: CERTIFIED
09/18/2018

Firm Mailing Book ID: 151689

Line	Article Number	Name, Street & P.O. Address	Postage	Fee	R.R.Fee	Reference	Rest.Del.Fee Contents
		Totals:	$21.30	$51.75	$22.50		$0.00
						Grand Total:	$95.55

List Number of Pieces Listed by Sender	Total Number of Pieces Received at Post Office	Postmaster: Name of receiving employee	Dated:
15			

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In-Transit

October 9, 2018 at 6:36 am
Arrived at Unit
ALBUQUERQUE, NM 87101

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In Transit to Next Facility

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Transaction Report Details - CertifiedPro.net
Firm Mail Book ID= 151689
Generated: 10/17/2018 10:16:09 AM

Certified Mail Article Number	Date Created	Name 1	Address	City	State	Zip	Certified Mailing Status	Service Options	Mail Delivery Date
9314869904300050914979	2018-09-18 11:28 AM	ROVER OPERATING, LLC	55 Old Sante Fe Trail, Second Floor	Santa Fe	NM	87501	Delivered	Return Receipt - Electronic	09-21-2018
9314869904300050914962	2018-09-18 11:28 AM	OXY USA INC	P.O. BOX 4294	HOUSTON	TX	77210	Delivered	Return Receipt - Electronic	09-25-2018
9314869904300050914955	2018-09-18 11:28 AM	Oil Conservation Division District IV	1220 South St. Francis Drive	Santa Fe	NM	87505	Delivered	Return Receipt - Electronic	09-20-2018
9314869904300050914948	2018-09-18 11:28 AM	Oil Conservation Division District I - Hobbs	1625 N. French Drive	Hobbs	NM	88240	Delivered	Return Receipt - Electronic	09-21-2018
9314869904300050914931	2018-09-18 11:28 AM	NGL WATER SOLUTIONS PERMIAN, LLC	1509 W Wall St., Ste. 306	Midland	TX	79701	Delivered	Return Receipt - Electronic	09-21-2018
9314869904300050914924	2018-09-18 11:28 AM	NEW MEXICO STATE LAND OFFICE	P.O. Box 1148	Santa Fe	NM	87504	Delivered	Return Receipt - Electronic	09-20-2018
9314869904300050914917	2018-09-18 11:28 AM	EOG Y RESOURCES	104 S. FOURTH STREET	Denver	CO	80203	To be Returned	Return Receipt - Electronic	
9314869904300050914900	2018-09-18 11:28 AM	DEVON ENERGY PRODUCTION COMPANY, LP	1700 LINCOLN ST STE 1800	Denver	CO	80203	Delivered	Return Receipt - Electronic	09-24-2018
9314869904300050914894	2018-09-18 11:28 AM	DEVON ENERGY PRODUCTION COMPANY, LP	20 N Broadway	Oklahoma City	OK	73102	Delivered	Return Receipt - Electronic	09-21-2018
9314869904300050914887	2018-09-18 11:28 AM	CONOCOPHILLIPS CO	PO BOX 7500	Bartlesville	OK	74005	Delivered	Return Receipt - Electronic	09-21-2018
9314869904300050914870	2018-09-18 11:28 AM	COG PRODUCTION LLC	600 W. ILLINOIS AVENUE	Midland	TX	79701	Delivered	Return Receipt - Electronic	09-21-2018
9314869904300050914863	2018-09-18 11:28 AM	CIMAREX ENERGY CO. OF COLORADO	1700 LINCOLN ST STE 1800	Denver	CO	80203	Delivered	Return Receipt - Electronic	09-24-2018
9314869904300050914856	2018-09-18 11:28 AM	CHEVRON USA INC	6301 DEAUVILLE	Midland	TX	79706	Delivered	Return Receipt - Electronic	09-21-2018
9314869904300050914849	2018-09-18 11:28 AM	BUREAU OF LAND MGMT	301 Dinosaur Trail Santa Fe	Santa Fe	NM	87508	Undelivered	Return Receipt - Electronic	
9314869904300050914832	2018-09-18 11:28 AM	BABER GUY A	PO BOX 1772	Hobbs	NM	88240	Delivered	Return Receipt - Electronic	09-21-2018

Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA

I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

Beginning with the issue dated
September 20, 2018
and ending with the issue dated
September 20, 2018.

Publisher

Sworn and subscribed to before me this
20th day of September 2018.

Business Manager

My commission expires
January 29, 2019
(Seal)

OFFICIAL SEAL
GUSSIE BLACK
Notary Public
State of New Mexico
My Commission Expires 1-29-19

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said

LEGAL NOTICE
September 20, 2018

Case No. 16439: Notice to all affected parties, as well as the heirs and devisees of DEVON ENERGY PRODUCTION COMPANY, LP; CIMAREX ENERGY CO. OF COLORADO; ROVER OPERATING, LLC; OXY USA INC; COG PRODUCTION LLC; DEVON ENERGY PRODUCTION COMPANY, LP; EOG Y RESOURCES; BABER GUY A; CHEVRON USA INC; CONOCOPHILLIPS CO; BUREAU OF LAND MGMT; NEW MEXICO STATE LAND OFFICE. NGL Water Solutions Permian, LLC 1509 W. Wall Street, Suite 306, Midland, Texas 79701 is filing an application for hearing along with a C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division for approval of salt water disposal well in Lea County, New Mexico. The State of New Mexico, through its Oil Conservation Division, hereby gives notice that the Division will conduct a public hearing at 8:15 a.m. on October 4, 2018 to consider this application. This is application for approval of the applicant's McCloy Central SWD #1 well. The proposed well will have a surface hole located 762' from the North line and 383' from the East line, and a bottom hole located 762' from the North line and 256' from the East line, Section 24, Township 24 South, Range 32 East, N.M.P.M., Lea County, New Mexico. Disposal water will be sourced from area production and will be injected in to the Silurian-Devonian Formations at an interval of 17,424' to 18,533'. The maximum surface pressure will be 3,484 psi and applicant is requesting approval of a maximum injection rate of 50,000 BWPD. 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.

Case No. 16438: Notice to all affected parties, as well as the heirs and devisees of XTO ENERGY, INC; CHEVRON USA INC; DEVON ENERGY PRODUCTION COMPANY, LP; HARVARD PETROLEUM COMPANY, LLC; CASE-POMEROY OIL CORP; OXY Y-1 COMPANY; EOG A RESOURCES INC; EOG M RESOURCES INC; EOG Y RESOURCES INC; COG PRODUCTION, LLC; COG OPERATING LLC; JAVELINA PARTNERS; OXY USA INC; NEW MEXICO STATE LAND OFFICE; BUREAU OF LAND MGMT. NGL Water Solutions Permian, LLC 1509 W. Wall Street, Suite 306, Midland, Texas 79701 is filing an application for hearing along with a C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division for approval of salt water disposal well in Lea County, New Mexico. The State of New Mexico, through its Oil Conservation Division, hereby gives notice that the Division will conduct a public hearing at 8:15 a.m. on October 4, 2018 to consider this application. This is application for approval of the applicant's Jack Tank SWD #1 well. The proposed well will have a surface hole located 1,400' from the North line and 1,853' from the West line, Section 5, Township 24 South, Range 32 East, N.M.P.M., Lea County, New Mexico. Disposal water will be sourced from area production and will be injected in to the Devonian Formations at an interval of 16,800' to 17,809'. The maximum surface pressure will be 3,360 psi and applicant is requesting approval of a maximum injection rate of 50,000 BWPD. 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.

Case No. 16440: Notice to all affected parties, as well as the heirs and devisees of DEVON ENERGY PRODUCTION COMPANY, LP; ROVER OPERATING, LLC; MCI OPERATING OF NM, LLC; CIMAREX ENERGY CO.; MARKS AND GARNER PRODUCTION LTD CO; ROBERT H FORREST JR OIL LLC; COG PRODUCTION, LLC; COG OPERATING LLC; DEVON ENERGY PROD CO LP; CHEVRON USA INC.; GUY A BABER; CONOCOPHILLIPS CO; APACHE CORP; CHISOS LTD; XTO HOLDINGS LLC AND THE BUREAU OF LAND MANAGEMENT. NGL Water Solutions Permian, LLC 1509 W. Wall Street, Suite 306, Midland, Texas 79701 has filed an application for hearing along with a C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division for approval of salt water disposal well in Lea County, New Mexico. The State of New Mexico, through its Oil Conservation Division, hereby gives notice that the Division will conduct a public hearing at 8:15 a.m. on October 4, 2018 to consider this application. This is application for approval of the applicant's McCloy West SWD #1 well. The proposed well will have a surface hole located 1019' from the South line and 2388' from the East line, Section 14, Township 24 South, Range 32 East, N.M.P.M., Lea County, New Mexico. Disposal water will be sourced from area production and will be injected in to the Silurian-Devonian Formations at an interval of 17,350' to 18,451'. The maximum surface pressure will be 3,470 psi and applicant is requesting approval of a maximum injection rate of 50,000 BWPD. 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.

Case No. 16441: Notice to all affected parties, as well as the heirs and devisees of DEVON ENERGY PRODUCTION COMPANY, LP; EOG RESOURCES INC; MATADOR PRODUCTION COMPANY; COG OPERATING LLC; TAP ROCK OPERATING, LLCBUREAU OF LAND MGMT; NEW MEXICO STATE LAND OFFICE. NGL Water Solutions Permian, LLC 1509 W. Wall Street, Suite 306, Midland, Texas 79701 is filing an application for hearing along with a C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division for approval of salt water disposal well in Lea County, New Mexico. The State of New Mexico, through its Oil Conservation Division, hereby gives notice that the Division will conduct a public hearing at 8:15 a.m. on October 4, 2018 to consider this application. This is application for approval of the applicant's Minuteman SWD #1 well. The proposed well will have a surface hole located 659' from the South line and 449' from the West line, Section 14, Township 24 South, Range 33 East, N.M.P.M., Lea County, New Mexico. Disposal water will be sourced from area production and will be injected in to the Silurian-Devonian Formations at an interval of 16,691' to 18,326'. The maximum surface pressure will be 3,338 psi and applicant is requesting approval of a maximum injection rate of 50,000 BWPD. 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.

Case No. 16443: Notice to all affected parties, as well as the heirs and devisees of Fortis Minerals II, LLC; Katy Pipeline and Production Corporation; Sugarberry Oil & Gas Corporation; Marathon Oil Permian, LLC; Energen Resources Corporation; EOG Resources, Inc.; COG Operating, LLC; Susan Duff; Nommensen Investment Company; John V. McCarthy, II; Bates Family Investment Company, LLC, The Trust Company of Oklahoma (TCO), as Agent; Duard B. Thomas, as Personal Representative Of the Estate of Warren J. Bates, deceased; Texas State Bank, San Angelo, Texas Successor Trustee of the Lucille Chism Bates Testamentary Trust, U/W/O of Lucille Chism Bates; Robert F. Fleet Revocable Trust; Rae Ann Fleet Gossett; Rae Ann Fleet Gossett; B.H.C.H. Mineral, Ltd. & Fredericksburg Royalty, Ltd.; James Ray Bates; Margaret Helen Kalmar Trust A, A/K/A the Margaret Helen Kalmar Children's Trust; PAWN Enterprises, Ltd. NGL Water Solutions Permian, LLC 1509 W. Wall Street, Suite 306, Midland, Texas 79701 is filing an application for hearing along with a C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division for approval of salt water disposal well in Lea County, New Mexico. The State of New Mexico, through its Oil Conservation Division, hereby gives notice that the Division will conduct a public hearing at 8:15 a.m. on October 4, 2018 to consider this application. This is application for approval of the applicant's Sidewinder SWD #1 well. The proposed well will have a surface hole located 244' from the South line and 1,581' from the East line, Section 10, Township 25 South, Range 34 East, N.M.P.M., Lea County, New Mexico. Disposal water will be sourced from area production and will be injected in to the Silurian-Devonian Formations at an interval of 16,157' to 19,067'. The maximum surface pressure will be 3,431 psi and applicant is requesting approval of a maximum injection rate of 50,000 BWPD. NGL further seeks approval of the

Mailed-May

Zina Crum
Modrall Sperling
500 4th Street NW
Suite 1000
Albuquerque NM 87102

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Type of Mailing: CERTIFIED
09/18/2018

ALBUQUERQUE NM 87102 SEP 18 2018 USPS

Firm Mailing Book ID: 151701

Line	Article Number	Name, Street & P.O. Address	Postage	Fee	R.R.Fee	Reference	Rest.Del.Fee Contents
1	9314 8699 0430 0050 9165 60	Oil Conservation Division District I - Hobbs 1625 N. French Drive Hobbs NM 88240	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
2	9314 8699 0430 0050 9165 77	BUREAU OF LAND MGMT 301 Dinosaur Trail Santa Fe NM 87508	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
3	9314 8699 0430 0050 9165 84	NEW MEXICO STATE LAND OFFICE P.O. Box 1148 Santa Fe NM 87504	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
4	9314 8699 0430 0050 9165 91	DEVON ENERGY PRODUCTION COMPANY, LP 20 N Broadway Oklahoma City OK 73102	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
5	9314 8699 0430 0050 9166 07	EOG RESOURCES INC P.O. Box 2267 Midland TX 79702	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
6	9314 8699 0430 0050 9166 14	MATADOR PRODUCTION COMPANY One Lincoln Centre 5400 Lbj Freeway, Ste 1500 Dallas TX 75240	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
7	9314 8699 0430 0050 9166 21	COG OPERATING LLC 550 W Texas Midland TX 79701	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
8	9314 8699 0430 0050 9166 38	TAP ROCK OPERATING, LLC 602 PARK POINT DRIVE Golden CO 80401	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
		Totals:	**$13.04**	**$27.60**	**$12.00**		**$0.00**
						Grand Total:	**$52.64**

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FAQs > (https://www.usps.com/faqs/uspstracking-faqs.htm)

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Transaction Report Details - CertifiedPro.net
Firm Mail Book ID= 151701
Generated: 10/17/2018 10:10:45 AM

Certified Mail Article Number	Date Created	Reference Number	Name 1	Address	City	State	Zip	Certified Mailing Status	Service Options	Mail Delivery Date
93148699043000509166 38	2018-09-18 11:54 AM	87806-0003	TAP ROCK OPERATING, LLC	602 PARK POINT DRIVE	Golden	CO	80401	Delivered	Return Receipt - Electronic	09-20-2018
93148699043000509166 21	2018-09-18 11:54 AM	87806-0003	COG OPERATING LLC	550 W Texas	Midland	TX	79701	Delivered	Return Receipt - Electronic	09-21-2018
93148699043000509166 14	2018-09-18 11:54 AM	87806-0003	MATADOR PRODUCTION COMPANY	One Lincoln Centre 5400 Lbj Freeway, Ste 1500	Dallas	TX	75240	Undelivered	Return Receipt - Electronic	
93148699043000509166 07	2018-09-18 11:54 AM	87806-0003	EOG RESOURCES INC	P.O. Box 2267	Midland	TX	79702	Delivered	Return Receipt - Electronic	10-03-2018
93148699043000509165 91	2018-09-18 11:54 AM	87806-0003	DEVON ENERGY PRODUCTION COMPANY, LP	20 N Broadway	Oklahoma City	OK	73102	Undelivered	Return Receipt - Electronic	
93148699043000509165 84	2018-09-18 11:54 AM	87806-0003	NEW MEXICO STATE LAND OFFICE	P.O. Box 1148	Santa Fe	NM	87504	Delivered	Return Receipt - Electronic	09-20-2018
93148699043000509165 77	2018-09-18 11:54 AM	87806-0003	BUREAU OF LAND MGMT	301 Dinosaur Trail	Santa Fe	NM	87508	Undelivered	Return Receipt - Electronic	
93148699043000509165 60	2018-09-18 11:54 AM	87806-0003	Oil Conservation Division District I - Hobbs	1625 N. French Drive	Hobbs	NM	88240	Delivered	Return Receipt - Electronic	09-21-2018

Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA

I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

Beginning with the issue dated
September 20, 2018
and ending with the issue dated
September 20, 2018.

Publisher

Sworn and subscribed to before me this
20th day of September 2018.

Business Manager

My commission expires
January 29, 2019
(Seal)

OFFICIAL SEAL
GUSSIE BLACK
Notary Public
State of New Mexico
My Commission Expires 1-29-19

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said

LEGAL NOTICE
September 20, 2018

Case No. 16439: Notice to all affected parties, as well as the heirs and devisees of DEVON ENERGY PRODUCTION COMPANY, LP; CIMAREX ENERGY CO. OF COLORADO; ROVER OPERATING, LLC; OXY USA INC; COG PRODUCTION LLC; DEVON ENERGY PRODUCTION COMPANY, LP; EOG Y RESOURCES; BABER GUY A; CHEVRON USA INC; CONOCOPHILLIPS CO; BUREAU OF LAND MGMT; NEW MEXICO STATE LAND OFFICE. NGL Water Solutions Permian, LLC 1509 W. Wall Street, Suite 306, Midland, Texas 79701 is filing an application for hearing along with a C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division for approval of salt water disposal well in Lea County, New Mexico. The State of New Mexico, through its Oil Conservation Division, hereby gives notice that the Division will conduct a public hearing at 8:15 a.m. on October 4, 2018 to consider this application. This is application for approval of the applicant's McCloy Central SWD #1 well. The proposed well will have a surface hole located 762' from the North line and 383' from the East line, and a bottom hole located 762' from the North line and 256' from the East line, Section 24, Township 24 South, Range 32 East, N.M.P.M., Lea County, New Mexico. Disposal water will be sourced from area production and will be injected in to the Silurian-Devonian Formations at an interval of 17,424' to 18,533'. The maximum surface pressure will be 3,484 psi and applicant is requesting approval of a maximum injection rate of 50,000 BWPD. 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.

Case No. 16438: Notice to all affected parties, as well as the heirs and devisees of XTO ENERGY, INC; CHEVRON USA INC; DEVON ENERGY PRODUCTION COMPANY, LP; HARVARD PETROLEUM COMPANY, LLC; CASE-POMEROY OIL CORP; OXY Y-1 COMPANY; EOG A RESOURCES INC; EOG M RESOURCES INC; EOG Y RESOURCES INC; COG PRODUCTION, LLC; COG OPERATING LLC; JAVELINA PARTNERS; OXY USA INC; NEW MEXICO STATE LAND OFFICE; BUREAU OF LAND MGMT. NGL Water Solutions Permian, LLC 1509 W. Wall Street, Suite 306, Midland, Texas 79701 is filing an application for hearing along with a C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division for approval of salt water disposal well in Lea County, New Mexico. The State of New Mexico, through its Oil Conservation Division, hereby gives notice that the Division will conduct a public hearing at 8:15 a.m. on October 4, 2018 to consider this application. This is application for approval of the applicant's Jack Tank SWD #1 well. The proposed well will have a surface hole located 1,400' from the North line and 1,853' from the West line, Section 5, Township 24 South, Range 32 East, N.M.P.M., Lea County, New Mexico. Disposal water will be sourced from area production and will be injected in to the Devonian Formations at an interval of 16,800' to 17,809'. The maximum surface pressure will be 3,360 psi and applicant is requesting approval of a maximum injection rate of 50,000 BWPD. 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.

Case No. 16440: Notice to all affected parties, as well as the heirs and devisees of DEVON ENERGY PRODUCTION COMPANY, LP; ROVER OPERATING, LLC; MCI OPERATING OF NM, LLC; CIMAREX ENERGY CO.; MARKS AND GARNER PRODUCTION LTD CO; ROBERT H FORREST JR OIL LLC; COG PRODUCTION, LLC; COG OPERATING LLC; DEVON ENERGY PROD CO LP; CHEVRON USA INC.; GUY A BABER; CONOCOPHILLIPS CO; APACHE CORP; CHISOS LTD; XTO HOLDINGS LLC AND THE BUREAU OF LAND MANAGEMENT. NGL Water Solutions Permian, LLC 1509 W. Wall Street, Suite 306, Midland, Texas 79701 has filed an application for hearing along with a C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division for approval of salt water disposal well in Lea County, New Mexico. The State of New Mexico, through its Oil Conservation Division, hereby gives notice that the Division will conduct a public hearing at 8:15 a.m. on October 4, 2018 to consider this application. This is application for approval of the applicant's McCloy West SWD #1 well. The proposed well will have a surface hole located 1019' from the South line and 2388' from the East line, Section 14, Township 24 South, Range 32 East, N.M.P.M., Lea County, New Mexico. Disposal water will be sourced from area production and will be injected in to the Silurian-Devonian Formations at an interval of 17,350' to 18,451'. The maximum surface pressure will be 3,470 psi and applicant is requesting approval of a maximum injection rate of 50,000 BWPD. 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.

Case No. 16441: Notice to all affected parties, as well as the heirs and devisees of DEVON ENERGY PRODUCTION COMPANY, LP; EOG RESOURCES INC; MATADOR PRODUCTION COMPANY; COG OPERATING LLC; TAP ROCK OPERATING, LLCBUREAU OF LAND MGMT; NEW MEXICO STATE LAND OFFICE. NGL Water Solutions Permian, LLC 1509 W. Wall Street, Suite 306, Midland, Texas 79701 is filing an application for hearing along with a C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division for approval of salt water disposal well in Lea County, New Mexico. The State of New Mexico, through its Oil Conservation Division, hereby gives notice that the Division will conduct a public hearing at 8:15 a.m. on October 4, 2018 to consider this application. This is application for approval of the applicant's Minuteman SWD #1 well. The proposed well will have a surface hole located 659' from the South line and 449' from the West line, Section 14, Township 24 South, Range 33 East, N.M.P.M., Lea County, New Mexico. Disposal water will be sourced from area production and will be injected in to the Silurian-Devonian Formations at an interval of 16,691' to 18,326'. The maximum surface pressure will be 3,338 psi and applicant is requesting approval of a maximum injection rate of 50,000 BWPD. 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.

Case No. 16443: Notice to all affected parties, as well as the heirs and devisees of Fortis Minerals II, LLC; Katy Pipeline and Production Corporation; Sugarberry Oil & Gas Corporation; Marathon Oil Permian, LLC; Energen Resources Corporation; EOG Resources, Inc.; COG Operating, LLC; Susan Duff; Nommensen Investment Company; John V. McCarthy, II; Bates Family Investment Company, LLC, The Trust Company of Oklahoma (TCO), as Agent; Duard B. Thomas, as Personal Representative Of the Estate of Warren J. Bates, deceased; Texas State Bank, San Angelo, Texas Successor Trustee of the Lucille Chism Bates Testamentary Trust, U/W/O of Lucille Chism Bates; Robert F. Fleet Revocable Trust; Rae Ann Fleet Gossett; Rae Ann Fleet Gossett; B.H.C.H. Mineral, Ltd. & Fredericksburg Royalty, Ltd.; James Ray Bates; Margaret Helen Kalmar Trust A, A/K/A the Margaret Helen Kalmar Children's Trust; PAWN Enterprises, Ltd. NGL Water Solutions Permian, LLC 1509 W. Wall Street, Suite 306, Midland, Texas 79701 is filing an application for hearing along with a C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division for approval of salt water disposal well in Lea County, New Mexico. The State of New Mexico, through its Oil Conservation Division, hereby gives notice that the Division will conduct a public hearing at 8:15 a.m. on October 4, 2018 to consider this application. This is application for approval of the applicant's Sidewinder SWD #1 well. The proposed well will have a surface hole located 244' from the South line and 1,581' from the East line, Section 10, Township 25 South, Range 34 East, N.M.P.M., Lea County, New Mexico. Disposal water will be sourced from area production and will be injected in to the Silurian-Devonian Formations at an interval of 16,157' to 19,067'. The maximum surface pressure will be 3,431 psi and applicant is requesting approval of a maximum injection rate of 50,000 BWPD. NGL further seeks approval of the


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Kedroad

Zina Crum
Modrall Sperling
500 4th Street NW
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Albuquerque NM 87102

PS Form 3877

Type of Mailing: CERTIFIED
09/18/2018

ALBUQUERQUE NM 87101 SEP 18 2018 USPS

Firm Mailing Book ID: 151685

Line	Article Number	Name, Street & P.O. Address	Postage	Fee	R.R.Fee	Reference	Rest.Del.Fee Contents
1	9314 8699 0430 0050 9110 08	Oil Conservation Division District IV 1220 South St. Francis Drive Santa Fe NM 87505	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
2	9314 8699 0430 0050 9110 15	Oil Conservation Division District II - Artesia 811 S. First St Artesia NM 88210	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
3	9314 8699 0430 0050 9110 22	NGL WATER SOLUTIONS PERMIAN, LLC 1509 W Wall St., Ste. 306 Midland TX 79701	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
4	9314 8699 0430 0050 9110 39	BUREAU OF LAND MGMT 301 Dinosaur Trail Santa Fe NM 87508	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
5	9314 8699 0430 0050 9110 46	DEVON ENERGY PRODUCTION COMPANY, LP 333 W. SHERIDAN AVENUE Oklahoma City OK 73102	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
6	9314 8699 0430 0050 9110 53	DEVON ENERGY PRODUCTION COMPANY, LP 20 N Broadway Oklahoma City OK 73102	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
7	9314 8699 0430 0050 9110 60	OXY USA INC P.O. BOX 4294 Houston TX 77210	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
8	9314 8699 0430 0050 9110 77	OCCIDENTAL PERMIAN LTD P.O. BOX 4294 Houston TX 77210	$1.42	$3.45	$1.50	87806-0003	$0.00 Notice
		Totals:	**$11.36**	**$27.60**	**$12.00**		**$0.00**
						Grand Total:	**$50.96**

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9314869904300050911077	2018-09-18 11:04 AM	OCCIDENTAL PERMIAN LTD	P.O. BOX 4294	Houston	TX	77210	Delivered	Return Receipt - Electronic	09-25-2018
9314869904300050911060	2018-09-18 11:04 AM	OXY USA INC	P.O. BOX 4294	Houston	TX	77210	Delivered	Return Receipt - Electronic	09-25-2018
9314869904300050911053	2018-09-18 11:04 AM	DEVON ENERGY PRODUCTION COMPANY, LP	20 N Broadway	Oklahoma City	OK	73102	Delivered	Return Receipt - Electronic	09-21-2018
9314869904300050911046	2018-09-18 11:04 AM	DEVON ENERGY PRODUCTION COMPANY, LP	333 W. SHERIDAN AVENUE	Oklahoma City	OK	73102	Delivered	Return Receipt - Electronic	09-21-2018
9314869904300050911039	2018-09-18 11:04 AM	BUREAU OF LAND MGMT	301 Dinosaur Trail	Santa Fe	NM	87508	Undelivered	Return Receipt - Electronic	
9314869904300050911022	2018-09-18 11:04 AM	NGL WATER SOLUTIONS PERMIAN, LLC	1509 W Wall St., Ste. 306	Midland	TX	79701	Delivered	Return Receipt - Electronic	09-21-2018
9314869904300050911015	2018-09-18 11:04 AM	Oil Conservation Division District II - Artesia	811 S. First St	Artesia	NM	88210	Delivered	Return Receipt - Electronic	09-21-2018
9314869904300050911008	2018-09-18 11:04 AM	Oil Conservation Division District IV	1220 South St. Francis Drive	Santa Fe	NM	87505	Delivered	Return Receipt - Electronic	09-20-2018

CARLSBAD
CURRENT-ARGUS

AFFIDAVIT OF PUBLICATION

Ad No.
0001262045

MODRALL SPERLING
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ALBUQUERQUE NM 87103

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

09/19/18

Legal Clerk

Subscribed and sworn before me this
19th of September 2018.

State of WI, County of Brown
NOTARY PUBLIC

My Commission Expires

TARA MONDLOCH
Notary Public
State of Wisconsin

Ad#:0001262045
P O : CN16442
# of Affidavits :0.00

Case No. 16442: Notice to all affected parties, as well as the heirs and devisees of DEVON ENERGY PRODUCTION COMPANY, LP; OXY USA INC; OCCIDENTAL PERMIAN LTD; BUREAU OF LAND MGMT; NEW MEXICO STATE LAND OFFICE. NGL Water Solutions Permian, LLC 1509 W. Wall Street, Suite 306, Midland, Texas 79701 is filing an application for hearing along with a C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division for **approval of salt water disposal well in Eddy County, New Mexico.** The State of New Mexico, through its Oil Conservation Division, hereby gives notice that the Division will conduct a public hearing at 8:15 a.m. on October 4, 2018 to consider this application. This is application for approval of the applicant's Red Road SWD #1 well. The proposed well will have a surface hole located 510' from the South line and 1,167' from the East line, Section 26, Township 23 South, Range 31 East, N.M.P.M., Eddy County, New Mexico. Disposal water will be sourced from area production and will be injected in to the Devonian Formations at an interval of 16,450' to 17,458'. The maximum surface pressure will be 3,284 psi and applicant is requesting approval of a maximum injection rate of 50,000 BWPD. 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.
Pub: Sept 19, 2018
#1262045