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

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

CASE NO. 20139

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CASE NO. 20143

Table of Contents

STATE OF NEW MEXICO
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES
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CASE NO. _____

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 Asroc SWD #1 well at a surface location 2017 feet from the South line and 1420 feet from the East line of Section 6, Township 25 South, Range 34 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well.

(2) NGL seeks authority to inject salt water into the Silurian-Devonian formation at a depth of 17,020' to 18,890'.

(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 2,553 psi for this well, and it requests that a maximum pressure of 3,404 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.

A

WHEREFORE, NGL requests that this application be set for hearing before an Examiner of the Oil Conservation Division on December 6, 2018; and that after notice and hearing, the Division enter its order approving this application.

Respectfully submitted,

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

By: Deana M. Bennett

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

CASE NO. _____: Application of NGL Water Solutions Permian, LLC for approval of salt water disposal well in Lea County, New Mexico. Applicant seeks an order approving disposal into the Silurian-Devonian formation through the Asroc SWD #1 well at a surface location 2017 feet from the South line and 1420 feet from the East line of Section 6, Township 25 South, Range 34 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well. NGL seeks authority to inject salt water into the Silurian-Devonian formation at a depth of 17,020' to 18,890'. 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 19 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: ASROC SWD #1 **API:** TBD
Pool: SWD; SILURIAN-DEVONIAN **Pool Code:** 96101

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

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

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

FOR OCD ONLY
☐ Notice Complete
☐ Application Content Complete

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

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

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

CHRIS WEYAND
Print or Type Name

Signature

11/7/2018
Date

512-600-1764
Phone Number

CHRIS@LONQUIST.COM
e-mail Address

EXHIBIT A

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

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

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____ Secondary Recovery _____ Pressure Maintenance __X__ Disposal _____ Storage
Application qualifies for administrative approval? __X__ Yes _____ No

II. OPERATOR: NGL WATER SOLUTIONS PERMIAN, LLC

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

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

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

IV. Is this an expansion of an existing project? _____ Yes __X__ No
If yes, give the Division order number authorizing the project: _____

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

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

VII. Attach data on the proposed operation, including:

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

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

IX. Describe the proposed stimulation program, if any.

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

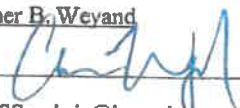
*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

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

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

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

NAME: Christopher B. Weyand TITLE: Consulting Engineer

SIGNATURE:  DATE: 11/1/2018

E-MAIL ADDRESS: chris@lonquist.com

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

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

Side 2

III. WELL DATA

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

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

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

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

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

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

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

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

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

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

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

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

XIV. PROOF OF NOTICE

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

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

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

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

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

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

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

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

Side 1

INJECTION WELL DATA SHEET

OPERATOR: NGL WATER SOLUTIONS PERMIAN, LLC

WELL NAME & NUMBER: ASROC SWD #1

WELL LOCATION: 2,017' FSL & 1,420' FEL | J | 06 | 25S | 34E

FOOTAGE LOCATION | UNIT LETTER | SECTION | TOWNSHIP | RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 24.000" Casing Size: 20.000"

Cemented with: 1,005 sx. *or* _____ ft^3

Top of Cement: Surface Method Determined: Circulation

1st Intermediate Casing

Hole Size: 17.500" Casing Size: 13.375"

Cemented with: 3,844 sx. *or* _____ ft^3

Top of Cement: Surface Method Determined: Circulation

2nd Intermediate Casing

Hole Size: 12.250" Casing Size: 9.625"

Cemented with: 3,295 sx. *or* _____ ft^3

Top of Cement: Surface Method Determined: Circulation

Production Liner

Hole Size: 8.500"

Casing Size: 7.625"

Cemented with: 367 sx.

or _____ ft^3

Top of Cement: 11,900'

Method Determined: Calculation

Total Depth: 18,890'

Injection Interval

17,020 feet to 18,890 feet

(Open Hole)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 7", 26 lb/ft, P-110, TCPC from 0'- 11,800' and 5.500", 17 lb/ft, P-110 TCPC from 11,800' - 17,020'
Lining Material: Duoline

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

Packer Setting Depth: 16,995'

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: 9,080'
   Wolfcamp: 12,240'
   Atoka: 14,040'
   Morrow: 14,890'

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

Location - SENW Sec 8, T25S, R34E
Drilling and Complete Cost
$10.83MM

AFE #

TD

GL/KB

3,410

Directions to Site - 7.0 mi N of Viper, 2 mi SE of Patriot, 1/4 mi W of Known Basement Fault, 18 mi NW of Jal

Geologic Tops (MD ft)	Section	Problems	Bit/BHA	Mud	Casing	Logging	Cement (HOLD)	Injection String
Rustler Anhydrite 1153 **Surface TD - 1200**	**Surface** Drill 24" 0' - 1200 Set and Cement 20" Casing	Loss Circulation Hole Cleaning Wellbore stability in the Red Beds Anhydrite in the Rustler	24" Tricone 9-5/8" x 8" MM 9 jts: 8" DC 21 jts: 5" HWDP 5 " DP to surface	Spud Mud MW< 9.0	1200' of 20" K55 133ppf STC Centralizers - bottom 2 joints and every 3rd jt thereafter, Cement basket at 200'	No Logs	Lead -499 sx of HES Extenda Cem, 13.7ppg, 4.5hrs TT Tail - 506sx of Halcem 3hr TT 25% Excess 1000psi CSD after 10hrs	11,800' of 7" P110 26# TCPC 5220 of 5-1/2" P110 17# TCPC Duoline Internally Coated Injection Tubing
Top of Salt 1295 Base of Salt 5194 **1st Int TD - 5200**	**1st Intermediate** Drill 4000' of 17-1/2" Hole 1150' - 5200' Set and Cement 13-3/8" Casing	Seepage Losses Possible H2S Anhydrite Salt Sections	17-1/2" PDC 9-5/8" x 8" MM 9 jts: 8" DC 21 jts: 5" HWDP 5 " DP to surface	8.5 ppg OBM High Vis Sweeps UBD/MPD usig ADA	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 1200'	Lead - 1997 sx of Neocem 12.9ppg, 5hr TT Tail - 1847sx of Halcem, 14.8ppg 60% Excess 1000psi CSD after 10 hrs Cement to Surface	
ECP DV Tool - 5160 Delaware 5245 Bell Canyon 5290 Cherry Canyon - 6345 Brushy Canyon 7946 **DV Tool - 9000** Bone Spring - 10230 **3rd Int Liner Top - 11,900** Wolfcamp - 12240 **2nd Int TD - 12,400**	**2nd Intermediate** Drill 7200' of 12-1/4" Hole 5200' - 12,400' Set 9-5/8" Intermediate Casing and Cement in 3 Stages	Hard Drilling in the Brushy Canyon Seepage to Complete Loss Water Flows Some Anhydrite H2S possible Production in the Bone Spring and Wolfcamp Ballooning is possible in Cherry Canyon and Brushy if Broken Down	12-1/4" PDC 8" MM 9jts: 8" DC 8" Drilling Jars 21 jts: 5" HWDP 5" DP to Surface		10M B Section 12400' of 9-5/8" 53.5# P110 BTC Special Drift to 8.535" Externally Coat Between DV Tools DV tool at at 9000' ECP DV Tool 15' inside Previous Casing Centralizers - bottom jt, 100' aside of DV tool, every 3rd joint in open hole and 5 within the surface casing	MWD GR Triple combo + CBL of 13-3/8" Casing	**Stage 3: 0% Excess** Lead 663sx Neocem 12.9 ppg Tail 510sx Halcem 14.8ppg 1000psi CSD after 10 hrs Cement to Surface **Stage 2: 25% Excess** Lead 508sx Neocem 12.9 ppg Tail 590sx Halcem 14.8ppg 1000psi CSD after 10 hrs **Stage 1: 25% Excess** Lead 553sx Neocem 12.9 ppg Tail 471sx Halcem 14.8ppg. 1000psi CSD after 10hrs	
Strawn - 13780 Atoka - 14040 Morrow - 14890 Miss Lst - 15155 Woodford - 16803 Perm Packer - 16,995 **3rd Int TD - 17,020**	**3rd Intermediate** Drill 4620' of 8-1/2" Hole 12400 - 17180' Set 7-5/8" Liner and Cement in Single Stage	High Pressure (up to 15ppg) and wellbore instability (fracturing) expected in the Atoka 150 target radius Hard Drilling in the Morrow Clastic	8-1/2" PDC 6-3/4" MM 9 jts: 6" DC 21 jts: 5" HWDP 5" DP to Surface	12.5 ppg OBM UBD/MPD using ADA	5120' of 7-5/8" 39# Q125 - DTL (FJ4) FJ (Gas Tight) VersaFlex Packer Hanger Sandblast Casing. Centralizers on and 1 jt above shoe jt and then every 2nd jt.	MWD GR Triple combo, CBL of 9-5/8" Casing	Lead 227sx Neocem 12.9 ppg Tail 140sx Halcem 14.8ppg. 1000psi CSD after 10hrs 8hr TT 35% Excess 1000psi CSD after 10hrs	7-5/8" x 5-1/2" TCPC Permanent Packer with High Temp Elastomer and full Inconel 925 trim
Devonian - 16,980 Fusselman - 18040 Montoya - 18,790' TD - 18,890'	**Injection Interval** Drill 1870' of 6-1/2" hole 17020' - 16890'	Chert is possible Loss of Circulation is expected H2S encountered on the Striker 3 well BHT estimated at 280F	6-1/2" PDC 4-3/4"MM 9 jts: 4-3/4" DC 4-3/4" Drilling Jars 18 jts: 4" FH HWDP 4" FH DP to Surface	Brine Water - possible flows	Openhole completion	MWD GR Triple Combo with FMI, CBL of 7-5/8"	Displace with 3% KCl (or heavier brine if necessary)	

NGL Water Solutions Permian, LLC

Asroc SWD No. 1

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1.

Well Information	
Lease Name	Asroc SWD
Well No.	1
Location	S-06 T-25S R-34E
Footage Location	2,017' FSL & 1,420' FEL

2.

a. Wellbore Description

Casing Information				
Type	Surface	Intermediate	Production	Liner
OD	20"	13.375"	9.625"	7.625"
WT	0.635"	0.480"	0.545"	0.500"
ID	18.730"	12.415"	8.535"	6.625"
Drift ID	18.542"	12.259"	8.535"	6.500"
COD	21.00"	14.375"	10.625"	7.625"
Weight	133 lb/ft	68 lb/ft	53.5 lb/ft	39 lb/ft
Grade	K-55	HCL-80	P-110	Q-125
Hole Size	24"	17.5"	12.25"	8.5"
Depth Set	1,200'	5,200'	12,400'	17,020'

b. Cementing Program

Cement Information				
Casing String	Surface	Intermediate	Production	Liner
Lead Cement	Extenda Cem	Neocem	Neocem, Neocem, Neocem	Neocem
Lead Cement Volume	499	1,997	Stage 1: 553 sx Stage 2: 508 sx Stage 3: 663 sx	227
Tail Cement	Halcem	Halcem	Versacem C, Halcem, Halcem	Halcem
Tail Cement Volume	506	1,847	Stage 1: 471 sx Stage 2: 590 sx Stage 3: 510 sx	140
Cement Excess	25%	60%	25%, 25%, 0%	35%
TOC	Surface	Surface	Surface	11,900'
Method	Circulate to Surface	Circulate to Surface	Circulate to Surface	Logged

3. Tubing Description

Tubing Information		
OD	7"	5.5"
WT	0.362"	0.304"
ID	6.276"	4.892"
Drift ID	7.875"	6.050"
COD	6.151"	4.653"
Weight	26 lb/ft	17 lb/ft
Grade	P-110 TCPC	P-110 TCPC
Depth Set	0'-11,800'	11,800' -17,020'

Tubing will be lined with Duoline.

4. Packer Description

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

B. Completion Information

1. Injection Formation: Devonian, Silurian, Fusselman, Montoya (Top 100')
2. Gross Injection Interval: 17,020' – 18,890'

   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	9,080'
Wolfcamp	12,240'
Atoka	14,040'
Morrow	14,890'

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: 2,553 PSI (surface pressure)
   Maximum Injection Pressure: 3,404 PSI (surface pressure)

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

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

VIII. Geological Data

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

A. Injection Zone: Siluro-Devonian Formation

Formation	Depth
Rustler Anhydrite	1,153'
Delaware	5,245'
Bone Spring	9,080'
Wolfcamp	12,240'
Strawn	13,780'
Atoka	14,040'
Morrow	14,890'
Mississippian	15,660'
Woodford	16,803'
Devonian	16,980'
Fusselman	18,040'
Montoya	18,790'

B. Underground Sources of Drinking Water

No water wells exist within one mile of the proposed well location. Water wells in the surrounding area have an average total depth of 304 ft and an average water depth of 215 ft generally producing from the Santa Rosa. The upper Rustler may also be another USDW and will be protected.

IX. Proposed Stimulation Program

Stimulate with up to 50,000 gallons of acid.

X. Logging and Test Data on the Well

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

XI. Chemical Analysis of Fresh Water Wells

No water wells exist within one mile of the well location.

XII. Affirmative Statement of Examination of Geologic and Engineering Data

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

NAME: John C. Webb

TITLE: Sr. Geologist

SIGNATURE: John C Webb

DATE: NOV. 1 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.
	Asroc SWD	1

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
J	06	25S	34E	N/A	2017'	SOUTH	1420'	EAST	LEA

8. Proposed Bottom Hole Location

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

9. Pool Information

Pool Name	Pool Code
SWD; Silurian-Devonian	96101

Additional Well Information

11. Work Type	12. Well Type	13. Cable/Rotary	14. Lease Type	15. Ground Level Elevation
N	SWD	R	Private	3,410'
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
N	18,890'	Siluro-Devonian	TBD	ASAP
Depth to Ground water	**Distance from nearest fresh water well**		**Distance to nearest surface water**	
215'	> 1 mile		1,370'	

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

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surface	24"	20"	133 lb/ft	1,200'	1,005	Surface
Intermediate	17.5"	13.375"	68 lb/ft	5,200'	3,844	Surface
Production	12.25"	9.625"	53.5 lb/ft	12,400'	3,295	Surface
Prod. Liner	8.5"	7.625"	39 lb/ft	11,900' - 17,020'	313	11,900'
Tubing	N/A	7"	26 lb/ft	0' – 11,800'	N/A	N/A
Tubing	N/A	5.5"	17 lb/ft	11,800' – 17,020'	N/A	N/A

Casing/Cement Program: Additional Comments

See attached schematic.

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Hydraulic/Blinds, Pipe	10,000 psi	8,000 psi	TBD – Schaffer/Cameron

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify that I have complied with 19.15.14.9 (A) NMAC ☐ and/or 19.15.14.9 (B) NMAC ☒, if applicable. Signature:		OIL CONSERVATION DIVISION Approved By:	
Printed name: Christopher B. Weyand		Title:	
Title: Consulting Engineer		Approved Date:	Expiration Date:
E-mail Address: chris@lonquist.com			
Date: 11/1/2018	Phone: (512) 600-1764	Conditions of Approval Attached	

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

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

4 Property Code	5 Property Name	6 Well Number
	ASROC SWD	1

7 OGRID No.	8 Operator Name	9 Elevation
372338	NGL WATER SOLUTIONS PERMIAN, LLC	3410.00'±

10 Surface Location

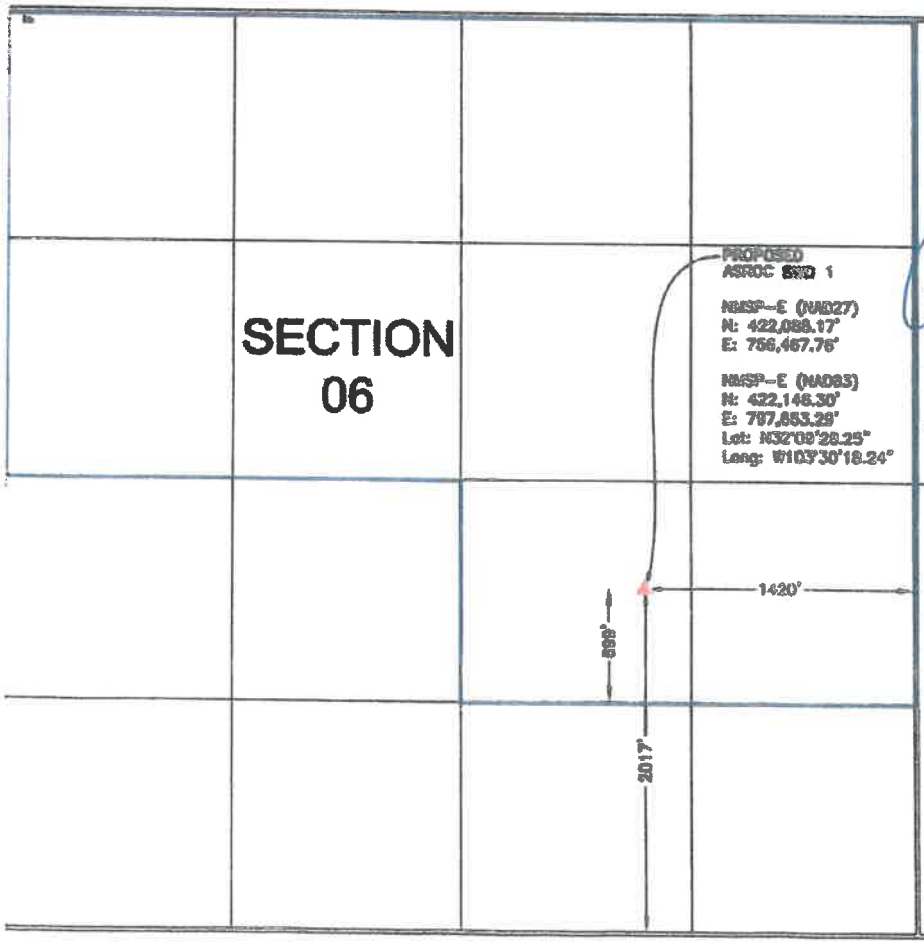
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	06	25 S	34 E	N/A	2017'	SOUTH	1420'	EAST	LEA

11 Bottom Hole Location If Different From Surface

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

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

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



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: 11/1/2019

Chris Weyand
Printed Name

chris@lonquist.com
E-mail Address

18 SURVEYOR CERTIFICATION

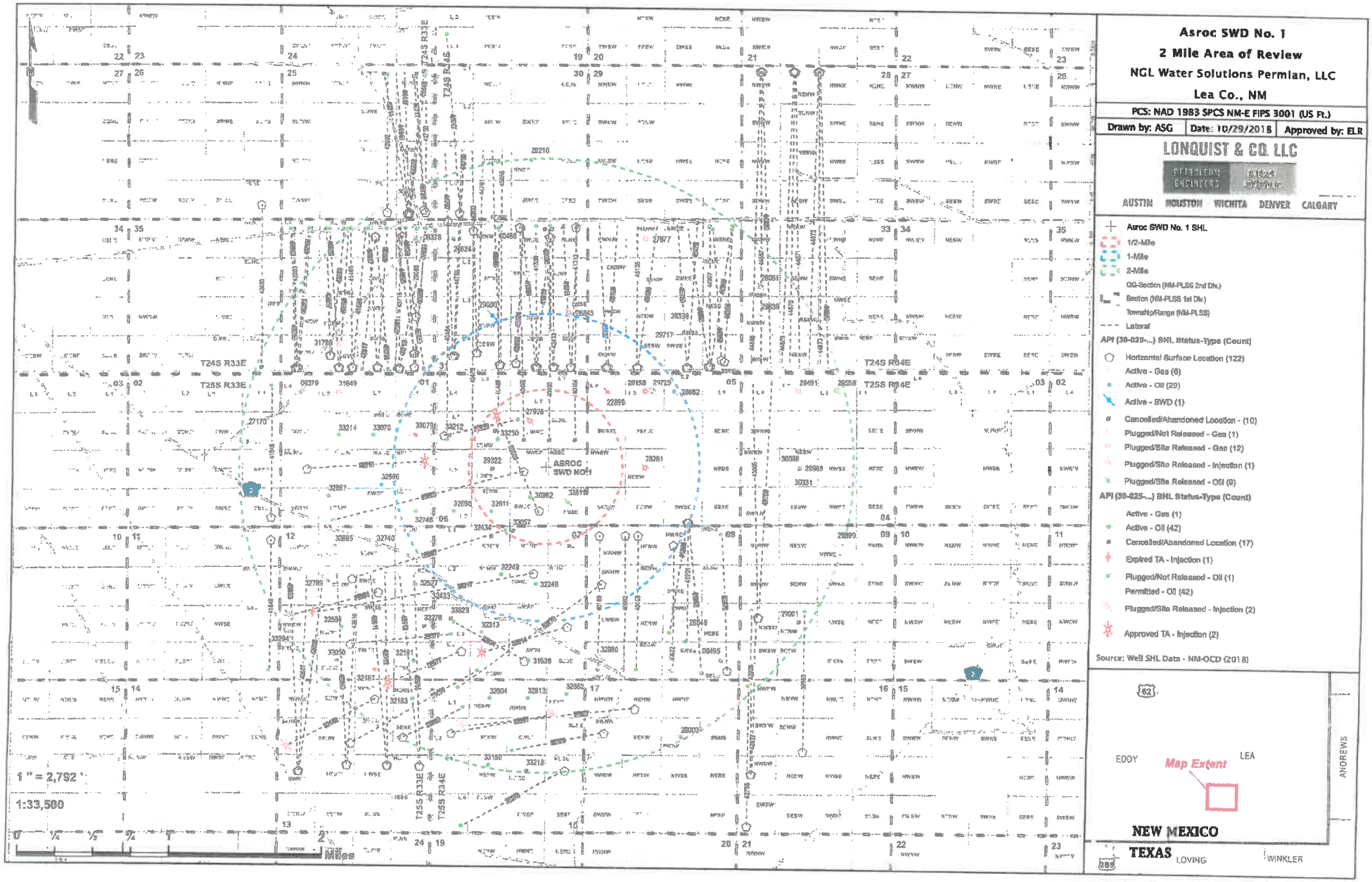
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date of Survey: 10/23/2019

Signature and Seal of Professional Surveyor

CODY C. CLARK — NEW MEXICO — 23001 — PROFESSIONAL SURVEYOR

Certificate Number


Asroc SWD No. 1
2 Mile Area of Review
NGL Water Solutions Permian, LLC
Lea Co., NM
PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)
Drawn by: ASG
Date: 10/29/2018
Approved by: ELR
LONQUIST & CO. LLC
AUSTIN HOUSTON WICHITA DENVER CALGARY
Asroc SWD No. 1 SHL
1/2-Mile
1-Mile
2-Mile
OG-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 (122)
Active - Gas (6)
Active - Oil (29)
Active - SWD (1)
Cancelled/Abandoned Location - (10)
Plugged/Not Released - Gas (1)
Plugged/Site Released - Gas (12)
Plugged/Site Released - Injection (1)
Plugged/Site Released - Oil (9)
API (30-025-...) BHL Status-Type (Count)
Active - Gas (1)
Active - Oil (42)
Cancelled/Abandoned Location (17)
Expired TA - Injection (1)
Plugged/Not Released - Oil (1)
Permitted - Oil (42)
Plugged/Site Released - Injection (2)
Approved TA - Injection (2)
Source: Well SHL Data - NM-OCD (2018)
ASROC SWD NO#1
T24S R33E
T25S R33E
T24S R34E
T25S R34E
1 " = 2,792 '
1:33,500
0 1/4 1/2 3/4 1 2 Miles
EDDY
LEA
Map Extent
NEW MEXICO
TEXAS
LOVING
WINKLER
ANDREWS

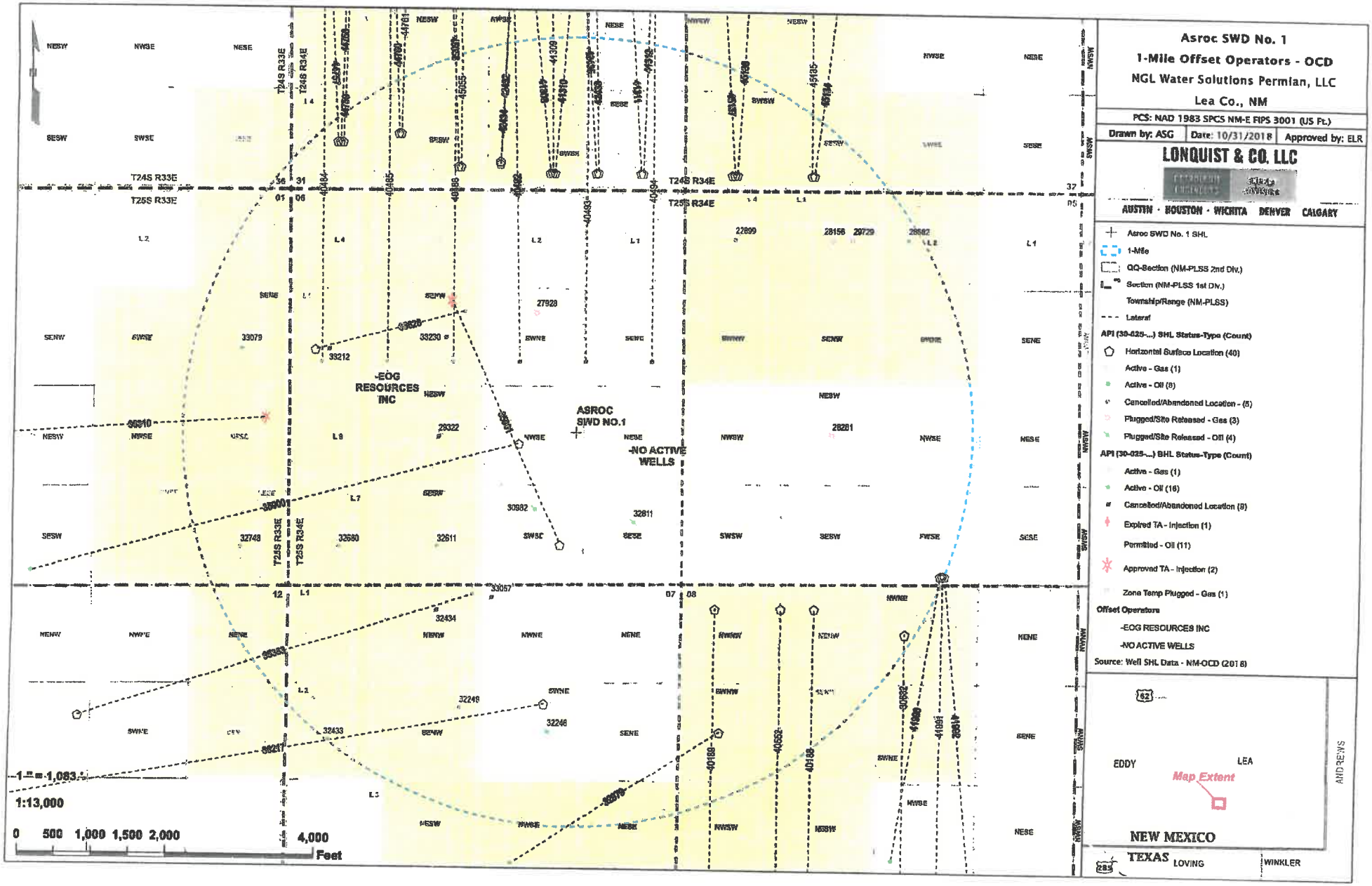
Asroc SWD No. 1

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
22899	PRE-ONGARD WELL #001	O	P	PRE-ONGARD WELL OPERATOR	5359	32.1649704000	-103.498275800	1/1/1900
27928	DIAMOND 6 FEDERAL #001	G	P	EOG RESOURCES INC	15660	32.16225050000	-103.50681300000	12/31/9999
28156	DIAMOND 5 FEDERAL #001	G	A	EOG RESOURCES INC	15300	32.1649666000	-103.494010900	3/26/1983
28261	HALF 5 FEDERAL COM #001	G	P	EOG RESOURCES INC	15350	32.15771480000	-103.49403380000	7/23/1983
28682	DIAMOND 5 FEDERAL #002	O	P	EOG RESOURCES INC	5583	32.1649628000	-103.490821800	1/1/1900
29322	PRE-ONGARD WELL #001	O	C	PRE-ONGARD WELL OPERATOR	0	32.1577137546	-103.511035244	12/31/9999
29729	DIAMOND 5 FEDERAL #003	G	P	EOG RESOURCES INC	14100	32.1649628000	-103.493202200	12/31/9999
30632	DIAMOND 8 FEDERAL #001	G	A	EOG RESOURCES INC	9507	32.1504517000	-103.490867600	10/9/1989
30982	RED HILLS NORTH UNIT #601	O	A	EOG RESOURCES INC	15675	32.1550026000	-103.506843600	9/12/1990
32246	RED HILLS NORTH UNIT #702	O	A	EOG RESOURCES INC	12600	32.1468353000	-103.506202700	12/31/9999
32249	RED HILLS NORTH UNIT #707	O	A	EOG RESOURCES INC	12550	32.1477432000	-103.510002100	12/31/9999
32433	RED HILLS NORTH UNIT #704	O	A	EOG RESOURCES INC	12600	32.1465569000	-103.515663100	3/16/1994
32434	DIAMOND 7 FEDERAL #003	O	C	EOG RESOURCES INC	99999	32.1513637911	-103.511095060	12/31/9999
32611	RED HILLS NORTH UNIT #602	O	A	EOG RESOURCES INC	12600	32.1536789000	-103.511070300	9/28/1994
32680	RED HILLS NORTH UNIT #603	O	A	EOG RESOURCES INC	12600	32.15367890000	-103.51533510000	10/23/1994
32748	RED HILLS NORTH UNIT #102	O	A	EOG RESOURCES INC	12500	32.1536789000	-103.519599900	12/10/1994
32811	HALF 6 FEDERAL #004	O	P	EOG RESOURCES INC	12516	32.1545067000	-103.502578700	1/5/1995
32979	RED HILLS NORTH UNIT #709H	O	A	EOG RESOURCES INC	12265	32.1468353000	-103.498802200	6/14/1996
33057	DIAMOND 7 FEDERAL #005	O	C	EOG RESOURCES INC	0	32.1518306851	-103.508698775	12/31/9999
33079	HALLWOOD 1 FEDERAL #006	O	P	EOG RESOURCES INC	12550	32.1609383000	-103.519592300	10/10/1995
33212	DIAMOND 6 FEDERAL #002	O	C	EOG RESOURCES INC	0	32.1609324082	-103.515806669	12/31/9999
33230	DIAMOND 6 FEDERAL #003	O	C	EOG RESOURCES INC	0	32.16134006900	-103.51074743400	12/31/9999
35363	RED HILLS NORTH UNIT #212H	O	A	EOG RESOURCES INC	12285	32.1474800000	-103.526596100	3/12/2001
35900	RED HILLS NORTH UNIT #604H	O	A	EOG RESOURCES INC	12315	32.1574478000	-103.507545500	10/19/2002
35901	RED HILLS NORTH UNIT #606H	I	T	EOG RESOURCES INC	12310	32.1537361000	-103.505783100	6/5/2002
36217	RED HILLS NORTH UNIT #710H	I	E	EOG RESOURCES INC	12261	32.1478729000	-103.506370500	5/3/2003
36310	RED HILLS NORTH UNIT #106H	I	T	EOG RESOURCES INC	12276	32.1577988000	-103.531669600	8/25/2003
36628	DIAMOND 6 FEDERAL #002H	O	A	EOG RESOURCES INC	12286	32.16090770000	-103.51639560000	6/24/2004
40188	DIAMOND 8 FEDERAL COM #003H	O	A	EOG RESOURCES INC	9492	32.1513634000	-103.494796800	5/28/2012
40189	DIAMOND 8 FEDERAL COM #004H	O	A	EOG RESOURCES INC	9473	32.1513710000	-103.499061600	7/16/2012
40484	DIAMOND 31 FEDERAL COM #002	O	A	EOG RESOURCES INC	9504	32.18116760000	-103.51607510000	1/3/2013
40485	DIAMOND 31 FEDERAL COM #003H	O	A	EOG RESOURCES INC	9505	32.1802864000	-103.513229400	12/22/2012
40486	DIAMOND 31 FEDERAL COM #004H	O	A	EOG RESOURCES INC	9744	32.1805344000	-103.510391200	12/8/2012
40492	DILLON 31 FEDERAL COM #002C	O	C	EOG RESOURCES INC	0	32.1805878000	-103.508071900	12/31/9999
40493	DILLON 31 FEDERAL COM #003C	O	C	EOG RESOURCES INC	0	32.17967990000	-103.50464630000	12/31/9999
40494	DILLON 31 FEDERAL COM #004C	O	C	EOG RESOURCES INC	0	32.1806145000	-103.501800500	12/31/9999
40552	DIAMOND 8 FEDERAL COM #005H	O	A	EOG RESOURCES INC	9505	32.1513672000	-103.496215800	6/22/2012
41308	DILLON 31 #001H	O	A	EOG RESOURCES INC	9468	32.1673927000	-103.506271400	10/23/2013
41309	DILLON 31 #002H	O	A	EOG RESOURCES INC	9441	32.1673927000	-103.506172200	11/12/2013
41310	DILLON 31 #003H	O	A	EOG RESOURCES INC	9451	32.1673927000	-103.506073000	12/7/2013
41311	DILLON 31 #004C	O	C	EOG RESOURCES INC	0	32.1673889000	-103.502372700	12/31/9999
41312	DILLON 31 #005C	O	C	EOG RESOURCES INC	0	32.1673889000	-103.502273600	12/31/9999
41990	DIAMOND 5 FEDERAL COM #006H	O	A	EOG RESOURCES INC	9473	32.15256500000	-103.48937990000	3/13/2015
41991	DIAMOND 5 FEDERAL COM #007H	O	A	EOG RESOURCES INC	9459	32.1525650000	-103.489280700	3/28/2015
41992	DIAMOND 5 FEDERAL COM #008H	O	A	EOG RESOURCES INC	9471	32.1525650000	-103.489189100	4/11/2015
42432	DILLON 31 #501C	O	C	EOG RESOURCES INC	0	32.1677181260	-103.508434090	12/31/9999

Asroc SWD No. 1
1 Mile Area of Review List

42433	DILLON 31 #502H	O	C	EOG RESOURCES INC	0	32.1674091130	-103.504202200	12/31/9999
42434	DILLON 31 #701C	O	C	EOG RESOURCES INC	0	32.1678005930	-103.508434150	12/31/9999
42435	DILLON 31 #702C	O	C	EOG RESOURCES INC	0	32.1674092060	-103.504299620	12/31/9999
44757	DIAMOND 31 FEDERAL COM #701H	O	N	EOG RESOURCES INC	0	32.1684966000	-103.515484300	6/11/2018
44758	DIAMOND 31 FEDERAL COM #702H	O	N	EOG RESOURCES INC	0	32.1684966000	-103.515371200	6/12/2018
44759	DIAMOND 31 FEDERAL COM #703H	O	N	EOG RESOURCES INC	0	32.1684966000	-103.515258100	12/31/9999
44760	DIAMOND 31 FEDERAL COM #704H	O	N	EOG RESOURCES INC	0	32.1688060000	-103.512842500	6/19/2018
44761	DIAMOND 31 FEDERAL COM #705H	O	N	EOG RESOURCES INC	0	32.1688060000	-103.512729400	6/21/2018
45055	DIAMOND 31 FEDERAL COM #707H	O	N	EOG RESOURCES INC	0	32.1676202000	-103.510152500	12/31/9999
45056	DIAMOND 31 FEDERAL COM #706H	O	N	EOG RESOURCES INC	0	32.1676202000	-103.510259100	12/31/9999
45134	COBALT 32 STATE #705H	O	N	EOG RESOURCES INC	0	32.1673370000	-103.494894500	12/31/9999
45135	COBALT 32 STATE #706H	O	N	EOG RESOURCES INC	0	32.1673371000	-103.495001100	12/31/9999
45136	COBALT 32 STATE #707H	O	N	EOG RESOURCES INC	0	32.1673400000	-103.498219700	12/31/9999
45137	COBALT 32 STATE #708H	O	N	EOG RESOURCES INC	0	32.1673400000	-103.498326300	12/31/9999
45245	COBALT 32 STATE #709H	O	N	EOG RESOURCES INC	0	32.1673387000	-103.498433100	12/31/9999


Asroc SWD No. 1
1-Mile Offset Operators - OCD
NGL Water Solutions Permian, LLC
Lea Co., NM
PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)
Drawn by: ASG
Date: 10/31/2018
Approved by: ELR
LONQUIST & CO. LLC
AUSTIN · HOUSTON · WICHITA · DENVER · CALGARY
Asroc SWD No. 1 SHL
1-Mile
QQ-Section (NM-PLSS 2nd Div.)
Section (NM-PLSS 1st Div.)
Township/Range (NM-PLSS)
Lateral
API (30-025-...) SHL Status-Type (Count)
Horizontal Surface Location (40)
Active - Gas (1)
Active - Oil (8)
Cancelled/Abandoned Location - (5)
Plugged/Site Released - Gas (3)
Plugged/Site Released - Oil (4)
API (30-025-...) BHL Status-Type (Count)
Active - Gas (1)
Active - Oil (16)
Cancelled/Abandoned Location (8)
Expired TA - Injection (1)
Permitted - Oil (11)
Approved TA - Injection (2)
Zone Temp Plugged - Gas (1)
Offset Operators
-EOG RESOURCES INC
-NO ACTIVE WELLS
Source: Well SHL Data - NM-OCD (2018)
EOG RESOURCES INC
ASROC SWD NO.1
-NO ACTIVE WELLS
T24S R33E
T25S R33E
T24S R34E
T25S R34E
1" = 1,083.3'
1:13,000
0 500 1,000 1,500 2,000 4,000
Feet
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Map Extent
NEW MEXICO
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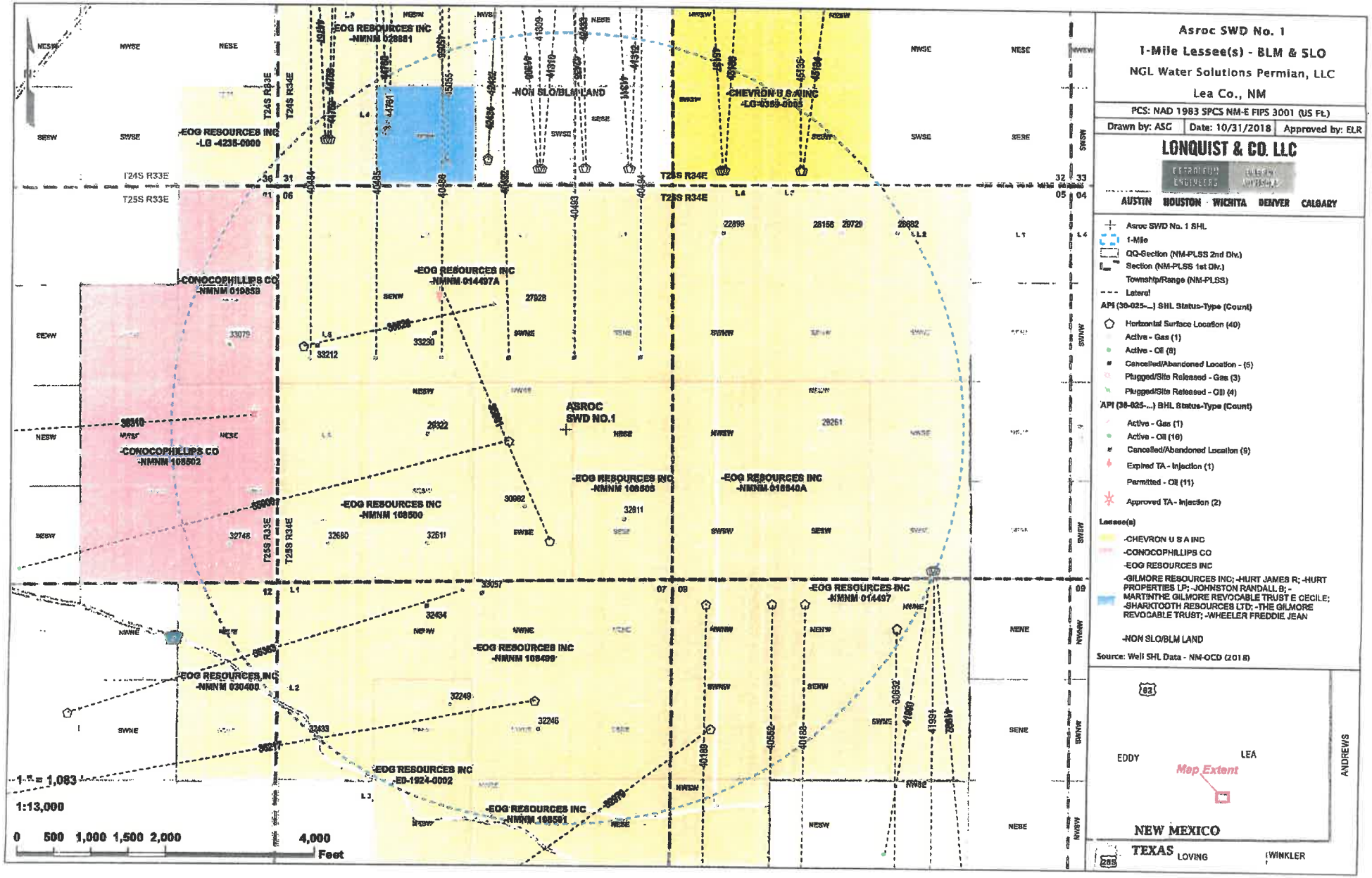
WINKLER
ANDREWS


Asroc SWD No. 1
1-Mile Lessee(s) - BLM & SLO
NGL Water Solutions Permian, LLC
Lea Co., NM
PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)
Drawn by: ASG
Date: 10/31/2018
Approved by: ELR
LONQUIST & CO. LLC
AUSTIN HOUSTON WICHITA DENVER CALGARY
Asroc SWD No. 1 SHL
1-Mile
QQ-Section (NM-PLSS 2nd Div.)
Section (NM-PLSS 1st Div.)
Township/Range (NM-PLSS)
Lateral
API (30-025-...) SHL Status-Type (Count)
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Plugged/Site Released - Oil (4)
API (30-025-...) BHL Status-Type (Count)
Active - Gas (1)
Active - Oil (16)
Cancelled/Abandoned Location (9)
Expired TA - Injection (1)
Permitted - Oil (11)
Approved TA - Injection (2)
Lessee(s)
-CHEVRON U S A INC
-CONOCOPHILLIPS CO
-EOG RESOURCES INC
-GILMORE RESOURCES INC; -HURT JAMES R; -HURT PROPERTIES LP; -JOHNSTON RANDALL B; -MARTINTHE GILMORE REVOCABLE TRUST E CECILE; -SHARKTOOTH RESOURCES LTD; -THE GILMORE REVOCABLE TRUST; -WHEELER FREDDIE JEAN
-NON SLO/BLM LAND
Source: Well SHL Data - NM-OCD (2018)
ASROC SWD NO.1
-EOG RESOURCES INC -NMNM 028881
-NON SLO/BLM LAND
-CHEVRON U S A INC -LG-0389-0005
-EOG RESOURCES INC -LG -4235-0000
-EOG RESOURCES INC -NMNM 014497A
-CONOCOPHILLIPS CO -NMNM 019859
-CONOCOPHILLIPS CO -NMNM 108502
-EOG RESOURCES INC -NMNM 108500
-EOG RESOURCES INC -NMNM 108505
-EOG RESOURCES INC -NMNM 016840A
-EOG RESOURCES INC -NMNM 014497
-EOG RESOURCES INC -NMNM 108499
-EOG RESOURCES INC -NMNM 030488
-EOG RESOURCES INC -ED-1924-0002
-EOG RESOURCES INC -NMNM 108501
T24S R33E
T24S R34E
T25S R33E
T25S R34E
1" = 1,083'
1:13,000
0 500 1,000 1,500 2,000 4,000
Feet
EDDY
LEA
Map Extent
ANDREWS
NEW MEXICO
TEXAS
LOVING
WINKLER

Asroc SWD #1: Offsetting Produced Water Analysis																	
wellname	api	section	township	range	unit	county	formation	ph	tds_mgL	sodium_mgL	calcium_mgL	iron_mgL	magnesium_mgL	manganese_mgL	chloride_mgL	bicarbonate_mgL	sulfate_mgL	co2_mgL
BELL LAKE UNIT #002	3002508489	30	23S	34E	N	LEA	DELAWARE		52115						32200	451	529	
BELL LAKE UNIT A #007	3002508367	1	24S	33E	A	LEA	DELAWARE		87686						53920	391	749	
BELL LAKE UNIT #009	3002520261	18	23S	34E	K	LEA	BONE SPRING		204552						130000	512	260	
CORIANDER AOC STATE #002	3002533574	1	23S	32E	H	LEA	BONE SPRING	5.2			24176	0	3815		167962	61.1	165	
THISTLE UNIT #071H	3002542425	27	23S	33E	A	Lea	BONE SPRING 1ST SAND	5.6	171476.3	55363.2	9140	40.4	1023	1.1	104576.4	244	560	770
BELL LAKE 19 STATE #002H	3002541515	19	24S	33E	O	Lea	BONE SPRING 2ND SAND	6.2		47148	6419	15	854	0	86572	232	670	240
BELL LAKE 19 STATE #004H	3002541517	19	24S	33E	O	Lea	BONE SPRING 2ND SAND	6.3		47537	6950	11	886	0	88389	171	650	210
SALADO DRAW 6 FEDERAL #001H	3002541293	6	26S	34E	M	Lea	BONE SPRING 3RD SAND	6.5	99612.7	34586.5	3244	10.3	417.7	0.39	59986.5	158.6	820	50
GAUCHO UNIT #011H	3002541184	17	22S	34E	O	Lea	BONE SPRING 3RD SAND	6.5		48879	6182	11	802	0.12	88836	122	1240	70
SNAPPING 2 STATE #014H	3001542688	2	26S	31E	P	EDDY	WOLFCAMP	7.3	81366.4	26319.4	2687.4	26.1	326.7		50281.2		399.7	100
BELLOQ 2 STATE #002H	3001542895	2	23S	31E	C	EDDY	WOLFCAMP	6.8	119471.8	37359.2	5659.1	22.4	746.1		73172.5		1035.5	250
PRONGHORN AHO FEDERAL #001	3002526496	6	23S	33E	G	LEA	STRAWN	5.5			20.1	0	12.2		35.5	61.1	48.8	
ANTELOPE RIDGE UNIT #002	3002520444	4	24S	34E	B	LEA	ATOKA	6.7	51475						31000	317	340	
CUSTER MOUNTAIN UNIT #001	3002520756	9	24S	35E	K	LEA	MORROW		282741						176800	161	650	

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

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

CASE NO. 20139

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

CASE NO. 20143

AFFIDAVIT OF CHRIS WEYAND

STATE OF TEXAS)
) ss.
COUNTY OF TRAVIS)

I, Chris Weyand, 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 a Staff Engineer at Lonquist & Co., LLC. My responsibilities at Lonquist & Co., LLC include saltwater disposal well permitting efforts in New Mexico as well as other states and jurisdictions.

3. I graduated from Texas A&M University in 2010 with an engineering degree.

4. I am familiar with the applications that NGL Water Solutions Permian, LLC ("NGL") has filed in these matters.

EXHIBIT
tabbies
2

5. In Case No. 20139, NGL (OGRID No. 372338) seeks an order approving the Asroc SWD #1 well, which is a salt water disposal well.

6. In Case No. 20143, NGL (OGRID No. 372338) seeks an order approving the Viper SWD #1 well, which is a salt water disposal well.

7. I prepared revised C-102s for both the Asroc and Viper wells, attached as Exhibits A and B to this affidavit.

8. I compiled a list of all parties entitled to notice within a one-mile area of review. I reviewed County and Division records to determine the parties entitled to notice, including the owner of the surface (NGL) and leasehold operators or other affected person. With respect to affected parties, I determined whether there was an operator, as shown in the Division records, or a designated unit operator, and if not, whether there were any working interests whose interest is evidenced by a written conveyance document either of record; and as to any tract or interest not subject to an existing oil and gas lease, whether there were mineral interest owner whose interest is evidenced by a written conveyance document either of record; and whether the United States or state of New Mexico owns the mineral estate in the spacing unit or identified tract or any part thereof, the BLM or state land office, as applicable.

9. Based on my review of those records, the change in location for the Asroc and Viper wells did not result in any additional parties entitled to notification.

10. The Asroc SWD #1 well is located just over 0.5 miles from State Trust Lands (those lands are located in Sec. 32-24S-34E). Based on my review of the information available to me, the Asroc SWD #1 well is located just over 0.5 miles from State minerals (located in Unit M, Sec. 32-24S-34E and Unit F, Sec. 7-25S-34E).

11. The Viper SWD #1 well is approximately 0.25 miles away from State Lands (located in Sec. 7 & 8 (25S 34E)). Based on my review of the information available to me, the Viper SWD #1 well is located just over 0.5 miles from State minerals (located in Unit K, Sec. 7-25S-34E).

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

[Signature page follows]

Chris Weyand

SUBSCRIBED AND SWORN to before me this 20 th day of February, 2019 by Chris Weyand.

Notary Public

My commission expires: 09/16/2019

MARIA L. RIVAS
Notary Public, State of Texas
My Commission Expires
September 16, 2019

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
	ASROC SWD	1

[7] OGRID No.	[8] Operator Name	[9] Elevation
372338	NGL WATER SOLUTIONS Permian LLC	3410.00'±

[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
I	06	25 S	34 E	N/A	1707'	SOUTH	272'	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
I	06	25 S	34 E	N/A	1707'	SOUTH	222'	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]

SECTION 06

PROPOSED ASROC BHL

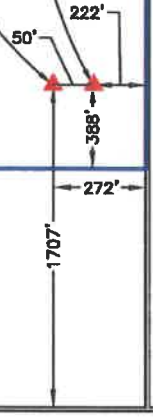
NMSP–E (NAD27)
N: 421,788.18'
E: 757,667.74'

NMSP–E (NAD83)
N: 421,846.30'
E: 798,853.29'
Lat: N32°09'25.19"
Long: W103°30'04.31"

PROPOSED ASROC SWD 1

NMSP–E (NAD27)
N: 421,788.18'
E: 757,617.74'

NMSP–E (NAD83)
N: 421,846.30'
E: 798,803.29'
Lat: N32°09'25.20"
Long: W103°30'04.89"



[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: 2/14/2019

Chris Wayand
Printed Name

chris@longrist.com
E-mail Address

[18] SURVEYOR CERTIFICATION

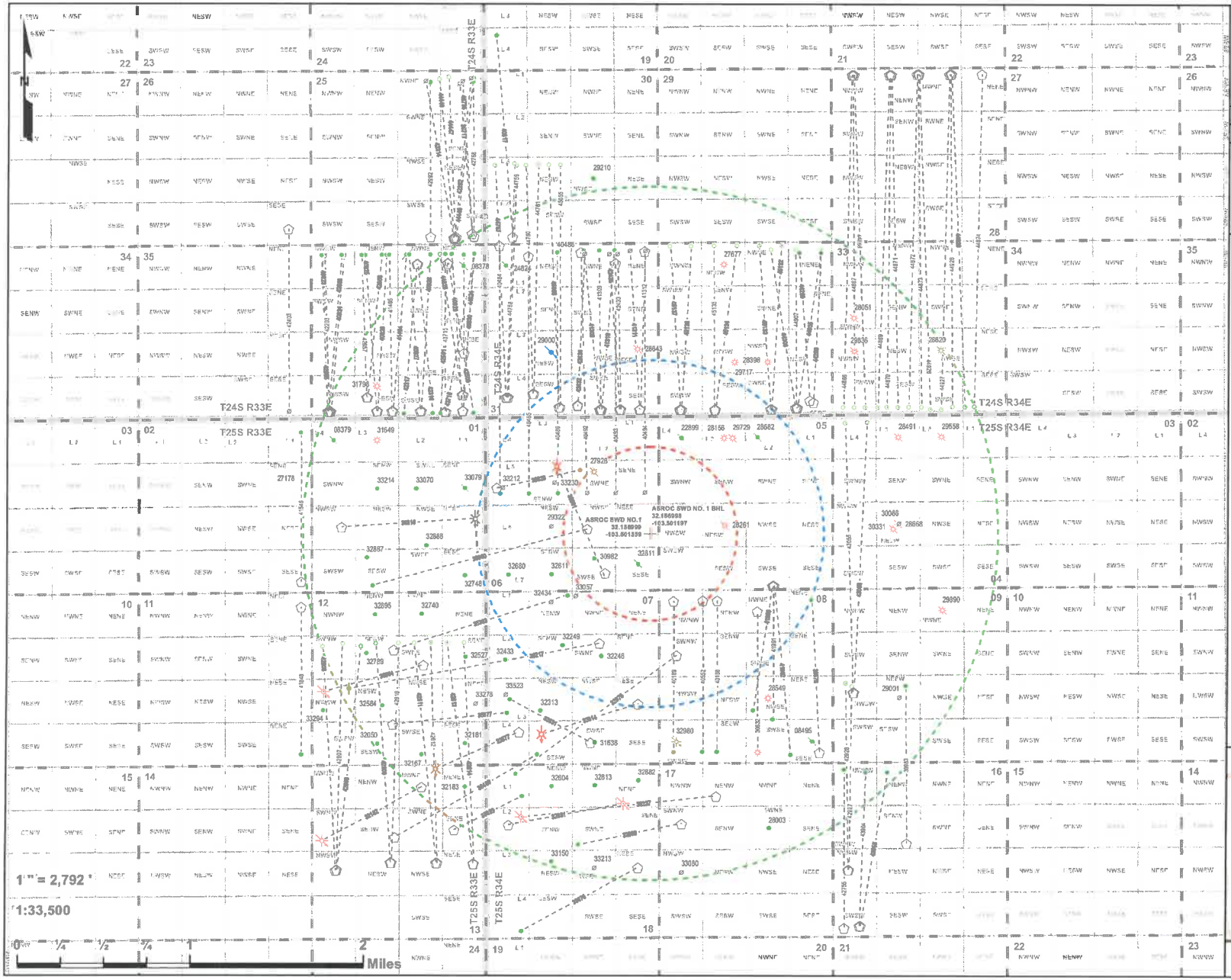
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

02/14/2019
Date of Survey

Signature and Seal of Professional Surveyor: Billy W. Barr Jr. NEW MEXICO 25114 PROFESSIONAL SURVEYOR

25114
Certificate Number

EXHIBIT 2-A



Asroc 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: 2/19/2019	Approved by: ELR

LONQUIST & CO. LLC

PETROLEUM ENGINEERS | ENERGY ADVISORS

AUSTIN · HOUSTON · WICHITA · DENVER · CALGARY

- Asroc SWD No. 1 SHL
- Asroc SWD No. 1 BHL
- 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 (116)
- Active - Gas (6)
- Active - Oil (28)
- Active - SWD (1)
- Cancelled/Abandoned Location - (11)
- Plugged/Site Released - Gas (13)
- Plugged/Site Released - Injection (1)
- Plugged/Site Released - Oil (8)

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

- Active - Gas (1)
- Active - Oil (49)
- Cancelled/Abandoned Location (12)
- Expired TA - Injection (1)
- Plugged/Not Released - Oil (1)
- Permitted - Oil (45)
- Plugged/Site Released - Injection (4)
- Approved TA - Injection (4)

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

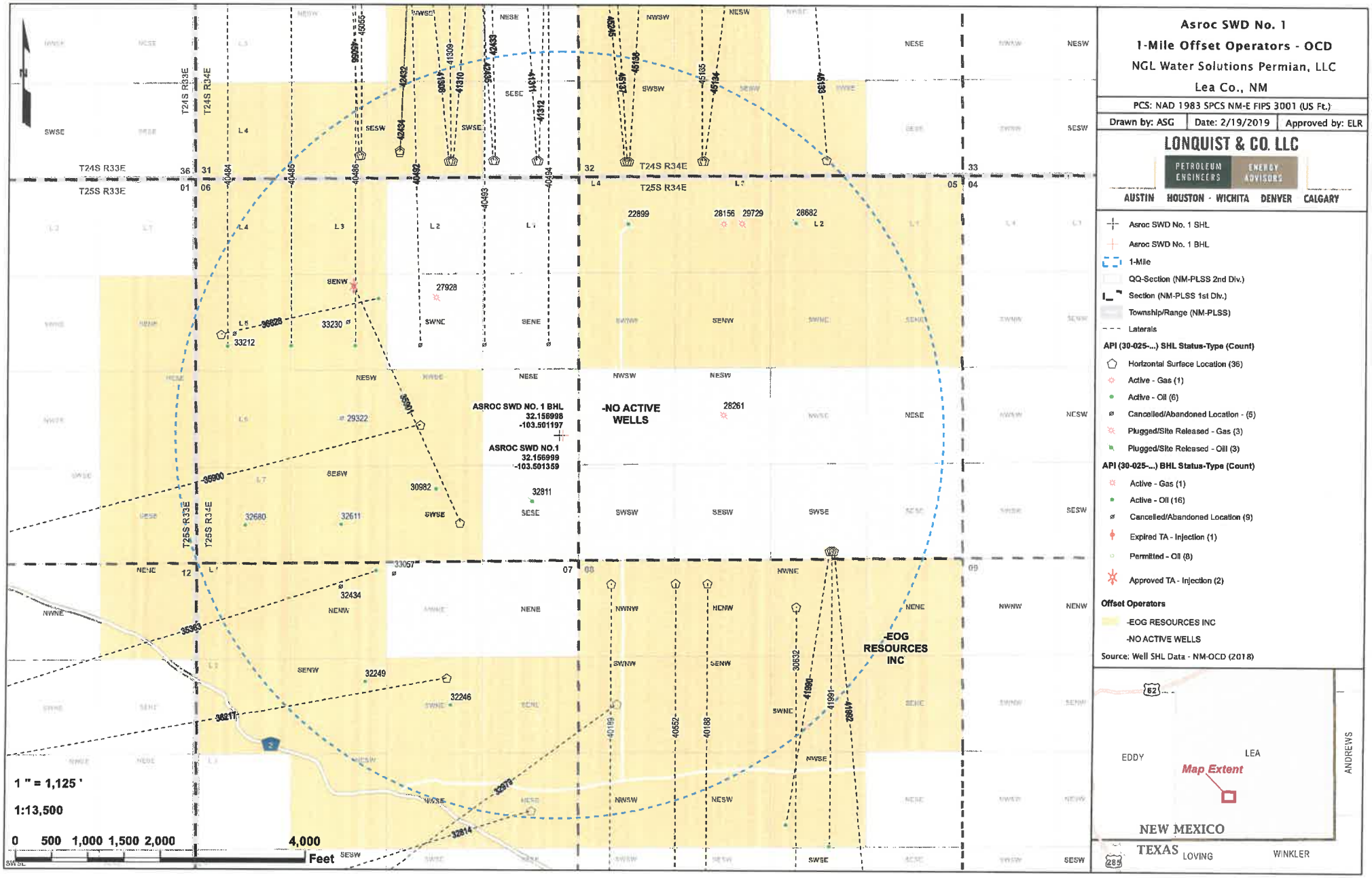
Asroc SWD No. 1
1 Mile Area of Review List

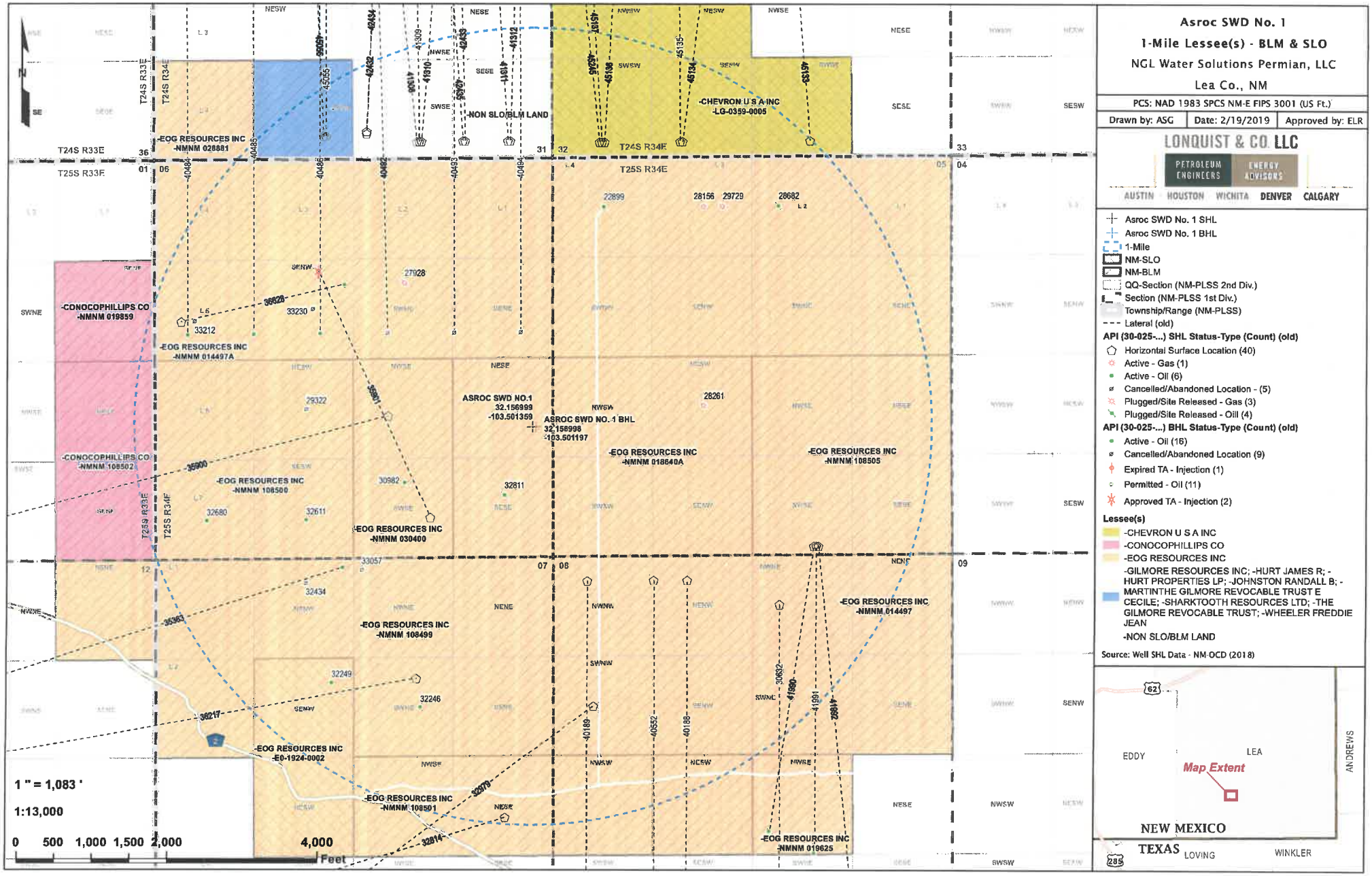
API (30-025-...)	WELL NAME	WELL TYPE	STATUS	OPERATOR	TVD (FT.)	LATITUDE (NAD83 DD)	LONGITUDE (NAD83 DD)	DATE DRILLED
22899	PRE-ONGARD WELL #001	O	P	PRE-ONGARD WELL OPERATOR	5359	32.1649704000	-103.498275800	1/1/1900
27928	DIAMOND 6 FEDERAL #001	G	P	EOG RESOURCES INC	15660	32.1622505000	-103.506813000	12/31/9999
28156	DIAMOND 5 FEDERAL #001	G	A	EOG RESOURCES INC	15300	32.1649666000	-103.494010900	3/26/1983
28261	HALF 5 FEDERAL COM #001	G	P	EOG RESOURCES INC	15350	32.1577148000	-103.494033800	7/23/1983
28682	DIAMOND 5 FEDERAL #002	O	P	EOG RESOURCES INC	5583	32.16496280000	-103.49082180000	1/1/1900
29322	PRE-ONGARD WELL #001	O	C	PRE-ONGARD WELL OPERATOR	0	32.1577137546	-103.511035244	12/31/9999
29729	DIAMOND 5 FEDERAL #003	G	P	EOG RESOURCES INC	14100	32.1649628000	-103.493202200	12/31/9999
30632	DIAMOND 8 FEDERAL #001	G	A	EOG RESOURCES INC	9507	32.15045170000	-103.49086760000	10/9/1989
30982	RED HILLS NORTH UNIT #601	O	A	EOG RESOURCES INC	15675	32.1550026000	-103.506843600	9/12/1990
32246	RED HILLS NORTH UNIT #702	O	A	EOG RESOURCES INC	12600	32.1468353000	-103.506202700	12/31/9999
32249	RED HILLS NORTH UNIT #707	O	A	EOG RESOURCES INC	12550	32.14774320000	-103.51000210000	12/31/9999
32434	DIAMOND 7 FEDERAL #003	O	C	EOG RESOURCES INC	99999	32.1513637911	-103.511095060	12/31/9999
32611	RED HILLS NORTH UNIT #602	O	A	EOG RESOURCES INC	12600	32.1536789000	-103.511070300	9/28/1994
32680	RED HILLS NORTH UNIT #603	O	A	EOG RESOURCES INC	12600	32.1536789000	-103.515335100	10/23/1994
32811	HALF 6 FEDERAL #004	O	P	EOG RESOURCES INC	12516	32.1545067000	-103.502578700	1/5/1995
32814	RED HILLS NORTH UNIT #706H	I	T	EOG RESOURCES INC	12288	32.1427917000	-103.502586400	1/13/1995
32979	RED HILLS NORTH UNIT #709H	O	A	EOG RESOURCES INC	12265	32.1468353000	-103.498802200	6/14/1996
33057	DIAMOND 7 FEDERAL #005	O	C	EOG RESOURCES INC	0	32.1518306851	-103.508698775	12/31/9999
33212	DIAMOND 6 FEDERAL #002	O	C	EOG RESOURCES INC	0	32.1609324082	-103.515806669	12/31/9999
33230	DIAMOND 6 FEDERAL #003	O	C	EOG RESOURCES INC	0	32.1613400690	-103.510747434	12/31/9999
35363	RED HILLS NORTH UNIT #212H	O	A	EOG RESOURCES INC	12285	32.14748000000	-103.52659610000	3/12/2001
35900	RED HILLS NORTH UNIT #604H	O	A	EOG RESOURCES INC	12315	32.1574478000	-103.507545500	10/19/2002
35901	RED HILLS NORTH UNIT #606H	I	T	EOG RESOURCES INC	12310	32.1537361000	-103.505783100	6/5/2002
36217	RED HILLS NORTH UNIT #710H	I	E	EOG RESOURCES INC	12261	32.1478729000	-103.506370500	5/3/2003
36628	DIAMOND 6 FEDERAL #002H	O	A	EOG RESOURCES INC	12286	32.1609077000	-103.516395600	6/24/2004
40188	DIAMOND 8 FEDERAL COM #003H	O	A	EOG RESOURCES INC	9492	32.1513634000	-103.494796800	5/28/2012
40189	DIAMOND 8 FEDERAL COM #004H	O	A	EOG RESOURCES INC	9473	32.1513710000	-103.499061600	7/16/2012
40484	DIAMOND 31 FEDERAL COM #002	O	A	EOG RESOURCES INC	9504	32.1811676000	-103.516075100	1/3/2013
40485	DIAMOND 31 FEDERAL COM #003H	O	A	EOG RESOURCES INC	9505	32.18028640000	-103.51322940000	12/22/2012
40486	DIAMOND 31 FEDERAL COM #004H	O	A	EOG RESOURCES INC	9744	32.1805344000	-103.510391200	12/8/2012
40492	DILLON 31 FEDERAL COM #002C	O	C	EOG RESOURCES INC	0	32.1805878000	-103.508071900	12/31/9999
40493	DILLON 31 FEDERAL COM #003C	O	C	EOG RESOURCES INC	0	32.1796799000	-103.504646300	12/31/9999
40494	DILLON 31 FEDERAL COM #004C	O	C	EOG RESOURCES INC	0	32.1806145000	-103.501800500	12/31/9999
40552	DIAMOND 8 FEDERAL COM #005H	O	A	EOG RESOURCES INC	9505	32.1513672000	-103.496215800	6/22/2012
41308	DILLON 31 #001H	O	A	EOG RESOURCES INC	9468	32.1673927000	-103.506271400	10/23/2013
41309	DILLON 31 #002H	O	A	EOG RESOURCES INC	9441	32.1673927000	-103.506172200	11/12/2013
41310	DILLON 31 #003H	O	A	EOG RESOURCES INC	9451	32.1673927000	-103.506073000	12/7/2013
41311	DILLON 31 #004C	O	C	EOG RESOURCES INC	0	32.16738890000	-103.50237270000	12/31/9999
41312	DILLON 31 #005C	O	C	EOG RESOURCES INC	0	32.16738890000	-103.50227360000	12/31/9999
41990	DIAMOND 5 FEDERAL COM #006H	O	A	EOG RESOURCES INC	9473	32.1525650000	-103.489379900	3/13/2015
41991	DIAMOND 5 FEDERAL COM #007H	O	A	EOG RESOURCES INC	9459	32.15256500000	-103.48928070000	3/28/2015
41992	DIAMOND 5 FEDERAL COM #008H	O	A	EOG RESOURCES INC	9471	32.1525650000	-103.489189100	4/11/2015
42432	DILLON 31 #501C	O	C	EOG RESOURCES INC	0	32.1677181260	-103.508434090	12/31/9999
42433	DILLON 31 #502H	O	C	EOG RESOURCES INC	0	32.1674091130	-103.504202200	12/31/9999
42434	DILLON 31 #701C	O	C	EOG RESOURCES INC	0	32.1678005930	-103.508434150	12/31/9999
42435	DILLON 31 #702C	O	C	EOG RESOURCES INC	0	32.1674092060	-103.504299620	12/31/9999

Asroc SWD No. 1

1 Mile Area of Review List

45055	DIAMOND 31 FEDERAL COM #707H	O	N	EOG RESOURCES INC	0	32.1676202000	-103.510152500	12/31/9999
45056	DIAMOND 31 FEDERAL COM #706H	O	N	EOG RESOURCES INC	0	32.1676202000	-103.510259100	12/31/9999
45133	COBALT 32 STATE #704H	O	N	EOG RESOURCES INC	0	32.1673340000	-103.489480800	12/31/9999
45134	COBALT 32 STATE #705H	O	N	EOG RESOURCES INC	0	32.1673370000	-103.494894500	12/31/9999
45135	COBALT 32 STATE #706H	O	N	EOG RESOURCES INC	0	32.1673371000	-103.495001100	12/31/9999
45136	COBALT 32 STATE #707H	O	N	EOG RESOURCES INC	0	32.1673400000	-103.498219700	12/31/9999
45137	COBALT 32 STATE #708H	O	N	EOG RESOURCES INC	0	32.1673400000	-103.498326300	12/31/9999
45245	COBALT 32 STATE #709H	O	N	EOG RESOURCES INC	0	32.1673387000	-103.498433100	12/31/9999


Asroc SWD No. 1
1-Mile Offset Operators - OCD
NGL Water Solutions Permian, LLC
Lea Co., NM
PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)
Drawn by: ASG
Date: 2/19/2019
Approved by: ELR
LONQUIST & CO. LLC
PETROLEUM ENGINEERS
ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY
Asroc SWD No. 1 SHL
Asroc SWD No. 1 BHL
1-Mile
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 (36)
Active - Gas (1)
Active - Oil (6)
Cancelled/Abandoned Location - (5)
Plugged/Site Released - Gas (3)
Plugged/Site Released - Oil (3)
API (30-025-...) BHL Status-Type (Count)
Active - Gas (1)
Active - Oil (16)
Cancelled/Abandoned Location (9)
Expired TA - Injection (1)
Permitted - Oil (8)
Approved TA - Injection (2)
Offset Operators
-EOG RESOURCES INC
-NO ACTIVE WELLS
Source: Well SHL Data - NM-OCD (2018)
ASROC SWD NO. 1 BHL
32.156998
-103.501197
ASROC SWD NO.1
32.156999
-103.501359
-NO ACTIVE WELLS
-EOG RESOURCES INC
T24S R33E
T24S R34E
T25S R33E
T25S R34E
1 " = 1,125 '
1:13,500
0 500 1,000 1,500 2,000 4,000
Feet
EDDY
LEA
Map Extent
ANDREWS
NEW MEXICO
TEXAS
LOVING
WINKLER


Asroc SWD No. 1
1-Mile Lessee(s) - BLM & SLO
NGL Water Solutions Permian, LLC
Lea Co., NM
PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)
Drawn by: ASG
Date: 2/19/2019
Approved by: ELR
LONQUIST & CO. LLC
PETROLEUM ENGINEERS
ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY
Asroc SWD No. 1 SHL
Asroc SWD No. 1 BHL
1-Mile
NM-SLO
NM-BLM
QQ-Section (NM-PLSS 2nd Div.)
Section (NM-PLSS 1st Div.)
Township/Range (NM-PLSS)
Lateral (old)
API (30-025-...) SHL Status-Type (Count) (old)
Horizontal Surface Location (40)
Active - Gas (1)
Active - Oil (6)
Cancelled/Abandoned Location - (5)
Plugged/Site Released - Gas (3)
Plugged/Site Released - Oil (4)
API (30-025-...) BHL Status-Type (Count) (old)
Active - Oil (16)
Cancelled/Abandoned Location (9)
Expired TA - Injection (1)
Permitted - Oil (11)
Approved TA - Injection (2)
Lessee(s)
-CHEVRON U S A INC
-CONOCOPHILLIPS CO
-EOG RESOURCES INC
-GILMORE RESOURCES INC; -HURT JAMES R; -HURT PROPERTIES LP; -JOHNSTON RANDALL B; -MARTINTHE GILMORE REVOCABLE TRUST E CECILE; -SHARKTOOTH RESOURCES LTD; -THE GILMORE REVOCABLE TRUST; -WHEELER FREDDIE JEAN
-NON SLO/BLM LAND
Source: Well SHL Data - NM-OCD (2018)
-CHEVRON U S A INC -LG-0359-0005
-NON SLO/BLM LAND
-EOG RESOURCES INC -NMNM 028881
-CONOCOPHILLIPS CO -NMNM 019859
-EOG RESOURCES INC -NMNM 014497A
-CONOCOPHILLIPS CO -NMNM 108502
-EOG RESOURCES INC -NMNM 108500
-EOG RESOURCES INC -NMNM 030400
ASROC SWD NO.1
32.156999
-103.501359
ASROC SWD NO. 1 BHL
32.158998
-103.501197
-EOG RESOURCES INC -NMNM 018640A
-EOG RESOURCES INC -NMNM 108505
-EOG RESOURCES INC -NMNM 014497
-EOG RESOURCES INC -NMNM 108499
-EOG RESOURCES INC -E0-1924-0002
-EOG RESOURCES INC -NMNM 108501
-EOG RESOURCES INC -NMNM 019625
T24S R33E
T24S R34E
T25S R33E
T25S R34E
1 " = 1,083 '
1:13,000
0 500 1,000 1,500 2,000
4,000
Feet
EDDY
LEA
Map Extent
NEW MEXICO
TEXAS
LOVING
WINKLER
ANDREWS

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
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811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
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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
Moved Location
Added directional BHL

WELL LOCATION AND ACREAGE DEDICATION PLAT

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

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

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

[10] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	18	25 S	34 E	N/A	968'	NORTH	253'	EAST	LEA

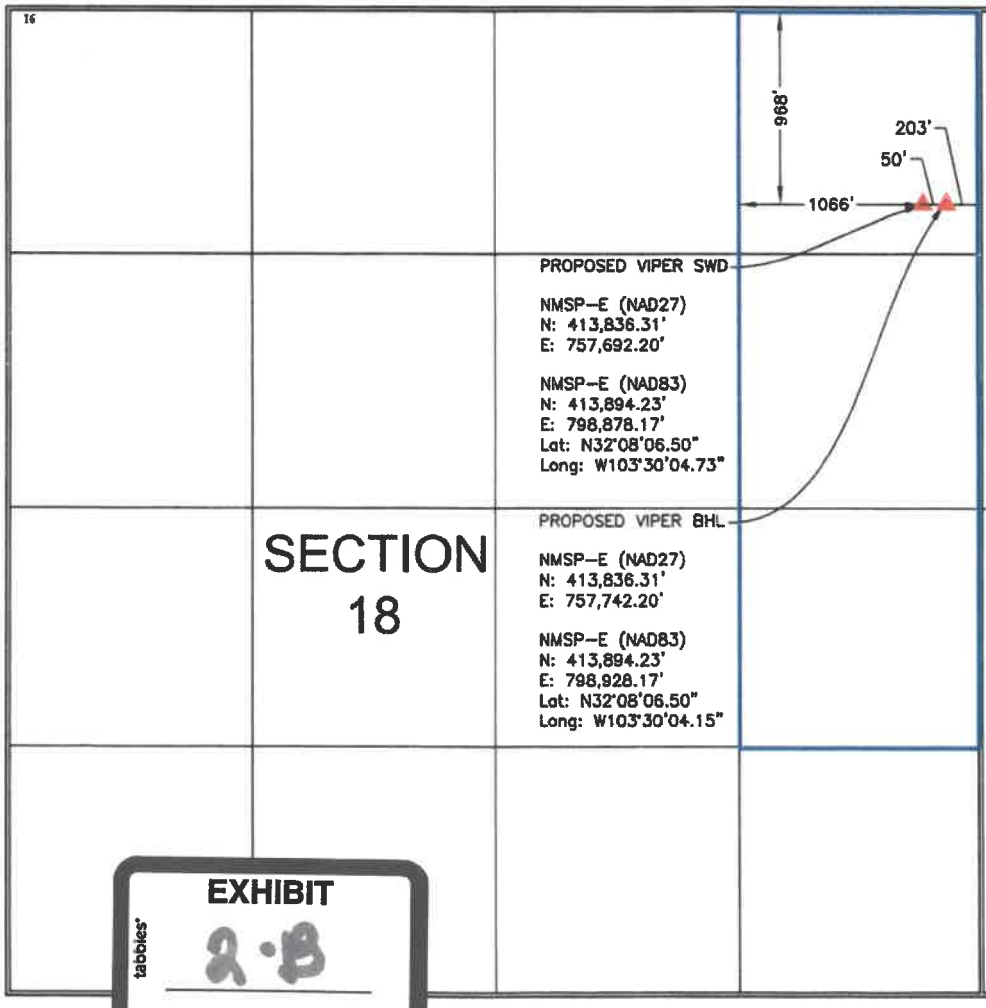
[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	18	25 S	34 E	N/A	968'	NORTH	203'	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]



[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: 2/14/19

John Moltz
Printed Name

john.moltz@lonquist.com
E-mail Address

[18] SURVEYOR CERTIFICATION

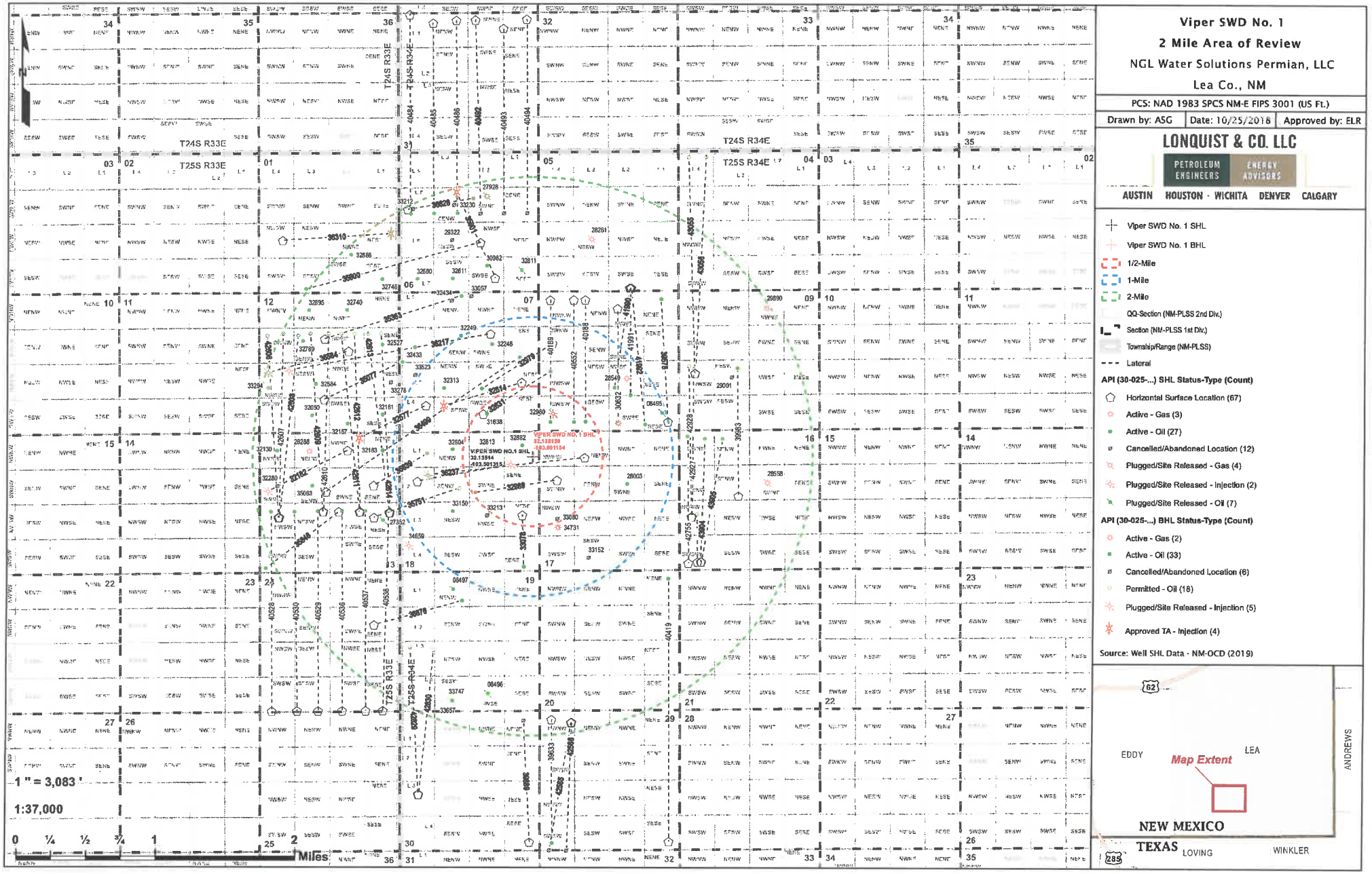
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

02/14/2019
Date of Survey

Signature and Seal of Professional Surveyor: Billy W. Barr Jr. NEW MEXICO 25114 PROFESSIONAL SURVEYOR

25114
Certificate Number

EXHIBIT
tabbies
2-B



Viper SWD No. 1
2 Mile Area of Review
NGL Water Solutions Permian, LLC
Lea Co., NM

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

Drawn by: ASG	Date: 10/25/2018	Approved by: ELR

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

- Viper SWD No. 1 SHL
- Viper SWD No. 1 BHL
- 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 (67)
- Active - Gas (3)
- Active - Oil (27)
- Cancelled/Abandoned Location (12)
- Plugged/Site Released - Gas (4)
- Plugged/Site Released - Injection (2)
- Plugged/Site Released - Oil (7)

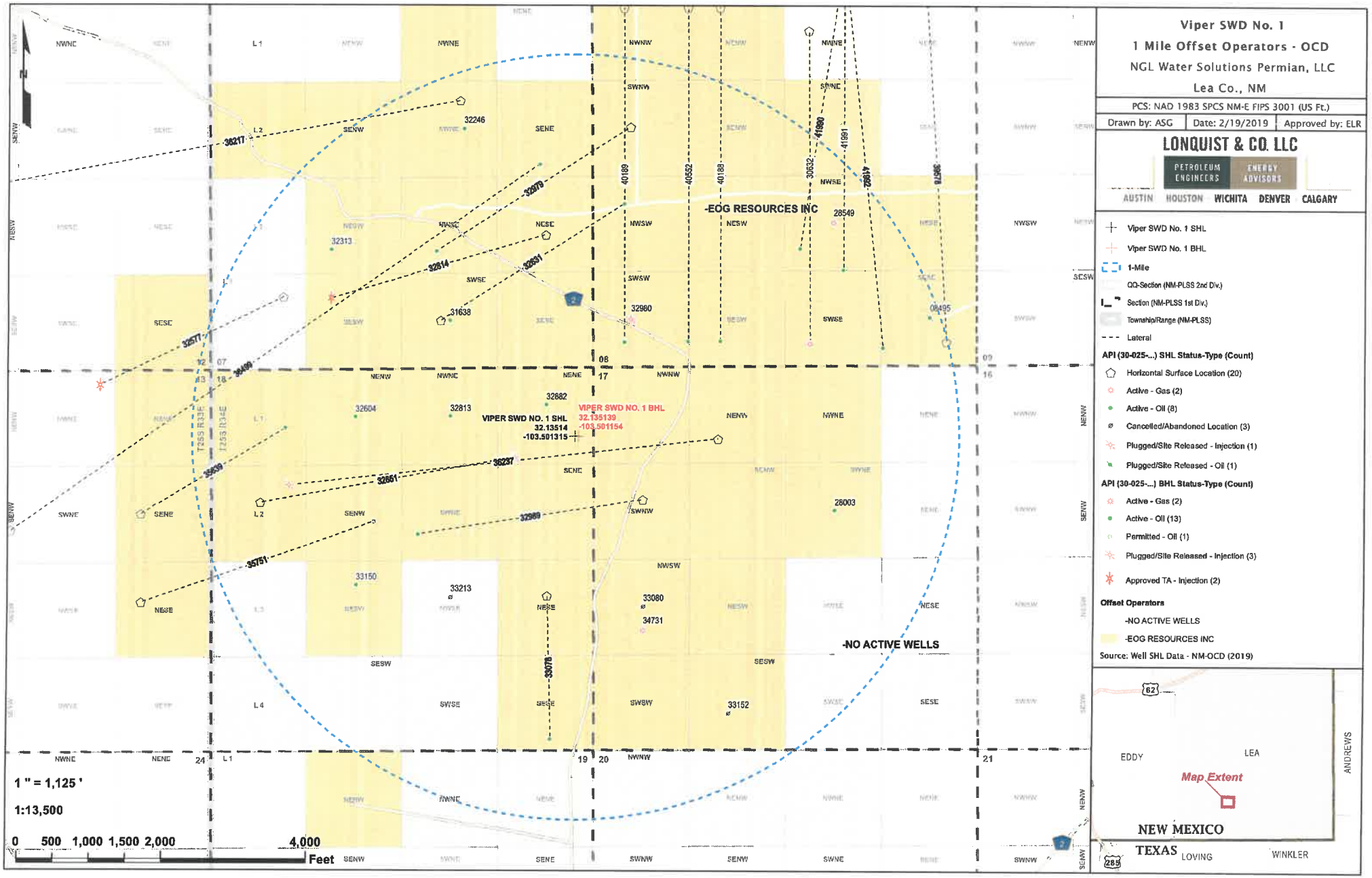
API (30-025-...) BHL Status-Type (Count)
- Active - Gas (2)
- Active - Oil (33)
- Cancelled/Abandoned Location (6)
- Permitted - Oil (18)
- Plugged/Site Released - Injection (5)
- Approved TA - Injection (4)

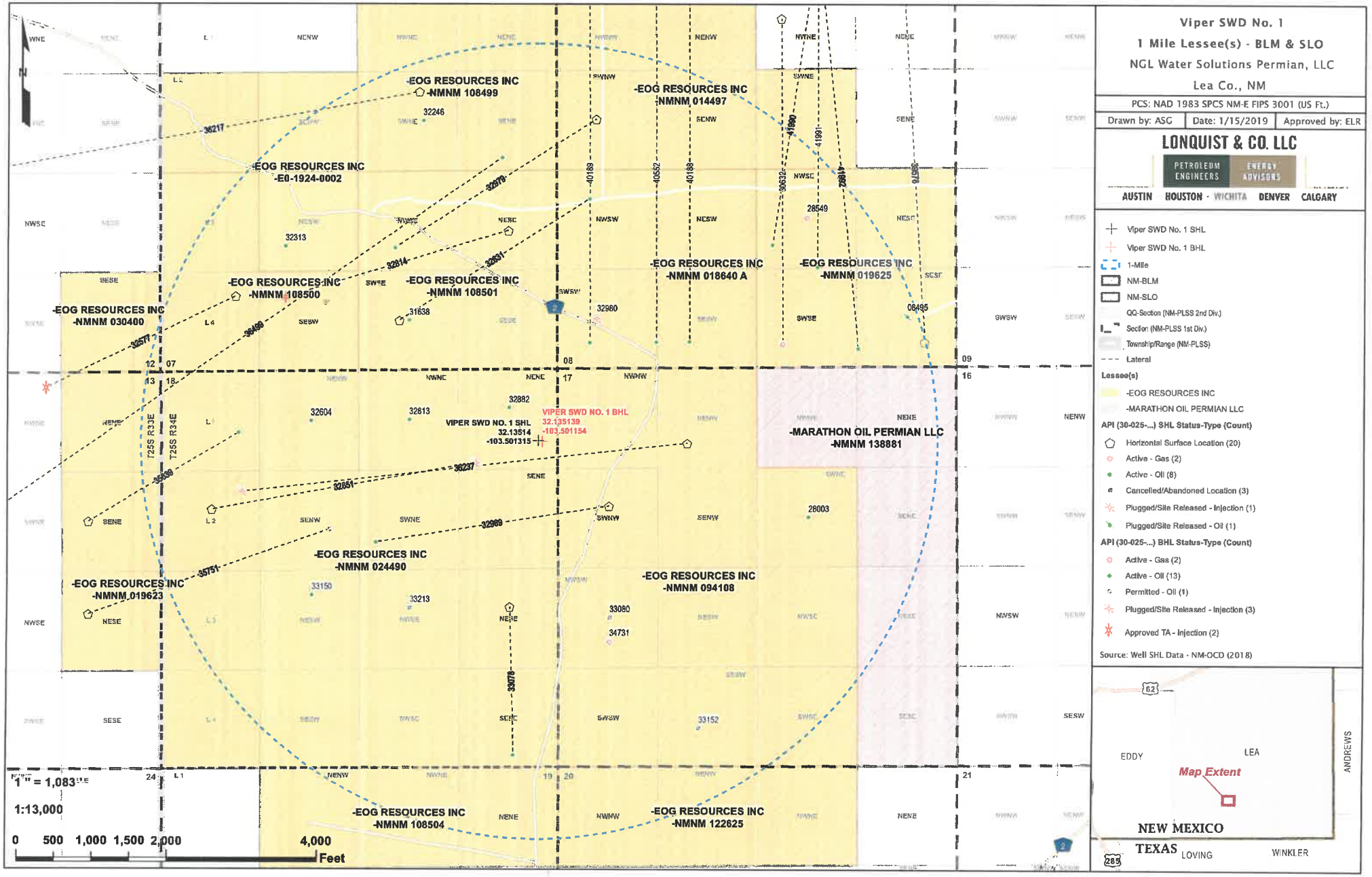
Source: Well SHL Data - NM-OCD (2019)

Viper SWD No. 1

1 Mile Area of Review List

API (30-025-...)	WELL NAME	WELL TYPE	STATUS	OPERATOR	TVD (FT.)	LATITUDE (NAD83 DD)	LONGITUDE (NAD83 DD)	DATE DRILLED
30632	DIAMOND 8 FEDERAL #001	G	A	EOG RESOURCES INC	9507	32.15045170000	-103.49086760000	10/9/1989
32882	RED HILLS NORTH UNIT #804	O	A	EOG RESOURCES INC	12550	32.1363564000	-103.502586400	4/19/1995
31638	RED HILLS NORTH UNIT #701	O	A	EOG RESOURCES INC	15623	32.13957210000	-103.50685120000	7/18/1992
32980	RED HILLS NORTH UNIT #811	I	P	EOG RESOURCES INC	12550	32.1395721000	-103.498809800	6/2/1995
32989	RED HILLS NORTH UNIT #902H	O	A	EOG RESOURCES INC	12265	32.1327248000	-103.498321500	7/7/1995
34731	JAVELINA 17 FEDERAL #003	G	A	EOG RESOURCES INC	14080	32.1277733000	-103.498321500	10/27/1999
28003	RED HILLS NORTH UNIT #901	O	A	EOG RESOURCES INC	15825	32.1322708000	-103.489791900	11/5/1982
28549	LONGWAY DRAW FEDERAL COM #001	G	A	EOG RESOURCES INC	15700	32.14318470000	-103.48979950000	12/31/9999
33213	DIAMOND 18 FEDERAL #007	O	C	EOG RESOURCES INC	0	32.1290896815	-103.506881862	12/31/9999
33150	RED HILLS NORTH UNIT #806	O	A	EOG RESOURCES INC	12550	32.1295891000	-103.511085500	10/31/1995
32813	RED HILLS NORTH UNIT #803	O	A	EOG RESOURCES INC	12550	32.1359444000	-103.506851200	2/6/1995
33080	JAVELINA 17 FEDERAL #030	O	C	EOG RESOURCES INC	0	32.1286704053	-103.498312165	12/31/9999
32246	RED HILLS NORTH UNIT #702	O	A	EOG RESOURCES INC	12600	32.14683530000	-103.50620270000	12/31/9999
32604	RED HILLS NORTH UNIT #802	O	A	EOG RESOURCES INC	12575	32.1359444000	-103.511077900	11/17/1994
32313	RED HILLS NORTH UNIT #708	O	A	EOG RESOURCES INC	12550	32.1422920000	-103.512138400	4/15/1994
32814	RED HILLS NORTH UNIT #706H	I	T	EOG RESOURCES INC	12288	32.1427917000	-103.502586400	1/13/1995
33078	RED HILLS NORTH UNIT #805H	O	A	EOG RESOURCES INC	12215	32.1290970000	-103.502586400	9/15/1995
32631	RED HILLS NORTH UNIT #705	O	A	EOG RESOURCES INC	12244	32.1395721000	-103.507270800	8/26/1994
35639	RED HILLS NORTH UNIT #307H	O	A	EOG RESOURCES INC	12290	32.1323204000	-103.520675700	8/12/2001
32979	RED HILLS NORTH UNIT #709H	O	A	EOG RESOURCES INC	12265	32.1468353000	-103.498802200	6/14/1996
33152	JAVELINA 17 FEDERAL #004	O	C	EOG RESOURCES INC	0	32.1246221009	-103.494514254	12/31/9999
32577	RED HILLS NORTH UNIT #703H	I	T	EOG RESOURCES INC	12262	32.1404991000	-103.514274600	7/2/1994
32651	RED HILLS NORTH UNIT #801H	I	P	EOG RESOURCES INC	12260	32.13272480000	-103.51534270000	7/29/1995
41990	DIAMOND 5 FEDERAL COM #006H	O	A	EOG RESOURCES INC	9473	32.1525650000	-103.489379900	3/13/2015
41991	DIAMOND 5 FEDERAL COM #007H	O	A	EOG RESOURCES INC	9459	32.1525650000	-103.489280700	3/28/2015
36237	RED HILLS NORTH UNIT #904H	I	P	EOG RESOURCES INC	12254	32.1350021000	-103.494964600	11/5/2003
40189	DIAMOND 8 FEDERAL COM #004H	O	A	EOG RESOURCES INC	9473	32.15137100000	-103.49906160000	7/16/2012
40552	DIAMOND 8 FEDERAL COM #005H	O	A	EOG RESOURCES INC	9505	32.1513672000	-103.496215800	6/22/2012
39578	DIAMOND 8 FEDERAL COM #002H	O	A	EOG RESOURCES INC	9432	32.1386414000	-103.484794600	2/11/2011
41992	DIAMOND 5 FEDERAL COM #008H	O	A	EOG RESOURCES INC	9471	32.1525650000	-103.489189100	4/11/2015
40188	DIAMOND 8 FEDERAL COM #003H	O	A	EOG RESOURCES INC	9492	32.1513634000	-103.494796800	5/28/2012
36499	RED HILLS NORTH UNIT #309H	O	A	EOG RESOURCES INC	12249	32.1317253000	-103.526504500	1/12/2004
08495	PRE-ONGARD WELL #001	O	P	PRE-ONGARD WELL OPERATOR	5457	32.1395493000	-103.485534700	1/1/1900
35751	RED HILLS NORTH UNIT #306H	O	N	EOG RESOURCES INC	12500	32.1289635	-103.520675700	11/17/2001
36217	RED HILLS NORTH UNIT #710H	I	P	EOG RESOURCES INC	12261	32.1478729000	-103.506370500	5/2/2003


Viper SWD No. 1
1 Mile Offset Operators - OCD
NGL Water Solutions Permian, LLC
Lea Co., NM
PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)
Drawn by: ASG
Date: 2/19/2019
Approved by: ELR
LONQUIST & CO. LLC
PETROLEUM ENGINEERS
ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY
Viper SWD No. 1 SHL
Viper SWD No. 1 BHL
1-Mile
QQ-Section (NM-PLSS 2nd Div.)
Section (NM-PLSS 1st Div.)
Township/Range (NM-PLSS)
Lateral
API (30-025-...) SHL Status-Type (Count)
Horizontal Surface Location (20)
Active - Gas (2)
Active - Oil (8)
Cancelled/Abandoned Location (3)
Plugged/Site Released - Injection (1)
Plugged/Site Released - Oil (1)
API (30-025-...) BHL Status-Type (Count)
Active - Gas (2)
Active - Oil (13)
Permitted - Oil (1)
Plugged/Site Released - Injection (3)
Approved TA - Injection (2)
Offset Operators
-NO ACTIVE WELLS
-EOG RESOURCES INC
Source: Well SHL Data - NM-OCD (2019)
-EOG RESOURCES INC
-NO ACTIVE WELLS
VIPER SWD NO. 1 SHL
32.13514
-103.501315
VIPER SWD NO. 1 BHL
32.135139
-103.501154
1 " = 1,125 '
1:13,500
0 500 1,000 1,500 2,000 4,000 Feet
Map Extent
NEW MEXICO
TEXAS
EDDY
LEA
LOVING
WINKLER
ANDREWS



Viper SWD No. 1

1 Mile Lessee(s) - BLM & SLO

NGL Water Solutions Permian, LLC

Lea Co., NM

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

Drawn by: ASG | Date: 1/15/2019 | Approved by: ELR

LONQUIST & CO. LLC

PETROLEUM ENGINEERS | ENERGY ADVISORS

AUSTIN HOUSTON · WICHITA DENVER CALGARY

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

Lessee(s)

- -EOG RESOURCES INC
- -MARATHON OIL PERMIAN LLC

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

- Horizontal Surface Location (20)
- Active - Gas (2)
- Active - Oil (8)
- Cancelled/Abandoned Location (3)
- Plugged/Site Released - Injection (1)
- Plugged/Site Released - Oil (1)

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

- Active - Gas (2)
- Active - Oil (13)
- Permitted - Oil (1)
- Plugged/Site Released - Injection (3)
- Approved TA - Injection (2)

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

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

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

CASE NO. _____

APPLICATION

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

(1) NGL proposes to drill the Viper SWD #1 well at a surface location 962 feet from the North line and 1003 feet from the East line of Section 18, Township 25 South, Range 34 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well.

(2) NGL seeks authority to inject salt water into the Silurian-Devonian formation at a depth of 17,180' – 19,050'.

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

(4) NGL anticipates using an average pressure of 2,577 psi for this well, and it requests that a maximum pressure of 3,436 psi be approved for the well.

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

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

WHEREFORE, NGL requests that this application be set for hearing before an Examiner of the Oil Conservation Division on December 6, 2018; and that after notice and hearing, the Division enter its order approving this application.

Respectfully submitted,

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

By: Deana M. Bennett

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

CASE NO. _____: Application of NGL Water Solutions Permian, LLC for approval of salt water disposal well in Lea County, New Mexico. Applicant seeks an order approving disposal into the Silurian-Devonian formation through the Viper SWD #1 well at a surface location 962 feet from the North line and 1003 feet from the East line of Section 18, Township 25 South, Range 34 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well. NGL seeks authority to inject salt water into the Silurian-Devonian formation at a depth of 17,180'– 19,050'. NGL further seeks approval of the use of 7 inch tubing inside the surface and intermediate casings and 5 ½ inch tubing inside the liner and requests that the Division approve a maximum daily injection rate for the well of 50,000 bbls per day. Said area is located approximately 18 miles west of Jal, New Mexico.

Revised March 23, 2017

RECEIVED:	REVIEWER:	TYPE:	APP NO:

ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION

- Geological & Engineering Bureau –
1220 South St. Francis Drive, Santa Fe, NM 87505

ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

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

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

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

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

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

FOR OCD ONLY
☐ Notice Complete
☐ Application Content Complete

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

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

CHRIS WEYAND
Print or Type Name

Signature

11/1/2018
Date

512-600-1764
Phone Number

CHRIS@LONQUIST.COM
e-mail Address

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL
RESOURCES DEPARTMENT

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

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____ Secondary Recovery _____ Pressure Maintenance __X__ Disposal _____ Storage
Application qualifies for administrative approval? __X__ Yes _____ No

II. OPERATOR: NGL WATER SOLUTIONS PERMIAN, LLC

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

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

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

IV. Is this an expansion of an existing project? _____ Yes __X__ No
If yes, give the Division order number authorizing the project: _____

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

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

VII. Attach data on the proposed operation, including:

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

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

IX. Describe the proposed stimulation program, if any.

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

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

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

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

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

NAME: Christopher B. Weyand TITLE: Consulting Engineer

SIGNATURE: _____ DATE: 11/1/2018

E-MAIL ADDRESS: chris@lonquist.com

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

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

EXHIBIT
A

Side 2

III. WELL DATA

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

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

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

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

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

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

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

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

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

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

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

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

XIV. PROOF OF NOTICE

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

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

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

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

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

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

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

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

Side 1

INJECTION WELL DATA SHEET

OPERATOR: NGL WATER SOLUTIONS PERMIAN, LLC

WELL NAME & NUMBER: VIPER SWD #1

WELL LOCATION: 962' FNL & 1,003' FEL | A | 18 | 25S | 34E

FOOTAGE LOCATION | UNIT LETTER | SECTION | TOWNSHIP | RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 24.000" Casing Size: 20.000"

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

Top of Cement: Surface Method Determined: Circulation

1st Intermediate Casing

Hole Size: 17.500" Casing Size: 13.375"

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

Top of Cement: Surface Method Determined: Circulation

2nd Intermediate Casing

Hole Size: 12.250" Casing Size: 9.625"

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

Top of Cement: Surface Method Determined: Circulation

Production Liner

Hole Size: 8.500"

Casing Size: 7.625"

Cemented with: 377 sx.

or _____ ft^3

Top of Cement: 11,900'

Method Determined: Calculation

Total Depth: 19,050'

Injection Interval

17,180 feet to 19,050 feet

(Open Hole)

Side 2

INJECTION WELL DATA SHEET

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

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

Packer Setting Depth: 17,155'

Other Type of Tubing/Casing Seal (if applicable): _____

Additional Data

1. Is this a new well drilled for injection? ___X___ Yes _____ No

   If no, for what purpose was the well originally drilled? N/A

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

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

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

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:
   Bone Spring: 9,225'
   Wolfcamp: 12,271'
   Strawn: 13,803'
   Atoka: 14,000'
   Morrow: 14,957'

NGL

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

Location - NENE Sec 18, 25S, 34E
Drilling and Complete Cost
$10,878MV

ASL #
GL/KB
TD 19,050
3,340

Directions to Site - 1.75 mi N of Falcon; 2.5 mi ESE of Sidewinder. 3 mi W of US-62/180, 17 mi W of Jal

Geologic Tops (MD ft)		Section	Problems	Bit/BHA	Mud	Casing	Logging	Cement (HOLD)	Injection String
Rustler Anhydrite	831	**Surface** Drill 24" 0' - 1200 Set and Cement 20" Casing	Loss Circulation Hole Cleaning Wellbore stability in the Red Beds Anhydrite in the Rustler	24" Tricone 9-5/8" x 8" MM 9 jts: 8" DC 21 jts: 5" HWDP 5 " DP to surface	Spud Mud MW< 9.0	1200' of 20" K55 133ppf STC Centralizers - bottom 2 joints and every 3rd jt thereafter, Cement basket at 200'	No Logs	Lead -499 sx of HES Extenda Cem, 13.7ppg, 4.5hrs TT Tail - 506sx of Halcem 3hr TT 25% Excess 1000psi CSD after 10hrs	11,800' of 7" P110 26# TCPC
Surface TD -	1200								
Saldado Base	1296	**1st Intermediate** Drill 4000' of 17-1/2" Hole 1150' - 5200' Set and Cement 13-3/8" Casing	Seepage Losses Possible H2S Anhydrite Salt Sections	17-1/2" PDC 9-5/8" x 8" MM 9 jts: 8" DC 21 jts: 5" HWDP 5 " DP to surface		5M A Section Casing Bowl 5200' of 13-3/8" 68# HCL80 BTC Centralizers - bottom jt, every 3rd joint in open hole and 2 jt inside the surface casing	Mudlogger on site by 1600'	Lead - 1997 sx of Neocem 12.9ppg, 5hr TT Tail - 1847sx of Halcem, 14.8ppg 60% Excess 1000psi CSD after 10 hrs Cement to Surface	
Base of Salt	5006								
1st Int TD -	5200								
ECP DV Tool -	5160	**2nd Intermediate** Drill 7200' of 12-1/4" Hole 5200' - 12,400' Set 9-5/8" Intermediate Casing and Cement in 3 Stages	Hard Drilling in the Brushy Canyon Seepage to Complete Loss Water Flows Some Anhydrite H2S possible Production in the Bone Spring and Wolfcamp Ballooning is possible in Cherry Canyon and Brushy if Broken Down	12-1/4" PDC 8" MM 9jts: 8" DC 8" Drilling Jars 21 jts: 5" HWDP 5" DP to Surface	8.5 ppg OBM High Vis Sweeps UBD/MPD usig ADA	10M B Section 12400' of 9-5/8" 53.5# P110 BTC Special Drift to 8.535" Externally Coat Between DV Tools DV tool at at 9000' ECP DV Tool 15' inside Previous Casing Centralizers - bottom jt, 100' aside of DV tool, every 3rd joint in open hole and 5 within the surface casing	MWD GR Triple combo + CBL of 13-3/8" Casing	**Stage 3: 0% Excess** Lead 663sx Neocem 12.9 ppg Tail 510sx Halcem 14.8ppg 1000psi CSD after 10 hrs Cement to Surface **Stage 2: 25% Excess** Lead 508sx Neocem 12.9 ppg Tail 590sx Halcem 14.8ppg 1000psi CSD after 10 hrs **Stage 1: 25% Excess** Lead 553sx Neocem 12.9 ppg Tail 471sx Halcem 14.8ppg. 1000psi CSD after 10hrs	5355 of 5-1/2" P110 17# TCPC Duoline Internally Coated Injection Tubing
Delaware	5278								
Bell Canyon	5317								
Cherry Canyon -	6350								
Brushy Canyon	8085								
DV Tool -	9000								
Bone Spring -	10273								
3rd Int Liner Top -	11,900								
Wolfcamp -	12271								
2nd Int TD -	12,400								
Strawn -	13803	**3rd Intermediate** Drill 4740' of 8-1/2" Hole 12400 - 17180' Set 7-5/8" Liner and Cement in Single Stage	High Pressure (up to 15ppg) and wellbore instability (fracturing) expected in the Atoka 150 target radius Hard Drilling in the Morrow Clastic	8-1/2" PDC 6-3/4" MM 9 jts: 6" DC 21 jts: 5" HWDP 5" DP to Surface	12.5 ppg OBM UBD/MPD using ADA	5240' of 7-5/8" 39# Q125 - DTL (FJ4) FJ (Gas Tight) VersaFlex Packer Hanger Sandblast Casing. Centralizers on and 1 jt above shoe jt and then every 2nd jt.	MWD GR Triple combo, CBL of 9-5/8" Casing	Lead 227sx Neocem 12.9 ppg Tail 150sx Halcem 14.8ppg. 1000psi CSD after 10hrs 8hr TT 35% Excess 1000psi CSD after 10hrs	7-5/8" x 5-1/2" TCPC Permanent Packer with High Temp Elastomer and full Inconel 925 trim
Atoka -	14000								
Morrow -	14957								
Miss Lst -	15005								
Woodford -	16963								
Perm Packer -	17,155								
3rd Int TD -	17,180								
Devonian - 17,140		**Injection Interval** Drill 1870' of 6-1/2" hole 17180' - 19050'	Chert is possible Loss of Circulation is expected H2S encountered on the Striker 3 well BHT estimated at 280F	6-1/2" PDC 4-3/4"MM 9 jts: 4-3/4" DC 4-3/4" Drilling Jars 18 jts: 4" FH HWDP 4" FH DP to Surface	Fresh Water - possible flows	Openhole completion	MWD GR Triple Combo with FMI, CBL of 7-5/8"	Displace with 3% KCl (or heavier brine if necessary)	
Fusselman - 18200									
Montoya - 18,950'									
TD - 19,050'									

NGL Water Solutions Permian, LLC

Viper SWD No. 1

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1.

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

2.

a. Wellbore Description

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

b. Cementing Program

Cement Information				
Casing String	Surface	Intermediate	Production	Liner
Lead Cement	Extenda Cem	Neocem	Neocem, Neocem, Neocem	Neocem
Lead Cement Volume	499	1,997	Stage 1: 553 sx Stage 2: 508 sx Stage 3: 663 sx	227
Tail Cement	Halcem	Halcem	Versacem C, Halcem, Halcem	Halcem
Tail Cement Volume	506	1,847	Stage 1: 471 sx Stage 2: 590 sx Stage 3: 510 sx	150
Cement Excess	25%	60%	25%, 25%, 0%	35%
TOC	Surface	Surface	Surface	11,900'
Method	Circulate to Surface	Circulate to Surface	Circulate to Surface	Logged

3. Tubing Description

Tubing Information		
OD	7"	5.5"
WT	0.362"	0.304"
ID	6.276"	4.892"
Drift ID	7.875"	6.050"
COD	6.151"	4.653"
Weight	26 lb/ft	17 lb/ft
Grade	P-110 TCPC	P-110 TCPC
Depth Set	0'-11,800'	11,800' -17,155'

Tubing will be lined with Duoline.

4. Packer Description

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

B. Completion Information

1. Injection Formation: Devonian, Silurian, Fusselman, Montoya (Top 100')
2. Gross Injection Interval: 17,180' – 19,050'

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

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

VI. Area of Review

No wells within the area of review penetrate the proposed injection zone.

VII. Proposed Operation Data

1. Proposed Daily Rate of Fluids to be Injection:

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

2. Closed System

3. Anticipated Injection Pressure:

   Average Injection Pressure: 2,577 PSI (surface pressure)
   Maximum Injection Pressure: 3,436 PSI (surface pressure)

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

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

VIII. Geological Data

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

A. Injection Zone: Siluro-Devonian Formation

Formation	Depth
Rustler Anhydrite	831'
Delaware	5,278'
Bone Spring	9,225'
Wolfcamp	12,271'
Strawn	13,803'
Atoka	14,000'
Morrow	14,957'
Mississippian	15,820'
Woodford	16,963'
Devonian	17,140'
Fusselman	18,200'
Montoya	18,950'

B. Underground Sources of Drinking Water

No water wells exist within one mile of the proposed Viper SWD #1 location. Water wells in the surrounding area have an average depth of 304 ft and an average water depth of 215 ft generally producing from the Santa Rosa. The upper Rustler may also be another USDW and will be protected.

IX. Proposed Stimulation Program

Stimulate with up to 50,000 gallons of acid.

X. Logging and Test Data on the Well

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

XI. Chemical Analysis of Fresh Water Wells

No water wells exist within one mile of the well location.

XII. Affirmative Statement of Examination of Geologic and Engineering Data

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

NAME: John C. Webb

TITLE: Sr. Geologist

SIGNATURE: John C Webb

DATE: Oct 10, 2018

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

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

Form C-101
Revised July 18, 2013

☐ AMENDED REPORT

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

1. Operator Name and Address	2. OGRID Number
NGL WATER SOLUTIONS PERMIAN, LLC 1509 W WALL ST. STE 305 MIDLAND, TX 79701	372338
	3. API Number TBD

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

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
A	18	25S	34E	N/A	962'	NORTH	1003'	EAST	LEA

8. Proposed Bottom Hole Location

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

9. Pool Information

Pool Name	Pool Code
SWD; Silurian-Devonian	96101

Additional Well Information

11. Work Type	12. Well Type	13. Cable/Rotary	14. Lease Type	15. Ground Level Elevation
N	SWD	R	Private	3,340'
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
N	19,050'	Siluro-Devonian	TBD	ASAP

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

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

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surface	24"	20"	133 lb/ft	1,200'	1,005	Surface
Intermediate	17.5"	13.375"	68 lb/ft	5,200'	3,844	Surface
Production	12.25"	9.625"	53.5 lb/ft	12,400'	3,295	Surface
Prod. Liner	8.5"	7.625"	39 lb/ft	11,900' – 17,180'	377	11,900'
Tubing	N/A	7"	26 lb/ft	0' – 11,800'	N/A	N/A
Tubing	N/A	5.5"	17 lb/ft	11,800' – 17,155'	N/A	N/A

Casing/Cement Program: Additional Comments

See attached schematic.

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Hydraulic/Blinds, Pipe	10,000 psi	8,000 psi	TBD – Schaffer/Cameron

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify that I have complied with 19.15.14.9 (A) NMAC ☐ and/or 19.15.14.9 (B) NMAC ☒, if applicable. Signature:		OIL CONSERVATION DIVISION	
		Approved By:	
Printed name: Christopher B. Weyand		Title:	
Title: Consulting Engineer		Approved Date:	Expiration Date:
E-mail Address: chris@lonquist.com			
Date: 11/1/2018	Phone: (512) 600-1764	Conditions of Approval Attached	

District I
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Phone: (505) 334-6178 Fax: (505) 334-6170
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Phone: (505) 476-3460 Fax: (505) 476-3462

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

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

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

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

[10] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	18	25 S	34 E	N/A	962'	NORTH	1003'	EAST	LEA

[11] Bottom Hole Location If Different From Surface

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

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

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

[16]

962'
1003'
958'

PROPOSED VIPER SWD 1

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

NMSP–E (NAD83)
N: 413,894.23'
E: 798,128.17'
Lat: N32°06'06.96"
Long: W103°30'13.46"

SECTION 18

[17] OPERATOR CERTIFICATION

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

Signature — Date: 10/1/2018

Chris Weyand
Printed Name

chris@lonquist.com
E-mail Address

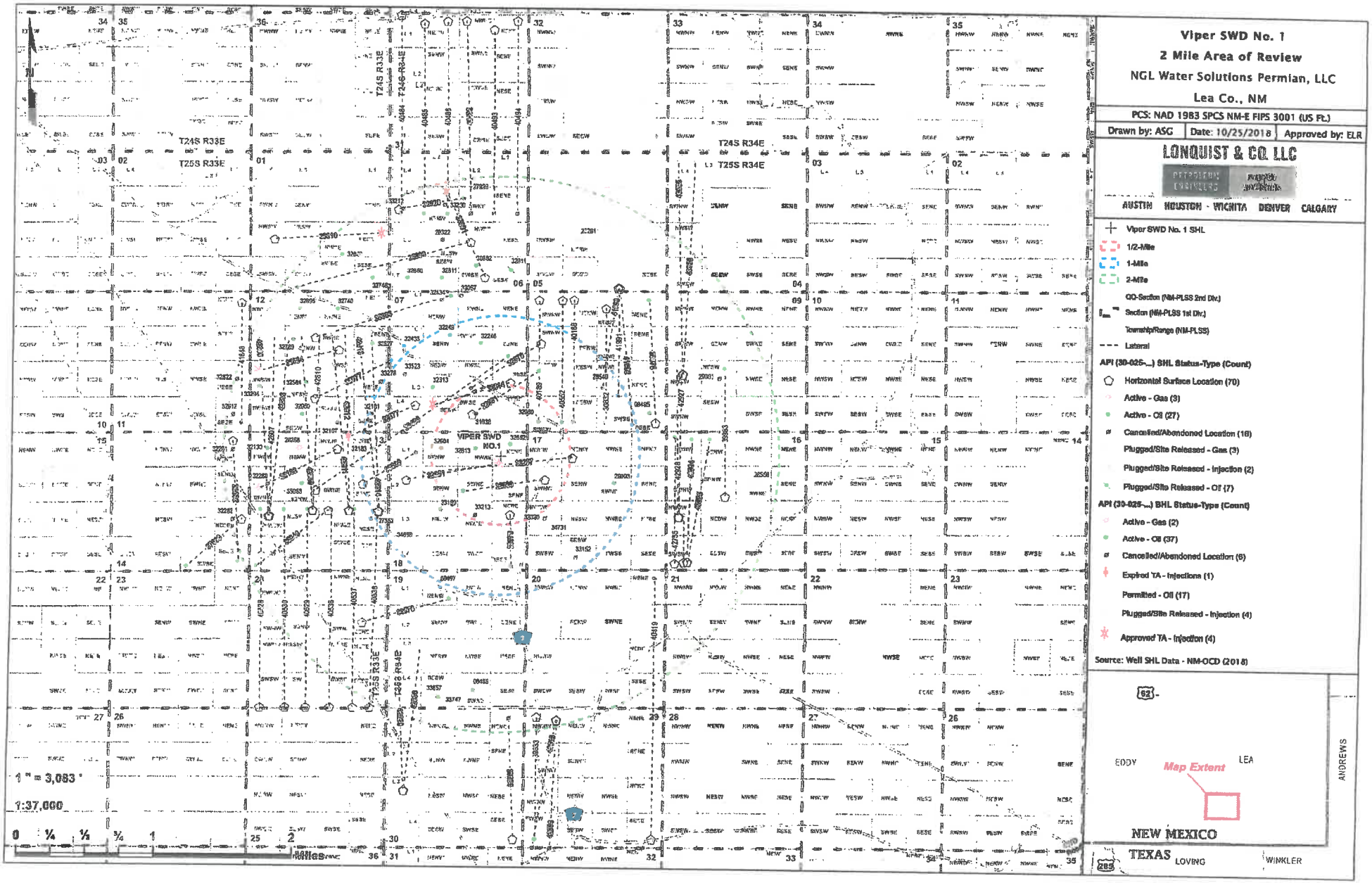
[18] SURVEYOR CERTIFICATION

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

10/23/18
Date of Survey

Signature and Seal of Professional Surveyor: CORY A. CLARK — NEW MEXICO — 23001 — PROFESSIONAL SURVEYOR

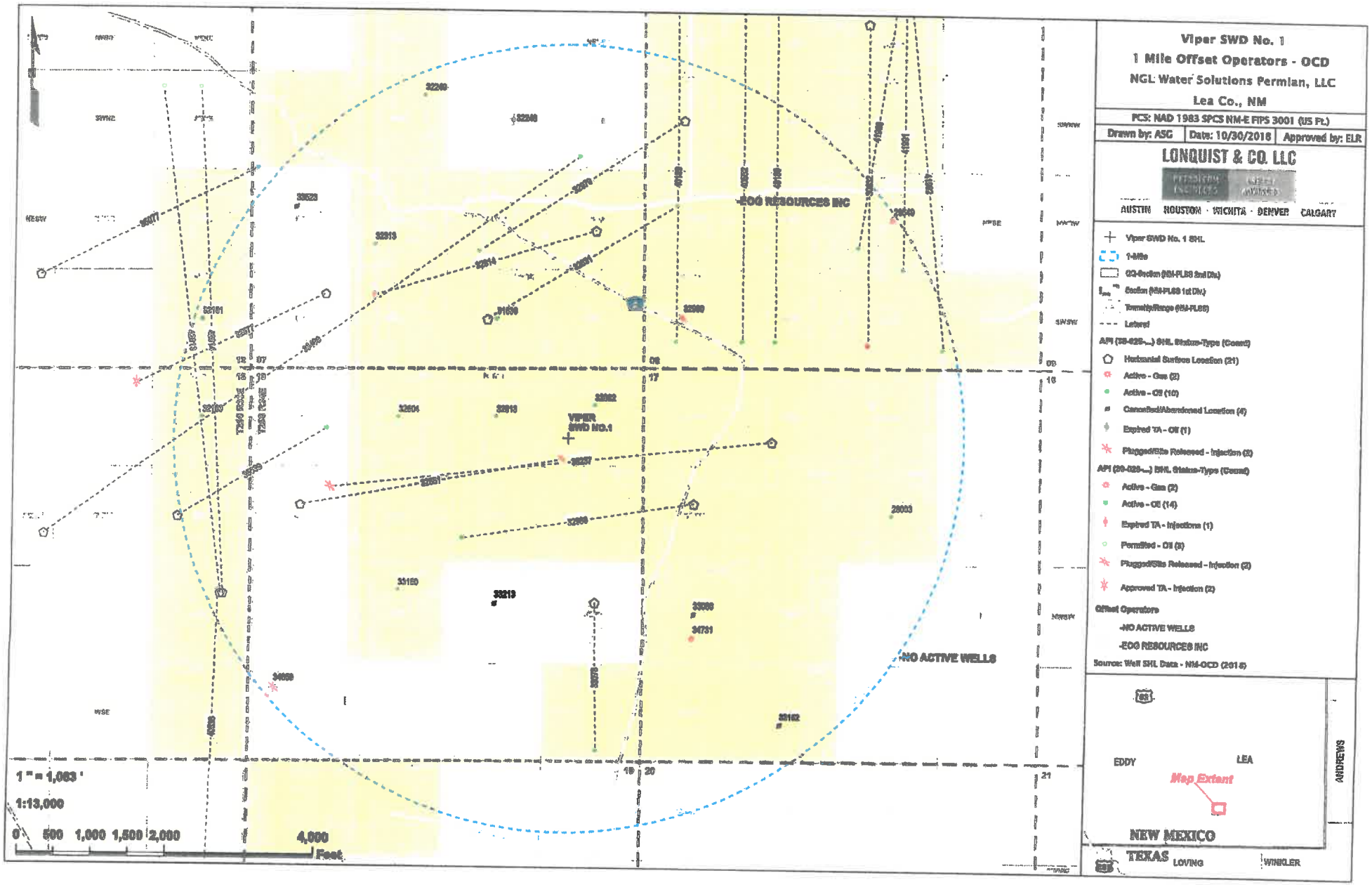
Certificate Number 23001

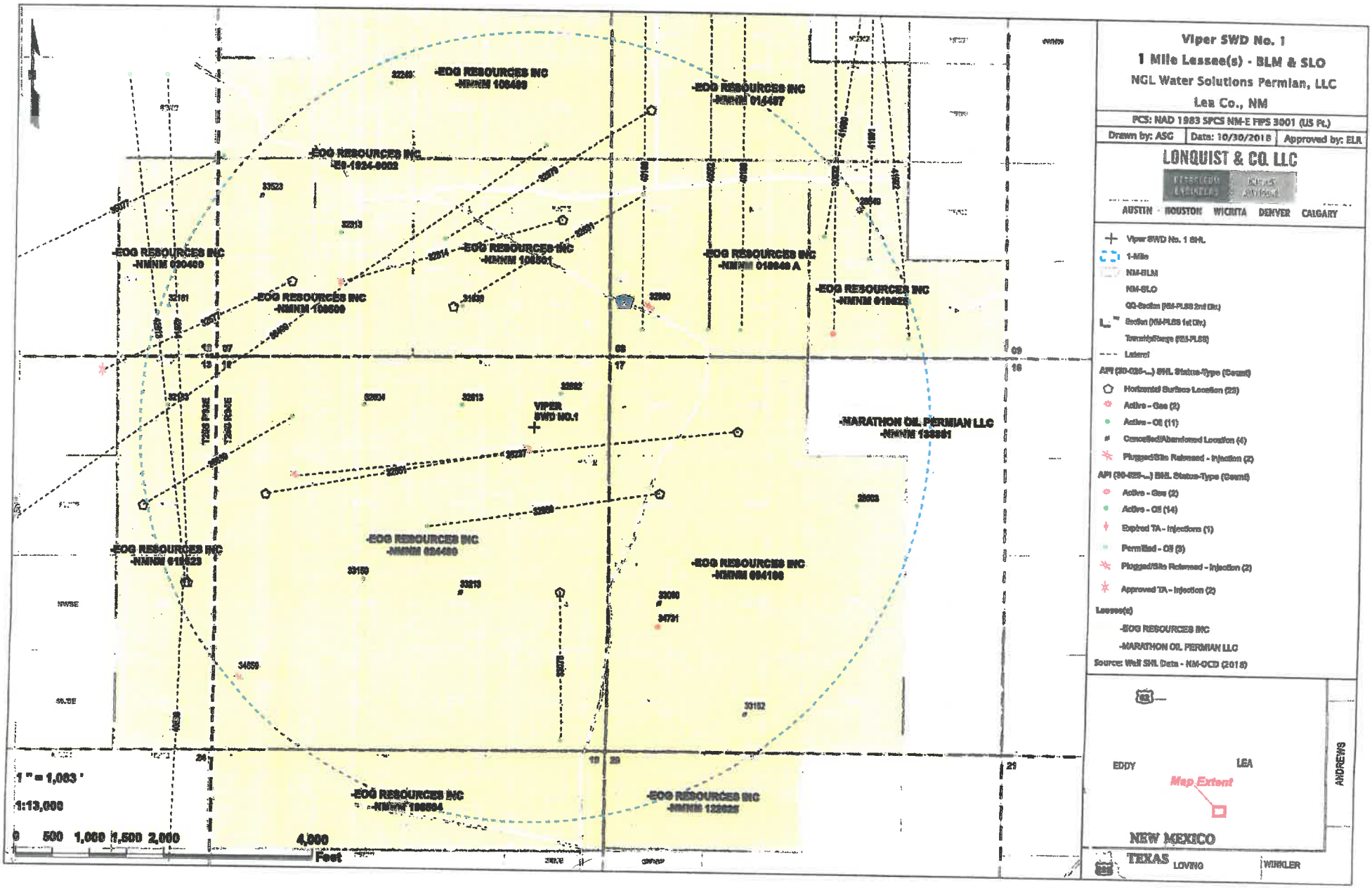

Viper SWD No. 1
2 Mile Area of Review
NGL Water Solutions Permian, LLC
Lea Co., NM
PCS: NAD 1983 SPCS NM-E FIPS 3001 (US FT.)
Drawn by: ASG
Date: 10/25/2018
Approved by: ELR
LONQUIST & CO. LLC
AUSTIN HOUSTON WICHITA DENVER CALGARY
Viper SWD No. 1 SHL
1/2-Mile
1-Mile
2-Mile
QQ-Section (NM-PLSS 2nd Div.)
Section (NM-PLSS 1st Div.)
Township/Range (NM-PLSS)
Lateral
API (30-025-...) SHL Status-Type (Count)
Horizontal Surface Location (70)
Active - Gas (3)
Active - Oil (27)
Cancelled/Abandoned Location (16)
Plugged/Site Released - Gas (3)
Plugged/Site Released - Injection (2)
Plugged/Site Released - Oil (7)
API (30-025-...) BHL Status-Type (Count)
Active - Gas (2)
Active - Oil (37)
Cancelled/Abandoned Location (6)
Expired TA - Injections (1)
Permitted - Oil (17)
Plugged/Site Released - Injection (4)
Approved TA - Injection (4)
Source: Well SHL Data - NM-OCD (2018)
T24S R33E
T25S R33E
T24S R34E
T25S R34E
VIPER SWD NO.1
1 " = 3,083 '
1:37,000
0 ¼ ½ ¾ 1 Miles
62
EDDY
LEA
Map Extent
ANDREWS
NEW MEXICO
TEXAS
LOVING
WINKLER
285

Viper SWD No. 1

1 Mile Area of Review List

API (30-025-...)	WELL NAME	WELL TYPE	STATUS	OPERATOR	TVD (FT.)	LATITUDE (NAD83 DD)	LONGITUDE (NAD83 DD)	DATE DRILLED
28003	RED HILLS NORTH UNIT #901	O	A	EOG RESOURCES INC	15825	32.13227080000	-103.48979190000	11/5/1982
28549	LONGWAY DRAW FEDERAL COM #001	G	A	EOG RESOURCES INC	15700	32.1431847000	-103.489799500	12/31/9999
30632	DIAMOND 8 FEDERAL #001	G	A	EOG RESOURCES INC	9507	32.15045170000	-103.49086760000	10/9/1989
31638	RED HILLS NORTH UNIT #701	O	A	EOG RESOURCES INC	15623	32.1395721000	-103.506851200	7/18/1992
32181	RED HILLS NORTH UNIT #203	O	A	EOG RESOURCES INC	12600	32.1395760000	-103.519607500	2/16/1994
32183	RED HILLS NORTH UNIT #303	O	A	EOG RESOURCES INC	12525	32.1359482000	-103.519607500	12/31/9999
32246	RED HILLS NORTH UNIT #702	O	A	EOG RESOURCES INC	12600	32.1468353000	-103.506202700	12/31/9999
32249	RED HILLS NORTH UNIT #707	O	A	EOG RESOURCES INC	12550	32.14774320000	-103.51000210000	12/31/9999
32313	RED HILLS NORTH UNIT #708	O	A	EOG RESOURCES INC	12550	32.1422920000	-103.512138400	4/15/1994
32577	RED HILLS NORTH UNIT #703H	I	T	EOG RESOURCES INC	12262	32.1404991000	-103.514274600	7/2/1994
32604	RED HILLS NORTH UNIT #802	O	A	EOG RESOURCES INC	12575	32.1359444000	-103.511077900	11/17/1994
32631	RED HILLS NORTH UNIT #705	O	A	EOG RESOURCES INC	12244	32.1395721000	-103.507270800	8/26/1994
32651	RED HILLS NORTH UNIT #801H	I	P	EOG RESOURCES INC	12260	32.13272480000	-103.51534270000	7/29/1995
32813	RED HILLS NORTH UNIT #803	O	A	EOG RESOURCES INC	12550	32.1359444000	-103.506851200	2/6/1995
32814	RED HILLS NORTH UNIT #706H	I	T	EOG RESOURCES INC	12288	32.1427917000	-103.502586400	1/13/1995
32882	RED HILLS NORTH UNIT #804	O	A	EOG RESOURCES INC	12550	32.1363564000	-103.502586400	4/19/1995
32979	RED HILLS NORTH UNIT #709H	O	A	EOG RESOURCES INC	12265	32.1468353000	-103.498802200	6/14/1996
32980	RED HILLS NORTH UNIT #811	I	P	EOG RESOURCES INC	12550	32.1395721000	-103.498809800	6/2/1995
32989	RED HILLS NORTH UNIT #902H	O	A	EOG RESOURCES INC	12255	32.1327248000	-103.498321500	7/7/1995
33078	RED HILLS NORTH UNIT #805H	O	A	EOG RESOURCES INC	12215	32.1290970000	-103.502586400	9/15/1995
33080	JAVELINA 17 FEDERAL #030	O	C	EOG RESOURCES INC	0	32.1286704053	-103.498312165	12/31/9999
33150	RED HILLS NORTH UNIT #806	O	A	EOG RESOURCES INC	12550	32.1295891000	-103.511085500	10/31/1995
33152	JAVELINA 17 FEDERAL #004	O	C	EOG RESOURCES INC	0	32.12462210090	-103.49451425400	12/31/9999
33213	DIAMOND 18 FEDERAL #007	O	C	EOG RESOURCES INC	0	32.1290896815	-103.506981862	12/31/9999
33523	HALF 7 FEDERAL #002	O	C	EOG RESOURCES INC	0	32.1436513040	-103.515576619	12/31/9999
34659	RED HILLS NORTH UNIT #807	I	P	EOG RESOURCES INC	12550	32.1259613000	-103.516418500	7/21/1999
34791	JAVELINA 17 FEDERAL #003	G	A	EOG RESOURCES INC	14080	32.12777390000	-103.49832150000	10/27/1999
35077	RED HILLS NORTH UNIT #211H	O	A	EOG RESOURCES INC	12259	32.1412125000	-103.526672400	7/10/2000
35639	RED HILLS NORTH UNIT #307H	O	A	EOG RESOURCES INC	12290	32.1323204000	-103.520675700	8/12/2001
36217	RED HILLS NORTH UNIT #710H	I	E	EOG RESOURCES INC	12261	32.1478729000	-103.506370500	5/3/2003
36237	RED HILLS NORTH UNIT #304H	I	P	EOG RESOURCES INC	12254	32.1350021000	-103.494964600	11/5/2003
36499	RED HILLS NORTH UNIT #309H	O	A	EOG RESOURCES INC	12249	32.1317253000	-103.526504500	1/12/2004
40188	DIAMOND 8 FEDERAL COM #003H	O	A	EOG RESOURCES INC	9492	32.1513694000	-103.494796800	5/28/2012
40189	DIAMOND 8 FEDERAL COM #004H	O	A	EOG RESOURCES INC	9473	32.1513710000	-103.499061600	7/16/2012
40538	VACA 24 FEDERAL COM #007H	O	N	EOG RESOURCES INC	0	32.1088600000	-103.519622800	8/29/2013
40552	DIAMOND 8 FEDERAL COM #005H	O	A	EOG RESOURCES INC	9505	32.1513672000	-103.496215800	6/22/2012
41990	DIAMOND 5 FEDERAL COM #006H	O	A	EOG RESOURCES INC	9473	32.1525650000	-103.489379900	3/13/2015
41991	DIAMOND 5 FEDERAL COM #007H	O	A	EOG RESOURCES INC	9459	32.1525650000	-103.489280700	3/28/2015
41992	DIAMOND 5 FEDERAL COM #008H	O	A	EOG RESOURCES INC	9471	32.1525650000	-103.489189100	4/11/2015
42613	LUCKY 13 FEDERAL COM #008H	O	N	EOG RESOURCES INC	0	32.1294919073	-103.518811697	12/31/9999
42614	LUCKY 13 FEDERAL COM #009H	O	N	EOG RESOURCES INC	0	32.1294944877	-103.518714313	12/31/9999


Viper SWD No. 1
1 Mile Offset Operators - OCD
NGL Water Solutions Permian, LLC
Lea Co., NM
PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)
Drawn by: ASG
Date: 10/30/2018
Approved by: ELR
LONQUIST & CO. LLC
AUSTIN · HOUSTON · WICHITA · DENVER · CALGARY
Viper SWD No. 1 SHL
1-Mile
QQ-Section (NM-PLSS 2nd Div.)
Section (NM-PLSS 1st Div.)
Township/Range (NM-PLSS)
Lateral
API (30-025-...) SHL Status-Type (Count)
Horizontal Surface Location (21)
Active - Gas (2)
Active - Oil (10)
Cancelled/Abandoned Location (4)
Expired TA - Oil (1)
Plugged/Site Released - Injection (2)
API (30-025-...) SHL Status-Type (Count)
Active - Gas (2)
Active - Oil (14)
Expired TA - Injections (1)
Permitted - Oil (3)
Plugged/Site Released - Injection (2)
Approved TA - Injection (2)
Offset Operators
-NO ACTIVE WELLS
-EOG RESOURCES INC
Source: Well SHL Data - NM-OCD (2018)
EOG RESOURCES INC
NO ACTIVE WELLS
VIPER SWD NO.1
1 " = 1,063 '
1:13,000
0 500 1,000 1,500 2,000 4,000 Feet
EDDY
LEA
Map Extent
NEW MEXICO
TEXAS
LOVING
WINKLER
ANDREWS



Viper SWD No. 1

1 Mile Lessee(s) - BLM & SLO

NGL Water Solutions Permian, LLC

Lea Co., NM

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

Drawn by: ASG	Date: 10/30/2018	Approved by: ELR

LONQUIST & CO. LLC

AUSTIN · HOUSTON · WICHITA · DENVER · CALGARY

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

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

- Horizontal Surface Location (23)
- Active - Gas (2)
- Active - Oil (11)
- Cancelled/Abandoned Location (4)
- Plugged/Site Released - Injection (2)

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

- Active - Gas (2)
- Active - Oil (14)
- Expired TA - Injections (1)
- Permitted - Oil (3)
- Plugged/Site Released - Injection (2)
- Approved TA - Injection (2)

Lessee(s)

- -EOG RESOURCES INC
- -MARATHON OIL PERMIAN LLC

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

Viper SWD #1: Offsetting Produced Water Analysis																	
wellname	api	section	township	range	unit	county	formation	ph	tds_mgl	sodium_mgl	calcium_mgl	iron_mgl	magnesium_mgl	manganese_mgl	chloride_mgl	bicarbonate_mgl	sulfate_mgl	co2_mgl
BELL LAKE UNIT #009	3002520261	18	23S	34E	K	LEA	BONE SPRING		204652						130000	512	260	
CORIANDER AOC STATE #002	3002533574	1	23S	32E	H	LEA	BONE SPRING	5.2			24176	0	3815		167962	61.1	165	
THISTLE UNIT #071H	3002542425	27	23S	33E	A	Lea	BONE SPRING 1ST SAND	5.6	171476.3	55363.2	9140	40.4	1023	1.1	104576.4	244	560	770
BELL LAKE 19 STATE #002H	3002541515	19	24S	33E	O	Lea	BONE SPRING 2ND SAND	6.2		47148	6419	15	854	0	86572	232	670	240
BELL LAKE 19 STATE #004H	3002541517	19	24S	33E	O	Lea	BONE SPRING 2ND SAND	6.3		47537	6950	11	886	0	88389	171	650	210
SALADO DRAW 6 FEDERAL #001H	3002541293	6	26S	34E	M	Lea	BONE SPRING 3RD SAND	6.5	99612.7	34586.5	3244	10.3	417.7	0.39	59986.5	158.6	820	50
GAUCHO UNIT #011H	3002541184	17	22S	34E	O	Lea	BONE SPRING 3RD SAND	6.5		48879	6182	11	802	0.12	88836	122	1240	70
SNAPPING 2 STATE #014H	3001542688	2	26S	31E	P	EDDY	WOLFCAMP	7.3	81366.4	26319.4	2687.4	26.1	326.7		50281.2		399.7	100
BELLOQ 2 STATE #002H	3001542895	2	23S	31E	C	EDDY	WOLFCAMP	6.8	119471.8	37359.2	5659.1	22.4	746.1		73172.5		1035.5	250
PRONGHORN AHO FEDERAL #001	3002526496	6	23S	33E	G	LEA	STRAWN	5.5			20.1	0	12.2		35.5	61.1	48.8	
ANTELOPE RIDGE UNIT #002	3002520444	4	24S	34E	B	LEA	ATOKA	6.7	51475						31000	317	340	
CUSTER MOUNTAIN UNIT #001	3002520756	9	24S	35E	K	LEA	MORROW		282741						176800	161	650	

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.

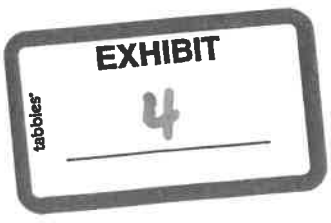
2. I am the president of Nave Oil and Gas, which is a fishing tool company that performs fishing operations in several areas, including the area of Southeastern, New Mexico.

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

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

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

CASE NO. 20139

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

CASE NO. 20143

AFFIDAVIT

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

Deana M. Bennett, 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 Application was provided under a notice letter and that proof of receipt is attached hereto.

Deana M. Bennett

EXHIBIT 5

SUBSCRIBED AND SWORN to before me this 20th day of February, 2019 by Deana M. Bennett.

Notary Public

My commission expires: 02/27/21

Asnc KS

Karlene Schuman
Modrall Sperling Roehl Harris & Sisk P.A.
500 Fourth Street, Suite 1000
Albuquerque NM 87102

PS Form 3877

Type of Mailing: CERTIFIED
12/14/2018

Firm Mailing Book ID: 157373

Line	Article Number	Name, Street & P.O. Address	Postage	Fee	R.R.Fee	Reference	Rest.Del.Fee Contents
1	9314 8699 0430 0053 9786 64	Oil Conservation Division District IV 1220 South St. Francis Drive Santa FE NM 87505	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
2	9314 8699 0430 0053 9786 71	Oil Conservation Division District I - Hobbs 1625 N. French Drive Hobbs NM 88240	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
3	9314 8699 0430 0053 9786 88	NGL WATER SOLUTIONS PERMIAN, LLC 1509 W Wall St., Ste. 306 Midland TX 79701	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
4	9314 8699 0430 0053 9786 95	NEW MEXICO STATE LAND OFFICE P.O. Box 1148 Santa Fe NM 87504	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
5	9314 8699 0430 0053 9787 01	BUREAU OF LAND MGMT 301 Dinosaur Trail Santa Fe NM 87508	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
6	9314 8699 0430 0053 9787 18	NEW MEXICO STATE LAND OFFICE P.O. Box 2267 Midland TX 79702	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
7	9314 8699 0430 0053 9787 25	BUREAU OF LAND MGMT 333 CLAY ST #4200 Houston TX 77002	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
8	9314 8699 0430 0053 9787 32	Leta T. Dillon Family Limited Partnership c/o James Patrick Knight P.O. Box 2343 South Padre Island TX 78597	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
		Totals:	**$13.04**	**$27.60**	**$12.00**		**$0.00**
						Grand Total:	**$52.64**

ALBUQUERQUE NM 87102 DEC 14 2018 USPS

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

Transaction Report Details - CertifiedPro.net
Firm Mail Book ID= 157373
Generated: 2/12/2019 1:20:21 PM

Certified Mail Article Number	Date Created	Name 1	Name 2	Address	City	State	Zip	Certified Mailing Status	Service Options	Mail Delivery Date
9314869904300053978732	2018-12-14 11:26 AM	Leta T. Dillon Family Limited Partnership	c/o James Patrick Knight	P.O. Box 2343	South Padre Island	TX	78597	Delivered	Return Receipt - Electronic	12-19-2018
9314869904300053978725	2018-12-14 11:26 AM	BUREAU OF LAND MGMT		333 CLAY ST #4200	Houston	TX	77002	Delivered	Return Receipt - Electronic	12-20-2018
9314869904300053978718	2018-12-14 11:26 AM	NEW MEXICO STATE LAND OFFICE		P.O. Box 2267	Midland	TX	79702	Delivered	Return Receipt - Electronic	12-18-2018
9314869904300053978701	2018-12-14 11:26 AM	BUREAU OF LAND MGMT		301 Dinosaur Trail	Santa Fe	NM	87508	Delivered	Return Receipt - Electronic	12-17-2018
9314869904300053978695	2018-12-14 11:26 AM	NEW MEXICO STATE LAND OFFICE		P.O. Box 1148	Santa Fe	NM	87504	Delivered	Return Receipt - Electronic	12-18-2018
9314869904300053978688	2018-12-14 11:26 AM	NGL WATER SOLUTIONS PERMIAN, LLC		1509 W Wall St., Ste. 306	Midland	TX	79701	Delivered	Return Receipt - Electronic	12-17-2018
9314869904300053978671	2018-12-14 11:26 AM	Oil Conservation Division District I - Hobbs		1625 N. French Drive	Hobbs	NM	88240	Delivered	Return Receipt - Electronic	12-17-2018
9314869904300053978664	2018-12-14 11:26 AM	Oil Conservation Division District IV		1220 South St. Francis Drive	Santa FE	NM	87505	Delivered	Return Receipt - Electronic	12-17-2018

Transaction Report Details - CertifiedPro.net
Firm Mail Book ID= 157699
Generated: 2/12/2019 1:28:27 PM

Certified Mail Article Number	Date Created	Name 1	Address	City	State	Zip	Certified Mailing Status	Service Options	Batch ID	Mail Delivery Date
93148699043000540951 79	2018-12-19 7:33 AM	EOG Resources Inc.	P.O. Box 2267	Midland	TX	79702	Delivered	Return Receipt - Electronic	152764	12-26-2018
93148699043000540951 62	2018-12-19 7:33 AM	EOG Resources Inc.	333 Clay St. #42(	Houston	TX	77002	Lost	Return Receipt - Electronic	152764	

Transaction Details

Recipient:
EOG Resources Inc.
333 Clay St. #4200
Houston, TX 77002

Sender:
Karlene Schuman
Modrall Sperling Roehl Harris & Sisk P.A.
500 Fourth Street, Suite 1000
Albuquerque, NM 87102

Transaction created by: Karlenes
User ID: 20660
Firm Mailing Book ID: 157699
Batch ID: 152764

Certified Mail Article Number: 93148699043000540951 62
Return Receipt Article Number:

Service Options: Return Receipt - Electronic
Mail Service: Certified
Reference #: 87806-0003
Postage: $1.63
Fees: $4.95
Status: Lost
Custom Field 1: 87806-0003
Custom Field 2: 87806-0003
Custom Field 3: Asroc

Transaction History

Event Description	Event Date	Details
Mailbook Generated	12-19-2018 07:35 AM	[WALZ] - Firm Mailing Book 157699 generated by Karlenes
USPS® Certified Mail	12-19-2018 11:11 AM	[USPS] - PRESHIPMENT INFO SENT USPS AWAITS ITEM at TEMECULA,CA
USPS® Certified Mail	12-19-2018 09:43 PM	[USPS] - PROCESSED THROUGH USPS FACILITY at ALBUQUERQUE,NM
USPS® Certified Mail	12-19-2018 10:37 PM	[USPS] - DEPART USPS FACILITY at ALBUQUERQUE,NM
USPS® Certified Mail	12-26-2018 08:38 PM	[USPS] - PROCESSED THROUGH USPS FACILITY at NORTH HOUSTON,TX
USPS® Certified Mail	12-27-2018 07:19 PM	[USPS] - PROCESSED THROUGH USPS FACILITY at NORTH HOUSTON,TX
USPS® Certified Mail	01-07-2019 01:37 PM	[USPS] - ARRIVAL AT UNIT at HOUSTON,TX
USPS® Certified Mail	01-07-2019 05:27 PM	[USPS] - ARRIVAL AT UNIT at HOUSTON,TX
USPS® Certified Mail	01-08-2019 09:48 AM	[USPS] - SORTINGPROCESSING COMPLETE at HOUSTON,TX
USPS® Certified Mail	01-08-2019 09:58 AM	[USPS] - OUT FOR DELIVERY at HOUSTON,TX
USPS® Certified Mail	01-08-2019 11:58 PM	[USPS] - AWAITING DELIVERY SCAN at HOUSTON,TX

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
December 26, 2018
and ending with the issue dated
December 26, 2018.

Publisher

Sworn and subscribed to before me this
26th day of December 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 LEGAL LEGAL

LEGAL NOTICE
DECEMBER 26, 2018

CASE NO. 19443: Notice to all affected parties, as well as the heirs and devisees of BUREAU OF LAND MGMT; NEW MEXICO STATE LAND OFFICE; EOG RESOURCES; EOG RESOURCES INC; EOG M RESOURCES INC; EOG A RESOURCES; OXY Y-1 COMPANY; MARATHON OIL PERMIAN LLC; SANTO OPERATING LLC; JOAN G. PHILLIPS C/O DOUGLAS G. MCCORMICK; MRC PERMIAN COMPANY; ONEENERGY PARTNERS OPERATING, LLC; BLACK MOUNTAIN OIL AND GAS; COG OPERATING LLC; AMEREDEV NEW MEXICO, LLC; MBOE, INC.; ROBERT LANDRETH; DUER WAGNER, JR., INDIVIDUALLY AND AS TRUSTEE OF THE RUTH WAGNER TRUST; SHANNON SPROWLS, INDIVIDUALLY AND UNDER THE SHANNON R. SPROWLS 2012 TRUST; JOHN T. NEISLER, INDIVIDUALLY AND UNDER THE JOHN T. NEISLER 2012 TRUST; SPRINGBOK ENERGY PARTNERS II, LLC; SILVER SPUR RESOURCES, LLC; CHEVRON USA, INC.; FORTIS MINERALS II, LLC; KATY PIPELINE AND PRODUCTION CORPORATION; SUGARBERRY OIL & GAS CORPORATION; ENERGEN RESOURCES CORPORATION; COG OPERATING, LLC; THE ALLAR CO; SUSAN DUFF; NOMMENSEN INVESTMENT COMPANY; JOHN W. MCCARTHY, III; BATES FAMILY INVESTMENT COMPANY, LLC; EKE TRUST COMPANY OF OKLAHOMA; DUARD B. THOMAS, PR OF THE ESTATE OF WARREN J. BATES; TEXAS STATE BANK, TRUSTEE OF THE LUCILLE CRISM BATES TESTAMENTARY TRUST; ROBERT F. FLEET REVOCABLE TRUST; RAE ANN FLEET GOSSETT; B.H.C.H. MINERAL, LTD.; FREDERICKSBURG ROYALTY, LTD.; JAMES RAY BATES; MARGARET HELEN KALMAR CHILDREN'S TRUST; PAWN ENTERPRISES, LTD.; D. MORGAN FIRESTONE PRIVATE CORP.: NGL Water Solutions Permian, LLC, 1509 W. Wall Street, Suite 306, Midland, Texas 79701 is filing an amended 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 January 10, 2019, to consider this application. In this application, NGL seeks an order approving disposal into the Silurian-Devonian formation through the Bishopcap SWD #1 well at a surface location 1755 feet from the North line and 16 feet from the East line of Section 19, Township 25 South, Range 34 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well. The target injection interval is the Devonian and Silurian formations at a depth of 17,157 - 19,007. 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.

CASE NO. 20139: Notice to all affected parties, as well as the heirs and devisees of NEW MEXICO STATE LAND OFFICE; BUREAU OF LAND MGMT; EOG RESOURCES INC; LETA T. DILLON FAMILY LIMITED PARTNERSHIP C/O JAMES PATRICK KNIGHT; NGL Water Solutions Permian, LLC, 1509 W. Wall Street, Suite 306, Midland, Texas 79701 is filing an amended 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 January 10, 2019, to consider this application. In this application, NGL seeks an order approving disposal into the Silurian-Devonian formation through the Alamo SWD #1 well at a surface location 2017 feet from the South line and 1420 feet from the East line of Section 8, Township 25 South, Range 34 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well. NGL seeks authority to inject salt water into the Silurian-Devonian formation at a depth of 17,020 to 19,000. NGL further seeks approval of the use of 7 inch tubing inside the surface and intermediate casings and 5 ½ inch tubing inside the liner and requests that the Division approve a maximum daily injection rate for the well of 50,000 bbls per day. Said area is located approximately 18 miles west of Jal, New Mexico.

CASE NO. 20141: Notice to all affected parties, as well as the heirs and devisees of NEW MEXICO STATE LAND OFFICE; BUREAU OF LAND MGMT; COG OPERATING LLC; MATADOR PRODUCTION COMPANY; DEVON ENERGY PRODUCTION COMPANY, LP; KAISER-FRANCIS OIL CO.; EOG Y RESOURCES INC; EOG RESOURCES INC; EAP ROCK OPERATING, LLC; NGL Water Solutions Permian, LLC, 1509 W. Wall Street, Suite 306, Midland, Texas 79701 is filing an amended 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 January 10, 2019, to consider this application. In this application, NGL seeks an order approving disposal into the Silurian-Devonian formation through the Sparrow SWD #1 well at a surface location 405 feet from the North line and 1967 feet from the West line of Section 11, Township 24 South, Range 33 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well. NGL seeks authority to inject salt water into the Silurian-Devonian formation at a depth of 16,840 - 18,658. NGL further seeks approval of the use of 7 inch tubing inside the surface and intermediate casings and 5 ½ inch tubing inside the liner and requests that the Division approve a maximum daily injection rate for the well of 50,000 bbls per day. Said area is located approximately 22.6 miles northwest of Jal, New Mexico.

CASE NO. 20142: Notice to all affected parties, as well as the heirs and devisees of BUREAU OF LAND MGMT; COG OPERATING LLC; MATADOR PRODUCTION COMPANY; DEVON ENERGY PRODUCTION COMPANY, LP; KAISER-FRANCIS OIL CO.; LUCID ENERGY DELAWARE, LLC; DEVON ENERGY PRODUCTION CO LP; ONEENERGY PARTNERS OPERATING, LLC; NGL Water Solutions Permian, LLC, 1509 W. Wall Street, Suite 306, Midland, Texas 79701 is filing an amended 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 January 10, 2019, to consider this application. In this application, NGL seeks an order approving disposal into the Silurian-Devonian formation through the Trident SWD #1 well at a surface location 245 feet from the North line and 1320 feet from the West line of Section 13, Township 24 South, Range 32 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well. NGL seeks authority to inject salt water into the Silurian-Devonian formation at a depth of 16,320 - 18,045. 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 23.6 miles northeast of Jal, New Mexico.

CASE NO. 20143: Notice to all affected parties, as well as the heirs and devisees of NEW MEXICO STATE LAND OFFICE; BUREAU OF LAND MGMT; EOG RESOURCES INC; MARATHON OIL PERMIAN LLC; NGL Water Solutions Permian, LLC, 1509 W. Wall Street, Suite 306, Midland, Texas 79701 is filing an amended 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 January 10, 2019, to consider this application. In this application, NGL seeks an order approving disposal into the Silurian-Devonian formation through the Vipe SWD #1 well at a surface location 862 feet from the North line and 1093 feet from the East line of Section 18, Township 25 South, Range 34 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well. NGL seeks authority to inject salt water into the Silurian-Devonian formation at a depth of 17,180 - 19,050. NGL further seeks approval of the use of 7 inch tubing inside the surface and intermediate casings and 5 ½ inch tubing inside the liner and requests that the Division approve a maximum daily injection rate for the well of 50,000 bbls per day. Said area is located approximately 18 miles west of Jal, New Mexico.

CASE NO. 20150: Notice to all affected parties, as well as the heirs and devisees of NEW MEXICO STATE LAND OFFICE; BUREAU OF LAND MGMT; EOG RESOURCES INC; EOG RESOURCES INC; LETA T. DILLON FAMILY LIMITED PARTNERSHIP C/O JAMES PATRICK KNIGHT; 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 January 10, 2019, to consider this application. In this application, NGL seeks an order approving disposal into the Silurian-Devonian formation through the Maverick SWD #1 well at a surface location 1246 feet from the South line and 1827 feet from the East line of Section 29, Township 24 South, Range 34 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well. NGL seeks authority to inject salt water into the Silurian-Devonian formation at a depth of 16,615 to 18,265. NGL further seeks approval of the use of 7 inch tubing inside the surface and intermediate casings and 5 ½ inch tubing inside the liner and requests that the Division approve a maximum daily injection rate for the well of 50,000 bbls per day. Said area is located approximately 18 miles northwest of Jal, NM.

CASE NO. 20151: Notice to all affected parties, as well as the heirs and devisees of NEW MEXICO STATE LAND OFFICE; BUREAU OF LAND MGMT; EOG RESOURCES INC; AGS OG H LDINGS III, INC; AGS OG HOLDINGS INC; MIDWEST RES 2006-1 O&G INCOME; MIDWEST RES 98-1 O&G INCOME LP; MIDWEST RES 98-1 O&G INCOME LP; AGS OG VENTURES INC; AGS OG 2005 LLLP; TE-RAE RESOURCES INC; ENERGEN RESOURCES CORPORATION; MARATHON OIL PERMIAN LLC; COG OPERATING LLC; ADVANCE ENERGY PARTNERS, LLC; EOG RESOURCES Y, INC.; EOG RESOURCES M, INC.; EOG RESOURCES A, INC.; WAYNE NEWKUMET; ETUX; LINDA NEWKUMET; ROBERT E. LANDRETH, ETUX; DONNA LANDRETH; 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 January 10, 2019, to consider this application. In this application, NGL seeks an order approving disposal into the Silurian-Devonian formation through the Tonkawa SWD #1 well at a surface location 225 feet from the North line and 2420 feet from the East line of Section 1, Township 26 South, Range 34 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well. NGL seeks authority to inject salt water into the Silurian-Devonian formation at a depth of 16,405 to 18,475. NGL further seeks

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
December 26, 2018
and ending with the issue dated
December 26, 2018.

Publisher

Sworn and subscribed to before me this 26th day of December 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 LEGAL LEGAL

LEGAL NOTICE
DECEMBER 26, 2018

CASE NO. 16443: Notice to all affected parties, as well as the heirs and devisees of BUREAU OF LAND MGMT; NEW MEXICO STATE LAND OFFICE; EOG RESOURCES; EOG RESOURCES INC; EOG M RESOURCES INC; EOG A RESOURCES; OXY Y-1 COMPANY; MARATHON OIL PERMIAN LLC; SANTO OPERATING LLC; JOAN G. PHILLIPS C/O DOUGLAS G. MCCORMICK; MRC PERMIAN COMPANY; ONEENERGY PARTNERS OPERATING, LLC; BLACK MOUNTAIN OIL AND GAS;; COG OPERATING, LLC; AMEREDEV NEW MEXICO, LLC; MBOE, INC., ROBERT LANDRETH; DUER WAGNER, JR., INDIVIDUALLY AND AS TRUSTEE OF THE RUTH WAGNER TRUST; SHANNON SPROWLS, INDIVIDUALLY AND UNDER THE SHANNON R. SPROWLS 2012 TRUST; JOHN T. NEISLER, INDIVIDUALLY AND UNDER THE JOHN T. NEISLER 2012 TRUST; SPRINGBOK ENERGY PARTNERS II, LLC; SILVER SPUR RESOURCES, LLC; CHEVRON USA, INC.; FORTIS MINERALS II, LLC; KATY PIPELINE AND PRODUCTION CORPORATION; SUGARBERRY OIL & GAS CORPORATION; ENERGEN RESOURCES CORPORATION; COG OPERATING, LLC; THE ALLAR CO; SUSAN DUFF; NOMMENSEN INVESTMENT COMPANY; JOHN V. MCCARTHY, II; BATES FAMILY INVESTMENT COMPANY, LLC,THE TRUST COMPANY OF OKLAHOMA; DUARD B. THOMAS, PR OF THE ESTATE OF WARREN J. BATES; TEXAS STATE BANK TRUSTEE OF THE LUCILLE CHISM BATES TESTAMENTARY TRUST; ROBERT F. FLEET REVOCABLE TRUST; RAE ANN FLEET GOSSETT; B.H.C.H. MINERAL, LTD. & FREDERICKSBURG ROYALTY, LTD.; JAMES RAY BATES; MARGARET HELEN KALMAR CHILDREN'S TRUST; PAWN ENTERPRISES, LTD.; D. MORGAN FIRESTONEFIRAN CORP.: NGL Water Solutions Permian, LLC, 1509 W. Wall Street. Suite 306, Midland, Texas 79701 is filing an amended 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 January 10, 2019, to consider this application. In this amended application, NGL seeks an order approving disposal into the Silurian-Devonian formation through the Sidewinder SWD #1 well at a surface location 1755'feet from the North line and 18 feet from the East line of Section 15, Township 25 South, Range 34 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well. The target injection interval is the Devonian and Silurian formations at a depth of 17,157' - 19,067'. NGL further seeks approval of the use of 7 inch tubing inside the surface and intermediate casings and 5 1/2 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.

CASE NO. 20139: Notice to all affected parties, as well as the heirs and devisees of NEW MEXICO STATE LAND OFFICE ; BUREAU OF LAND MGMT; EOG RESOURCES INC ;LETA T. DILLON FAMILY LIMITED PARTNERSHIP C/O JAMES PATRICK KNIGHT: NGL Water Solutions Permian, LLC, 1509 W. Wall Street. Suite 306. Midland, Texas 79701 is filing an amended 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 January 10, 2019, to consider this application. In this application, NGL seeks an order approving disposal into the Silurian-Devonian formation through the Asroc SWD #1 well at a surface location 2017 feet from the South line and 1420 feet from the East line of Section 6, Township 25 South, Range 34 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well. NGL seeks authority to inject salt water into the Silurian-Devonian formation at a depth of 17,020' to 18,890'. 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 19 miles west of Jal, New Mexico.

PARTNERS OPERATING, LLC; BLACK MOUNTAIN OIL AND GAS;; COG OPERATING, LLC; AMEREDEV NEW MEXICO, LLC; MBOE, INC.; ROBERT LANDRETH; DUER WAGNER, JR., INDIVIDUALLY AND AS TRUSTEE OF THE RUTH WAGNER TRUST; SHANNON SPROWLS, INDIVIDUALLY AND UNDER THE SHANNON R. SPROWLS 2012 TRUST; JOHN T. NEISLER, INDIVIDUALLY AND UNDER THE JOHN T. NEISLER 2012 TRUST; SPRINGBOK ENERGY PARTNERS II, LLC; SILVER SPUR RESOURCES, LLC; CHEVRON USA, INC.; FORTIS MINERALS II, LLC; KATY PIPELINE AND PRODUCTION CORPORATION; SUGARBERRY OIL & GAS CORPORATION; ENERGEN RESOURCES CORPORATION; COG OPERATING, LLC; THE ALLAR CO; SUSAN DUFF; NOMMENSEN INVESTMENT COMPANY; JOHN V. MCCARTHY, II; BATES FAMILY INVESTMENT COMPANY, LLC,THE TRUST COMPANY OF OKLAHOMA; DUARD B. THOMAS, PR OF THE ESTATE OF WARREN J. BATES; TEXAS STATE BANK TRUSTEE OF THE LUCILLE CHISM BATES TESTAMENTARY TRUST; ROBERT F. FLEET REVOCABLE TRUST; RAE ANN FLEET GOSSETT; B.H.C.H. MINERAL, LTD. & FREDERICKSBURG ROYALTY, LTD.; JAMES RAY BATES; MARGARET HELEN KALMAR CHILDREN'S TRUST; PAWN ENTERPRISES, LTD.; D. MORGAN FIRESTONEFIRAN CORP.: NGL Water Solutions Permian, LLC, 1509 W. Wall Street. Suite 306, Midland, Texas 79701 is filing an amended 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 January 10, 2019, to consider this application. In this amended application, NGL seeks an order approving disposal into the Silurian-Devonian formation through the **Sidewinder SWD #1** well at a surface location 1755 feet from the North line and 18 feet from the East line of Section 15, Township 25 South, Range 34 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well. The target injection interval is the Devonian and Silurian formations at a depth of 17,157' - 19,067'. NGL further seeks approval of the use of 7 inch tubing inside the surface and intermediate casings and 5 1/2 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.

CASE NO. 20139: Notice to all affected parties, as well as the heirs and devisees of NEW MEXICO STATE LAND OFFICE ; BUREAU OF LAND MGMT; EOG RESOURCES INC ;LETA T. DILLON FAMILY LIMITED PARTNERSHIP C/O JAMES PATRICK KNIGHT: NGL Water Solutions Permian, LLC, 1509 W. Wall Street. Suite 306, Midland, Texas 79701 is filing an amended 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 January 10, 2019, to consider this application. In this application, NGL seeks an order approving disposal into the Silurian-Devonian formation through the Asroc SWD #1 well at a surface location 2017 feet from the South line and 1420 feet from the East line of Section 6, Township 25 South, Range 34 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well. NGL seeks authority to inject salt water into the Silurian-Devonian formation at a depth of 17,020' to 18,890'. 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 19 miles west of Jal, New Mexico.

CASE NO. 20141: Notice to all affected parties, as well as the heirs and devisees of NEW MEXICO STATE LAND OFFICE; BUREAU OF LAND MGMT; COG OPERATING LLC; MATADOR PRODUCTION COMPANY; DEVON ENERGY PRODUCTION COMPANY, LP; KAISER-FRANCIS OIL CO; EOG Y RESOURCES, INC; EOG RESOURCES INC; TAP ROCK OPERATING, LLC: NGL Water Solutions Permian, LLC, 1509 W. Wall Street. Suite 306, Midland, Texas 79701 is filing an amended 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 January 10, 2019, to consider this application. In this application, NGL seeks an order approving disposal into the Silurian-Devonian formation through the **Sparrow SWD #1** well at a surface location 405 feet from the North line and 297 feet from the West line of Section 11, Township 24 South, Range 33 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well. NGL seeks authority to inject salt water into the Silurian-Devonian formation at a depth of 16,940' - 18,658'. NGL further seeks approval of the use of 7 inch tubing inside the surface and intermediate casings and 5 ½ inch tubing inside the liner and requests that the Division approve a maximum daily injection rate for the well of 50,000 bbls per day. Said area is located approximately 22.6 miles northwest of Jal, New Mexico.

CASE NO. 20142: Notice to all affected parties, as well as the heirs and devisees of BUREAU OF LAND MGMT; COG OPERATING LLC; MATADOR PRODUCTION COMPANY; DEVON ENERGY PRODUCTION COMPANY, LP; KAISER-FRANCIS OIL CO; LUCID ENERGY DELAWARE, LLC; DEVON ENERGY PRODUCTION CO LP; ONEENERGY PARTNERS OPERATING, LLC: NGL Water Solutions Permian, LLC, 1509 W. Wall Street. Suite 306, Midland, Texas 79701 is filing an amended 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

Viper KS

Karlene Schuman
Modrall Sperling Roehl Harris & Sisk P.A.
500 Fourth Street, Suite 1000
Albuquerque NM 87102

PS Form 3877

Type of Mailing: CERTIFIED
12/14/2018

Firm Mailing Book ID: 157390

Line	Article Number	Name, Street & P.O. Address	Postage	Fee	R.R.Fee	Reference	Rest.Del.Fee Contents
1	9314 8699 0430 0053 9846 96	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 0053 9847 02	NGL WATER SOLUTIONS PERMIAN, LLC Attn: Joe Vargo 1509 W Wall St., Ste. 306 Midland TX 79701	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
3	9314 8699 0430 0053 9847 19	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 0053 9847 26	BUREAU OF LAND MGMT 301 Dinosaur Trail Santa Fe NM 87508	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
5	9314 8699 0430 0053 9847 33	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 0053 9847 40	MARATHON OIL PERMIAN LLC 5555 SAN FELIPE ST Houston TX 77056	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
7	9314 8699 0430 0053 9847 57	EOG RESOURCES INC 333 CLAY ST #4200 Houston TX 77002	$1.63	$3.45	$1.50	87806-0003	$0.00 Notice
		Totals:	**$11.41**	**$24.15**	**$10.50**		**$0.00**
						Grand Total:	**$46.06**

List Number of Pieces Listed by Sender	Total Number of Pieces Received at Post Office	Postmaster: Name of receiving employee	Dated:
7			

Transaction Report Details - CertifiedPro.net
Firm Mail Book ID= 157390
Generated: 2/12/2019 1:55:36 PM

Certified Mail Article Number	Date Created	Name 1	Name 2	Address	City	State	Zip	Certified Mailing Status	Service Options	Mail Delivery Date
93148699043000539847 57	2018-12-14 12:24 PM	EOG RESOURCES INC		333 CLAY ST #4200	Houston	TX	77002	To be Returned	Return Receipt - Electronic	
93148699043000539847 40	2018-12-14 12:24 PM	MARATHON OIL PERMIAN LLC		5555 SAN FELIPE ST	Houston	TX	77056	Lost	Return Receipt - Electronic	
93148699043000539847 33	2018-12-14 12:24 PM	EOG RESOURCES INC		P.O. Box 2267	Midland	TX	79702	Delivered	Return Receipt - Electronic	12-18-2018
93148699043000539847 26	2018-12-14 12:24 PM	BUREAU OF LAND MGMT		301 Dinosaur Trail	Santa Fe	NM	87508	Delivered	Return Receipt - Electronic	12-17-2018
93148699043000539847 19	2018-12-14 12:24 PM	NEW MEXICO STATE LAND OFFICE		P.O. Box 1148	Santa Fe	NM	87504	Delivered	Return Receipt - Electronic	12-18-2018
93148699043000539847 02	2018-12-14 12:24 PM	NGL WATER SOLUTIONS PERMIAN, LLC	Attn: Joe Vargo	1509 W Wall St., Ste. 306	Midland	TX	79701	Delivered	Return Receipt - Electronic	12-17-2018
93148699043000539846 96	2018-12-14 12:24 PM	Oil Conservation Division District I - Hobbs		1625 N. French Drive	Hobbs	NM	88240	Delivered	Return Receipt - Electronic	12-17-2018

Transaction Details

Recipient:
EOG RESOURCES INC
333 CLAY ST #4200
Houston , TX 77002

Sender:
Karlene Schuman
Modrall Sperling Roehl Harris & Sisk P.A.
500 Fourth Street, Suite 1000
Albuquerque, NM 87102

Transaction created by: Karlenes
User ID: 20660
Firm Mailing Book ID: 157390
Batch ID: 152491

Certified Mail Article Number:	93148699043000539847 57
Return Receipt Article Number:	
Service Options:	Return Receipt - Electronic
Mail Service:	Certified
Reference #:	87806-0003
Postage:	$1.63
Fees:	$4.95
Status:	To be Returned
Custom Field 1:	87806-0003
Custom Field 2:	Viper
Custom Field 3:	87806-0003

Transaction History

Event Description	Event Date	Details
Mailbook Generated	12-14-2018 12:29 PM	[WALZ] - Firm Mailing Book 157390 generated by Karlenes
USPS® Certified Mail	12-14-2018 05:10 PM	[USPS] - PRESHIPMENT INFO SENT USPS AWAITS ITEM at TEMECULA,CA
USPS® Certified Mail	12-14-2018 09:30 PM	[USPS] - PROCESSED THROUGH USPS FACILITY at ALBUQUERQUE,NM
USPS® Certified Mail	12-14-2018 09:39 PM	[USPS] - DEPART USPS FACILITY at ALBUQUERQUE,NM
USPS® Certified Mail	12-17-2018 10:41 AM	[USPS] - PROCESSED THROUGH USPS FACILITY at NORTH HOUSTON,TX
USPS® Certified Mail	12-17-2018 05:23 PM	[USPS] - PROCESSED THROUGH USPS FACILITY at NORTH HOUSTON,TX
USPS® Certified Mail	12-18-2018 11:31 AM	[USPS] - ARRIVAL AT UNIT at HOUSTON,TX
USPS® Certified Mail	12-18-2018 11:44 AM	[USPS] - AVAILABLE FOR PICKUP at HOUSTON,TX
USPS® Certified Mail	12-23-2018 03:46 AM	[USPS] - REMINDER TO SCHEDULE REDELIVERY at HOUSTON,TX
USPS® Certified Mail	01-02-2019 03:34 AM	[USPS] - PACKAGE RETURN NOTICE GENERATED at HOUSTON,TX

Transaction Details

Recipient:
MARATHON OIL PERMIAN LLC
5555 SAN FELIPE ST
Houston, TX 77056

Sender:
Karlene Schuman
Modrall Sperling Roehl Harris & Sisk P.A.
500 Fourth Street, Suite 1000
Albuquerque, NM 87102

Transaction created by: Karlenes
User ID: 20660
Firm Mailing Book ID: 157390
Batch ID: 152491

Certified Mail Article Number:	93148699043000539847 40
Return Receipt Article Number:	
Service Options:	Return Receipt - Electronic
Mail Service:	Certified
Reference #:	87806-0003
Postage:	$1.63
Fees:	$4.95
Status:	Lost
Custom Field 1:	87806-0003
Custom Field 2:	Viper
Custom Field 3:	87806-0003

Transaction History

Event Description	Event Date	Details
Mailbook Generated	12-14-2018 12:29 PM	[WALZ] - Firm Mailing Book 157390 generated by Karlenes
USPS® Certified Mail	12-14-2018 05:10 PM	[USPS] - PRESHIPMENT INFO SENT USPS AWAITS ITEM at TEMECULA,CA
USPS® Certified Mail	12-14-2018 09:30 PM	[USPS] - PROCESSED THROUGH USPS FACILITY at ALBUQUERQUE,NM
USPS® Certified Mail	12-14-2018 09:39 PM	[USPS] - DEPART USPS FACILITY at ALBUQUERQUE,NM
USPS® Certified Mail	12-17-2018 10:41 AM	[USPS] - PROCESSED THROUGH USPS FACILITY at NORTH HOUSTON,TX

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
December 26, 2018
and ending with the issue dated
December 26, 2018.

Publisher

Sworn and subscribed to before me this 26th day of December 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 LEGAL LEGAL

LEGAL NOTICE
DECEMBER 26, 2018

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CASE NO. 20150: Notice to all affected parties, as well as the heirs and devisees of NEW MEXICO STATE LAND OFFICE; BUREAU OF LAND MGMT; EOG RESOURCES INC; EOG RESOURCES INC; LETA T. DILLON FAMILY LIMITED PARTNERSHIP C/O JAMES PATRICK KNIGHT: 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 January 10, 2019, to consider this application. In this application, NGL seeks an order approving disposal into the Silurian-Devonian formation through the **Maverick SWD #1** well at a surface location 1246 feet from the South line and 1627 feet from the East line of Section 29, Township 24 South, Range 34 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well. NGL seeks authority to inject salt water into the Silurian-Devonian formation at a depth of 16,615' to 18,265'. NGL further seeks approval of the use of 7 inch tubing inside the surface and intermediate casings and 5 ½ inch tubing inside the liner and requests that the Division approve a maximum daily injection rate for the well of 50,000 bbls per day. Said area is located approximately 18 miles northwest of Jal, NM.

CASE NO. 20143: Notice to all affected parties, as well as the heirs and devisees of NEW MEXICO STATE LAND OFFICE; BUREAU OF LAND MGMT; EOG RESOURCES INC; MARATHON OIL PERMIAN LLC: NGL Water Solutions Permian, LLC, 1509 W. Wall Street, Suite 306, Midland, Texas 79701 is filing an amended 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 January 10, 2019, to consider this application. In this application, NGL seeks an order approving disposal into the Silurian-Devonian formation through the **Viper SWD #1** well at a surface location 962 feet from the North line and 1003 feet from the East line of Section 18, Township 25 South, Range 34 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well. NGL seeks authority to inject salt water into the Silurian-Devonian formation at a depth of 17,180'– 19,050'. NGL further seeks approval of the use of 7 inch tubing inside the surface and intermediate casings and 5 ½ inch tubing inside the liner and requests that the Division approve a maximum daily injection rate for the well of 50,000 bbls per day. Said area is located approximately 18 miles west of Jal, New Mexico.

CASE NO. 20150: Notice to all affected parties, as well as the heirs and devisees of

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)

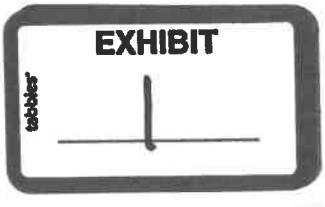
The Thirtyone Formation is part of a wedge of sedimentary rocks that thins to the north and the west where the wedge ends up truncated beneath the base of the overlying Woodford Shale. The Thirtyone Formation is only present in southeastern Lea County and consists of an upper coarsely crystalline dolostone 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.

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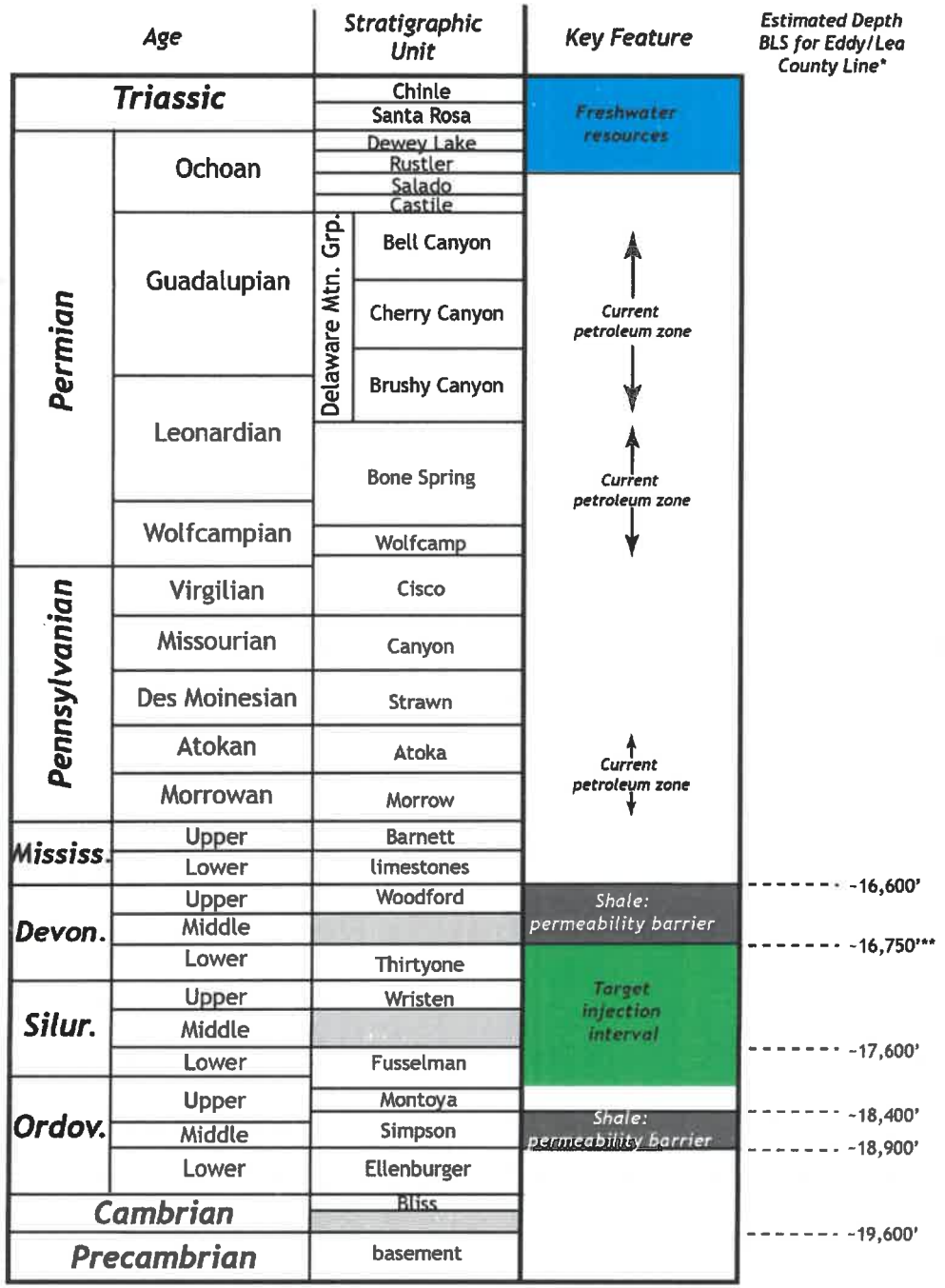
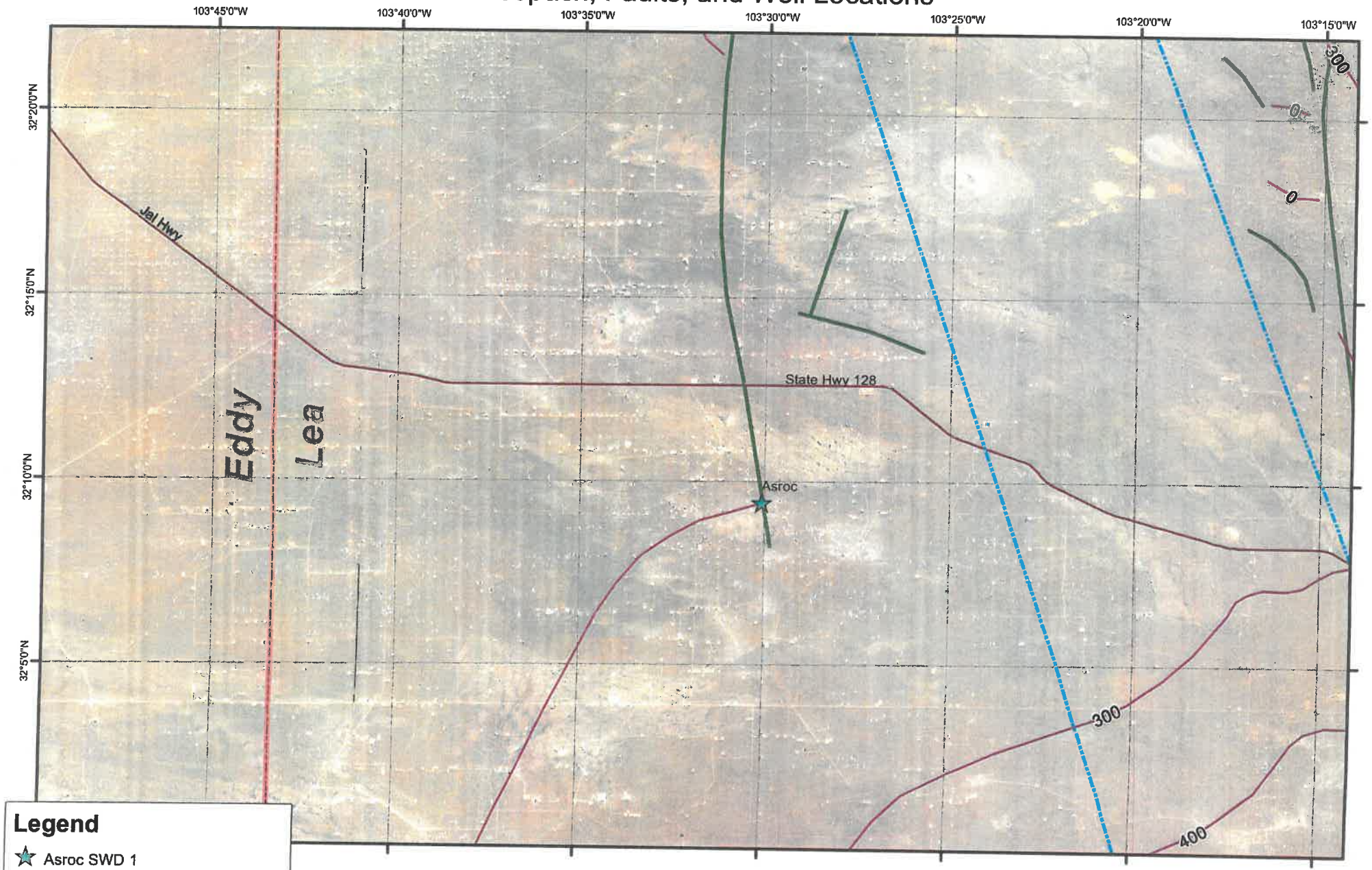
Texas Bureau of Economic Geology, 2009, Integrated Synthesis of the Permian Basin: Data and Models for Recovering Existing and Undiscovered Oil Resources from the Largest Oil-Bearing Basin in the U.S.: Department of Energy Final Technical Report, Award No: DE-FC26-04NT15509, 964 p.



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.

EXHIBIT 2

Isopach, Faults, and Well Locations



Legend

- Asroc SWD 1
- Late Devonian (Woodford) Isopach
- Precambrian Faults
- Basement Faults
- Roads
- Towns/Cities
- County Boundaries, NM

4 2 0 4 8 12 16 Miles

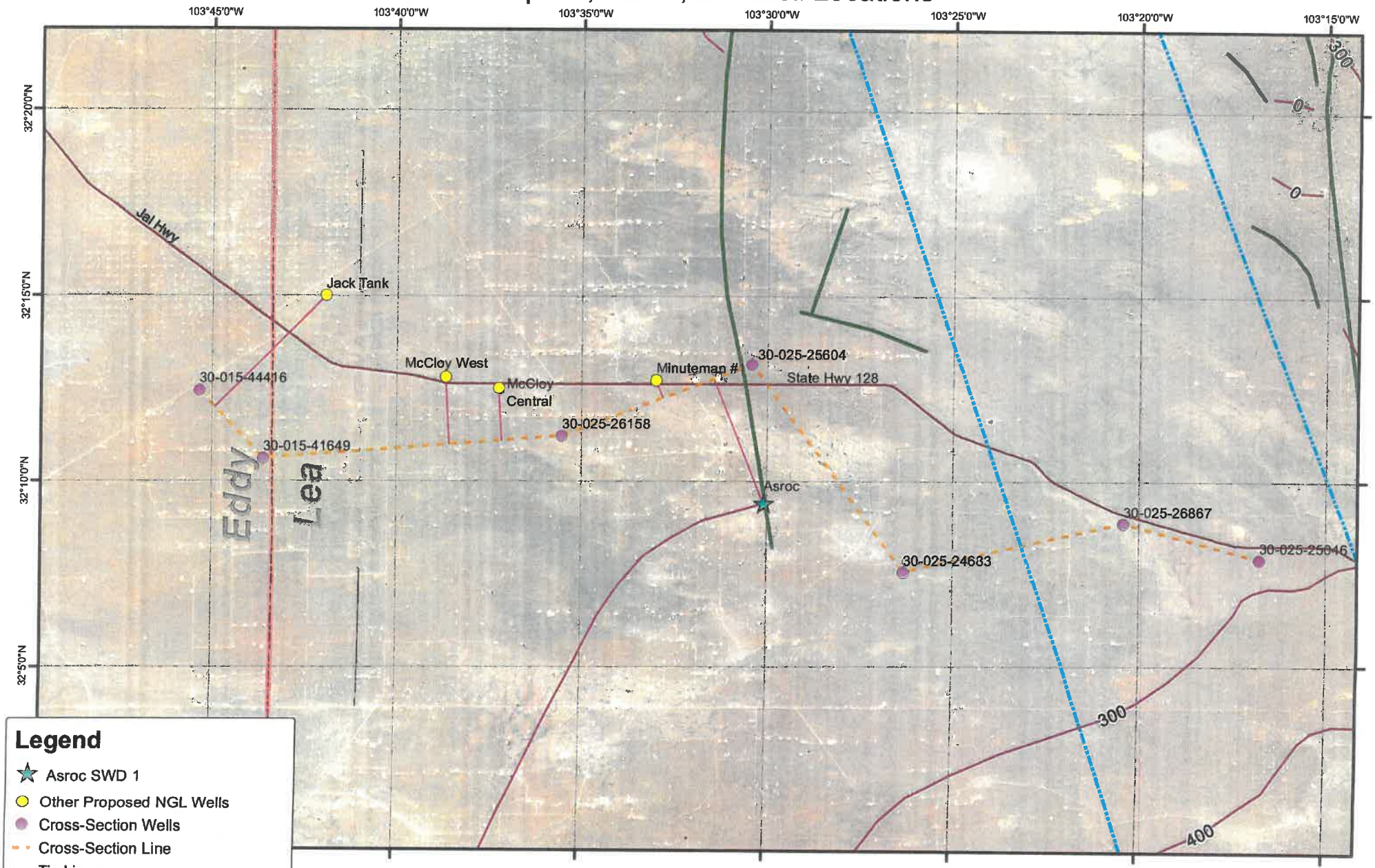
Coordinate System: GCS North American 1983
Datum: North American 1983
Units: Degree
Basement faults (if shown) were digitized from Tectonic Map of Texas (Ewing, 1990)
Precambrian faults were digitized from Frenzel et al (1998) Figure 6.

N

EXHIBIT 3

tabbies

Isopach, Faults, and Well Locations



Legend

- Asroc SWD 1
- Other Proposed NGL Wells
- Cross-Section Wells
- Cross-Section Line
- Tie Lines
- Late Devonian (Woodford) Isopach
- Precambrian Faults
- Basement Faults
- Roads
- Towns/Cities
- County Boundaries, NM

4 2 0 4 8 12 16 Miles

N

Coordinate System: GCS North American 1983
Datum: North American 1983
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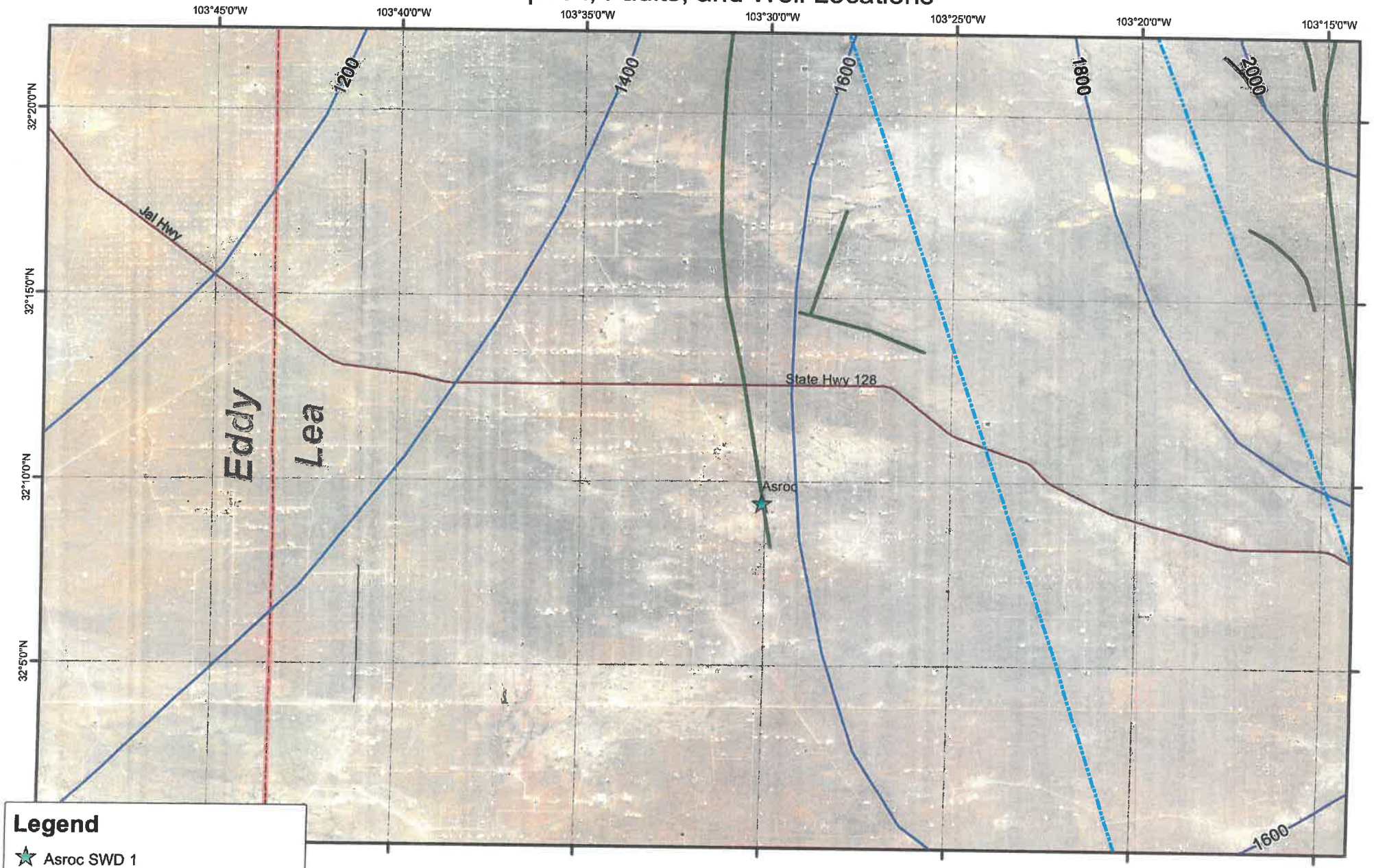
Isopach, Faults, and Well Locations



Legend

- Asroc SWD 1
- Sil/Dev (Wristen/Fusselman) Isopach
- Precambrian Faults
- Basement Faults
- Roads
- Towns/Cities
- County Boundaries, NM

4 2 0 4 8 12 16 Miles

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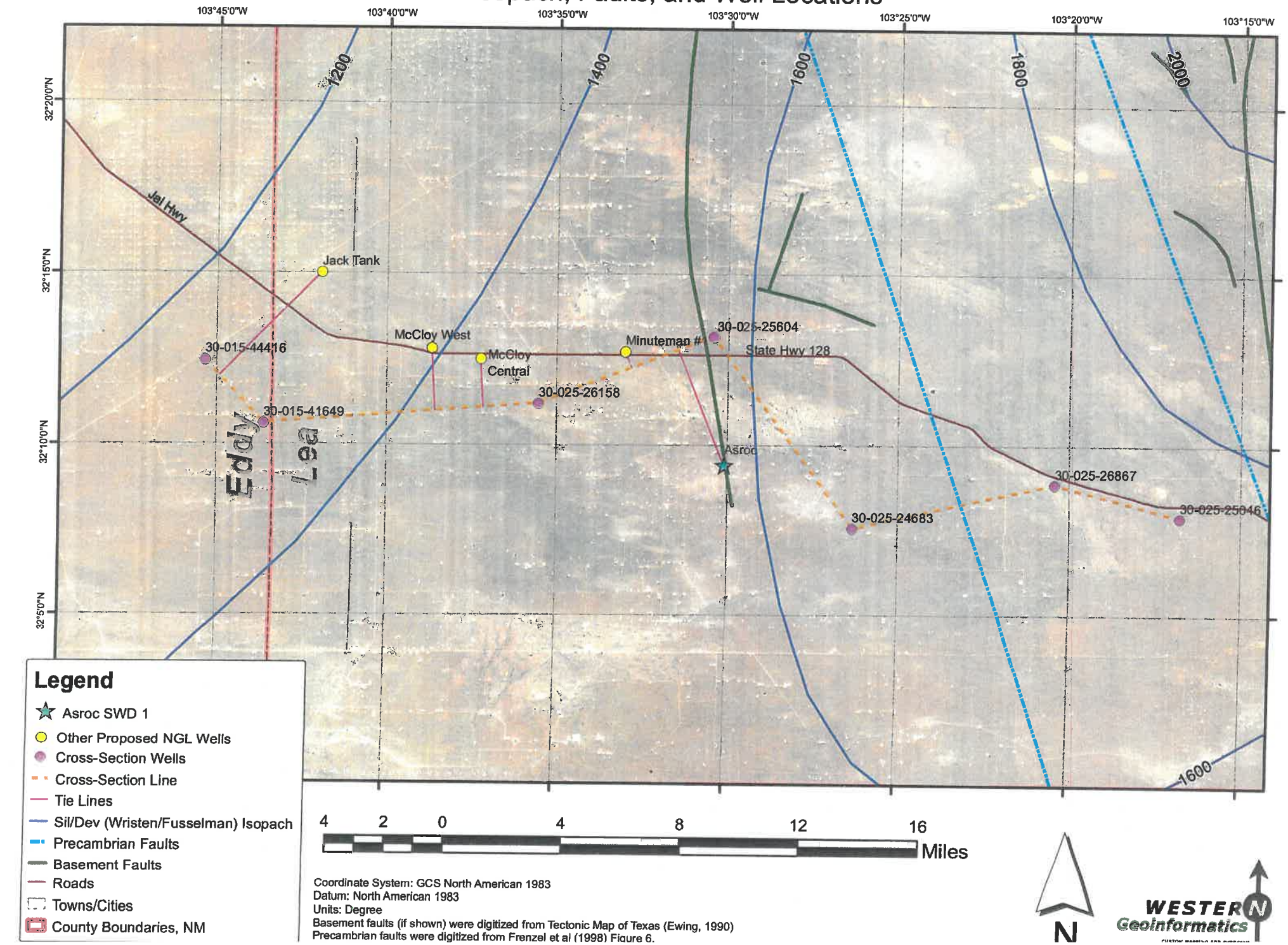

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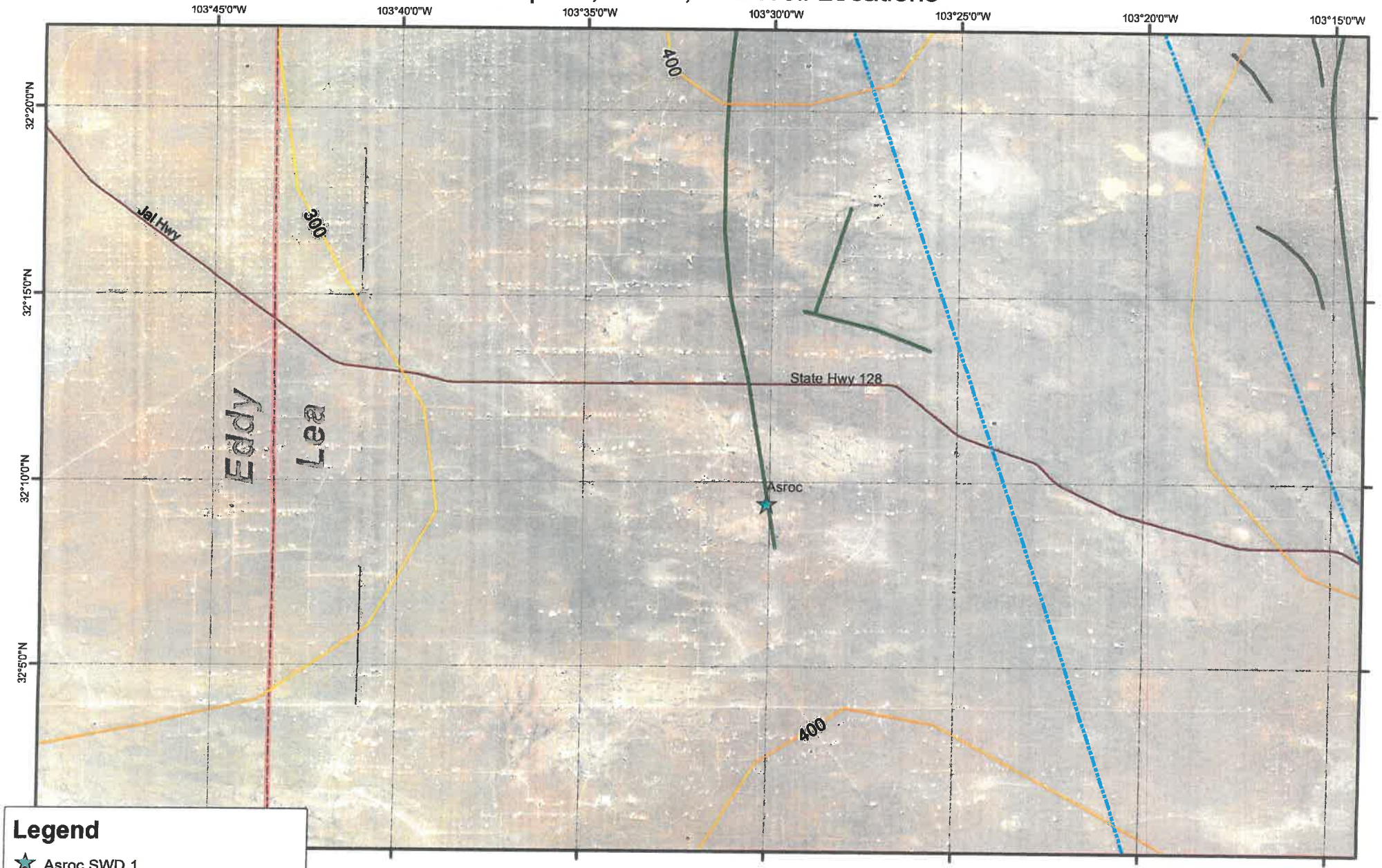
Isopach, Faults, and Well Locations



Legend

- Asroc SWD 1
- Upper Ordovician (Montoya) Isopach
- Precambrian Faults
- Basement Faults
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- Towns/Cities
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4 2 0 4 8 12 16 Miles

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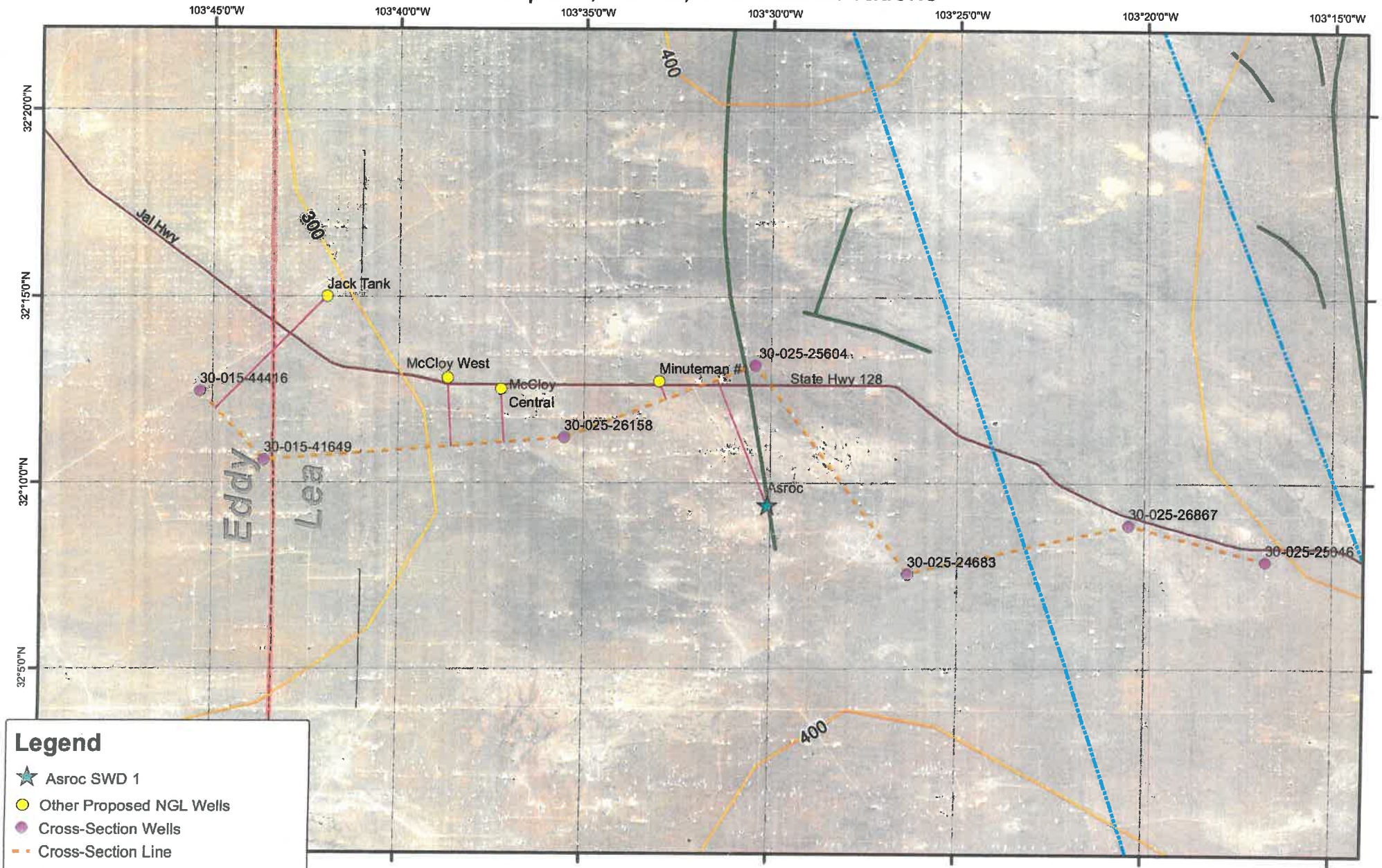

Legend

- Asroc SWD 1
- Other Proposed NGL Wells
- Cross-Section Wells
- Cross-Section Line
- Tie Lines
- Upper Ordovician (Montoya) Isopach
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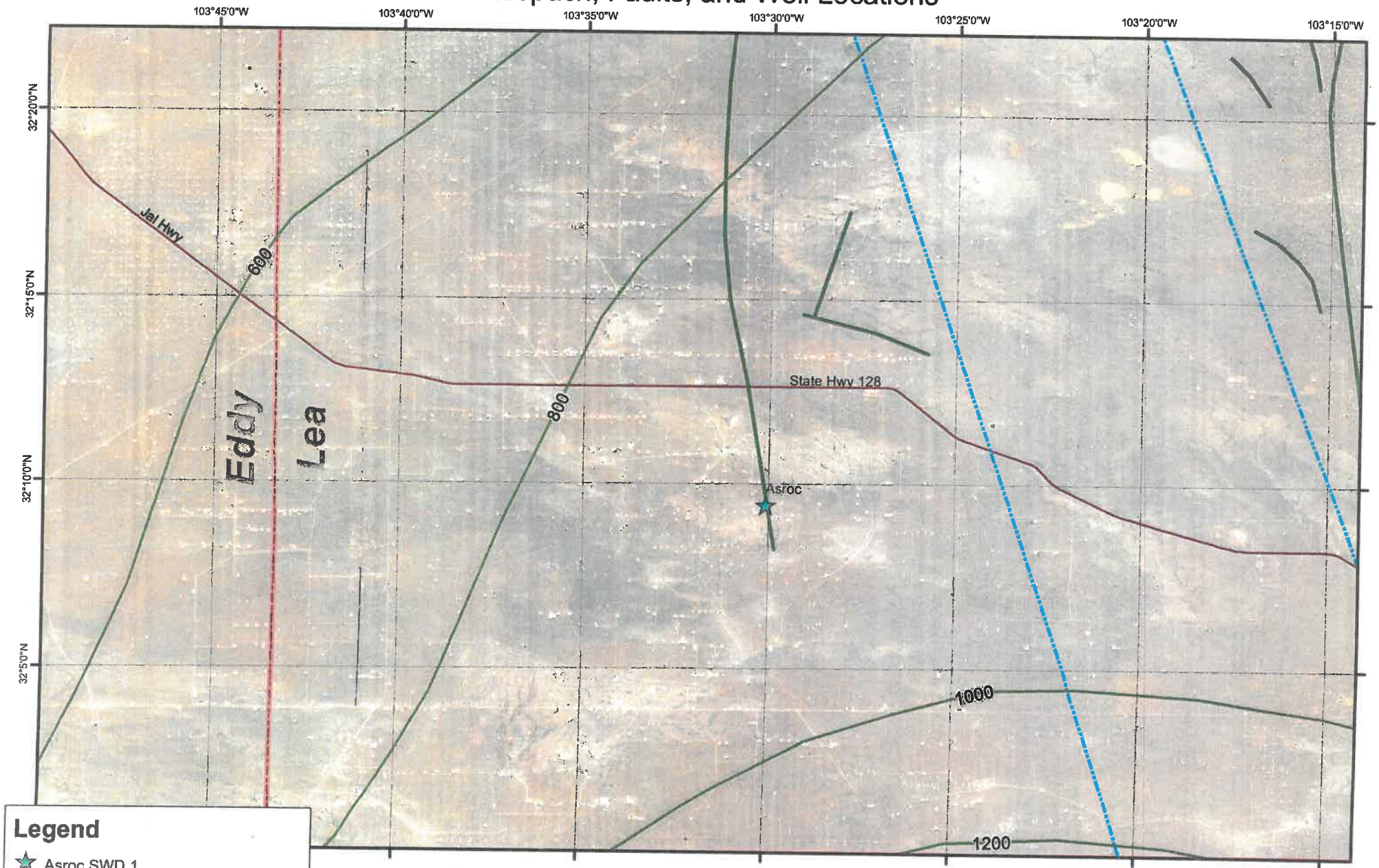
Isopach, Faults, and Well Locations



Legend

- Asroc SWD 1
- Middle Ordovician (Simpson) Isopach
- Precambrian Faults
- Basement Faults
- Roads
- Towns/Cities
- County Boundaries, NM

4 2 0 4 8 12 16 Miles

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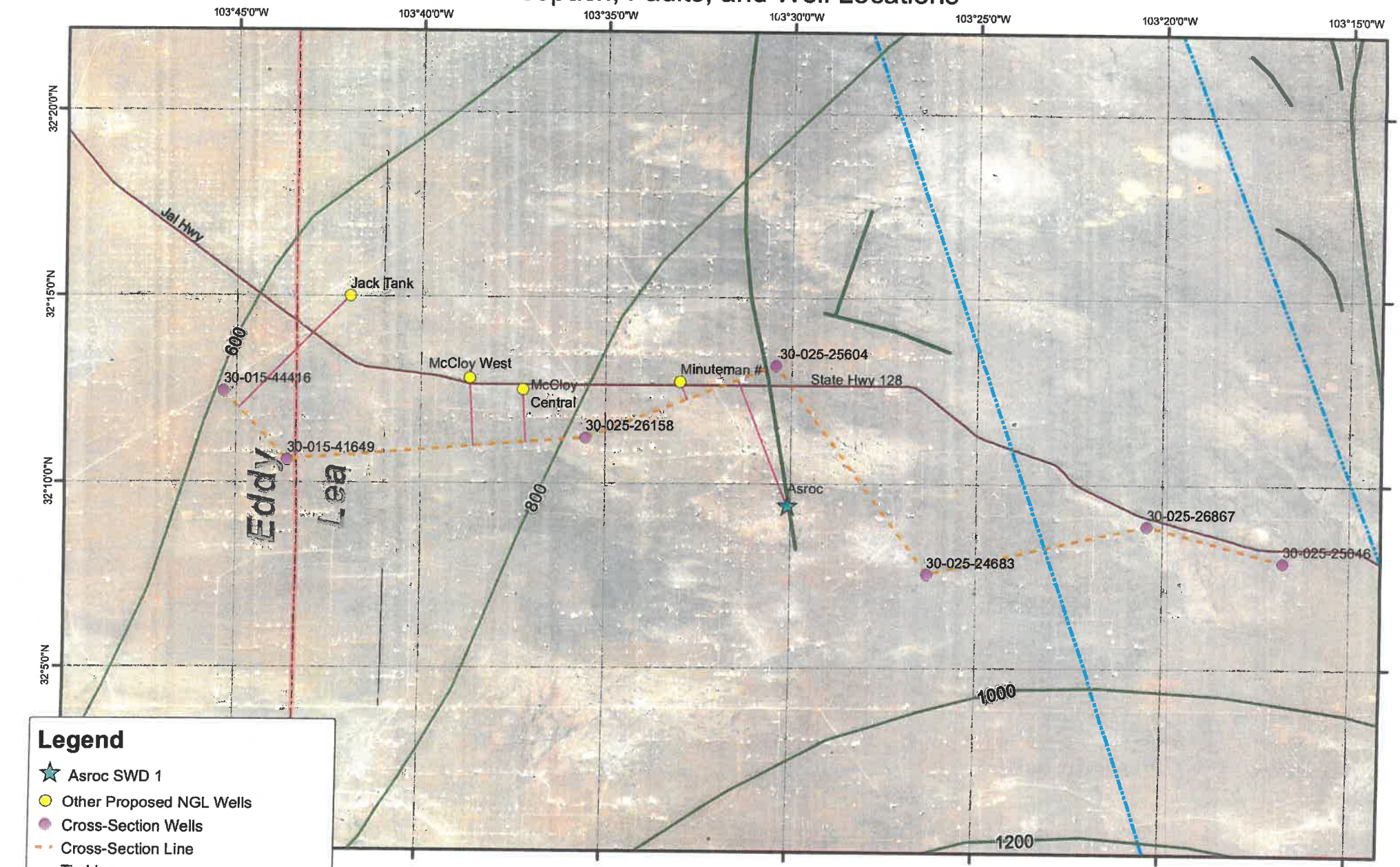
Isopach, Faults, and Well Locations



Legend

- Asroc SWD 1
- Other Proposed NGL Wells
- Cross-Section Wells
- Cross-Section Line
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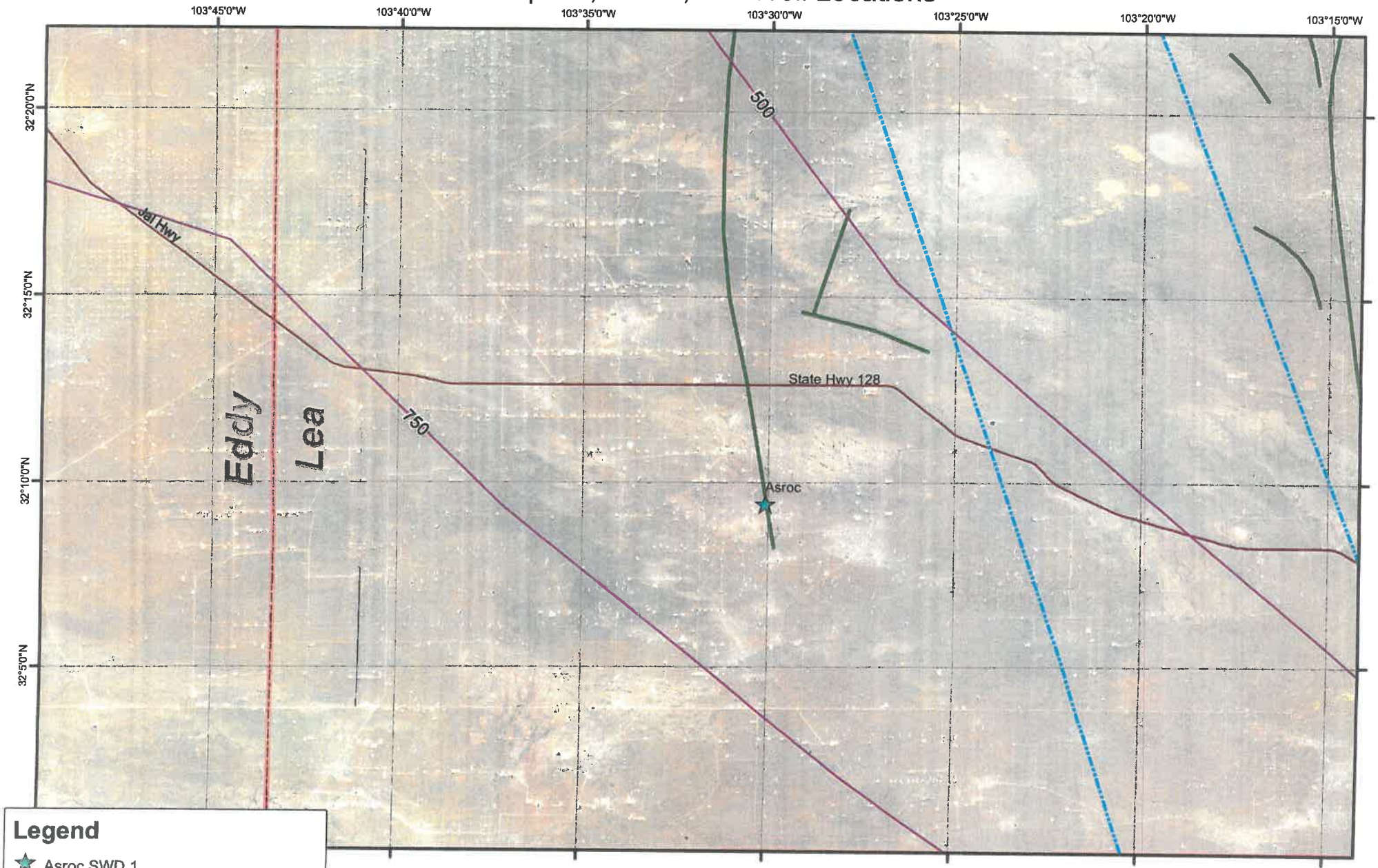
Isopach, Faults, and Well Locations



Legend

- Asroc SWD 1
- Lower Ordovician (Ellenburger) Isopach
- Precambrian Faults
- Basement Faults
- Roads
- Towns/Cities
- County Boundaries, NM

4 2 0 4 8 12 16 Miles

N

Coordinate System: GCS North American 1983
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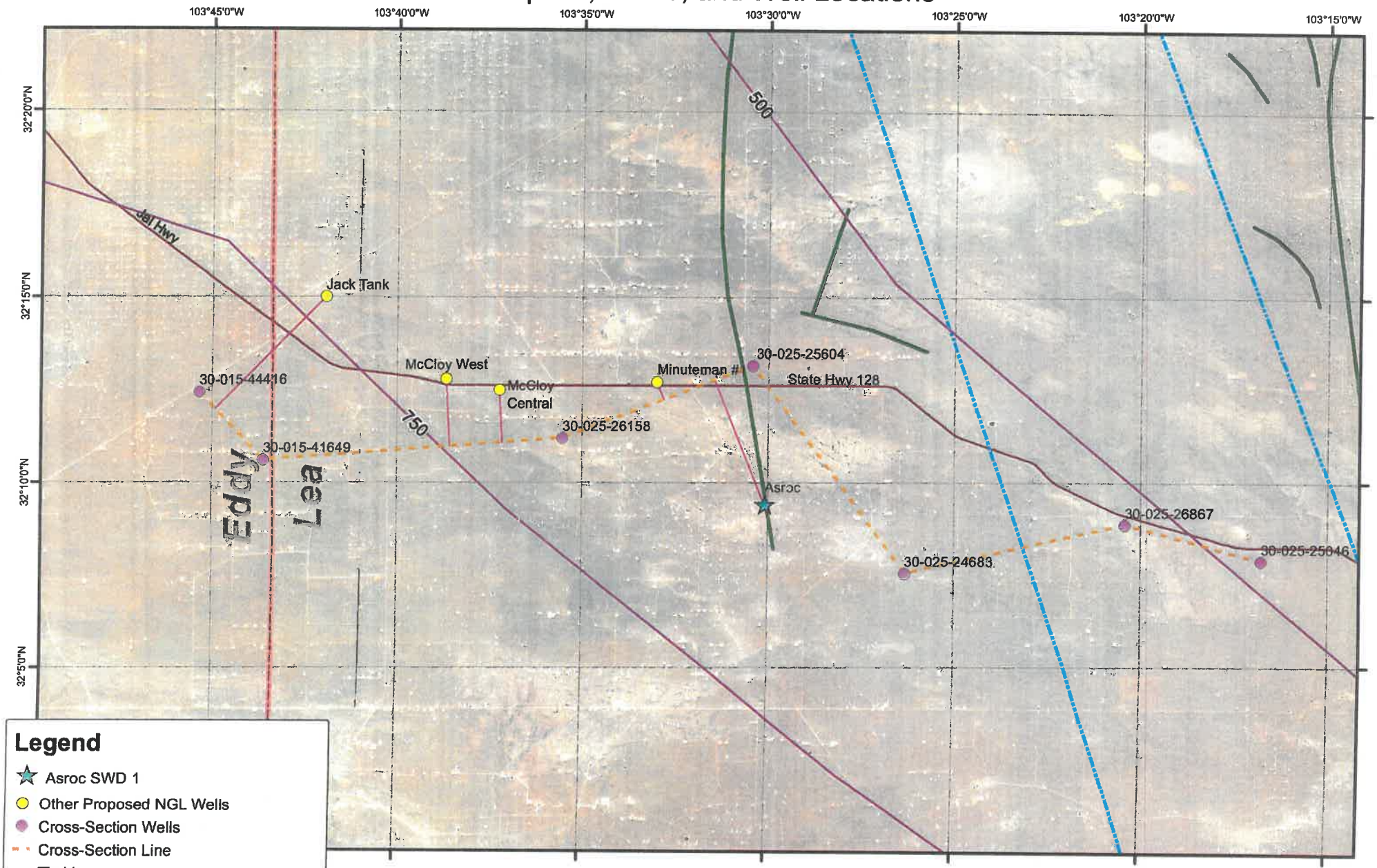
Isopach, Faults, and Well Locations



Legend

- Asroc SWD 1
- Other Proposed NGL Wells
- Cross-Section Wells
- Cross-Section Line
- Tie Lines
- Lower Ordovician (Ellenburger) Isopach
- Precambrian Faults
- Basement Faults
- Roads
- Towns/Cities
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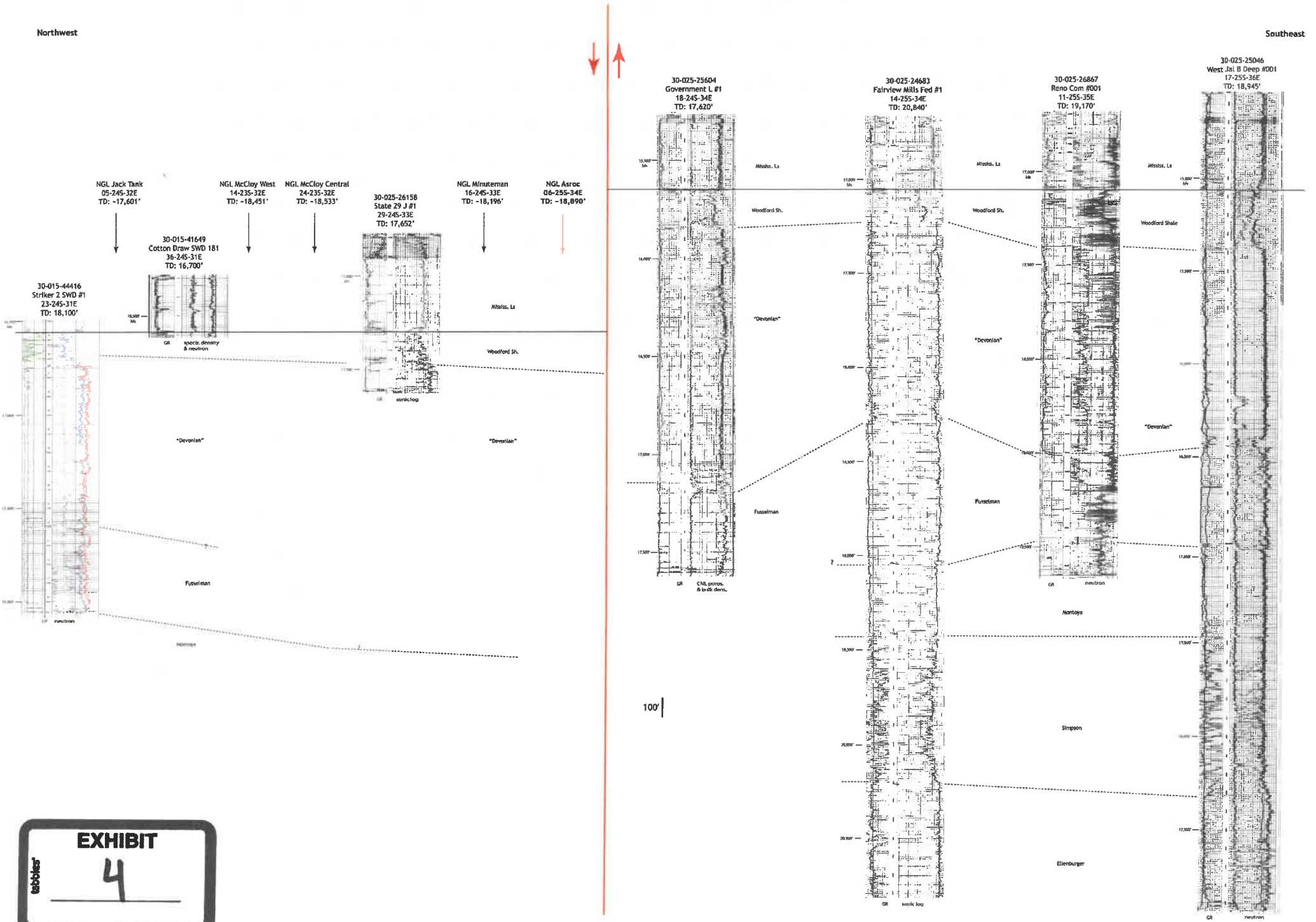
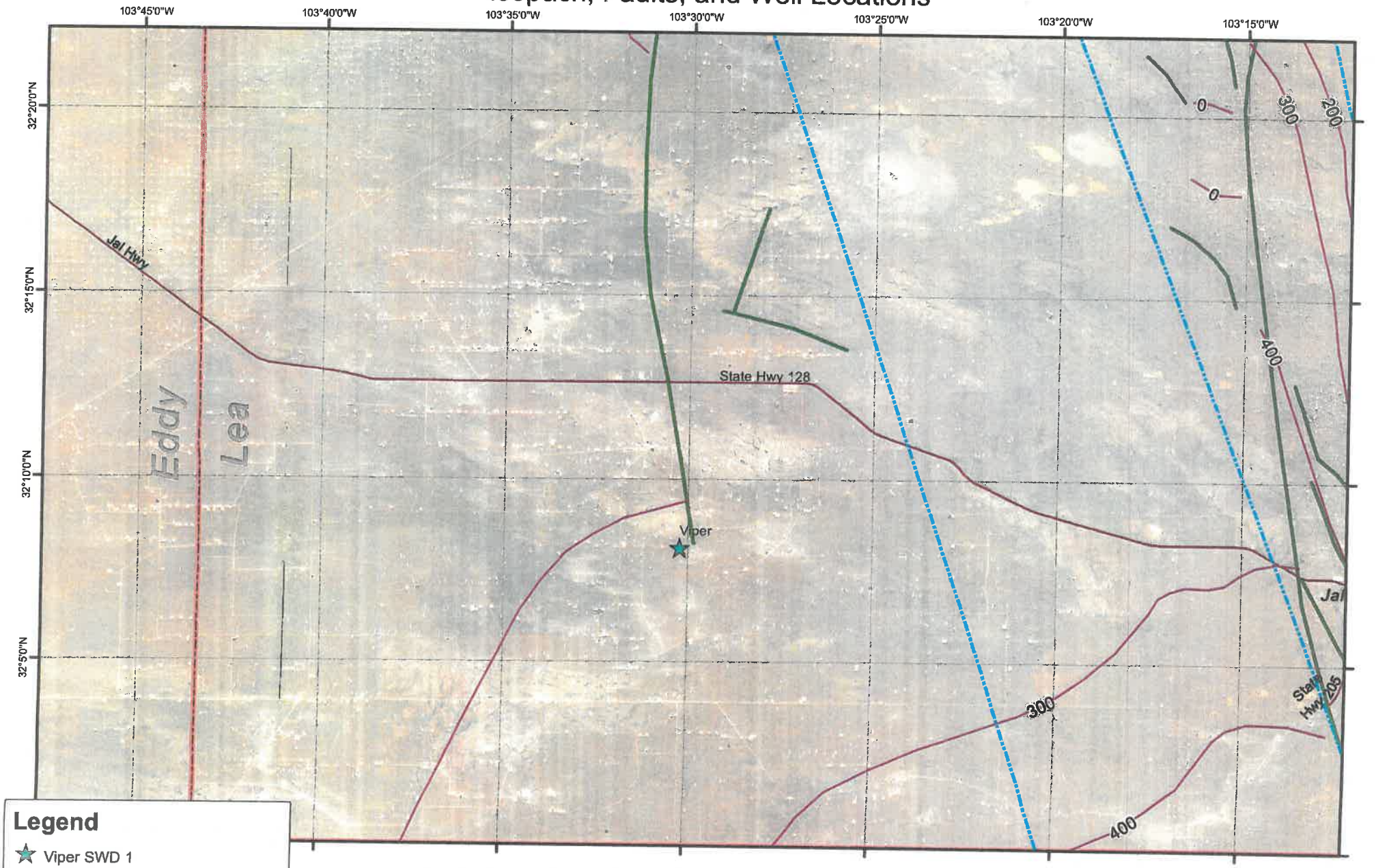

Northwest
Southeast
NGL Jack Tank
05-24S-32E
TD: ~17,601'
NGL McCloy West
14-23S-32E
TD: ~18,451'
NGL McCloy Central
24-23S-32E
TD: ~18,533'
30-025-26158
State 29 J #1
29-24S-33E
TD: 17,652'
NGL Minuteman
16-24S-33E
TD: ~18,196'
NGL Asroc
06-25S-34E
TD: ~18,890'
30-015-41649
Cotton Draw SWD 181
36-24S-31E
TD: 16,700'
30-015-44416
Striker 2 SWD #1
23-24S-31E
TD: 18,100'
Missis. Ls
Woodford Sh.
"Devonian"
Fusselman
Montoya
30-025-25604
Government L #1
18-24S-34E
TD: 17,620'
30-025-24683
Fairview Mills Fed #1
14-25S-34E
TD: 20,840'
30-025-26867
Reno Com #001
11-25S-35E
TD: 19,170'
30-025-25046
West Jal B Deep #001
17-25S-36E
TD: 18,945'
Woodford Shale
Simpson
Ellenburger
100'

EXHIBIT
4

Isopach, Faults, and Well Locations



Legend

- Viper SWD 1
- Late Devonian (Woodford) Isopach
- Precambrian Faults
- Basement Faults
- Roads
- Towns/Cities
- County Boundaries, NM

4 2 0 4 8 12 16 Miles

N

Coordinate System: GCS North American 1983
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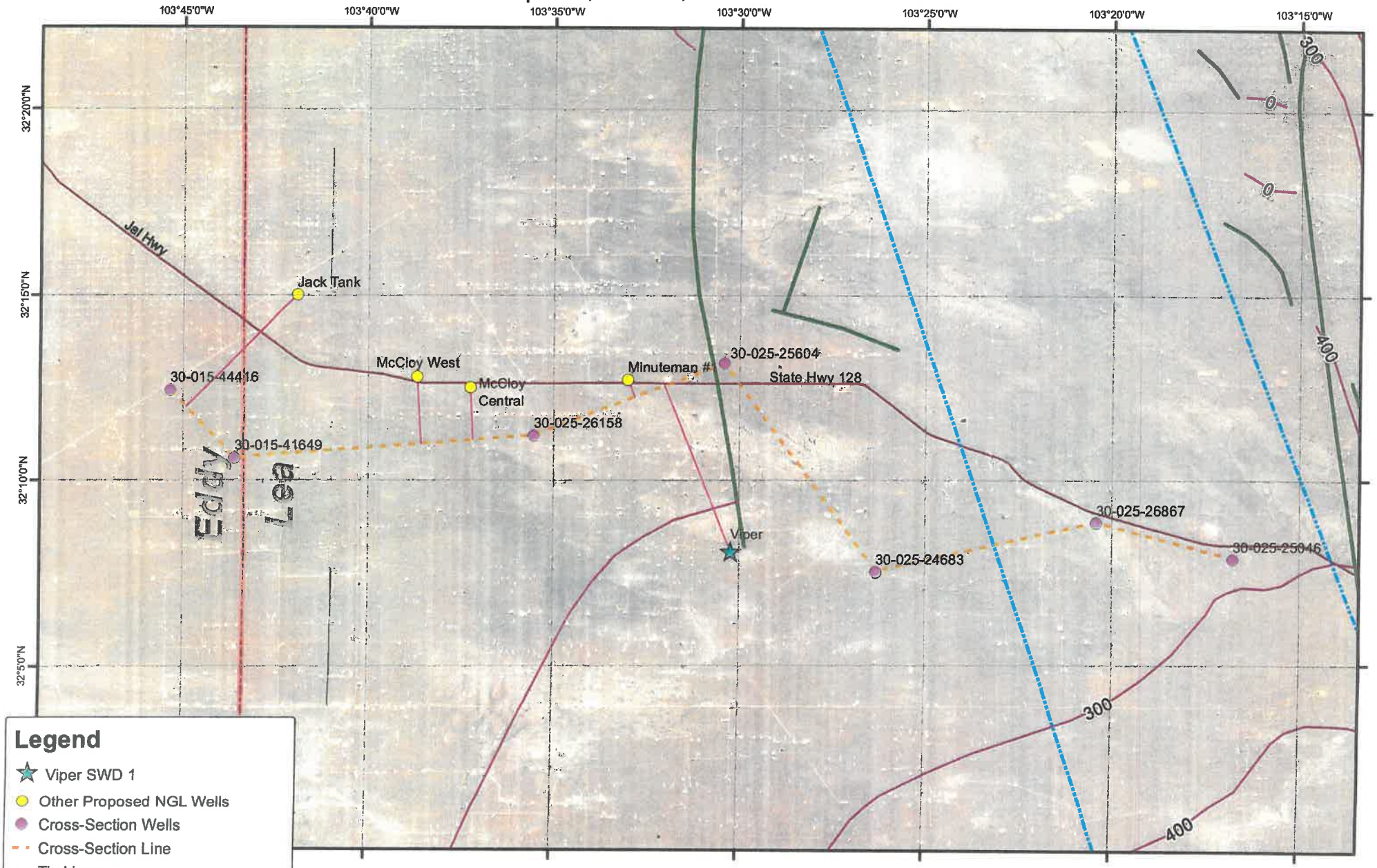
EXHIBIT 5

Isopach, Faults, and Well Locations



Legend

- Viper SWD 1
- Other Proposed NGL Wells
- Cross-Section Wells
- Cross-Section Line
- Tie Lines
- Late Devonian (Woodford) Isopach
- Precambrian Faults
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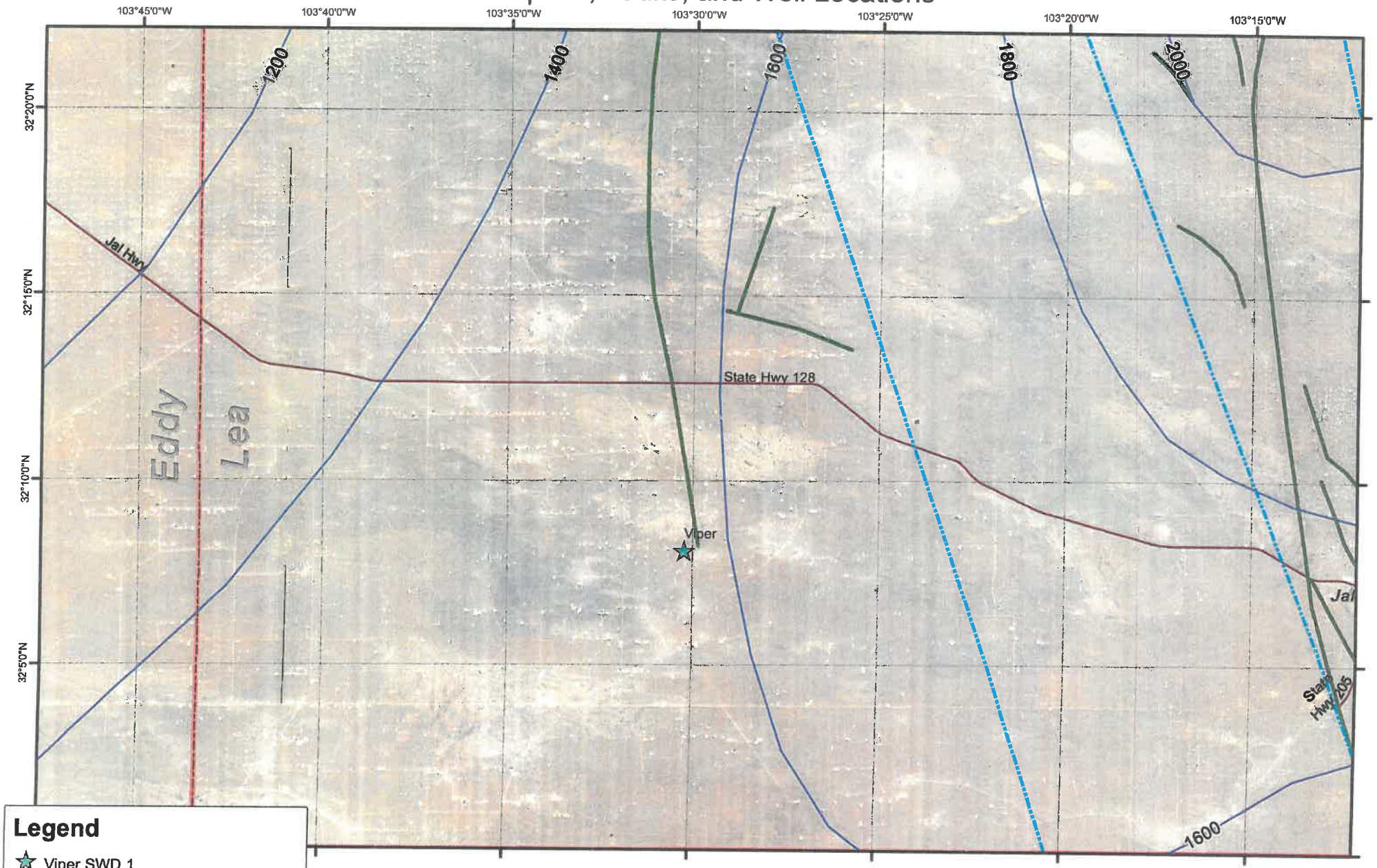
Isopach, Faults, and Well Locations



Legend

- Viper SWD 1
- Sil/Dev (Wristen/Fusselman) Isopach
- Precambrian Faults
- Basement Faults
- Roads
- Towns/Cities
- County Boundaries, NM

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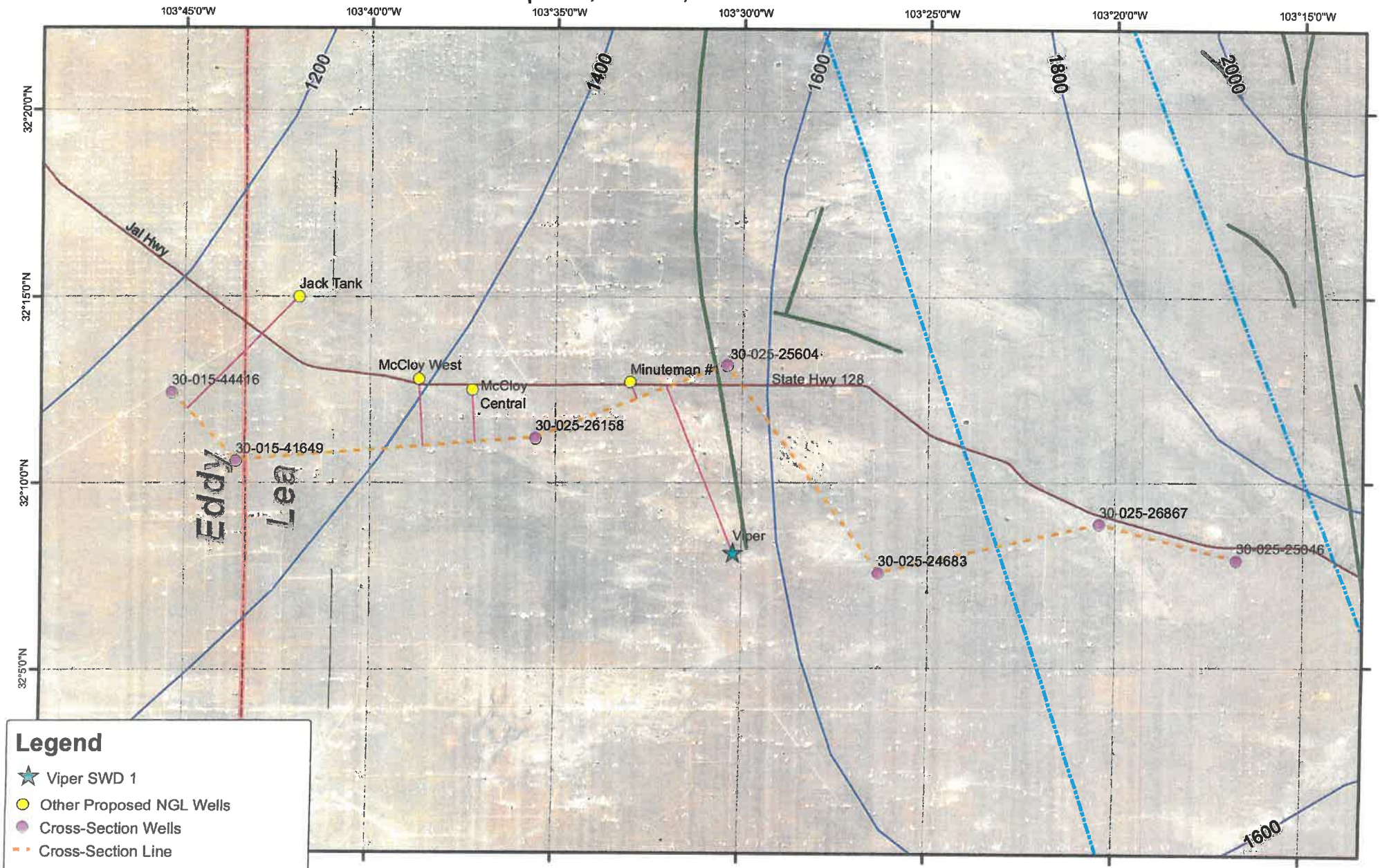
Isopach, Faults, and Well Locations



Legend

- Viper SWD 1
- Other Proposed NGL Wells
- Cross-Section Wells
- Cross-Section Line
- Tie Lines
- Sil/Dev (Wristen/Fusselman) Isopach
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- Basement Faults
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N

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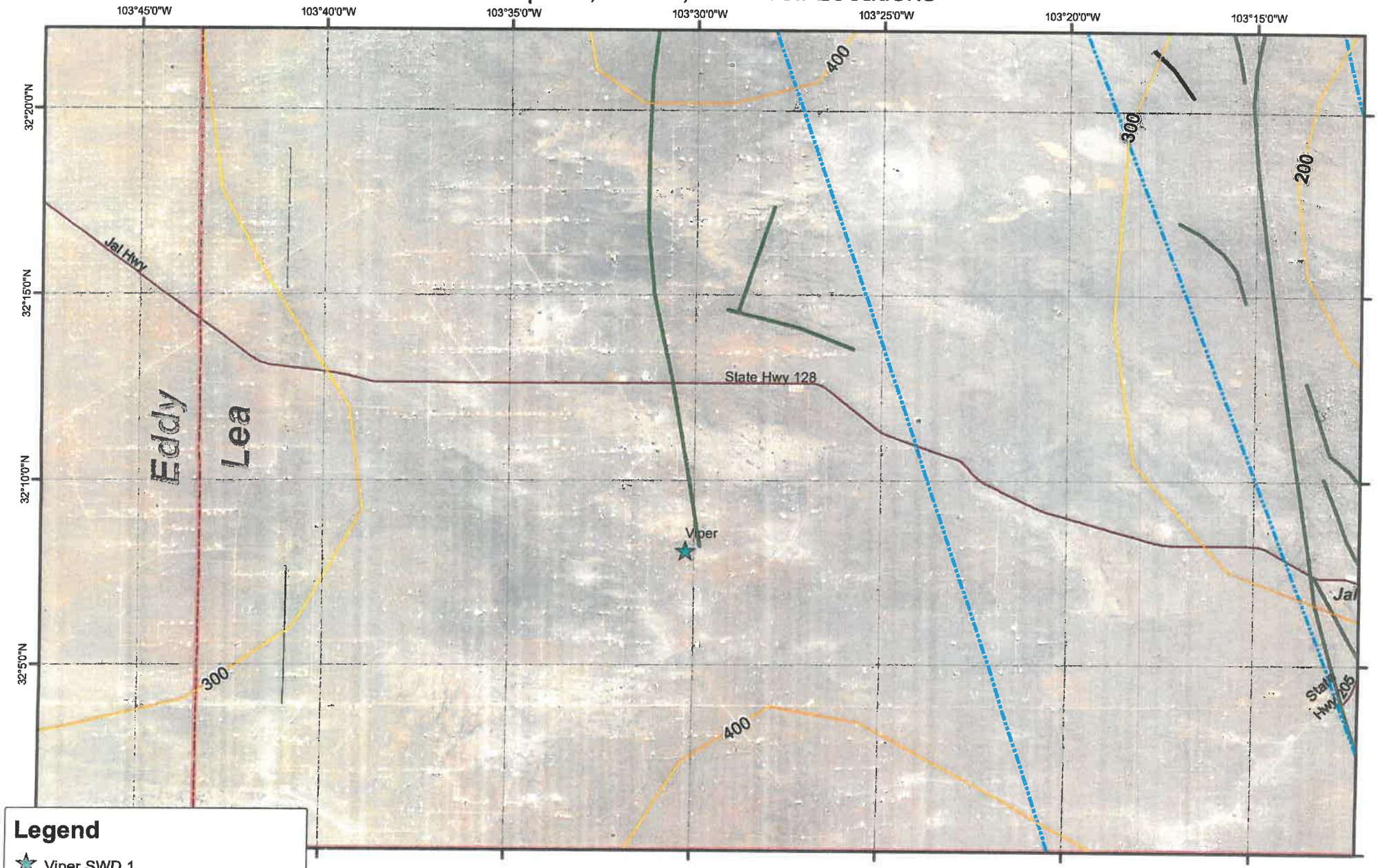
Isopach, Faults, and Well Locations



Legend

- Viper SWD 1
- Upper Ordovician (Montoya) Isopach
- Precambrian Faults
- Basement Faults
- Roads
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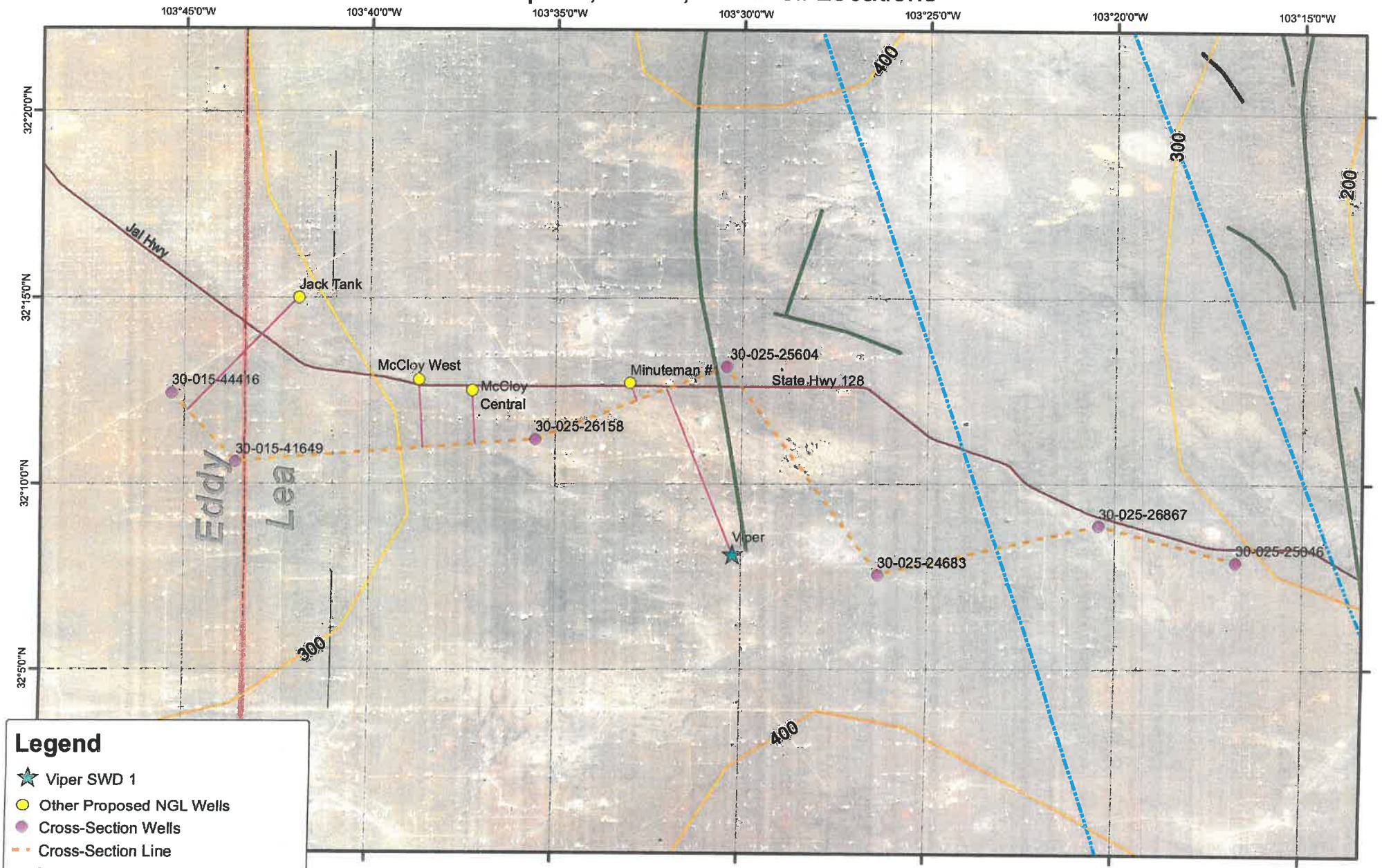
Isopach, Faults, and Well Locations



Legend

- Viper SWD 1
- Other Proposed NGL Wells
- Cross-Section Wells
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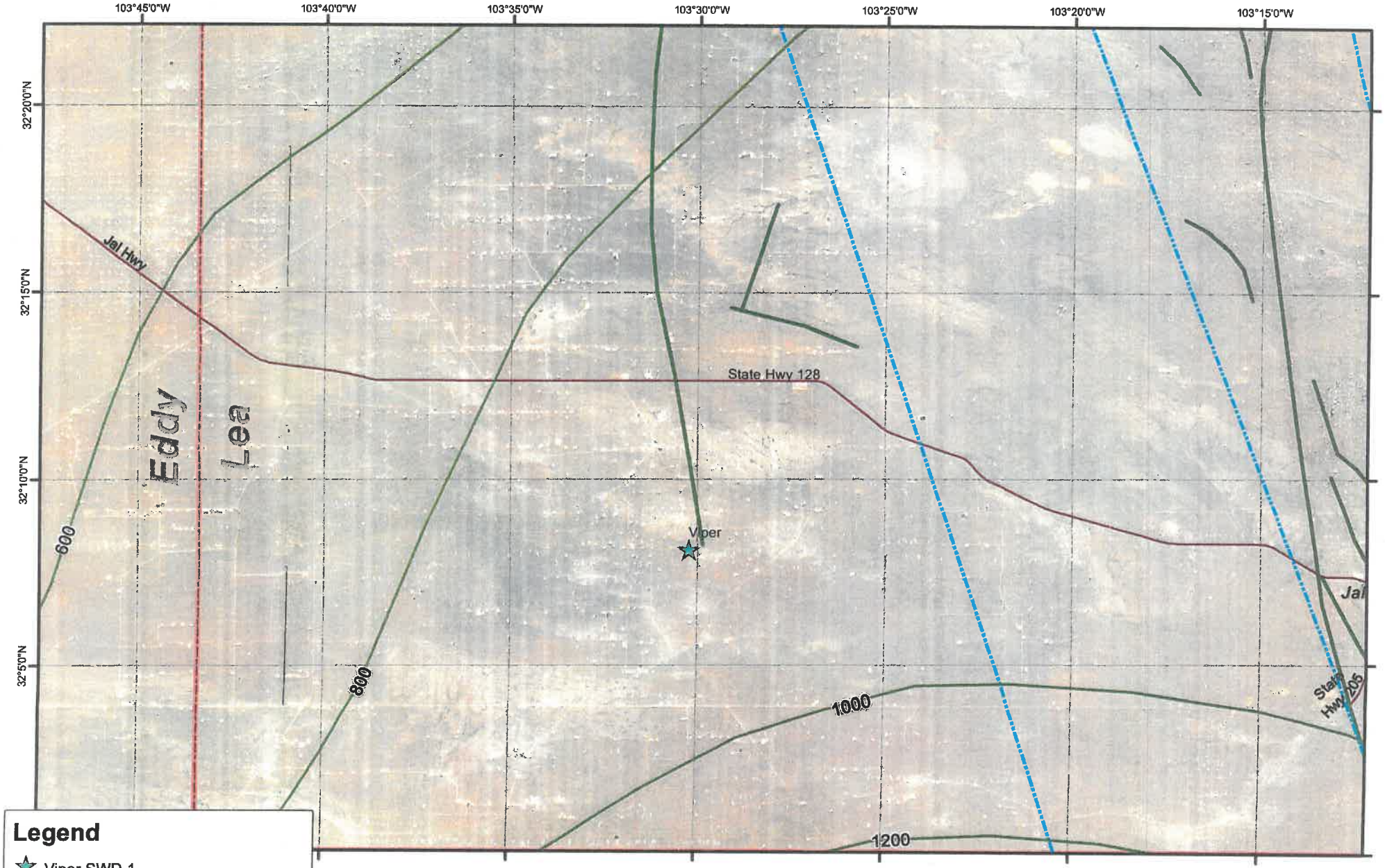
Isopach, Faults, and Well Locations



Legend

- Viper SWD 1
- Middle Ordovician (Simpson) Isopach
- Precambrian Faults
- Basement Faults
- Roads
- Towns/Cities
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4 2 0 4 8 12 16 Miles

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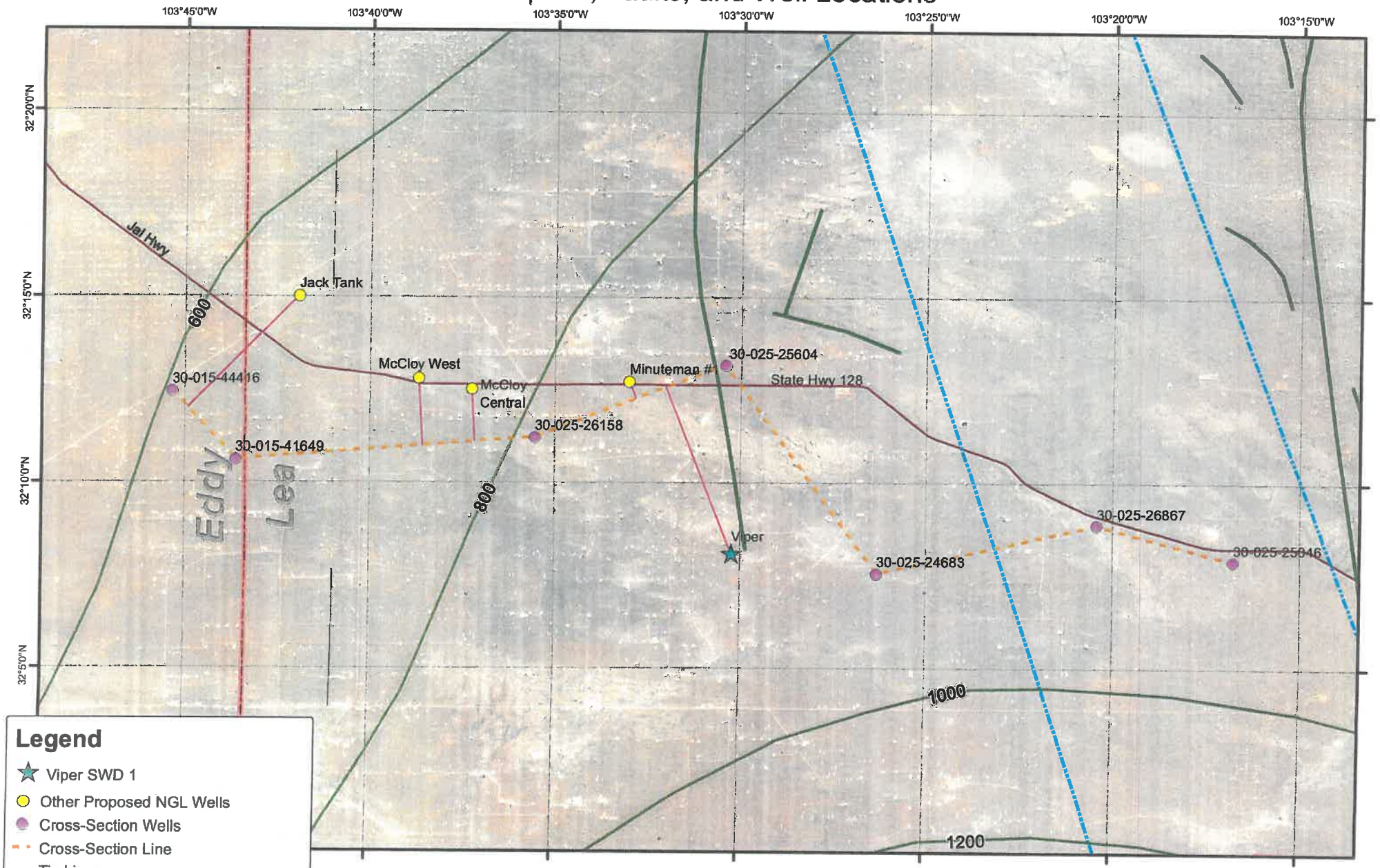

Legend

- Viper SWD 1
- Other Proposed NGL Wells
- Cross-Section Wells
- Cross-Section Line
- Tie Lines
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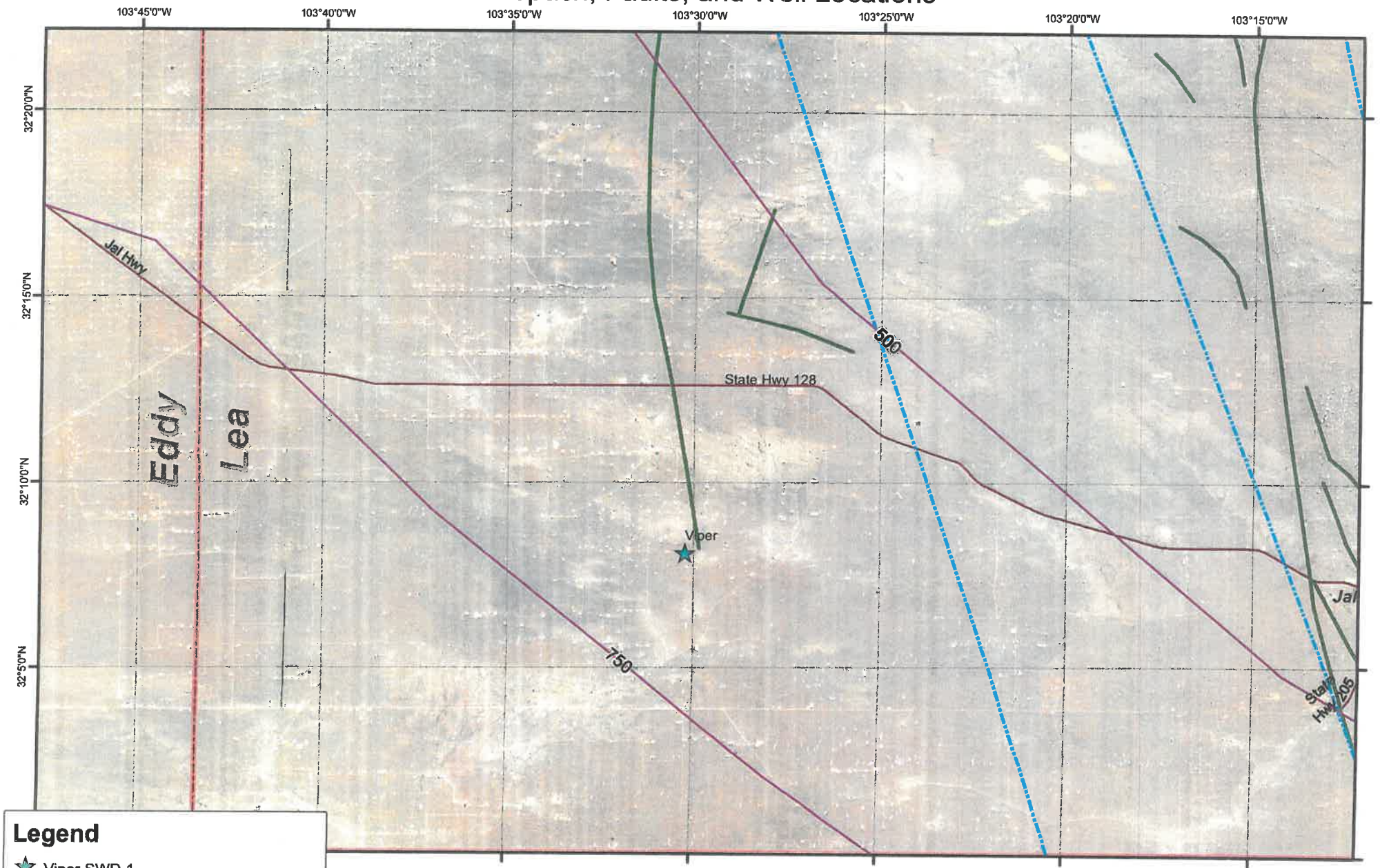

Legend

- Viper SWD 1
- Lower Ordovician (Ellenburger) Isopach
- Precambrian Faults
- Basement Faults
- Roads
- Towns/Cities
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4 2 0 4 8 12 16 Miles

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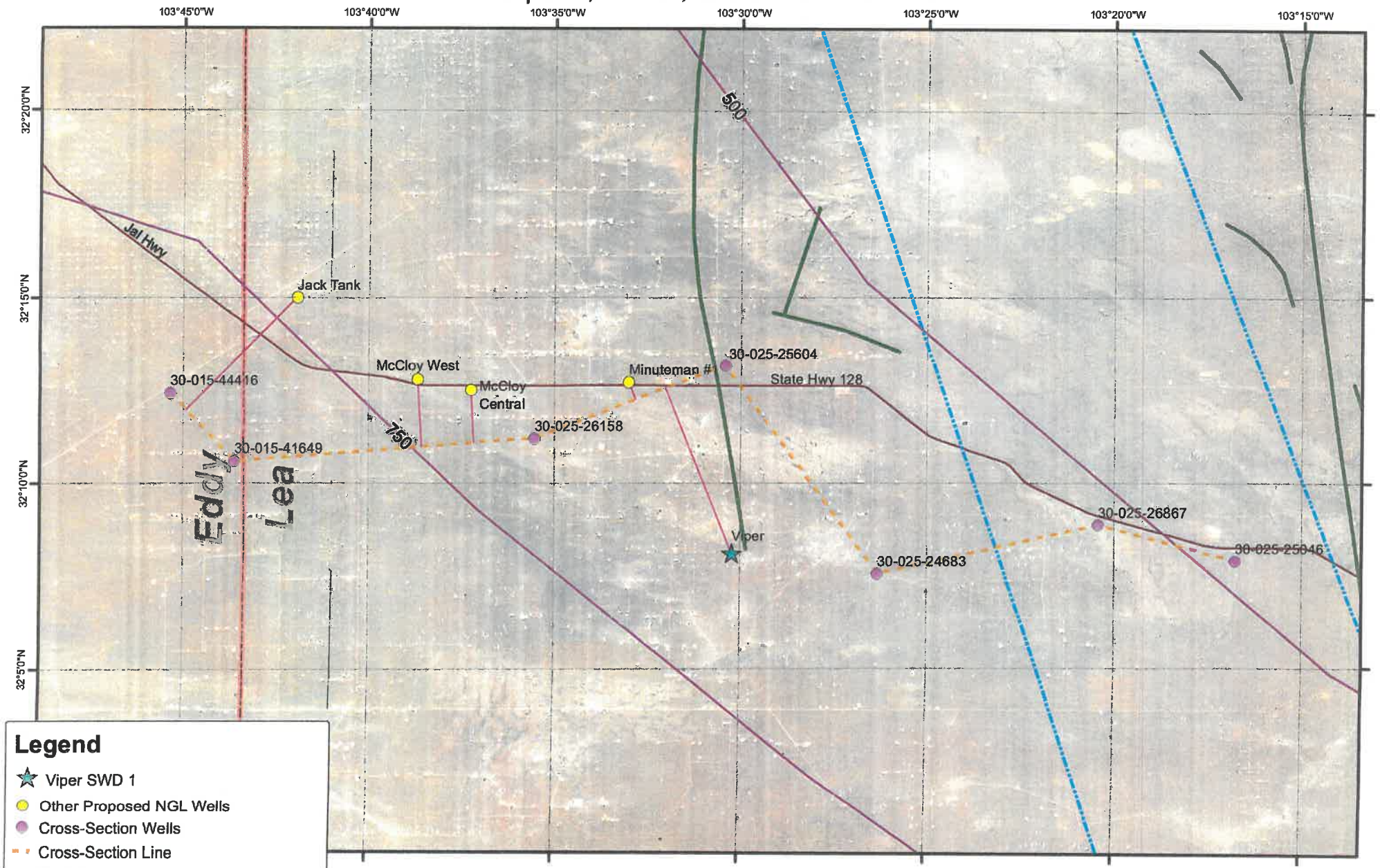

Legend

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- Cross-Section Line
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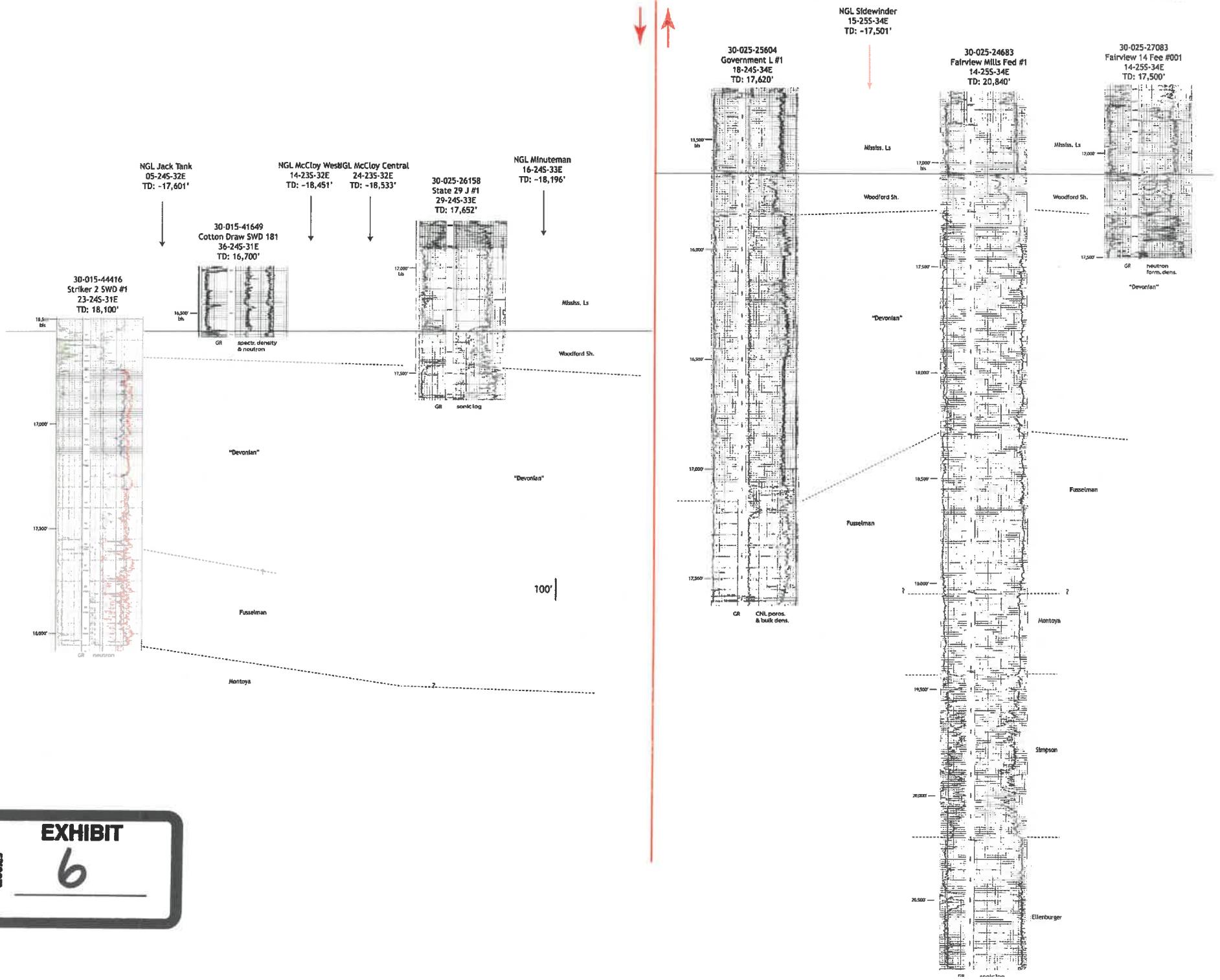
Northwest

Southeast



EXHIBIT
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Seismic Catalog Analysis Within 50 km of Asroc and Viper SWD Wells

Prepared for NGL-Permian
by
GeoEnergy Monitoring Systems
February 17, 2019

Analysis is based on NMT seismic catalogs, unpublished catalogs and USGS catalogs for the time period 2010-2017 selecting events within 50 km of the Asroc and Viper SWD wells. Additionally, seismic monitoring through January 31, 2019 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 are used along with the 3 Striker SWD seismic stations for regional monitoring.

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, there have been six event detections and having preliminary locations using available regional data (**Figure 3**). Due to the small magnitudes, the signal-to-noise levels are low so the locations have large uncertainty and there is little constraint on depth.

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

C

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	0.00
10/13/18	22:07:22.259	32.0998	-103.4560	6	5.64	1.60	0.12
11/18/18	09:04:52.707	32.2526	-103.7853	5	3.77	1.75	0.20
12/09/18	18:51:00.805	32.3634	-103.8510	1	2.09	1.44	0.08
01/03/19	09:15:48.809	32.2761	-103.6732	6	5.64	1.63	0.00
01/03/19	23:05:33.122	32.2599	-103.7654	4	5.51	1.60	0.25
01/04/19	09:45:38.943	32.2346	-103.7798	4	4.34	1.98	0.38
01/09/19	10:18:54.389	32.2255	-103.7166	5	2.80	1.47	0.41
01/27/19	07:33:47.127	32.2219	-103.7220	5	3.53	1.72	0.31

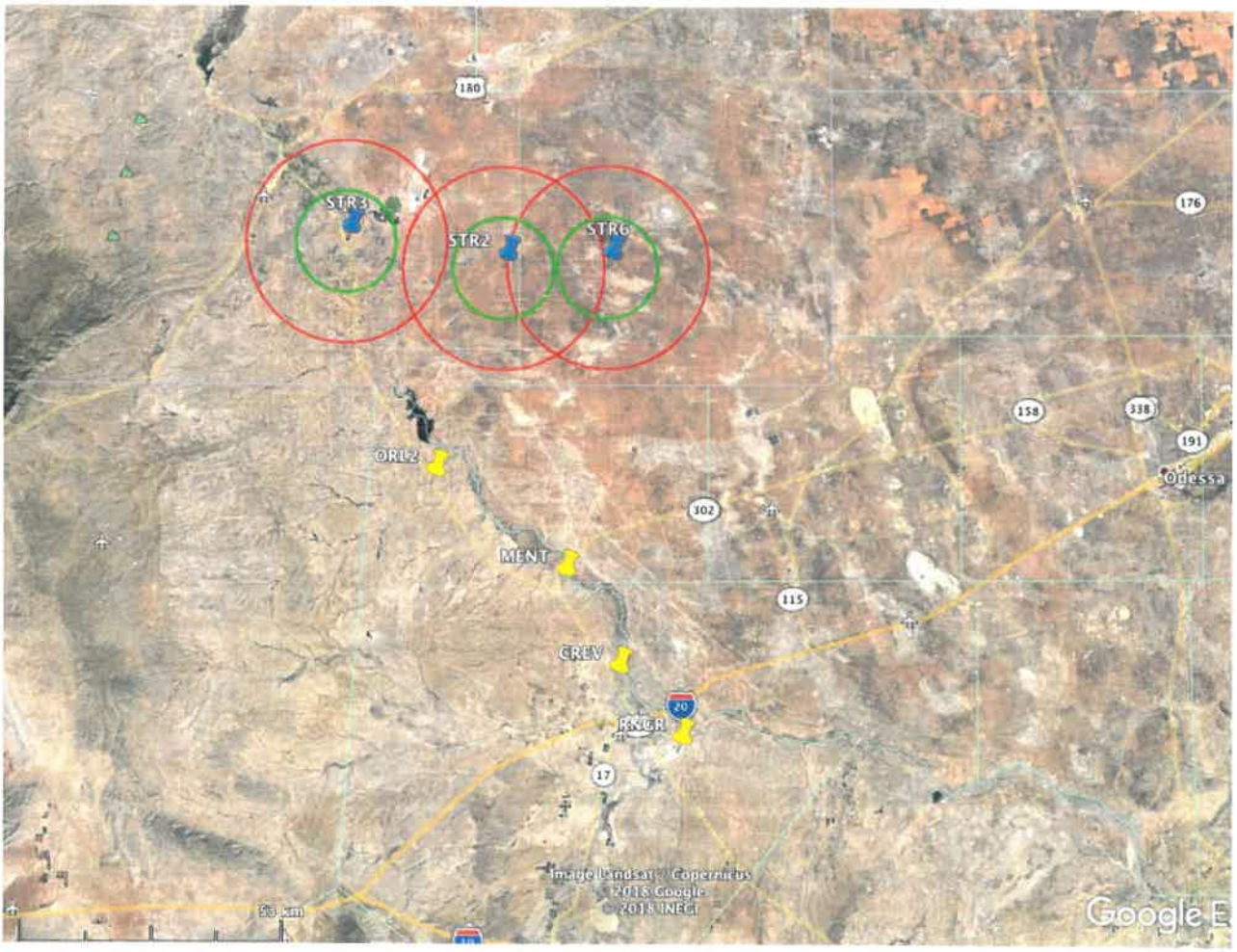


Figure 1. Striker SWD wells seismic station locations (blue push pins) and existing NGL-Permian seismic stations (yellow pushpins). Green and red circles around stations show approximate detection levels for ML 1.0 and 1.5, respectively.

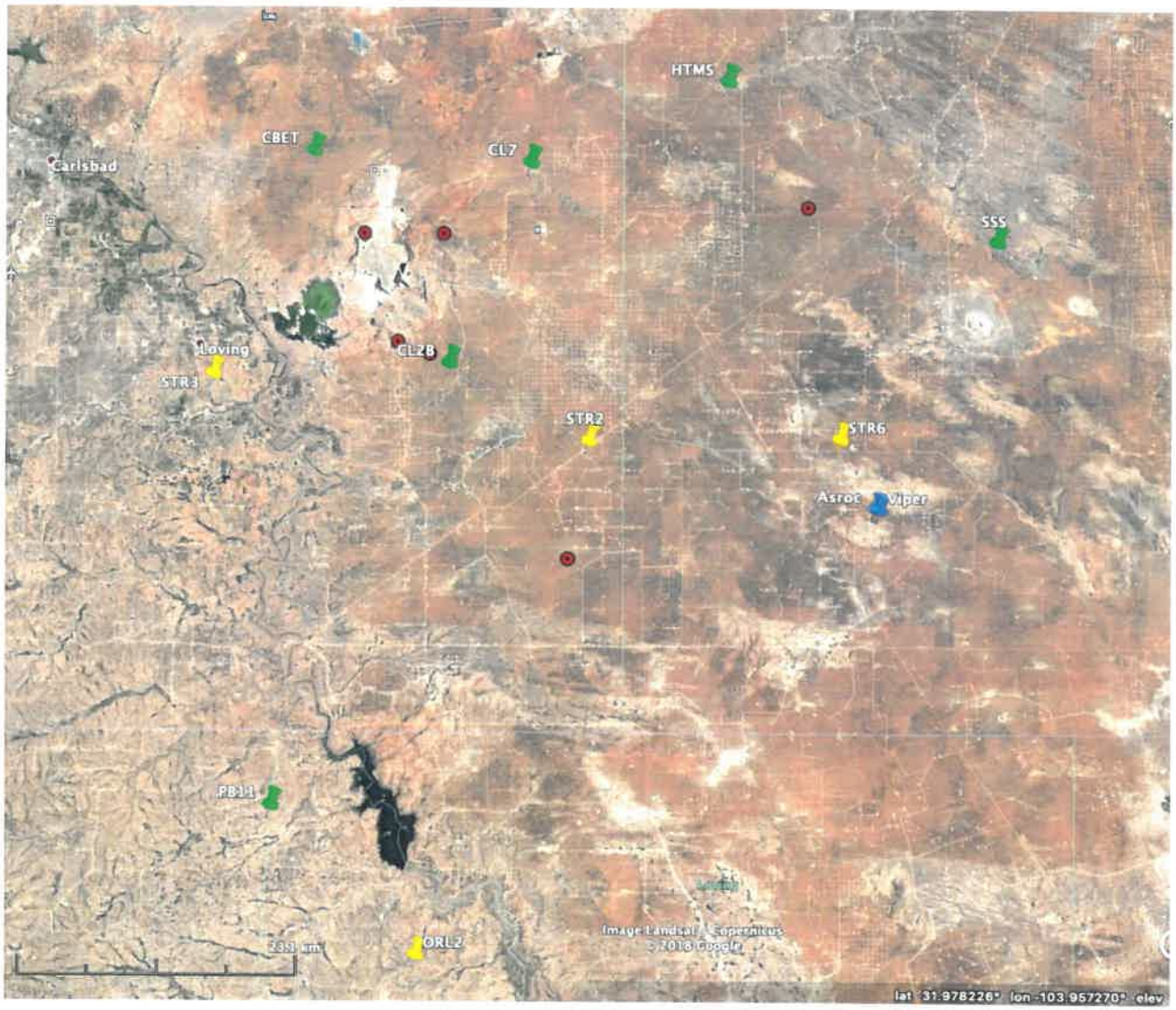


Figure 2. Striker SWD wells seismic station locations (yellow push pins) and existing NGL-Permian seismic stations (yellow pushpins). Other regional seismic stations run by TexNet and New Mexico Tech are shown as green pushpins. Historic seismicity listed in Table 1 shown as red circles. Asroc and Viper SWD wells shown as blue pushpins.

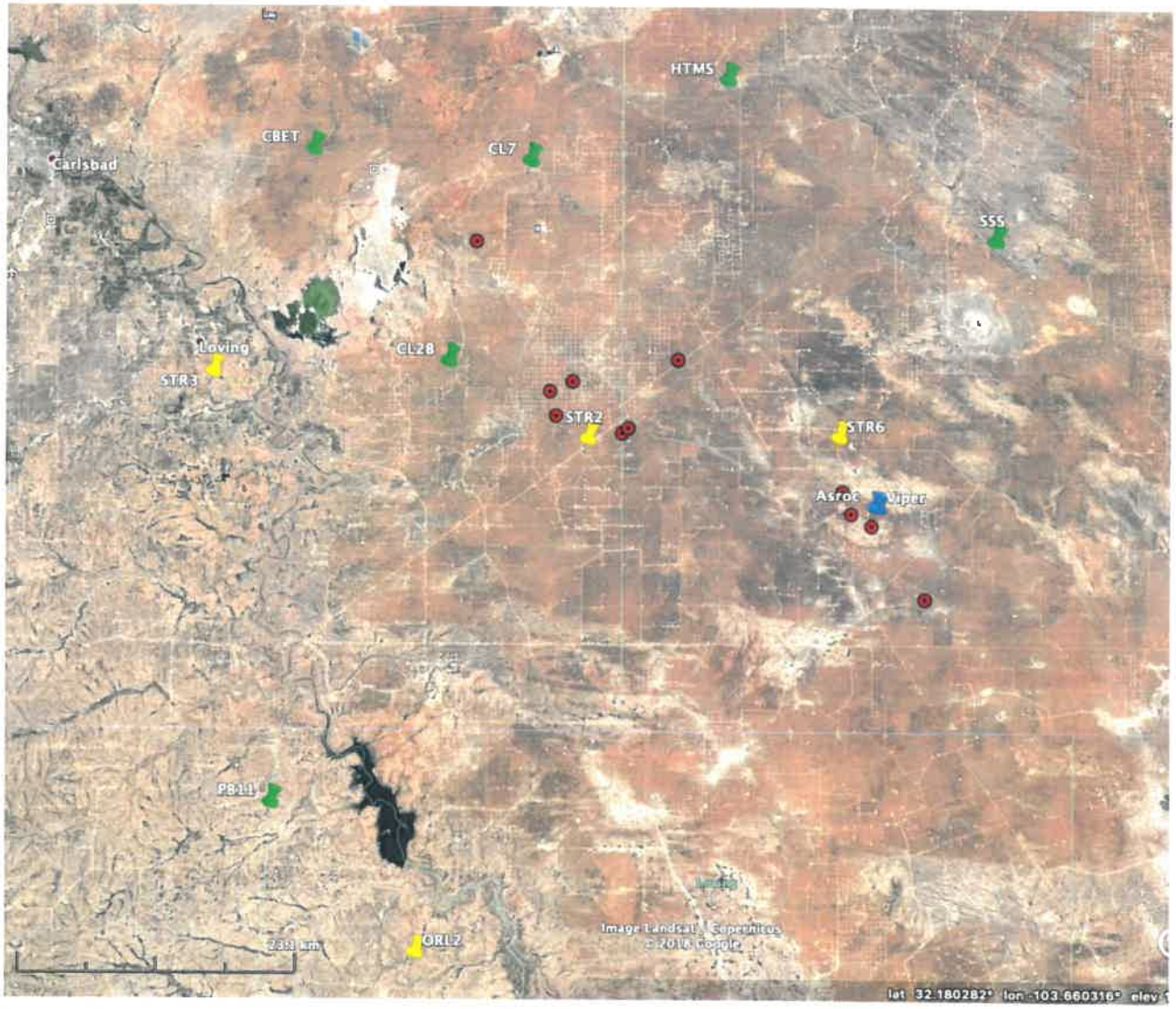
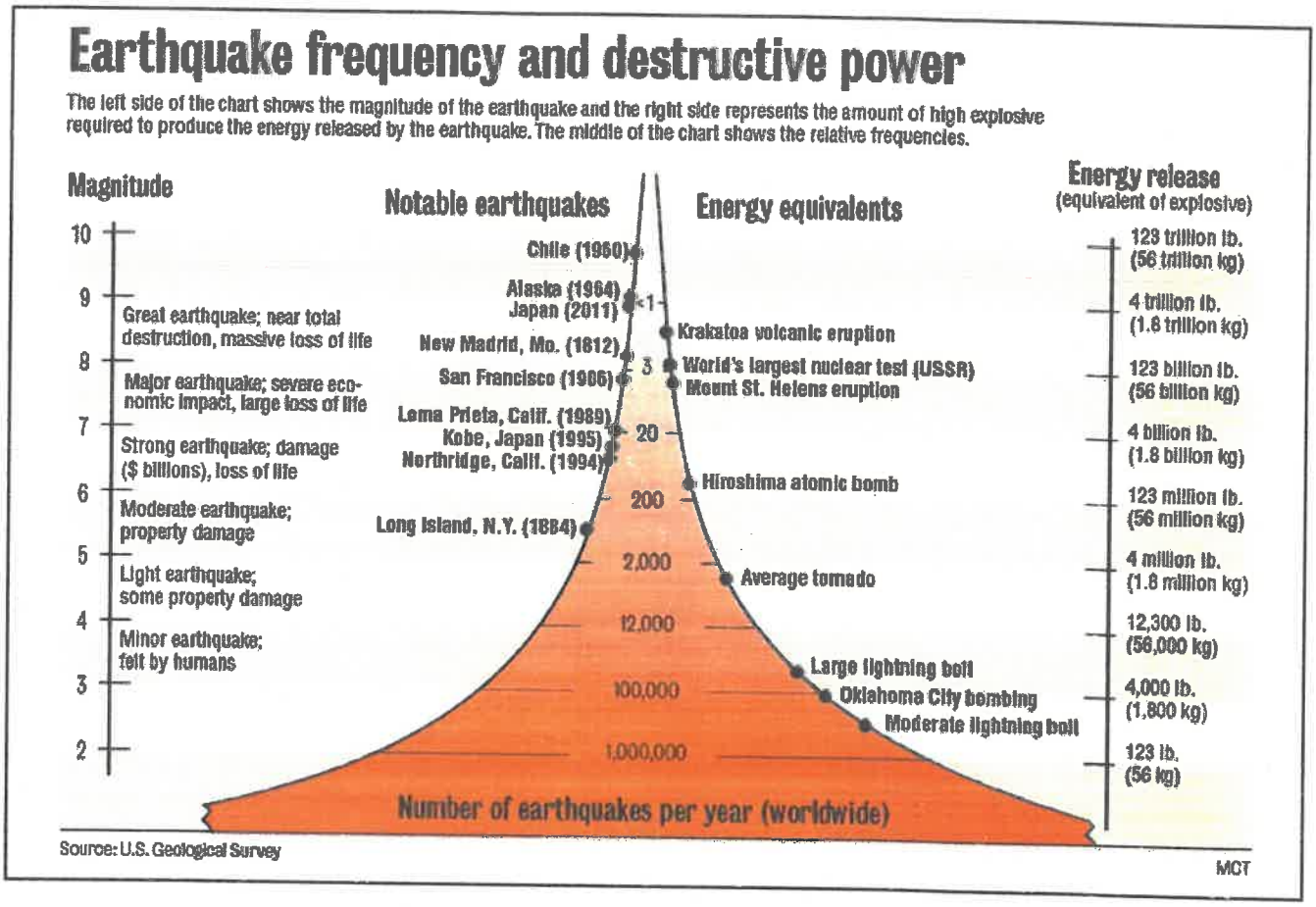


Figure 3. Seismic events in between September 6, 2018 and January 31, 2019 as red circles (Table 2). Asroc and Viper SWD wells shown as blue pushpins. Seismic stations as yellow (NGL) or green (NMT and TexNet) pushpins.



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Texas Registered Engineering Firm No F – 16381

February 19, 2019

RE: FSP Analysis Multiple NGL SWD well locations **(ASROC SWD)**
Lea County, New Mexico

FSP Analysis

The FSP software used for this analysis was jointly developed by Stanford University, Exxon Mobil and XTO Energy as a tool for estimating fault slip potential resulting from fluid injection.

I have reviewed the geology, seismic activity, injection history and future proposed injection in the Subject Area and I would conclude that the Proposed SWD wells do not pose a risk of increasing seismicity in the area. The primary risk reduction factor is that the faults are not optimally oriented to slip, and significant pressure increases would be necessary to initiate slip on the faults analyzed.

Fault slip potential (FSP) was analyzed in the area of review shown on **Exhibit No. 1.** The analysis integrates all of the proposed well locations as well as any existing injection wells in order to fully assess the pressure implications of injection in the area and the potential for slip along existing faults. Historical USGS earthquake events are denoted by the "blue" bulls-eye symbols. Recent low magnitude events recorded on the NGL seismic network are denoted by the "magenta" bulls-eye symbols.

Exhibit No. 2 shows the FSP input parameters for the local stress, average reservoir depth, pressure gradients and reservoir characteristics. Depths and reservoir characteristics were derived from nearby well logs and stress values were derived from the Lund Snee and Zoback (2018) paper related to Stress in the Permian Basin.

Exhibit No. 3 shows the location of existing wells and locations of the Proposed SWD wells relative to the faults documented in this area. The faults are sourced from the Texas Bureau of Economic Geology and these are also the fault traces shown in the referenced Snee/Zoback paper (Figure 3 in the

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paper) and shown as **Exhibit No. 4** in my report. The Snee/Zoback paper only considers fault orientation relative to the stress orientation in determination of fault slip potential. Based on their limited analysis of the area they concluded the faults have low slip potential based on orientation/azimuth. My analysis further incorporates the injection history and future injection projections and the injection reservoir characteristics to fully assess the potential for slip along these faults. Existing wells were incorporated into the analysis using their injection volume histories and holding them constant into the future at their last reported monthly injection volume. The highlighted wells were modelled at 40,000 bbls/day and held constant for the life of the analysis (+25 years). The remaining proposed wells were all modelled at 30,000 bbls/day and held constant for the life of the analysis (+25 years).

The proposed wells are denoted in the model as follows: **(Exhibit No. 3)**

AR – Asroc SWD

AS – Aspen SWD

FA – Falcon SWD

HP – Harpoon SWD

JV – Javelin SWD

MC – McCloy Central SWD

MM – Minuteman SWD

MV – Maverick SWD

MW – McCloy West SWD

Mo – Moab SWD

PT - Patriot SWD

SR - Sparrow SWD

SW - Sidewinder SWD

TL – Telluride SWD

TB – Thunderbolt SWD

TD -Trident SWD

TH - Tomahawk SWD

VP - Viper SWD

Also included in the model are existing SWD injection wells as follows: **(Exhibit No. 3)**

MD - Madera SWD
S6 – Striker Six SWD
VD – Vaca Draw SWD

Exhibit No. 5 illustrates the geomechanical properties of the fault segments in the area of review. It should be noted that the FSP software only calculates a single pressure change along a fault (at the fault mid-point) so it is critical that faults are broken into multiple segments to get a true evaluation of the pressure increases associated with injection. **Exhibit No. 5 also** shows the **direction** of max hor. stress as denoted by the grey arrows outside the circle on the stereonet in the lower right portion of this exhibit. Faults that align parallel or closer to this orientation will have the highest potential for slip or lowest ΔP to slip. Faults 15-17 have the highest potential for slip and Faults 1-14 have very low potential for slip. Segments F18 and F19 are hypothetical faults at the location of recent seismicity.

Exhibit No. 6 shows that the input stress and fault values were varied by +/-10% to allow for uncertainty in the input parameters. Even considering the variability of the inputs the model results show low probability for slip on the faults in the area of review. An increase of 750 psi at Fault 15 still only results in a 10% probability of fault slip.

Exhibit No. 7 takes a closer look at fault 15. The sensitivity analysis is highlighted in the lower right portion of this exhibit and shows that without any variability of inputs the ΔP needed to slip is 1,150 psi along this fault. A 10% decrease in the friction coefficient of the fault could lower ΔP needed to slip to 750 psi.

Exhibit No. 8 takes a closer look at fault 16. The sensitivity analysis is highlighted in the lower right portion of this exhibit and shows that without any variability of inputs the ΔP needed to slip is 1,530 psi along this fault. A 10% decrease in the friction coefficient of the fault could lower ΔP needed to slip to 1,100 psi. Fault 17 shows similar FSP values as fault 16.

Exhibit No. 9 takes a closer look at fault 14. The sensitivity analysis is highlighted in the lower right portion of this exhibit and shows that without any variability of inputs the ΔP needed to slip is +3,500 psi along this fault. A 10% change in the fault strike or SHmax azimuth could lower ΔP needed to slip to 1,850 psi.

Exhibit No. 10 takes a closer look at fault 1. The sensitivity analysis is highlighted in the lower right portion of this exhibit and shows that without any variability of inputs the ΔP needed to slip is +5,600 psi along this fault. A 10% change in the fault strike or SHmax azimuth could lower ΔP needed to slip to 3,050 psi. Faults 2-13 and 18 &b19 all exhibit similar high ΔP pressure values needed to initiate slip and thus fault slip potential is very low along all of the N-S trending faults.

In general, only Fault segment 15 shows any concern for fault slip potential. The following exhibits will track the pressure changes at the faults moving forward in time based upon the anticipated injection in the future from these proposed wells and the existing wells in the Subject Area.

Exhibit No. 11 illustrates the ΔP pressure in a "heat map" and shows ΔP pressure increases at the faults as of 1/1/2020. This map indicates ΔP pressure increases of 7 psi at F15 and 53 psi at F17.

Exhibit No. 12 illustrates the ΔP pressure in a "heat map" and shows ΔP pressure increases at the faults as of 1/1/2025. This map indicates ΔP pressure increases of 44 psi at F15 and 108 psi at F17.

Exhibit No. 13 illustrates the ΔP pressure in a "heat map" and shows ΔP pressure increases at the faults as of 1/1/2030. This map indicates ΔP pressure increases of 126 psi at F15 and 175psi at F17. Note that these pressures are still well below the pressures that could initiate fault slip. F9 shows a ΔP pressure increase of 1,331 psi however this fault requires extremely high pressures (+4,400 psi) to initiate fault slip.

Exhibit No. 14 illustrates the ΔP pressure in a "heat map" and shows ΔP pressure increases at the faults as of 1/1/2035. This map indicates ΔP pressure increases of 239psi at F15 and 264 psi at F17. Note that these pressures are still well below the pressures that could initiate fault slip. F9 shows a ΔP pressure increase of 1,716psi however this fault requires extremely high pressures (+4,400 psi) to initiate fault slip.

Exhibit No. 15 illustrates the ΔP pressure in a "heat map" and shows ΔP pressure increases at the faults as of 1/1/2040. This map indicates ΔP pressure increases of 363 psi at F15 and 364 psi at F17. Note

that these pressures are still well below the pressures that could initiate fault slip. F9 shows a ΔP pressure increase of 2,033 psi however this fault requires extremely high pressures (+4,400 psi) to initiate fault slip.

Exhibit No. 16 illustrates the ΔP pressure in a "heat map" and shows ΔP pressure increases at the faults as of 1/1/2045. This map indicates ΔP pressure increases of 489 psi at F15 and 469 psi at F17. Note that these pressures are still well below the pressures that could initiate fault slip. F9 shows a ΔP pressure increase of 2,304 psi however this fault requires extremely high pressures (+4,400 psi) to initiate fault slip.

The pressure analysis over time shows that pressure is expected to increase along the faults however pressures remain below critical levels. The table below shows the ΔP pressure increases needed to imitate fault slip along each fault segment and the corresponding ΔP pressure increases as of 2045:

Fault Segment	ΔP to slip (fixed inputs)	ΔP to slip (10% varied inputs)	ΔP at 2045
F1	5,600	3,050	43
F2	6,300	3,850	327
F3	7,000	4,750	872
F4	7,000	4,750	1,279
F5	6,850	4,400	1,481
F6	6,850	4,400	1,686
F7	6,850	4,400	2,015
F8	6,850	4,400	2,182
F9	6,850	4,400	2,304
F10	6,850	4,400	2,151
F11	6,850	4,400	2,103
F12	6,850	4,400	1,215
F13	6,990	4,750	292
F14	3,500	1,800	212
F15	1,150	750	489
F16	1,530	1,100	475
F17	1,530	1,100	469
F18	6,850	4,400	1,769
F19	6,850	4,400	643

This analysis demonstrates that there is a low likelihood of injection induced seismicity in the Subject Area.

Recently recorded Seismicity

NGL has recorded and located 4 events in the area on its local seismology network:

9/10/18 – 1.25 mag

9/14/18 – 1.11 mag

9/15/18 – 1.50 mag

10/13/18 – 1.60 mag

All of these events are below the magnitude of "felt" events and are so small that they are not detected on the USGS network. **Exhibit No. 17** shows minimal ΔP pressure increases as of 1/1/2019. In the area of the 4 seismic events there is no calculated pressure increase (0) as would be expected since the few injection wells have short injection histories and they are several miles from the events. Minimal ΔP pressure increases are noted in the area to the NE (24-39 psi) near the Madera SWD.

The seismicity is likely a poroelastic stress response due to the pressure reduction associated with recent production at Wolfcamp depths and also short-term increases in pressure associated with Frac-stimulations at these same depths. TexNet data, in the Texas portion of the Delaware Basin, appears to confirm that the seismicity is primarily focused within the overpressured section with some deeper responses in the basement.

The recent seismicity in the Pecos Townsite area of the Delaware Basin shows similarities to seismicity recorded in this region from 1975 to 1979. Between 1975 and 1979 a network of 12 seismograph stations was operated within the Permian Basin to assist in evaluating the seismic risk to a proposed radioactive waste disposal site in southeastern New Mexico. During the period of network operation over 2,000 events were recorded, and 1,300 events were located. During this same time, oil reservoirs were being developed in the overpressured formations primarily in the Wolfcamp. Spatial and temporal correlation between the earthquakes and oil field development in the overpressured Wolfcamp formation was noted by Doser et al. (1991). (paper titled; "The Not So Simple Relationship Between Seismicity and Oil Production in the Permian Basin, West Texas") These same authors further concluded that the seismicity in the region correlated strongly with the overpressured system within the

Delaware Basin. (paper titled; "Distribution and Generation of the Overpressure System, Eastern Delaware Basin, Western Texas and Southern New Mexico")

The seismicity recorded from 1975 to 1979 was focused around the War-Wink Area in Ward County Texas. **Exhibit No. 18** shows the oil, water and gas production and SWD injection history in the War-Wink area. The period of increased seismicity occurred during a period of increased development in the Wolfcamp immediately overlying the overpressured section. This was at a time when there was no SWD injection in the area (purple curve). Since that time injection has steadily increased in the area with no additional seismicity reported in almost 40 years.

Exhibit No. 19 is a similar graph for the area around the Pecos Townsite in Reeves County. Texas. This area has also experienced a similar increase in seismicity that shows the same depth distribution that was observed at War-Wink. It should also be noted that seismicity is declining as production/extraction has peaked in the Pecos Townsite area.

What is unique about the War-Wink area and most of the Delware Basin is the presence of a highly overpressured interval from the base of the Wolfcamp through the base of the Woodford Shale. This can be seen from the "Mud weight distribution plot" shown in **Exhibit No. 20.** This shows extremely high pore pressures sandwiched between normal pressures above and below.

Exhibit No. 21 is a similar graph for the Subject Area near the proposed SWD wells in Lea County, New Mexico. Deep injection in the area has been minimal and the FSP analysis shows that this area has not experienced any appreciable pressure increase associated with the SWD injection to date. Like War-Wink and Pecos this area also shows an overpressured section between the Wolfcamp and base of Woodford as depicted in **Exhibit No. 22**.

In my opinion the seismicity recorded and located in this area is of similar origin as the seismicity reported at War-Wink and Pecos and is related to the extraction of fluids from the formations immediately overlying the overpressured section.

Conclusion

The faults and fault trends in this area of review are not optimally oriented to slip. The orientation of the faults requires significant pressure changes (ΔP +1,000 psi) based on the fixed input parameters and the ΔP increase at the most vulnerable fault only reaches 512 psi by 2045. This model assumes constant injection rates over the next +25 years which is not a typical scenario as SWD wells tend to decrease injection volumes over time as the well ages and disposal demand decreases in the area. If injection volumes are lower over time than the model represents, then the risk for fault slip is lowered also.

In the event seismicity should occur in the future, the wells closest to the faults (proposed and existing) should be the wells considered for modification or reduction of injection rates. At this time there is no evidence to support rate reduction for any of the existing or proposed wells.

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
Managing Director, Economics/FTI Platt Sparks

FTI Platt Sparks
512.327.6930 office

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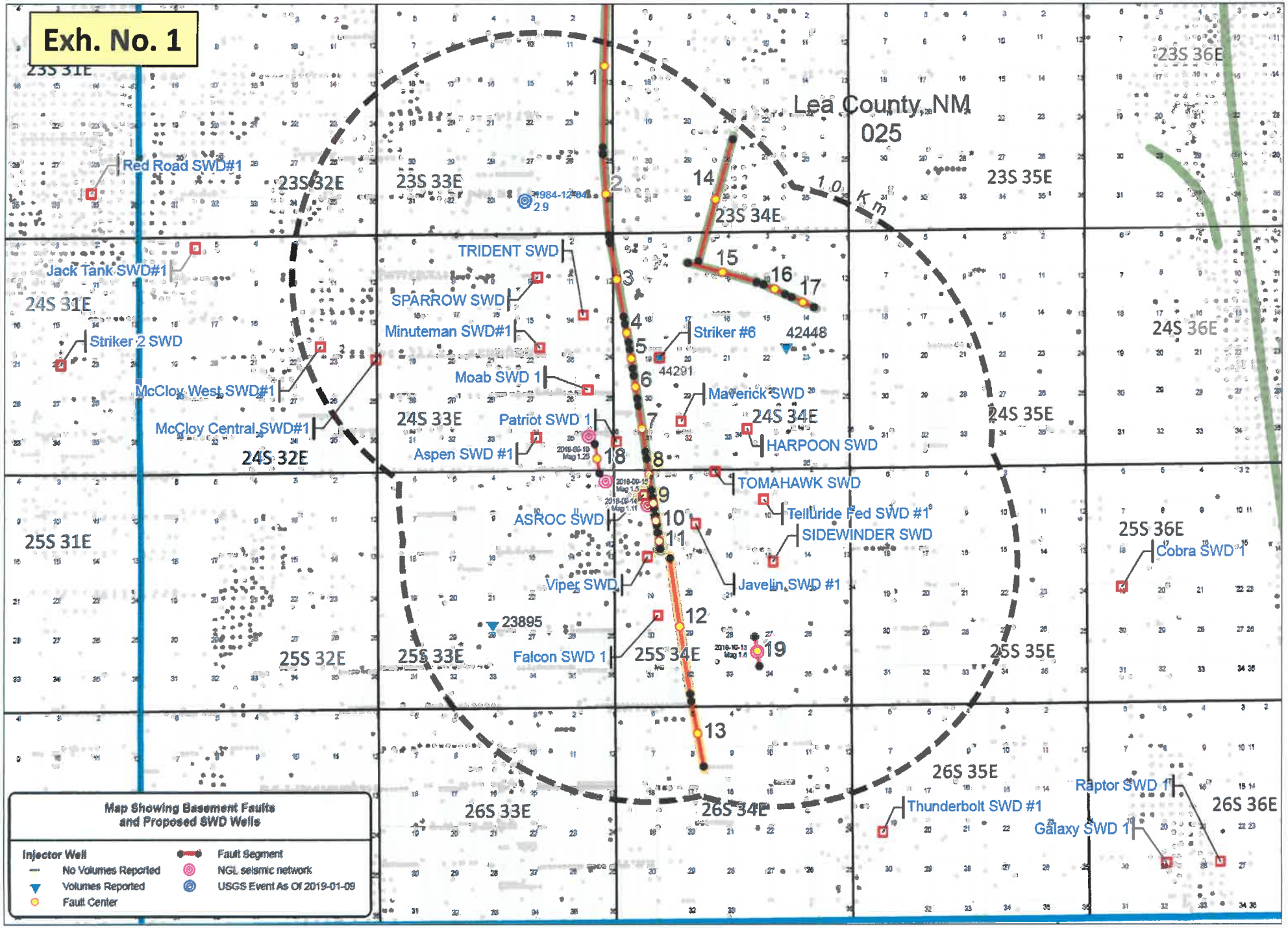
PLATT SPARKS



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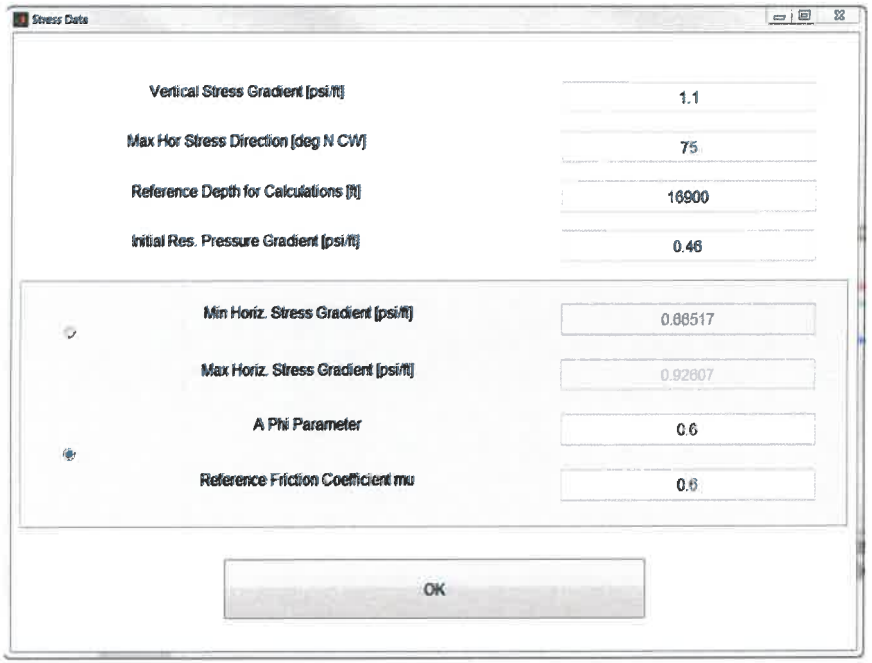
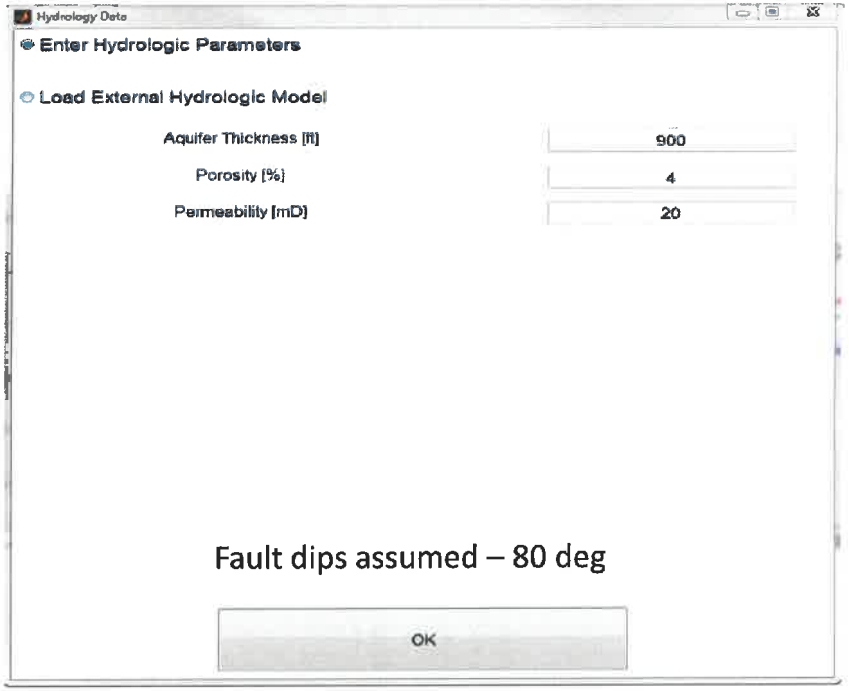
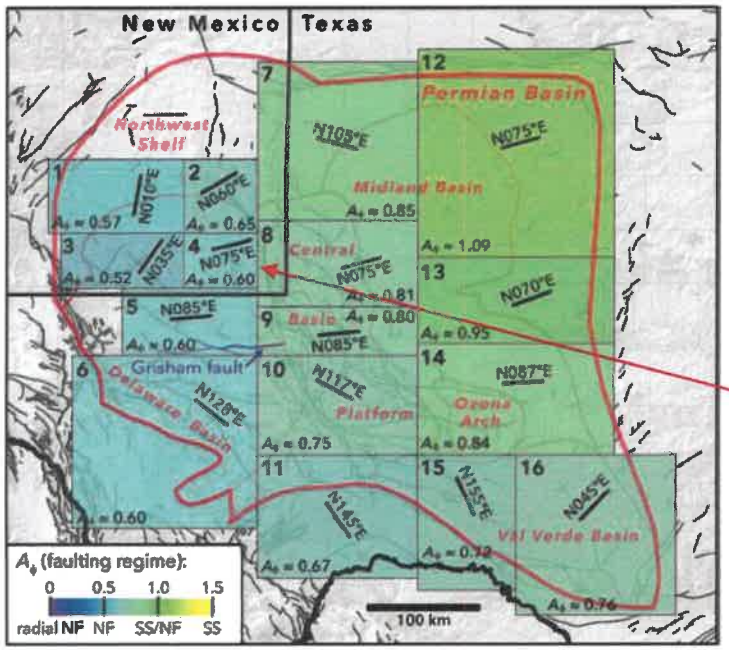
Texas Registered Engineering Firm No F - 16381

Exh. No. 2

FSP INPUT PARAMETERS







Input Parameter Comments

Hydrologic Parameters – Derived from Striker 6 SWD #2 logs

Stress Gradients – Derived from A Phi parameter from Snee/Zoback paper (.60)

Max Hor. Stress Direction - Derived from Snee/Zoback paper (N75E)

Exh. No. 3

Zoom

Fault Slip Potential

MODEL INPU... | GEOMECHANICS | PROB. GEOMECH | HYDROLOGY | PROB. HYDRO | INTEGRATED

Fault Selector:

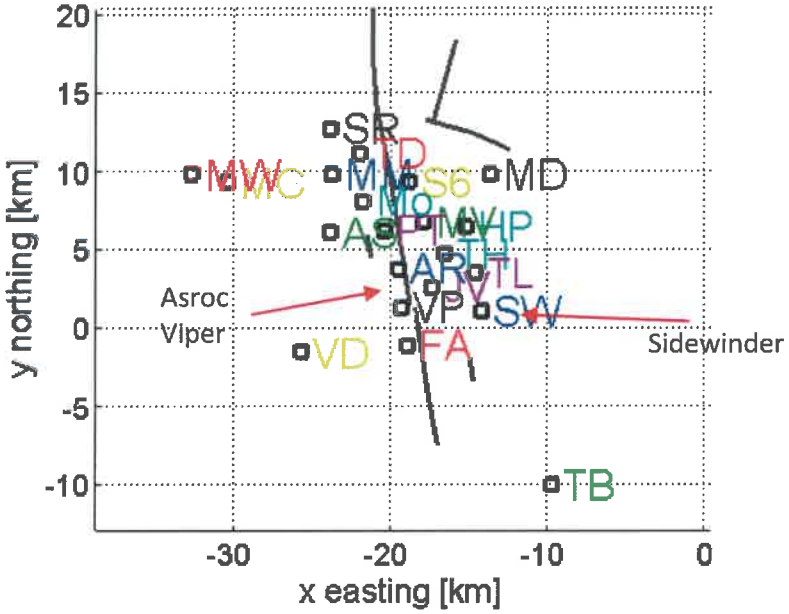
- All Faults
- Fault #1
- Fault #2
- Fault #3
- Fault #4
- Fault #5
- Fault #6
- Fault #7
- Fault #8
- Fault #9
- Fault #10
- Fault #11
- Fault #12
- Fault #13
- Fault #14
- Fault #15
- Fault #16
- Fault #17
- Fault #18
- Fault #19

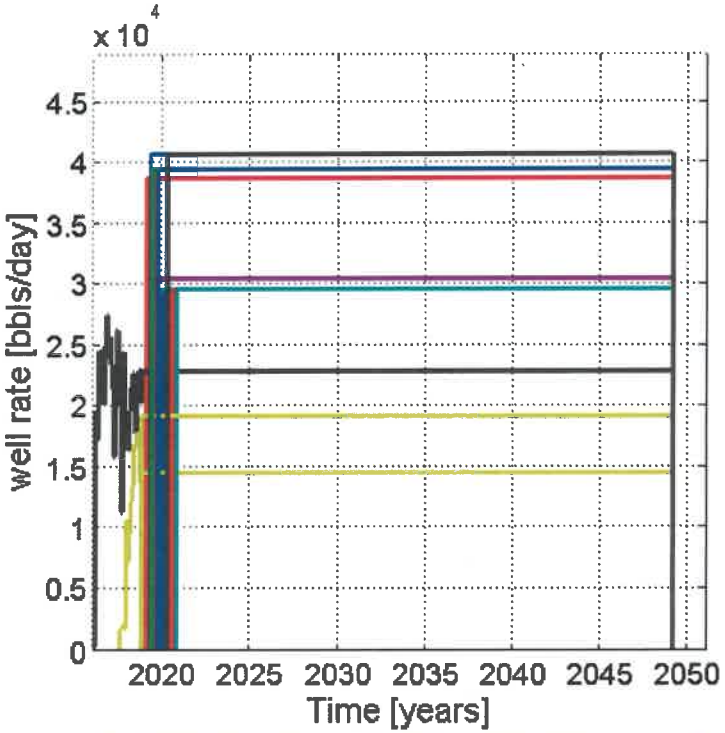
Calculate

Stress Regime: Normal Faulting

Select Well: All

FSP INPUT Fault and well locations





FSP INPUT Injection history and projected future injection

Exh. No. 4

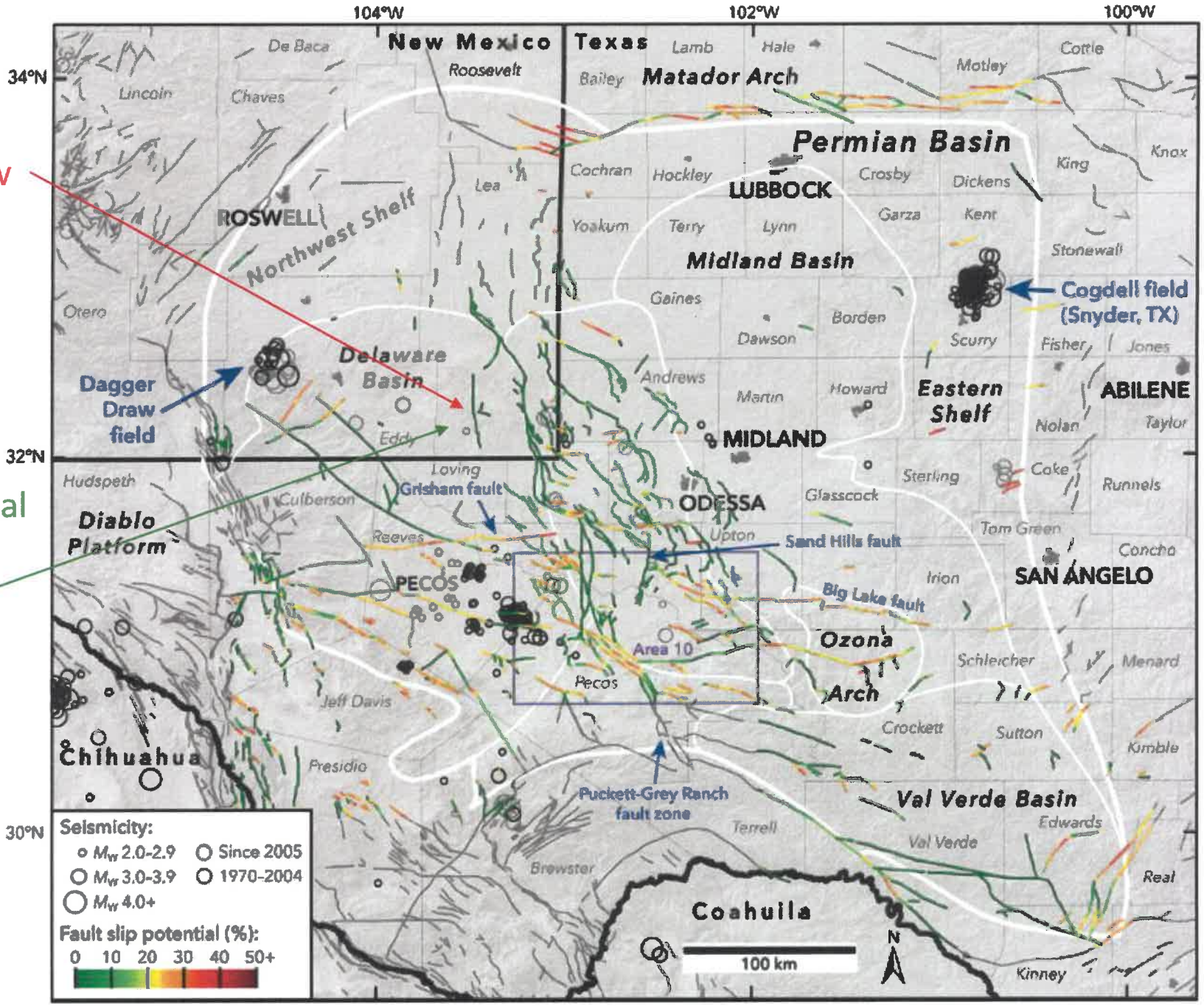


Figure 3. Results of our probabilistic FSP analysis across the Permian Basin. Data sources are as in Figures 1 and 2.

From Lund Snee and Zoback (2018)

Exh. No. 5

Zoom

Fault Slip Potential

MODEL INPUTS | GEOMECHA... | PROB. GEOMECH | HYDROLOGY | PROB. HYDRO | INTEGRATED

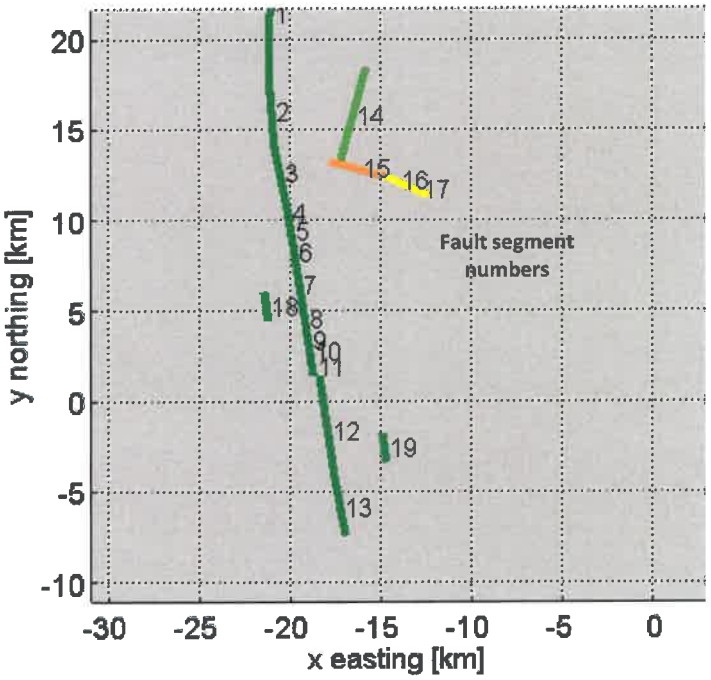
Fault Selector:

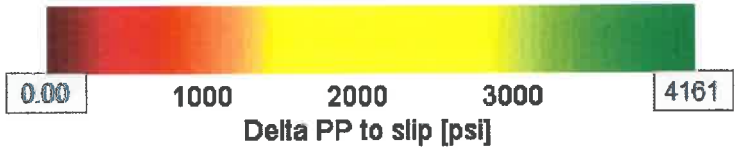
- All Faults
- Fault #1
- Fault #2
- Fault #3
- Fault #4
- Fault #5
- Fault #6
- Fault #7
- Fault #8
- Fault #9
- Fault #10
- Fault #11
- Fault #12
- Fault #13
- Fault #14
- Fault #15
- Fault #16
- Fault #17
- Fault #18
- Fault #19

Calculate

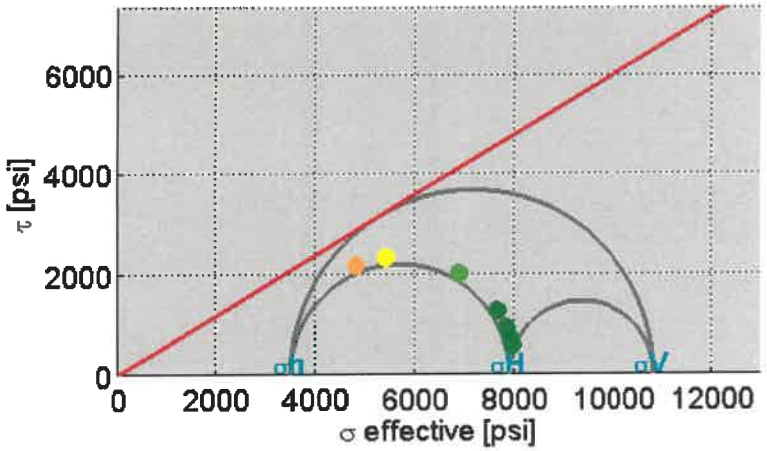
a) Fault Number

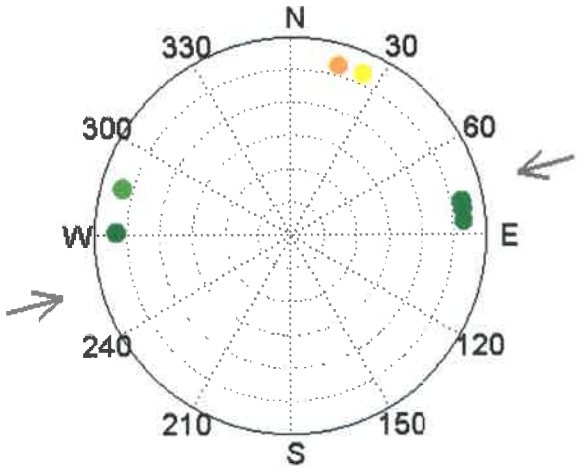
Help





Stress Regime: Normal Faulting





Stereonet Show: Fault Normals

Exh. No. 6

Fault Slip Potential

Zoom

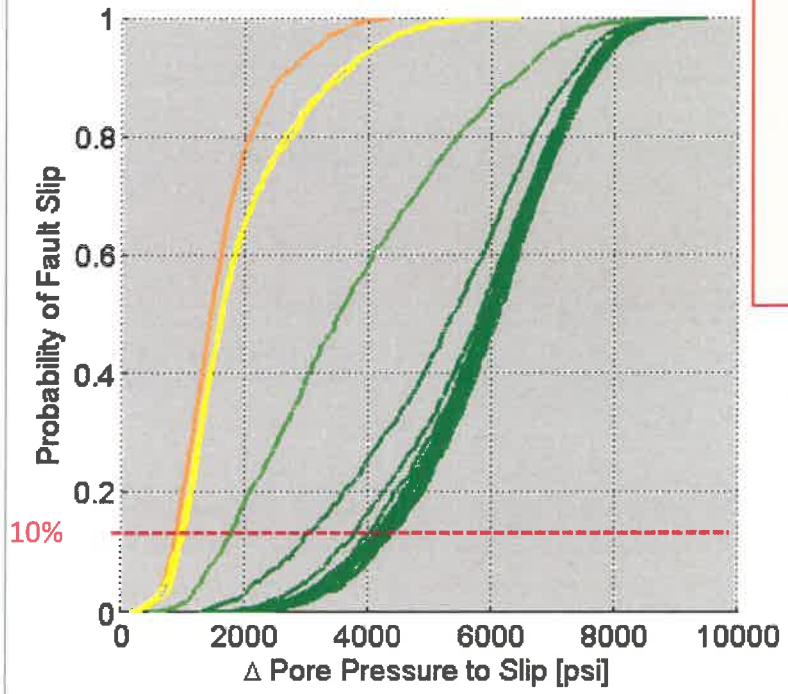
MODEL INPUTS | GEOMECHANICS | PROB. GEOM... | HYDROLOGY | PROB. HYDRO | INTEGRATED

Fault Selector:

All Faults
Fault #1
Fault #2
Fault #3
Fault #4
Fault #5
Fault #6
Fault #7
Fault #8
Fault #9
Fault #10
Fault #11
Fault #12
Fault #13
Fault #14
Fault #15
Fault #16
Fault #17
Fault #18
Fault #19

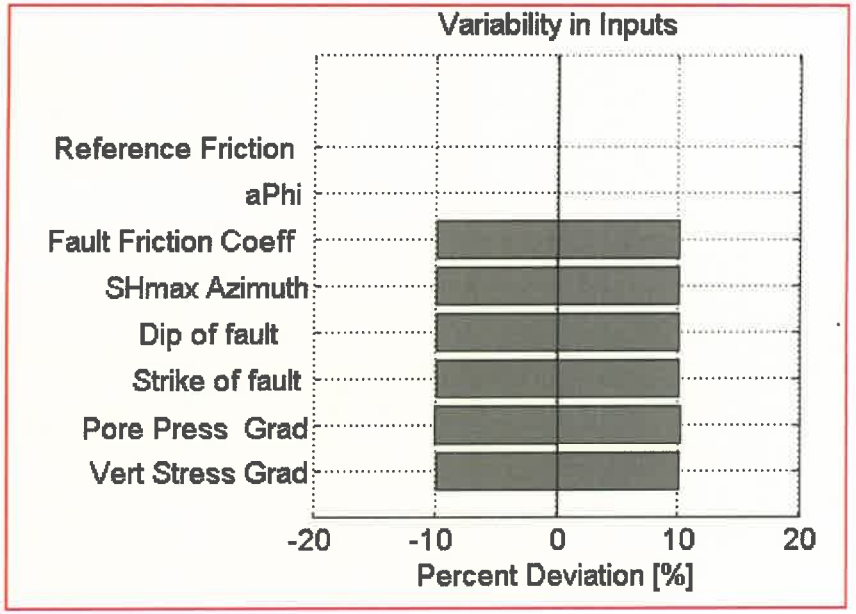
Calculate

Load Distributions | Run Analysis

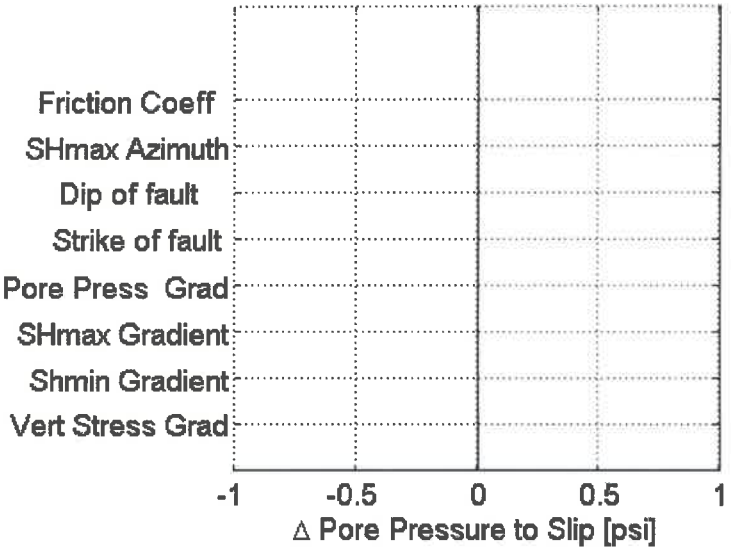


Max Delta PP [psi]: 10000

Export CDF data | Show Input Distributions



Choose a fault to see sensitivity analysis



Exh. No. 7

File Data Inputs Export Image Zoom

Fault Slip Potential

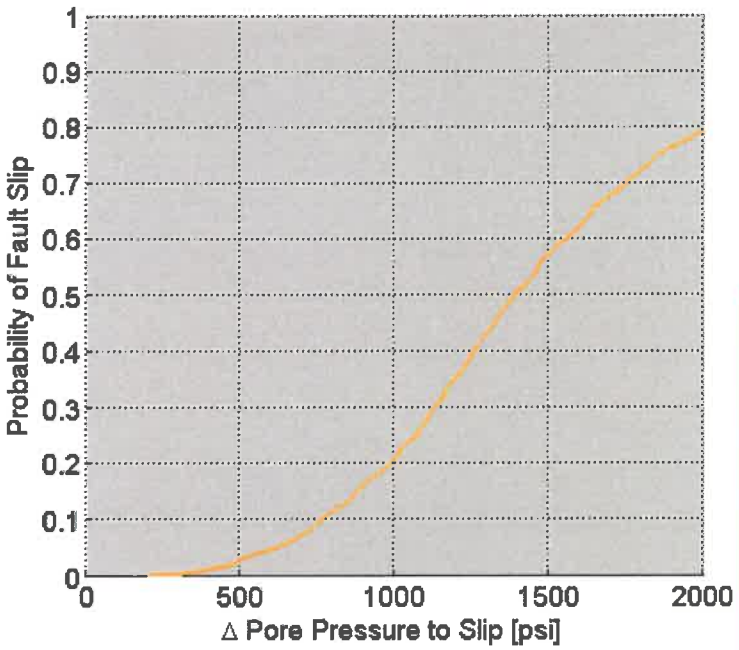
MODEL INPUTS | GEOMECHANICS | PROB. GEOM... | HYDROLOGY | PROB. HYDRO | INTEGRATED

Fault Selector:

All Faults
Fault #1
Fault #2
Fault #3
Fault #4
Fault #5
Fault #6
Fault #7
Fault #8
Fault #9
Fault #10
Fault #11
Fault #12
Fault #13
Fault #14
Fault #15
Fault #16
Fault #17

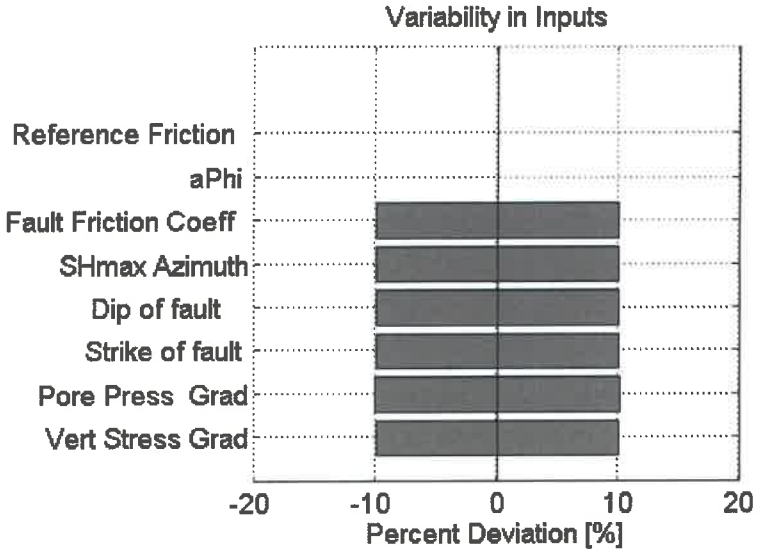
Calculate

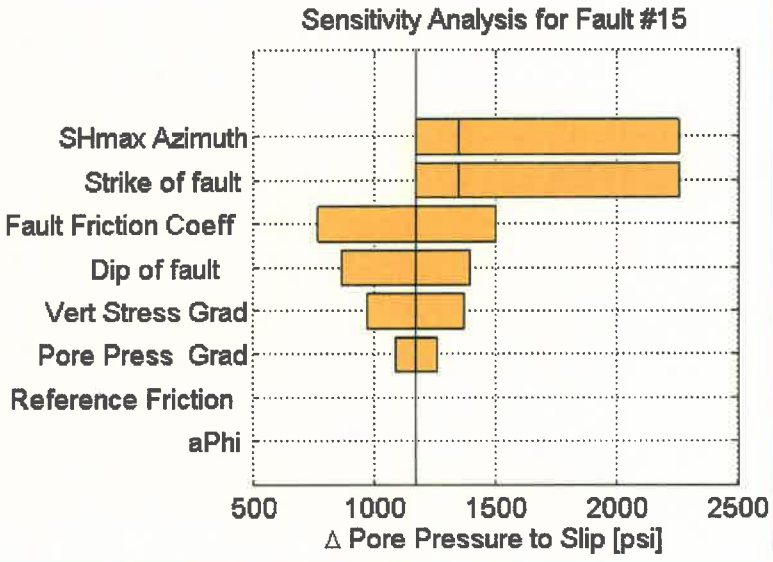
Load Distributions | Run Analysis



Max Delta PP [psi]: 2000

Export CDF data | Show Input Distributions





Exh. No. 8

File Data Inputs Export Image Zoom

Fault Slip Potential

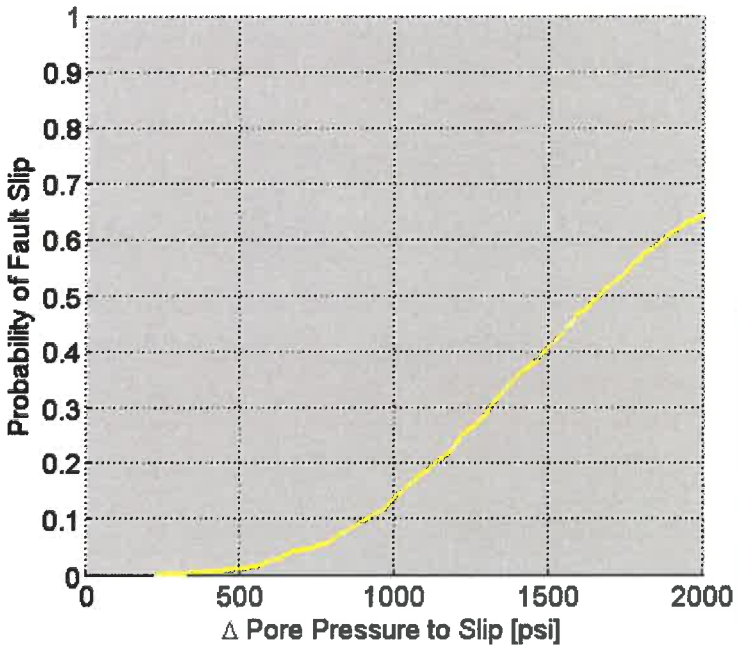
MODEL INPUTS | GEOMECHANICS | PROB. GEOM... | HYDROLOGY | PROB. HYDRO | INTEGRATED

Fault Selector:

All Faults
Fault #1
Fault #2
Fault #3
Fault #4
Fault #5
Fault #6
Fault #7
Fault #8
Fault #9
Fault #10
Fault #11
Fault #12
Fault #13
Fault #14
Fault #15
Fault #16
Fault #17

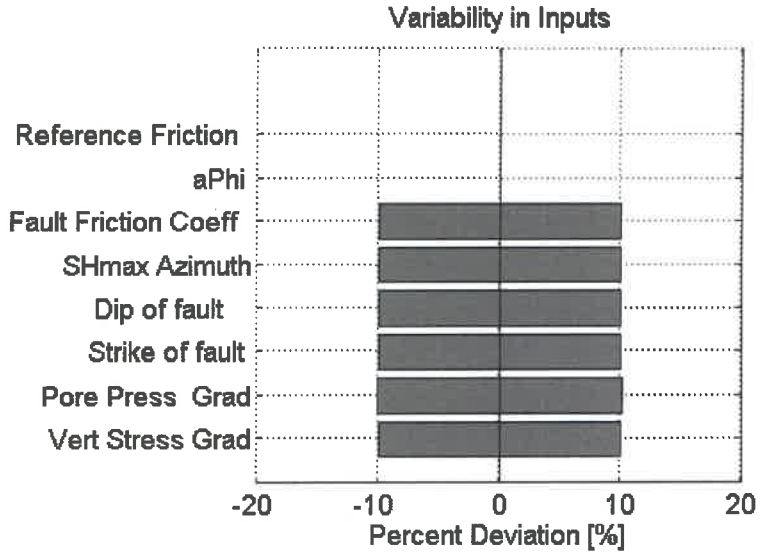
Calculate

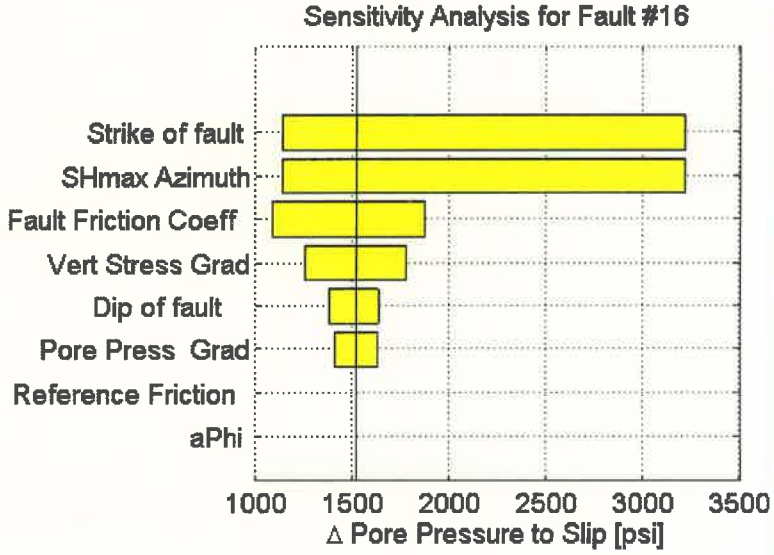
Load Distributions | Run Analysis



Max Delta PP [psi]: 2000

Export CDF data | Show Input Distributions





Exh. No. 9

File Data Inputs Export Image Zoom

Fault Slip Potential

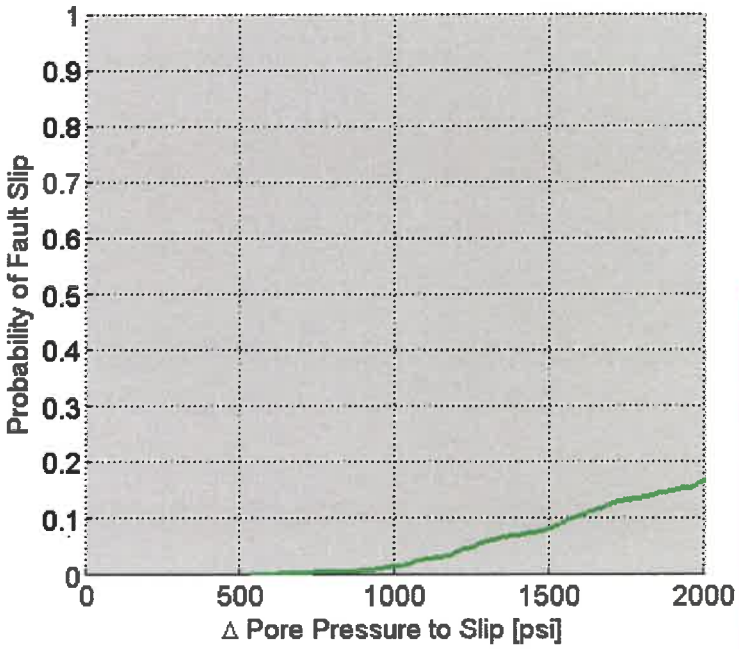
MODEL INPUTS | GEOMECHANICS | PROB. GEOM... | HYDROLOGY | PROB. HYDRO | INTEGRATED

Fault Selector:

All Faults
Fault #1
Fault #2
Fault #3
Fault #4
Fault #5
Fault #6
Fault #7
Fault #8
Fault #9
Fault #10
Fault #11
Fault #12
Fault #13
Fault #14
Fault #15
Fault #16
Fault #17

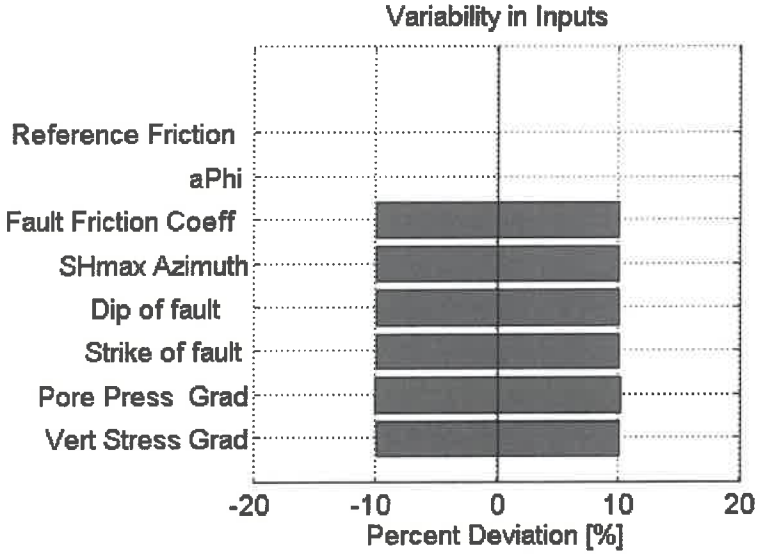
Calculate

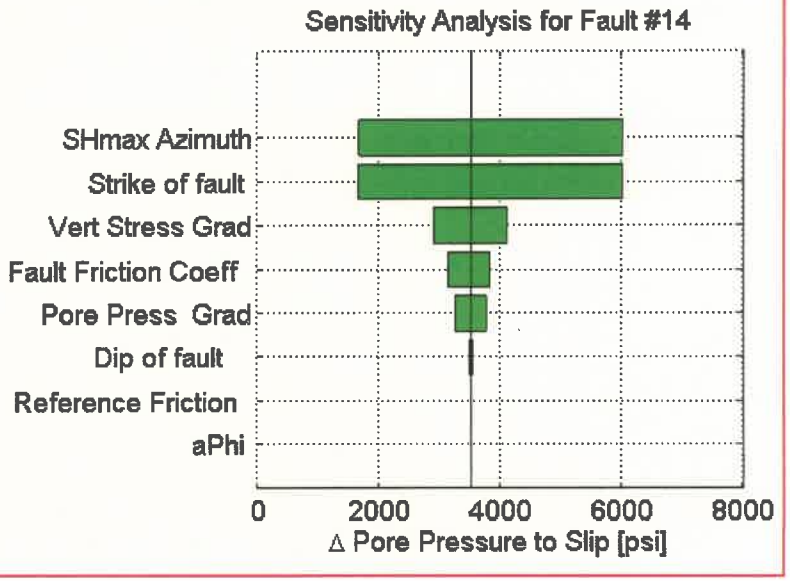
Load Distributions | Run Analysis



Max Delta PP [psi]: 2000

Export CDF data | Show Input Distributions





Exh. No. 10

File Data Inputs Export Image Zoom

Fault Slip Potential

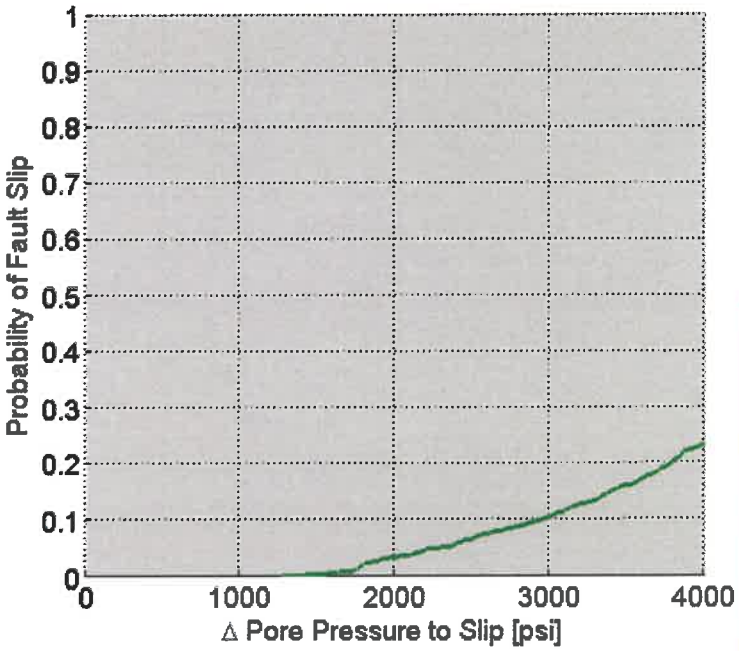
MODEL INPUTS | GEOMECHANICS | PROB. GEOM... | HYDROLOGY | PROB. HYDRO | INTEGRATED

Fault Selector:

All Faults
Fault #1
Fault #2
Fault #3
Fault #4
Fault #5
Fault #6
Fault #7
Fault #8
Fault #9
Fault #10
Fault #11
Fault #12
Fault #13
Fault #14
Fault #15
Fault #16
Fault #17

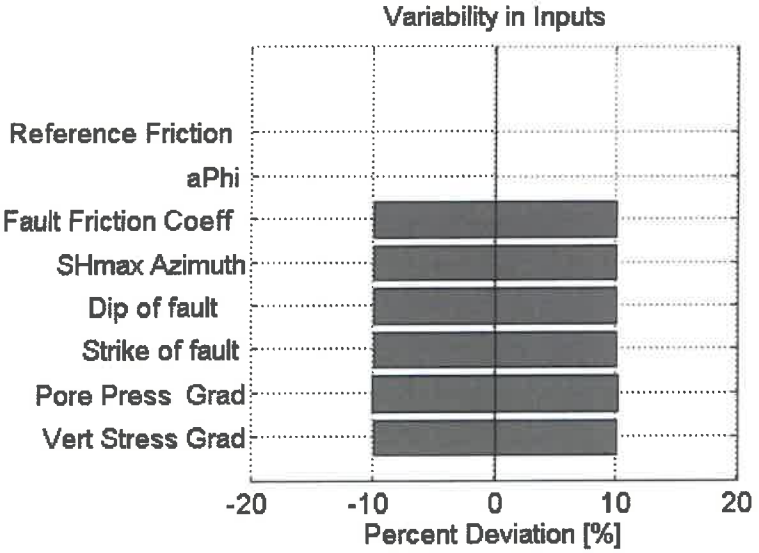
Calculate

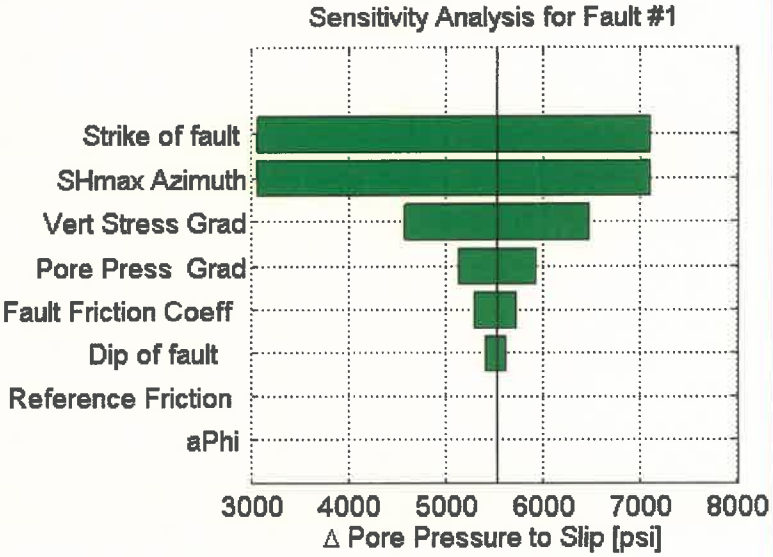
Load Distributions | Run Analysis



Max Delta PP [psi]: 4000

Export CDF data | Show Input Distributions





Exh. No. 11

Fault Slip Potential

MODEL INPUTS | GEOMECHANICS | PROB. GEOMECH | HYDROLOGY | PROB. HYDRO | INTEGRATED

Export

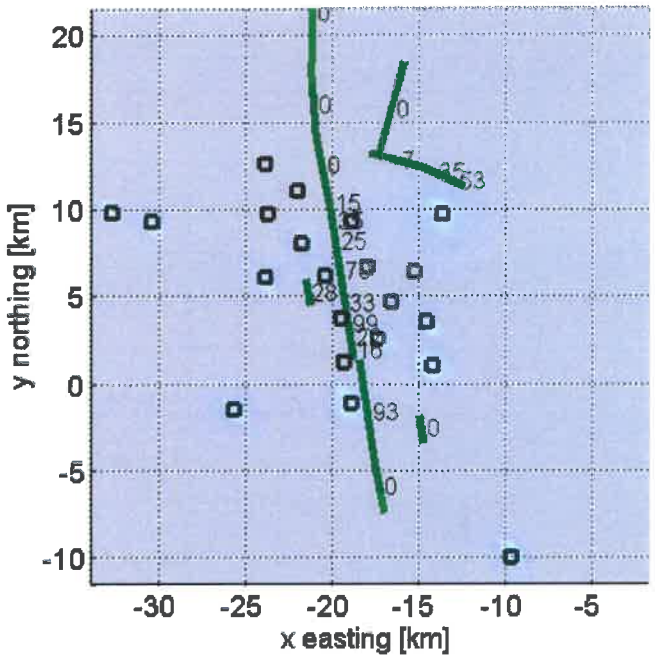
Fault Selector:

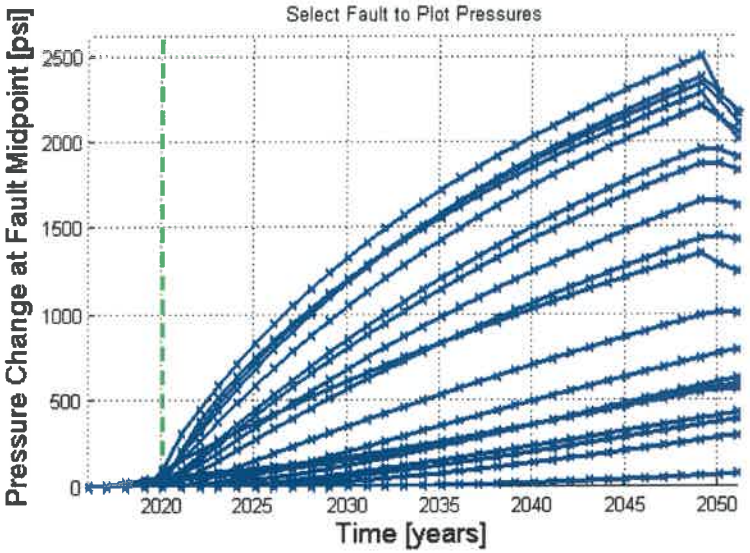
All Faults
Fault #1, 0.00 FSP
Fault #2, 0.00 FSP
Fault #3, 0.00 FSP
Fault #4, 0.00 FSP
Fault #5, 0.00 FSP
Fault #6, 0.00 FSP
Fault #7, 0.00 FSP
Fault #8, 0.00 FSP
Fault #9, 0.00 FSP
Fault #10, 0.00 FSP
Fault #11, 0.00 FSP
Fault #12, 0.00 FSP
Fault #13, 0.00 FSP
Fault #14, 0.00 FSP
Fault #15, 0.00 FSP
Fault #16, 0.00 FSP
Fault #17, 0.00 FSP
Fault #18, 0.00 FSP
Fault #19, 0.00 FSP

Calculate

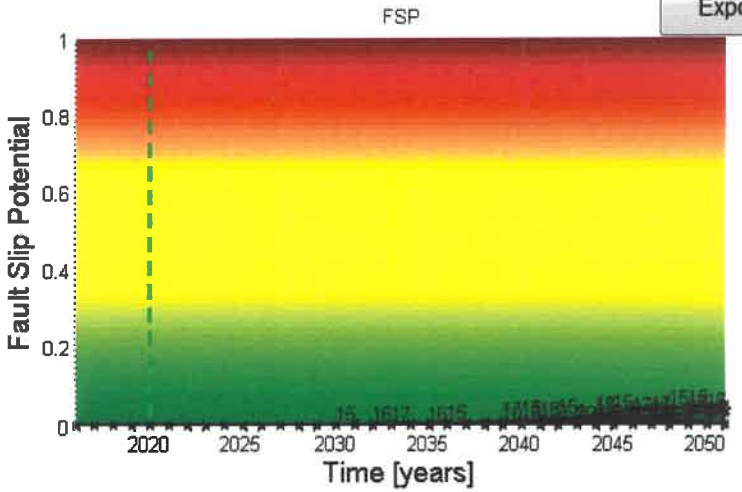
b) PP Change at fault [psi]

Summary Plots





Export



Year: 2020

Exh. No. 12

Fault Slip Potential

MODEL INPUTS | GEOMECHANICS | PROB. GEOMECH | HYDROLOGY | PROB. HYDRO | INTEGRATED

Fault Selector:

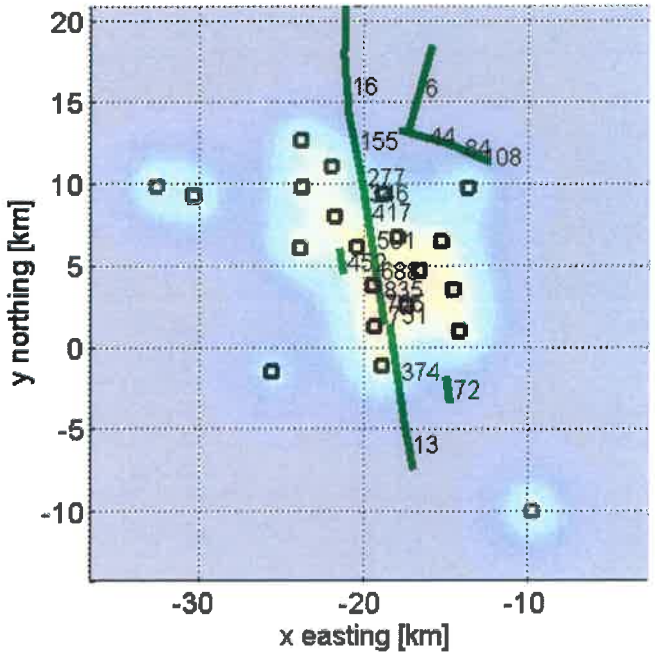
All Faults
Fault #1, 0.00 FSP
Fault #2, 0.00 FSP
Fault #3, 0.00 FSP
Fault #4, 0.00 FSP
Fault #5, 0.00 FSP
Fault #6, 0.00 FSP
Fault #7, 0.00 FSP
Fault #8, 0.00 FSP
Fault #9, 0.00 FSP
Fault #10, 0.00 FSP
Fault #11, 0.00 FSP
Fault #12, 0.00 FSP
Fault #13, 0.00 FSP
Fault #14, 0.00 FSP
Fault #15, 0.00 FSP
Fault #16, 0.00 FSP
Fault #17, 0.00 FSP
Fault #18, 0.00 FSP
Fault #19, 0.00 FSP

Calculate

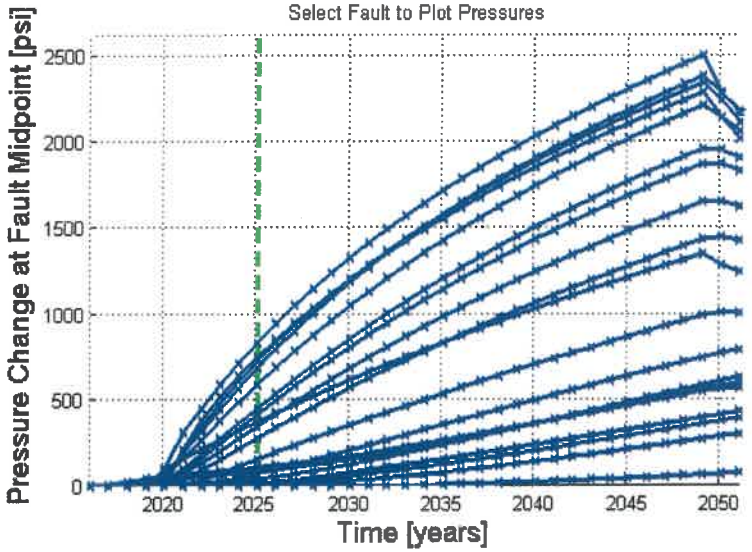
Export

b) PP Change at fault [psi]

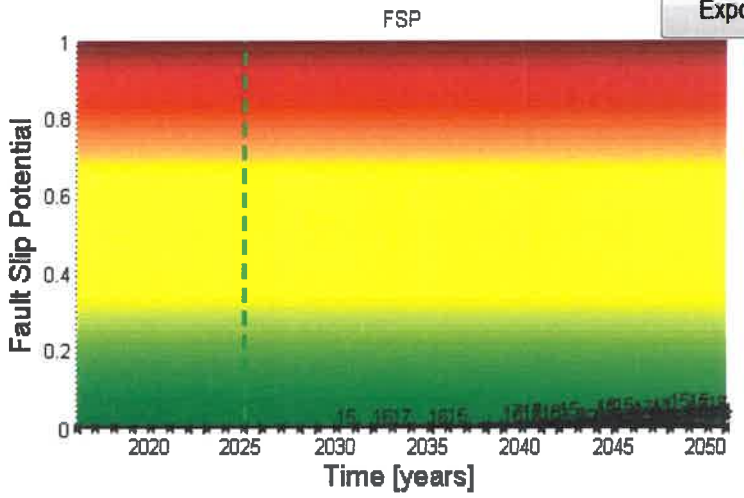
Summary Plots



Year: 2025



Export



Exh. No. 13

Fault Slip Potential

MODEL INPUTS | GEOMECHANICS | PROB. GEOMECH | HYDROLOGY | PROB. HYDRO | INTEGRATED

Fault Selector:

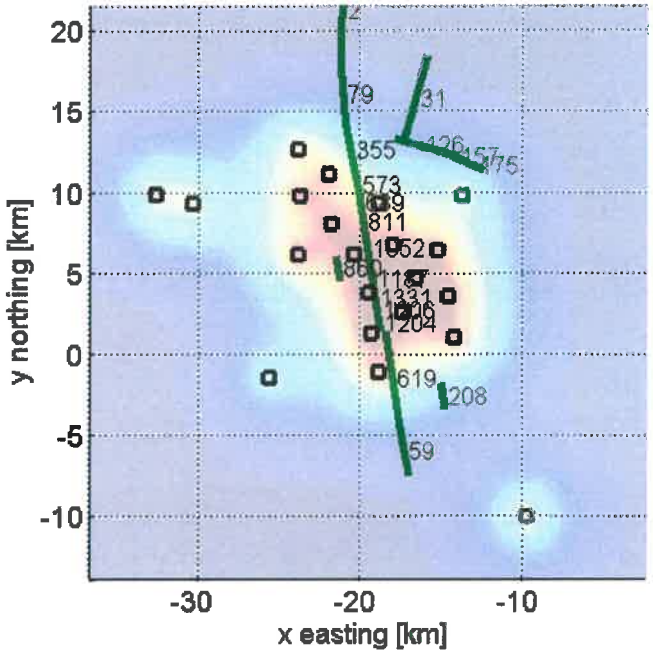
All Faults
Fault #1, 0.00 FSP
Fault #2, 0.00 FSP
Fault #3, 0.00 FSP
Fault #4, 0.00 FSP
Fault #5, 0.00 FSP
Fault #6, 0.00 FSP
Fault #7, 0.00 FSP
Fault #8, 0.00 FSP
Fault #9, 0.00 FSP
Fault #10, 0.00 FSP
Fault #11, 0.00 FSP
Fault #12, 0.00 FSP
Fault #13, 0.00 FSP
Fault #14, 0.00 FSP
Fault #15, 0.00 FSP
Fault #16, 0.00 FSP
Fault #17, 0.00 FSP
Fault #18, 0.00 FSP
Fault #19, 0.00 FSP

Calculate

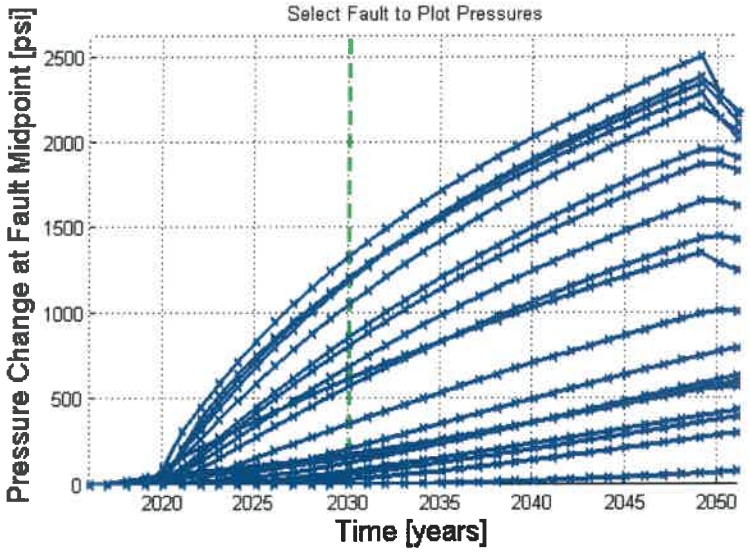
Export

b) PP Change at fault [psi]

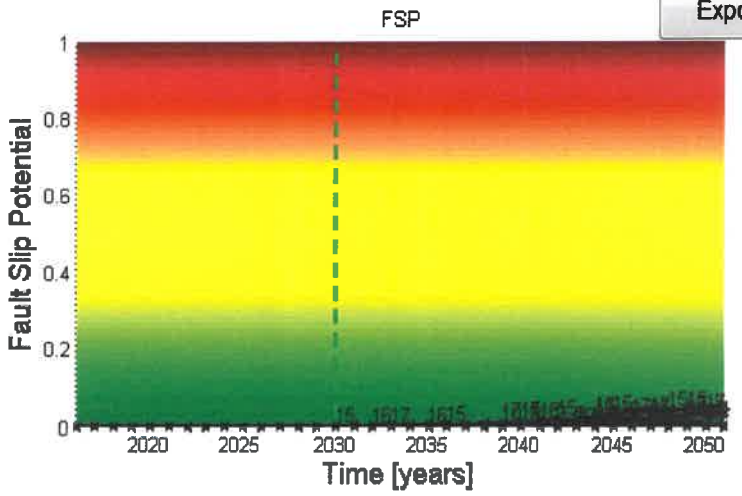
Summary Plots



Year: 2030



Export



Exh. No. 14

Fault Slip Potential

MODEL INPUTS | GEOMECHANICS | PROB. GEOMECH | HYDROLOGY | PROB. HYDRO | INTEGRATED

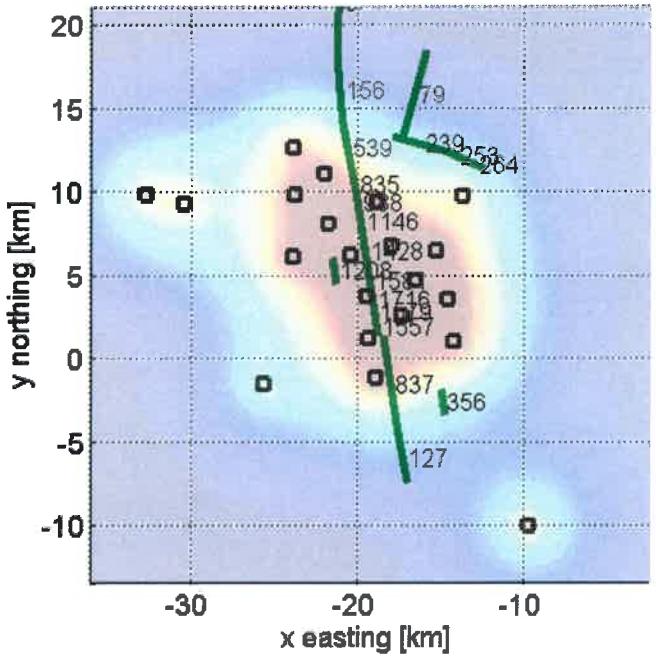
Fault Selector:

All Faults
Fault #1, 0.00 FSP
Fault #2, 0.00 FSP
Fault #3, 0.00 FSP
Fault #4, 0.00 FSP
Fault #5, 0.00 FSP
Fault #6, 0.00 FSP
Fault #7, 0.00 FSP
Fault #8, 0.00 FSP
Fault #9, 0.00 FSP
Fault #10, 0.00 FSP
Fault #11, 0.00 FSP
Fault #12, 0.00 FSP
Fault #13, 0.00 FSP
Fault #14, 0.00 FSP
Fault #15, 0.01 FSP
Fault #16, 0.00 FSP
Fault #17, 0.01 FSP
Fault #18, 0.00 FSP
Fault #19, 0.00 FSP

Calculate

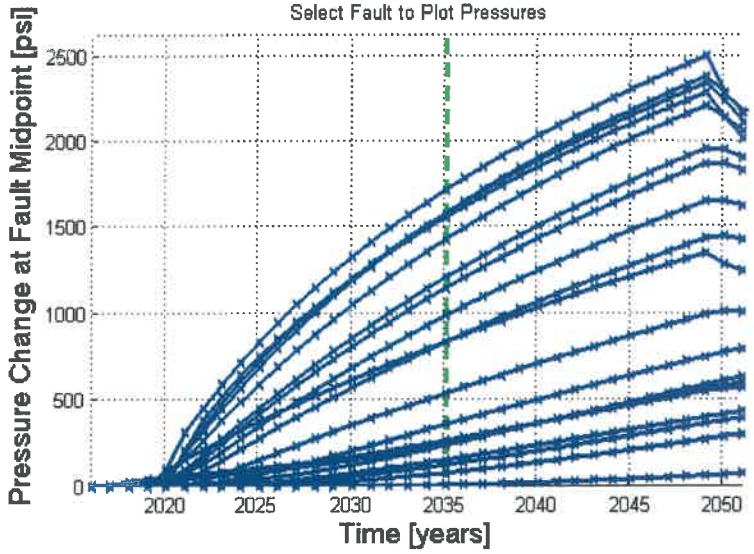
b) PP Change at fault [psi]

Summary Plots

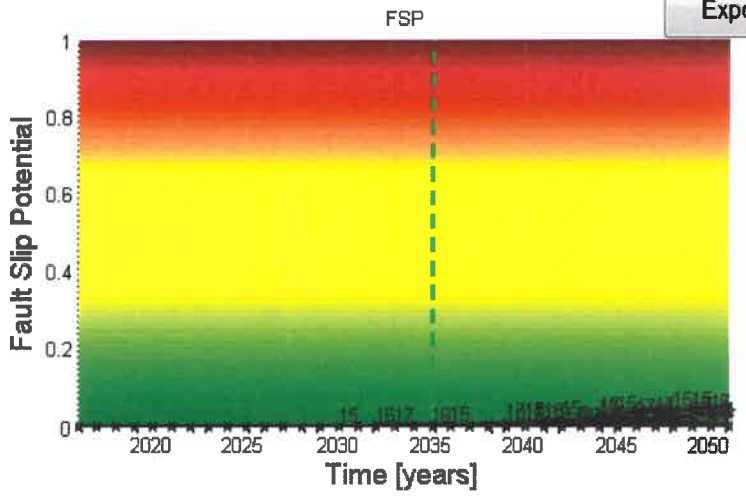


Year: 2035

Export



Export



Exh. No. 15

Fault Slip Potential

MODEL INPUTS | GEOMECHANICS | PROB. GEOMECH | HYDROLOGY | PROB. HYDRO | INTEGRATED

Export

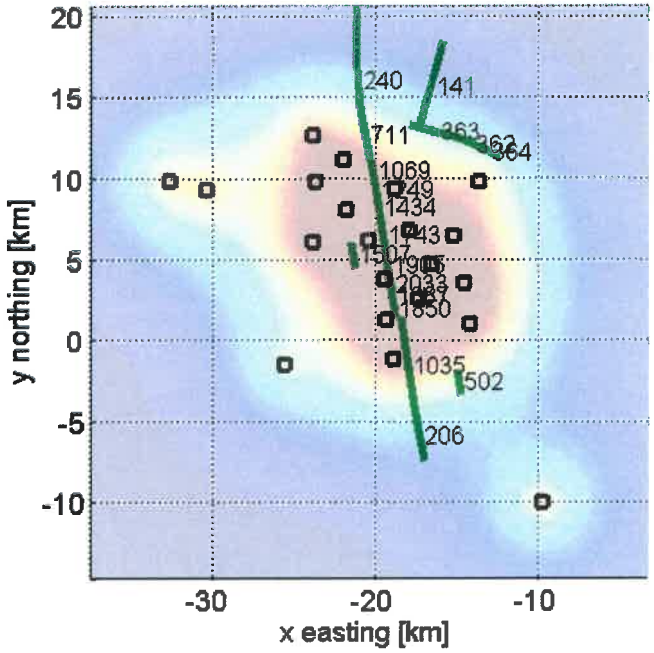
Fault Selector:

All Faults
Fault #1, 0.00 FSP
Fault #2, 0.00 FSP
Fault #3, 0.00 FSP
Fault #4, 0.00 FSP
Fault #5, 0.00 FSP
Fault #6, 0.00 FSP
Fault #7, 0.00 FSP
Fault #8, 0.00 FSP
Fault #9, 0.00 FSP
Fault #10, 0.00 FSP
Fault #11, 0.00 FSP
Fault #12, 0.00 FSP
Fault #13, 0.00 FSP
Fault #14, 0.00 FSP
Fault #15, 0.01 FSP
Fault #16, 0.01 FSP
Fault #17, 0.01 FSP
Fault #18, 0.00 FSP
Fault #19, 0.00 FSP

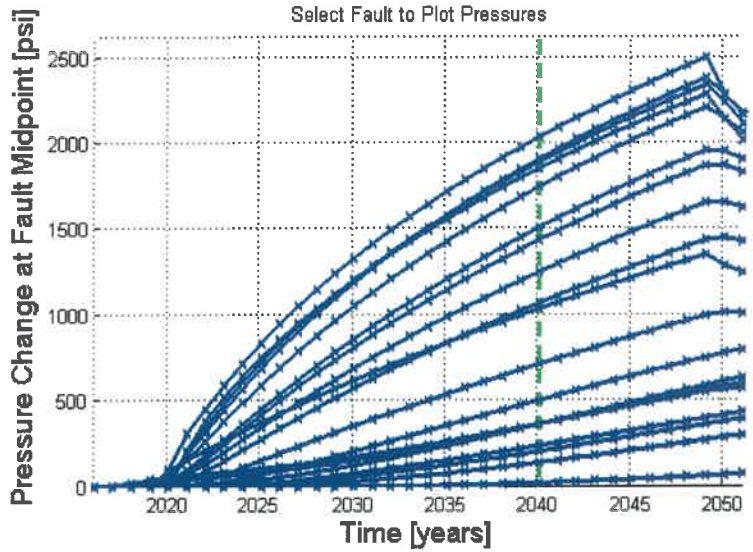
Calculate

b) PP Change at fault [psi]

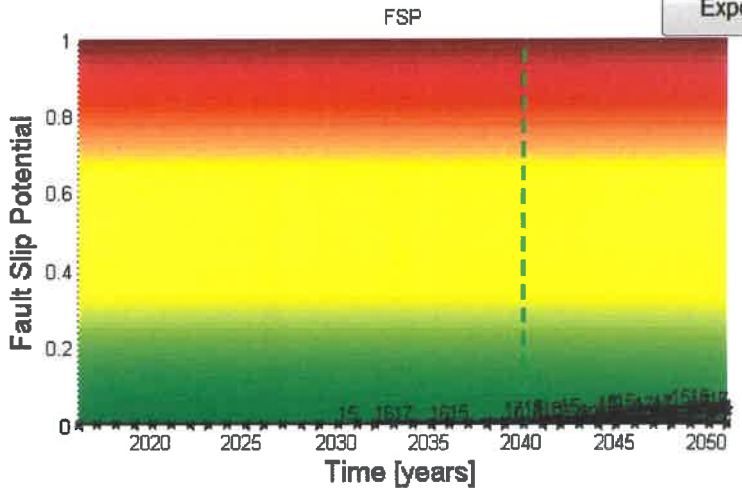
Summary Plots



Year: 2040



Export



Exh. No. 16

Fault Slip Potential

MODEL INPUTS | GEOMECHANICS | PROB. GEOMECH | HYDROLOGY | PROB. HYDRO | INTEGRATED

Fault Selector:

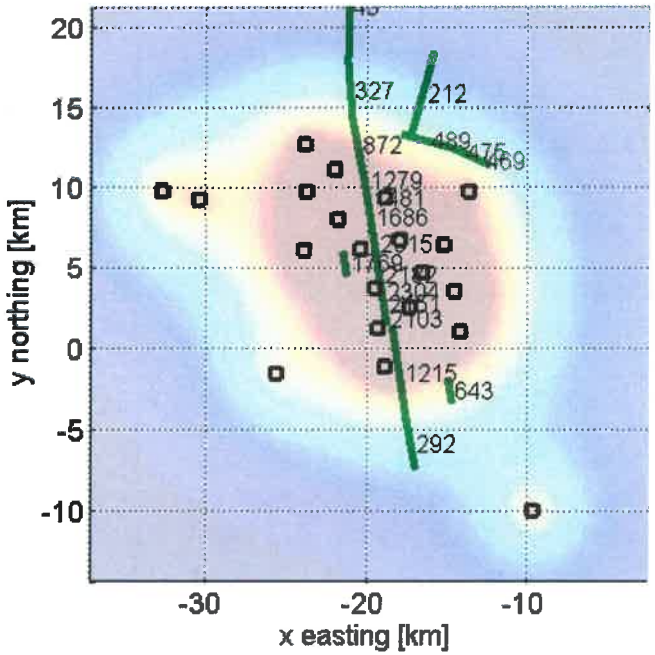
All Faults
Fault #1, 0.00 FSP
Fault #2, 0.00 FSP
Fault #3, 0.00 FSP
Fault #4, 0.00 FSP
Fault #5, 0.00 FSP
Fault #6, 0.00 FSP
Fault #7, 0.00 FSP
Fault #8, 0.00 FSP
Fault #9, 0.01 FSP
Fault #10, 0.00 FSP
Fault #11, 0.00 FSP
Fault #12, 0.00 FSP
Fault #13, 0.00 FSP
Fault #14, 0.00 FSP
Fault #15, 0.03 FSP
Fault #16, 0.01 FSP
Fault #17, 0.02 FSP
Fault #18, 0.00 FSP
Fault #19, 0.00 FSP

Calculate

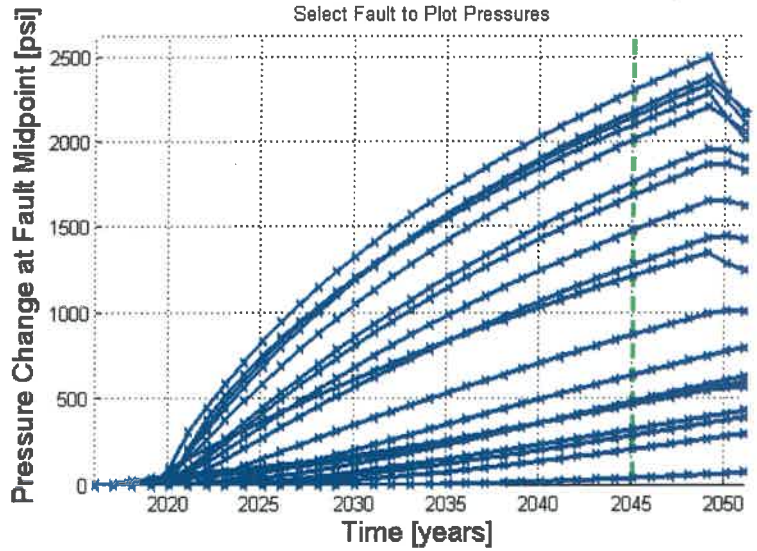
Export

b) PP Change at fault [psi]

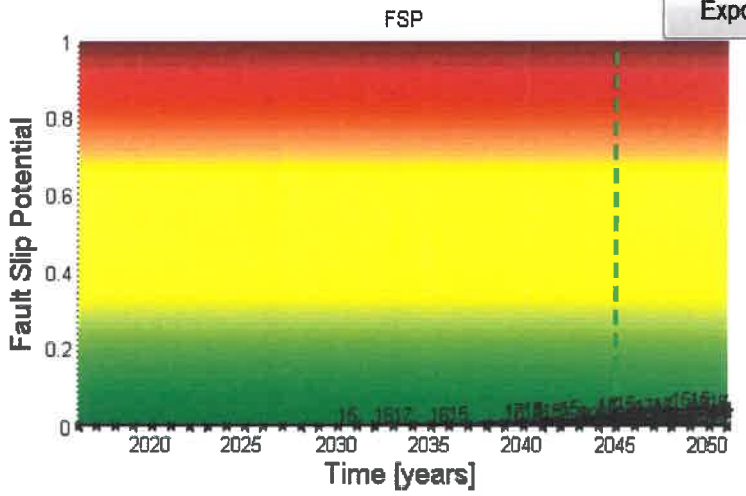
Summary Plots



Year: 2045



Export



Exh. No. 17

Fault Slip Potential

MODEL INPUTS | GEOMECHANICS | PROB. GEOMECH | HYDROLOGY | PROB. HYDRO | INTEGRATED

Export

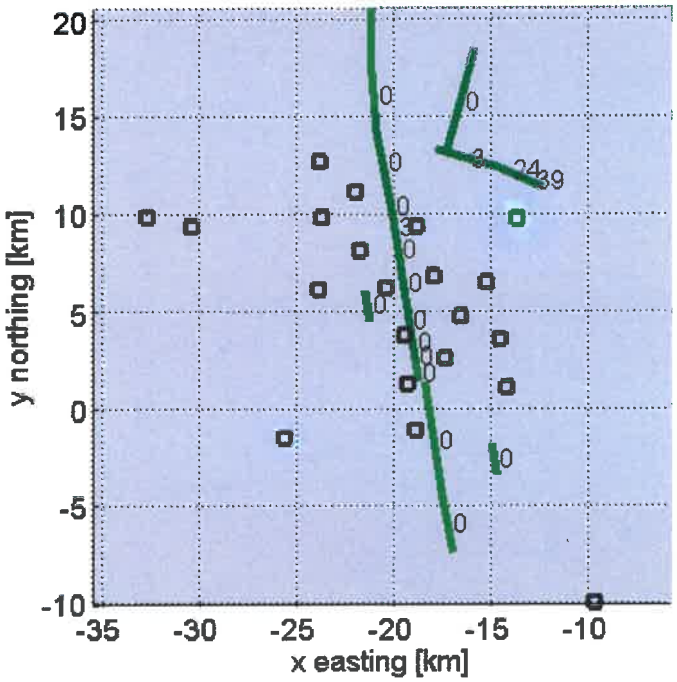
Fault Selector:

All Faults
Fault #1, 0.00 FSP
Fault #2, 0.00 FSP
Fault #3, 0.00 FSP
Fault #4, 0.00 FSP
Fault #5, 0.00 FSP
Fault #6, 0.00 FSP
Fault #7, 0.00 FSP
Fault #8, 0.00 FSP
Fault #9, 0.00 FSP
Fault #10, 0.00 FSP
Fault #11, 0.00 FSP
Fault #12, 0.00 FSP
Fault #13, 0.00 FSP
Fault #14, 0.00 FSP
Fault #15, 0.00 FSP
Fault #16, 0.00 FSP
Fault #17, 0.00 FSP
Fault #18, 0.00 FSP
Fault #19, 0.00 FSP

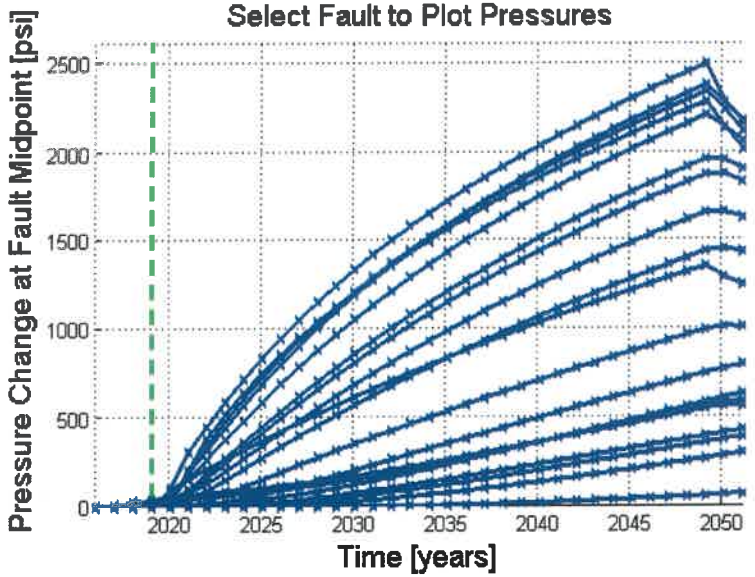
Calculate

b) PP Change at fault [psi]

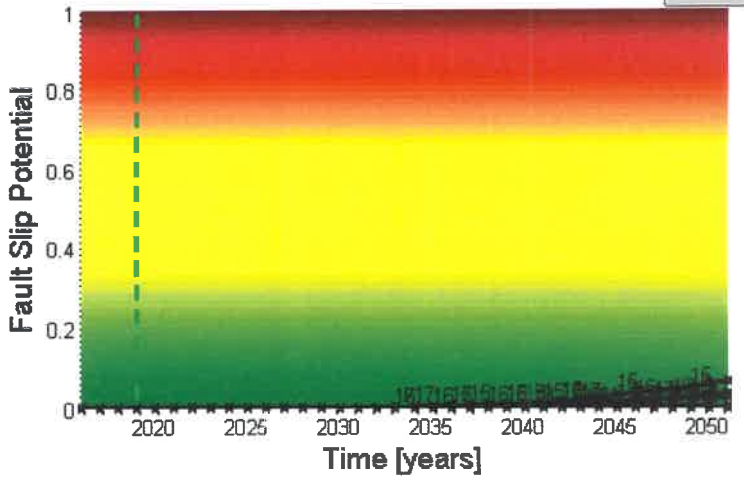
Summary Plots



Year: 2019

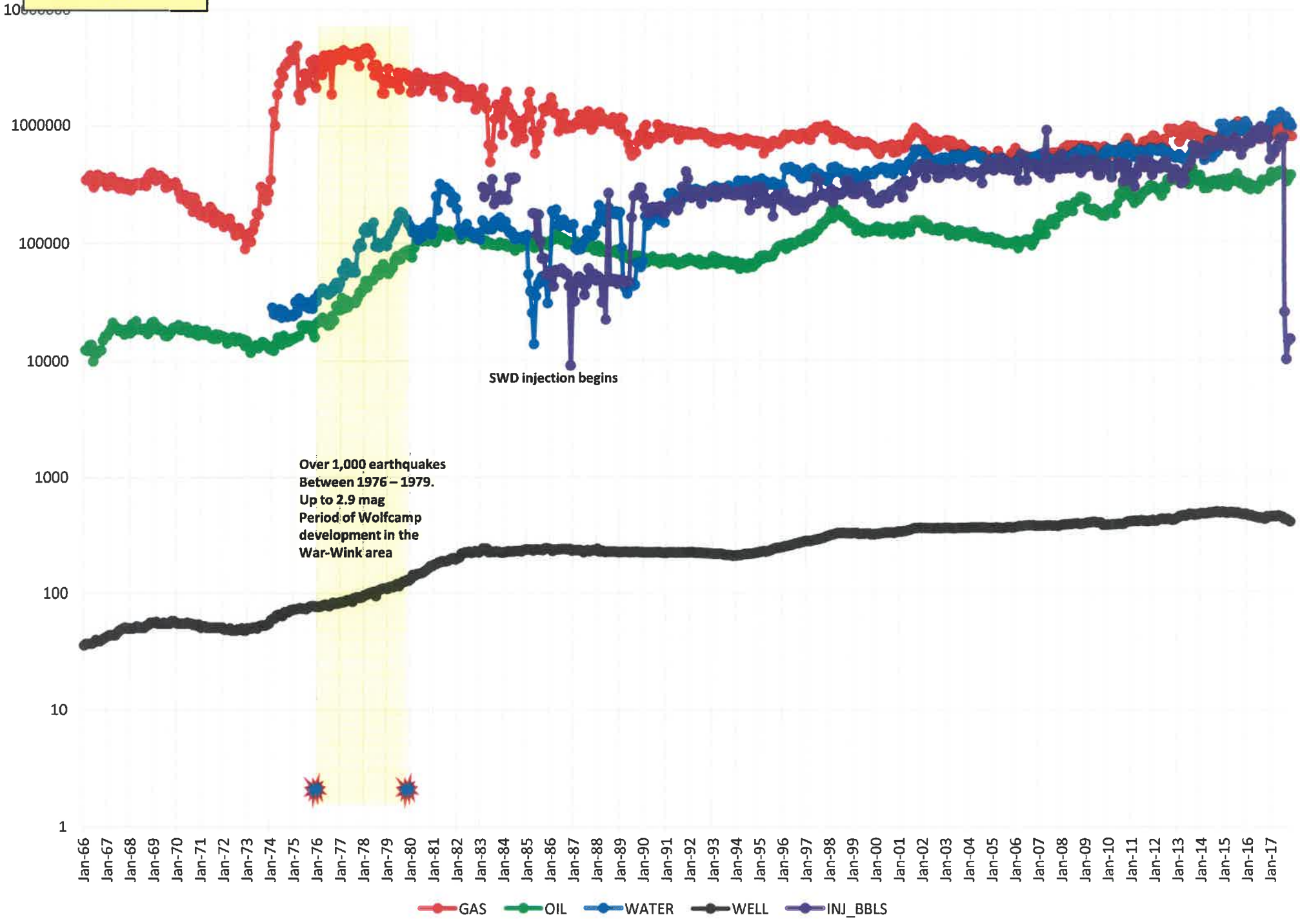


Export



Exh. No. 18

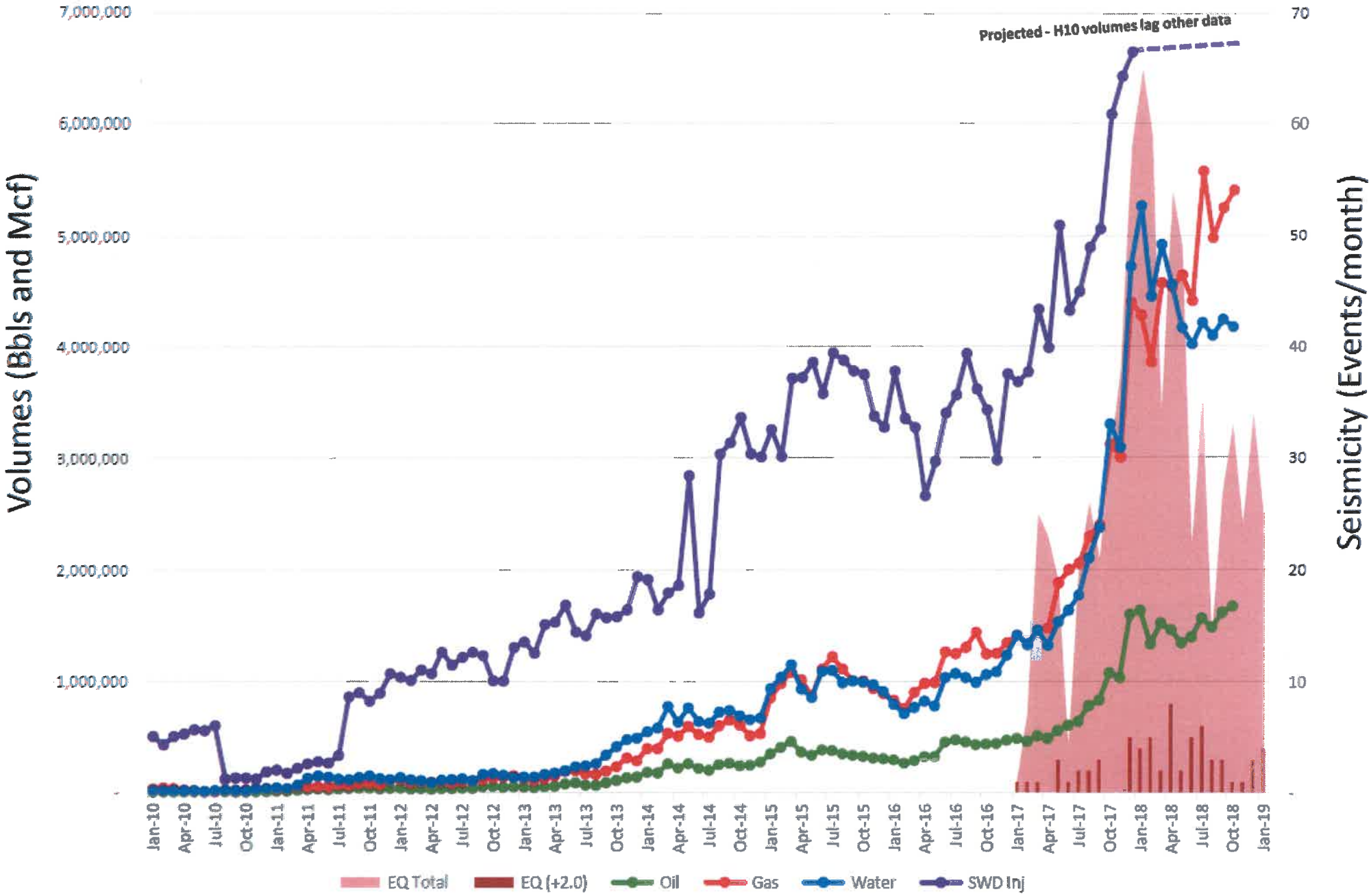
War-Wink Area



Exh. No. 19

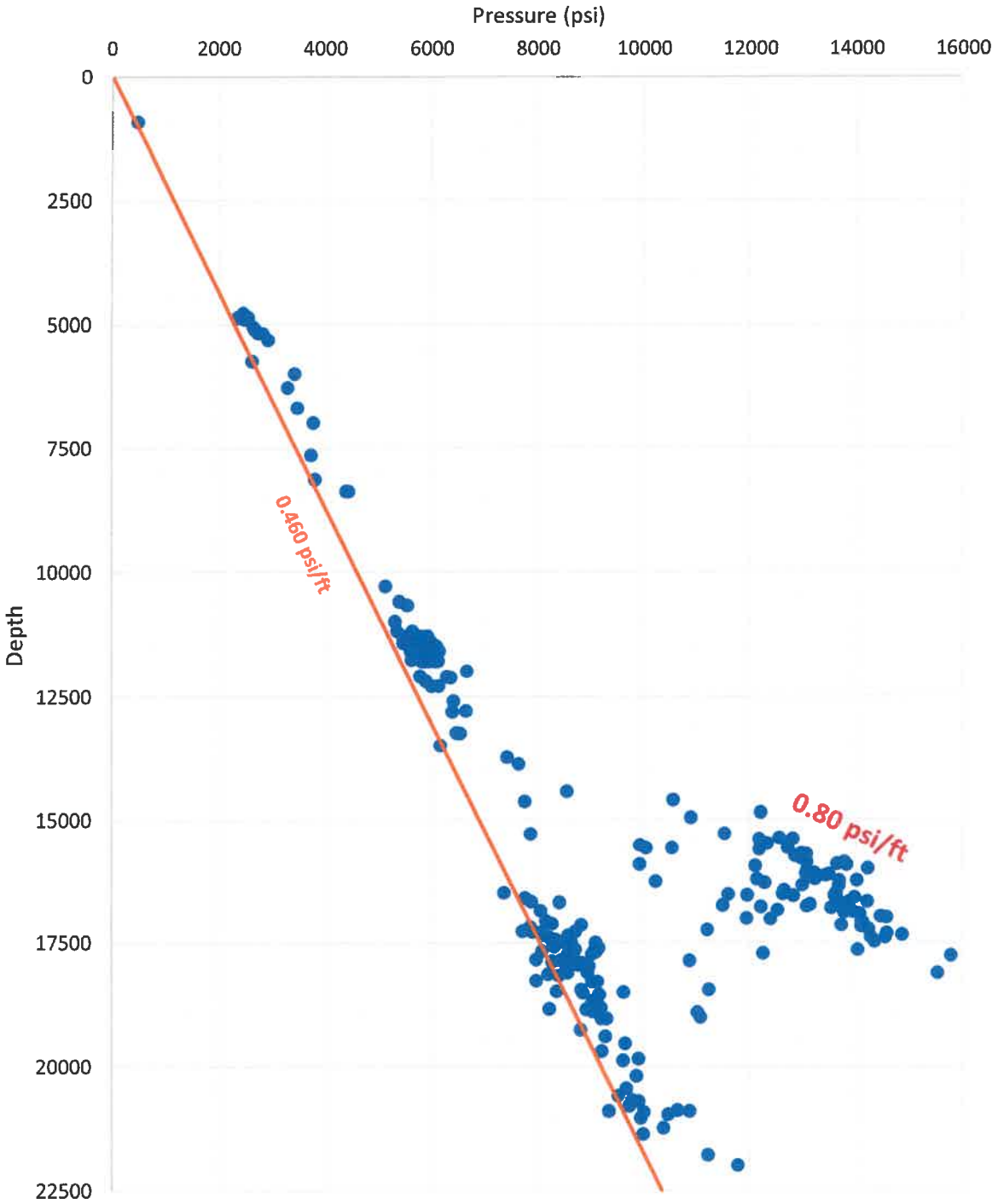
Seismicity Trend (Pecos Townsite)

AOR – 100 sq. mi around Lat 31.401, Long -103.4828



Exh. No. 20

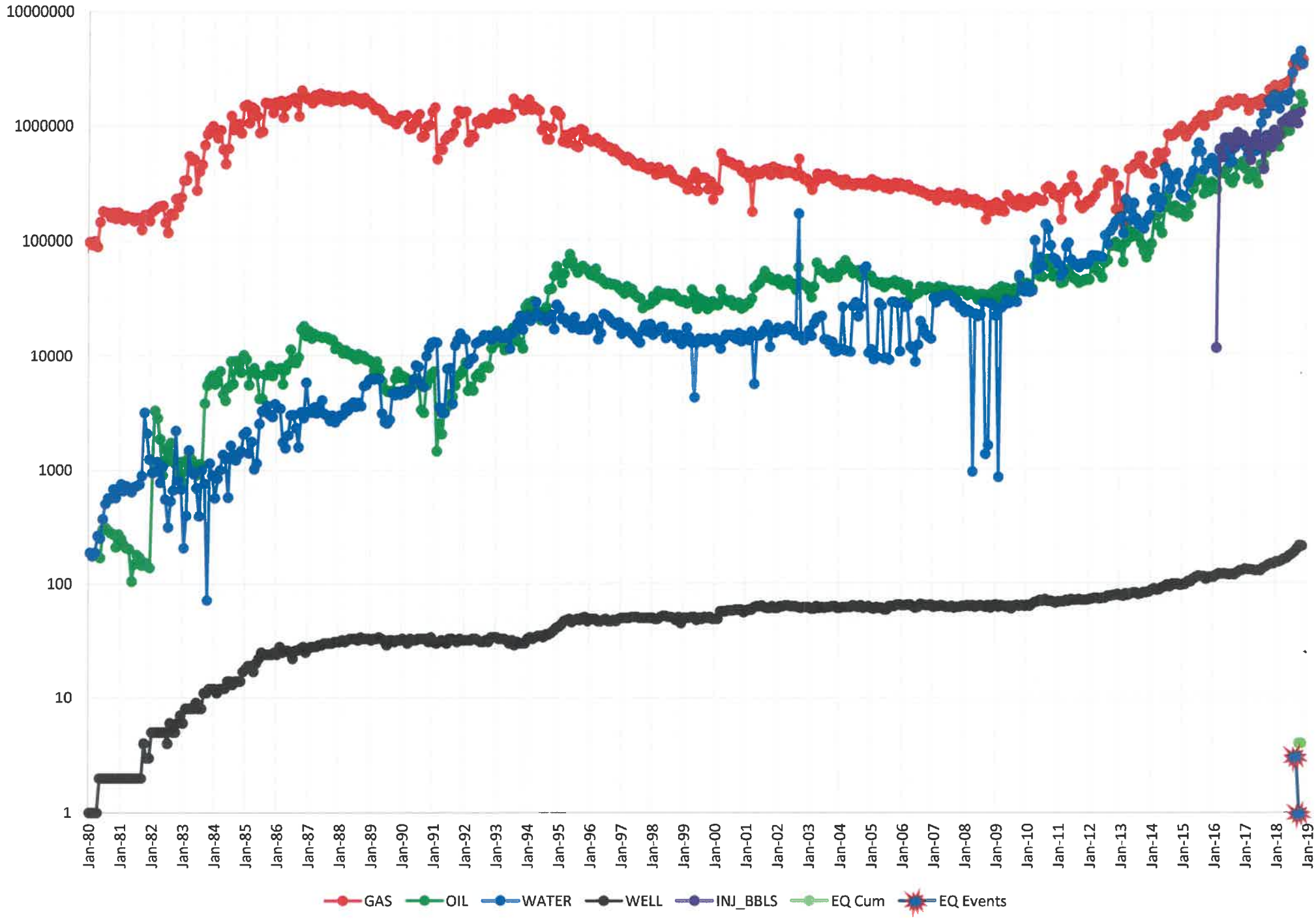
City of Pecos Mud Weight Distribution



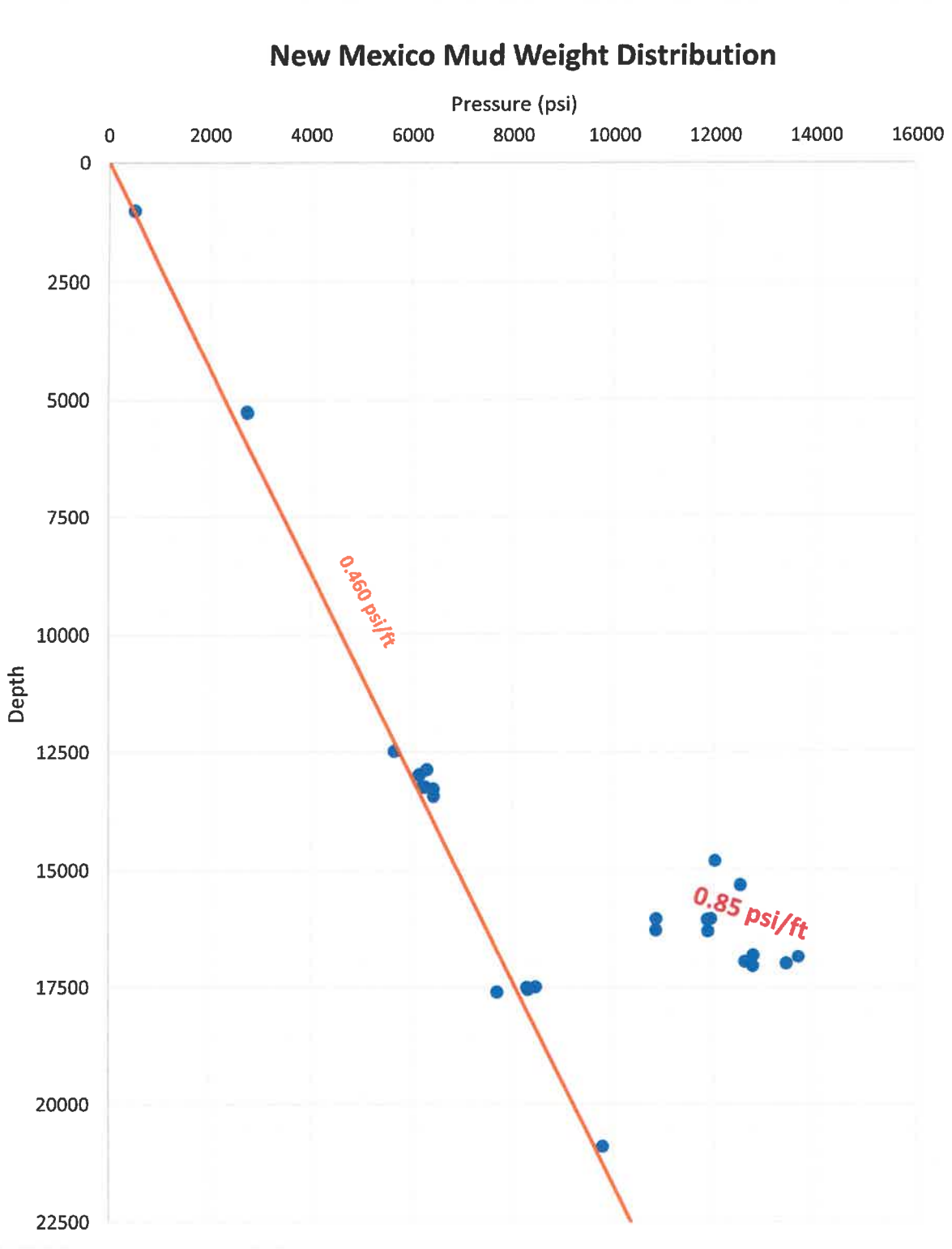
Exh. No. 21

NM East 100 sq mi Around All EQ Events

(32.1369128, -103.4907886)



Exh. No. 22


New Mexico Mud Weight Distribution
Pressure (psi)
0
2000
4000
6000
8000
10000
12000
14000
16000
Depth
0
2500
5000
7500
10000
12500
15000
17500
20000
22500
0.460 psi/ft
0.85 psi/ft

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February 19, 2019

RE: FSP Analysis Multiple NGL SWD well locations **(VIPER SWD)**
Lea County, New Mexico

FSP Analysis

The FSP software used for this analysis was jointly developed by Stanford University, Exxon Mobil and XTO Energy as a tool for estimating fault slip potential resulting from fluid injection.

I have reviewed the geology, seismic activity, injection history and future proposed injection in the Subject Area and I would conclude that the Proposed SWD wells do not pose a risk of increasing seismicity in the area. The primary risk reduction factor is that the faults are not optimally oriented to slip, and significant pressure increases would be necessary to initiate slip on the faults analyzed.

Fault slip potential (FSP) was analyzed in the area of review shown on **Exhibit No. 1.** The analysis integrates all of the proposed well locations as well as any existing injection wells in order to fully assess the pressure implications of injection in the area and the potential for slip along existing faults. Historical USGS earthquake events are denoted by the "blue" bulls-eye symbols. Recent low magnitude events recorded on the NGL seismic network are denoted by the "magenta" bulls-eye symbols.

Exhibit No. 2 shows the FSP input parameters for the local stress, average reservoir depth, pressure gradients and reservoir characteristics. Depths and reservoir characteristics were derived from nearby well logs and stress values were derived from the Lund Snee and Zoback (2018) paper related to Stress in the Permian Basin.

Exhibit No. 3 shows the location of existing wells and locations of the Proposed SWD wells relative to the faults documented in this area. The faults are sourced from the Texas Bureau of Economic Geology and these are also the fault traces shown in the referenced Snee/Zoback paper (Figure 3 in the

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EXHIBIT
tabbies
3

paper) and shown as **Exhibit No. 4** in my report. The Snee/Zoback paper only considers fault orientation relative to the stress orientation in determination of fault slip potential. Based on their limited analysis of the area they concluded the faults have low slip potential based on orientation/azimuth. My analysis further incorporates the injection history and future injection projections and the injection reservoir characteristics to fully assess the potential for slip along these faults. Existing wells were incorporated into the analysis using their injection volume histories and holding them constant into the future at their last reported monthly injection volume. The highlighted wells were modelled at 40,000 bbls/day and held constant for the life of the analysis (+25 years). The remaining proposed wells were all modelled at 30,000 bbls/day and held constant for the life of the analysis (+25 years).

The proposed wells are denoted in the model as follows: **(Exhibit No. 3)**

AR – Asroc SWD

AS – Aspen SWD

FA – Falcon SWD

HP – Harpoon SWD

JV – Javelin SWD

MC – McCloy Central SWD

MM – Minuteman SWD

MV – Maverick SWD

MW – McCloy West SWD

Mo – Moab SWD

PT - Patriot SWD

SR - Sparrow SWD

SW - Sidewinder SWD

TL – Telluride SWD

TB – Thunderbolt SWD

TD -Trident SWD

TH - Tomahawk SWD

VP - Viper SWD

Also included in the model are existing SWD injection wells as follows: **(Exhibit No. 3)**

MD - Madera SWD
S6 – Striker Six SWD
VD – Vaca Draw SWD

Exhibit No. 5 illustrates the geomechanical properties of the fault segments in the area of review. It should be noted that the FSP software only calculates a single pressure change along a fault (at the fault mid-point) so it is critical that faults are broken into multiple segments to get a true evaluation of the pressure increases associated with injection. **Exhibit No. 5 also** shows the **direction** of max hor. stress as denoted by the grey arrows outside the circle on the stereonet in the lower right portion of this exhibit. Faults that align parallel or closer to this orientation will have the highest potential for slip or lowest ΔP to slip. Faults 15-17 have the highest potential for slip and Faults 1-14 have very low potential for slip. Segments F18 and F19 are hypothetical faults at the location of recent seismicity.

Exhibit No. 6 shows that the input stress and fault values were varied by +/-10% to allow for uncertainty in the input parameters. Even considering the variability of the inputs the model results show low probability for slip on the faults in the area of review. An increase of 750 psi at Fault 15 still only results in a 10% probability of fault slip.

Exhibit No. 7 takes a closer look at fault 15. The sensitivity analysis is highlighted in the lower right portion of this exhibit and shows that without any variability of inputs the ΔP needed to slip is 1,150 psi along this fault. A 10% decrease in the friction coefficient of the fault could lower ΔP needed to slip to 750 psi.

Exhibit No. 8 takes a closer look at fault 16. The sensitivity analysis is highlighted in the lower right portion of this exhibit and shows that without any variability of inputs the ΔP needed to slip is 1,530 psi along this fault. A 10% decrease in the friction coefficient of the fault could lower ΔP needed to slip to 1,100 psi. Fault 17 shows similar FSP values as fault 16.

Exhibit No. 9 takes a closer look at fault 14. The sensitivity analysis is highlighted in the lower right portion of this exhibit and shows that without any variability of inputs the ΔP needed to slip is +3,500 psi along this fault. A 10% change in the fault strike or SHmax azimuth could lower ΔP needed to slip to 1,850 psi.

Exhibit No. 10 takes a closer look at fault 1. The sensitivity analysis is highlighted in the lower right portion of this exhibit and shows that without any variability of inputs the ΔP needed to slip is +5,600 psi along this fault. A 10% change in the fault strike or SHmax azimuth could lower ΔP needed to slip to 3,050 psi. Faults 2-13 and 18 &b19 all exhibit similar high ΔP pressure values needed to initiate slip and thus fault slip potential is very low along all of the N-S trending faults.

In general, only Fault segment 15 shows any concern for fault slip potential. The following exhibits will track the pressure changes at the faults moving forward in time based upon the anticipated injection in the future from these proposed wells and the existing wells in the Subject Area.

Exhibit No. 11 illustrates the ΔP pressure in a "heat map" and shows ΔP pressure increases at the faults as of 1/1/2020. This map indicates ΔP pressure increases of 7 psi at F15 and 53 psi at F17.

Exhibit No. 12 illustrates the ΔP pressure in a "heat map" and shows ΔP pressure increases at the faults as of 1/1/2025. This map indicates ΔP pressure increases of 44 psi at F15 and 108 psi at F17.

Exhibit No. 13 illustrates the ΔP pressure in a "heat map" and shows ΔP pressure increases at the faults as of 1/1/2030. This map indicates ΔP pressure increases of 126 psi at F15 and 175psi at F17. Note that these pressures are still well below the pressures that could initiate fault slip. F9 shows a ΔP pressure increase of 1,331 psi however this fault requires extremely high pressures (+4,400 psi) to initiate fault slip.

Exhibit No. 14 illustrates the ΔP pressure in a "heat map" and shows ΔP pressure increases at the faults as of 1/1/2035. This map indicates ΔP pressure increases of 239psi at F15 and 264 psi at F17. Note that these pressures are still well below the pressures that could initiate fault slip. F9 shows a ΔP pressure increase of 1,716psi however this fault requires extremely high pressures (+4,400 psi) to initiate fault slip.

Exhibit No. 15 illustrates the ΔP pressure in a "heat map" and shows ΔP pressure increases at the faults as of 1/1/2040. This map indicates ΔP pressure increases of 363 psi at F15 and 364 psi at F17. Note

that these pressures are still well below the pressures that could initiate fault slip. F9 shows a ΔP pressure increase of 2,033 psi however this fault requires extremely high pressures (+4,400 psi) to initiate fault slip.

Exhibit No. 16 illustrates the ΔP pressure in a "heat map" and shows ΔP pressure increases at the faults as of 1/1/2045. This map indicates ΔP pressure increases of 489 psi at F15 and 469 psi at F17. Note that these pressures are still well below the pressures that could initiate fault slip. F9 shows a ΔP pressure increase of 2,304 psi however this fault requires extremely high pressures (+4,400 psi) to initiate fault slip.

The pressure analysis over time shows that pressure is expected to increase along the faults however pressures remain below critical levels. The table below shows the ΔP pressure increases needed to imitate fault slip along each fault segment and the corresponding ΔP pressure increases as of 2045:

Fault Segment	ΔP to slip (fixed inputs)	ΔP to slip (10% varied inputs)	ΔP at 2045
F1	5,600	3,050	43
F2	6,300	3,850	327
F3	7,000	4,750	872
F4	7,000	4,750	1,279
F5	6,850	4,400	1,481
F6	6,850	4,400	1,686
F7	6,850	4,400	2,015
F8	6,850	4,400	2,182
F9	6,850	4,400	2,304
F10	6,850	4,400	2,151
F11	6,850	4,400	2,103
F12	6,850	4,400	1,215
F13	6,990	4,750	292
F14	3,500	1,800	212
F15	1,150	750	489
F16	1,530	1,100	475
F17	1,530	1,100	469
F18	6,850	4,400	1,769
F19	6,850	4,400	643

This analysis demonstrates that there is a low likelihood of injection induced seismicity in the Subject Area.

Recently recorded Seismicity

NGL has recorded and located 4 events in the area on its local seismology network:

9/10/18 – 1.25 mag

9/14/18 – 1.11 mag

9/15/18 – 1.50 mag

10/13/18 – 1.60 mag

All of these events are below the magnitude of "felt" events and are so small that they are not detected on the USGS network. **Exhibit No. 17** shows minimal ΔP pressure increases as of 1/1/2019. In the area of the 4 seismic events there is no calculated pressure increase (0) as would be expected since the few injection wells have short injection histories and they are several miles from the events. Minimal ΔP pressure increases are noted in the area to the NE (24-39 psi) near the Madera SWD.

The seismicity is likely a poroelastic stress response due to the pressure reduction associated with recent production at Wolfcamp depths and also short-term increases in pressure associated with Frac-stimulations at these same depths. TexNet data, in the Texas portion of the Delaware Basin, appears to confirm that the seismicity is primarily focused within the overpressured section with some deeper responses in the basement.

The recent seismicity in the Pecos Townsite area of the Delaware Basin shows similarities to seismicity recorded in this region from 1975 to 1979. Between 1975 and 1979 a network of 12 seismograph stations was operated within the Permian Basin to assist in evaluating the seismic risk to a proposed radioactive waste disposal site in southeastern New Mexico. During the period of network operation over 2,000 events were recorded, and 1,300 events were located. During this same time, oil reservoirs were being developed in the overpressured formations primarily in the Wolfcamp. Spatial and temporal correlation between the earthquakes and oil field development in the overpressured Wolfcamp formation was noted by Doser et al. (1991). (paper titled; "The Not So Simple Relationship Between Seismicity and Oil Production in the Permian Basin, West Texas") These same authors further concluded that the seismicity in the region correlated strongly with the overpressured system within the

Delaware Basin. (paper titled; "Distribution and Generation of the Overpressure System, Eastern Delaware Basin, Western Texas and Southern New Mexico")

The seismicity recorded from 1975 to 1979 was focused around the War-Wink Area in Ward County Texas. **Exhibit No. 18** shows the oil, water and gas production and SWD injection history in the War-Wink area. The period of increased seismicity occurred during a period of increased development in the Wolfcamp immediately overlying the overpressured section. This was at a time when there was no SWD injection in the area (purple curve). Since that time injection has steadily increased in the area with no additional seismicity reported in almost 40 years.

Exhibit No. 19 is a similar graph for the area around the Pecos Townsite in Reeves County. Texas. This area has also experienced a similar increase in seismicity that shows the same depth distribution that was observed at War-Wink. It should also be noted that seismicity is declining as production/extraction has peaked in the Pecos Townsite area.

What is unique about the War-Wink area and most of the Delware Basin is the presence of a highly overpressured interval from the base of the Wolfcamp through the base of the Woodford Shale. This can be seen from the "Mud weight distribution plot" shown in **Exhibit No. 20.** This shows extremely high pore pressures sandwiched between normal pressures above and below.

Exhibit No. 21 is a similar graph for the Subject Area near the proposed SWD wells in Lea County, New Mexico. Deep injection in the area has been minimal and the FSP analysis shows that this area has not experienced any appreciable pressure increase associated with the SWD injection to date. Like War-Wink and Pecos this area also shows an overpressured section between the Wolfcamp and base of Woodford as depicted in **Exhibit No. 22**.

In my opinion the seismicity recorded and located in this area is of similar origin as the seismicity reported at War-Wink and Pecos and is related to the extraction of fluids from the formations immediately overlying the overpressured section.

Conclusion

The faults and fault trends in this area of review are not optimally oriented to slip. The orientation of the faults requires significant pressure changes (ΔP +1,000 psi) based on the fixed input parameters and the ΔP increase at the most vulnerable fault only reaches 512 psi by 2045. This model assumes constant injection rates over the next +25 years which is not a typical scenario as SWD wells tend to decrease injection volumes over time as the well ages and disposal demand decreases in the area. If injection volumes are lower over time than the model represents, then the risk for fault slip is lowered also.

In the event seismicity should occur in the future, the wells closest to the faults (proposed and existing) should be the wells considered for modification or reduction of injection rates. At this time there is no evidence to support rate reduction for any of the existing or proposed wells.

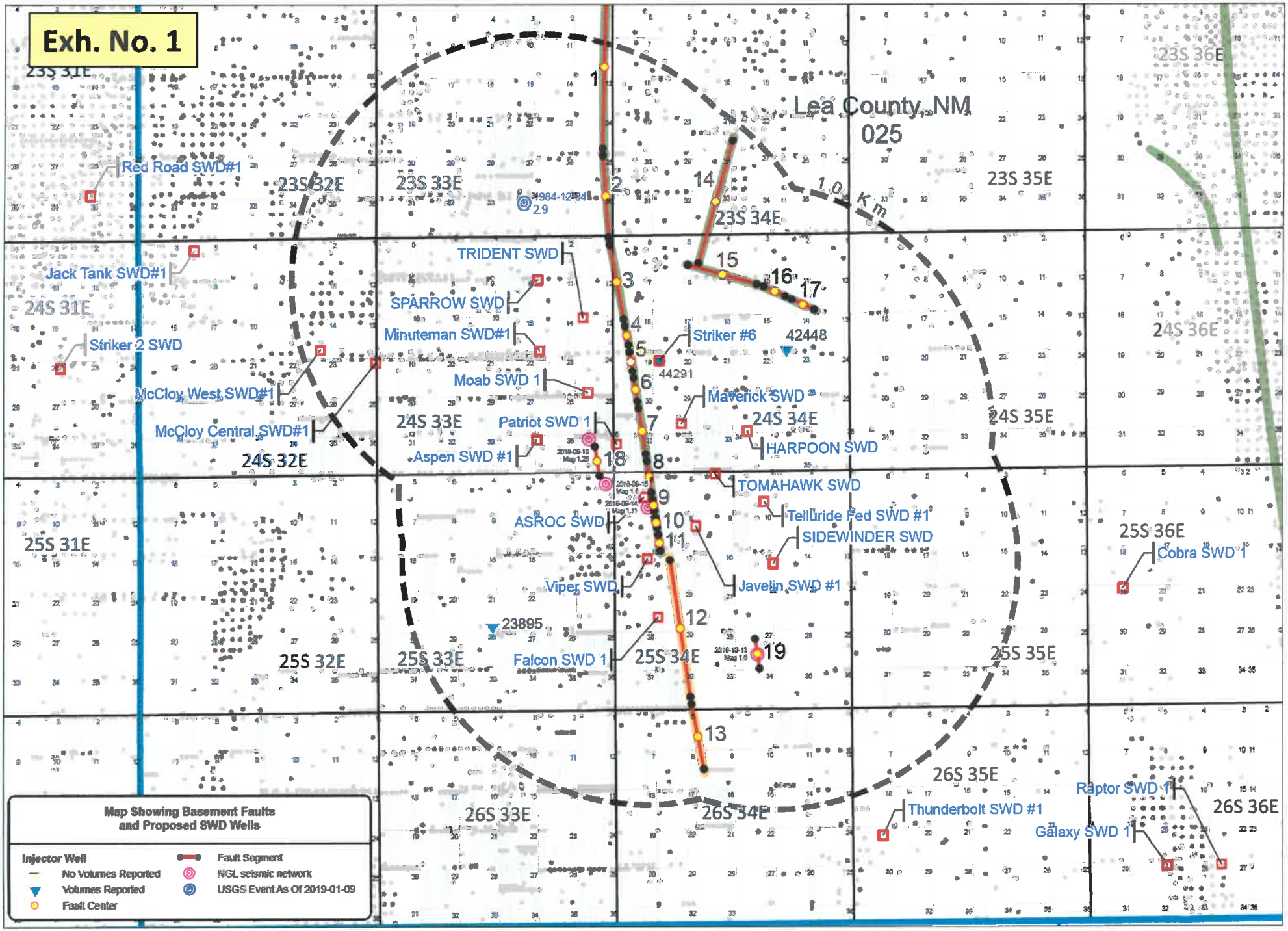
Should you have any questions, please do not hesitate to call me at (512) 327-6930 or email me at todd.reynolds@ftiplattsparks.com.

Regards,

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

FTI Platt Sparks
512.327.6930 office

FTI™
PLATT SPARKS



Date Saved: 2019-02-19 11:20:25 AM
Path: P:\1428\FSP_.mxd

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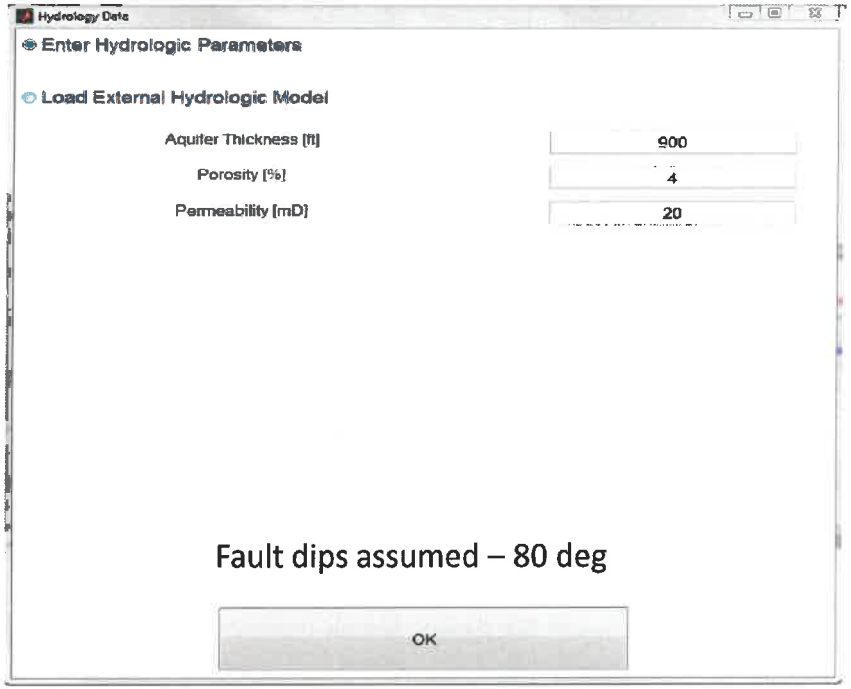
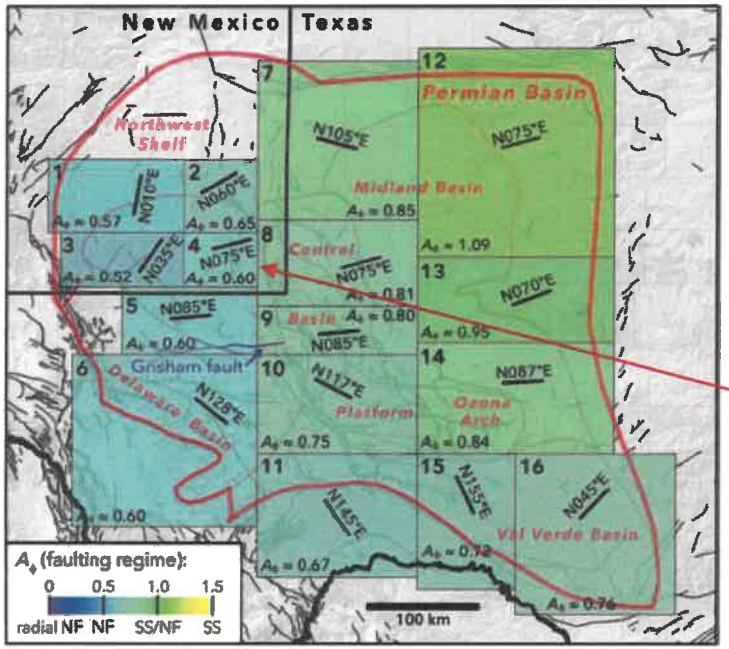
Exh. No. 2

FSP INPUT PARAMETERS





Input Parameter Comments

Hydrologic Parameters – Derived from Striker 6 SWD #2 logs

Stress Gradients – Derived from A Phi parameter from Snee/Zoback paper (.60)

Max Hor. Stress Direction - Derived from Snee/Zoback paper (N75E)

Exh. No. 3

Zoom

Fault Slip Potential

MODEL INPU... | GEOMECHANICS | PROB. GEOMECH | HYDROLOGY | PROB. HYDRO | INTEGRATED

Fault Selector:

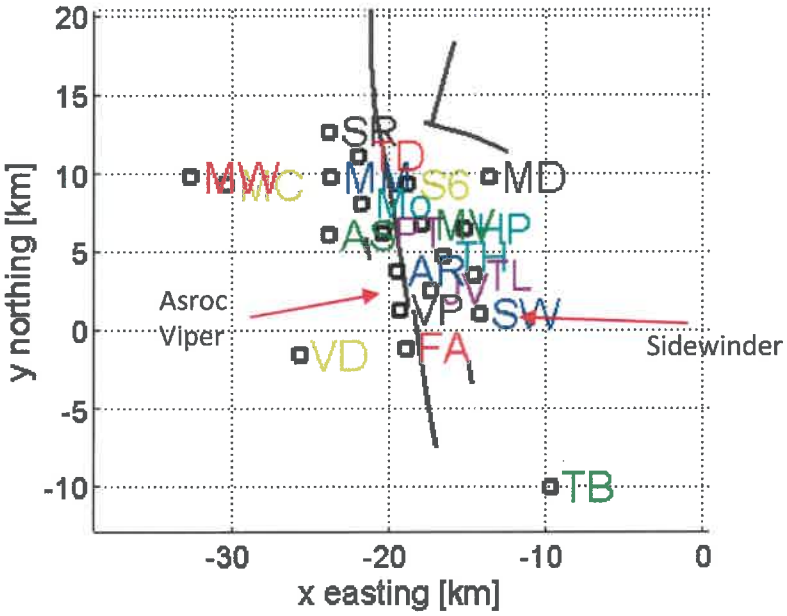
- All Faults
- Fault #1
- Fault #2
- Fault #3
- Fault #4
- Fault #5
- Fault #6
- Fault #7
- Fault #8
- Fault #9
- Fault #10
- Fault #11
- Fault #12
- Fault #13
- Fault #14
- Fault #15
- Fault #16
- Fault #17
- Fault #18
- Fault #19

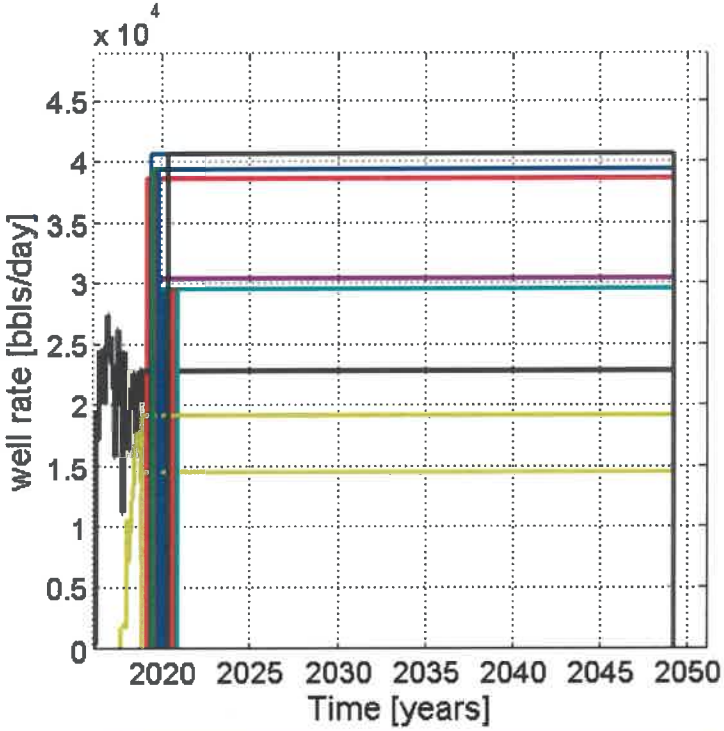
Calculate

Stress Regime: Normal Faulting

Select Well: All

FSP INPUT Fault and well locations





FSP INPUT Injection history and projected future injection

Exh. No. 4

Area of Review

Low slip potential based on fault orientation (green faults)

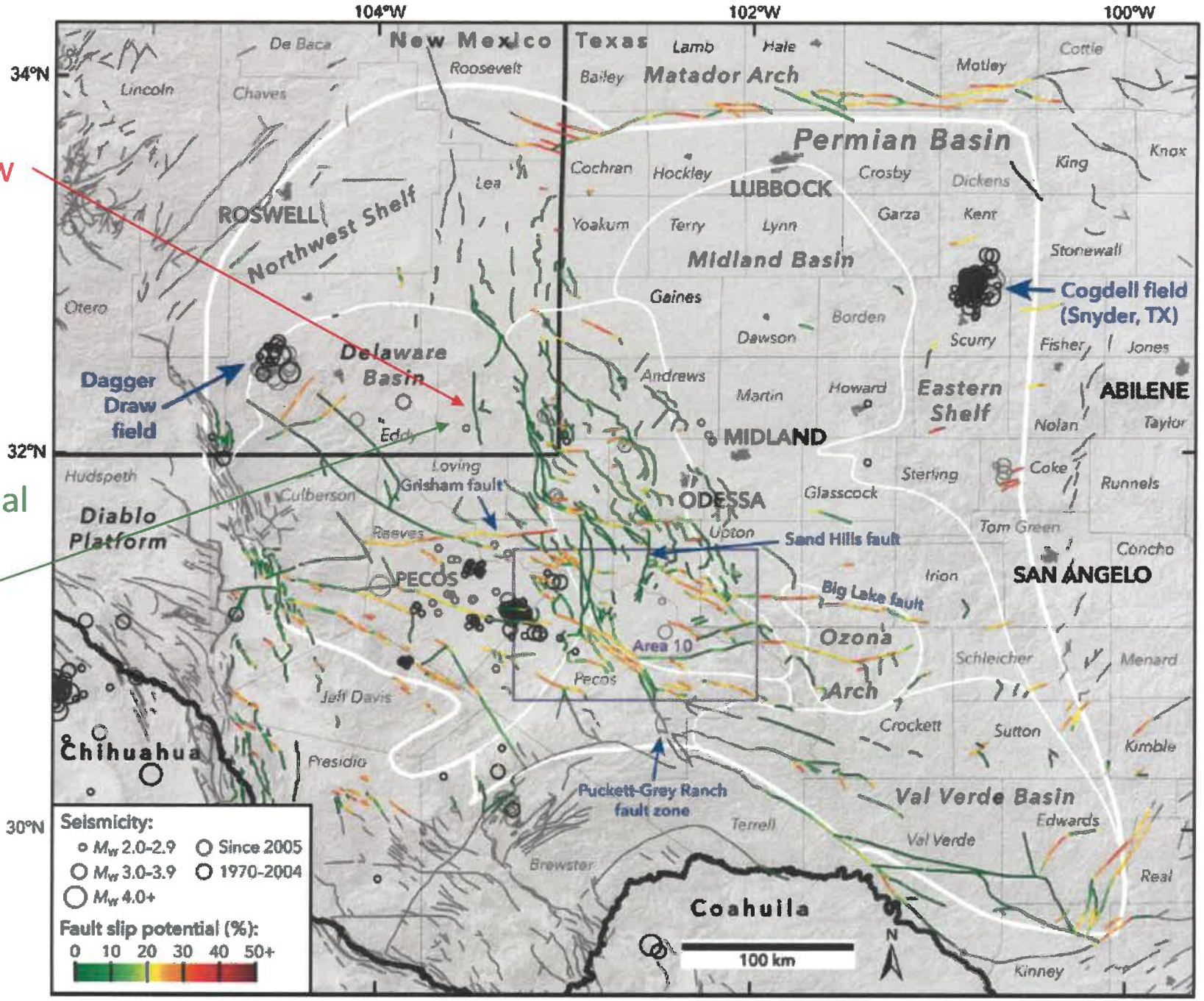


Figure 3. Results of our probabilistic FSP analysis across the Permian Basin. Data sources are as in Figures 1 and 2.

From Lund Snee and Zoback (2018)

Exh. No. 5

Zoom

Fault Slip Potential

MODEL INPUTS | GEOMECHA... | PROB. GEOMECH | HYDROLOGY | PROB. HYDRO | INTEGRATED

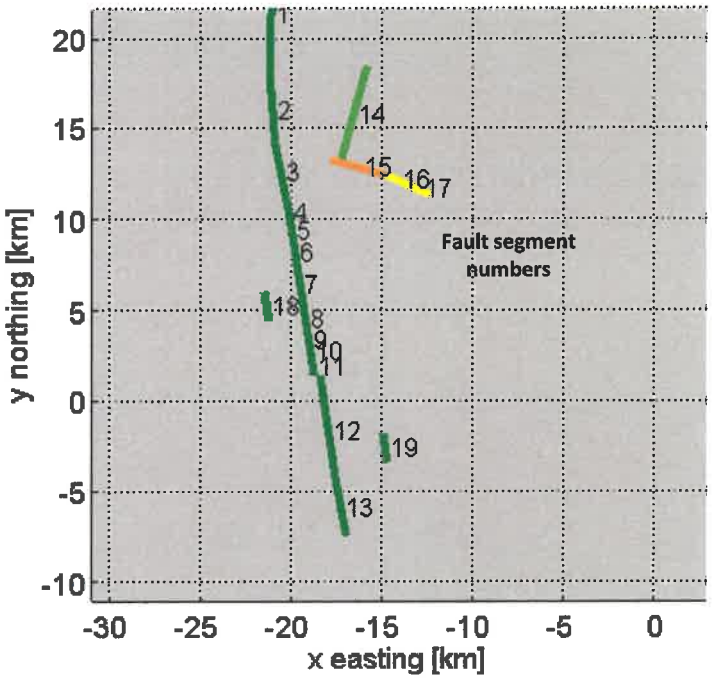
Fault Selector:

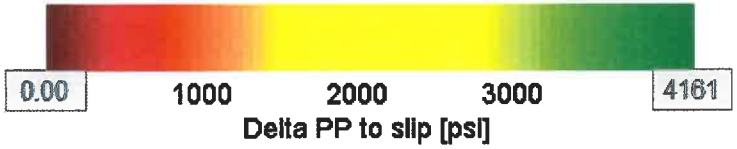
All Faults
Fault #1
Fault #2
Fault #3
Fault #4
Fault #5
Fault #6
Fault #7
Fault #8
Fault #9
Fault #10
Fault #11
Fault #12
Fault #13
Fault #14
Fault #15
Fault #16
Fault #17
Fault #18
Fault #19

Calculate

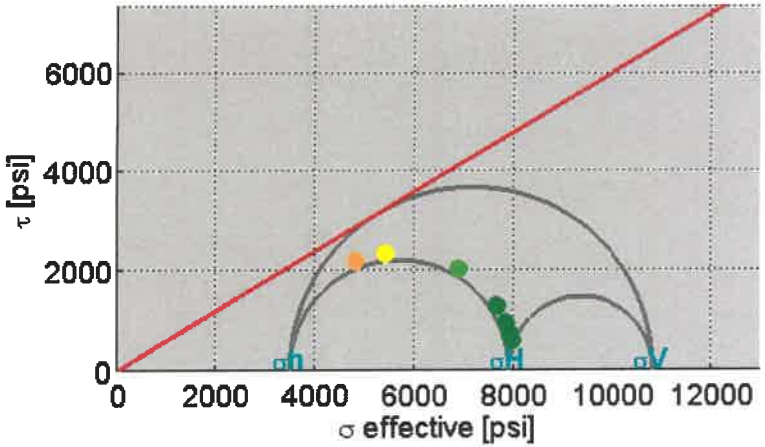
a) Fault Number

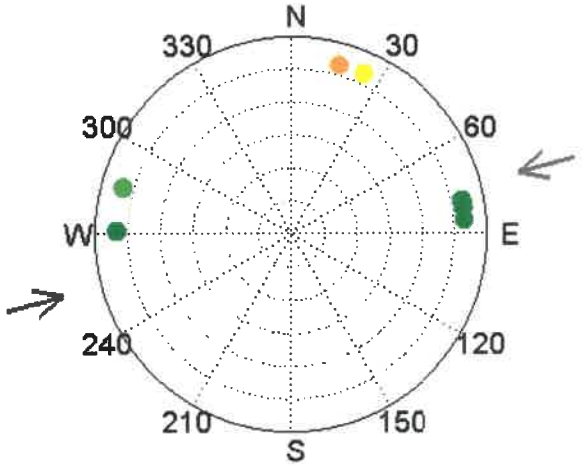
Help





Stress Regime: Normal Faulting





Stereonet Show: Fault Normals

Exh. No. 6

Zoom

Fault Slip Potential

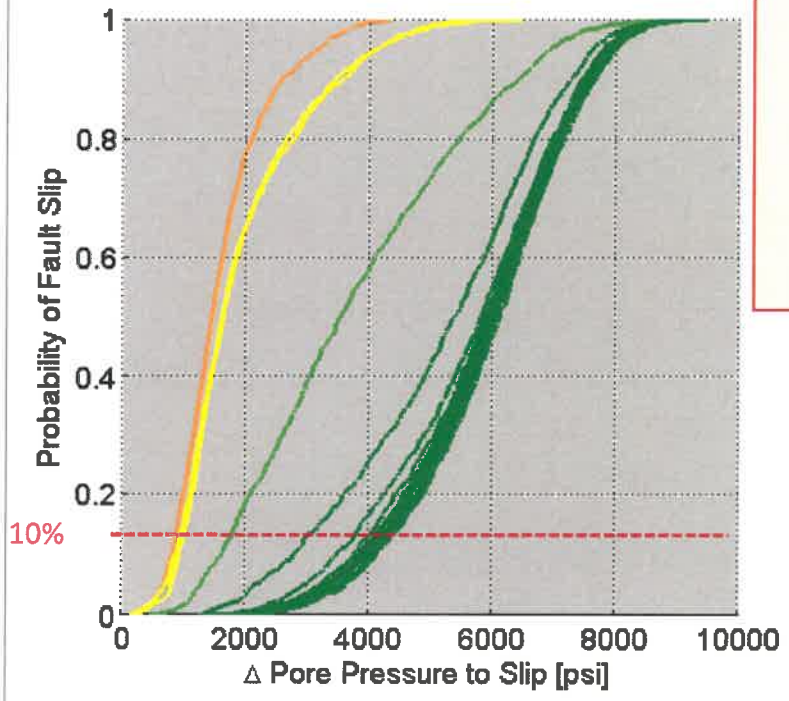
MODEL INPUTS | GEOMECHANICS | PROB. GEOM.. | HYDROLOGY | PROB. HYDRO | INTEGRATED

Fault Selector:

All Faults
Fault #1
Fault #2
Fault #3
Fault #4
Fault #5
Fault #6
Fault #7
Fault #8
Fault #9
Fault #10
Fault #11
Fault #12
Fault #13
Fault #14
Fault #15
Fault #16
Fault #17
Fault #18
Fault #19

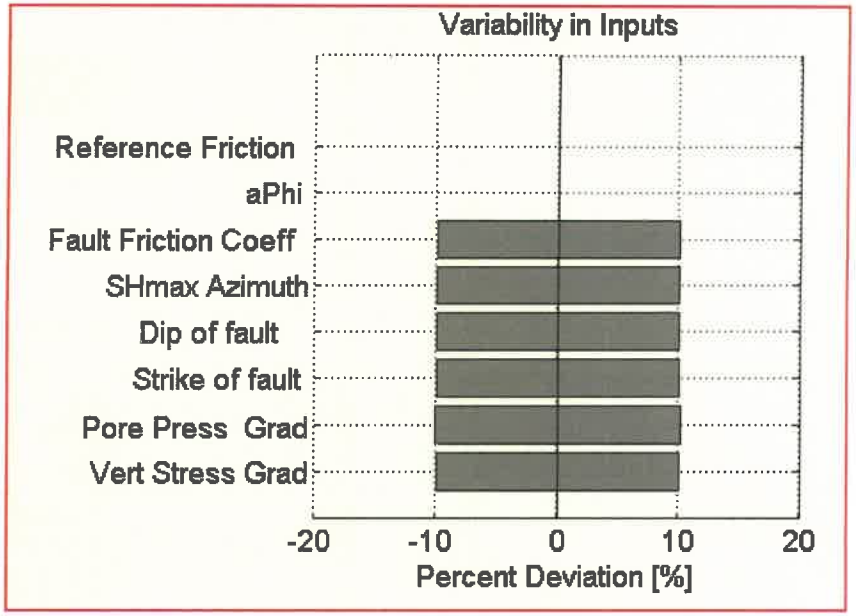
Calculate

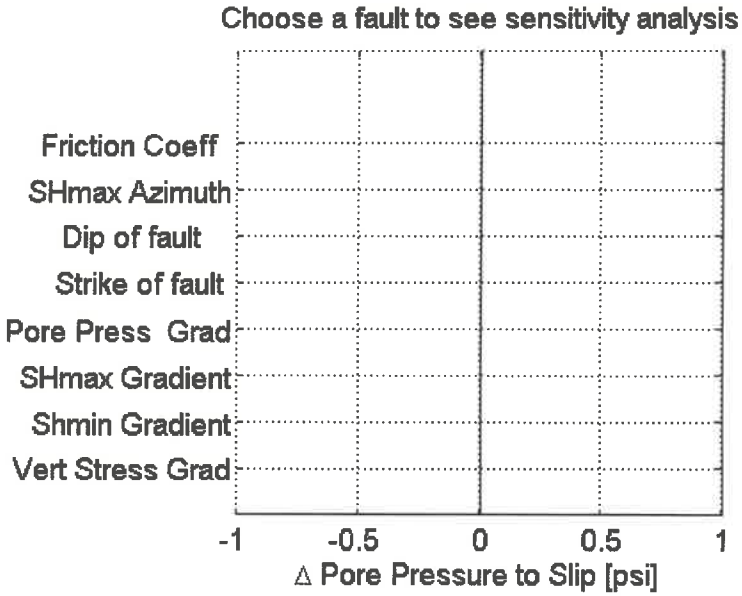
Load Distributions | Run Analysis



Max Delta PP [psi]: 10000

Export CDF data | Show Input Distributions





Exh. No. 7

File Data Inputs Export Image Zoom

Fault Slip Potential

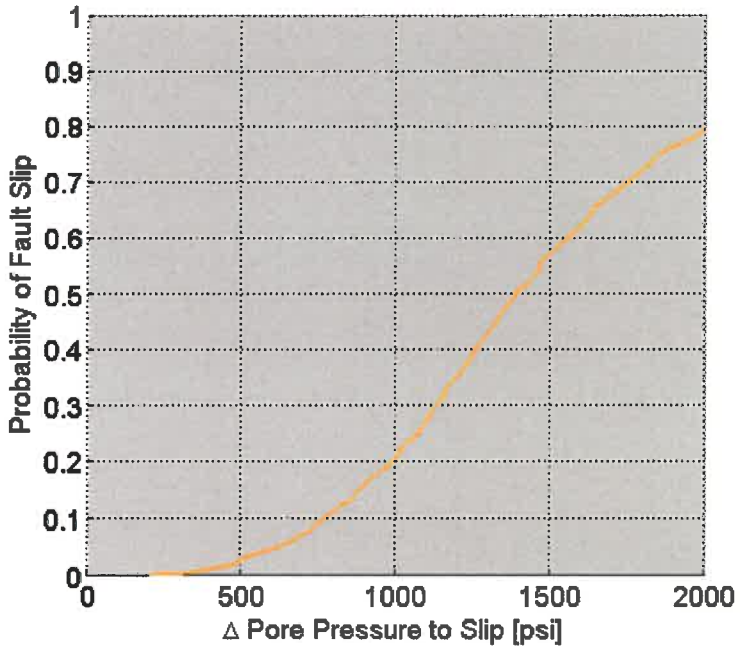
MODEL INPUTS | GEOMECHANICS | PROB. GEOM... | HYDROLOGY | PROB. HYDRO | INTEGRATED

Fault Selector:

All Faults
Fault #1
Fault #2
Fault #3
Fault #4
Fault #5
Fault #6
Fault #7
Fault #8
Fault #9
Fault #10
Fault #11
Fault #12
Fault #13
Fault #14
Fault #15
Fault #16
Fault #17

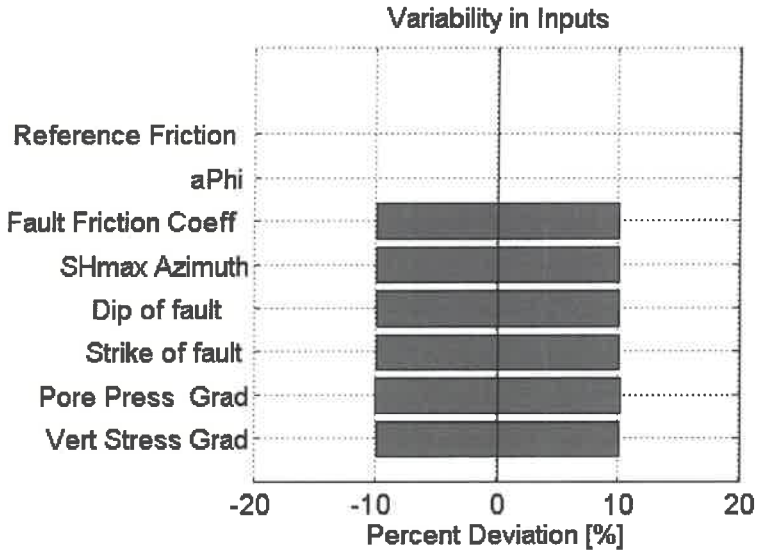
Calculate

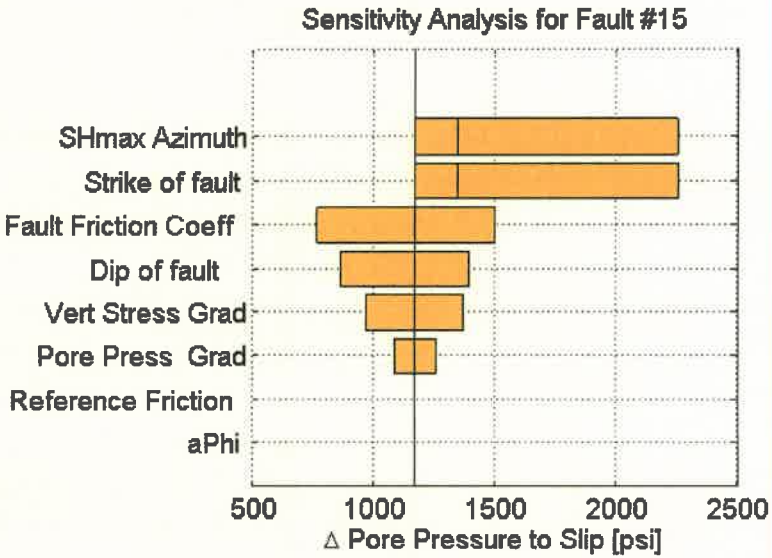
Load Distributions | Run Analysis



Max Delta PP [psi]: 2000

Export CDF data | Show Input Distributions





Exh. No. 8

File Data Inputs Export Image Zoom

Fault Slip Potential

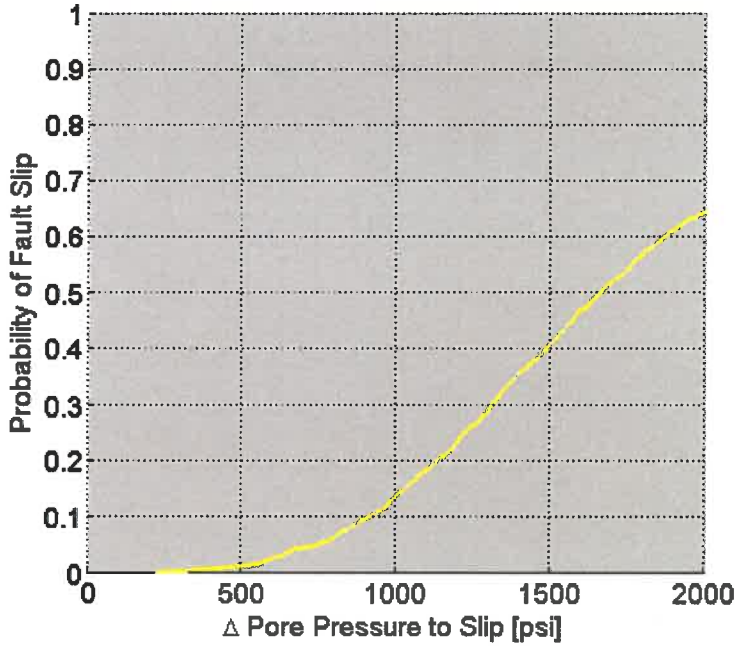
MODEL INPUTS | GEOMECHANICS | PROB. GEOM... | HYDROLOGY | PROB. HYDRO | INTEGRATED

Fault Selector:

- All Faults
- Fault #1
- Fault #2
- Fault #3
- Fault #4
- Fault #5
- Fault #6
- Fault #7
- Fault #8
- Fault #9
- Fault #10
- Fault #11
- Fault #12
- Fault #13
- Fault #14
- Fault #15
- Fault #16
- Fault #17

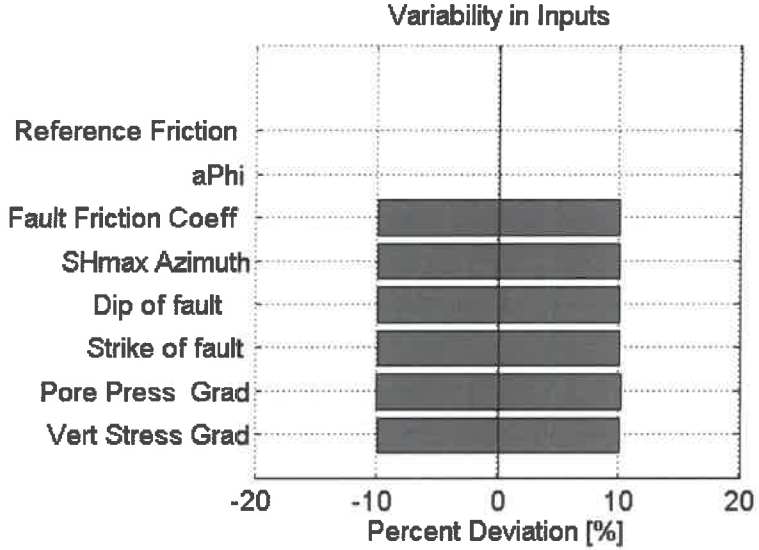
Calculate

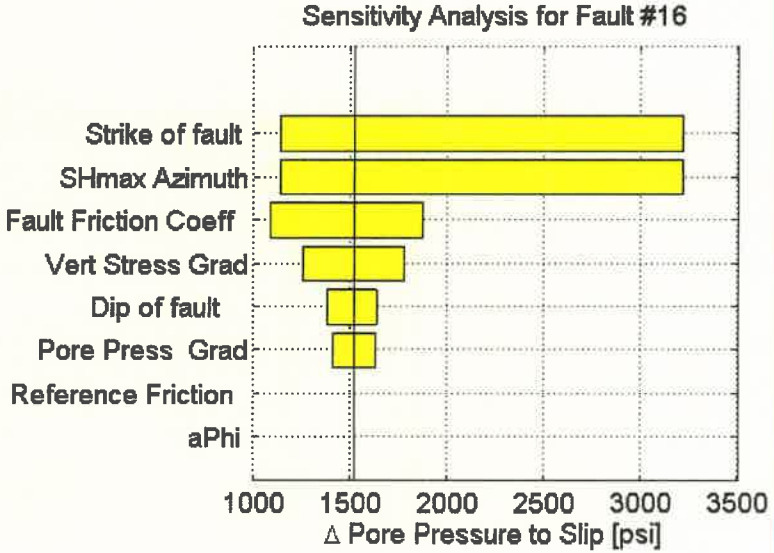
Load Distributions | Run Analysis



Max Delta PP [psi]: 2000

Export CDF data | Show Input Distributions





Exh. No. 9

File Data Inputs Export Image Zoom

Fault Slip Potential

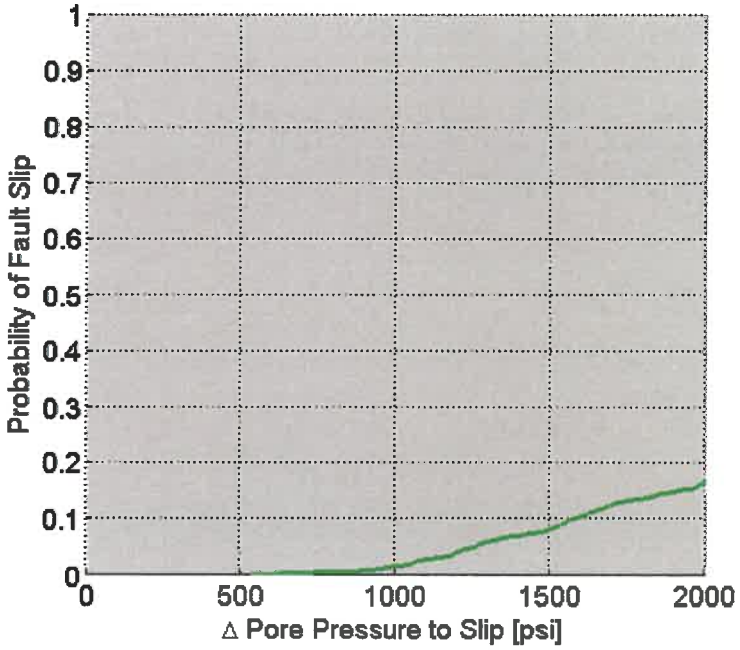
MODEL INPUTS | GEOMECHANICS | PROB. GEOM... | HYDROLOGY | PROB. HYDRO | INTEGRATED

Fault Selector:

All Faults
Fault #1
Fault #2
Fault #3
Fault #4
Fault #5
Fault #6
Fault #7
Fault #8
Fault #9
Fault #10
Fault #11
Fault #12
Fault #13
Fault #14
Fault #15
Fault #16
Fault #17

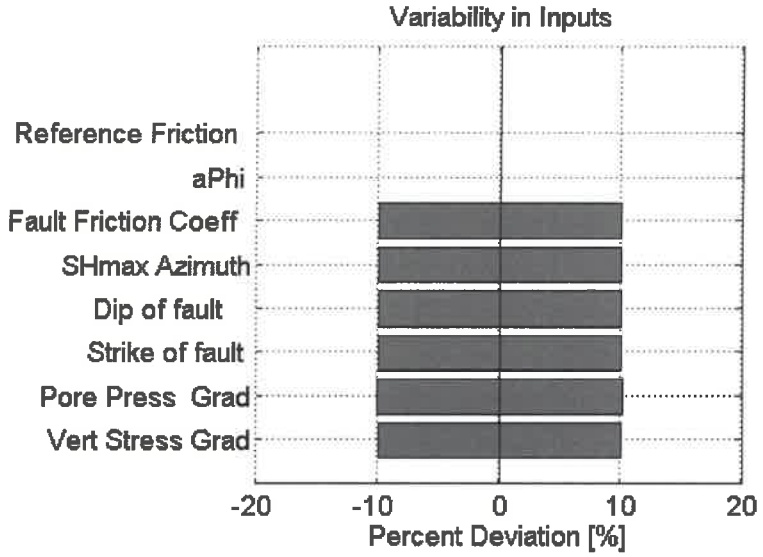
Calculate

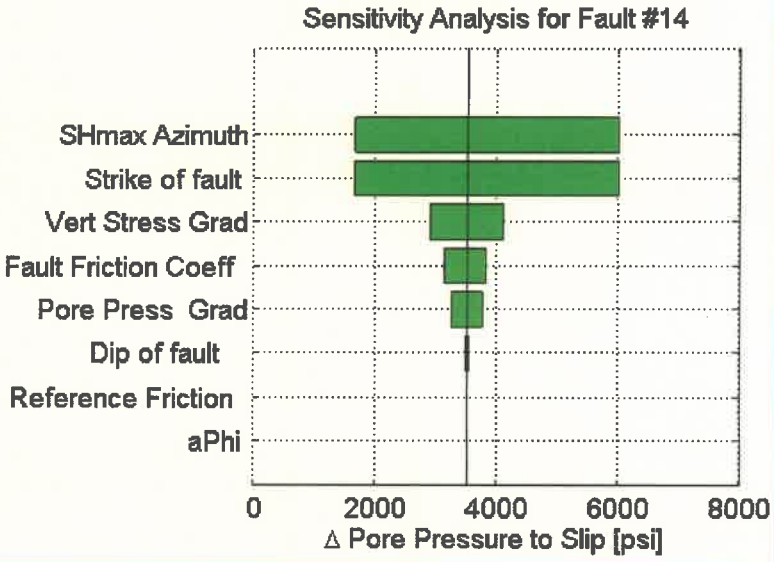
Load Distributions | Run Analysis



Max Delta PP [psi]: 2000

Export CDF data | Show Input Distributions





Exh. No. 10

File Data Inputs Export Image Zoom

Fault Slip Potential

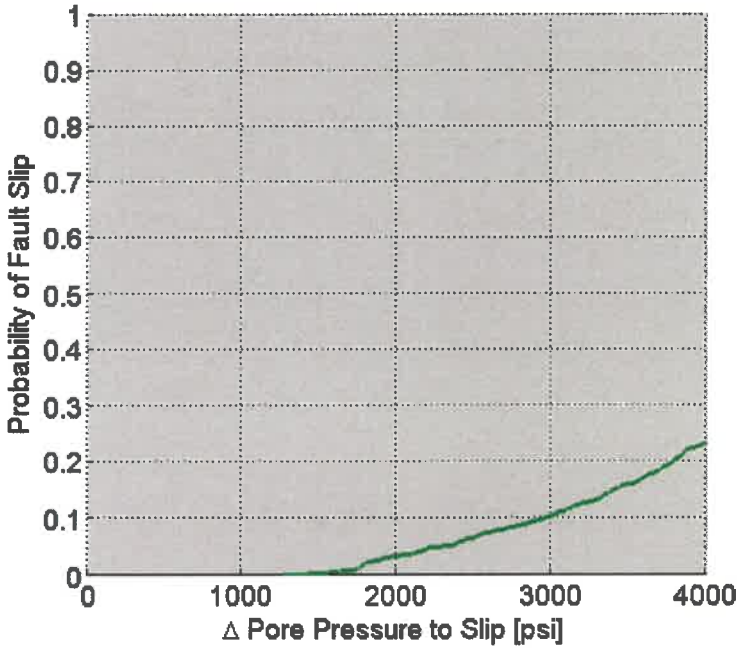
MODEL INPUTS | GEOMECHANICS | PROB. GEOM... | HYDROLOGY | PROB. HYDRO | INTEGRATED

Fault Selector:

All Faults
Fault #1
Fault #2
Fault #3
Fault #4
Fault #5
Fault #6
Fault #7
Fault #8
Fault #9
Fault #10
Fault #11
Fault #12
Fault #13
Fault #14
Fault #15
Fault #16
Fault #17

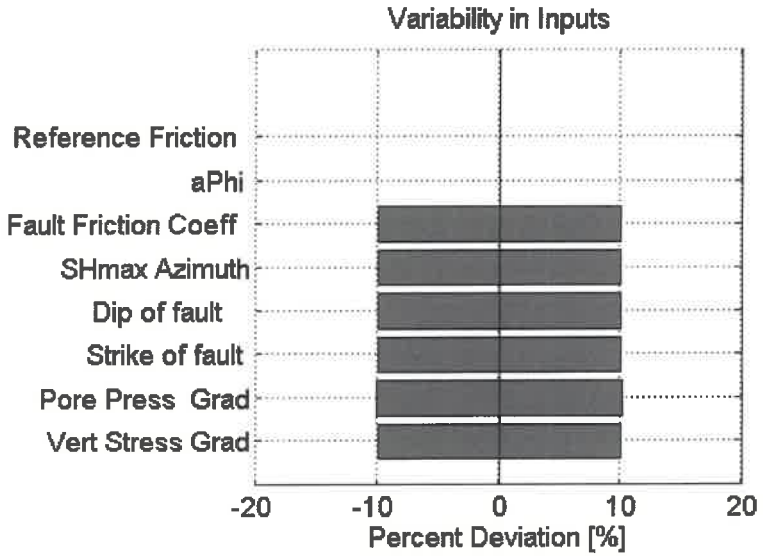
Calculate

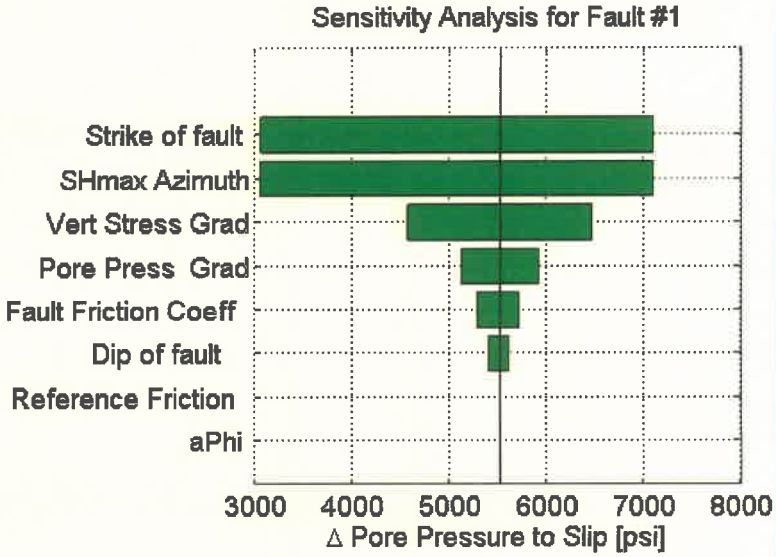
Load Distributions | Run Analysis



Max Delta PP [psi]: 4000

Export CDF data | Show Input Distributions





Exh. No. 11

Fault Slip Potential

MODEL INPUTS | GEOMECHANICS | PROB. GEOMECH | HYDROLOGY | PROB. HYDRO | INTEGRATED

Export

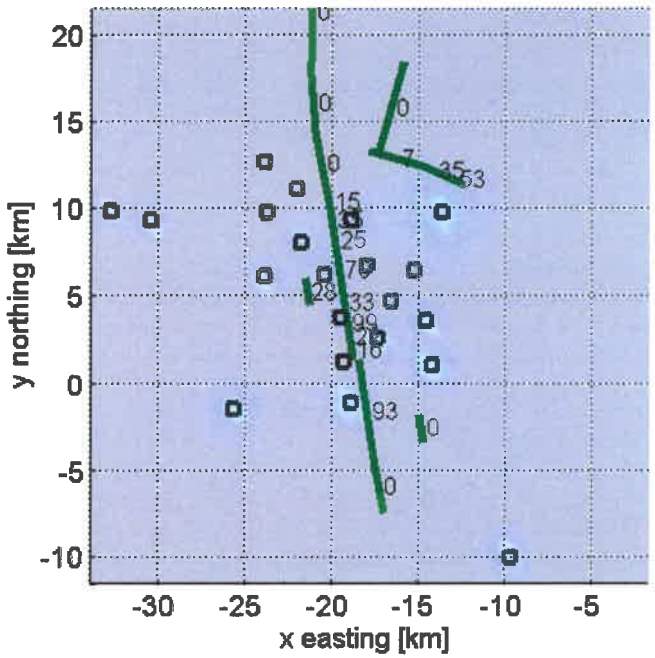
Fault Selector:

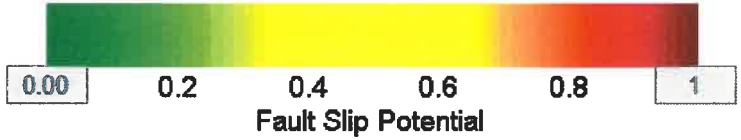
All Faults
Fault #1, 0.00 FSP
Fault #2, 0.00 FSP
Fault #3, 0.00 FSP
Fault #4, 0.00 FSP
Fault #5, 0.00 FSP
Fault #6, 0.00 FSP
Fault #7, 0.00 FSP
Fault #8, 0.00 FSP
Fault #9, 0.00 FSP
Fault #10, 0.00 FSP
Fault #11, 0.00 FSP
Fault #12, 0.00 FSP
Fault #13, 0.00 FSP
Fault #14, 0.00 FSP
Fault #15, 0.00 FSP
Fault #16, 0.00 FSP
Fault #17, 0.00 FSP
Fault #18, 0.00 FSP
Fault #19, 0.00 FSP

Calculate

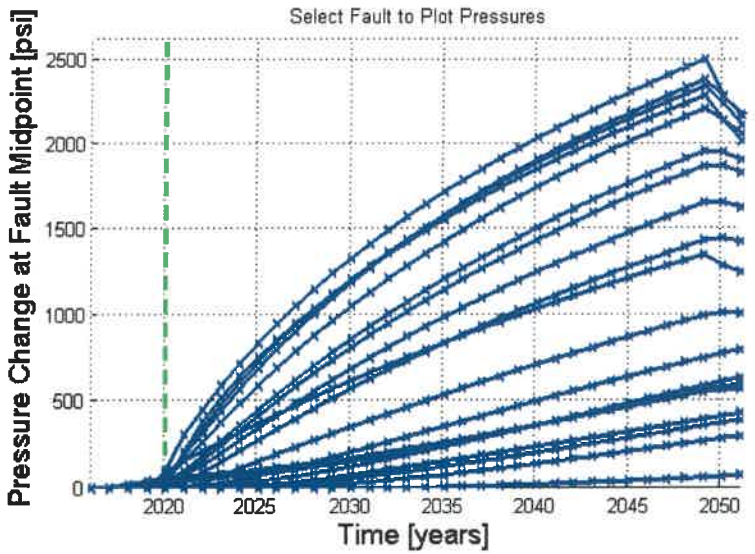
b) PP Change at fault [psi]

Summary Plots

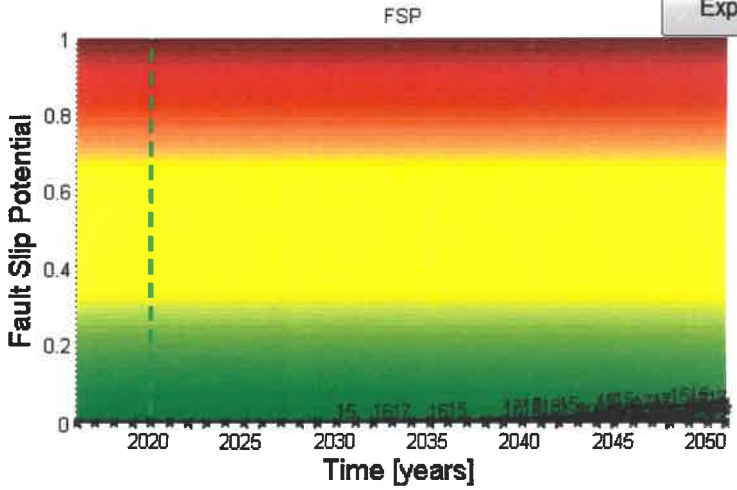




Year: 2020



Export



Exh. No. 12

Fault Slip Potential

MODEL INPUTS | GEOMECHANICS | PROB. GEOMECH | HYDROLOGY | PROB. HYDRO | INTEGRATED

Fault Selector:

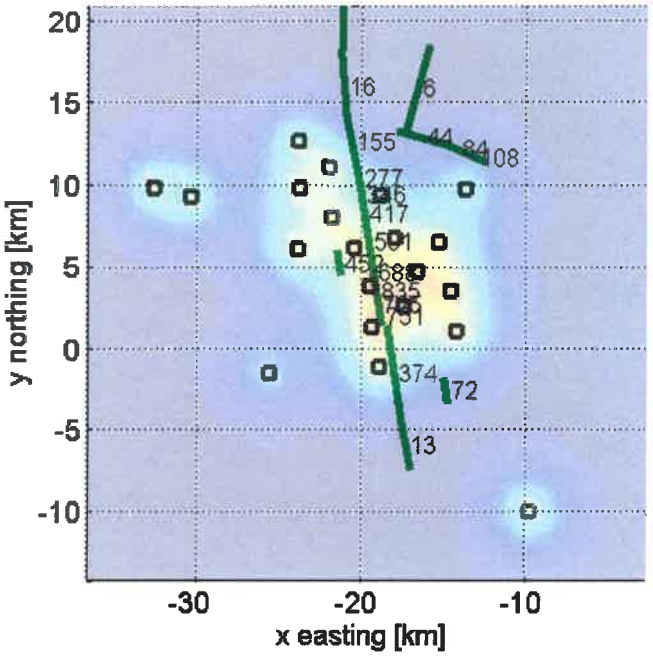
All Faults
Fault #1, 0.00 FSP
Fault #2, 0.00 FSP
Fault #3, 0.00 FSP
Fault #4, 0.00 FSP
Fault #5, 0.00 FSP
Fault #6, 0.00 FSP
Fault #7, 0.00 FSP
Fault #8, 0.00 FSP
Fault #9, 0.00 FSP
Fault #10, 0.00 FSP
Fault #11, 0.00 FSP
Fault #12, 0.00 FSP
Fault #13, 0.00 FSP
Fault #14, 0.00 FSP
Fault #15, 0.00 FSP
Fault #16, 0.00 FSP
Fault #17, 0.00 FSP
Fault #18, 0.00 FSP
Fault #19, 0.00 FSP

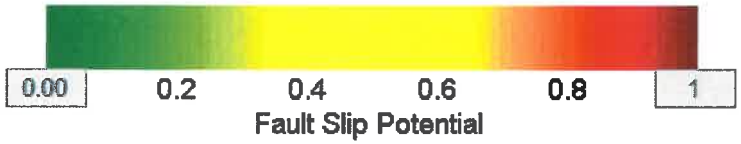
Calculate

Export

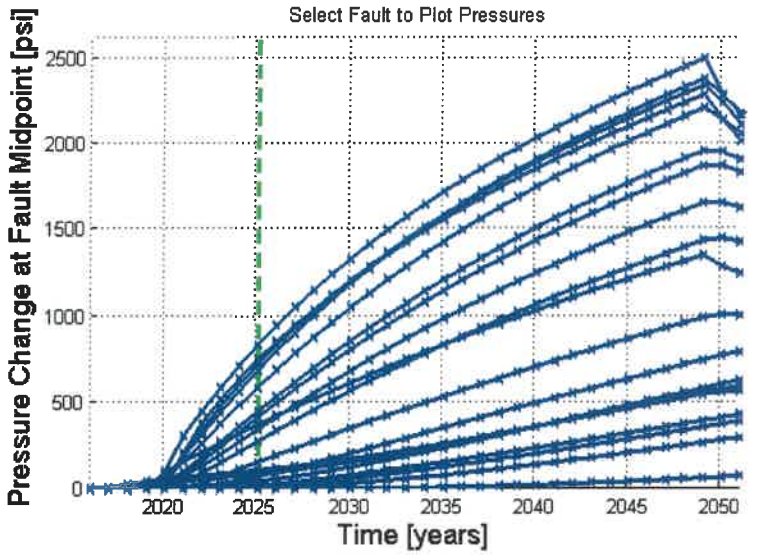
b) PP Change at fault [psi]

Summary Plots

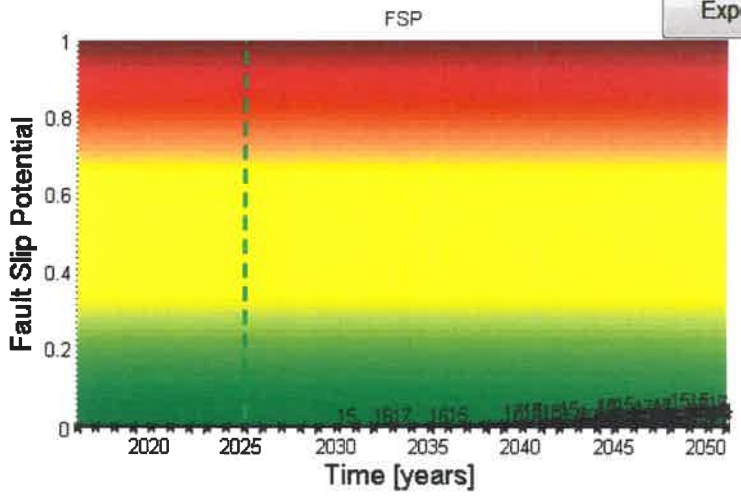




Year: 2025



Export



Exh. No. 13

Fault Slip Potential

MODEL INPUTS | GEOMECHANICS | PROB. GEOMECH | HYDROLOGY | PROB. HYDRO | INTEGRATED

Export

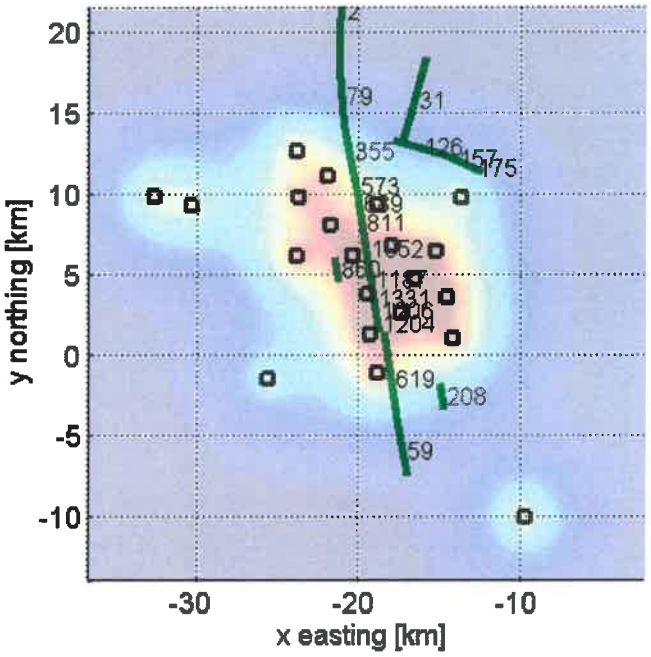
Fault Selector:

All Faults
Fault #1, 0.00 FSP
Fault #2, 0.00 FSP
Fault #3, 0.00 FSP
Fault #4, 0.00 FSP
Fault #5, 0.00 FSP
Fault #6, 0.00 FSP
Fault #7, 0.00 FSP
Fault #8, 0.00 FSP
Fault #9, 0.00 FSP
Fault #10, 0.00 FSP
Fault #11, 0.00 FSP
Fault #12, 0.00 FSP
Fault #13, 0.00 FSP
Fault #14, 0.00 FSP
Fault #15, 0.00 FSP
Fault #16, 0.00 FSP
Fault #17, 0.00 FSP
Fault #18, 0.00 FSP
Fault #19, 0.00 FSP

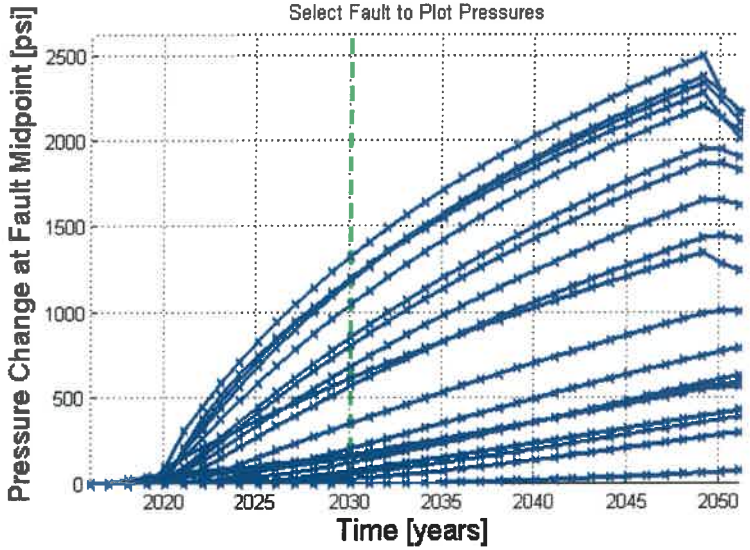
Calculate

b) PP Change at fault [psi]

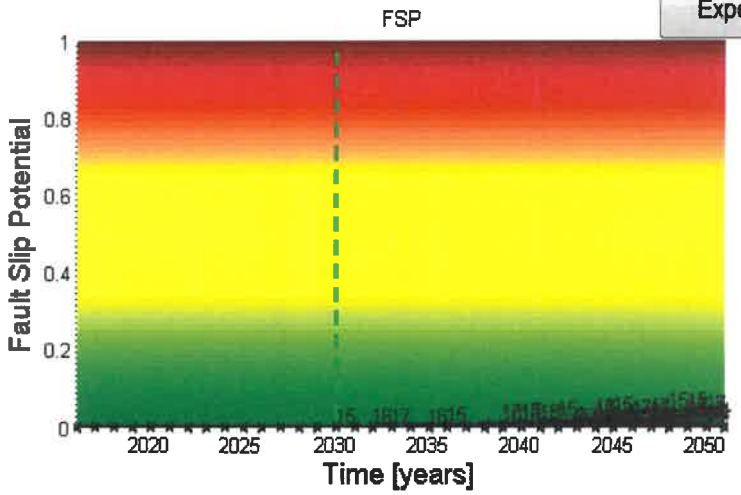
Summary Plots



Year: 2030



Export



Exh. No. 14

Fault Slip Potential

MODEL INPUTS | GEOMECHANICS | PROB. GEOMECH | HYDROLOGY | PROB. HYDRO | INTEGRATED

Export

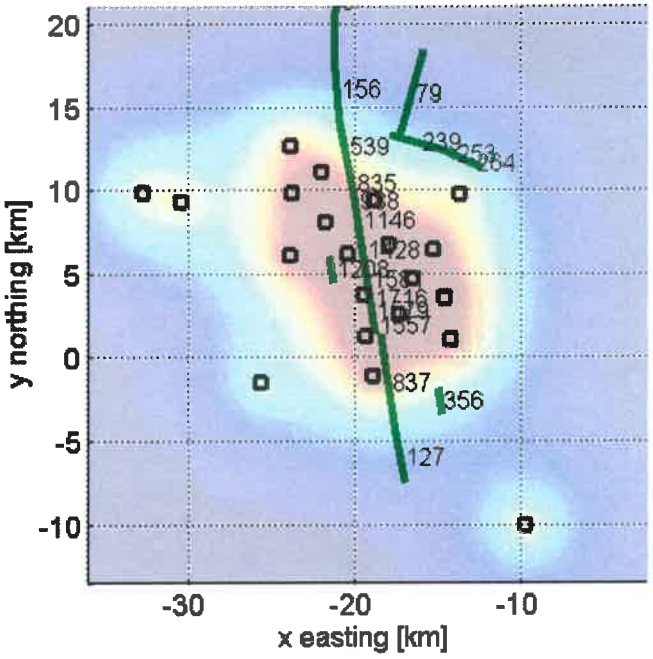
Fault Selector:

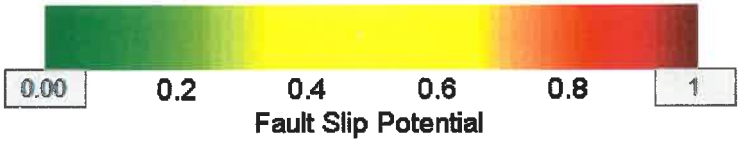
All Faults
Fault #1, 0.00 FSP
Fault #2, 0.00 FSP
Fault #3, 0.00 FSP
Fault #4, 0.00 FSP
Fault #5, 0.00 FSP
Fault #6, 0.00 FSP
Fault #7, 0.00 FSP
Fault #8, 0.00 FSP
Fault #9, 0.00 FSP
Fault #10, 0.00 FSP
Fault #11, 0.00 FSP
Fault #12, 0.00 FSP
Fault #13, 0.00 FSP
Fault #14, 0.00 FSP
Fault #15, 0.01 FSP
Fault #16, 0.00 FSP
Fault #17, 0.01 FSP
Fault #18, 0.00 FSP
Fault #19, 0.00 FSP

Calculate

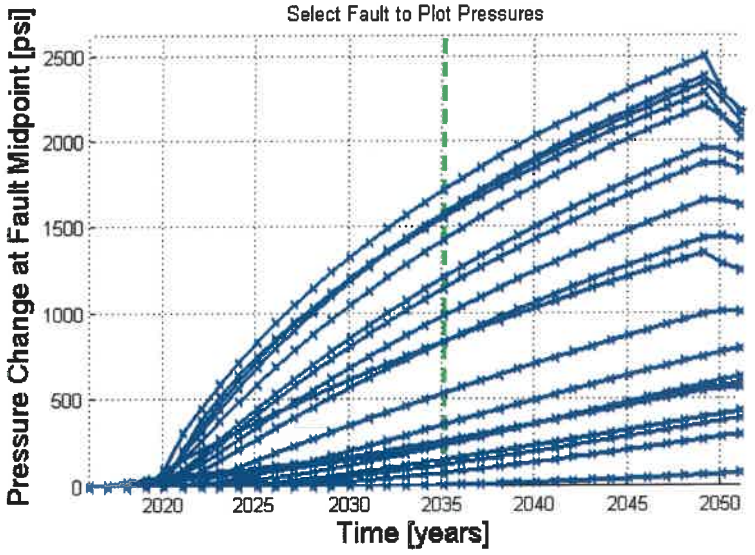
b) PP Change at fault [psi]

Summary Plots

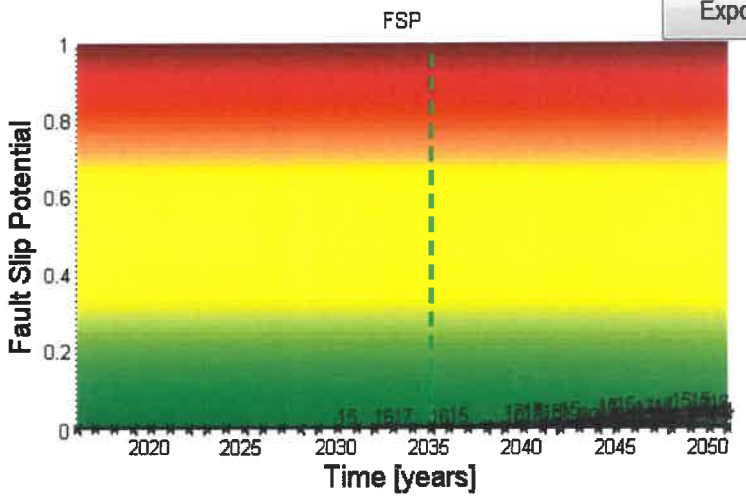




Year: 2035



Export



Exh. No. 15

Fault Slip Potential

MODEL INPUTS | GEOMECHANICS | PROB. GEOMECH | HYDROLOGY | PROB. HYDRO | INTEGRATED

Export

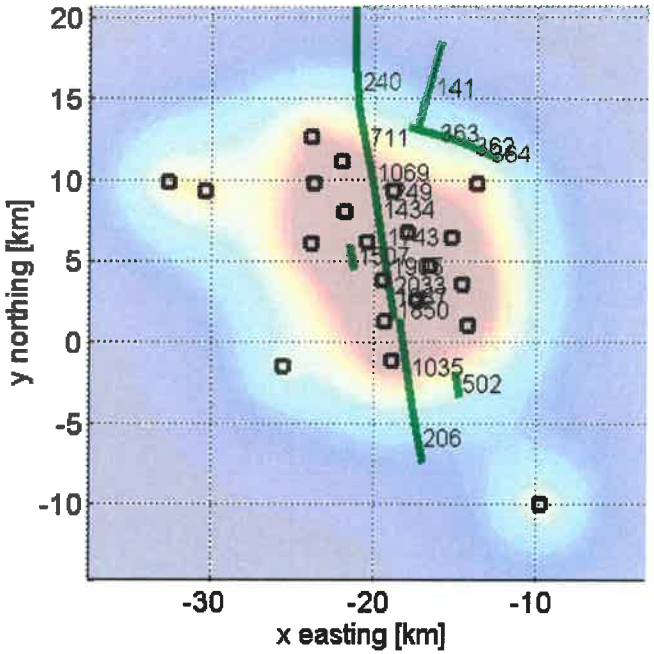
Fault Selector:

All Faults
Fault #1, 0.00 FSP
Fault #2, 0.00 FSP
Fault #3, 0.00 FSP
Fault #4, 0.00 FSP
Fault #5, 0.00 FSP
Fault #6, 0.00 FSP
Fault #7, 0.00 FSP
Fault #8, 0.00 FSP
Fault #9, 0.00 FSP
Fault #10, 0.00 FSP
Fault #11, 0.00 FSP
Fault #12, 0.00 FSP
Fault #13, 0.00 FSP
Fault #14, 0.00 FSP
Fault #15, 0.01 FSP
Fault #16, 0.01 FSP
Fault #17, 0.01 FSP
Fault #18, 0.00 FSP
Fault #19, 0.00 FSP

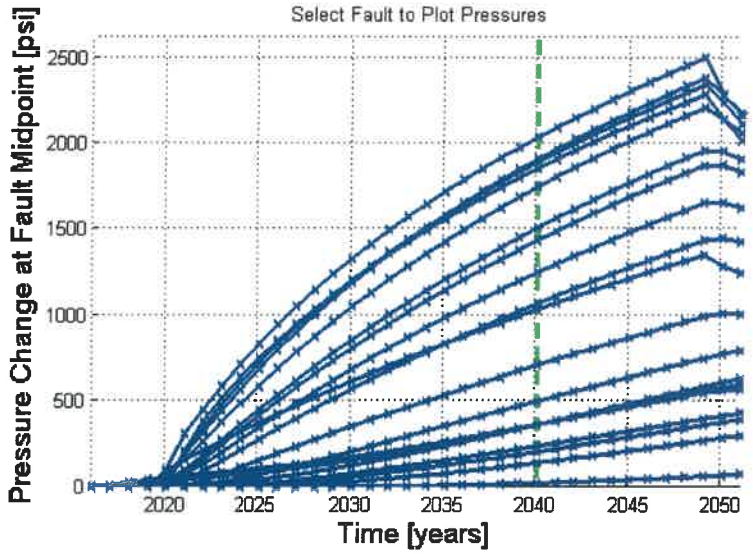
Calculate

b) PP Change at fault [psi]

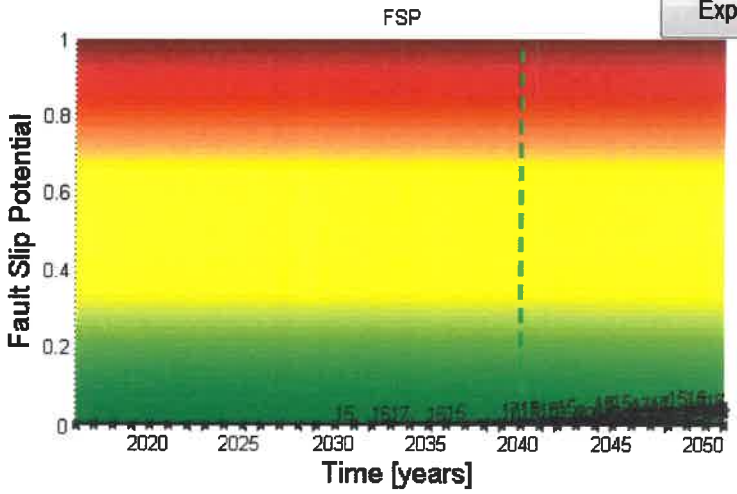
Summary Plots



Year: 2040



Export



Exh. No. 16

Fault Slip Potential

MODEL INPUTS | GEOMECHANICS | PROB. GEOMECH | HYDROLOGY | PROB. HYDRO | INTEGRATED

Fault Selector:

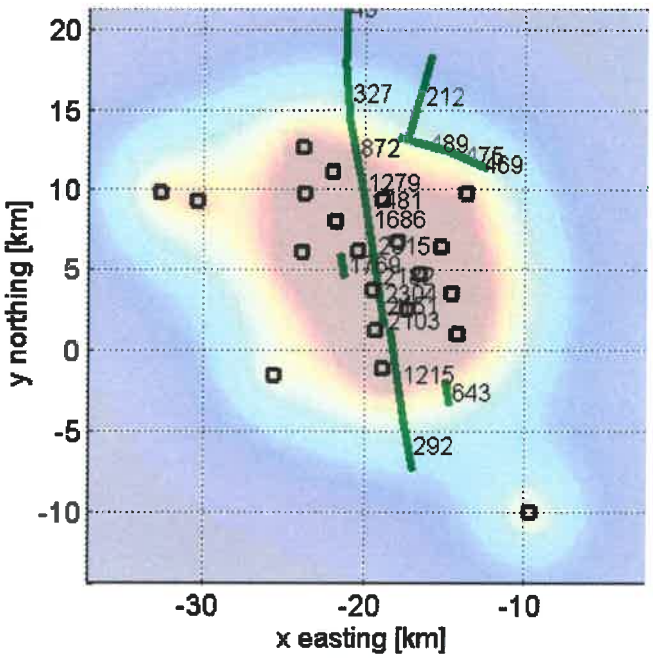
All Faults
Fault #1, 0.00 FSP
Fault #2, 0.00 FSP
Fault #3, 0.00 FSP
Fault #4, 0.00 FSP
Fault #5, 0.00 FSP
Fault #6, 0.00 FSP
Fault #7, 0.00 FSP
Fault #8, 0.00 FSP
Fault #9, 0.01 FSP
Fault #10, 0.00 FSP
Fault #11, 0.00 FSP
Fault #12, 0.00 FSP
Fault #13, 0.00 FSP
Fault #14, 0.00 FSP
Fault #15, 0.03 FSP
Fault #16, 0.01 FSP
Fault #17, 0.02 FSP
Fault #18, 0.00 FSP
Fault #19, 0.00 FSP

Calculate

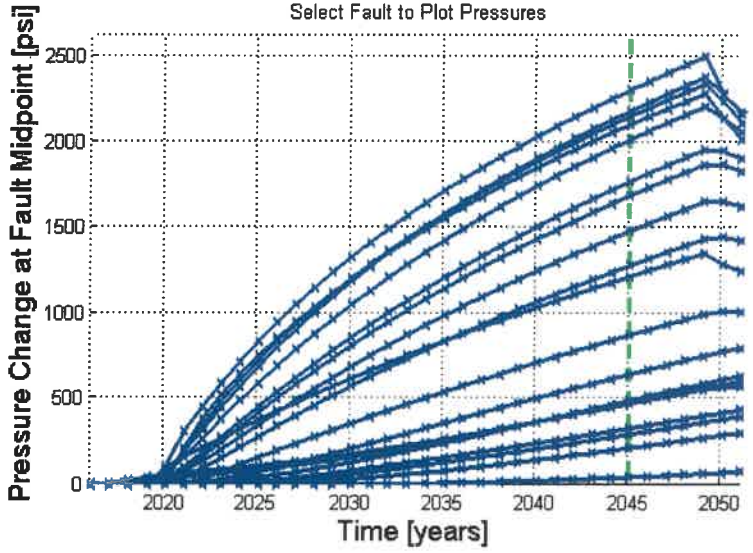
b) PP Change at fault [psi]

Summary Plots

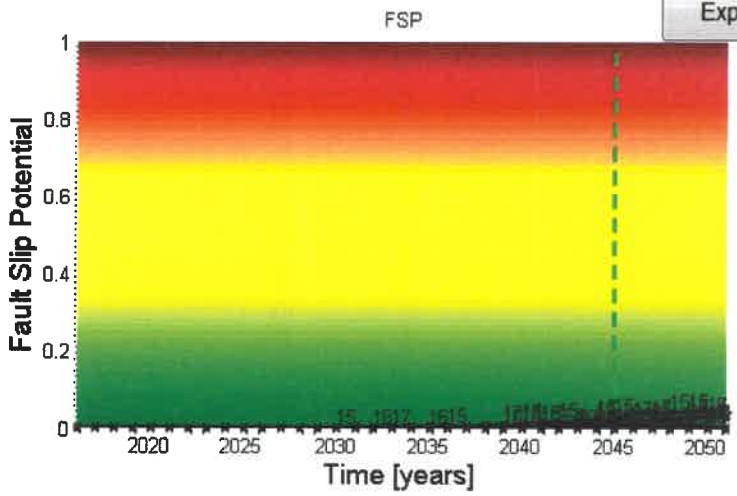
Export



Year: 2045



Export



Exh. No. 17

Fault Slip Potential

MODEL INPUTS | GEOMECHANICS | PROB. GEOMECH | HYDROLOGY | PROB. HYDRO | INTEGRATED

Export

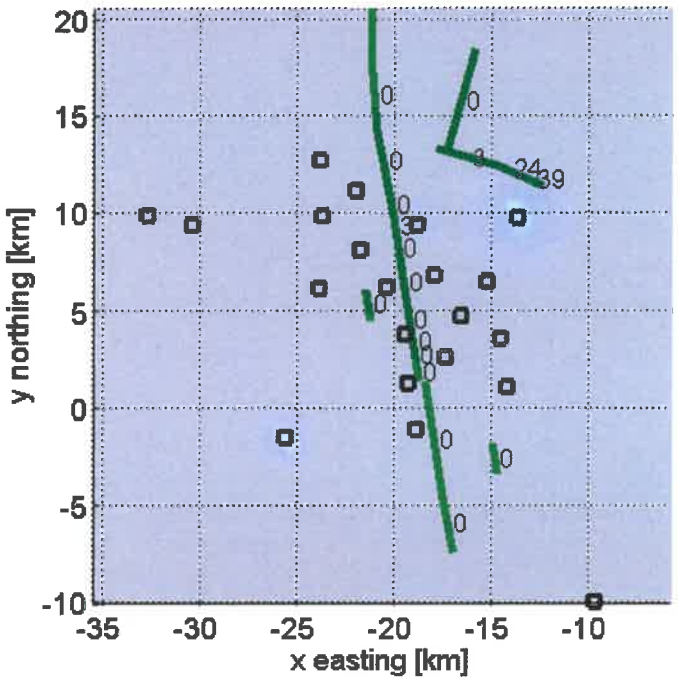
Fault Selector:

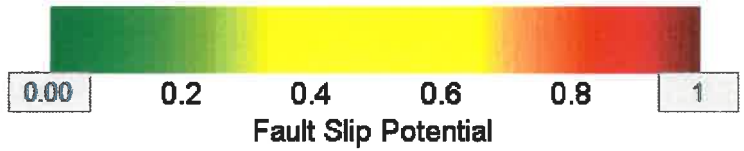
All Faults
Fault #1, 0.00 FSP
Fault #2, 0.00 FSP
Fault #3, 0.00 FSP
Fault #4, 0.00 FSP
Fault #5, 0.00 FSP
Fault #6, 0.00 FSP
Fault #7, 0.00 FSP
Fault #8, 0.00 FSP
Fault #9, 0.00 FSP
Fault #10, 0.00 FSP
Fault #11, 0.00 FSP
Fault #12, 0.00 FSP
Fault #13, 0.00 FSP
Fault #14, 0.00 FSP
Fault #15, 0.00 FSP
Fault #16, 0.00 FSP
Fault #17, 0.00 FSP
Fault #18, 0.00 FSP
Fault #19, 0.00 FSP

Calculate

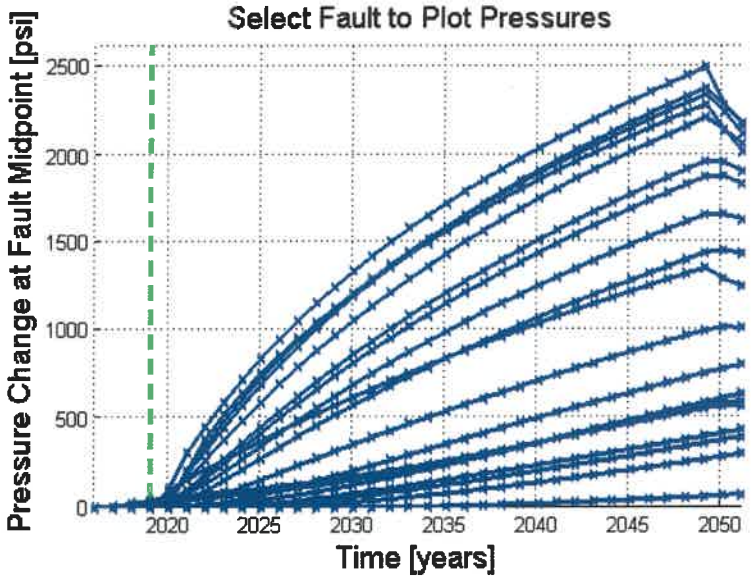
b) PP Change at fault [psi]

Summary Plots

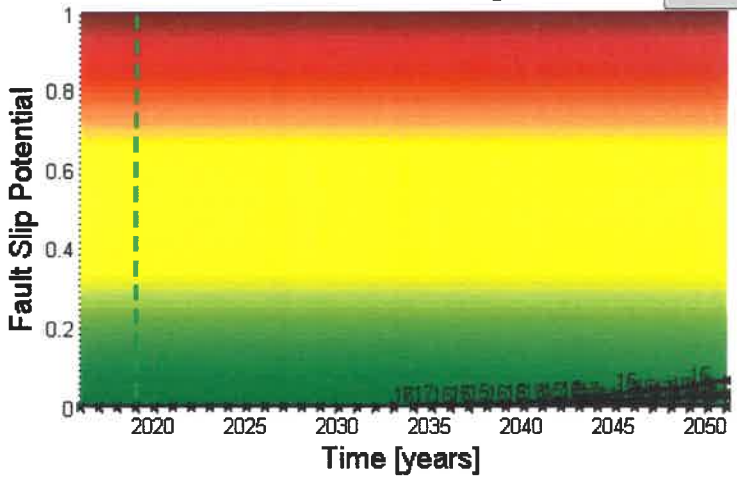




Year: 2019

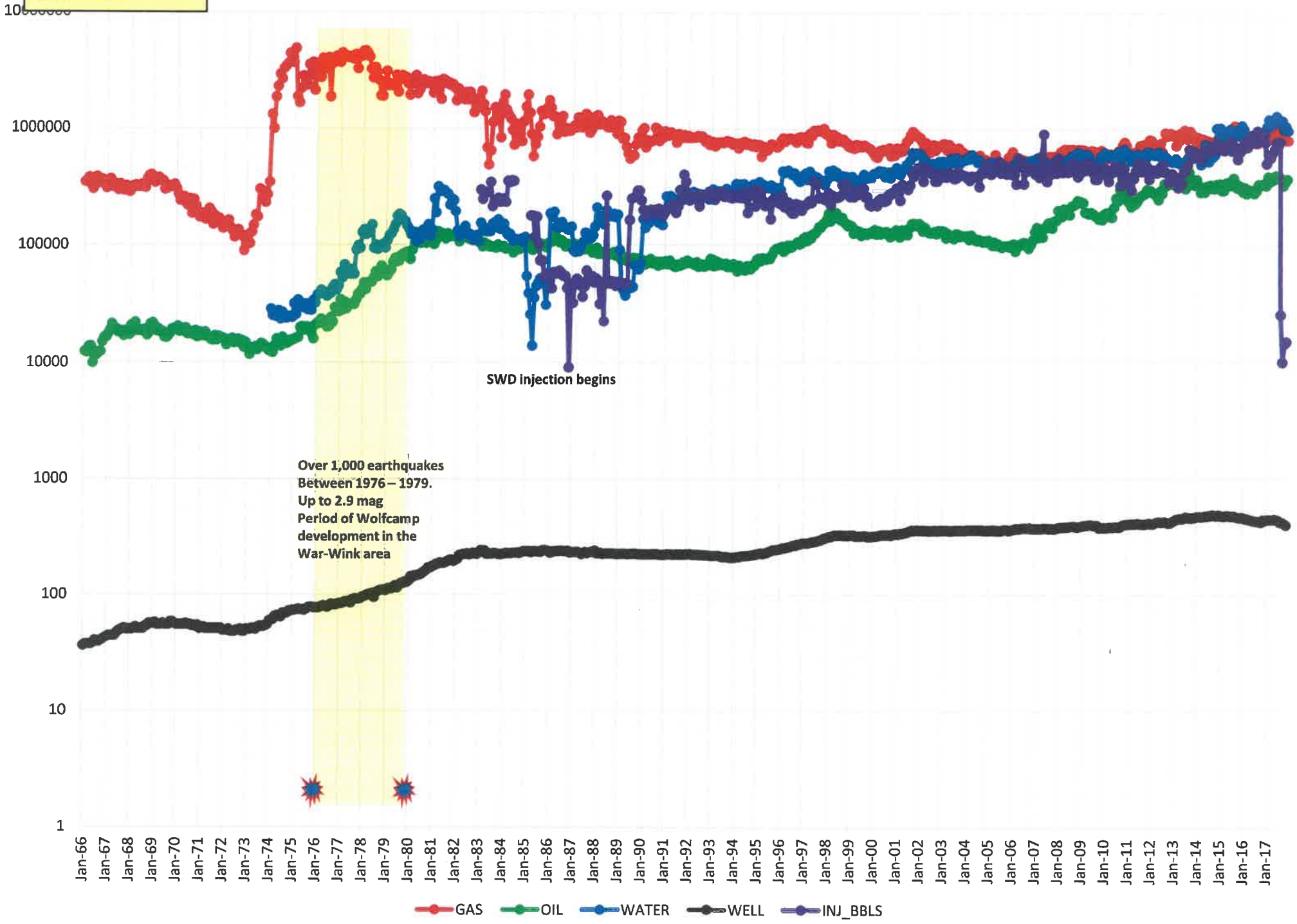


Export



Exh. No. 18

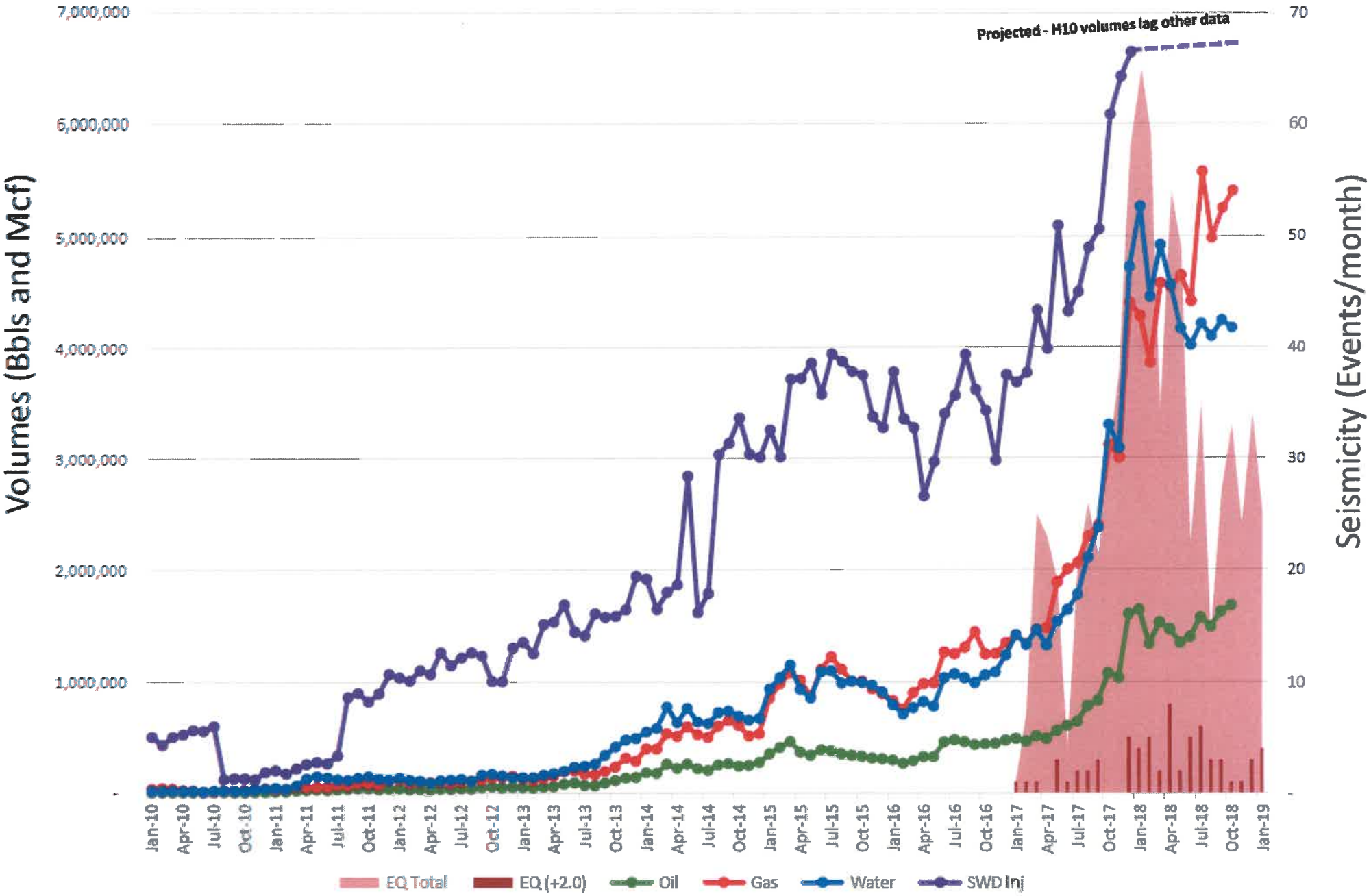
War-Wink Area



Exh. No. 19

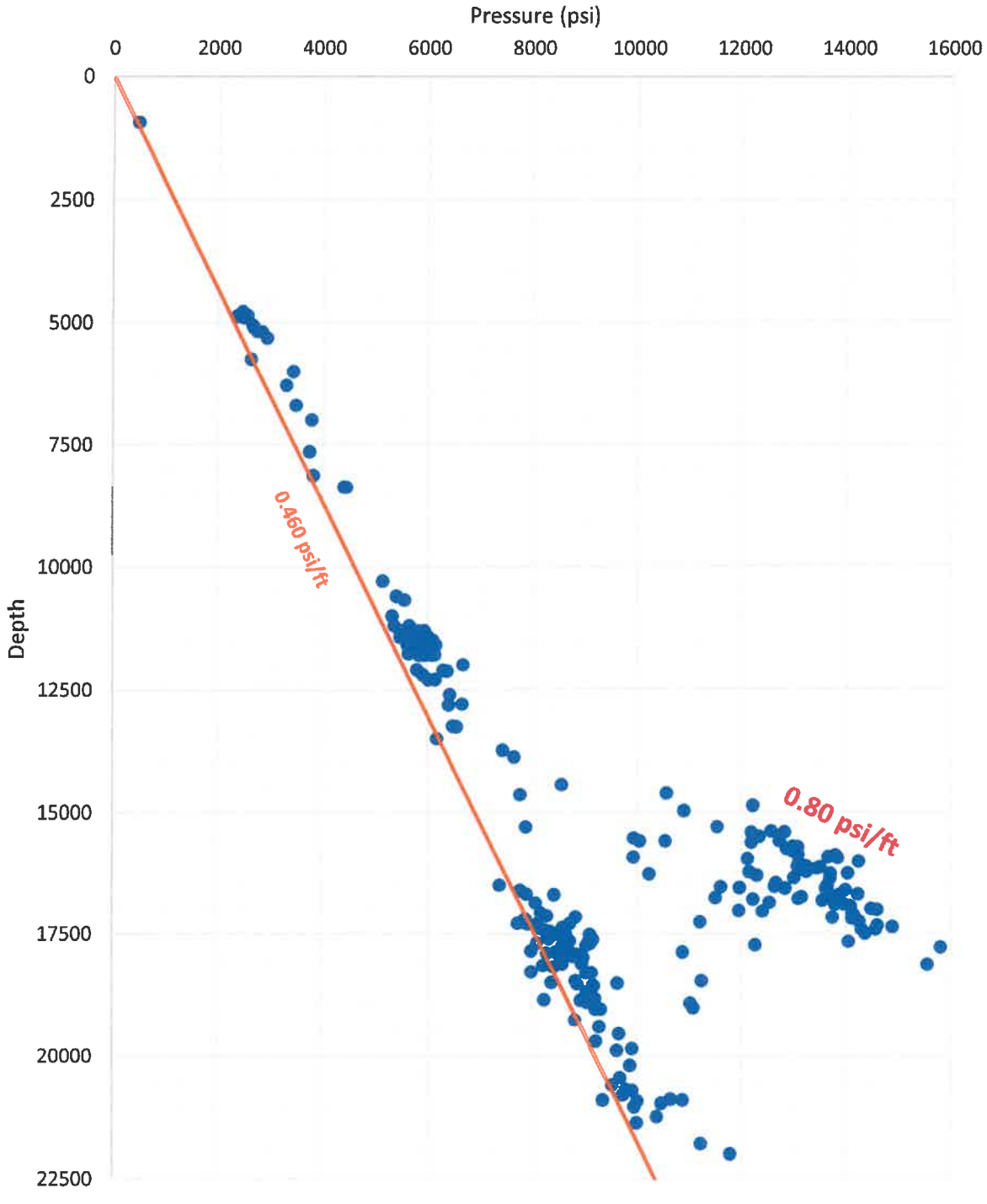
Seismicity Trend (Pecos Townsite)

AOR – 100 sq. mi around Lat 31.401, Long -103.4828



Exh. No. 20

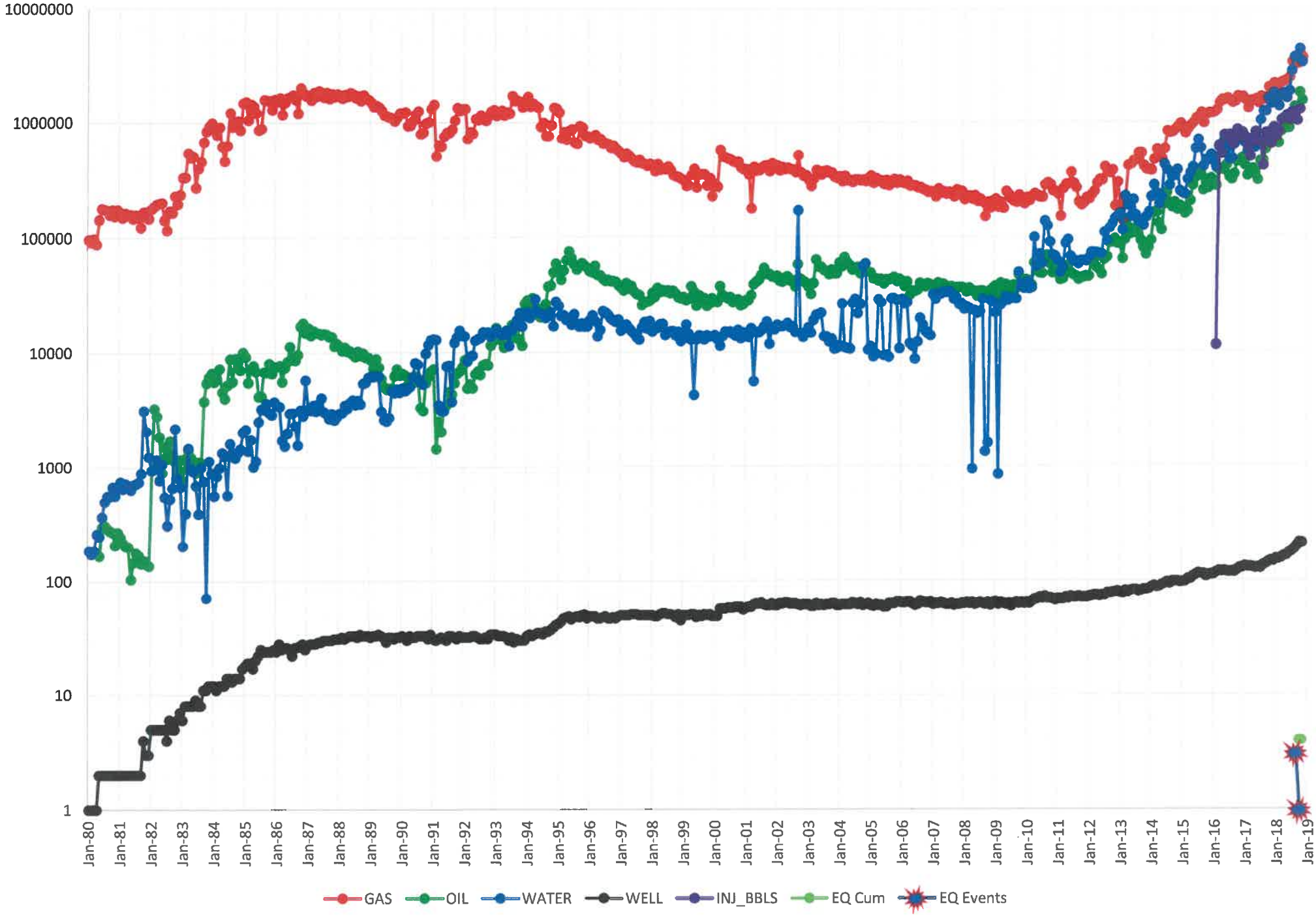
City of Pecos Mud Weight Distribution



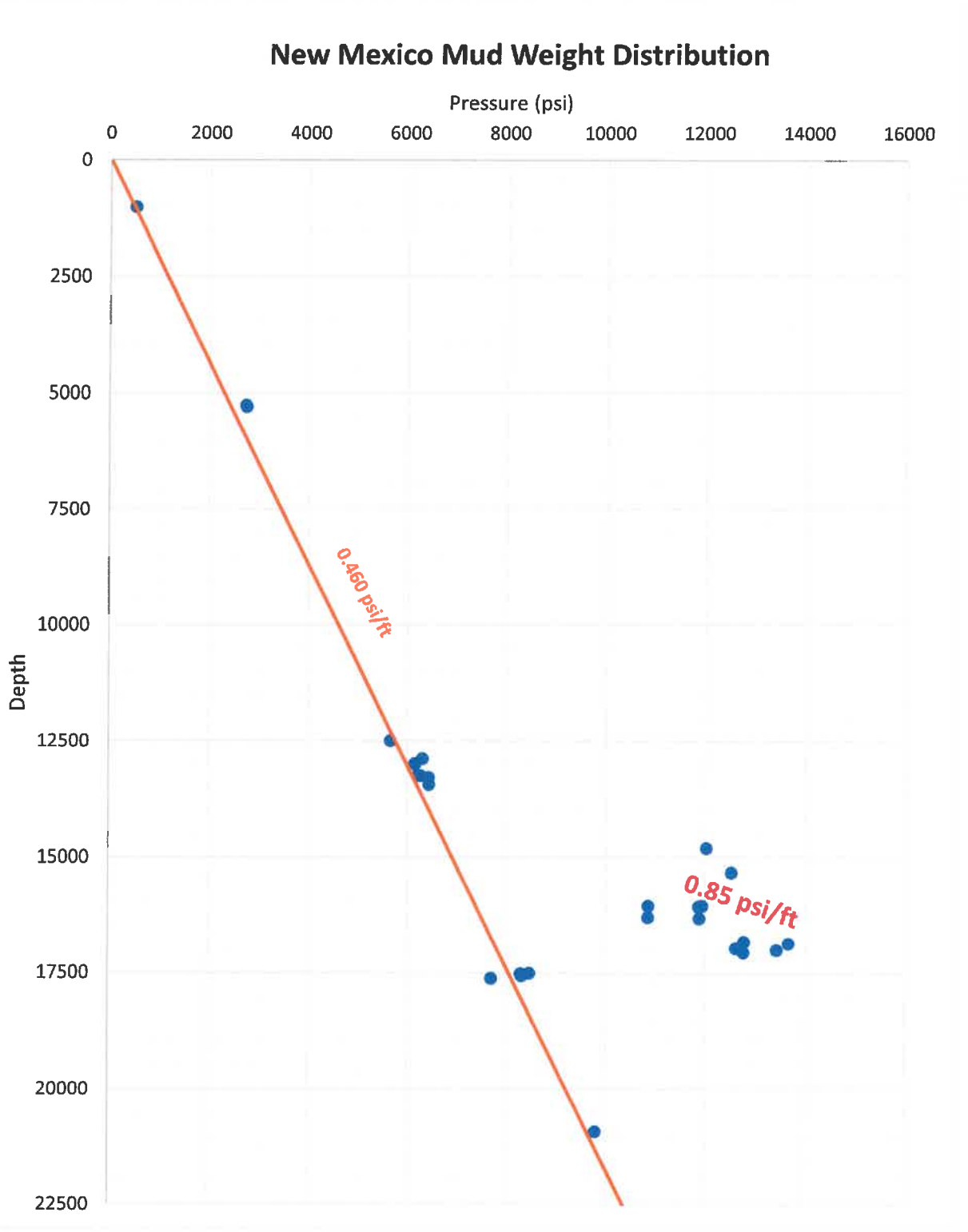
Exh. No. 21

NM East 100 sq mi Around All EQ Events

(32.1369128, -103.4907886)

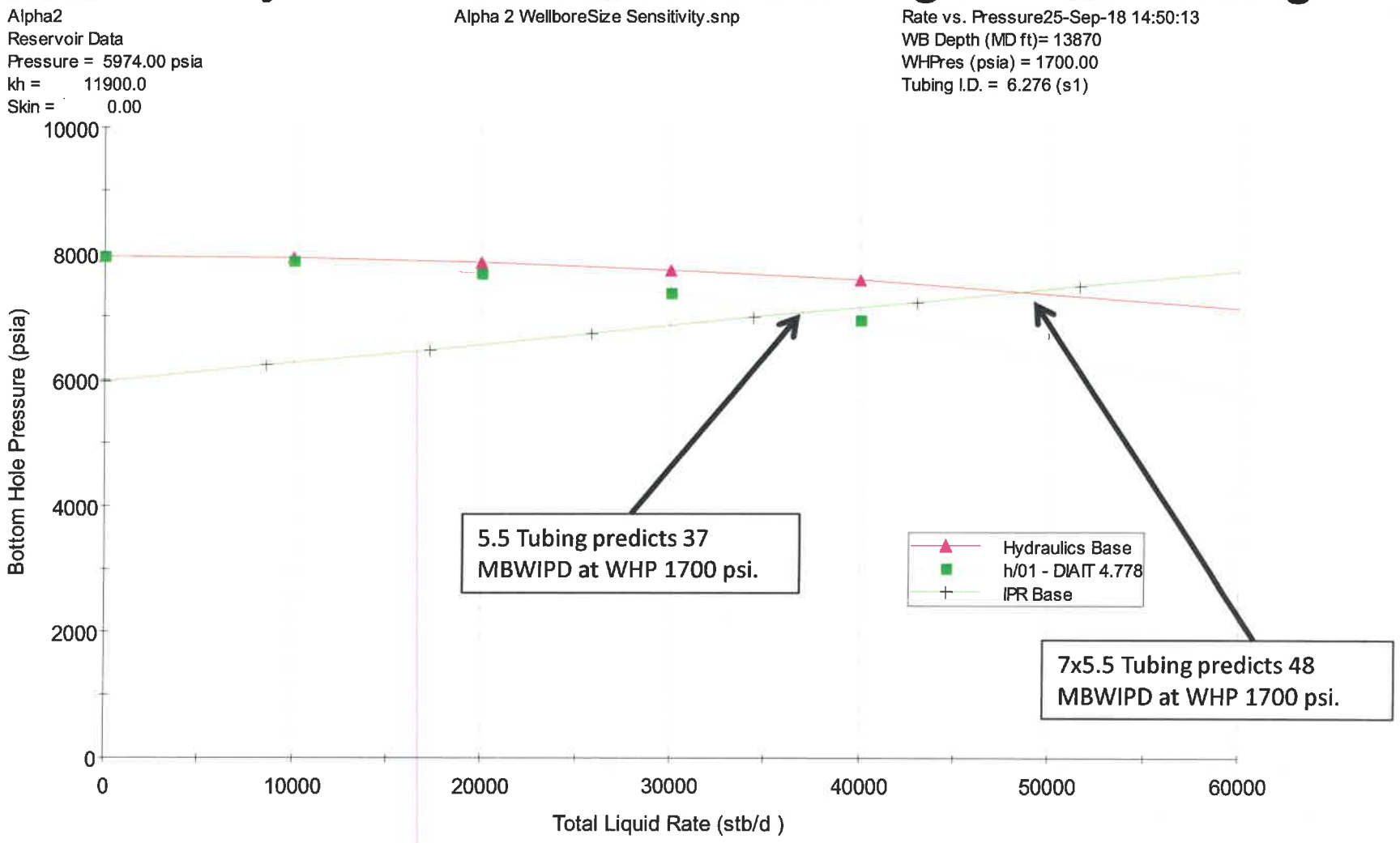


Exh. No. 22


New Mexico Mud Weight Distribution
Pressure (psi)
0
2000
4000
6000
8000
10000
12000
14000
16000
Depth
0
2500
5000
7500
10000
12500
15000
17500
20000
22500
0.460 psi/ft
0.85 psi/ft

NGL Water Solutions, LLC

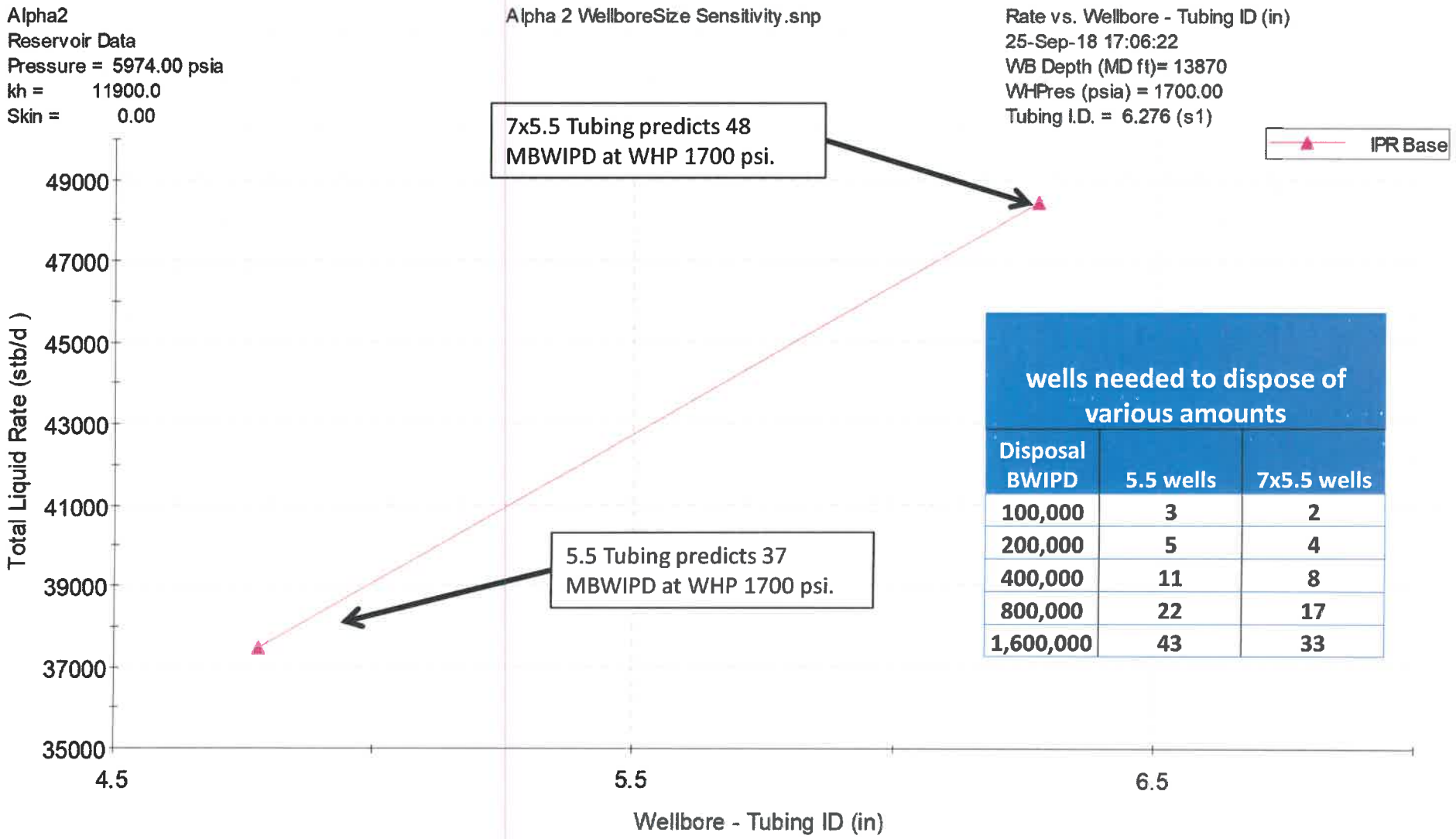
Typical Wellbore Hydraulics Models predict a 30% increase in maximum injection rate between 5.5 tubing and 7x5.5 tubing.



Exh. 2

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

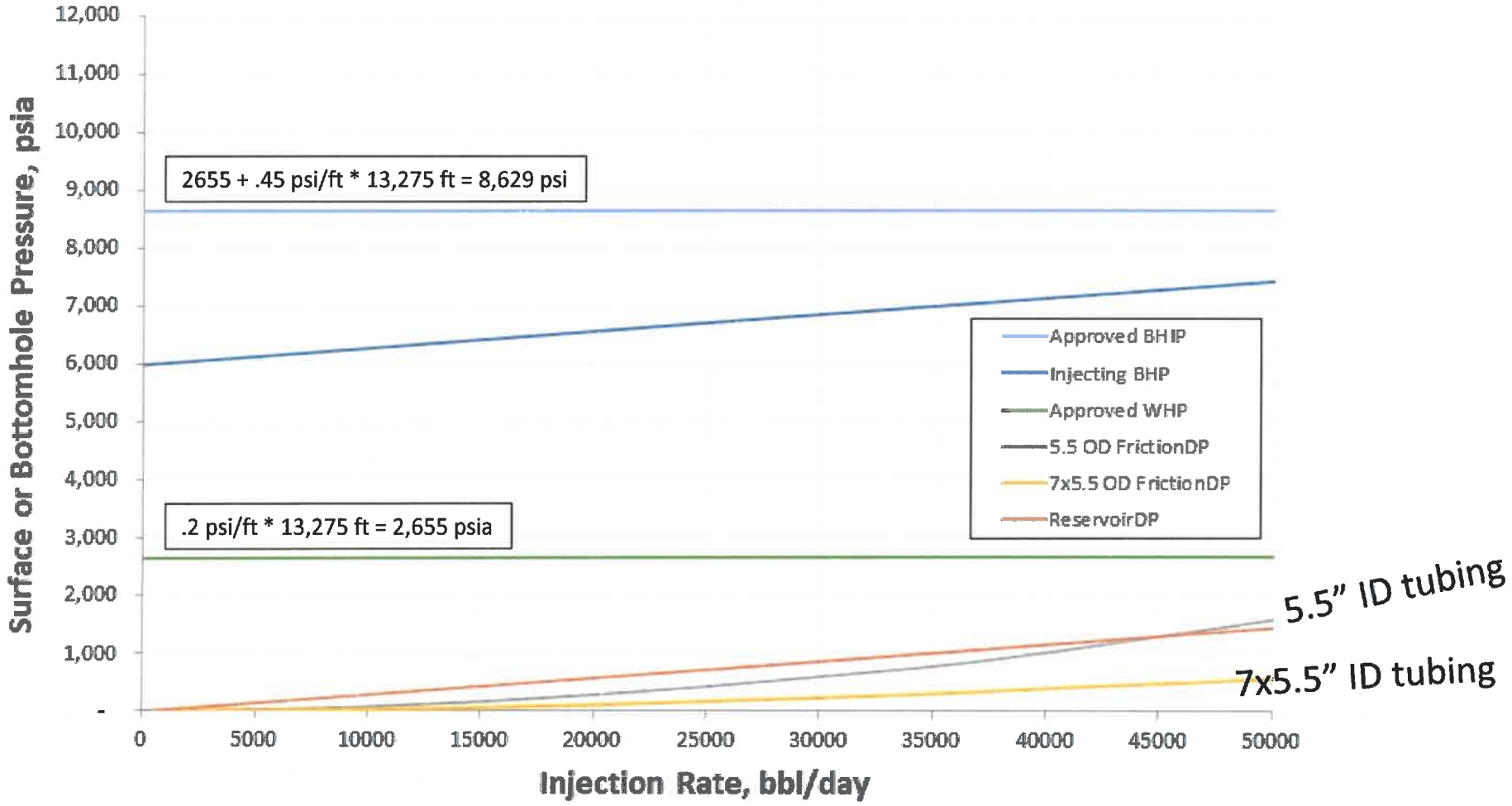
Exh. 3

NGL Water Solutions, LLC

Increasing tubing size will decrease friction losses and conserve horsepower

2 example tubing sizes and their impact on friction losses

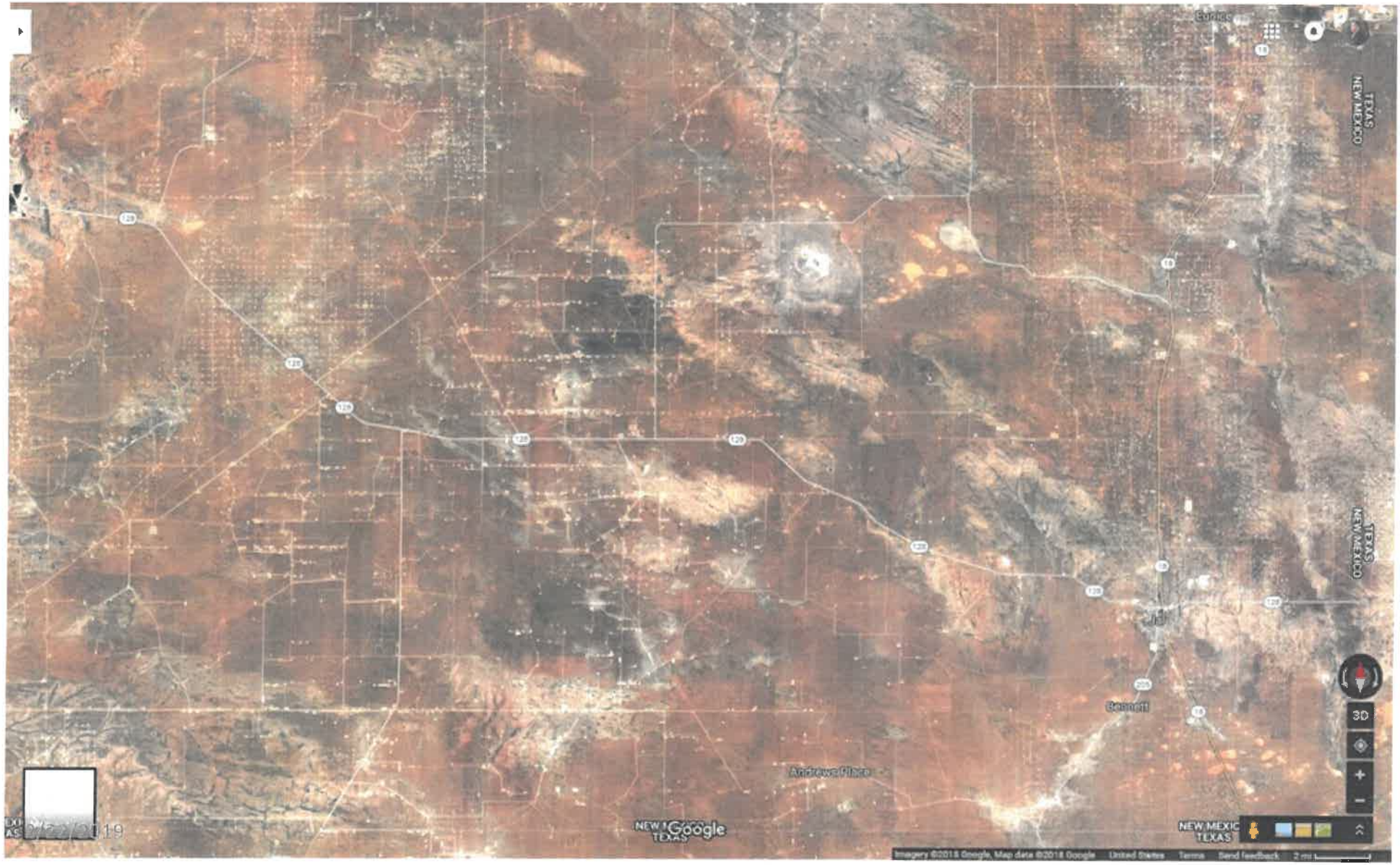
Pressure losses at various injection rates



Exh. 4

NGL Water Solutions, LLC

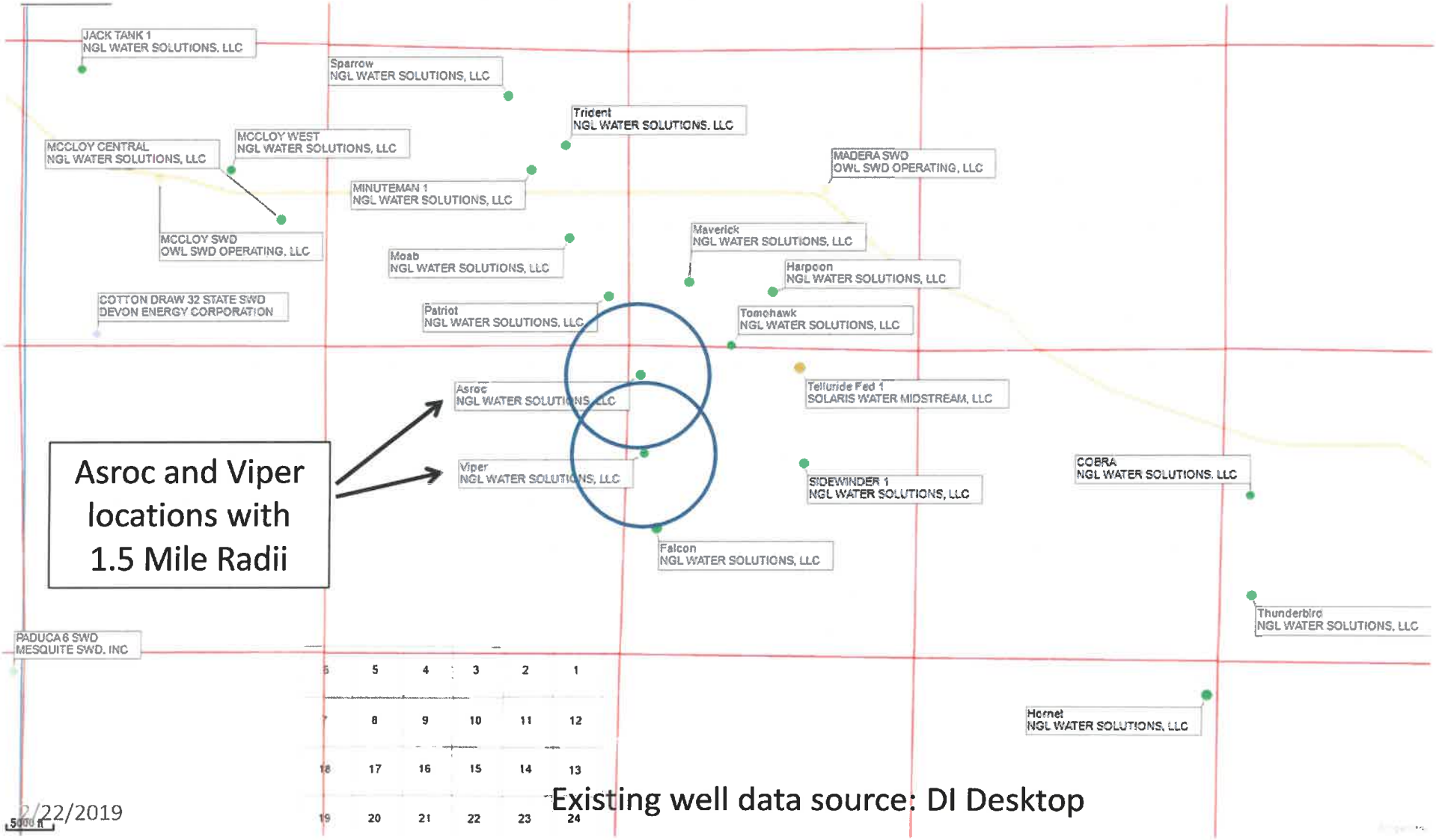
Terrain is level and infrastructure is plentiful.



NGL Water Solutions, LLC

Exh. 5

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

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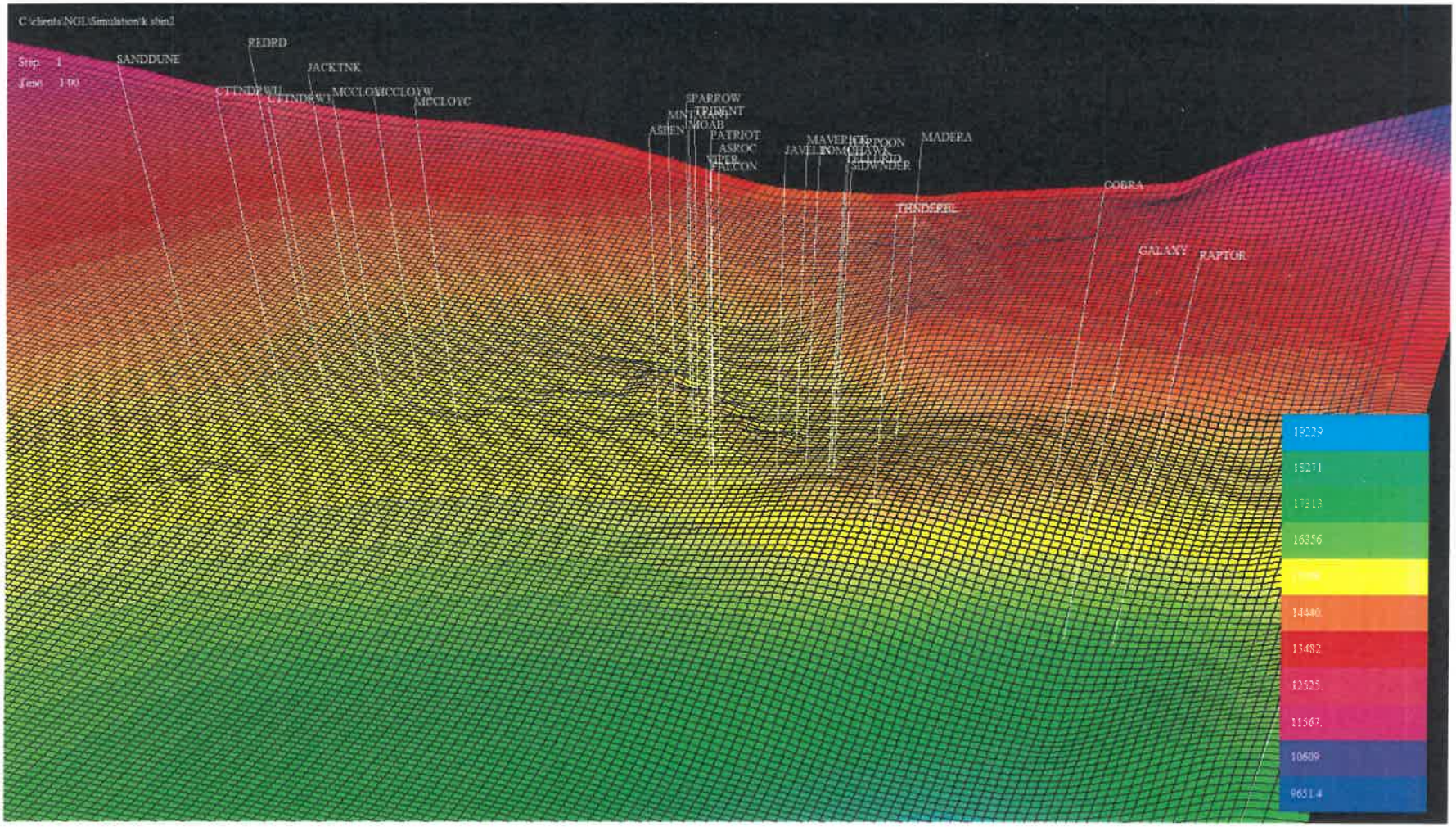
Exh. 6

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.



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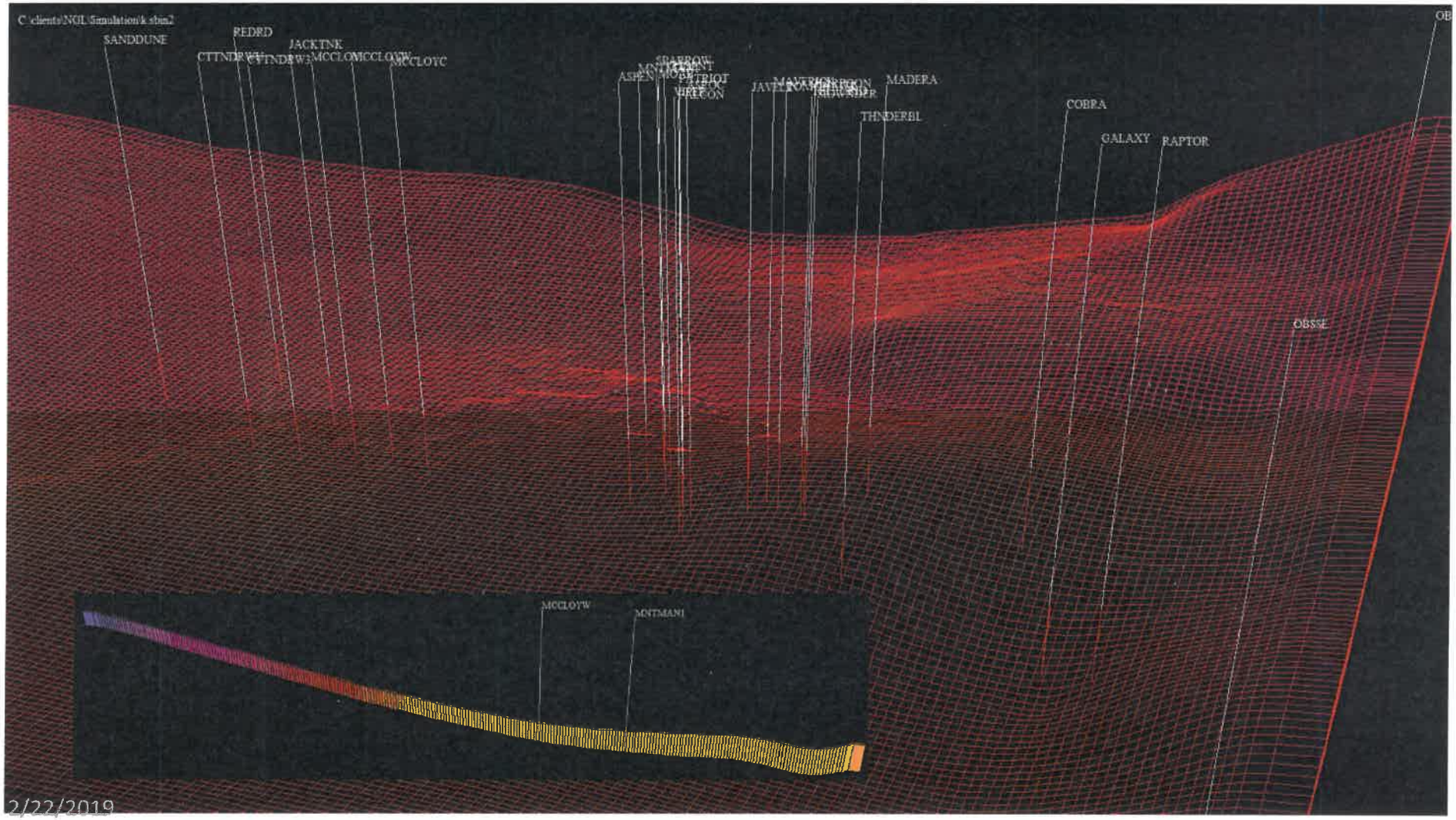
3D view of grid shows Structural Relief.

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



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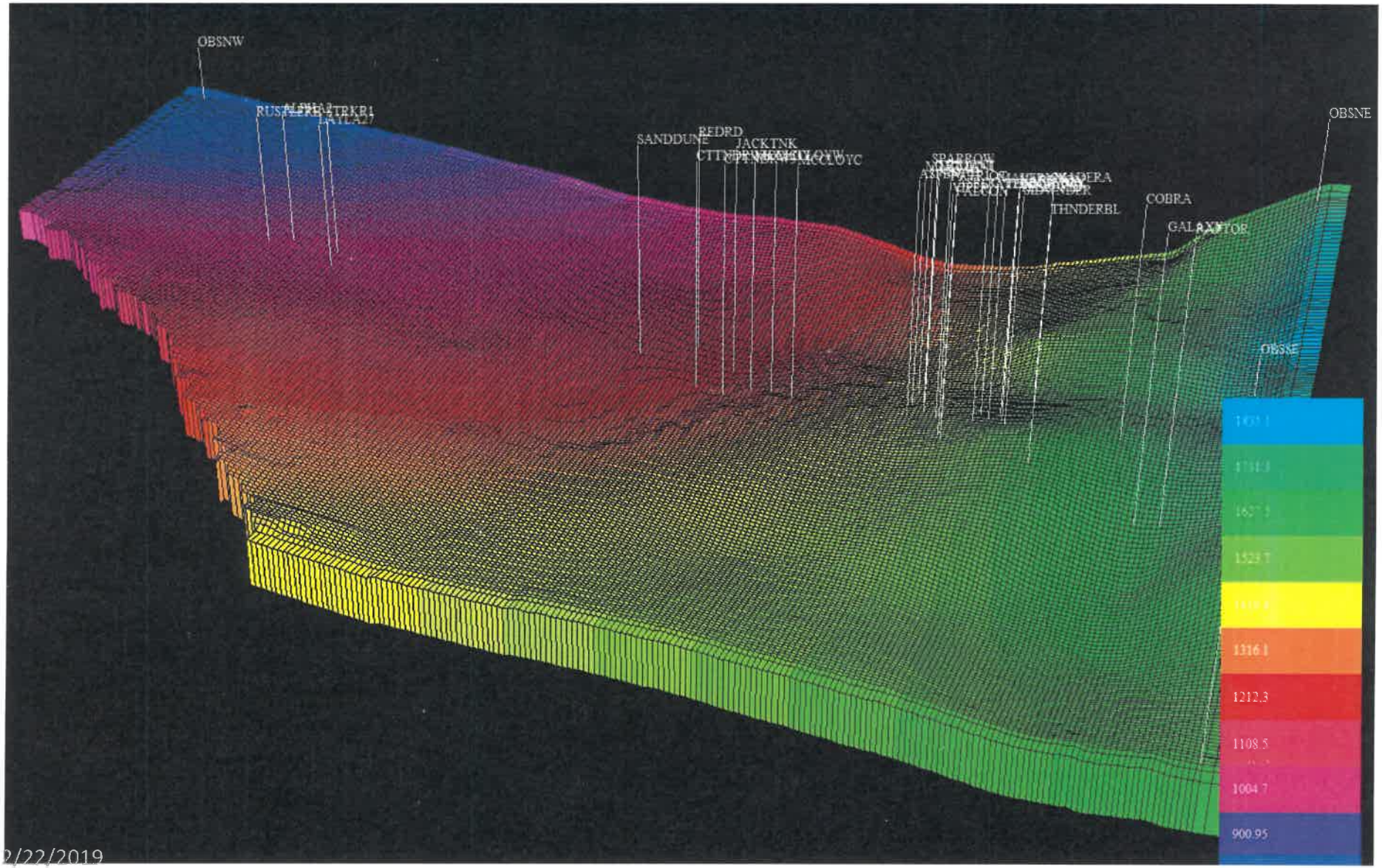
Light Blue color to the North East represents the thickest Sil/Dev.



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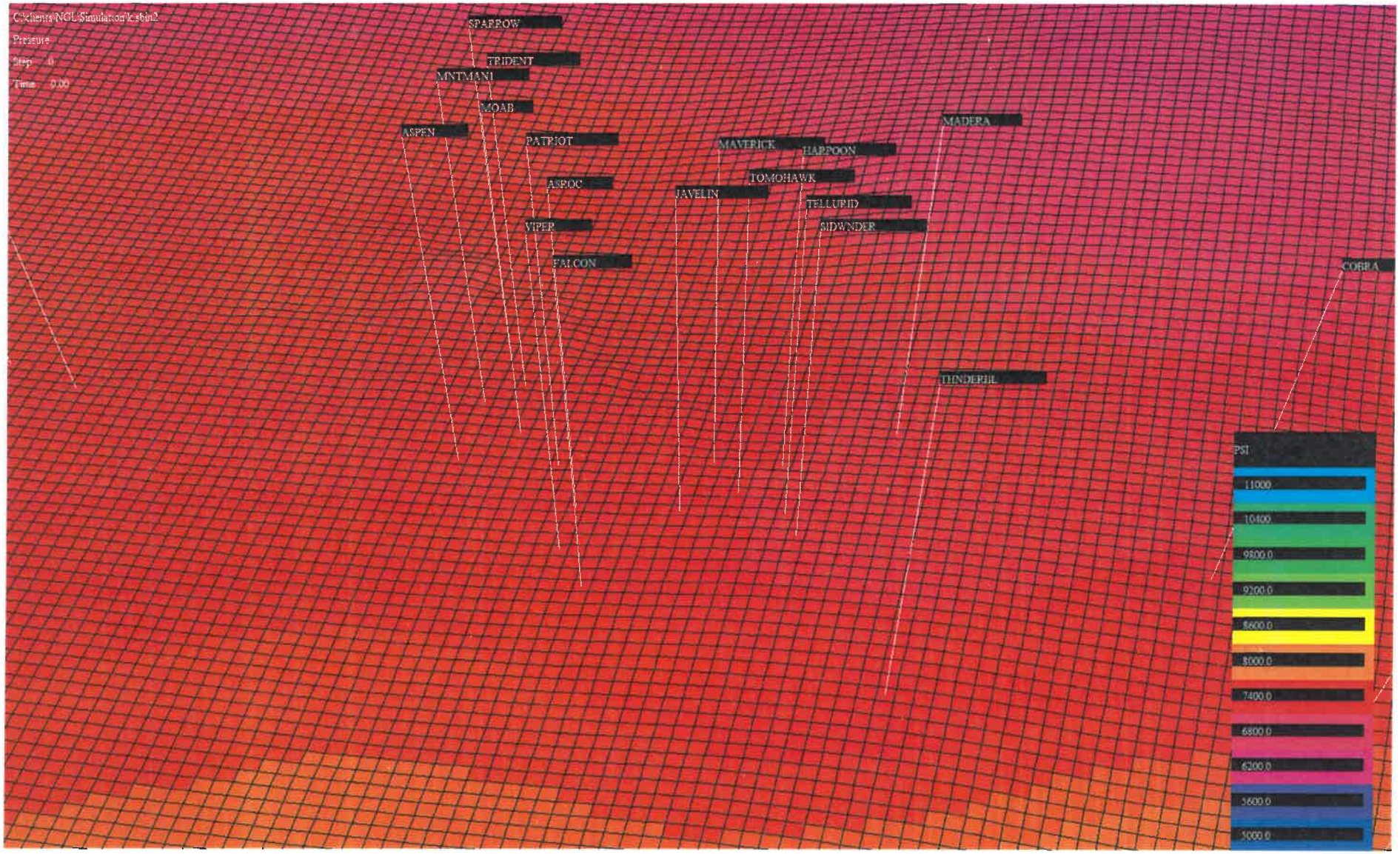
Initial pressure is equilibrated by the model based on grid cell depth, fluids(water) and capillary pressure.



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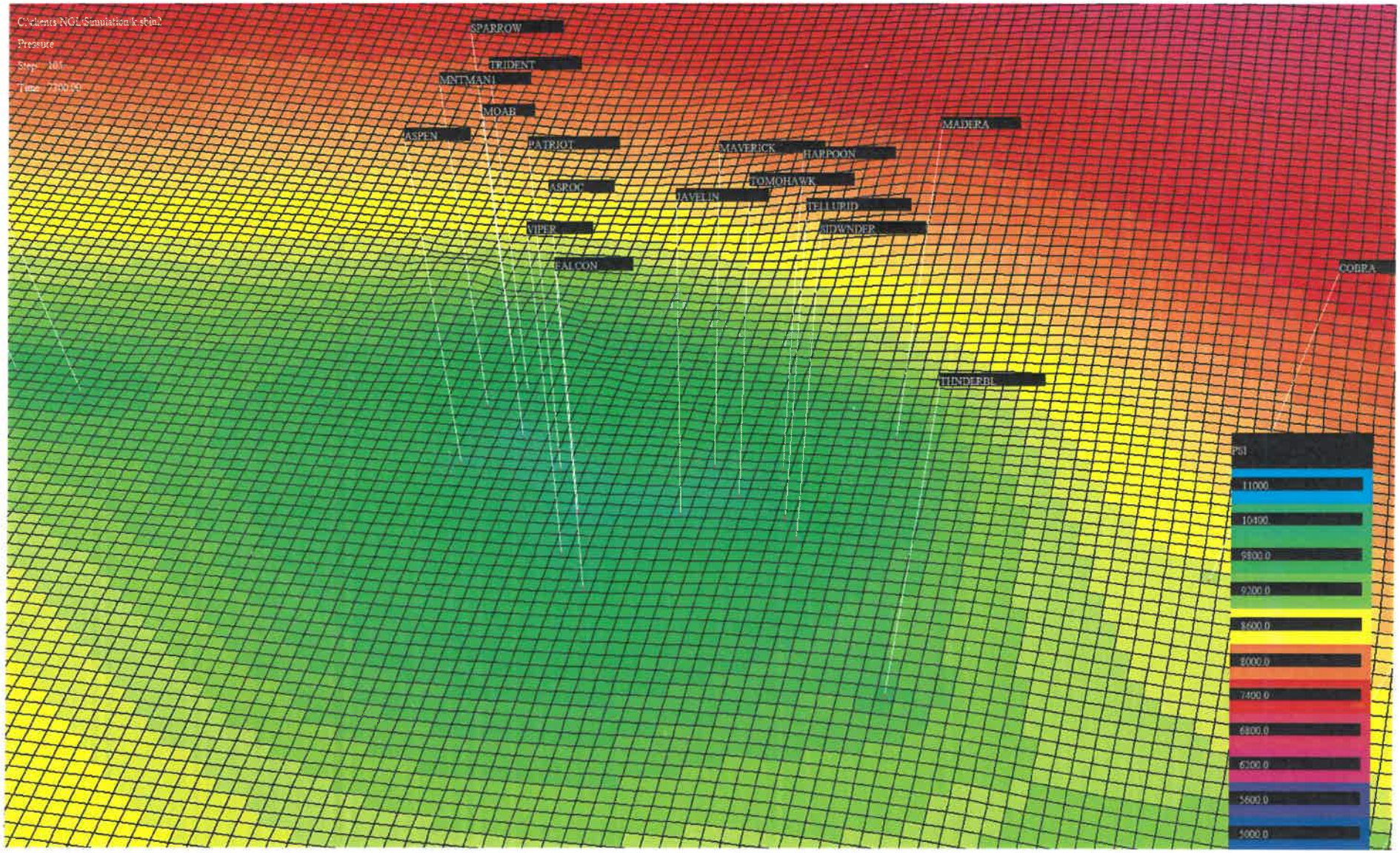
Pressure at 20 years is affected by original pressure, injected volumes, and the ability of the reservoir to dissipate pressure.



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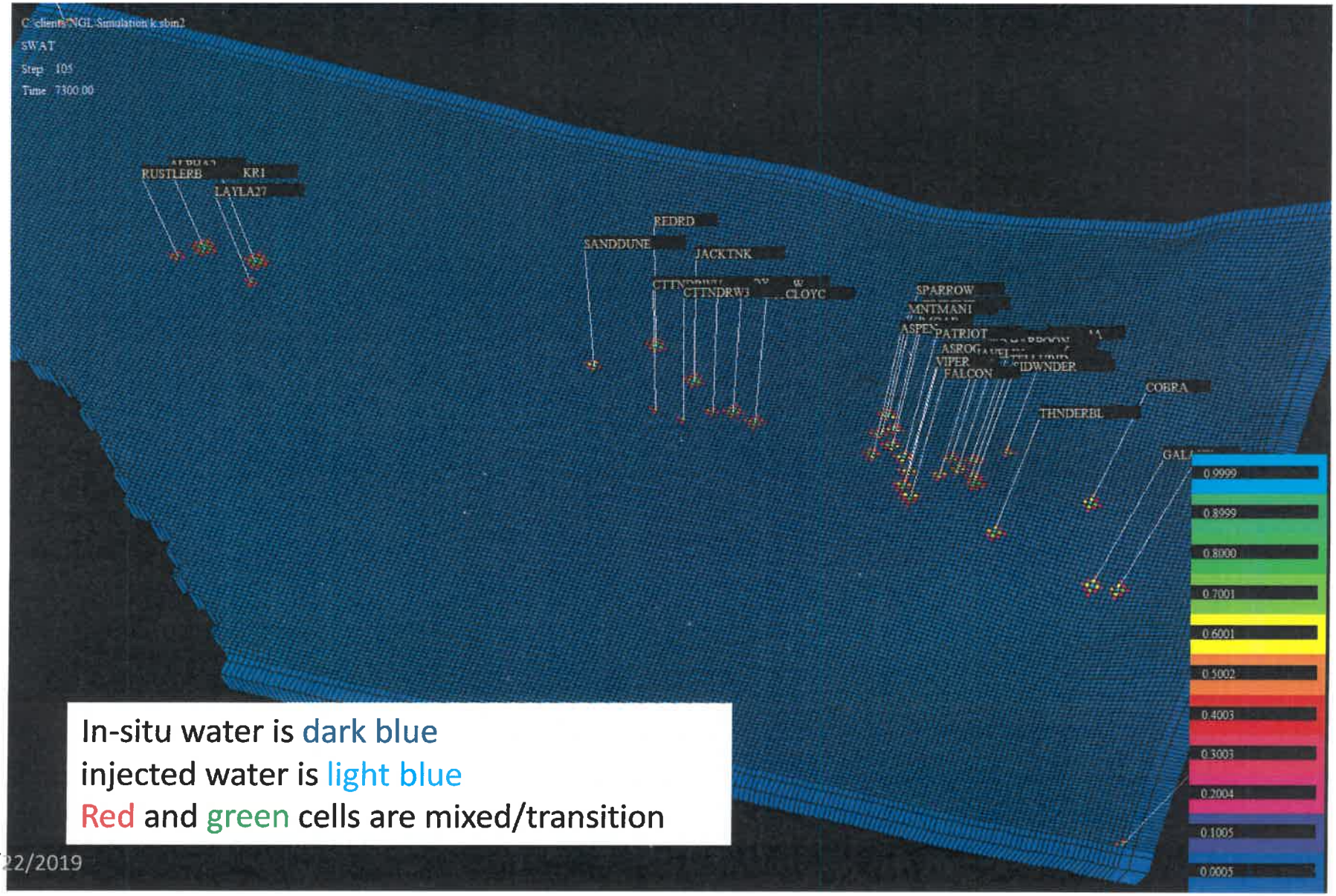
Large scale saturation profiles after 20 years of injection.



In-situ water is dark blue
injected water is light blue
Red and green cells are mixed/transition

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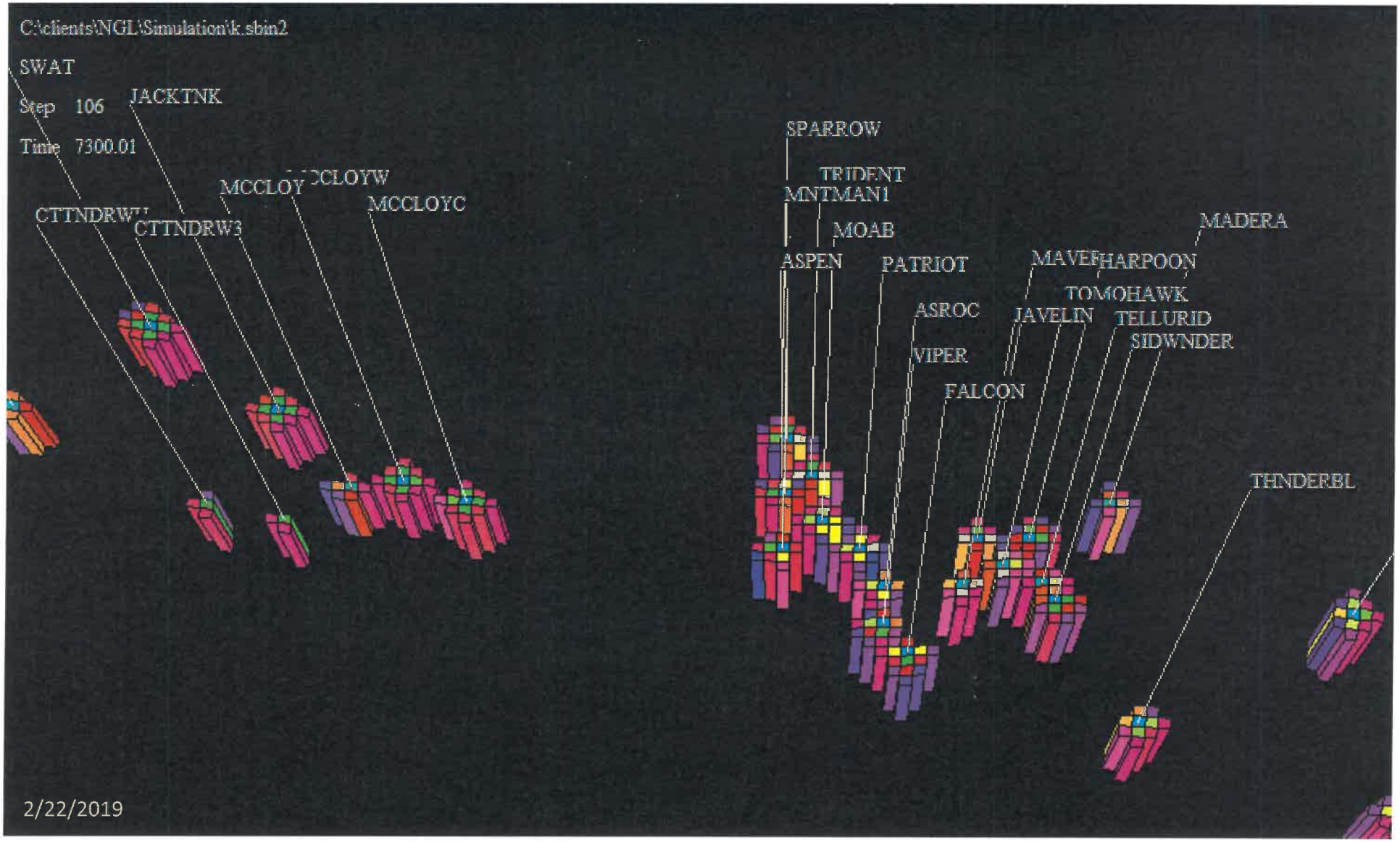
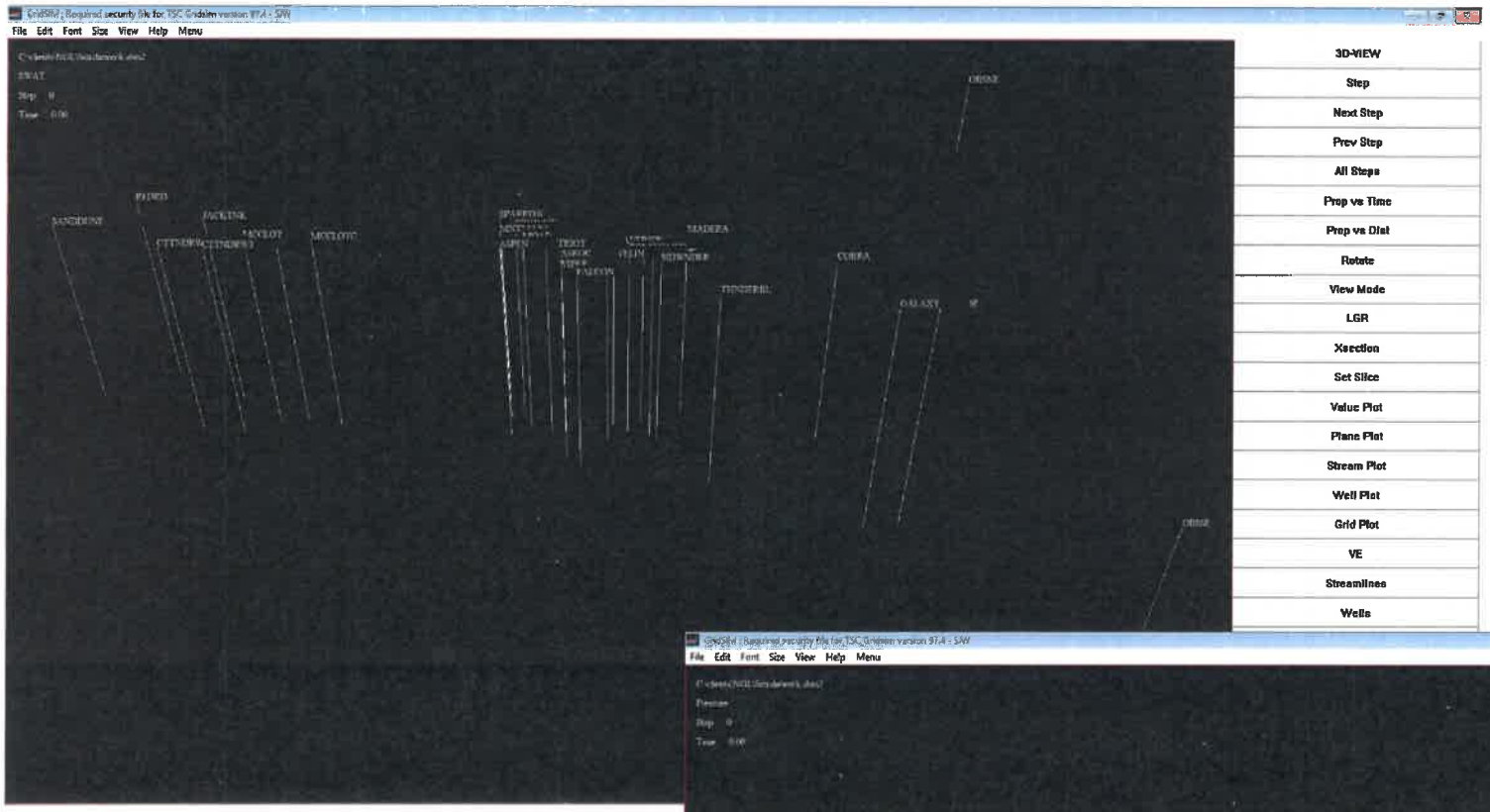
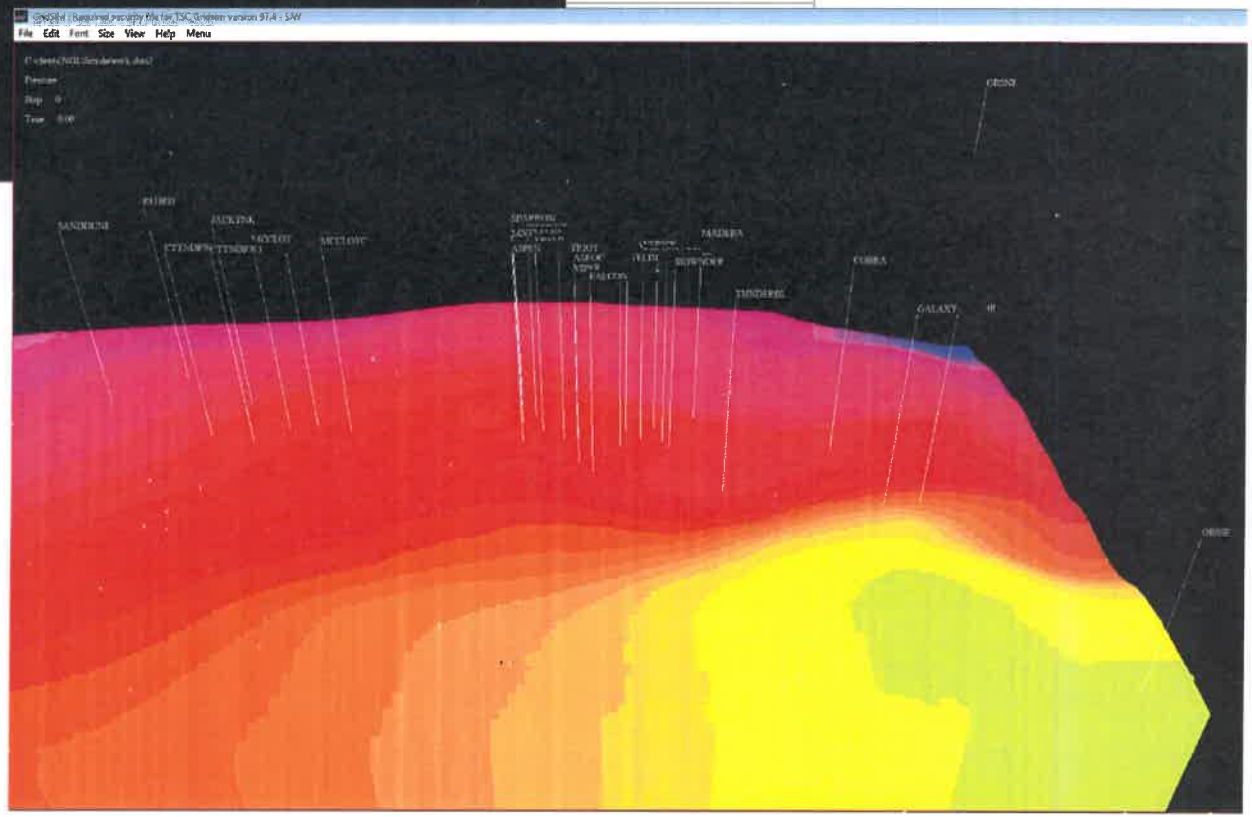
Detailed saturation profiles after 20 years of injection.



Exh. 13



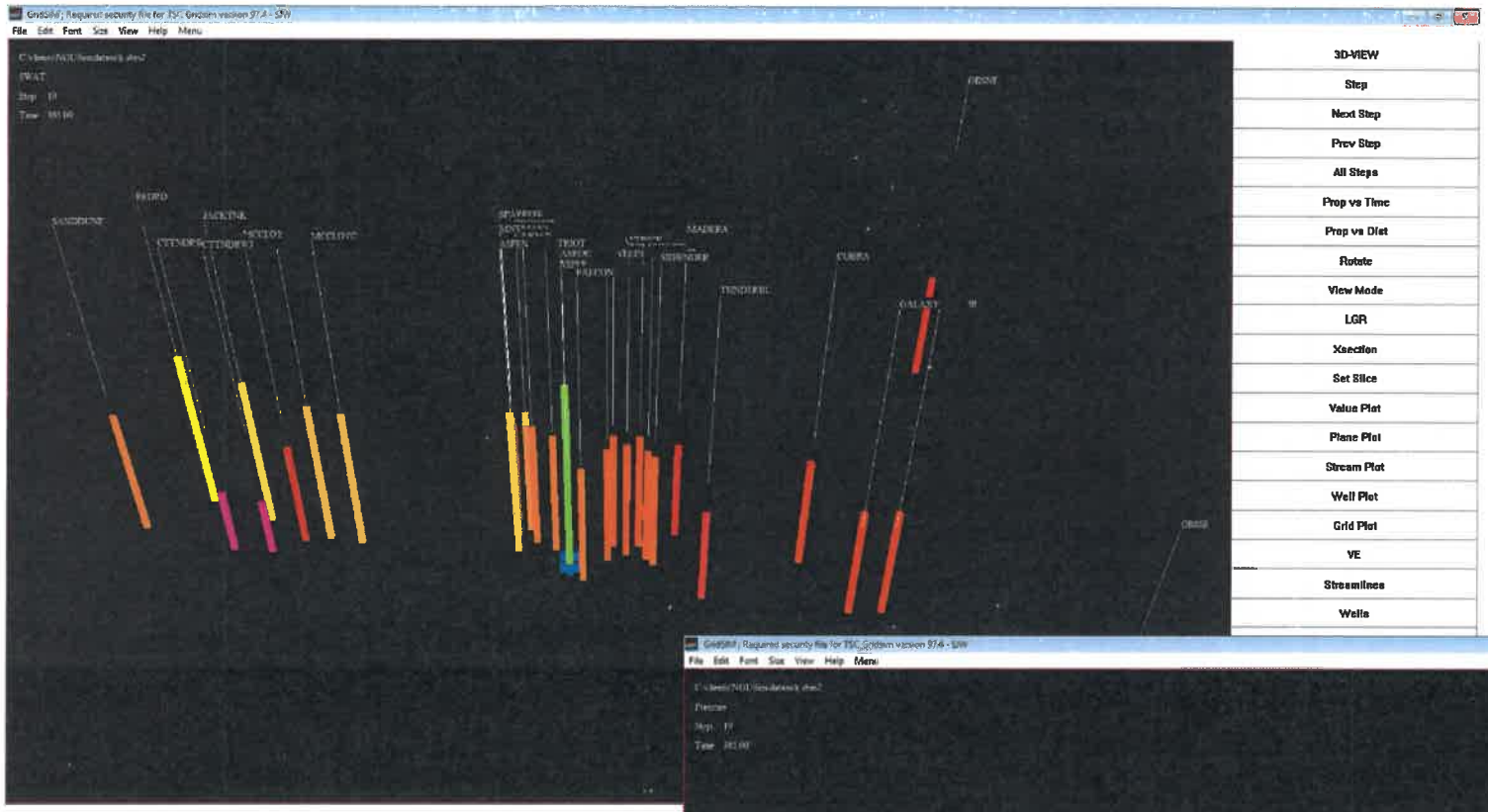
2019
(0 years)



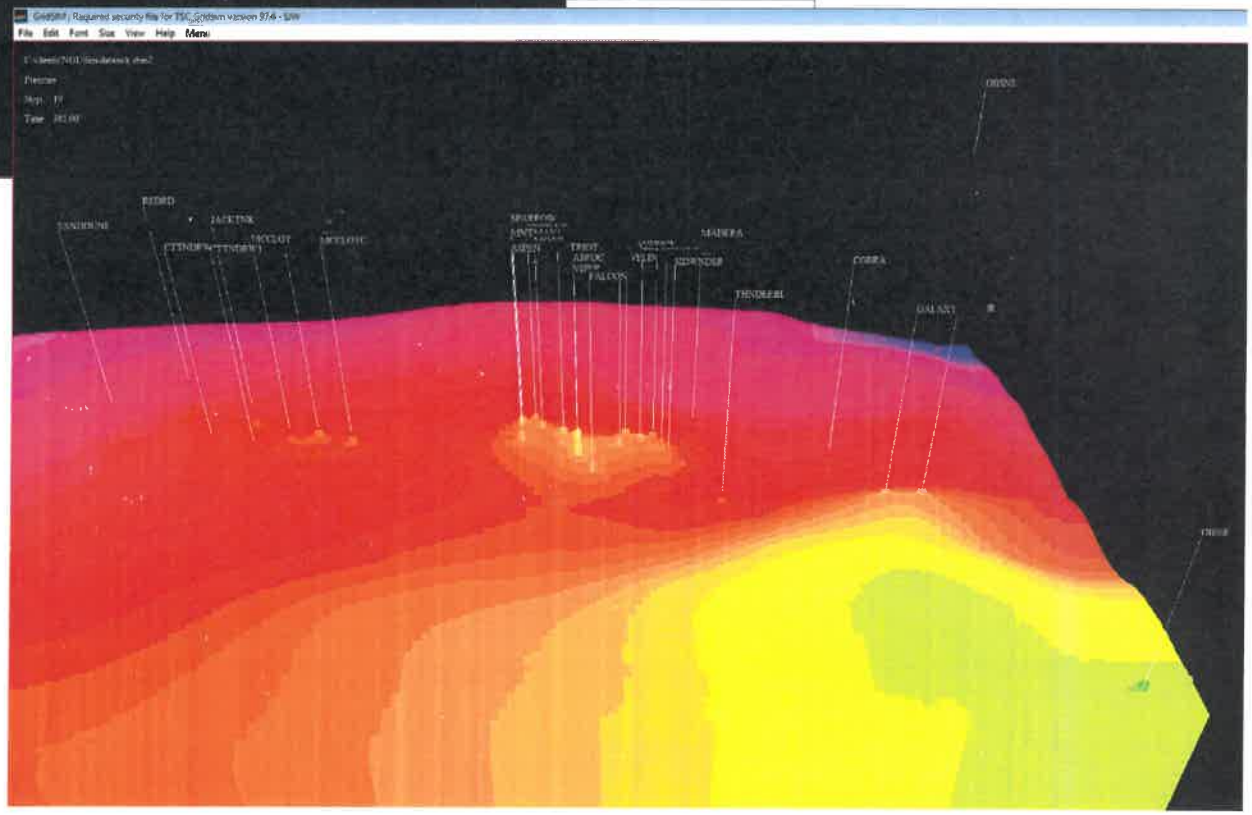
Water movement & Pressure

2/22/2019

Exh. 14



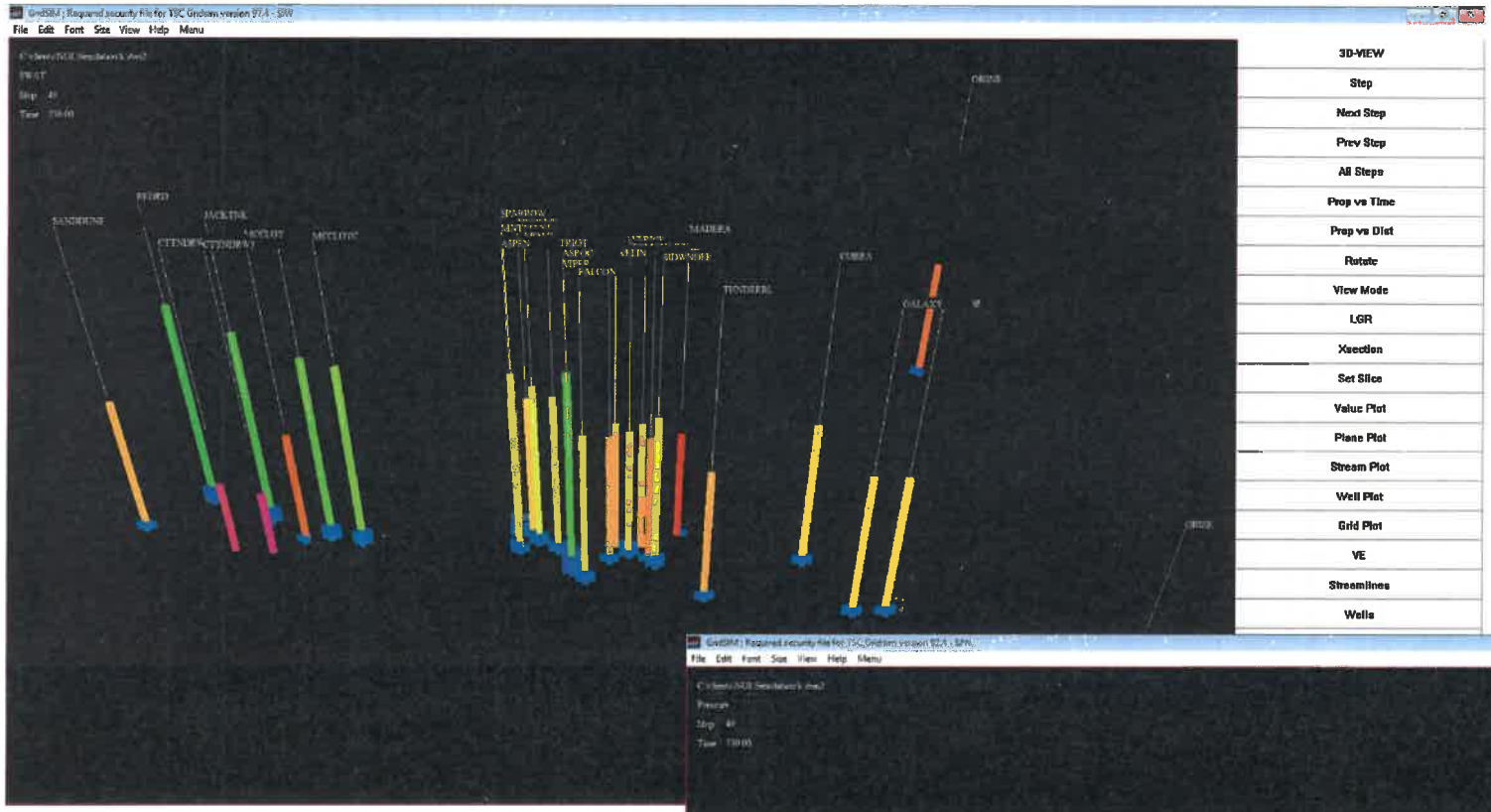
2020
(1 year)



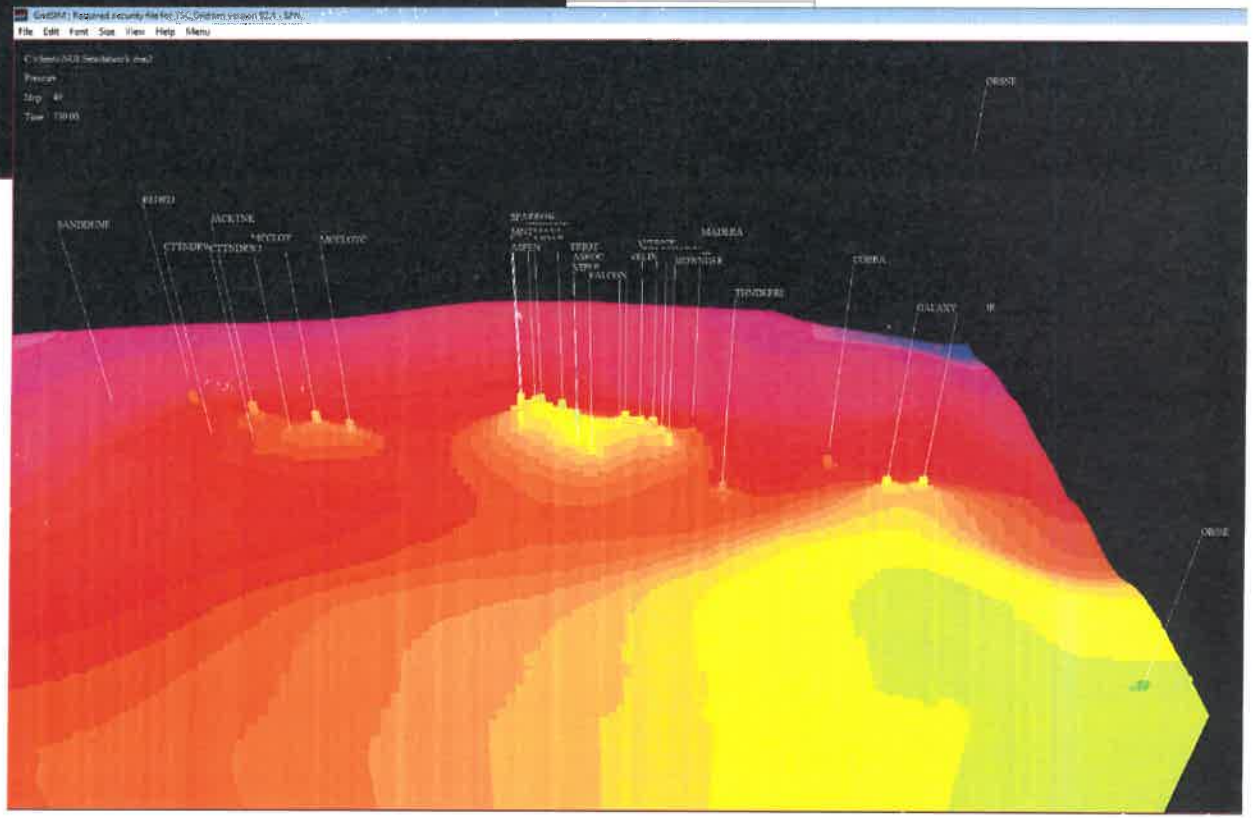
Water movement & Pressure

2/22/2019

Exh. 15



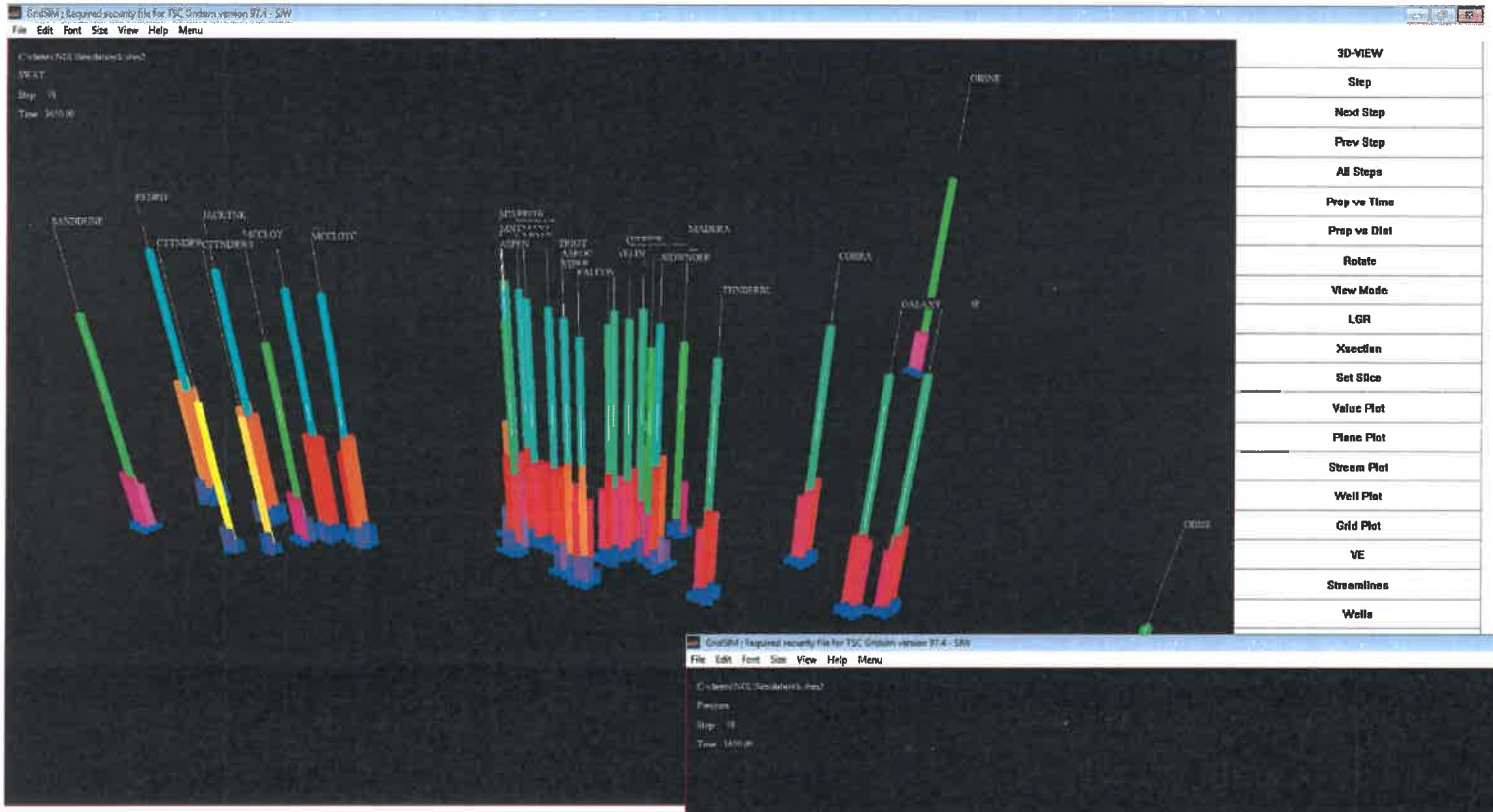
2021
(2 years)



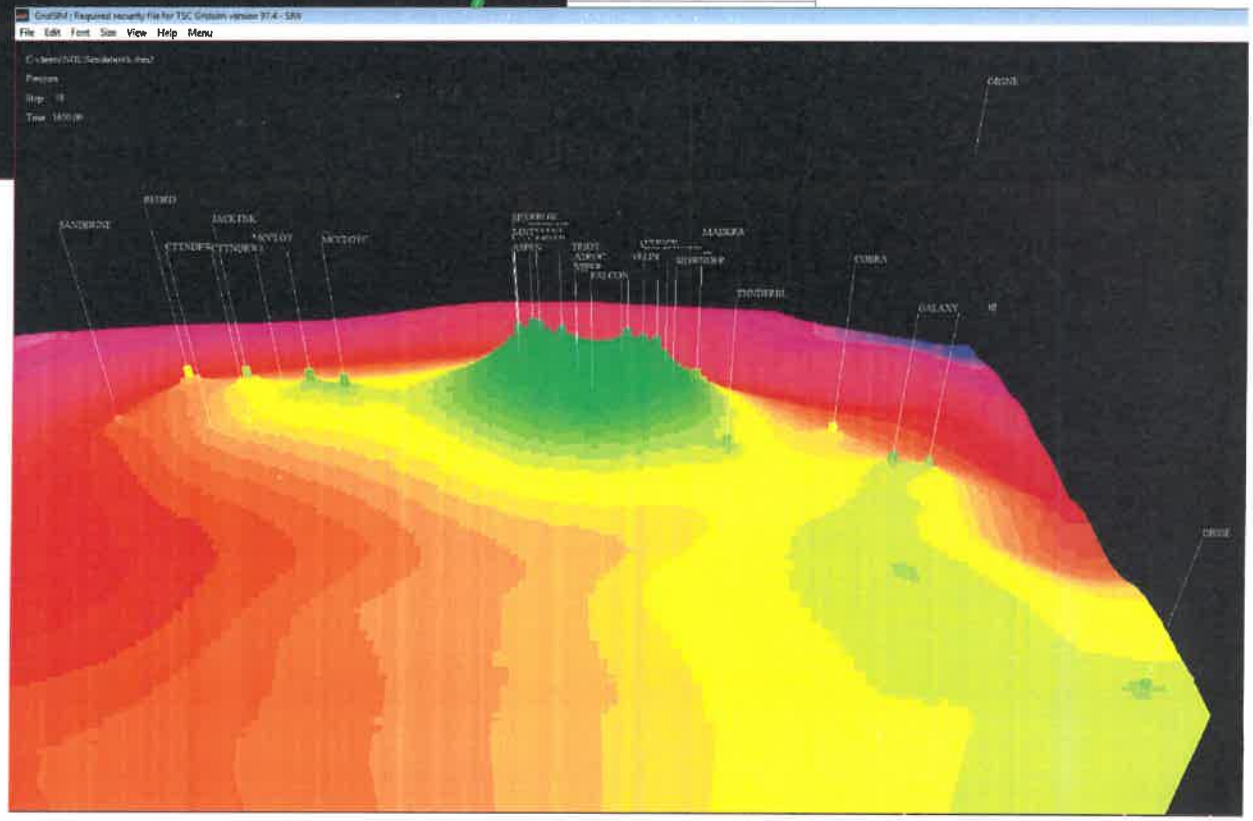
Water movement & Pressure

2/22/2019

Exh. 16



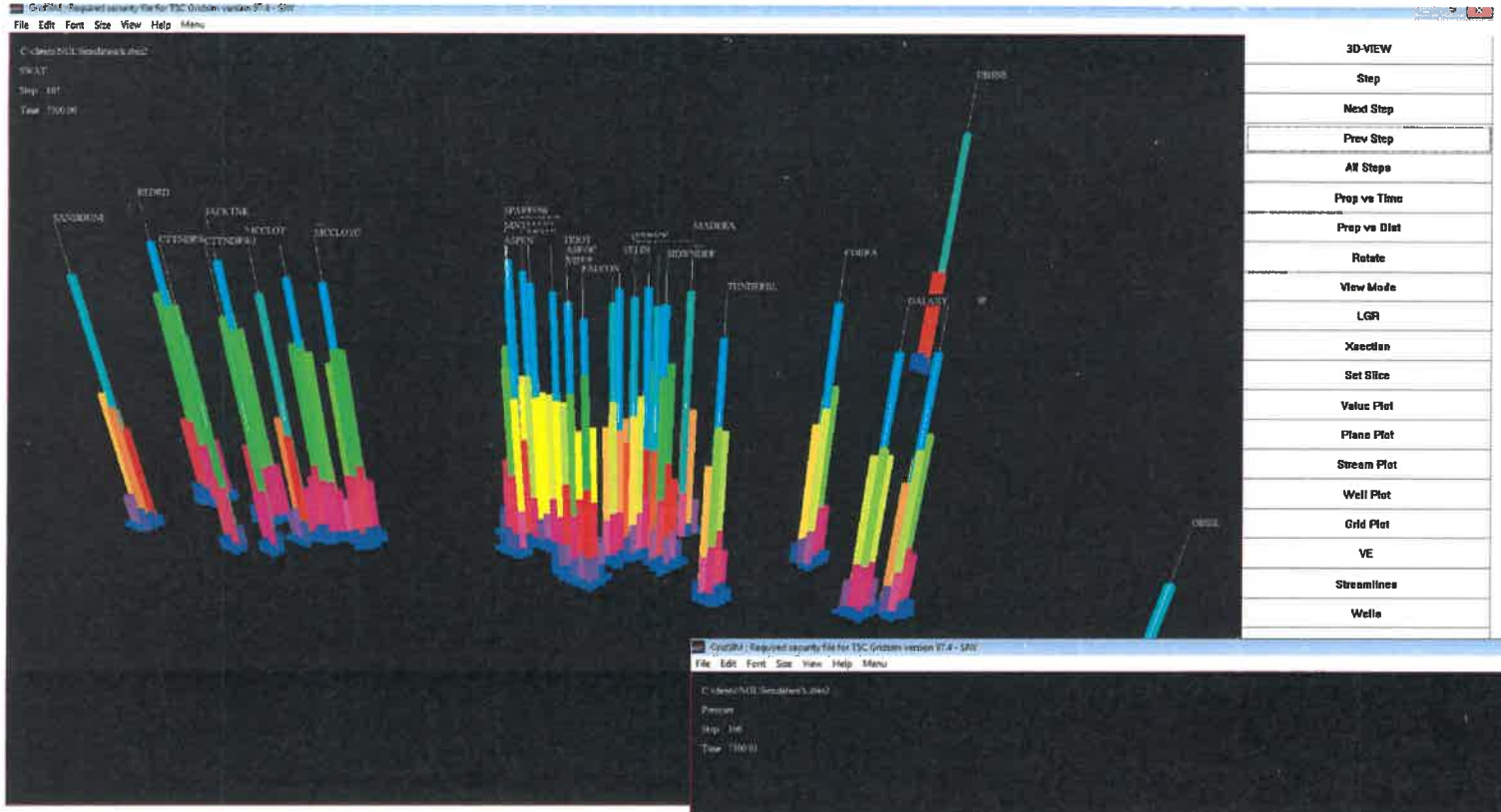
2029
(10 years)



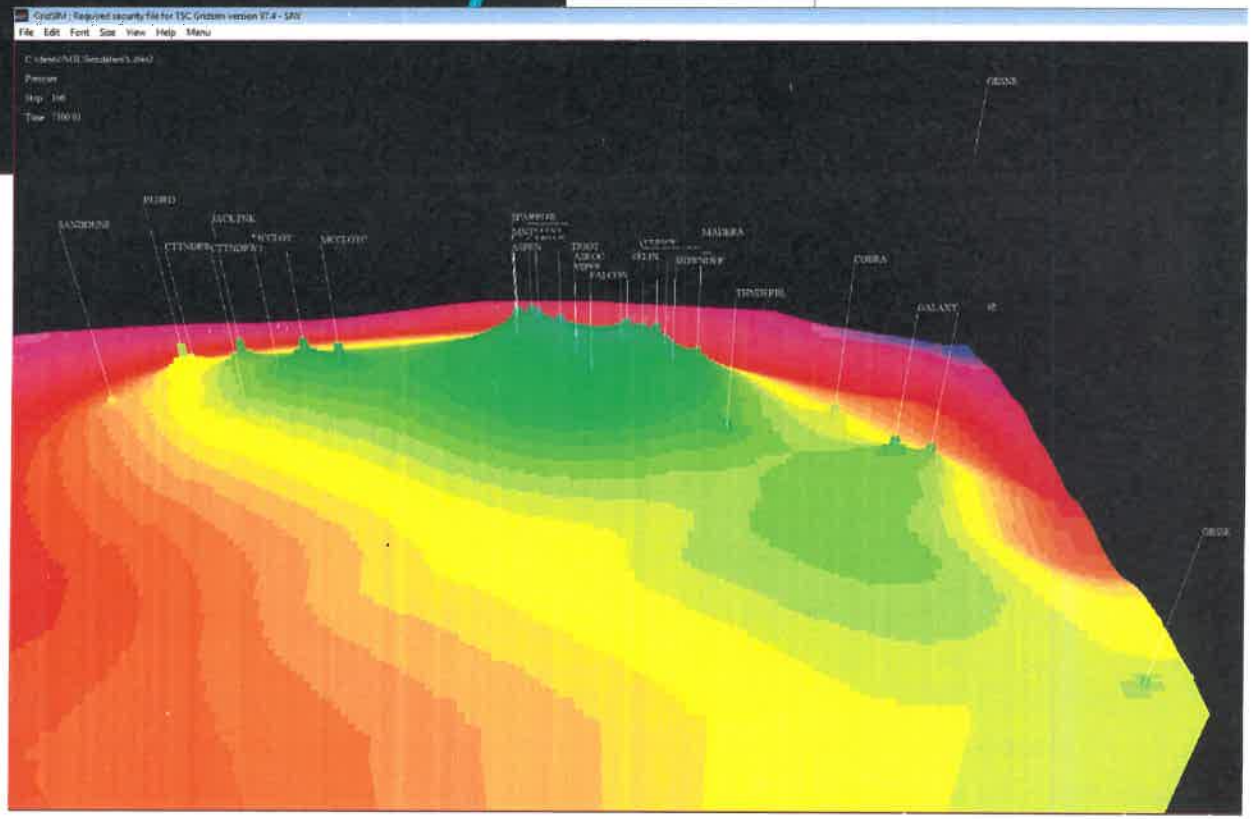
Water movement & Pressure

2/22/2019

Exh. 17



2039
(20 years)



Water movement & Pressure

2/22/2019

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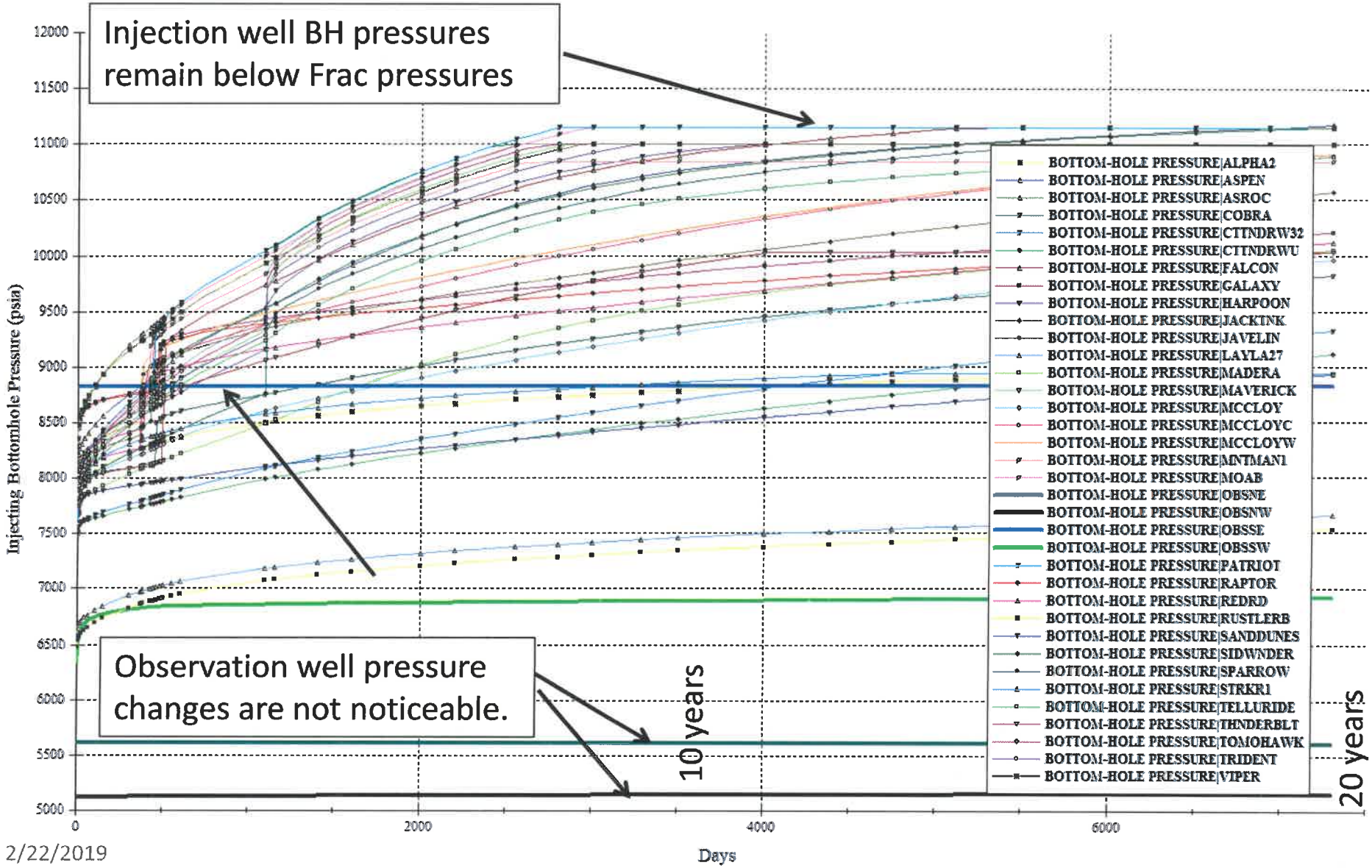
Exh. 18

Simulation predictions for individual wells over time



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Exh. 19

Simulation predictions for individual wells over time

Injection well rates are stable until max injection pressures are reached for wells in thinner sections of the injection zone and/or surrounded by other injectors.