

**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. 20658 (OSPREY)

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Application and Application Packet

**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. 20658

APPLICATION

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

(1) NGL proposes to drill the Osprey SWD #1 well at a surface location 470 feet from the South line and 208 feet from the West line of Section 25, Township 25 South, Range 35 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well.

(2) NGL seeks authority to inject salt water into the Devonian-Silurian formation at a depth of 18,114' to 20,109'.

(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 2,717 psi for this well, and it requests that a maximum pressure of 3,622 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 August 8, 2019; 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 H. Bennett

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 Devonian-Silurian formation through the Osprey SWD #1 well at a surface location 470 feet from the South line and 208 feet from the West line of Section 25, Township 25 South, Range 35 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well. NGL seeks authority to inject salt water into the Devonian-Silurian formation at a depth of 18,114' to 20,109'. NGL further seeks approval of the use of 7 inch tubing inside the surface and intermediate casings and 5 ½ inch tubing inside the liner and requests that the Division approve a maximum daily injection rate for the well of 50,000 bbls per day. Said location is approximately 10.7 miles west of Jal, New Mexico.

RECEIVED:	REVIEWER:	TYPE:	APP NO:
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ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
 - Geological & Engineering Bureau -
 1220 South St. Francis Drive, Santa Fe, NM 87505

**ADMINISTRATIVE APPLICATION CHECKLIST**

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

Applicant: NGL WATER SOLUTIONS PERMIAN LLC **OGRID Number:** 372338
Well Name: OSPREY SWD #1 **API:** TBD
Pool: SWD: DEVONIAN-SILURIAN **Pool Code:** 97869

**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

6/18/2019

Date

512-600-1764

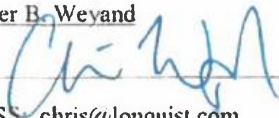
Phone Number

CHRIS@LONQUIST.COM

e-mail Address



APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: Secondary Recovery Pressure Maintenance X Disposal Storage
Application qualifies for administrative approval? X Yes No
- II. OPERATOR: NGL WATER SOLUTIONS PERMIAN, LLC
ADDRESS: 1509 W WALL ST // STE 306 // MIDLAND, TX 79701
CONTACT PARTY: SARAH JORDAN PHONE: (432) 685-0005 x1989
- III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection.
Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? Yes X No
If yes, give the Division order number authorizing the project: _____
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
 2. Whether the system is open or closed;
 3. Proposed average and maximum injection pressure;
 4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
 5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- *VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- *X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).
- *XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- NAME: Christopher B. Weyand TITLE: Consulting Engineer
SIGNATURE:  DATE: 6/18/2017
E-MAIL ADDRESS: chris@lonquist.com
- * If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

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

III. WELL DATA

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

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

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

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

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

XIV. PROOF OF NOTICE

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

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

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

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

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

Side 1

INJECTION WELL DATA SHEET

OPERATOR: NGL WATER SOLUTIONS PERMIAN, LLC

WELL NAME & NUMBER: OPSREY SWD #1

WELL LOCATION: 470' FSL & 208' FWL M 25 25S 35E
FOOTAGE LOCATION UNIT LETTER SECTION TOWNSHIP RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 24.000"

Casing Size: 20.000"

Cemented with: 1,401 sx.

or _____ ft³

Top of Cement: Surface

Method Determined: Circulation

1st Intermediate Casing

Hole Size: 17.500"

Casing Size: 13.375"

Cemented with: 3,029 sx.

or _____ ft³

Top of Cement: Surface

Method Determined: Circulation

2nd Intermediate Casing

Hole Size: 12.250"

Casing Size: 9.625"

Cemented with: 3,540 sx.

or _____ ft³

Top of Cement: Surface

Method Determined: Circulation

Production Liner

Hole Size: 8.500"

Casing Size: 7.625"

Cemented with: 962 sx.

or _____ ft³

Top of Cement: 12,200'

Method Determined: Logged

Total Depth: 19,050'

Injection Interval

18,114 feet to 20,109 feet

(Open Hole)

INJECTION WELL DATA SHEET

Tubing Size: 7", 26 lb/ft, P-110, TCPC from 0' - 12,100' and 5,500", 17 lb/ft, P-110 TCPC from 12,100' - 18,094'
Lining Material: Duoline

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

Packer Setting Depth: 18,094'

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; Devonian-Silurian

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

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:

Delaware: 5,140'

Bone Spring: 9,014'

Wolfcamp: 12,594'

Strawn: 13,619'



Osprey SWD

Vertical Injection - Devonian-Silurian, Fusselman, Montoya (Top 100')

SWSWSW sec 25-T25S-R35E Lea County NM

Drill and Complete Cost

APE thrl

\$11,488,228

TD

GL/KB

20,109

3090

Directions to Site 10.7 miles W of Jal
Lat/Long - 32.095383, -103.329083

Geologic Tops (MD ft)	Section	Problems	Bit/BHA	Mud	Casing	Logging	Cement (HOLD)	Injection String
Rustler Anhy 802'	Surface Drill 24" 0' - 1100' Set and Cement 20" Casing	Loss Circulation Hole Cleaning Wellbore stability in the Red Beds	24" PDC + Bit sub w/ float 17 + 17" NBS + 1X8" DC + 17" IBS + 1X8" DC + SS + 4X8" DC's + X/O +5" HWDP	Spud Mud MW< 9.0	1100' of 20" 94# J55 BTC Centralizers - bottom 2 joints and every 3rd jt thereafter, Cement basket 5th jt from surface	Mud loggers on site by Drillout of Surf.	1401sx of Halcem 3hr TT 50% Excess 1000psi CSD after 10hrs	12,100' of 7" P110 26# TCPC
Surface TD 1,100'								
Top of Salt 1183'								
Castile 2,620'	1st Intermediate Drill 4000' of 17-1/2" Hole 1100 - 5100' Set and Cement 13-3/8" Casing	Seepage Losses Possible H2S Anhydrite Salt	17-1/2" PDC Bit + 9-5/8" X 8" 7/8 4.0 Combo MM w/ 17" Steel NBS + 17" IBS + 2X8" DC's + SS + 4X8" DC's + 18X6" DC's + X/O + HWDP	Brine	5M A Section Casing Bowl 5100' of 13-3/8" 68# HCL80 BTC Centralizers - bottom jt, every 3rd joint in open hole and 2 jt inside the surface casing.	Gyro Survey	Halcem, 3029sx, 13.7ppg 30% Excess 1000psi CSD after 10 hrs Cement to Surface	
Delaware 5,140'								5994' of 5-1/2" P110 17# TCPC
1st Int TD - 5,100'								
9-5/8" DV/ECP 5,200'	2nd Intermediate Drill 7600' of 12-1/4" Hole 5100' - 12700' Set 9-5/8" Intermediate Casing and Cement in 3 Stages	Seepage to Complete Loss Water Flows Some Anhydrite H2S possible Production in the Lower Wolfcamp	12-1/4" Smith XS 7165 AxeBlade PDC Bit, sub, 8" 7/8 4.0 0.16 MM w/ 12" NBS, ALS Roller Reamer DeMag, UBHO sub, ALS 12" RR/UBHO/NMDC, SS, 6 jts: 8" DC, X/O sub, 18 jts: 6" DC, X/O sub, 8" Drilling Jars HWDP + 5" DP to Surface	Cut Brine	10M B Section 12,700' of 9-5/8" 53.5# HCL80 BTC Special Drift to 8.535"	12.25" Open Hole: MWD GR Triple combo, Caliper of 13-3/8" Casing to surface Cased Hole: CBL/Pressure Pass to 1000 psi of 9-5/8" Casing before drillout	Stage 3: 10% Excess 1087sx Halcem 13.7ppg 1000psi CSD after 10 hrs Cement to Surface	
Bell Canyon 5196'					Externally Coat 3850' Between DV Tools		Stage 2: 50% Excess 1042sx Halcem 13.7ppg 1000psi CSD after 10 hrs	
Cherry Canyon 6,158'					-DV/ECP tool at at 2740' (DV Tool 100' Below Previous Casing shoe)		Stage 1: 1411sx Halcem 1.37ppg, 50% XS 1000psi CSD after 10hrs	
Brushy Canyon 7,594'					-DV Tool w/ no ECP placed nominally above the Bone Springs top			
9-5/8" DV 9,000'					Centralizers - bottom jt, 100' aside of DV tool, every 3rd joint in open hole and 5 within the surface casing. ensure centralizers are 9-3/4" to fit Coated Pipe.			
Bone Springs 9,014'								Duoline Internally Coated Injection Tubing
TOC - Stage 1 Tail - 11,000'								
7-5/8" Liner Top 12,200'								
Wolfcamp 12,594'								
2nd Int TD - 12,700'								
Strawn 13,619'	3rd Intermediate Liner Drill 5414' of 8-1/2" Hole 12700' - 18114'	Pressure in the Atoka Hard Drilling in the Atoka & Morrow	8-1/2" Smith XS 7165 AxeBlade PDC Bit, sub, 6-3/4" 7/8 5.7 MM w/ 8" NBS, UBHO sub, 8" NMIBS/UBHO/NMDC, SS, 18 jts: 6" DC 6" Drilling Jars HWDP + 5" DP to Surface	Weighted WBM 11.0 ppg- 13.5 ppg (MAX)	5914' of 7-5/8" 42.5# HCP110 USS FJ (Gas Tight). Special Drift to 6.5" VersaFlex Packer Hanger	8.5" Open Hole: MWD GR Triple combo, Caliper of 8.5" Open Hole Cased Hole: SCBL/Pressure Pass to 1000 psi of 7-5/8" Casing before drillout	962sx of Neocem 13.2 ppg 50% Excess 1000psi CSD after 12hrs	7-5/8" x 5-1/2" TCPC Permanent Packer with High Temp Elastomer and full Inconel 92S trim
Atoka 14,262'					Centralizers on and 1 jt above shoe jt and then every 2nd jt.			
Morrow 15,098'								
Miss Lime 16,594'								
Woodford 17,904'								
Injection Packer 18,094'								
Devonian 18,114'								
3rd Int TD 18,114'								
Silunan - 19,029'	Injection Interval Drill 1995 of 6-1/2" hole 18114 - 20109'	Chert is possible Loss of Circulation and or Flows are expected BHT estimated at 280F	6-1/2" Smith U611S PDC Bit, sub, 5" 7/8 2.6 0.26 1.5FBH MM w/ 6" NBS, 6" NMIBS, UBHO/NMDC, SS, X/O sub, 24 jts: 4-3/4" HWDP + 4" DP to Surface	Brine Water - flows possible	Openhole completion	MWD GR Triple Combo with FMI and CMR Tool	Displace with clean heavy brine	
Fusselman - 19,259'								
Montoya - 20,009'								
TD - 20,109'								

NGL Water Solutions Permian, LLC

Osprey SWD No. 1

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1.

Well information	
Lease Name	Osprey SWD
Well No.	1
Location	S-25 T-25S R-35E
Footage Location	470' FSL & 208' FWL

2.

a. Wellbore Description

Casing Information				
Type	Surface	Intermediate	Production	Liner
OD	20"	13.375"	9.625"	7.625"
WT	0.440"	0.480"	0.545"	0.500"
ID	19.124"	12.415"	8.535"	6.625"
Drift ID	18.936"	12.259"	8.535"	6.500"
COD	21.00"	14.375"	10.625"	7.625"
Weight	94 lb/ft	68 lb/ft	53.5 lb/ft	42.5 lb/ft
Grade	J-55	HCL-80	HCL-80	HCP-110
Hole Size	24"	17.5"	12.25"	8.5"
Depth Set	1,100'	5,100'	12,700'	18,114'

b. Cementing Program

Cement Information				
Casing String	Surface	Intermediate 1	Intermediate 2	Liner
Cement	Halcm	Halcm	Halcm	Neocem
Cement Volume	1,401 sx	3,029 sx	Stage 1: 1,411 sx Stage 2: 1,042 sx Stage 3: 1,087 sx	962 sx
Cement Excess	50%	30%	25%, 25%, 0%	50%
TOC	Surface	Surface	Surface	12,200'
Method	Circulate to Surface	Circulate to Surface	Circulate to Surface	Logged

3. Tubing Description

Tubing Information		
OD	7"	5.5"
WT	0.362"	0.304"
ID	6.276"	4.892"
Drift ID	7.875"	6.050"
COD	6.151"	4.653"
Weight	26 lb/ft	17 lb/ft
Grade	P-110 TCPC	P-110 TCPC
Depth Set	0'-12,100'	12,100' -18,094'

Tubing will be lined with Duoline.

4. Packer Description

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

B. Completion Information

1. Injection Formation: Devonian, Silurian, Fusselman, Montoya (Top 100')
2. Gross Injection Interval: 18,114' – 20,109'

Completion Type: Open Hole

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

Formation	Depth
Delaware	5,140'
Bone Spring	9,014'
Wolfcamp	12,594'
Strawn	13,619'

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: 2,717 PSI (surface pressure)
Maximum Injection Pressure: 3,622 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, and Strawn 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	802'
Salado	1,183'
Delaware	5,140'
Bone Spring	9,014'
Wolfcamp	12,594'
Penn	13,144'
Strawn	13,619'
Atoka	14,262'
Morrow	15,098'
Mississippian	16,594'
Woodford	17,904'
Devonian	18,114'
Fusselman	19,259'
Montoya	20,009'

B. Underground Sources of Drinking Water

One water well exists within one mile of the proposed Osprey SWD #1 location. Water wells in the surrounding area have an average depth of 688 ft and an average water depth of 274 ft generally producing from the Santa Rosa. The upper Rustler may also be another USDW and will be protected. Maps show that the Osprey SWD #1 location is very close to the Capitan Reef (another identified aquifer). If the Capitan is encountered, an additional casing string will be run to isolate it.

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

One water well exists within one mile of the proposed well location. If samples can be obtained, analysis results will be provided as soon as possible. A map showing water well locations is attached. Water Right Summaries from the New Mexico Office of the State Engineer were not available for any wells within one mile.

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 Osprey 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) 393-0220
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 15, 2013

☐ AMENDED REPORT

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

Operator Name and Address NGL WATER SOLUTIONS PERMIAN, LLC 1509 W WALL ST, STE 306 MIDLAND, TX 79701		Drill Number 372338 API Number TBD
Property Code	Property Name Osprey SWD	Well No. 1

Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
M	25	25S	35E	N A	470'	SOUTH	208'	WEST	LEA

Proposed Bottom Hole Location

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

Pool Information

Pool Name SWD, Devonian-Silurian	Pool Code 97869
--	---------------------------

Additional Well Information

Work Type N	Well Type SWD	Cable Rotary R	Lease Type Private	Ground Level Elevation 3,090'
Multiple N	Proposed Depth 20,109'	Formation Siluro-Devonian	Contractor TBD	Spud Date ASAP
Depth to Ground water 274'		Distance from nearest fresh water well 4,970'		Distance to nearest surface water 2,900'

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

Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surface	24"	20"	94 lb/ft	1,100'	1,401	Surface
Intermediate	17.5"	13.375"	68 lb/ft	5,100'	3,029	Surface
Production	12.25"	9.625"	53.5 lb/ft	12,700'	3,540	Surface
Prod. Liner	8.5"	7.625"	42.5 lb/ft	12,200' - 18,114'	962	12,200'
Tubing	N/A	7"	26 lb/ft	0' - 12,100'	N/A	N/A
Tubing	N/A	5.5"	17 lb/ft	12,100' - 18,094'	N/A	N/A

Casing/Cement Program: Additional Comments

See attached schematic

Proposed Blowout Prevention Program

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

23 I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

I further certify that I have complied with 19.15.14.9 (A) NMAC ☐ and/or 19.15.14.9 (B) NMAC ☒, if applicable.

Signature:

Printed name: Christopher B. Weyand

Title: Consulting Engineer

E-mail Address: chris@lonquist.com

Date: 6/7/2019

Phone: (512) 600-1764

OIL CONSERVATION DIVISION

Approved By:

Title:

Approved Date:

Expiration Date:

Conditions of Approval Attached

District I
625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
111 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
600 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
220 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 97869	³ Pool Name SWD; Devonian-Silurian
⁴ Property Code	⁵ Property Name OSPREY SWD	⁶ Well Number 1
⁷ OGRID No. 372338	⁸ Operator Name NGL WATER SOLUTIONS PERMIAN,LLC	⁹ Elevation 3090.00'±

" Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	25	25 S	35 E	N/A	470'	SOUTH	208'	WEST	LEA

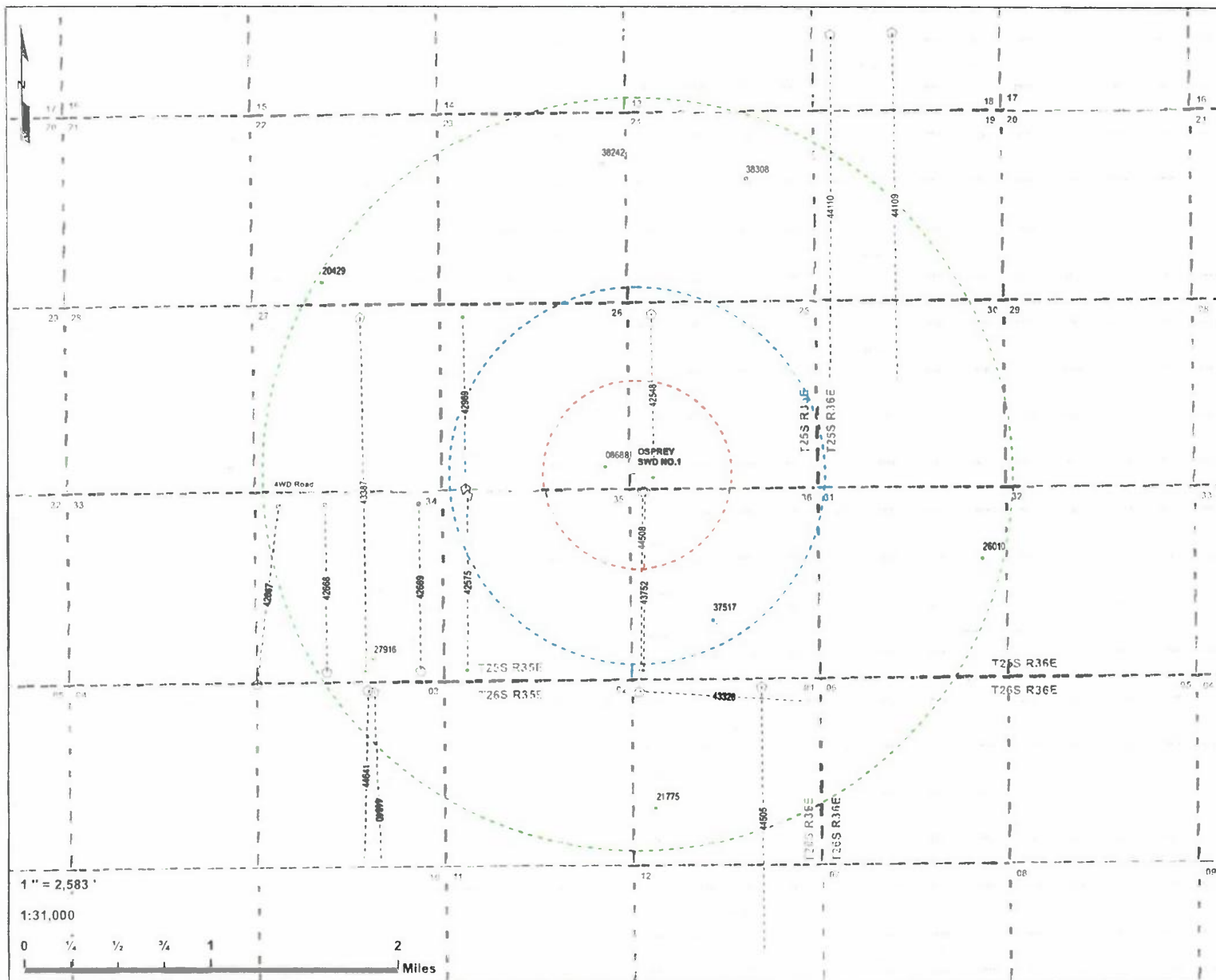
" Bottom Hole Location If Different From Surface

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.

	<p>SECTION 25</p> <p>PROPOSED OSPREY SWD 1</p> <p>NMSP-E (NAD27) N: 399,827.47' E: 811,140.74'</p> <p>NMSP-E (NAD83) N: 399,885.50' E: 852,328.20' Lot: N32°05'43.38" Long: W103°19'44.69"</p>	<p>" OPERATOR CERTIFICATION</p> <p>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.</p> <p> Signature</p> <p>6/18/2019 Date</p> <p>Chris Weyand Printed Name</p> <p>chris@lonquist.com E-mail Address</p>
	<p>"SURVEYOR CERTIFICATION</p> <p>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.</p> <p>9/18/2019 Date of Survey</p> <p> Signature and Seal of Professional Surveyor</p> <p>CODY A. CLARK NEW MEXICO 23001 23461 Professional Surveyor</p> <p>Certificate Number</p>	



Osprey 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: 10/5/2018 Approved by: ELR

LONGQUIST & CO. LLC

PETROLEUM ENGINEERS ENERGY ADVISORS

AUSTIN HOUSTON WICHITA DENVER CALGARY

—+— Osprey SWD No. 1 SHL

1/2-Mile

1-Mile

2-Mile

OS-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 (16)
- Active - Oil (1)
- Active - Gas (1)
- Active - SWD (1)
- Cancelled/Abandoned Location (1)
- Plugged/Site Released - Oil (4)

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

- Active - Oil (6)
- Cancelled/Abandoned Location (3)
- Permitted - Oil (6)

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

782

LEA

Map Extent

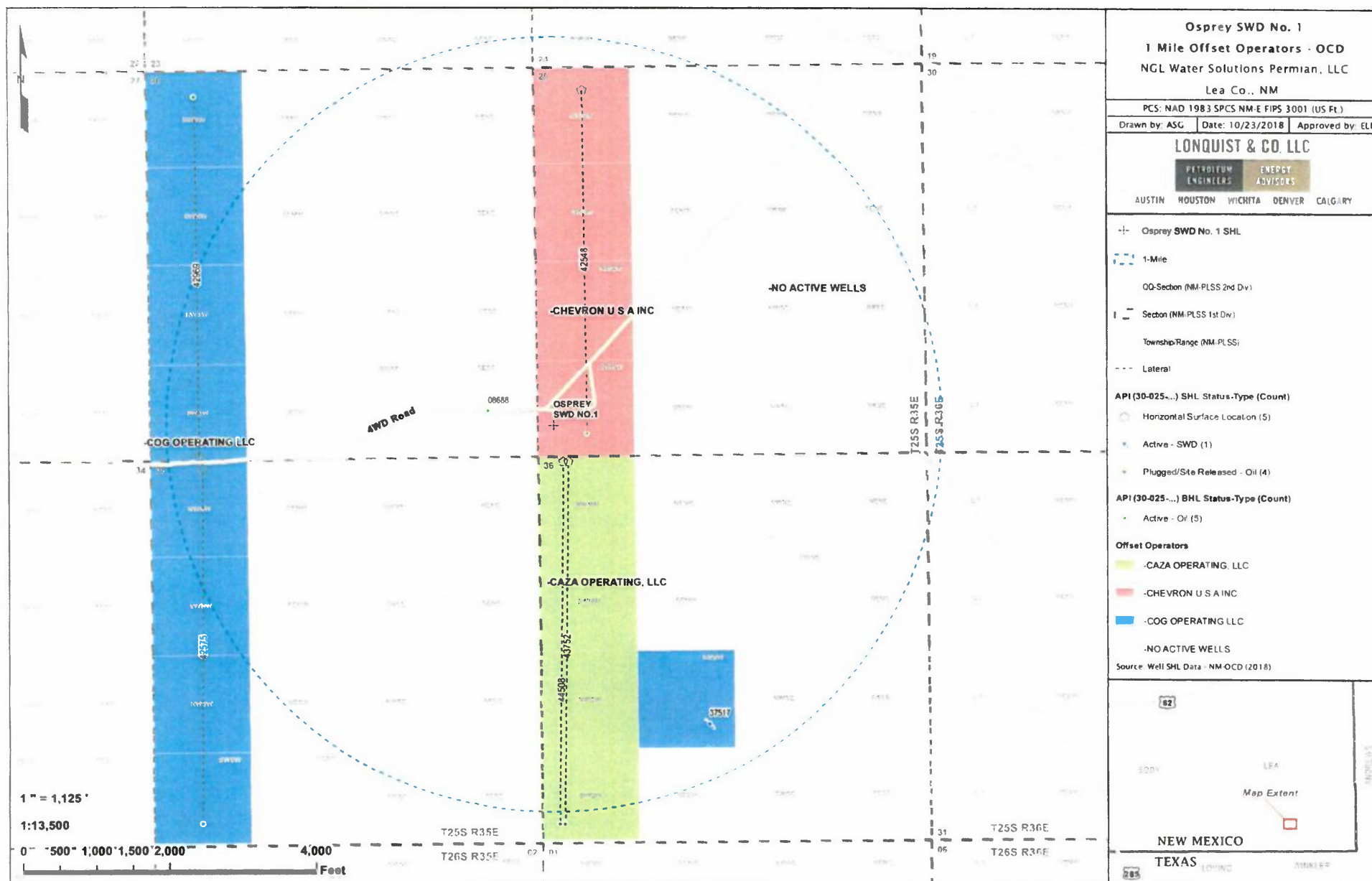
NEW MEXICO

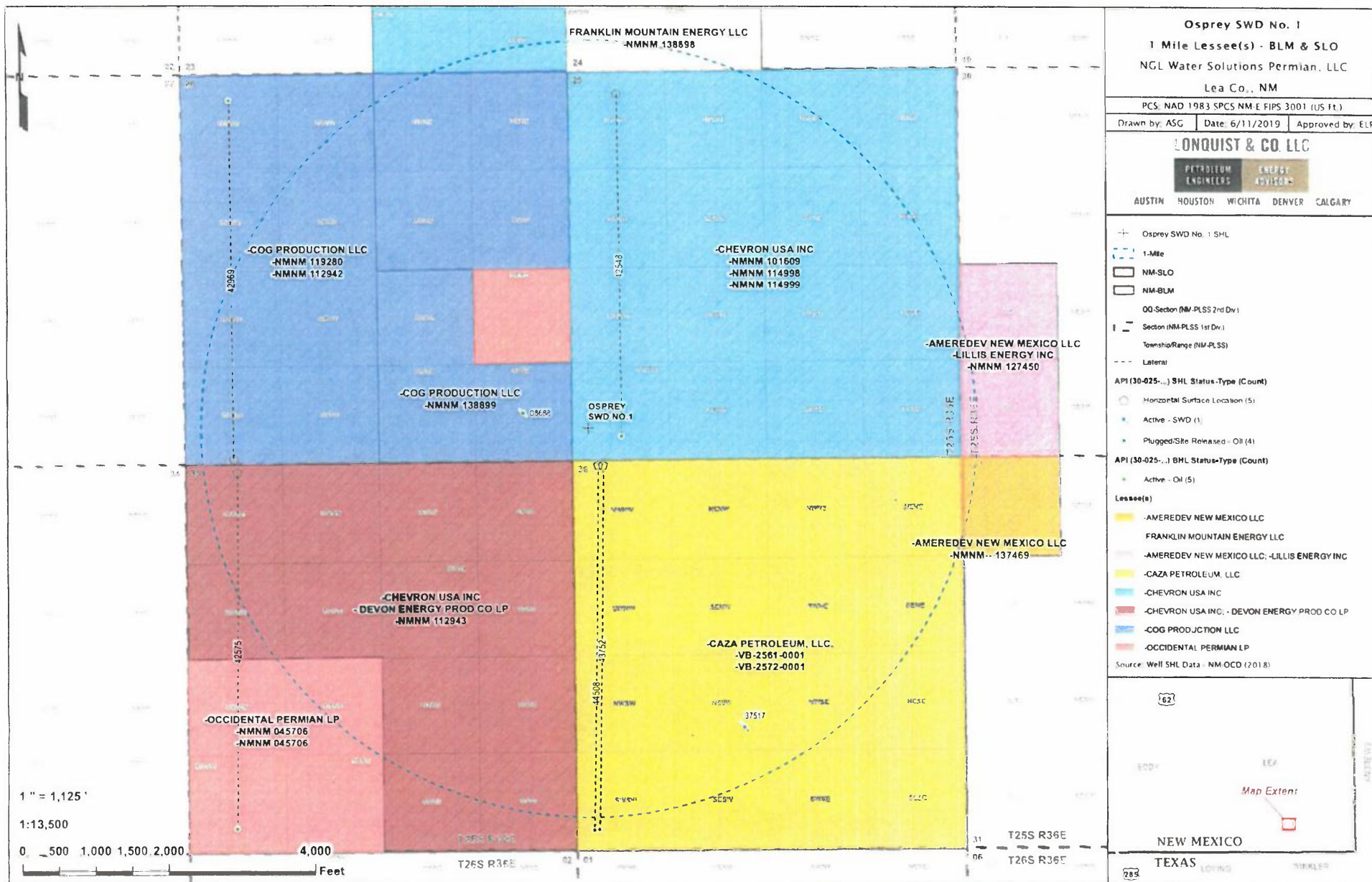
TEXAS

785

Osprey 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
08688	PRE-ONGARD WELL #001	O	P	PRE-ONGARD WELL OPERATOR	14993	32.0958862000	-103.331947300	1/1/1900
37517	MOMENTUM 36 STATE #001	S	A	COG OPERATING LLC	9693	32.0841141000	-103.322372400	2/21/2006
42548	TALCO 25 25 35 FEDERAL #001H	O	A	CHEVRON U S A INC	11897	32.1078071931	-103.327657581	8/1/2015
42575	CORONADO 35 FEDERAL #001H	O	A	COG OPERATING LLC	12274	32.0938250747	-103.344571560	6/25/2015
42969	MOONLIGHT BUTTRESS 26 FEDERAL #001H	O	A	COG OPERATING LLC	8802	32.0943169000	-103.344728700	12/22/2015
43752	SIOUX 36 STATE #001H	O	A	CAZA OPERATING, LLC	12255	32.0939530000	-103.328453000	5/30/2017
44508	SIOUX 36 STATE #005H	O	A	CAZA OPERATING, LLC	12074	32.0939530000	-103.328679000	3/18/2018





Osprey SWD No. 1 Notice List					
S-T-R	Notice Party Type	Notice Party	Address	Phone Number	Date Noticed
		Oil Conservation Division District IV	1220 South St. Francis Drive, Santa Fe, NM 87505	(505) 476-3440	
		Oil Conservation Division District I - Hobbs	1625 N. French Drive, Hobbs, New Mexico 88240	(575) 748-1283	
Surface Owner					
		NGL WATER SOLUTIONS PERMIAN, LLC	1509 W Wall St., Ste. 306, Midland, TX 79701	(432) 685-0005	
Mineral Owners					
32/T26S/R35E	ADJACENT TRACT MINERAL OWNER	NEW MEXICO STATE LAND OFFICE	P.O. Box 1148, Santa Fe, NM 87504	(505) 954-2000	
Multiple	ADJACENT TRACT MINERAL OWNER	BUREAU OF LAND MGMT	301 Dinosaur Trail Santa Fe, NM 87508		
Notice Parties - 1 Mile					
25/T25S/R35E	OPERATOR	CHEVRON U S A INC	6301 DEAUVILLE BLVD, MIDLAND, TX 79706		
26/T25S/R35E	OPERATOR	COG OPERATING LLC	600 W ILLINOIS AVE, MIDLAND, TX 79701		
35/T25S/R35E					
36/T25S/R35E					
36/T25S/R35E	OPERATOR	CAZA OPERATING, LLC	200 N LORIANE ST, SUITE 1550, MIDLAND, TX 79701		
23/T25S/R35E	LESSEE	CHEVRON USA INC	6301 DEAUVILLE BLVD, MIDLAND, TX 79706		
26/T25S/R35E					
35/T25S/R35E					
24/T25S/R35E	LESSEE	FRANKLIN MOUNTAIN ENERGY LLC	123 W MILLS AVE STE 600, EL PASO, TX 79901		
26/T25S/R35E	LESSEE	COG PRODUCTION LLC	600 W ILLINOIS AVE, MIDLAND, TX 79701		
26/T25S/R35E	LESSEE	OCCIDENTAL PERMIAN LP	5 E GREENWAY PLAZA #110, HOUSTON, TX 77046-0521		
35/T25S/R35E					
26/T25S/R35E	OPERATING RIGHTS	BETTIS BROTHERS INC	500 W TEXAS #830, MIDLAND, TX 79701		
35/T25S/R35E					
26/T25S/R35E	OPERATING RIGHTS	TRITEX ENERGY A LP	15455 DALLAS PKWY STE 600, ADDISON, TX 75001-6760		
35/T25S/R35E					
26/T25S/R35E	OPERATING RIGHTS	WESTALL OIL & GAS LLC	PO BOX 4, LOCO HILLS, NM 88255		
35/T25S/R35E					
26/T25S/R35E	OPERATING RIGHTS	ONEENERGY PTRNS OPER	2929 ALLEN PKWY STE 200, HOUSTON, TX 77019-7123		
35/T25S/R35E					
26/T25S/R35E	OPERATING RIGHTS	ENDURANCE PROPERTIES INC	15455 DALLAS PKWY STE 1050, ADDISON, TX 750016721		
35/T25S/R35E					
35/T25S/R35E	LESSEE	DEVON ENERGY PROD CO LP	333 W SHERIDAN AVE, OKLAHOMA CITY, OK 73102-5010		
36/T25S/R35E	LESSEE	CAZA PETROLEUM, LLC	16945 NORTHCHASE DR. STE 1430, HOUSTON, TX 77060		
30/T25S/R35E	LESSEE	LILLIS ENERGY INC	300 E SONTERRA BLVD # 122, HOUSTON, TX 77019-7123		
30/T25S/R35E	LESSEE	AMEREDEV NEW MEXICO LLC	5707 SOUTHWEST PKWY STE 1- 275, SAN ANTONIO, TX 78258-3971		
31/T25S/R35E					

Osprey 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
NORTH EL MAR UNIT #057	3002508440	31	26S	33E	#	LEA	DELAWARE		259554						163000	61	253	
GOEDEKE #002	3002508407	10	26S	33E	G	LEA	DELAWARE		293925						184000	85	210	
BELL LAKE UNIT #009	3002520261	18	23S	34E	K	LEA	BONE SPRING		204652						130000	512	260	
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 #004H	3002541517	19	24S	33E	O	Lea	BONE SPRING 2ND SAND	6.3		76378	6238	11	834	0	131397	159	670	200
BELL LAKE 19 STATE #003H	3002541516	19	24S	33E	O	Lea	BONE SPRING 2ND SAND	6.7		59599	7326	11	942	0.69	108190	171	680	230
SALADO DRAW 6 FEDERAL #001H	3002541293	6	26S	34E	M	Lea	BONE SPRING 3RD SAND	6.7	95604	31066	3196	10	394	0.5	59071	183	0	100
SALADO DRAW 6 FEDERAL #001H	3002541293	6	26S	34E	M	Lea	BONE SPRING 3RD SAND	7			3289	0.3	474.5	0.38		219.6		300
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	



Beckham Ranch
Proposed SWD Locations
Lea County, NM

9) OSPREY

LAT: -103.32908
LONG: 32.095384
X: 852328.200071
Y: 399885.500163

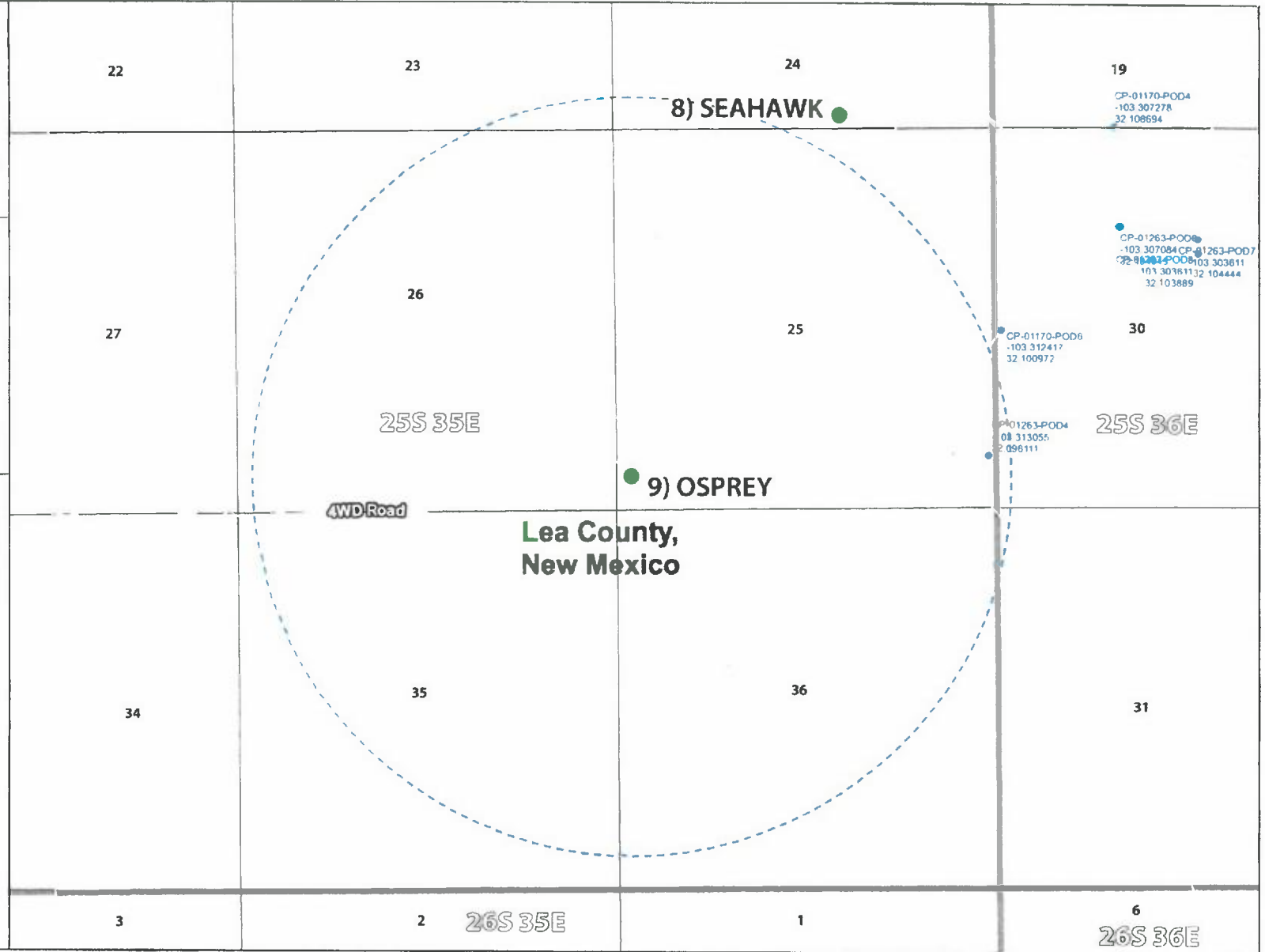
Coordinate System
NMSP-E (NAD83)

Legend

- OSE Points of Diversion
- Proposed SWD
- Proposed SWD Buffer link



0 0.125 0.25 0.5
Miles



Exhibits of Scott Wilson
On Behalf of NGL Water Solutions Permian, LLC

**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. 20658

AFFIDAVIT OF SCOTT J. WILSON

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

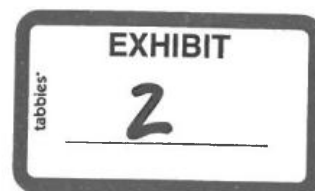
I, Scott J. Wilson, make the following affidavit based upon my own personal knowledge.

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

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

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

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



5. The applicant, NGL (OGRID No. 372338), seeks an order approving the Osprey SWD #1 well, which is a salt water disposal well.

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

7. I have reviewed step rate tests for similar disposal wells drilled within the area and conducted a nodal analysis. It is my opinion that a large percentage of surface pressure it was encountering using smaller diameter tubing was a result of friction pressure. In Case No. 15720 evidence had been presented to the Division showing that up to 85% of this surface pressure was due to friction. Increasing the tubing size would reduce friction and would conserve pump horsepower, fuel, and reduce emissions.

8. My nodal analysis indicates that increasing the tubing size to 7" by 5 ½" would not significantly increase reservoir pressures over a twenty-year time period. The injection zone is located within a reservoir with significant thickness which consists of high permeability rocks, which results in only very small pressure increases even when injection is increased to a rate of 40,000 barrels per day over a 20 year period.

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

10. I have also studied the potential impact on pore pressures and put together a simulation of the radial influence that the well would have if larger tubing is used for a period of time. A copy of this study is included within Exhibit A to this affidavit. This study shows that it

is anticipated that there will be a minimal impact on reservoir pressures and that the majority of fluids will not travel greater than 1 mile in 20 years.

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

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

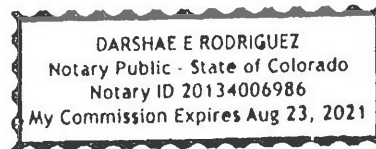
[Signature page follows]

Scott J. Wilson
Scott J. Wilson

SUBSCRIBED AND SWORN to before me this 6th day of August, 2019 by Scott J. Wilson.

Darshae Rodriguez
Notary Public

My commission expires: 8/23/21





NGL Water Solutions, LLC

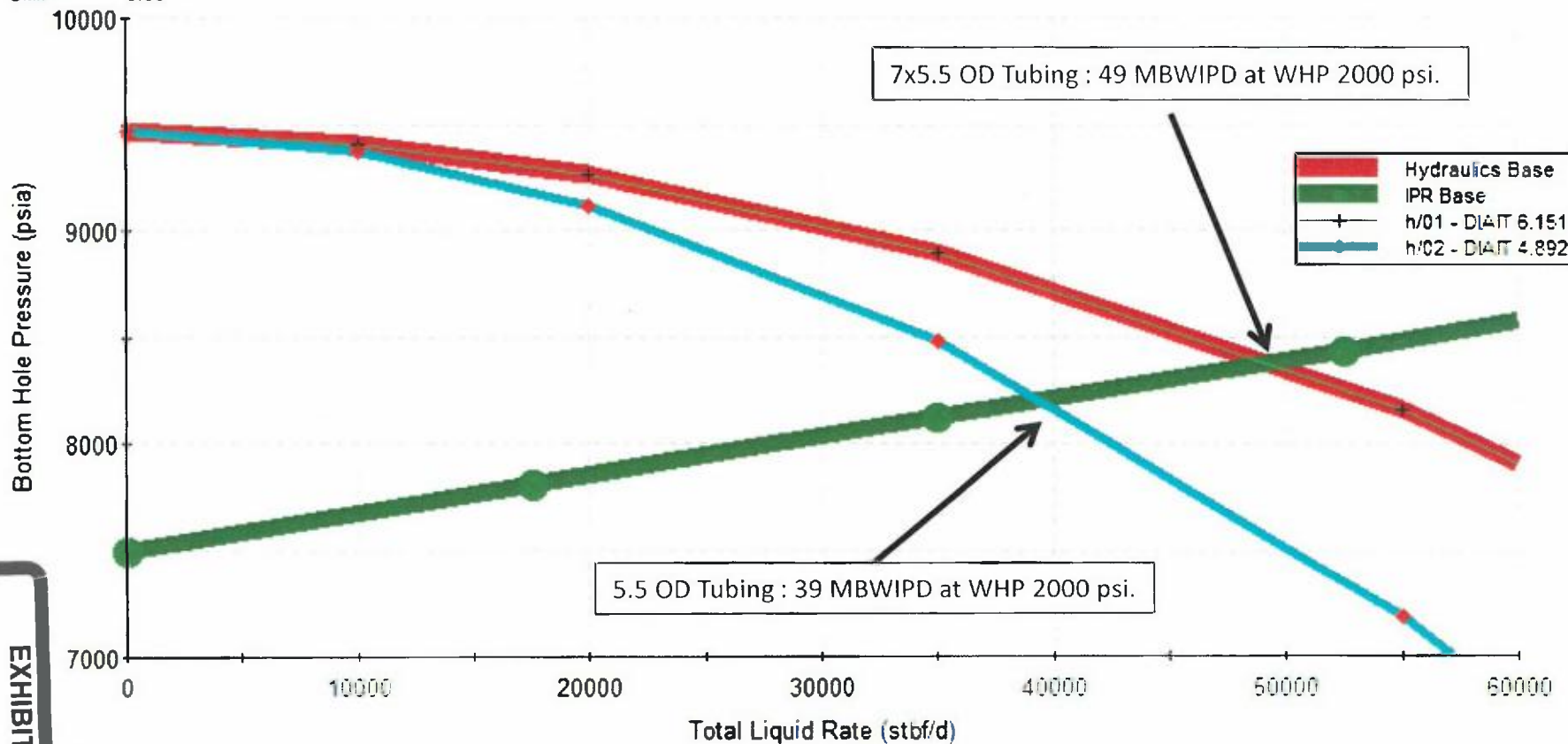
Exh. A1

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

Osprey SWD1
Reservoir Data
Pressure = 7500.00 psia
kh = 19800.0
Skin = 0.00

Osprey SWD1.snp

Rate vs Pressure 05-Aug-19 10:33:15
WB Depth (MD ft) = 16500
WHPres (psia) = 2000.00
Tubing I.D. = 6.151 (s1)



tabbles

EXHIBIT
2-A

8/6/2019



NGL Water Solutions, LLC

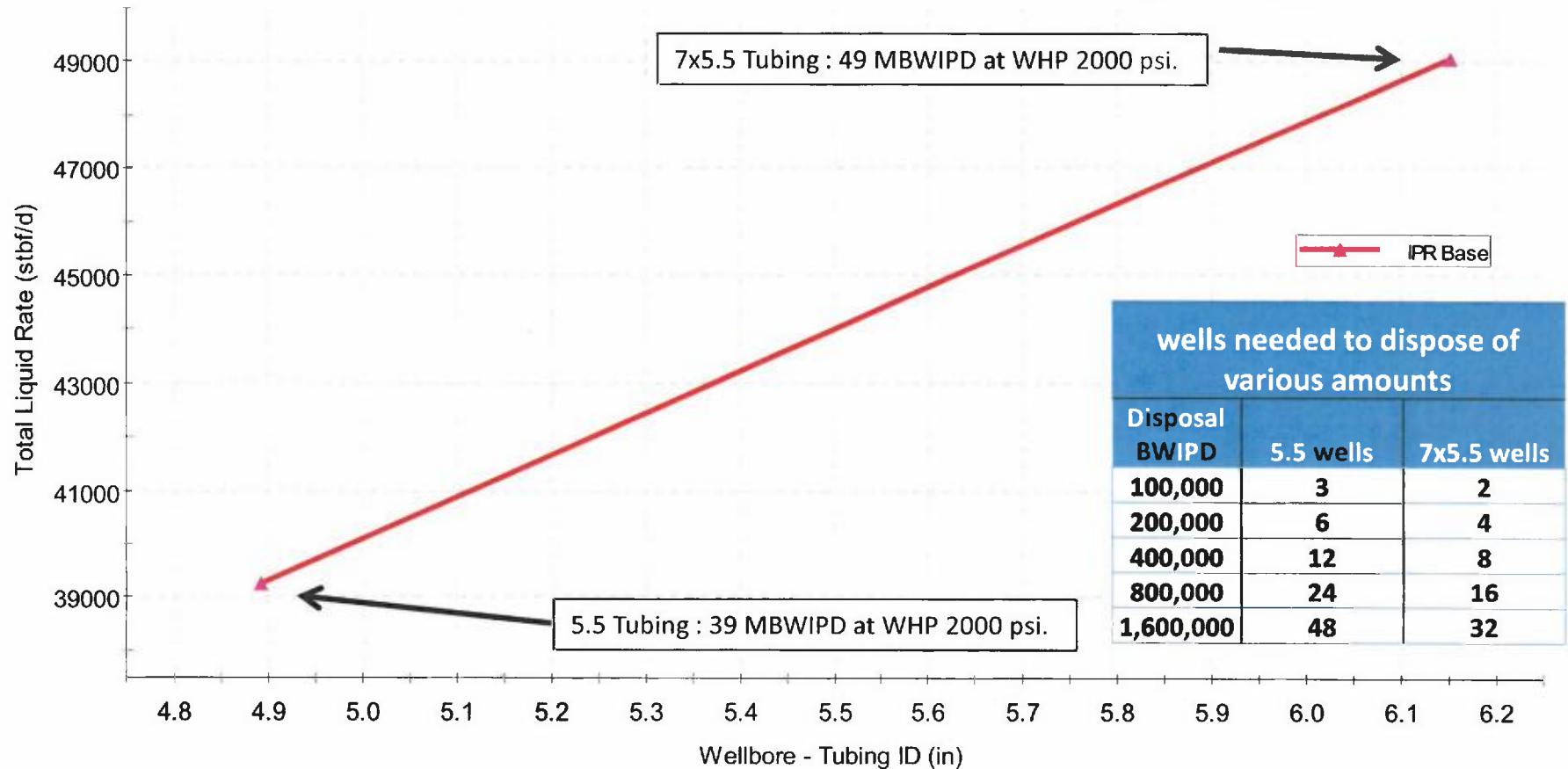
Exh. A2

Increased injection rate per well equates to fewer injectors.

Osprey SWD1
Reservoir Data
Pressure = 7500.00 psia
kh = 19800.0
Skin = 0.00

Osprey SWD1.snp

Rate vs. Wellbore - Tubing ID (in)
05-Aug-19 12:03:14
WB Depth (MD ft)= 16500
WHPres (psia) = 2000.00
Tubing I.D. = 6.151 (s1)



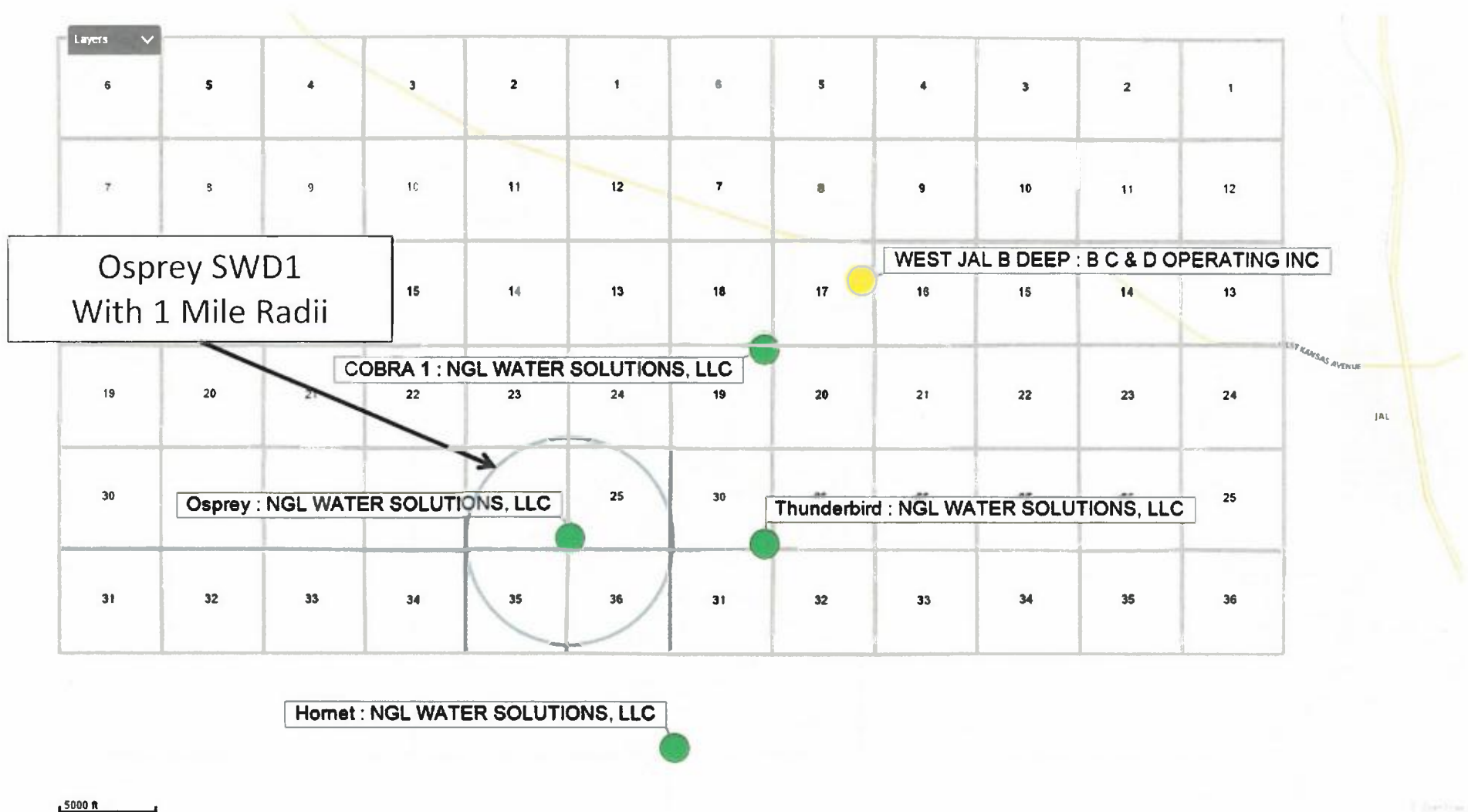
8/6/2019



NGL Water Solutions, LLC

Exh. A3

Wells injecting water into the Devonian formation in the area.
Area is roughly 14 miles (E-W) by 8 miles (N-S)

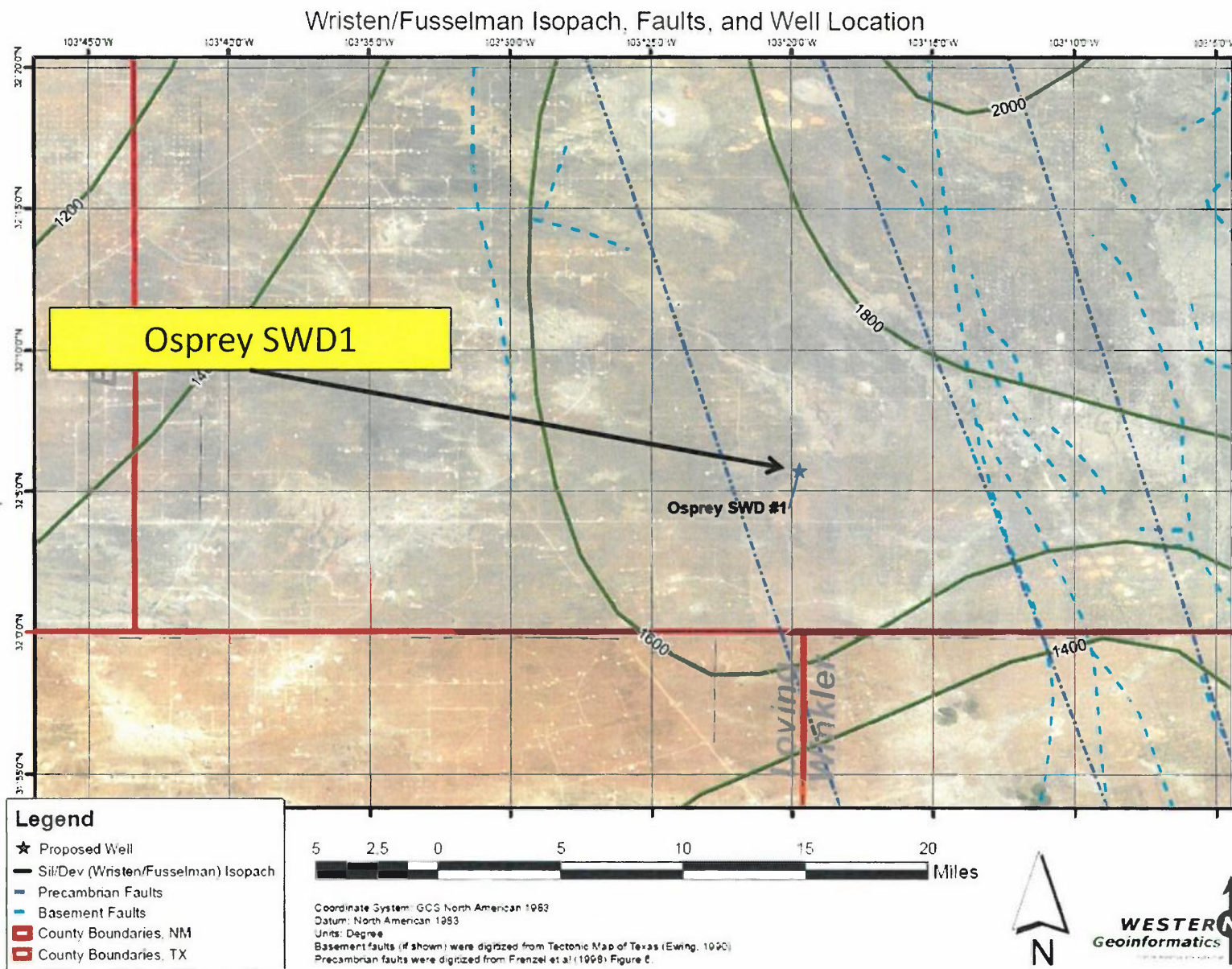




NGL Water Solutions, LLC

Sil/Dev Thickness at Osprey is 1700 feet

Exh. A4



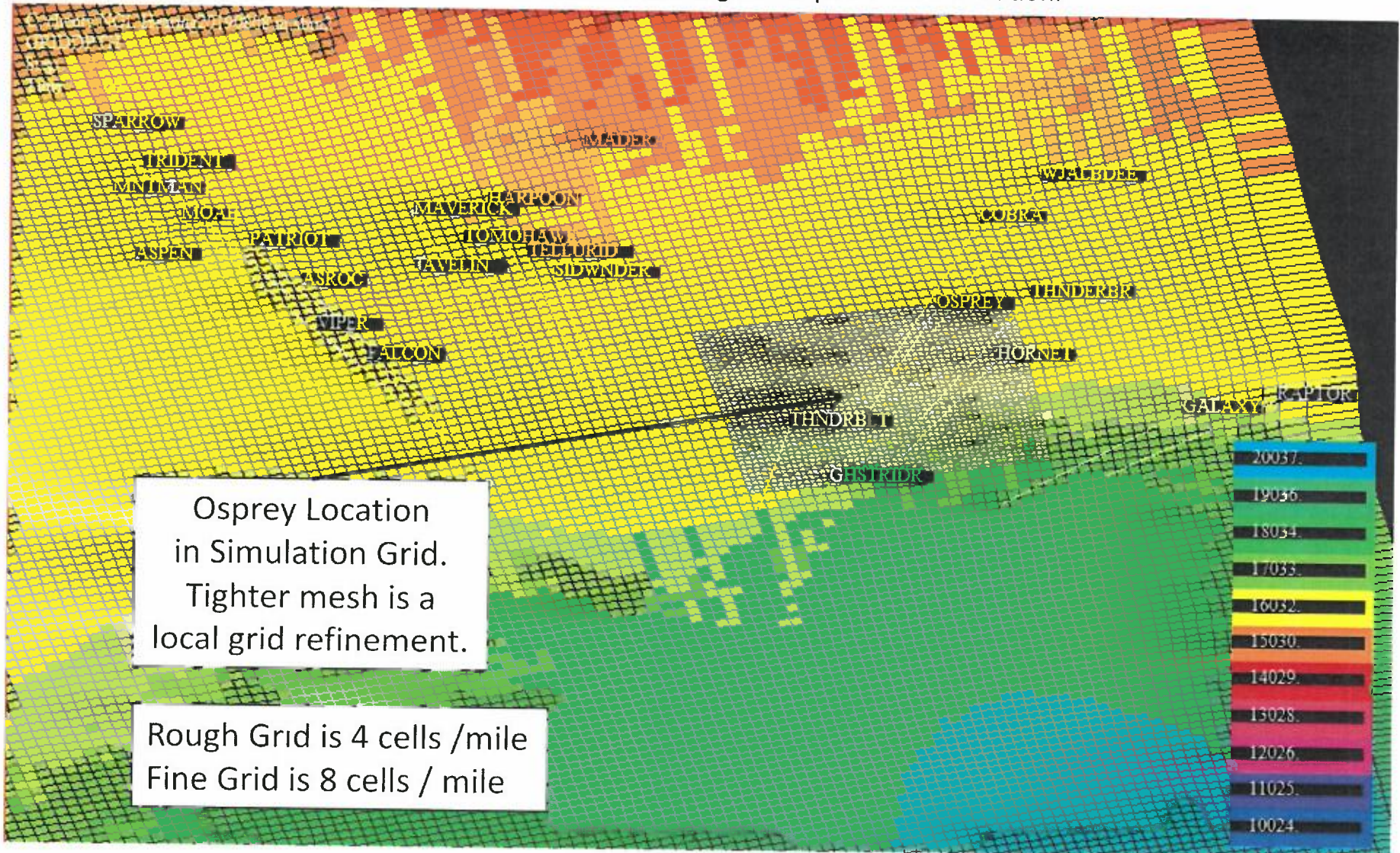


NGL Water Solutions, LLC

Exh. A5

Simulation Grid matches Structure and Thickness

Reservoir Simulation grid incorporates the NGL proposed wells and the close offsets. Observation wells are placed in grid corners to monitor the large scale pressure distribution.



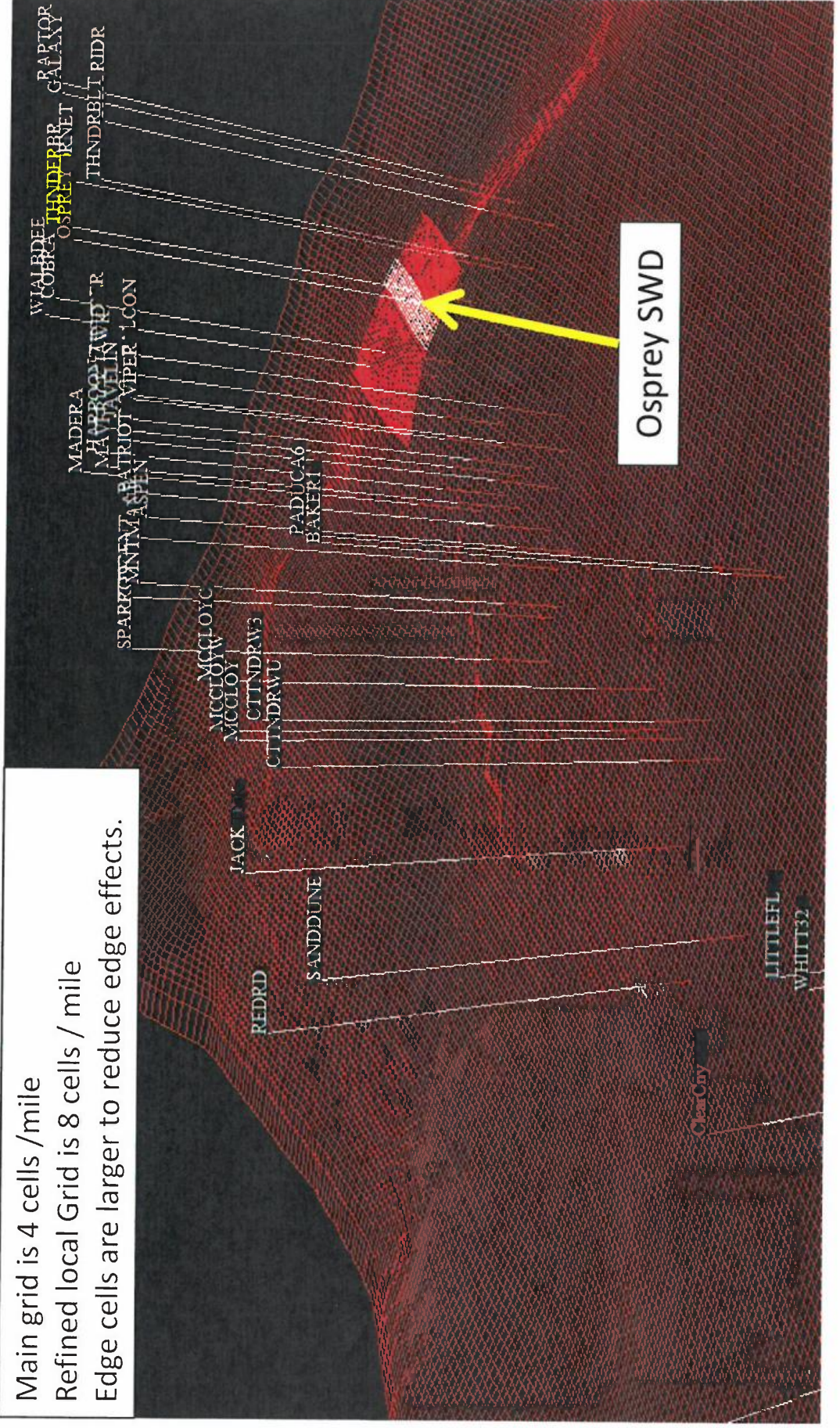


NGL Water Solutions, LLC

3D view of grid shows Structural Relief.

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

Main grid is 4 cells /mile
Refined local Grid is 8 cells / mile
Edge cells are larger to reduce edge effects.

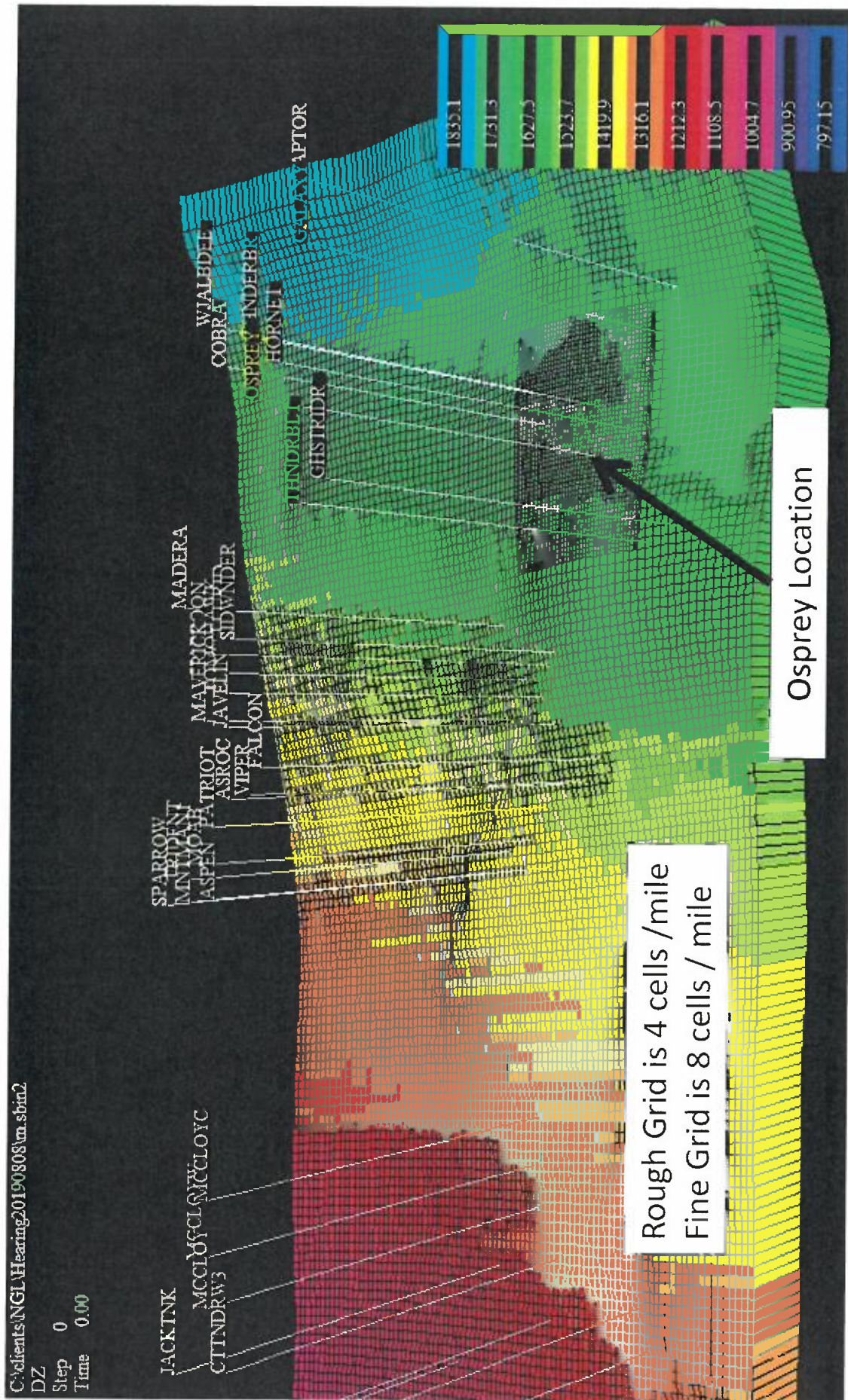




NGL Water Solutions, LLC

Exh. A7

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

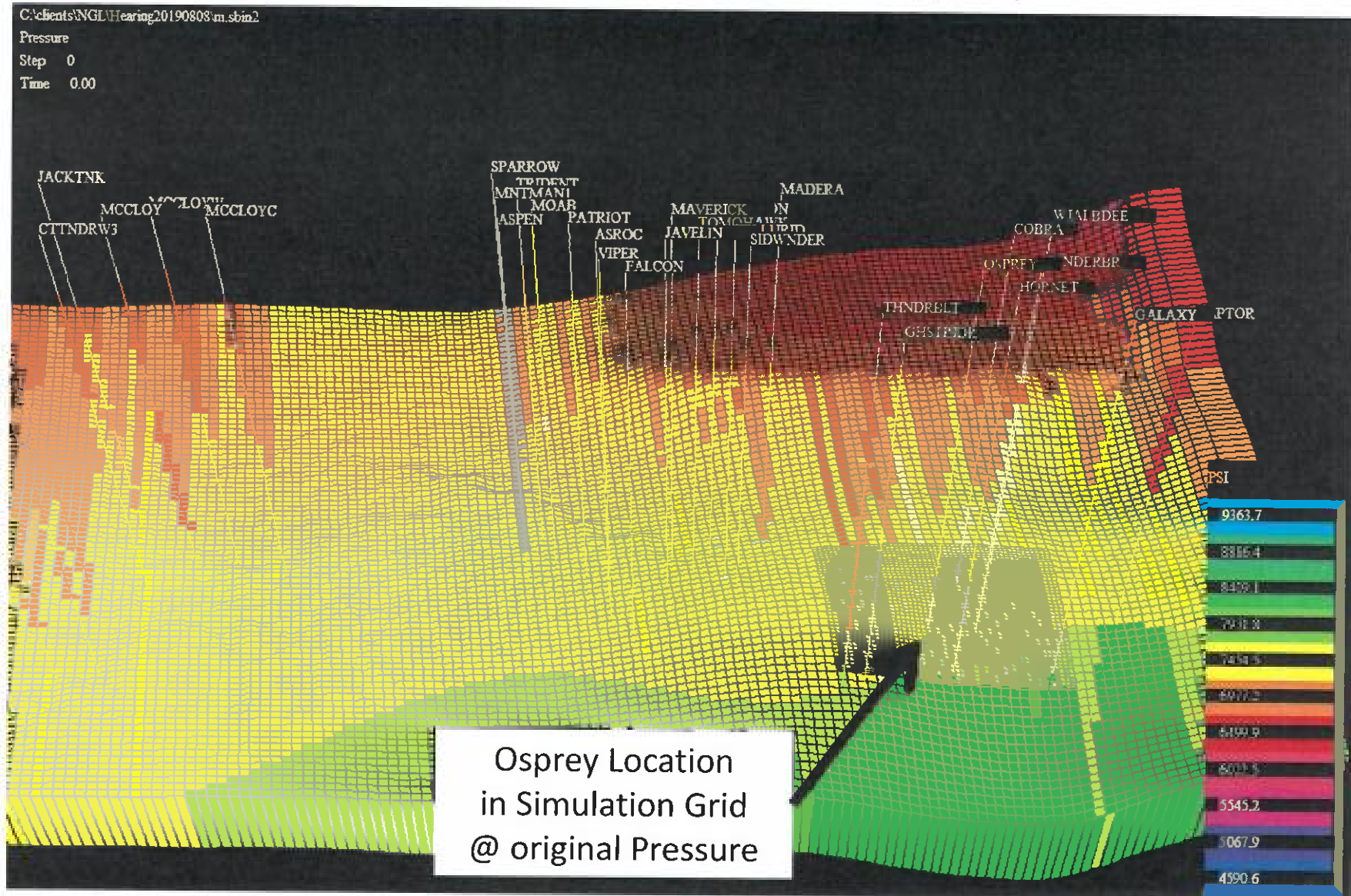




NGL Water Solutions, LLC

Exh. A8

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

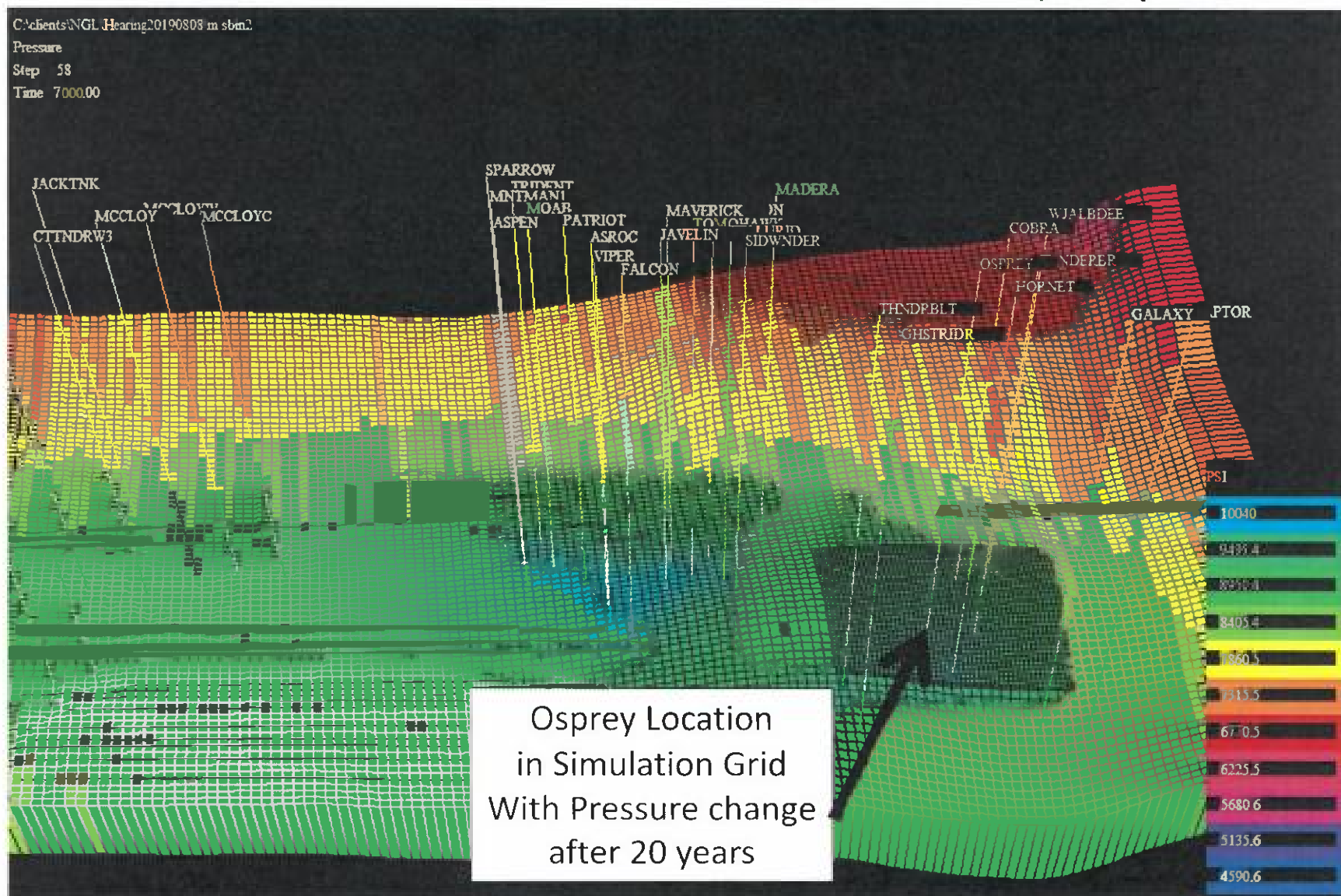




NGL Water Solutions, LLC

Exh. A9

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

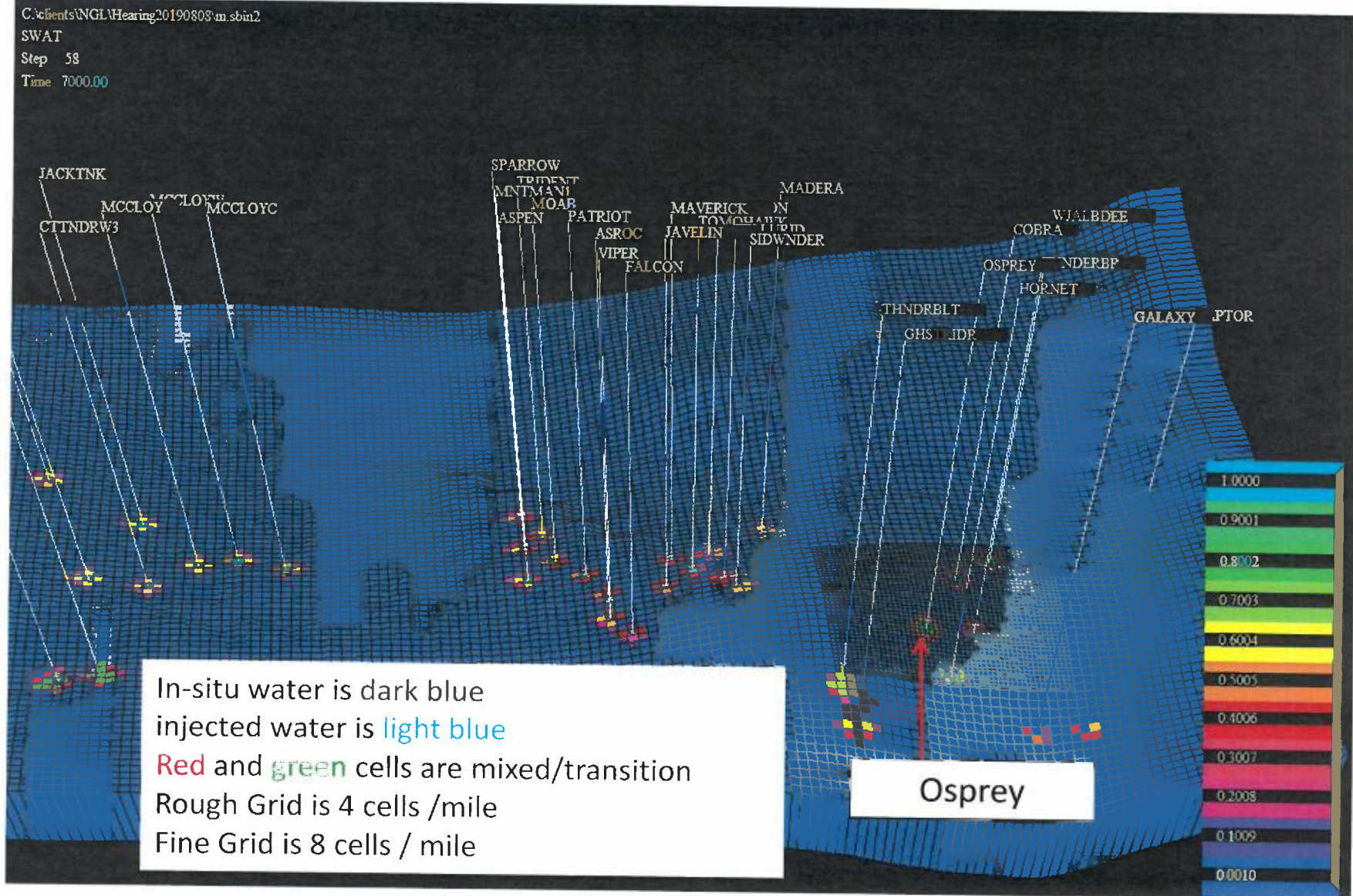




NGL Water Solutions, LLC

Exh. A10

Large scale saturation profiles after 20 years of injection.

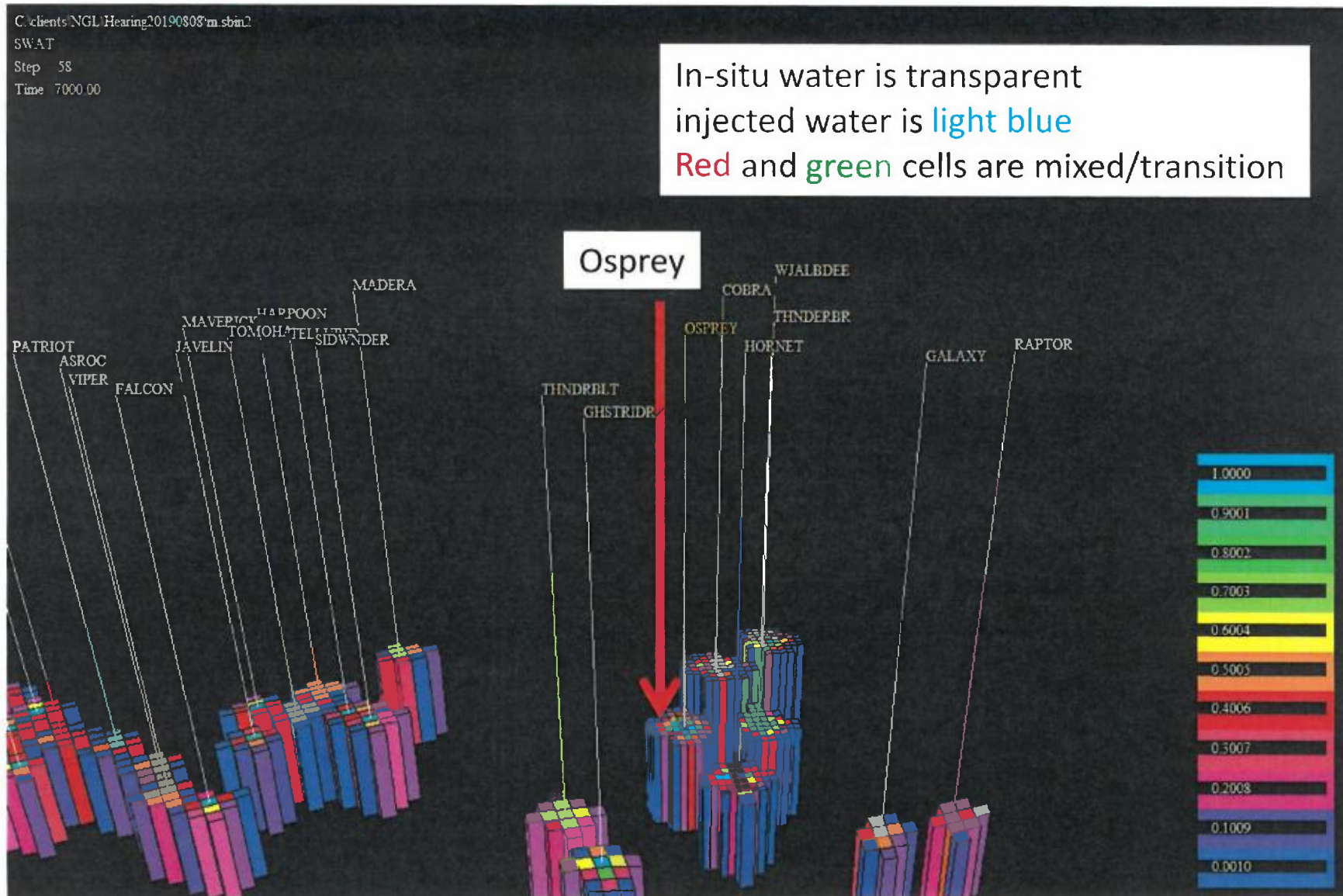




NGL Water Solutions, LLC

Exh. A11

Detailed saturation profiles after 20 years of injection.

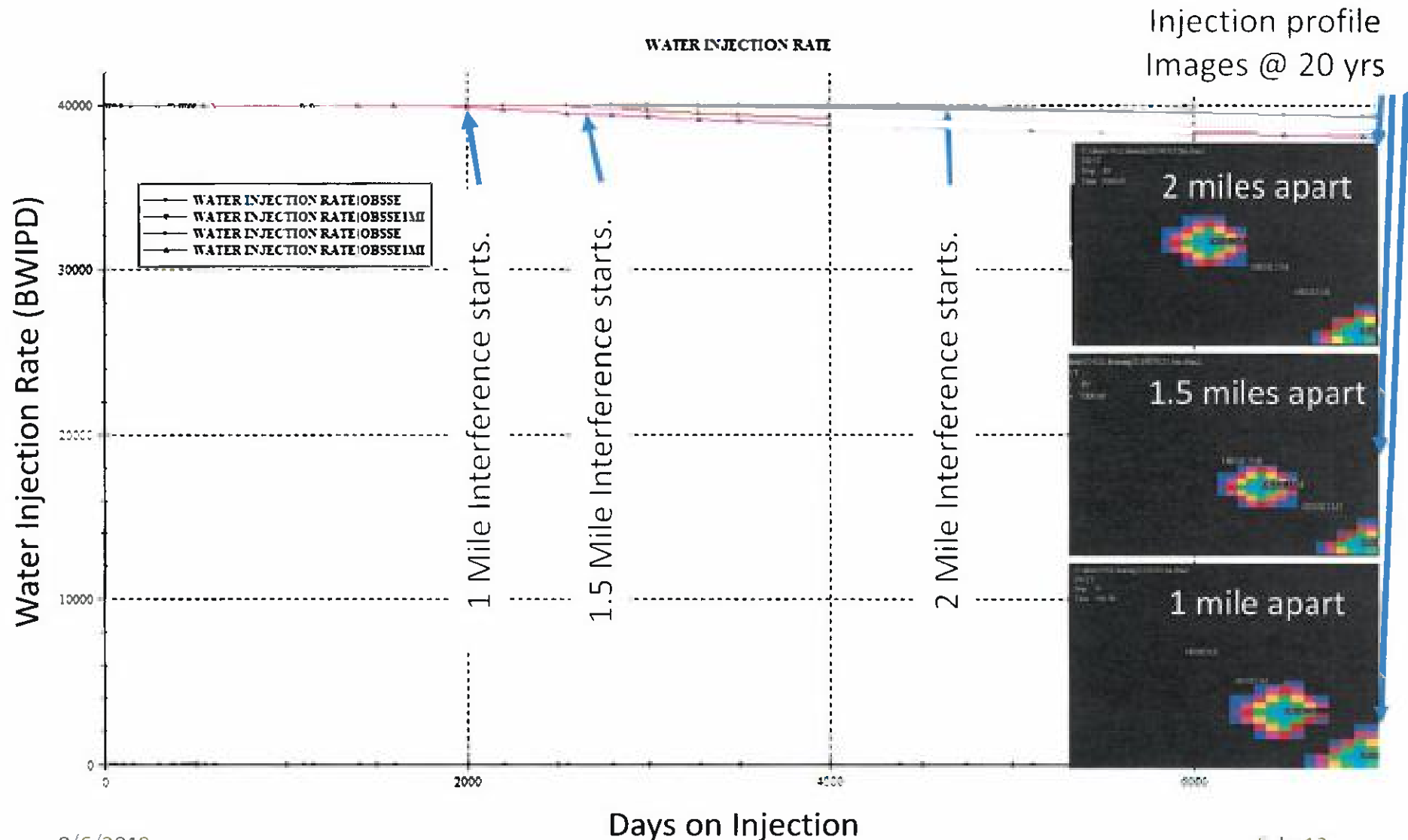




NGL Water Solutions, LLC

Exh. A12

Typical wells showing interference when spaced 1, 1.5, and 2 miles apart.
Closer spacing causes rates to fall, but not significantly.



8/6/2019

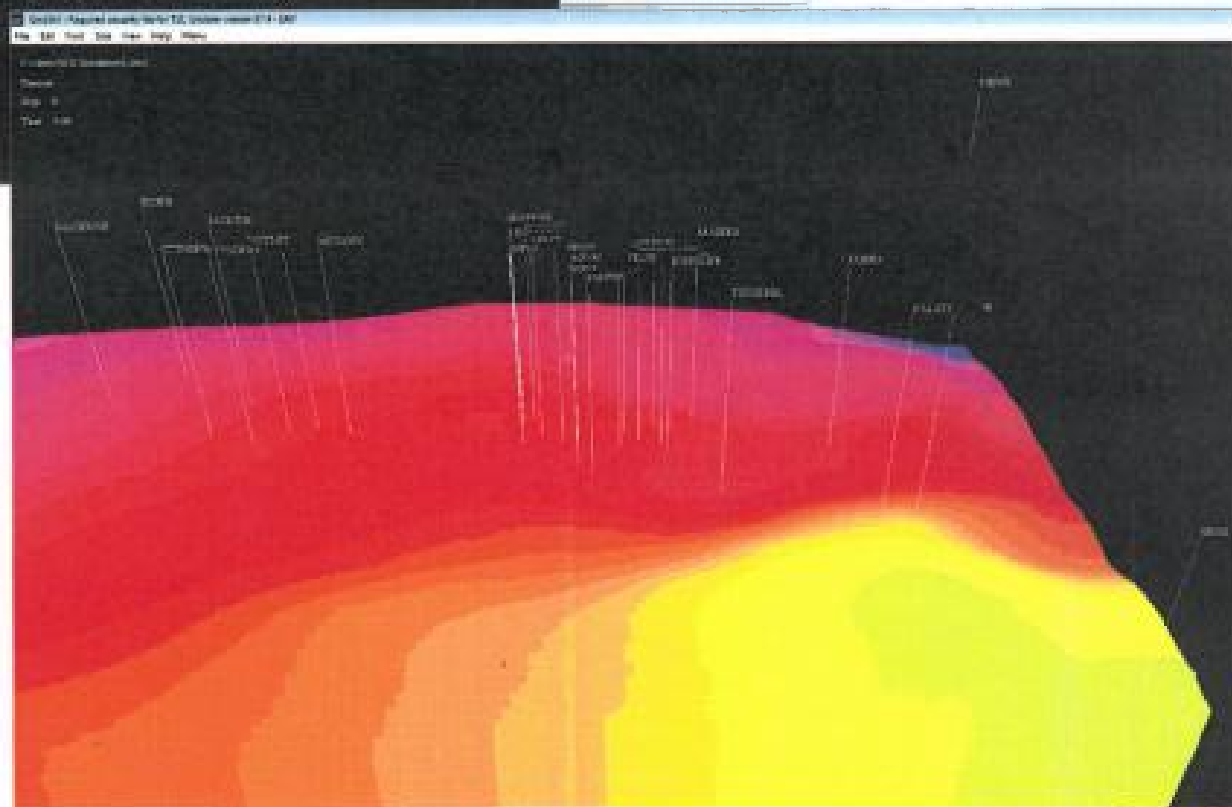
Exh. 12

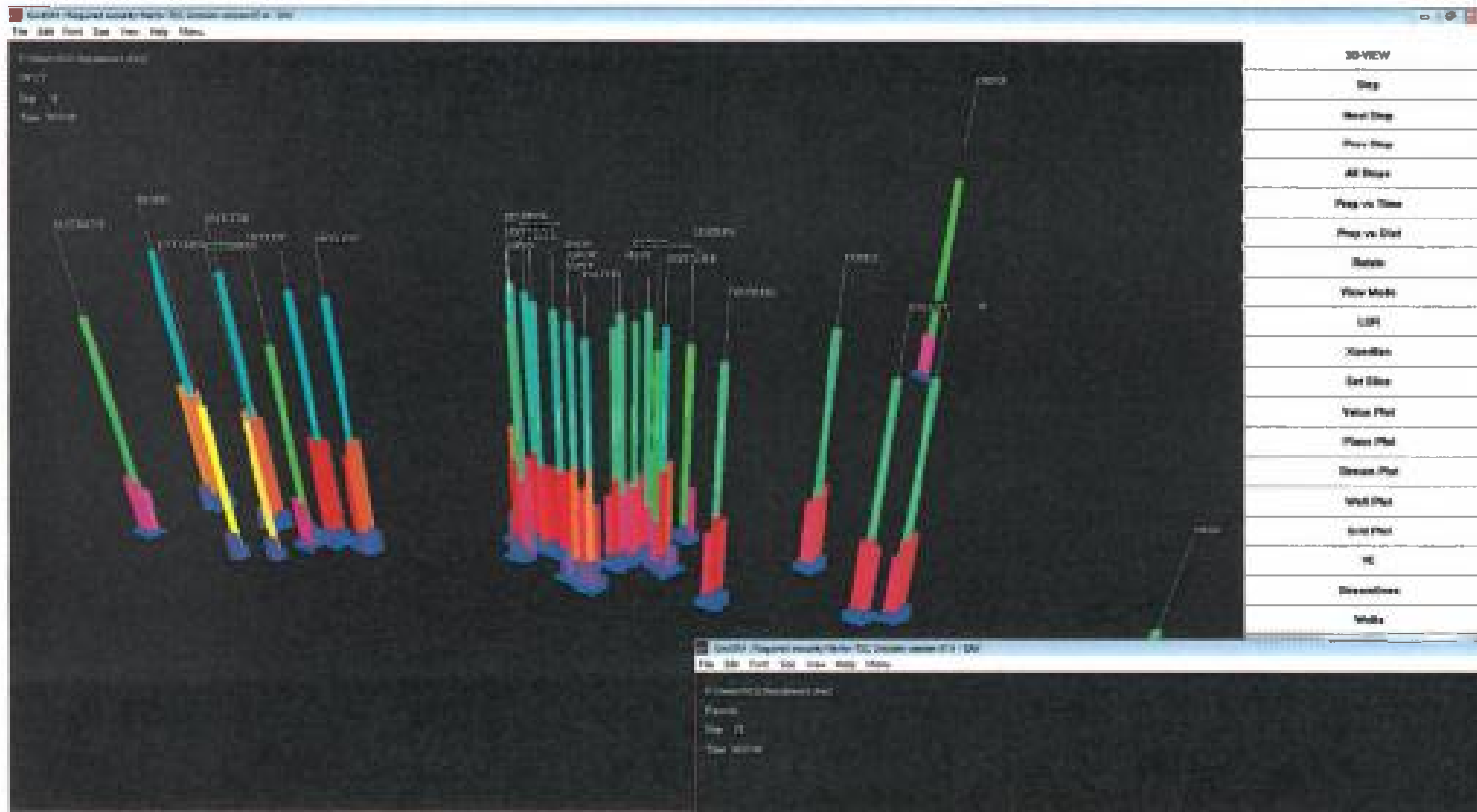
Exh. A13

**2019
(0 years)**

Typical Water movement & Pressure

8/6/2019

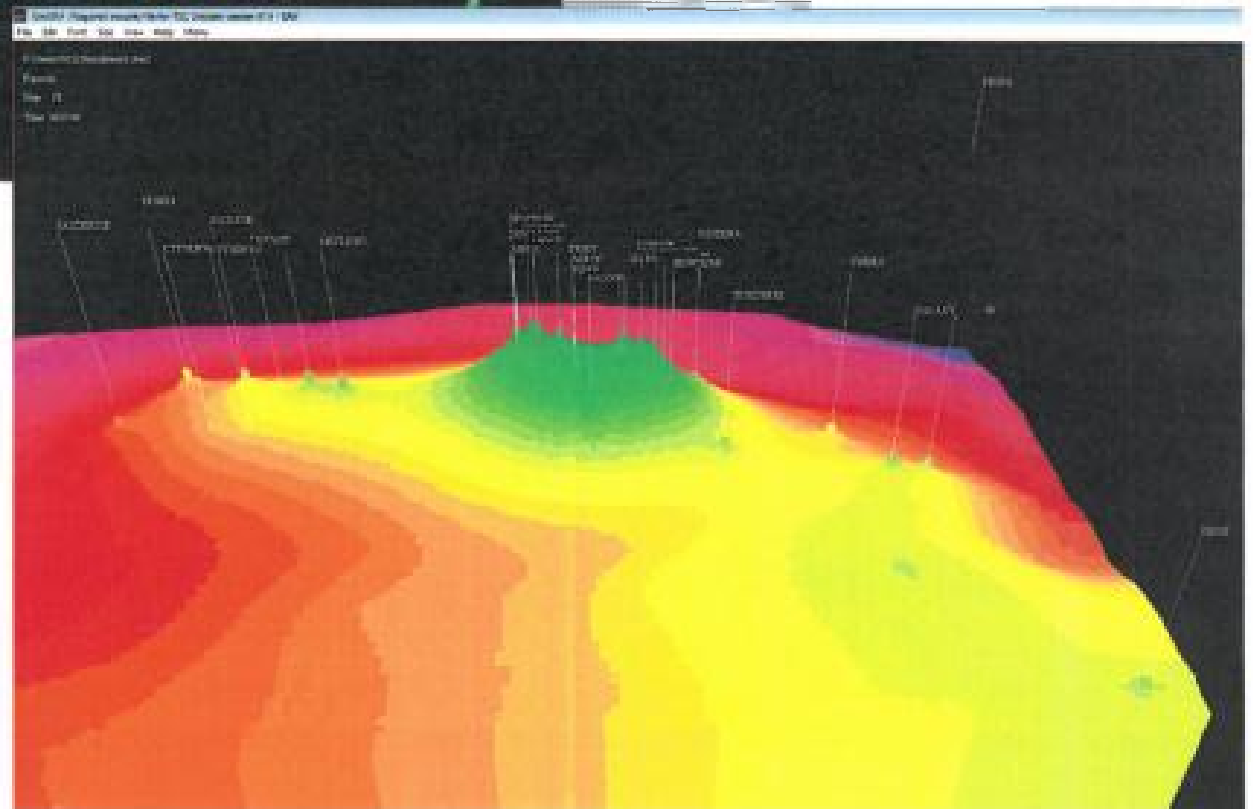




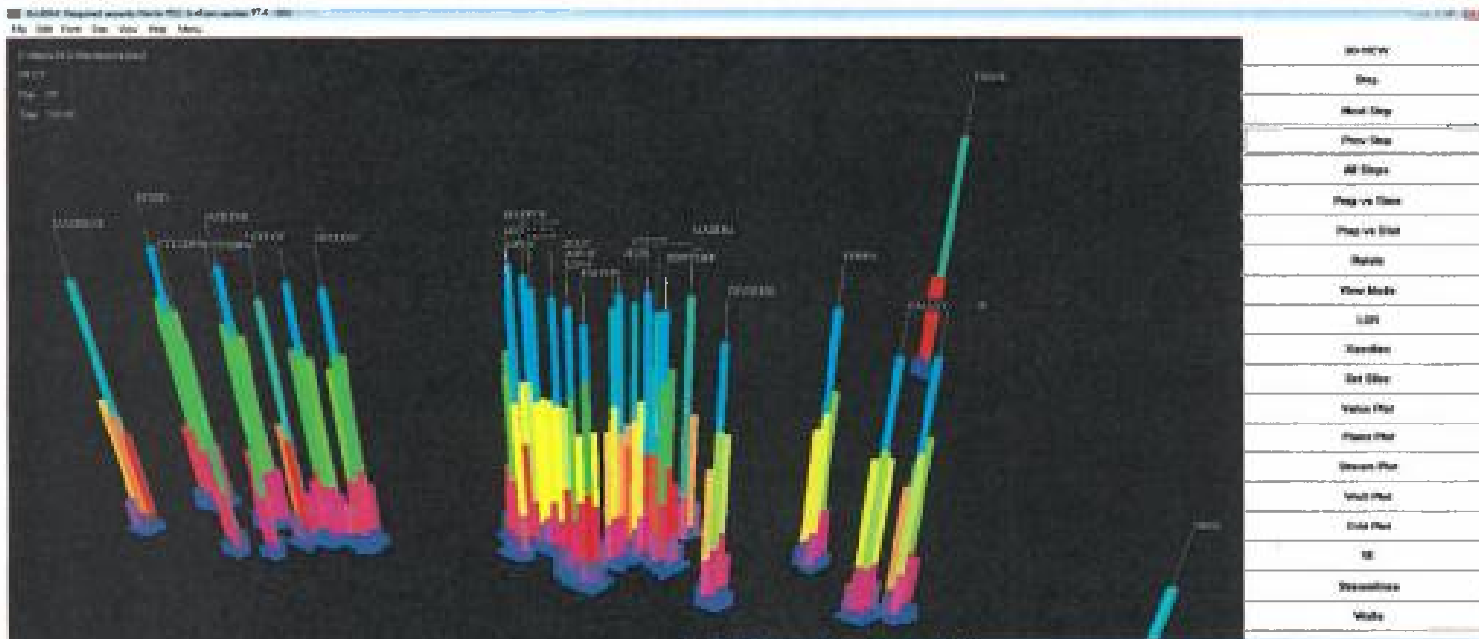
Exh. A14

**2029
(10 years)**

**Typical Water
movement
&
Pressure**



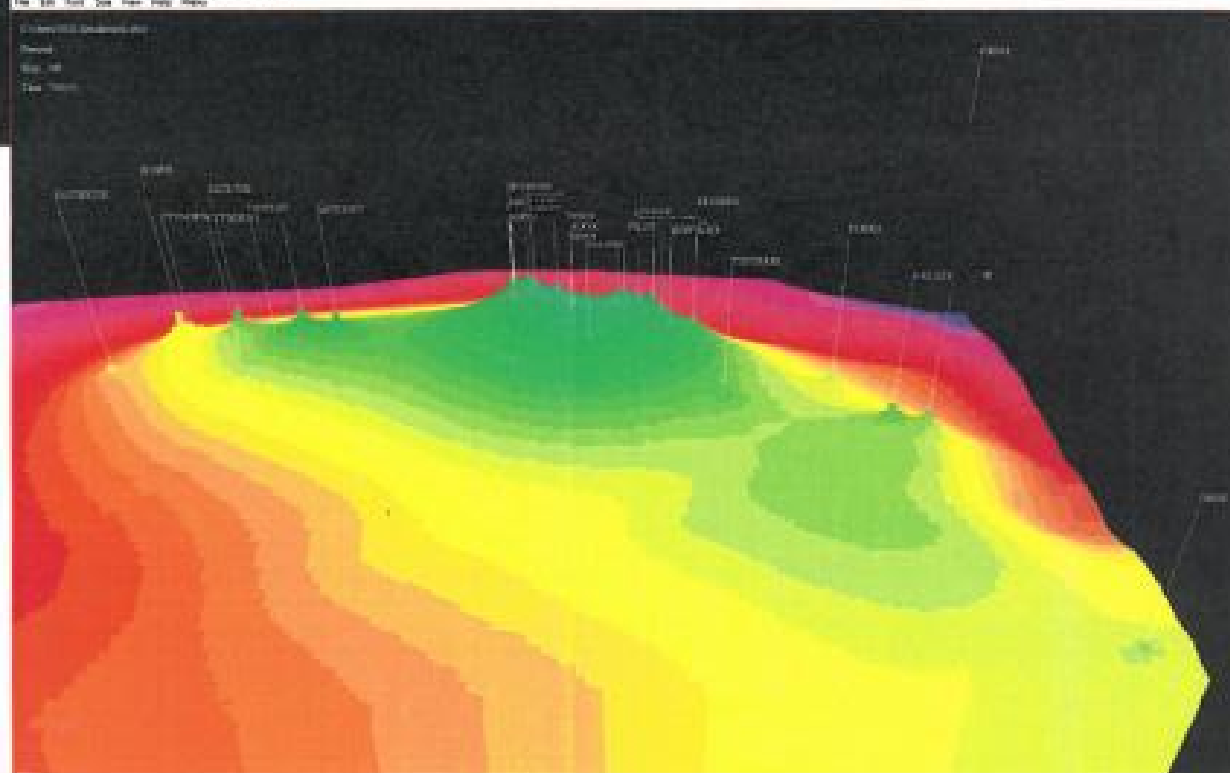
8/6/2019



Exh. A15

**2039
(20 years)**

**Typical Water
movement
&
Pressure**



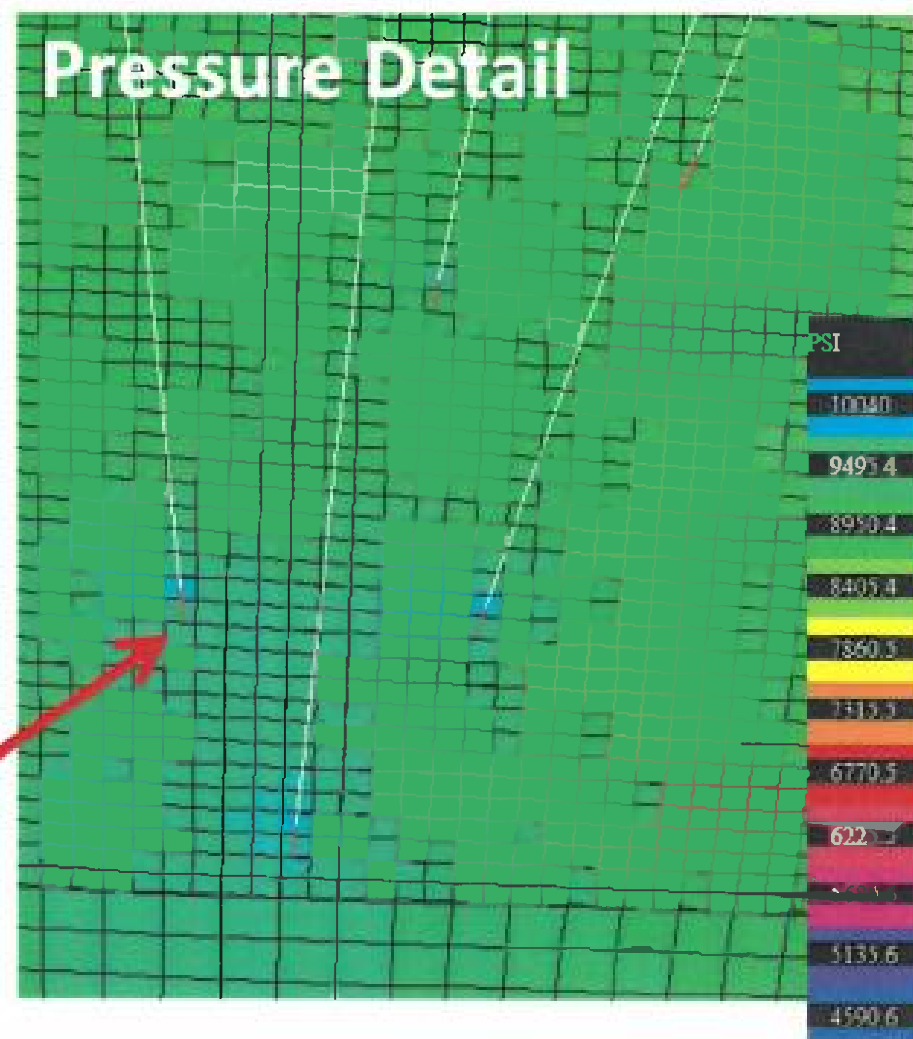
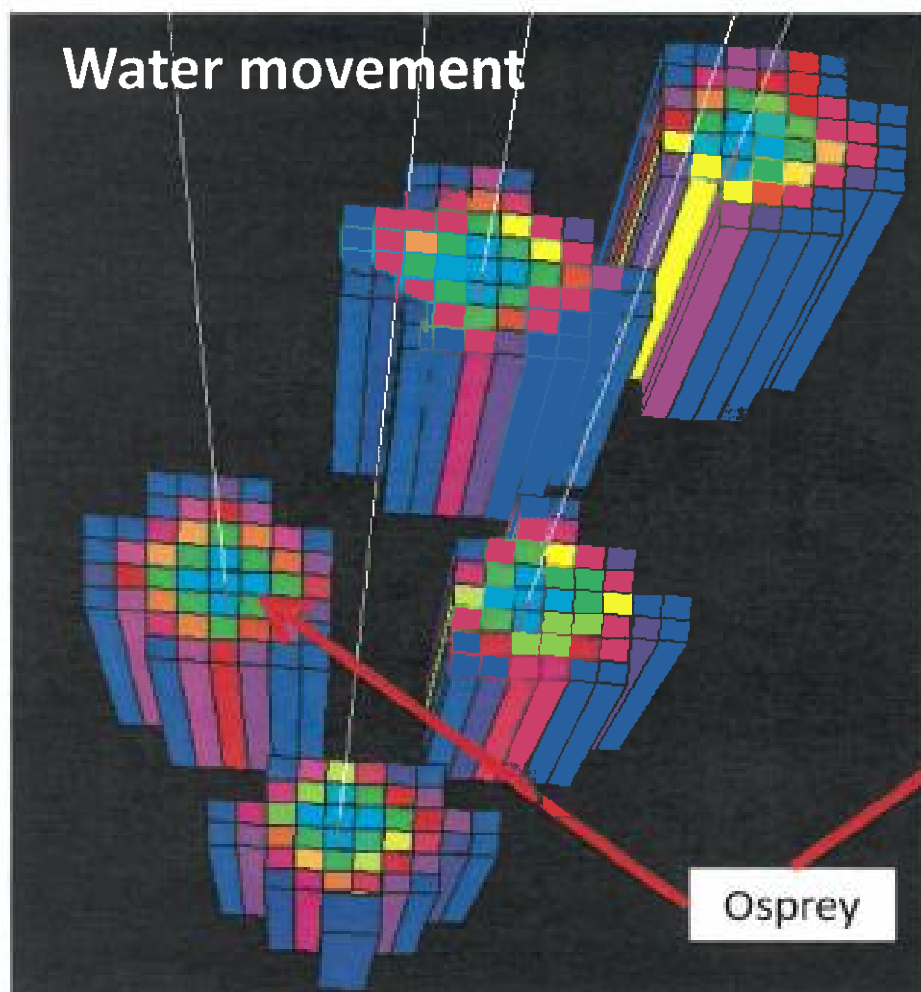
8/6/2019

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Exh. A16

Detailed water saturation and pressure distributions at 2039 (20 years)



8/6/2019

Exh. 16

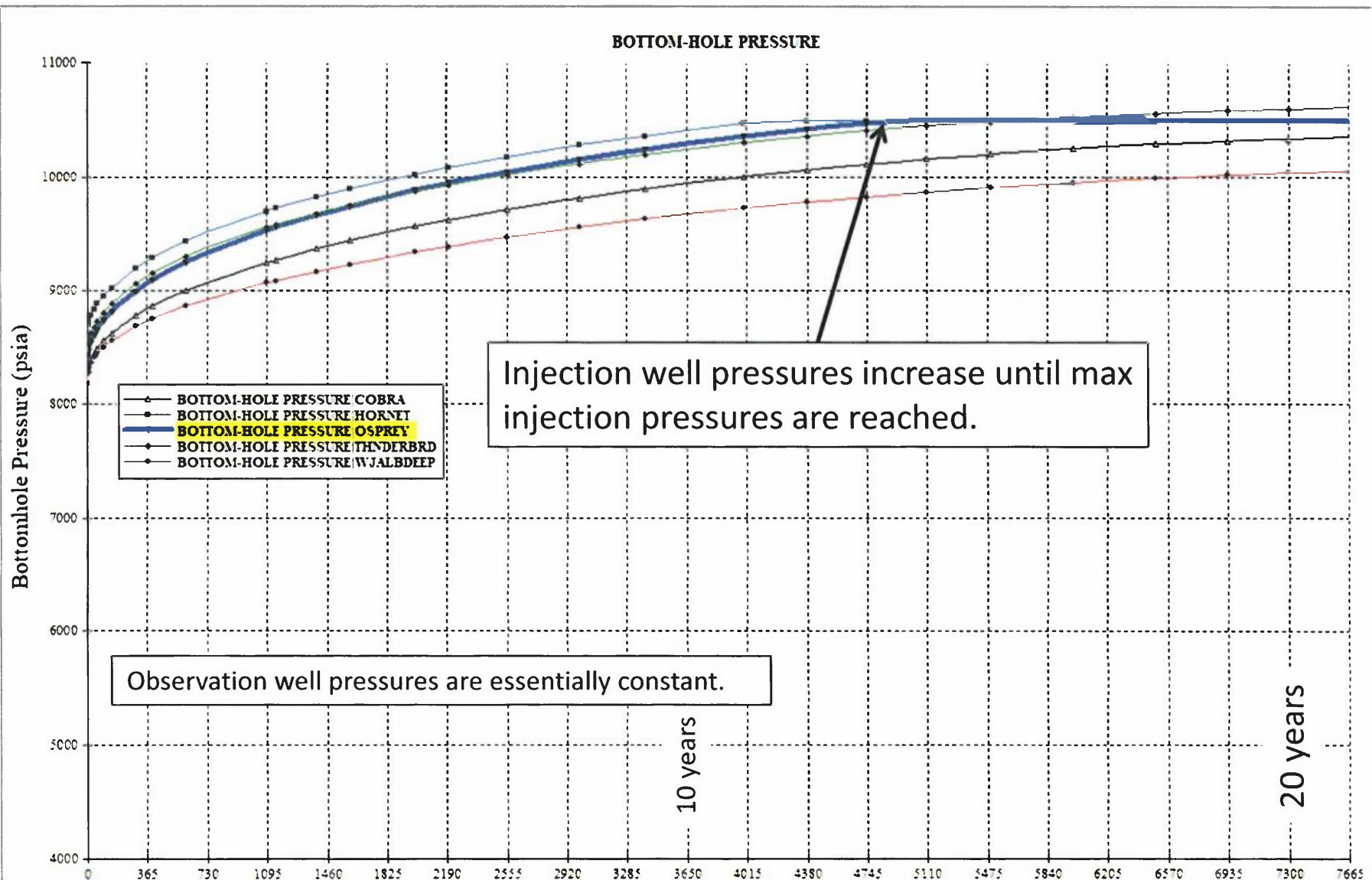
57



NGL Water Solutions, LLC

Exh. A17

Simulation BHIP predictions for wells near Osprey

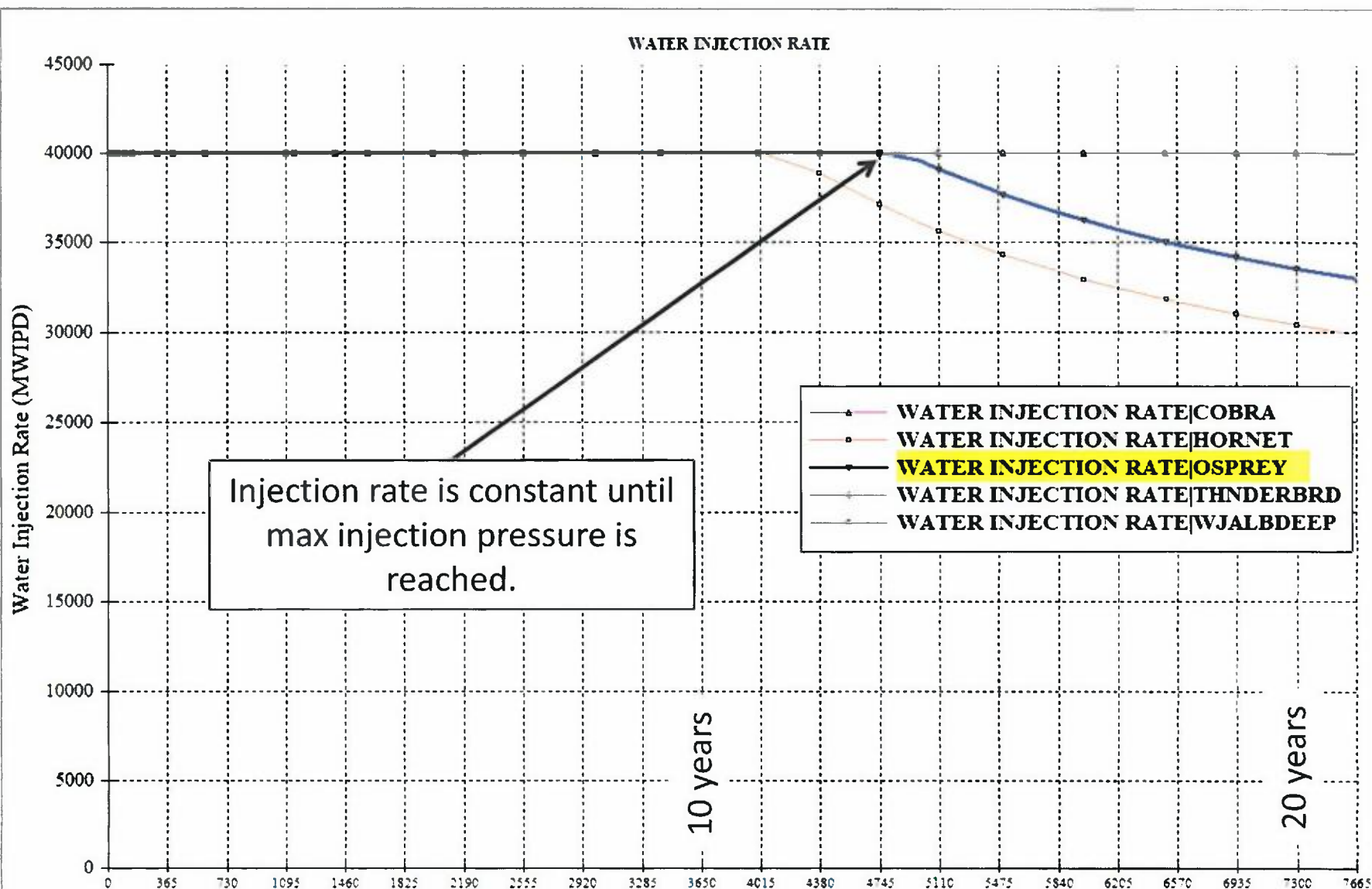




NGL Water Solutions, LLC

Exh. A18

Simulation predictions for individual wells over 20 Years



LH

Exhibits of Dr. Kate Zeigler
On Behalf of NGL Water Solutions Permian, LLC

The Woodford Shale formation in the areas where the well is located is between 200 and 250 feet thick.

8. Below the injection zone for the well is the Ordovician formation, also referred to as the Simpson Group, which contains sequences of shale that make up approximately 55% of the total thickness of the formation in any given place and can likewise act as a permeability boundary which prevents fluids from migrating downwards into deeper formations and the basement rock. In the areas where the well is located, the Ordovician formation is between 850 and 950 feet thick and, as a result, there is a significant thickness in this lower shale. Below the Ordovician is the Ellenburger Formation, which is up to 600 feet thick.

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

10. The well will primarily be injecting fluids into the Wristen Group and Fusselman Formation, with some fluids potentially being injected into the Upper Montoya Group. Each of these rock units are located within what is commonly referred to by operators and the Division as the "Devonian-Silurian" formations. These zones consist of a very thick sequence of limestone and dolomite which has significant primary and secondary porosity and permeability that is collectively between 1,650 to 1,700 feet thick.

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

12. I have also studied the location of known fault lines within the area where the well is proposed to be drilled and the closest known fault line to the well is located approximately 3 miles away from where the well is proposed to be drilled.

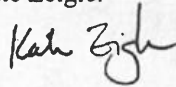
13. There are no currently recognized production shales within the Wristen Group, Fusselman Formation, and Upper Montoya Group in this part of the western Permian Basin. While there may be some isolated traps located within these sub-formations, it takes significant ability with imaging to be able to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

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

15. In my opinion, the granting of this application is in the interests of conservation and the prevention of waste.


[Signature page follows]

Dr. Kate Zeigler



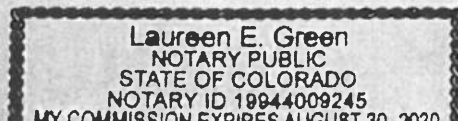
SUBSCRIBED AND SWORN to before me this 6th day of August, 2019 by Dr. Kate Zeigler.

Notary Public



My commission expires:

8/30/20



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.

Thirtynone Formation (Lower Devonian)

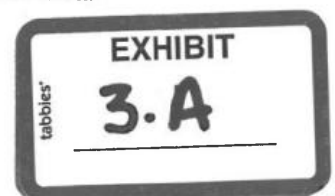
The Thirtynone Formation is part of a wedge of sedimentary rocks that thins to the north and the west where the wedge ends up truncated beneath the base of the overlying Woodford Shale. The Thirtynone Formation is only present in southeastern Lea County and consists of an upper coarsely crystalline dolostone 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 Thirtynone Formation and Wristen Group, the Fusselman Formation thins 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 is a heterogeneous unit with limestone, dolostone, sandstone and green shale horizons. Up to 1000' thick, it is dominated by the shale beds (55% of total thickness), followed by the dolostone and limestone beds (40%) and finally sandstone (5%). The shale horizons can serve as a permeability barrier between the underlying Precambrian basement rocks and overlying reservoirs where the Simpson Group is present and has sufficient thickness. Depths to the Simpson Group range from 6,700' on parts of the Central Basin Platform to up to 21,000' in the Delaware Basin.

Ellenburger Formation (Lower Ordovician)

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

References

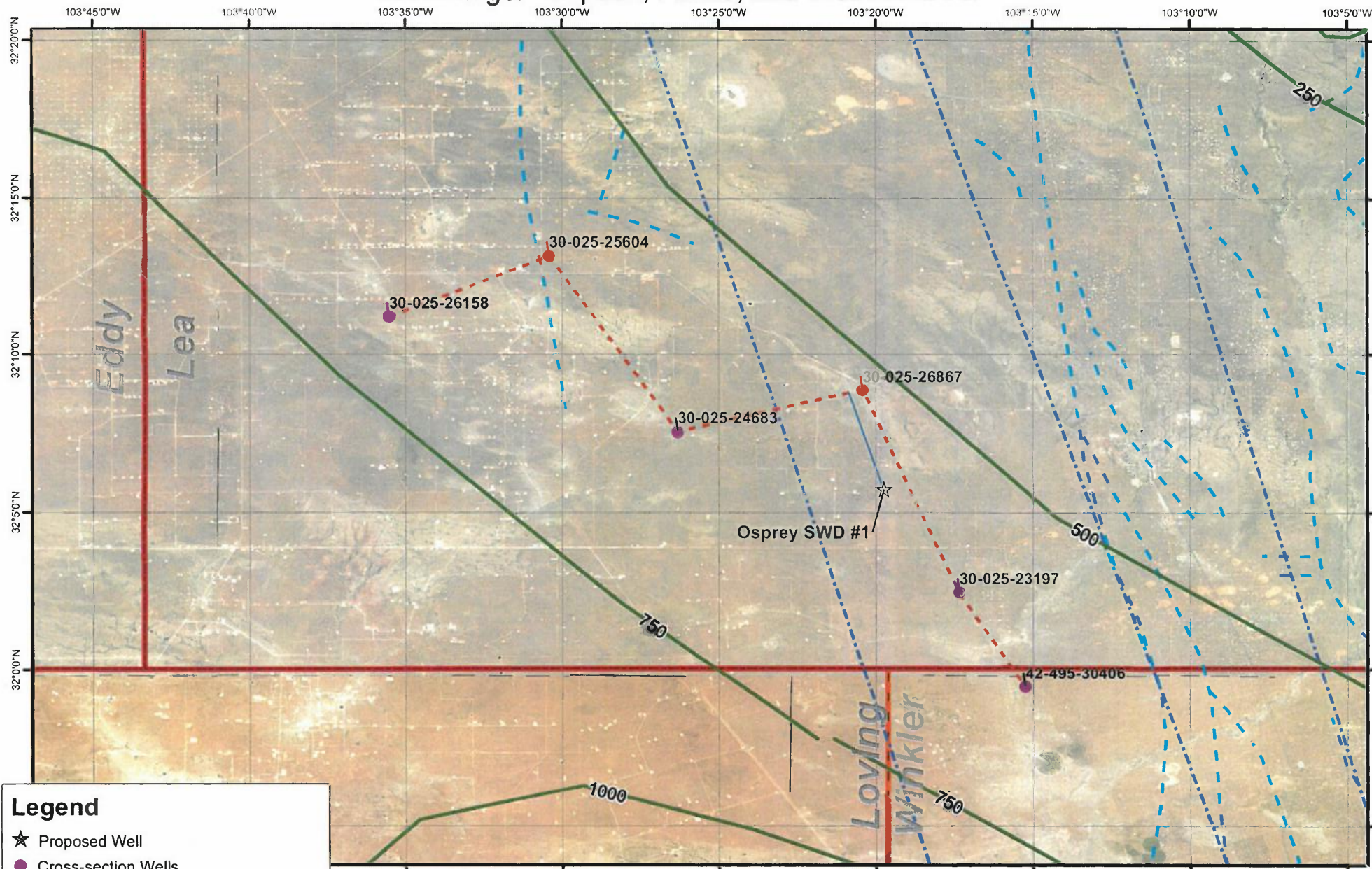
- Broadhead, R.F., 2017, Petroleum Geology: *in* V.T. McLemore, S. Timmons and M. Wilks (eds.), Energy and Mineral Resources of New Mexico, New Mexico Bureau of Geology and Mineral Resources Memoir 50, vol. A, 90 p.
- Comer, J.B., 1991, Stratigraphic analysis of the Upper Devonian Woodford Formation, Permian Basin, West Texas and southeastern New Mexico: Bureau of Economic Geology, University of Texas at Austin, Report of Investigations no. 201, 63 p.
- Hemmesch, N.T., Harris, N.B., Mnich, C.A. and Selby, D., 2014, A sequence-stratigraphic framework for the Upper Devonian Woodford Shale, Permian Basin, west Texas: American Association of Petroleum Geologists Bulletin, v. 98, no. 1, p. 23-47, doi:10.1306/05221312077
- Texas Bureau of Economic Geology, 2009, Integrated Synthesis of the Permian Basin: Data and Models for Recovering Existing and Undiscovered Oil Resources from the Largest Oil-Bearing Basin in the U.S.: Department of Energy Final Technical Report, Award No: DE-FC26-04NT15509, 964 p.

Age		Stratigraphic Unit	Key Feature	Estimated Depth BLS*
Triassic		Chinle	Freshwater resources	
		Santa Rosa		
Permian	Ochoan	Dewey Lake		
		Rustler		
		Salado		
		Castile		
	Guadalupian	Bell Canyon	Current petroleum zone	
		Cherry Canyon		
		Brushy Canyon		
	Leonardian	Bone Spring	Current petroleum zone	
		Wolfcamp		
	Wolfcampian	Wolfcamp		
Pennsylvanian	Virgilian	Cisco	Current petroleum zone	
	Missourian	Canyon		
	Des Moinesian	Strawn		
	Atokan	Atoka		
	Morrowan	Morrow		
Mississ.	Upper	Barnett		
	Lower	limestones		
Devon.	Upper	Woodford	Shale: permeability barrier	~17,100'
	Middle			~17,300'
	Lower	Thirtyone	Target injection interval	
Silur.	Upper	Wristen		
	Middle			
	Lower	Fusselman		~18,300'
Ordov.	Upper	Montoya		~19,000'
	Middle	Simpson	Shale: permeability barrier	~19,400'
	Lower	Ellenburger		
Cambrian		Bliss		
Precambrian		basement		

Stratigraphic chart for the Delaware Basin from Broadhead (2017).

* Based on data from 30-025-24683 Fairview Mills Fed #1 (14-255-34E).

Ellenburger Isopach, Faults, and Well Location



Legend

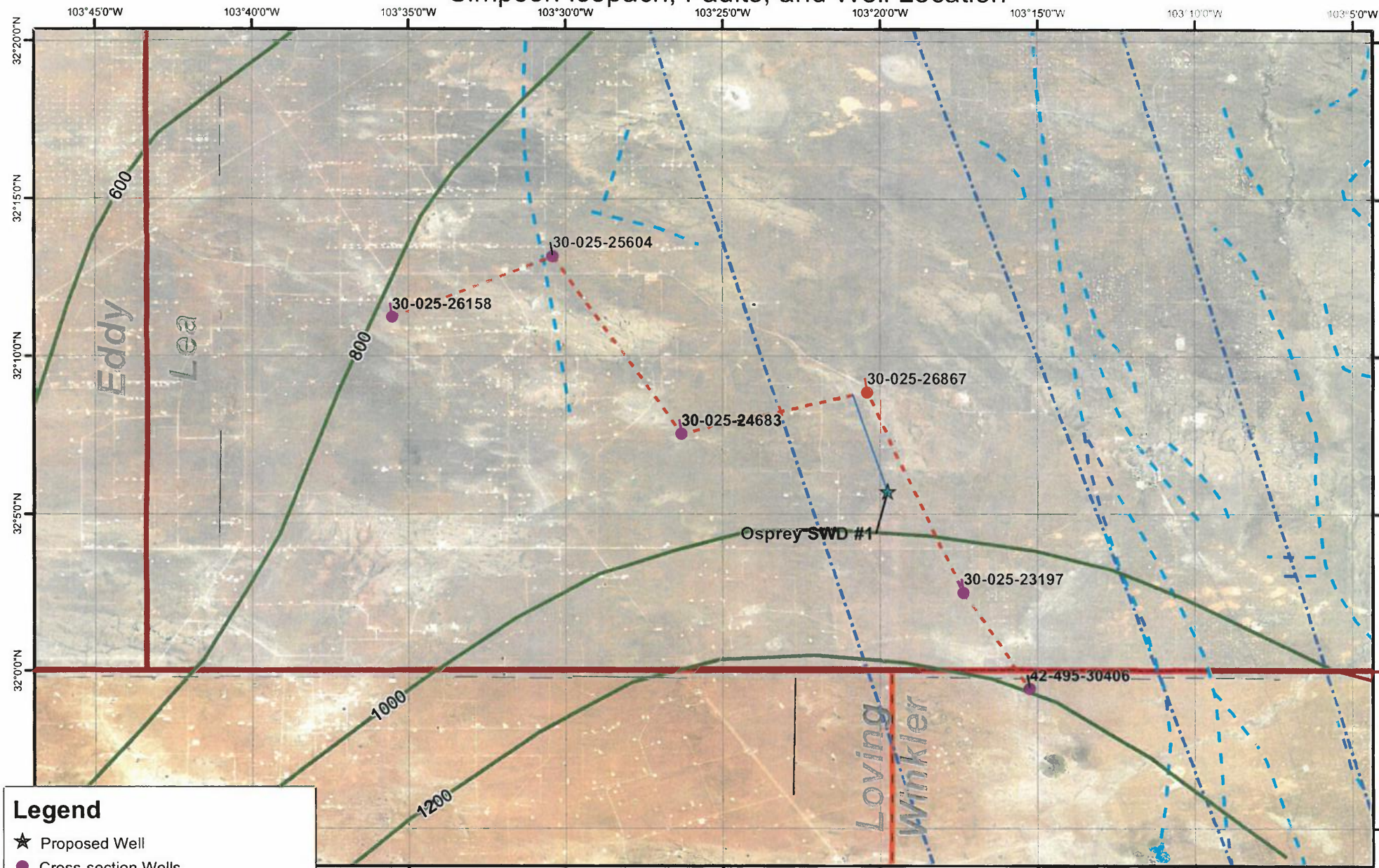
- ★ Proposed Well
- Cross-section Wells
- Osprey Tie-Line
- - - Cross-section Line
- Lower Ordovician (Ellenburger) Isopach
- - - Precambrian Faults
- · · Basement Faults
- ▭ County Boundaries, NM
- ▭ County Boundaries, TX



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.



Simpson Isopach, Faults, and Well Location



Legend

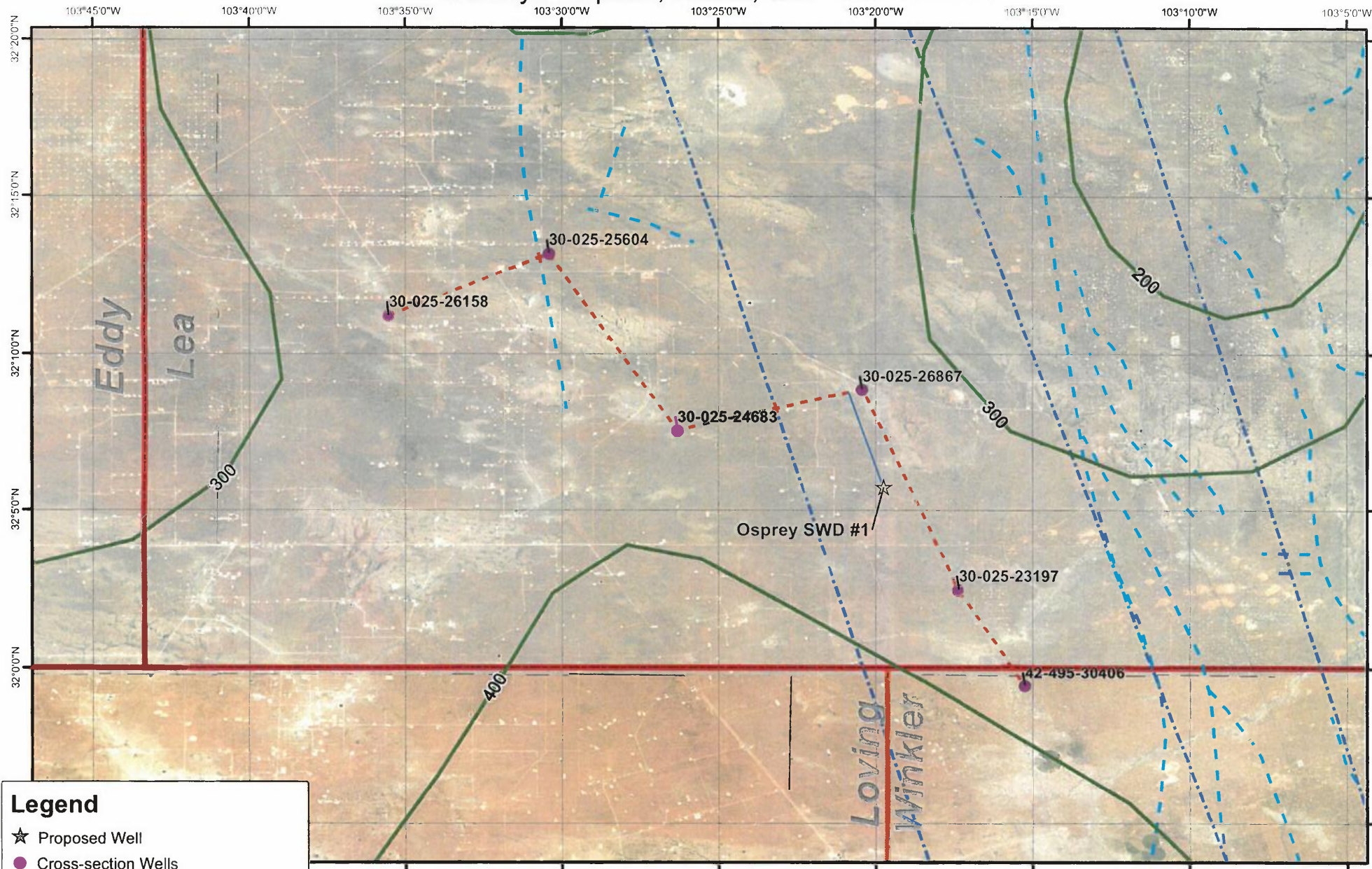
- ★ Proposed Well
- Cross-section Wells
- Osprey Tie-Line
- - - Cross-section Line
- Middle Ordovician (Simpson) Isopach
- Precambrian Faults
- Basement Faults
- ▭ County Boundaries, NM
- ▭ County Boundaries, TX



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.



Montoya Isopach, Faults, and Well Location



Legend

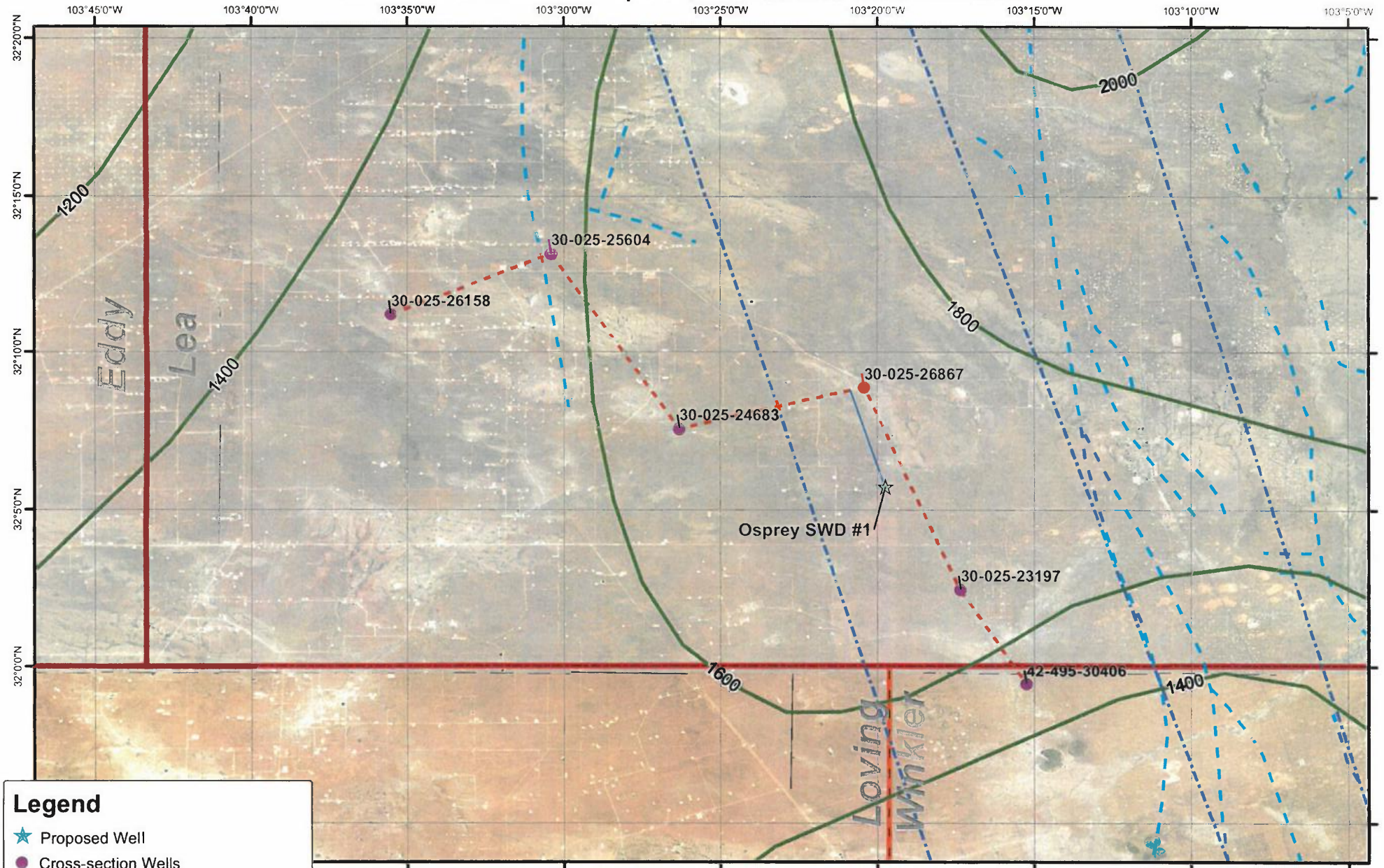
- ★ Proposed Well
- Cross-section Wells
- Osprey Tie-Line
- - - Cross-section Line
- Upper Ordovician (Montoya) Isopach
- - - Precambrian Faults
- ... Basement Faults
- County Boundaries, NM
- County Boundaries, TX



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.



Wristen/Fusselman Isopach, Faults, and Well Location



Legend

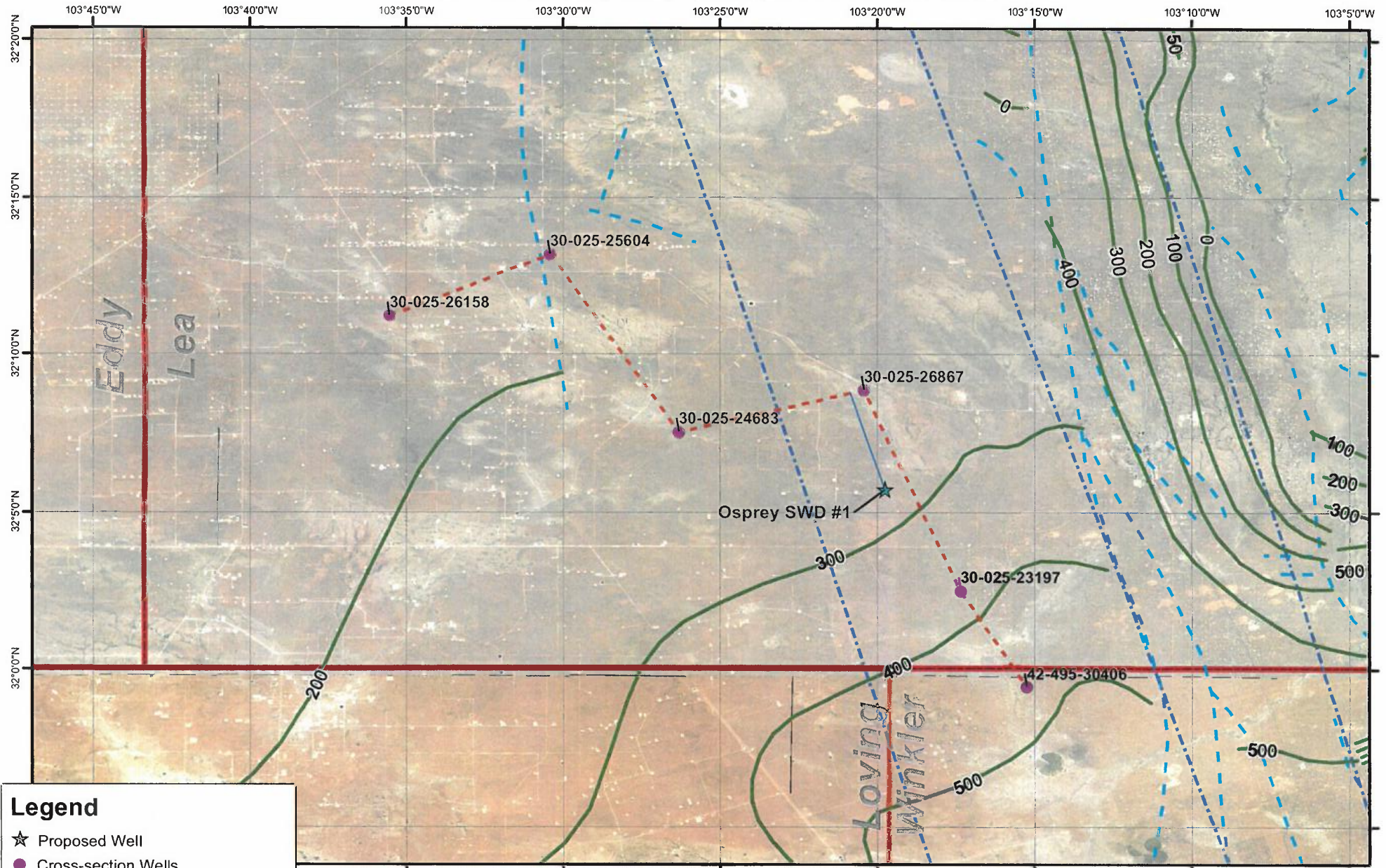
- ★ Proposed Well
- Cross-section Wells
- Osprey Tie-Line
- - - Cross-section Line
- Sil/Dev (Wristen/Fusselman) Isopach
- Precambrian Faults
- Basement Faults
- ▭ County Boundaries, NM
- ▭ County Boundaries, TX



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.



Woodford Isopach, Faults, and Well Location



Legend

- ★ Proposed Well
- Cross-section Wells
- Osprey_Tie-Line
- - - Cross-section Line
- Late Devonian (Woodford) Isopach
- Precambrian Faults
- Basement Faults
- ▭ County Boundaries, NM
- ▭ County Boundaries, TX

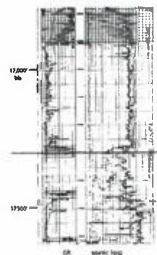


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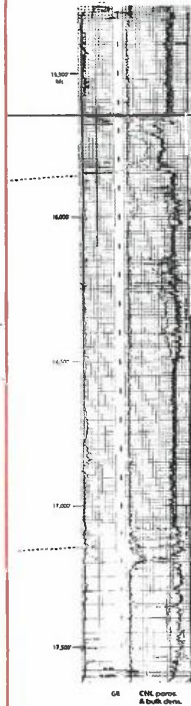


Northwest

30-025-26158
State 29 J #1
29-245-33E
TD: 17,652'

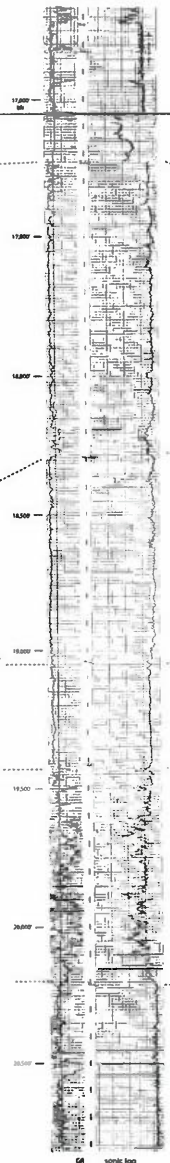


30-025-25604
Government L #1
18-245-34E
TD: 17,620'



100'

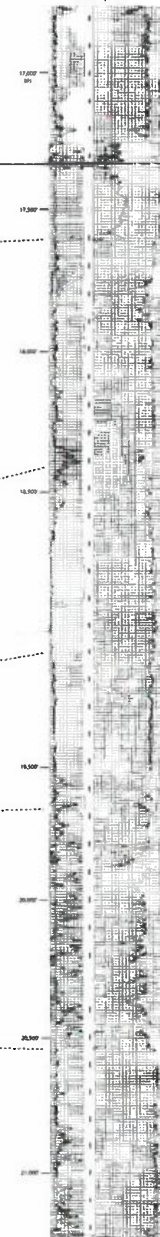
30-025-24683
Fairview Mills Fed #1
14-255-34E
TD: 20,840'



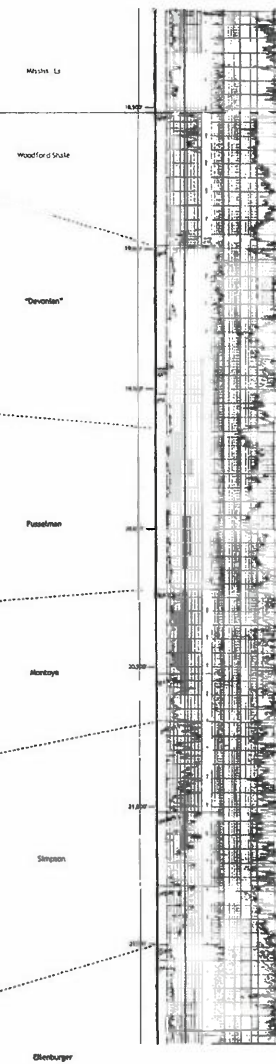
NGL Osprey
25-255-35E
TD: ~20,109'



30-025-23197
South Lea Fed. #001
17-265-36E
TD: 21,252'



42-495-30406
Gifford et al Comanche Unit 1
sec 13 Blk C-23
TD: 21,830'



Exhibits of Dr. Steven Taylor
On Behalf of NGL Water Solutions Permian, LLC

**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. 20658 (OSPREY)

AFFIDAVIT OF DR. STEVEN TAYLOR

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

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

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

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

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

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



5. The applicant, NGL (OGRID No. 372338), seeks an order approving the Osprey SWD #1 well, which is a salt water disposal well.

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

7. The closest known fault line is located approximately 2 to 20 miles away from where the well is proposed to be located.

8. I have studied seismic catalogs, unpublished catalogs and USGS catalogs for the time period of 2010 – 2017 selective events within 50 km of one the Striker SWD wells. Attached as Exhibit A is a copy of my study, which I prepared in May 2019 when this case was originally set for hearing. My study concludes that there is very little seismic activity in the areas where the well is proposed to be located. My conclusions have not changed since I prepared my study.

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

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

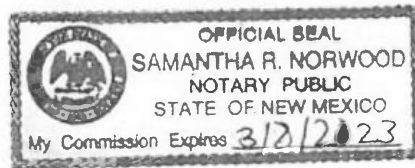
[Signature page follows]

Steven Taylor
Dr. Steven Taylor

SUBSCRIBED AND SWORN to before me this 0 th day of August, 2019 by Dr. Steven Taylor.

Samantha R. Norwood
Notary Public

My commission expires: 3/8/2023



Seismic Catalog Analysis Within 50 km of Osprey SWD Well

Prepared for NGL-Permian
by
GeoEnergy Monitoring Systems
July 30, 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 Osprey SWD well. Additionally, seismic monitoring from September 6, 2018 to date from the three NGL seismic stations installed at Striker 2, Striker 3 and Striker 6 SWD wells. NGL/GeoEMS installed a seismic monitor at the Salty Dog SWD well (SDOG) in Texas just across New Mexico border on March 28, 2019 that will help constrain locations in southeastern NM.

Striker Two (STR2), Sand Dunes well, Lat/Long: 32.2072820/-103.7557370
Striker Three (STR3), Gossett well, Lat/Long: 32.2551110/-104.0868610
Striker Six (STR6), Madera well, Lat/Long: 32.2091150/-103.5359570
Salty Dog (SDOG), Salty Dog well, Lat/Long: 32.22531/-103.045212

Figure 1 shows seismic station locations 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 no 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 event detections listed in Table 2 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.

No historic or recent events have been located in the vicinity of Osprey SWD well.

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

Date	Origin Time GMT	Latitude	Longitude	Depth (km)	Magnitude
20111227	23:10:37	32.37	-103.95	NaN	1.6
20120318	10:57:22	32.281	-103.892	5.0	3.1
20170211	14:34:27	32.29	-103.92	NaN	1.5
20170302	11:38:53	32.37	-103.88	NaN	1.7
20170325	22:46:01	32.13	-103.77	NaN	1



20170503	17:47:21	32.082	-103.023	5.0	2.6
20170814	01:09:56	32.39	-103.56	NaN	1.2

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

Date	Origin Time (GMT)	Lat	Long	Depth	Loc Error	M	(+/-)
09/10/18	23:35:43.942	32.1793	-103.5283	1	5.58	1.25	0.23
09/14/18	06:57:47.614	32.1540	-103.5030	1	5.58	1.11	0.41
09/15/18	16:48:21.041	32.1630	-103.5211	1	5.37	1.50	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
02/19/19	09:35:15.109	32.2443	-103.6898	1	4.17	1.20	0.00
02/19/19	09:35:15.109	32.2443	-103.6898	1	4.17	1.20	0.00
02/19/19	09:35:15.109	32.2443	-103.6898	1	4.17	1.20	0.00
05/23/19	06:33:40.530	32.2617	-103.7581	4	2.28	1.53	0.27
06/08/19	23:11:24.669	32.3102	-103.8510	2	0.55	1.39	0.07
07/17/19	03:24:43.975	32.3326	-103.8093	6	0.91	1.56	0.07

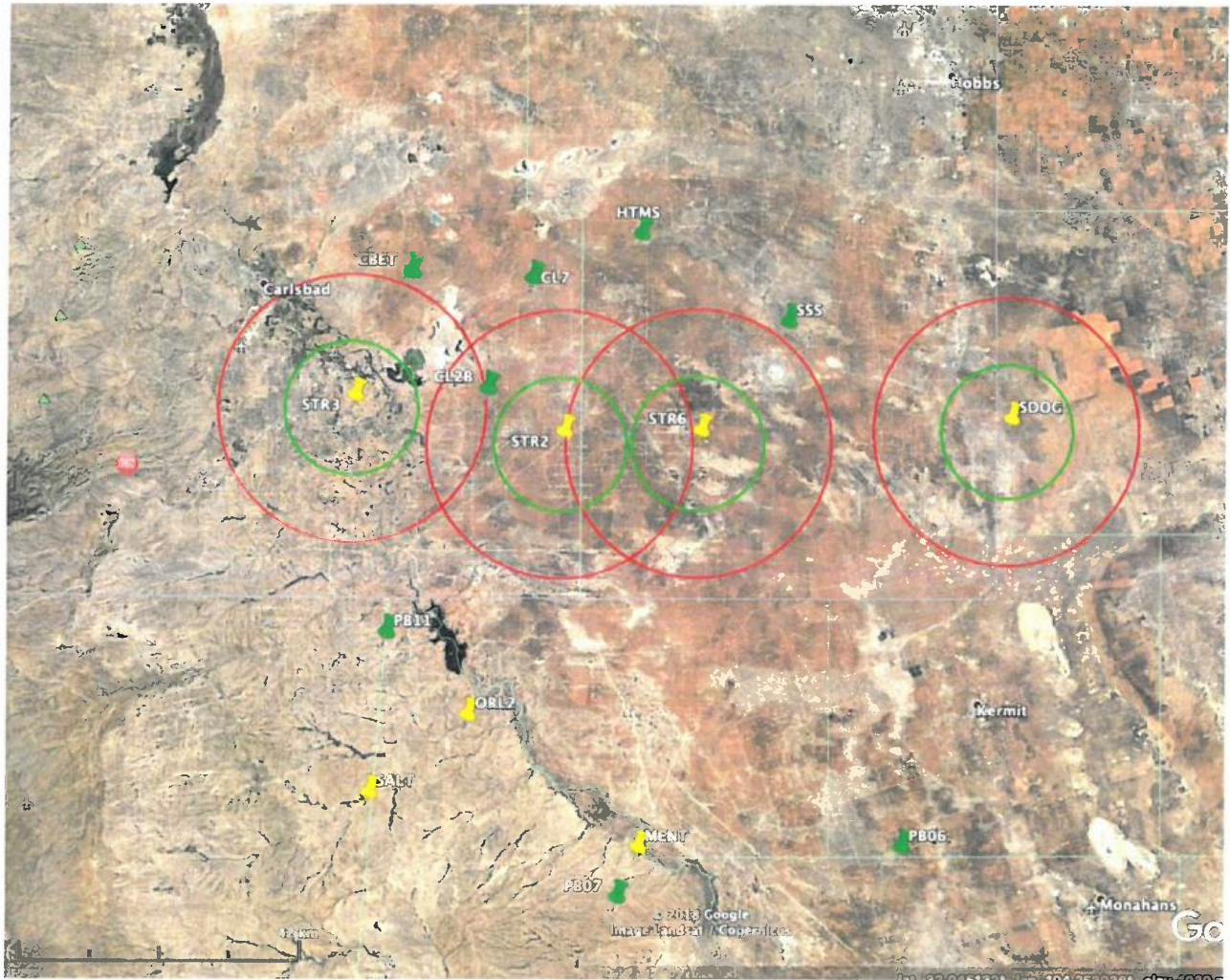


Figure 1. Striker SWD wells seismic station locations and existing NGL-Permian seismic stations (yellow pushpins). Green and red circles around stations show approximate detection levels for ML 1.0 and 1.5, respectively.

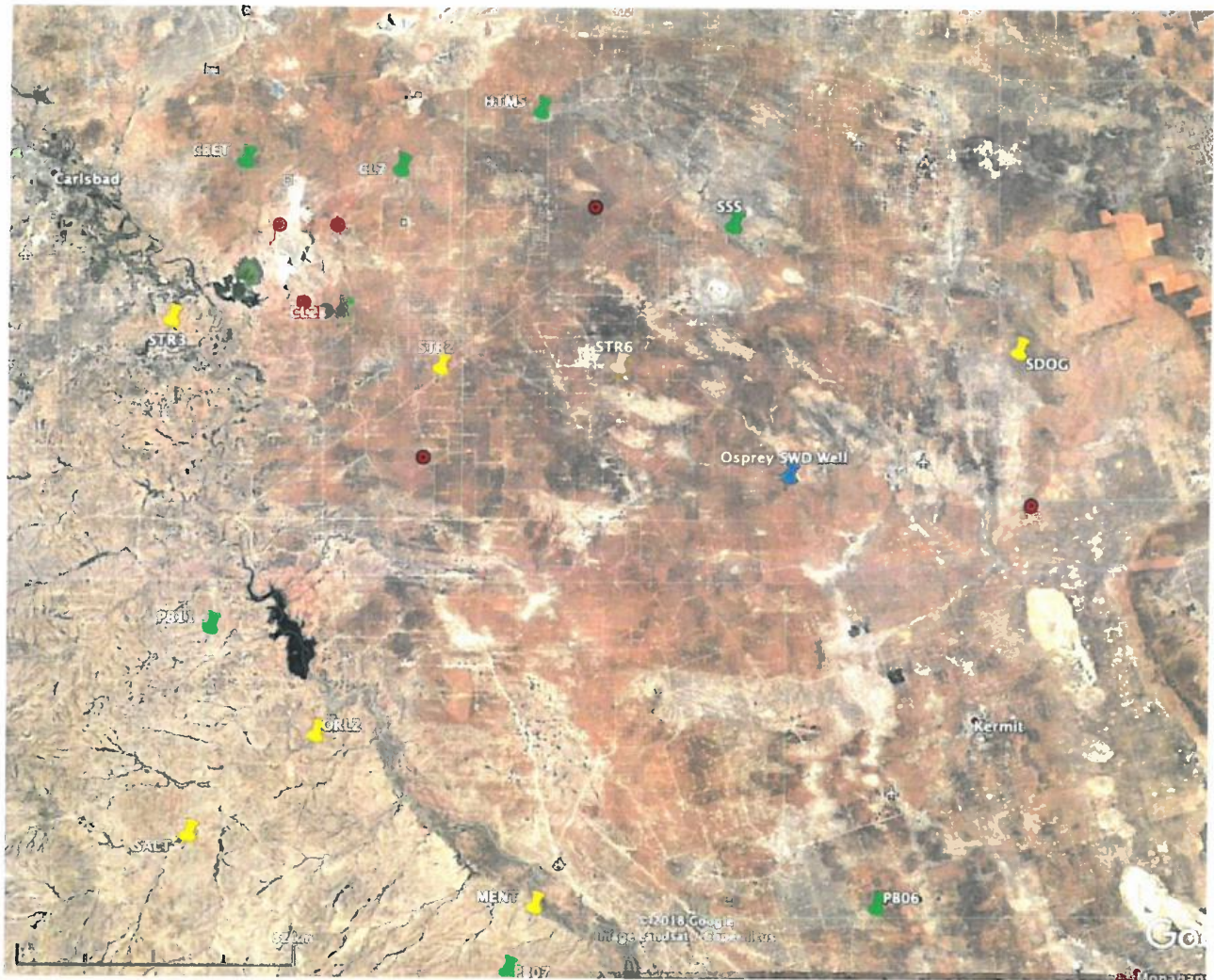


Figure 2. Striker SWD wells seismic station locations (yellow push pins) and existing NGL-Permian seismic stations (yellow pushpins). Other regional seismic stations run by TexNet and New Mexico Tech are shown as green pushpins. Historic seismicity listed in Table 1 shown as red circles. Osprey SWD well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

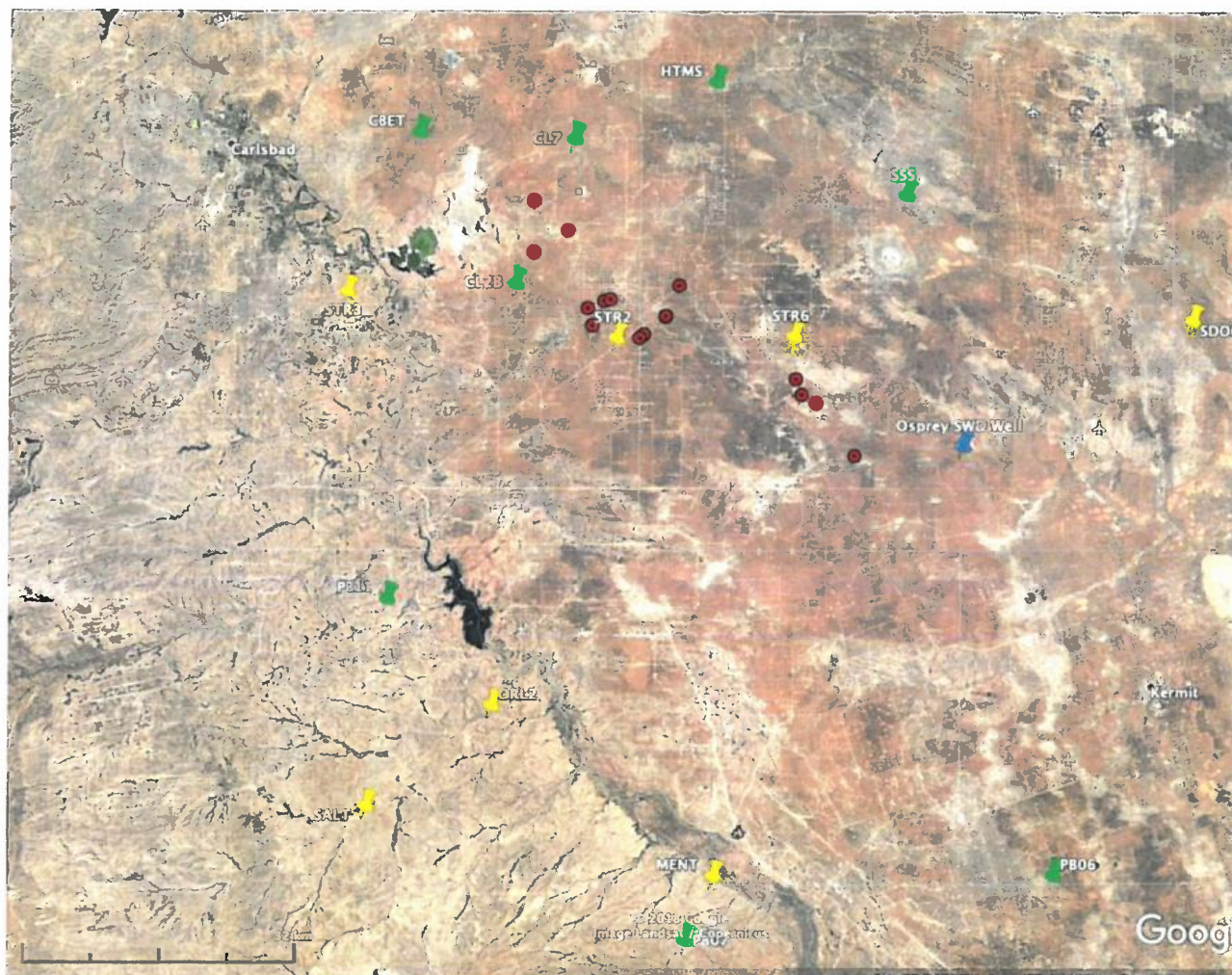


Figure 3. Seismic events in between September 6, 2018 to date as red circles (Table 2). Seismic stations as yellow (NGL) or green (NMT and TexNet) pushpins. Osprey SWD well shown as blue pushpin.

August 5, 2019

RE: Application for Fluid Injection or Disposal Permit
NGL Water Solutions Permian, LLC
Osprey SWD #1
Lea County, New Mexico

FSP Analysis (Fault slip potential)

I have reviewed the geology and seismic activity near the Osprey SWD #1 and I would conclude that this well does not pose a risk related to seismicity in this area. The Area of review (AOR) and subject well are shown on **(FSP Exh. 2)** in relation to the historical earthquake events in the area. (USGS) (None within the AOR).

** 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.*

FSP Methodology

- FSP input variables were determined from nearby Deep injection wells in the review area and published data. **(FSP Exh.1)**
- Stress gradients and pore pressure gradients were derived from testing and published papers **(FSP Exh.1)**.
- Fault slip potential (FSP) was analyzed in the area of review shown on **FSP Exh.2**. 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 (none in the AOR).
- Azimuth direction of S_{hmax} was derived from Snee/Zoback 2018. **(FSP Exh.3)**
- Viscosity of the formation fluid was derived from temperature values at the mid-point injection depth **(FSP Exh.4)**

- The wells input into the FSP model and the potential faults in the area are shown on **FSP Exh. 5**.
 - Existing injection wells are projected into the future at the last reported injection volume and then held constant.
 - The subject well is tested at the proposed maximum injection rate and held constant for 20 years. If the ΔP at the well exceeds the allowed injection pressure, then the modelled injection rates are decreased over time to stay within the allowed maximum injection pressure. This analysis is important because the model should represent realistic injection values over the life of the model and arbitrarily using the permitted rate over the life of the well does not reflect the reality that as the reservoir pressure increases the well's ability to inject fluid may be reduced.
 - The Subject well is denoted in the model as follows:
 - 18 – Osprey SWD #1 (40,000 bbls/d)
 - Also included in the model are existing SWD injection wells as follows:
 - 1 – 3002512014 – injection reported (last reported rate held constant)
 - 2 – 3002527085 – injection reported (last reported rate held constant)
 - 3 – 3002542054 – no injection to date (30,000 bbls/d)
 - 4 – 3002542355 – injection reported (last reported rate held constant)
 - 5 – 3002543360 – injection reported (last reported rate held constant)
 - 6 – 3002544954 – no injection to date (30,000 bbls/d)
 - 7 - 3002545151 – no injection to date (30,000 bbls/d)
 - 8 - 3002545346 – no injection to date (30,000 bbls/d)
 - 9 - 3002545795 – no injection to date (30,000 bbls/d)
 - 17 – West Jal B Deep #1 – no injection to date (30,000 bbls/d)
 - And these other pending NGL well locations
 - 10 – Cobra SWD #1 (40,000 bbls/d)
 - 11 - Galaxy SWD #1 (40,000 bbls/d)
 - 12 – Ghost Rider SWD #1 (40,000 bbls/d)
 - 13 – Hornet SWD #1 (40,000 bbls/d)
 - 14 – Raptor SWD #1 (40,000 bbls/d)

- 15 – Thunderbird SWD #1 (40,000 bbls/d)
- 16 – Thunderbolt SWD #1 (40,000 bbls/d)
- 19 – Seahawk SWD #1 (40,000 bbls/d)
- **FSP Exh.6** shows the geomechanical properties of the possible faults (with segment numbers).
- **FSP Exh.7** shows the pressure to slip, ΔP , at each possible fault segment.
- **FSP Exh.8** shows the probability of fault slip for each fault segment and shows that a ΔP 3,500 psi increase at segment F16 shows a 10% probability of fault slip. The model calculates a ΔP increase of 265 psi at F16 by 2045 thus the calculated pressures remain well below the 10% probability level. (See FSP Exh. 12)
- **FSP Exh.9 - FSP Exh.11** show the calculated pressures at the possible fault segments as of 1/1/2025, 1/1/2035, and 1/1/2045. Note that by 2045 none of the faults have reached pressures that would initiate fault slip.
- **FSP Exh.12** shows the pressure recap for all of the modelled fault segments as of 2045 and the corresponding pressures required to cause fault slip. Also shown are the sources of the fault segments included in the model and the depths where fault displacement can be demonstrated.

FSP Analysis (Findings and Conclusions)

The N-S 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 +4,200 psi) based on the fixed input parameters and the ΔP increase at the most critical fault only reaches 265 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 modelled values, then the risk for fault slip is lowered.

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



Todd W. Reynolds

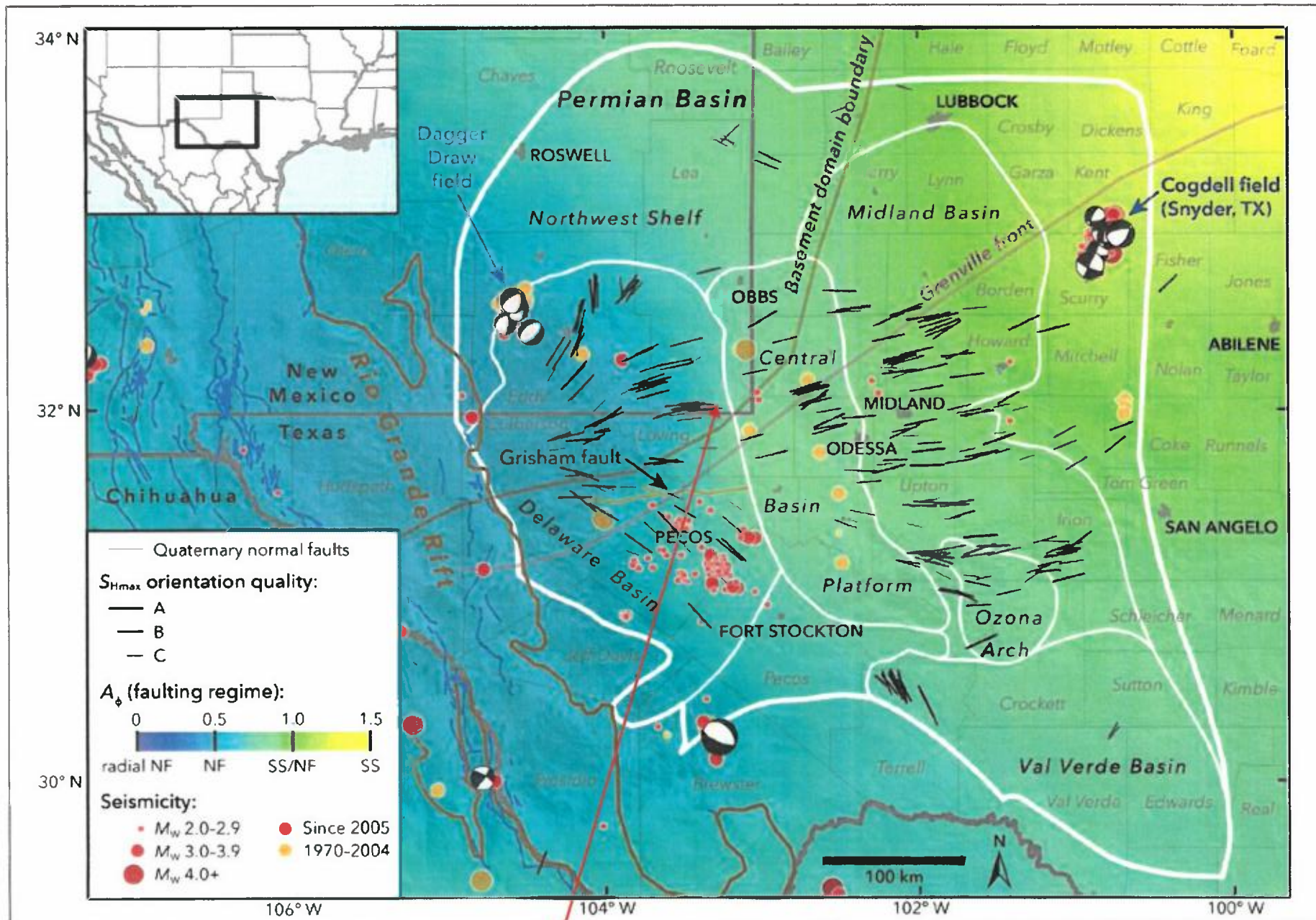
FTI Platt Sparks

512.327.6930 office

FSP DATA WORKSHEET (General information and Input data)

		Comments	Variance (+/-)
<u>Well</u>	Osprey SWD #1		
<u>Operator</u>	NGL Water Solutions Permian, LLC		
<u>API</u>			
<u>Top Injection Depth (ft)</u>	18114		
<u>Base Injection Depth(ft)</u>	20109		
<u>Mid Injection Depth(ft)</u>	19112		
<u>Mid Injection Depth(m)</u>	5825		
<u>Injection Formation(s)</u>	Siluro-Devonian, Fusselman		
<u>Est Formation Temp (F)</u>	266	Temp graphs (UTPB 2006)	
<u>Est Formation Temp (C)</u>	130	Temp graphs (UTPB 2006)	
<u>Density (kg/m3)</u>	1000	Estimated	40
<u>Viscosity (Pa.s)</u>	0.00026	Calculated	0.00005
<u>Compressibility-Formation (1/Pa)</u>	8.70E-10	Estimated	
<u>Compressibility-Fluid (1/Pa)</u>	4.57E-10	Estimated	
<u>Aquifer thickness (ft)</u>	998		50
<u>Porosity (%)</u>	5		2
<u>Perm (mD)</u>	20		4
<u>Vertical stress grad. (psi/ft)</u>	1.1	Calculated from density log	0.05
<u>Min. Horiz. Stress grad. (psi/ft)</u>	0.67	Determined from A Phi parameter (0.6)	0.02
<u>Max. Horiz. Stress grad. (psi/ft)</u>	0.92	Determined from A Phi parameter (0.6)	0.02
<u>Initial Pore Pressure grad. (psi/ft)</u>	0.46	Normal saltwater pore pressure gradient	0.01
<u>Azimuth of Max Horiz Stress (deg)</u>	80	From Snee/Zoback	5
<u>Fault Orientation (deg)</u>	Dependent on Fault		5
<u>Fault Dip (deg)</u>	85		5
<u>Friction of Coefficient</u>	0.6	typical for pre-existing fault/facture	0.02
<u>Max Injection pressure @ 0.20 psi/ft</u>	3623		
<u>Max Injection rate (bbls/day)</u>	40000		

FSP Exh. 1



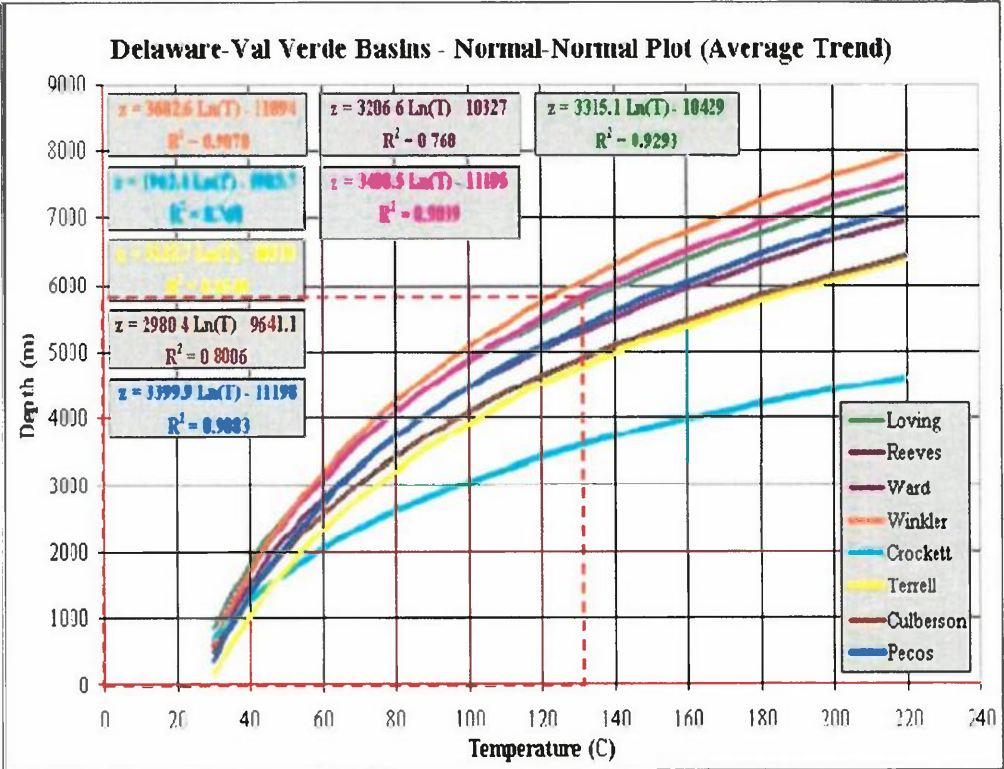
FSP Exh. 3

Stress Data Inputs

80

Azimuth S_{Hmax}
Subject Area

Determination of Viscosity



130 (C)
266 (F)

FSP Exh. 4

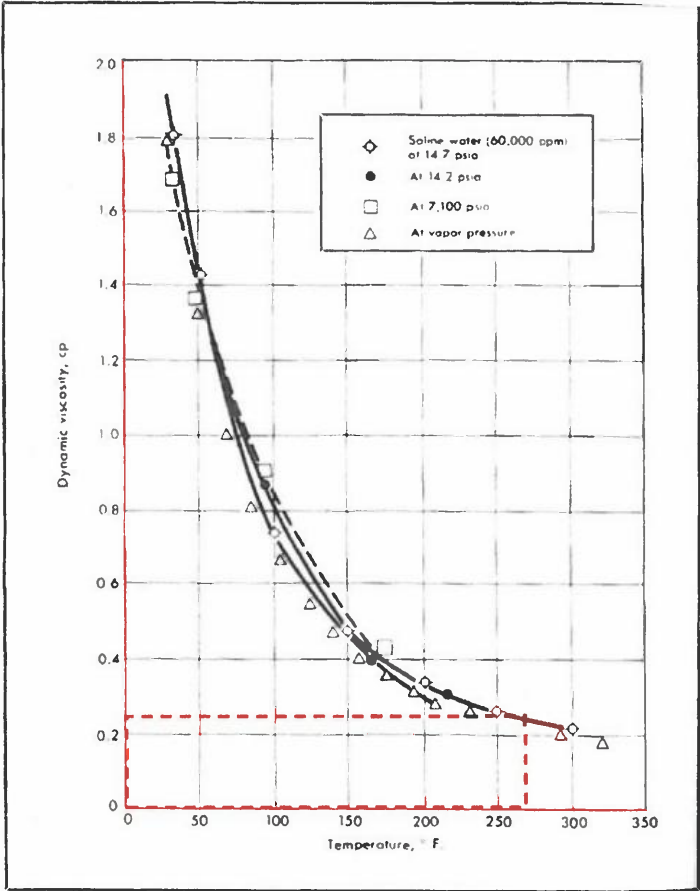


FIG. 6-9 Viscosity of water at oil-field temperature and pressure. (Van Wingen. *Secondary Recovery of Oil in the United States*, API. 1950, 127. with permission)

26 cp

Fault Slip Potential

MODEL INPUTS

GEOMECHANICS

PROB. GEOMECH

HYDROLOGY

PROB. HYDRO

INTEGRATED

Fault Selector:

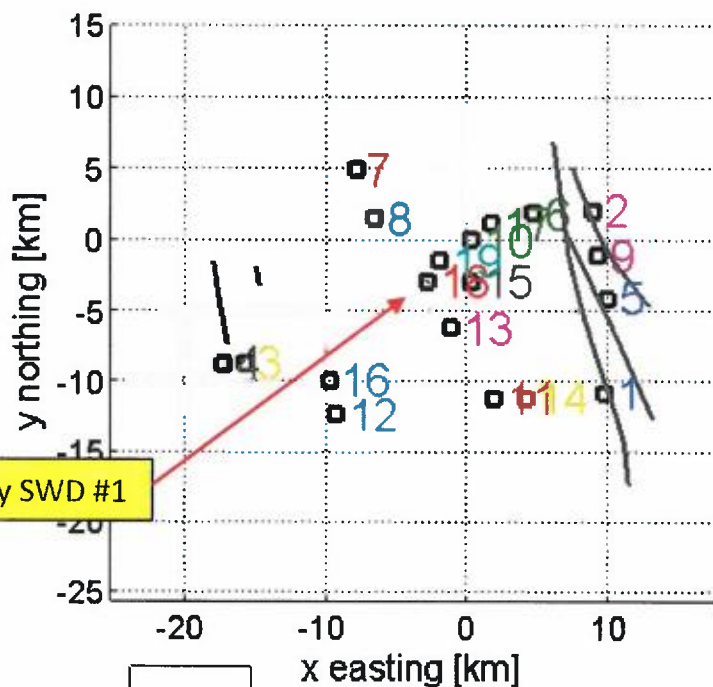
All Faults

- 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
- Fault #20
- Fault #21

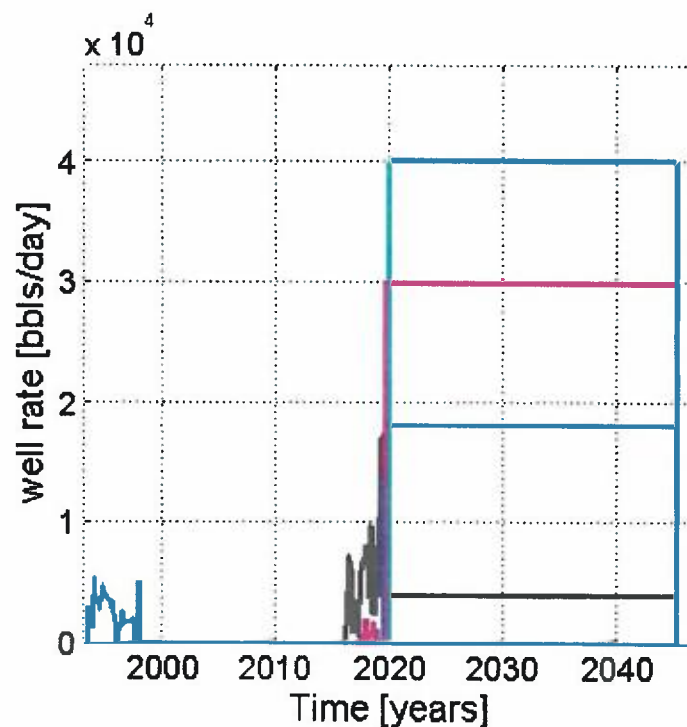
Stress Regime: Normal Faulting

Select Well:

All



Subject well: Osprey SWD #1



Subject Well input at 40,000 bbls/day beginning rate
18 other injection wells in area of study

Calculate

FSP Exh. 5

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
- Fault #20

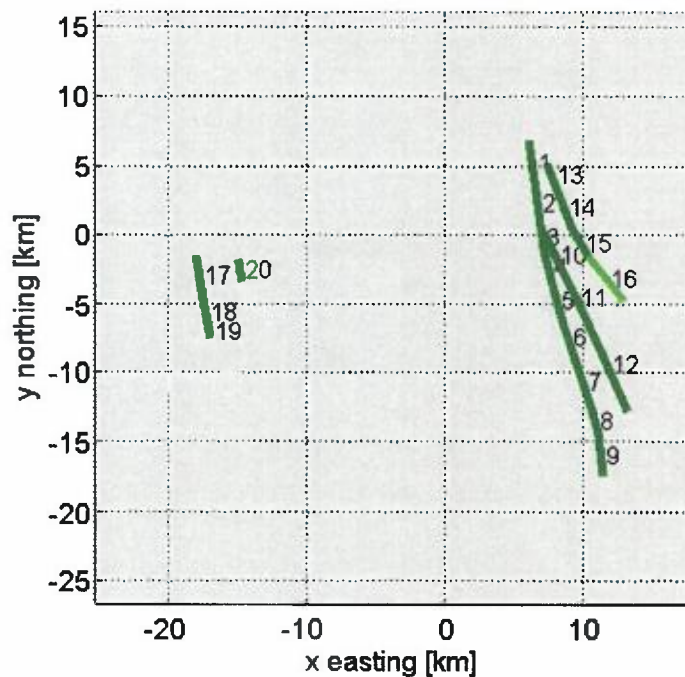
Calculate

FSP Exh. 6

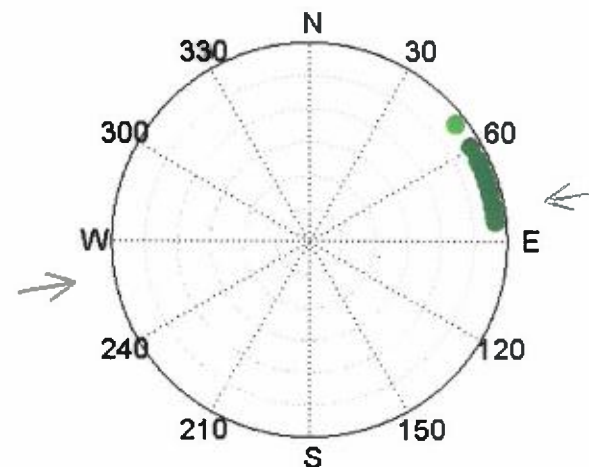
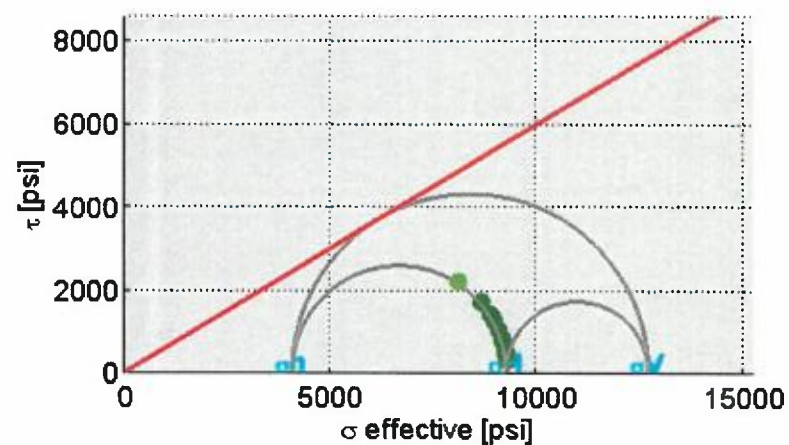
a) Fault Number

Help

Fault segment numbers



Stress Regime: Normal Faulting

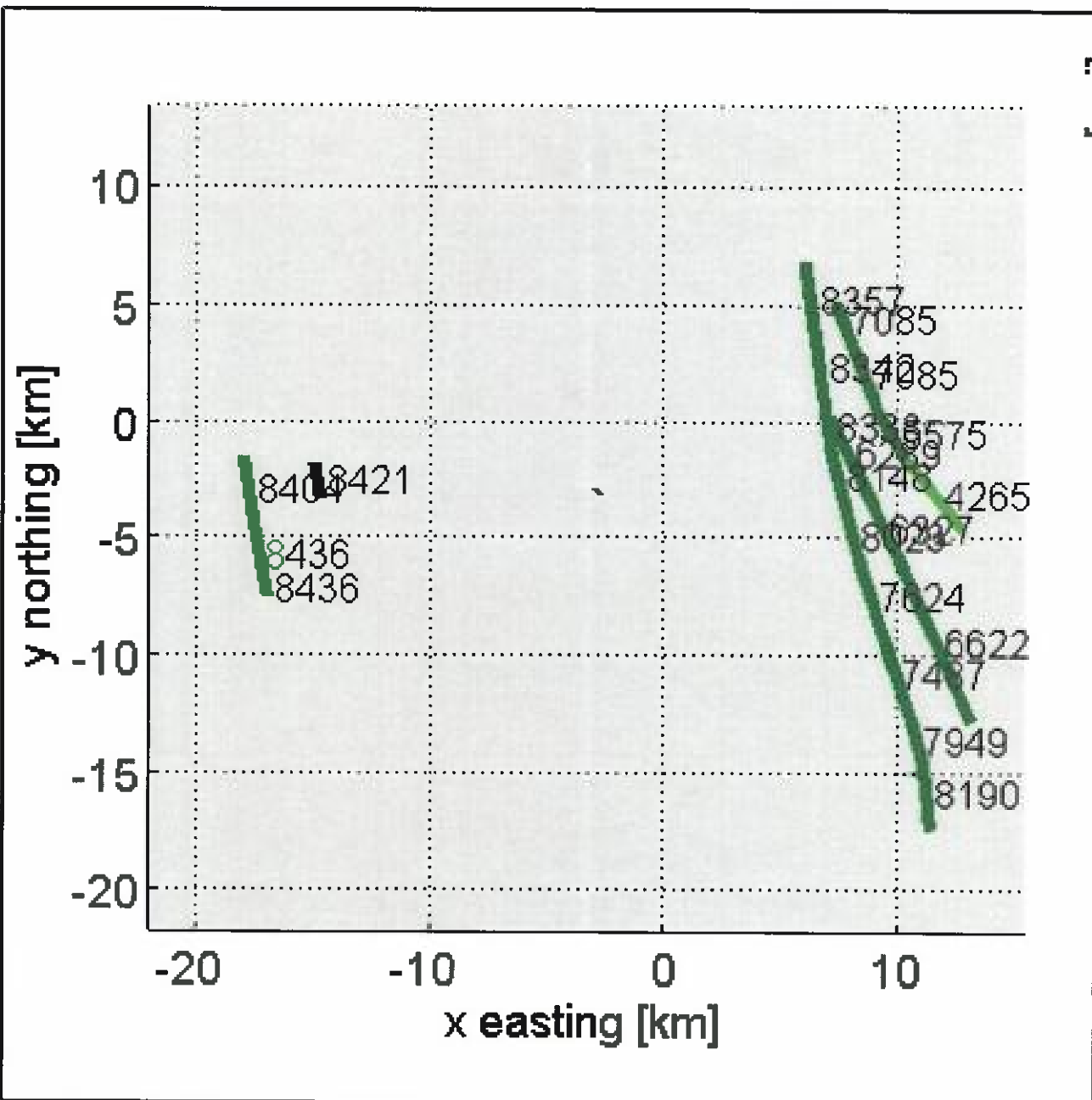


Stereonet Show: Fault Normals

Calculated Pore
Pressure to Slip

ΔP

At each fault
segment



Fault Slip Potential

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
- Fault #20

Calculate

FSP Exh. 8

MODEL INPUTS

GEOMECHANICS

PROB. GEOM...

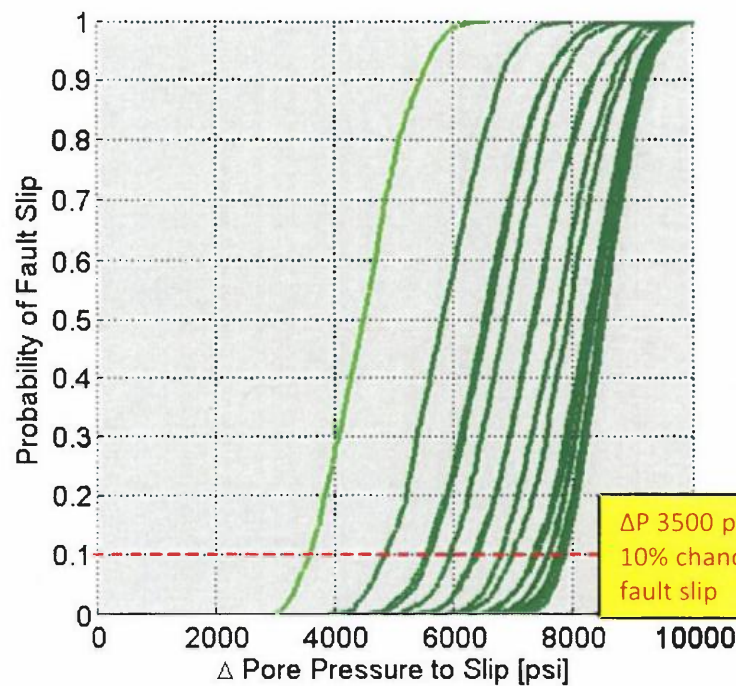
HYDROLOGY

PROB. HYDRO

INTEGRATED

Load Distributions

Run Analysis



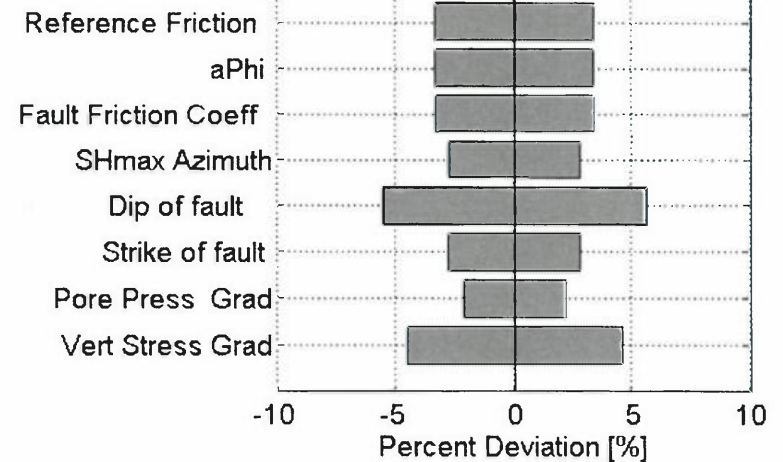
Max Delta PP [psi]:

10000

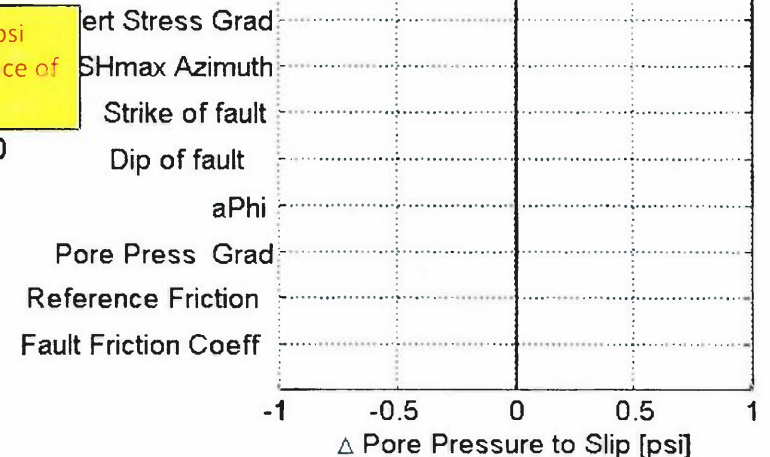
Export CDF data

Show Input Distributions

Variability in Inputs



Choose a fault to see sensitivity analysis



Fault Slip Potential

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
- Fault #20: 0.00 FSP
- Fault #21: 0.00 FSP

Subject well: Osprey SWD #1

Calculate

MODEL INPUTS

GEOMECHANICS

PROB. GEOMECH

HYDROLOGY

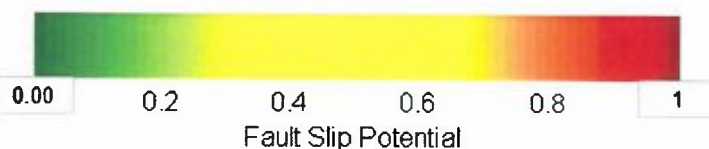
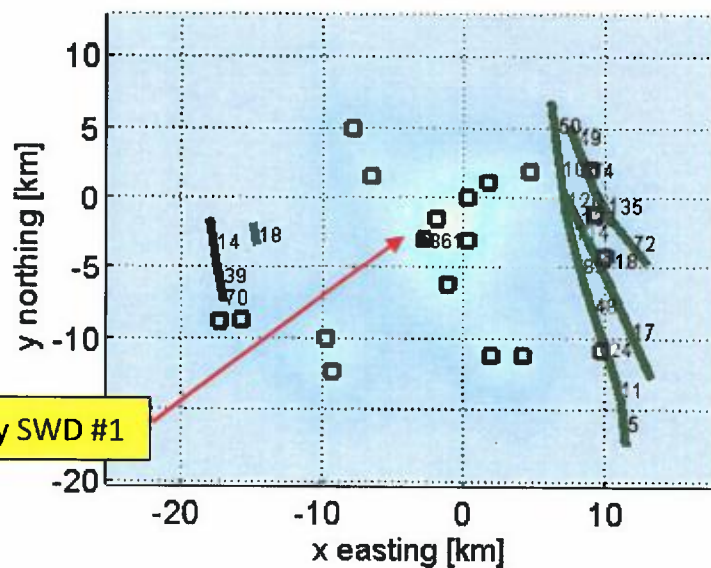
PROB. HYDRO

INTEGRATED

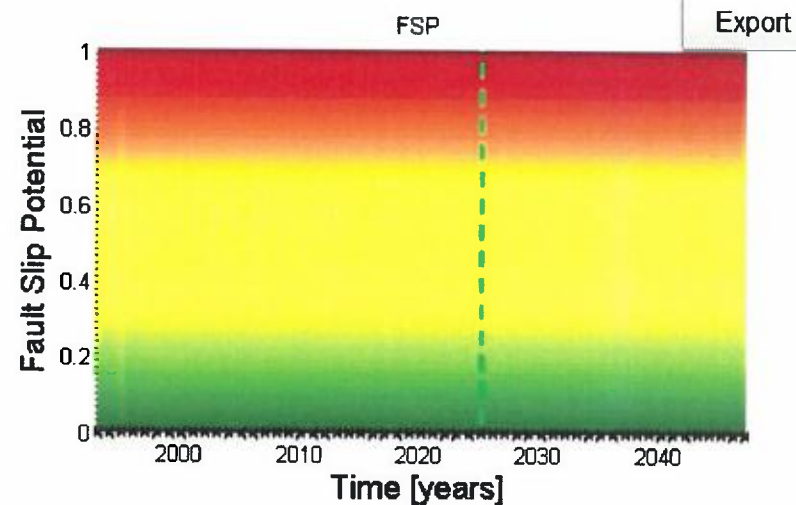
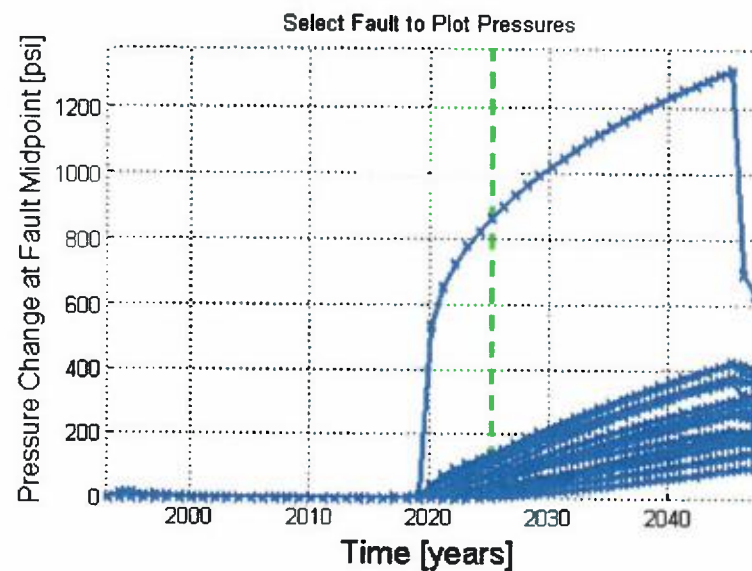
Export

b) PP Change at fault [psi]

Summary Plots



Year: 2025



Export

Fault Slip Potential

MODEL INPUTS

GEOMECHANICS

PROB. GEOMECH

HYDROLOGY

PROB. HYDRO

INTEGRATED

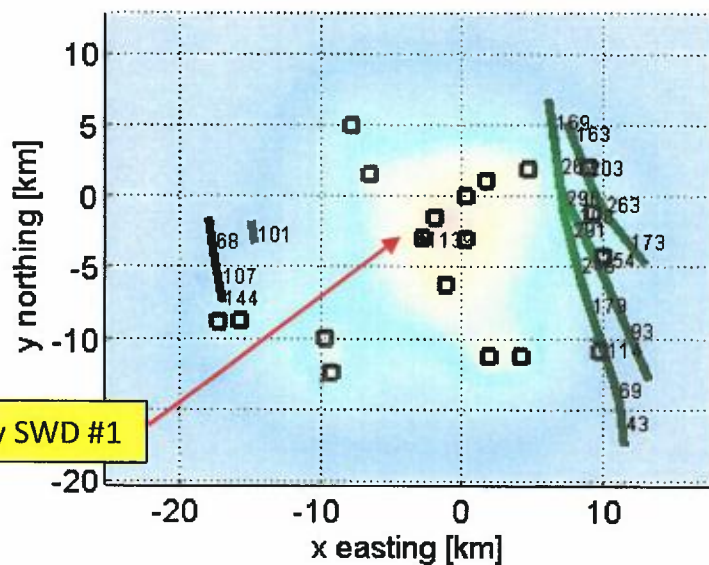
Export

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
- Fault #20: 0.00 FSP
- Fault #21: 0.00 FSP

b) PP Change at fault [psi]

Summary Plots



Subject well: Osprey SWD #1

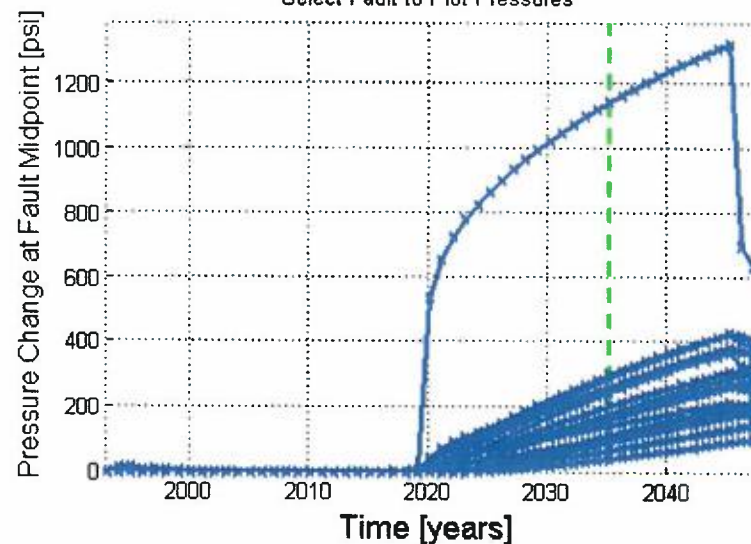
Calculate

FSP Exh. 10

Year:

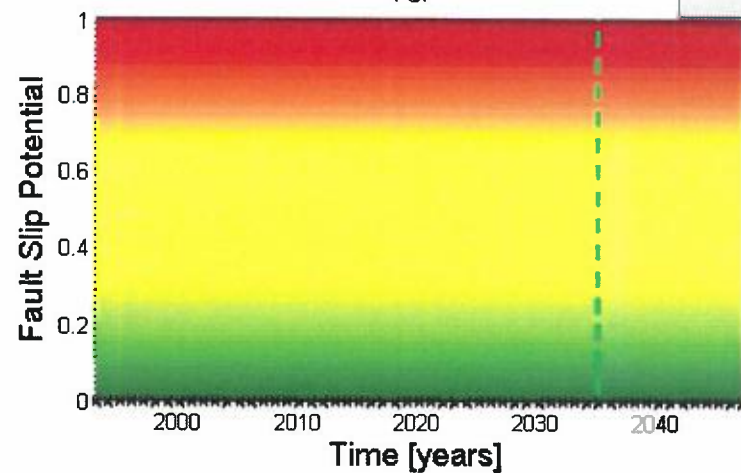
2035

Select Fault to Plot Pressures



Export

FSP



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
- Fault #20: 0.00 FSP
- Fault #21: 0.00 FSP

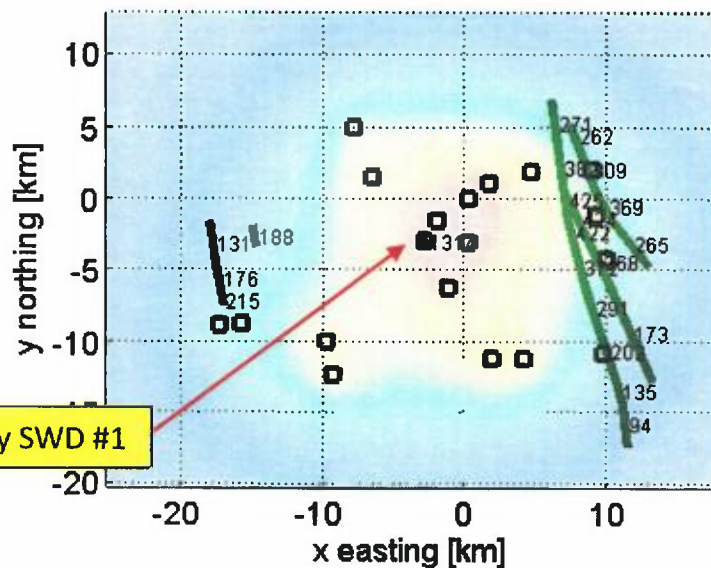
Subject well: Osprey SWD #1

Calculate

FSP Exh. 11

b) PP Change at fault [psi]

Summary Plots



0.00

0.2

0.4

0.6

0.8

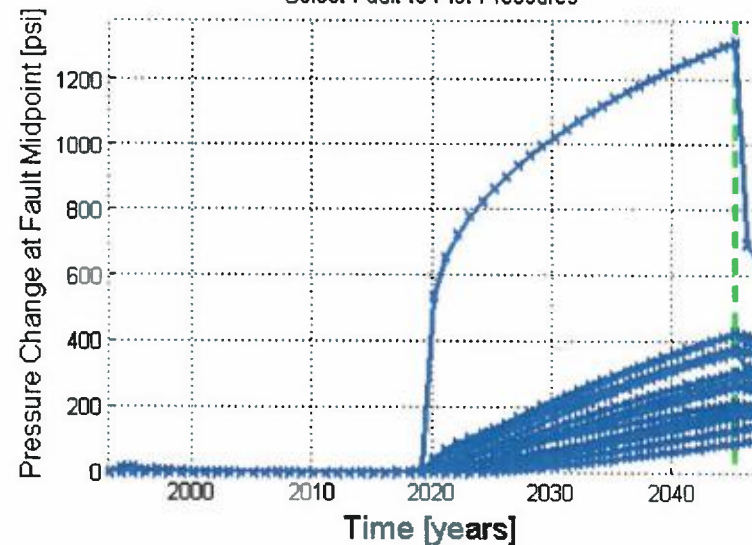
1

Fault Slip Potential

Year:

2045

Select Fault to Plot Pressures



FSP

Export

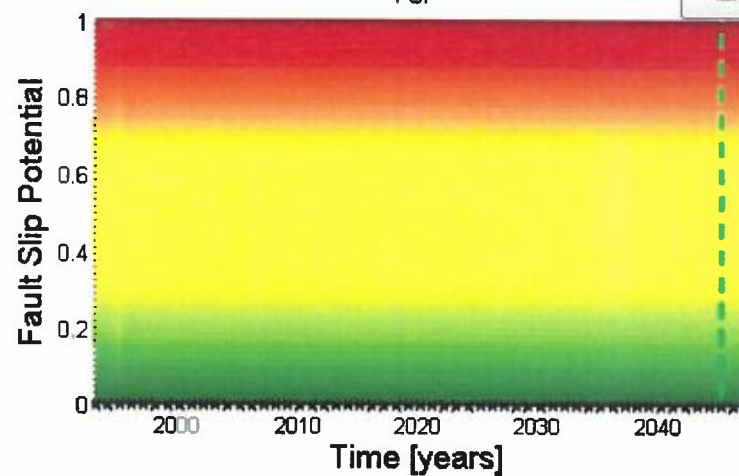


Table 1
FSP ANALYSIS WITH SUBJECT WELL

<u>Fault Segment</u>	<u>Fault Source</u>	<u>ΔP to slip</u>	<u>ΔP at 2045</u>
F1	BEG (Basement)	8,357	271
F2	BEG (Basement)	8,342	382
F3	BEG (Basement)	8,333	425
F4	BEG (Basement)	8,148	422
F5	BEG (Basement)	8,023	372
F6	BEG (Basement)	7,624	291
F7	BEG (Basement)	7,487	202
F8	BEG (Basement)	7,949	135
F9	BEG (Basement)	8,190	94
F10	BEG (Basement)	6,289	424
F11	BEG (Basement)	6,327	368
F12	BEG (Basement)	6,622	173
F13	BEG (Basement)	7,085	262
F14	BEG (Basement)	7,085	309
F15	BEG (Basement)	5,575	369
F16	BEG (Basement)	4,265	265
F17	BEG (Basement)	8,404	131
F18	BEG (Basement)	8,436	176
F19	BEG (Basement)	8,436	215
F20	BEG (Basement)	8,421	188
F21	BHP at well	NA	1,314

Notice Affidavit

**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. 20658
(OSPREY)**

AFFIDAVIT

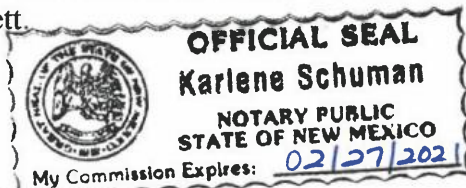
STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)


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

SUBSCRIBED AND SWORN to before me this 6th day of August, 2019 by Deana M. Bennett.





Notary Public

My commission expires: _____



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

PS Form 3877

Type of Mailing: CERTIFIED MAIL
07/17/2019



Firm Mailing Book ID: 171022

Line	USPS Article Number	Name, Street, City, State, Zip	Postage	Service Fee	RR Fee	Rest.Del.Fee	Reference Contents
1	9314 8699 0430 0061 2851 29	Oil Conservation Division District IV 1220 South St. Francis Drive Santa Fe NM 87505	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice
2	9314 8699 0430 0061 2851 36	Oil Conservation Division District I - Hobbs 1625 N. French Drive, Hobbs NM 88240	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice
3	9314 8699 0430 0061 2851 43	NGL WATER SOLUTIONS PERMIAN, LLC 1509 W Wall St., Ste. 306 Midland TX 79701	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice
4	9314 8699 0430 0061 2851 50	NEW MEXICO STATE LAND OFFICE P.O. Box 1148 Santa Fe NM 87504	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice
5	9314 8699 0430 0061 2851 67	BUREAU OF LAND MGMT 301 Dinosaur Trail Santa Fe NM 87508	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice
6	9314 8699 0430 0061 2851 74	CHEVRON U S A INC 6301 DEAUVILLE BLVD Midland TX 79706	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice
7	9314 8699 0430 0061 2851 81	COG OPERATING LLC 600 W ILLINOIS AVE Midland TX 79701	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice
8	9314 8699 0430 0061 2851 98	CAZA OPERATING, LLC 200 N LORIANE ST, SUITE 1550 Midland TX 79701	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice
9	9314 8699 0430 0061 2852 04	CHEVRON USA INC 6301 DEAUVILLE BLVD Midland TX 79706	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice
10	9314 8699 0430 0061 2852 11	FRANKLIN MOUNTAIN ENERGY LL 123 W MILLS AVE STE 600 El Paso TX 79901	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice
11	9314 8699 0430 0061 2852 28	COG PRODUCTION LLC 600 W ILLINOIS AVE Midland TX 79701	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice
12	9314 8699 0430 0061 2852 35	OCCIDENTAL PERMIAN LP 5 E GREENWAY PLAZA #110 Houston TX 77046	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice
13	9314 8699 0430 0061 2852 42	BETTIS BROTHERS INC 500 W TEXAS #830 Midland TX 79701	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice
14	9314 8699 0430 0061 2852 59	TRITEX ENERGY A LP 15455 DALLAS PKWY STE 600 Addison TX 75001	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice
15	9314 8699 0430 0061 2852 66	WESTALL OIL & GAS LLC PO BOX 4, LOCO HILLS Loco Hills NM 88255	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice



05

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

PS Form 3877

Type of Mailing: CERTIFIED MAIL
07/17/2019



Firm Mailing Book ID: 171022

Line	USPS Article Number	Name, Street, City, State, Zip	Postage	Service Fee	RR Fee	Rest.Del.Fee	Reference Contents
16	9314 8699 0430 0061 2852 73	ONEENERGY PTRNS OPER 2929 ALLEN PKWY STE 200 Houston TX 77019	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice
17	9314 8699 0430 0061 2852 80	ENDURANCE PROPERTIES INC 15455 DALLAS PKWY STE 1050 Addison TX 75001	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice
18	9314 8699 0430 0061 2852 97	DEVON ENERGY PROD CO LP 333 W SHERIDAN AVE Oklahoma City OK 73102	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice
19	9314 8699 0430 0061 2853 03	CAZA PETROLEUM, LLC. 16945 NORTHCHASE DR. STE 1430 Houston TX 77060	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice
20	9314 8699 0430 0061 2853 10	LILLIS ENERGY INC 300 E SONTERRA BLVD # 122 Houston TX 77019	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice
21	9314 8699 0430 0061 2853 27	AMEREDEV NEW MEXICO LLC 5707 SOUTHWEST PKWY STE 1- 275 San Antonio TX 78258	\$1.45	\$3.50	\$1.60	\$0.00	87806.003 Osprey Notice
Totals:			\$30.45	\$73.50	\$33.60	\$0.00	
				Grand Total:		\$137.55	

List Number of Pieces
Listed by Sender

Total Number of Pieces
Received at Post Office

Postmaster:
Name of receiving employee

Dated:

21



96

Transaction Report Details - CertifiedPro.net
 Firm Mail Book ID= 171022
 Generated: 8/5/2019 1:08:12 PM

USPS Article Number	Date Created	Reference Number	Name 1	Address	City	State	Zip	Mailing Status	Service Options	Mail Delivery Date
9314869904300061285327	2019-07-17 10:42 AM	87806.003 Osprey	AMEREDEV NEW MEXICO LLC	5707 SOUTHWEST PKWY STE 1- 275	San Antonio	TX	78258	Mailed	Return Receipt - Electronic, Certified Mail	
9314869904300061285310	2019-07-17 10:42 AM	87806.003 Osprey	LILLIS ENERGY INC	300 E SONTERRA BLVD # 122	Houston	TX	77019	Mailed	Return Receipt - Electronic, Certified Mail	
9314869904300061285303	2019-07-17 10:42 AM	87806.003 Osprey	CAZA PETROLEUM, LLC	16945 NORTHCHASE DR. STE 1430	Houston	TX	77060	Undelivered	Return Receipt - Electronic, Certified Mail	
9314869904300061285297	2019-07-17 10:42 AM	87806.003 Osprey	DEVON ENERGY PROD CO LP	333 W SHERIDAN AVE	Oklahoma City	OK	73102	Delivered	Return Receipt - Electronic, Certified Mail	07-22-2019
9314869904300061285280	2019-07-17 10:42 AM	87806.003 Osprey	ENDURANCE PROPERTIES INC	15455 DALLAS PKWY STE 1050	Addison	TX	75001	Delivered	Return Receipt - Electronic, Certified Mail	07-23-2019
9314869904300061285273	2019-07-17 10:42 AM	87806.003 Osprey	ONEENERGY PTRNS OPER	2929 ALLEN PKWY STE 200	Houston	TX	77019	Delivered	Return Receipt - Electronic, Certified Mail	07-22-2019
9314869904300061285266	2019-07-17 10:42 AM	87806.003 Osprey	WESTALL OIL & GAS LLC	PO BOX 4, LOCO HILLS	Loco Hills	NM	88255	Delivered	Return Receipt - Electronic, Certified Mail	07-22-2019
9314869904300061285259	2019-07-17 10:42 AM	87806.003 Osprey	TRITEX ENERGY A LP	15455 DALLAS PKWY STE 600	Addison	TX	75001	Delivered	Return Receipt - Electronic, Certified Mail	07-23-2019
9314869904300061285242	2019-07-17 10:42 AM	87806.003 Osprey	BETTIS BROTHERS INC	500 W TEXAS #830	Midland	TX	79701	To be Returned	Return Receipt - Electronic, Certified Mail	
9314869904300061285235	2019-07-17 10:42 AM	87806.003 Osprey	OCCIDENTAL PERMIAN LP	5 E GREENWAY PLAZA #110	Houston	TX	77046	Delivered	Return Receipt - Electronic, Certified Mail	07-22-2019
9314869904300061285228	2019-07-17 10:42 AM	87806.003 Osprey	COG PRODUCTION LLC	600 W ILLINOIS AVE	Midland	TX	79701	Delivered	Return Receipt - Electronic, Certified Mail	07-22-2019
9314869904300061285211	2019-07-17 10:42 AM	87806.003 Osprey	FRANKLIN MOUNTAIN ENERGY LLC	123 W MILLS AVE STE 600	El Paso	TX	79901	Delivered	Return Receipt - Electronic, Certified Mail	07-19-2019
9314869904300061285204	2019-07-17 10:42 AM	87806.003 Osprey	CHEVRON USA INC	6301 DEAUVILLE BLVD	Midland	TX	79706	Undelivered	Return Receipt - Electronic, Certified Mail	
9314869904300061285198	2019-07-17 10:42 AM	87806.003 Osprey	CAZA OPERATING, LLC	200 N LORIANE ST, SUITE 1550	Midland	TX	79701	Delivered	Return Receipt - Electronic, Certified Mail	07-22-2019
9314869904300061285181	2019-07-17 10:42 AM	87806.003 Osprey	COG OPERATING LLC	600 W ILLINOIS AVE	Midland	TX	79701	Delivered	Return Receipt - Electronic, Certified Mail	07-22-2019
9314869904300061285174	2019-07-17 10:42 AM	87806.003 Osprey	CHEVRON U S A INC	6301 DEAUVILLE BLVD	Midland	TX	79706	Undelivered	Return Receipt - Electronic, Certified Mail	
9314869904300061285167	2019-07-17 10:42 AM	87806.003 Osprey	BUREAU OF LAND MGMT	301 Dinosaur Trail	Santa Fe	NM	87508	Undelivered	Return Receipt - Electronic, Certified Mail	
9314869904300061285150	2019-07-17 10:42 AM	87806.003 Osprey	NEW MEXICO STATE LAND OFFICE	P.O. Box 1148	Santa Fe	NM	87504	Delivered	Return Receipt - Electronic, Certified Mail	07-19-2019
9314869904300061285143	2019-07-17 10:42 AM	87806.003 Osprey	NGL WATER SOLUTIONS PERMIAN, LLC	1509 W Wall St., Ste. 306	Midland	TX	79701	Delivered	Return Receipt - Electronic, Certified Mail	07-22-2019
9314869904300061285136	2019-07-17 10:42 AM	87806.003 Osprey	Oil Conservation Division District I - Hobbs	1625 N. French Drive,	Hobbs	NM	88240	Delivered	Return Receipt - Electronic, Certified Mail	07-20-2019
9314869904300061285129	2019-07-17 10:42 AM	87806.003 Osprey	Oil Conservation Division District IV	1220 South St. Francis Drive	Santa Fe	NM	87505	Delivered	Return Receipt - Electronic, Certified Mail	07-19-2019

Affidavit of Publication

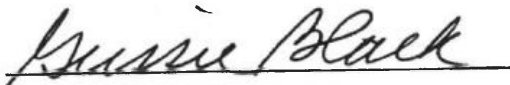
STATE OF NEW MEXICO
COUNTY OF LEA

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
July 19, 2019
and ending with the issue dated
July 19, 2019.

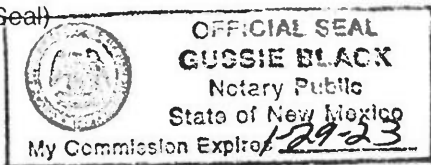

Publisher

Sworn and subscribed to before me this
19th day of July 2019.


Business Manager

My commission expires
January 29, 2023

(Seal)



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 NOTICE JULY 19, 2019	
<p>CASE NO. 20658: Notice to all affected parties, as well as the heirs and devisees of OIL CONSERVATION DIVISION DISTRICT IV, OIL CONSERVATION DIVISION DISTRICT I - HOBBS, NGL WATER SOLUTIONS PERMIAN LLC, NEW MEXICO STATE LAND OFFICE, BUREAU OF LAND MGMT, CHEVRON USA INC, COG OPERATING LLC, CAZA OPERATING LLC, FRANKLIN MOUNTAIN ENERGY LLC, COG PRODUCTION LLC, OCCIDENTAL PERMIAN LP, BETTIS BROTHERS INC, TRITEX ENERGY A LP, WESTALL OIL & GAS LLC, ONEENERGY PTRNS OPER, ENDURANCE PROPERTIES INC, DEVON ENERGY PROD CO LP, CAZA PETROLEUM LLC, LILLIS ENERGY INC, AMEREDEV NEW MEXICO LLC of NGL Water Solutions Permian, LLC application 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 August 8, 2019, to consider this application. Applicant seeks an order approving disposal into the Devonian-Silurian formation through the Osprey SWD #1 well at a surface location 470 feet from the South line and 208 feet from the West line of Section 25, Township 25 South, Range 35 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well. NGL seeks authority to inject salt water into the Devonian-Silurian formation at a depth of 18,114' to 20,109'. 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 location is approximately 10.7 miles west of Jal, New Mexico.</p> <p>#34459</p>	

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DOLORES SERNA
MODRALL, SPERLING, ROEHL, HARRIS &
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ALBUQUERQUE, NM 87103-2168