

SWD Initial Application

Received: 09/25/19

| | | | |
|--------------------------|-----------|------------------|------------------------------|
| RECEIVED: 9/25/19 | REVIEWER: | TYPE: SWD | APP NO: pDM1926961012 |
|--------------------------|-----------|------------------|------------------------------|

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: _____ OGRID Number: _____
 Well Name: _____ API: _____
 Pool: _____ Pool Code: _____

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

| <u>FOR OCD ONLY</u> | |
|--------------------------|------------------------------|
| <input type="checkbox"/> | Notice Complete |
| <input type="checkbox"/> | 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.

 Print or Type Name

Layne Fisher

 Signature

9-25-2019

 Date

 Phone Number

 e-mail Address



Mr. Phillip Goetze
New Mexico Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87505

Re: C-108 Application for Authorization to Inject
Permian Oilfield Partners, LLC
Polaris State SWD #1
1343' FSL & 248' FWL
Sec 2, T25S, R35E
Lea County, NM

Mr. Goetze,
Attached is a C-108 application for administrative approval of Permian Oilfield Partners LLC's proposed Polaris State SWD #1 located in Sec 2, Twp 25S, Rge 35E, Lea County, New Mexico. This well will be completed open hole in the Devonian-Silurian formation and will be operated as a commercial salt water disposal well.

Similar application exhibits were sent to all Affected Persons. The distribution list and proof of mailing, as well as affidavit of publication are enclosed. A copy of this application has also been sent to NM OCD District 1 in Hobbs.

If you have any questions, please contact us at (817)606-7630.

Sincerely,

A handwritten signature in blue ink that reads "Sean Puryear".

Sean Puryear
Permian Oilfield Partners, LLC
spuryear@popmidstream.com

Date: 9-25-2019

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: **Disposal**
Application qualifies for administrative approval? **Yes**
- II. OPERATOR: **Permian Oilfield Partners, LLC.**
ADDRESS: **P.O. Box 3329, Hobbs, NM 88241**
CONTACT PARTY: **Sean Puryear** PHONE: **(817) 600-8772**
- 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? **No**
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-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: **Sean Puryear**

TITLE: **Manager**

SIGNATURE: 

DATE: 9-24-2019

E-MAIL ADDRESS: **spuryear@popmidstream.com**

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted.

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.

Additional Data

1. **Is this a new well drilled for injection?**
Yes
2. **Name of the Injection Formation:**
Devonian: Open Hole Completion
3. **Name of Field or Pool (if applicable):**
SWD; Devonian-Silurian
4. **Has the well ever been perforated in any other zone(s)?**
No: New Drill for Injection of Produced Water
5. **Give the name and depths of any oil or gas zones underlying or overlying the proposed Injection zone in this area:**

Overlying Potentially Productive Zones:
Delaware, Bone Spring, Wolfcamp, Strawn, Atoka & Morrow Tops all above 14,424'

Underlying Potentially Productive Zones:
None

WELL CONSTRUCTION DATA

Permian Oilfield Partners, LLC.
Polaris State SWD #1
1343' FSL, 248' FWL
Sec. 2, T25S, R35E, Lea Co. NM
Lat 32.1558112° N, Lon 103.3460499° W
GL 3216', RKB 3246'

Surface - (Conventional)

Hole Size: 26" Casing: 20" - 94# H-40 STC Casing
Depth Top: Surface
Depth Btm: 850'
Cement: 537 sks - Class C + Additives
Cement Top: Surface - (Circulate)

Intermediate #1 - (Conventional)

Hole Size: 17.5" Casing: 13.375" - 61# J-55 STC Casing
Depth Top: Surface
Depth Btm: 5157'
Cement: 1669 sks - Lite Class C (50:50:10) + Additives
Cement Top: Surface - (Circulate)

Intermediate #2 - (Conventional)

Hole Size: 12.25" Casing: 9.625" - 40# L-80 & 40# HCL-80 BTC Casing
Depth Top: Surface
Depth Btm: 11789' ECP/DV Tool: 5257'
Cement: 2053 sks - Lite Class C (60:40:0) + Additives
Cement Top: Surface - (Circulate)

Intermediate #3 - (Liner)

Hole Size: 8.5" Casing: 7.625" - 39# HCL-80 FJ Casing
Depth Top: 11589'
Depth Btm: 16558'
Cement: 247 sks - Lite Class C (60:40:0) + Additives
Cement Top: 11589' - (Volumetric)

Intermediate #4 - (Open Hole)

Hole Size: 6.5" Depth: 18429'
Inj. Interval: 16558' - 18429' (Open-Hole Completion)

Tubing - (Tapered)

Tubing Depth: 16513' Tubing: 7" - 26# HCP-110 FJ Casing & 5.5" 17# HCL-80
X/O Depth: 11589' FJ Casing (Fiberglass Lined)
X/O: 7" 26# HCP-110 FJ Casing - X - 5.5" 17# HCL-80 FJ Casing (Fiberglass Lined)
Packer Depth: 16523' Packer: 5.5" - Perma-Pak or Equivalent (Inconel)

WELLBORE SCHEMATIC

Permian Oilfield Partners, L.L.C.

Polaris State SWD #1

1343' FSL, 248' FWL

Sec. 2, T25S, R35E, Lea Co. NM

Lat 32.1558112° N, Lon 103.3460499° W

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Cement: 1669 sks - Lite Class C (50:50:10) + Additives
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Depth Top: Surface
Depth Btm: 11789'
Cement: 2053 sks - Lite Class C (60:40:0) + Additives
Cement Top: Surface - (Circulate)
ECP/DV Tool: 5257'

Intermediate #3 - (Liner)

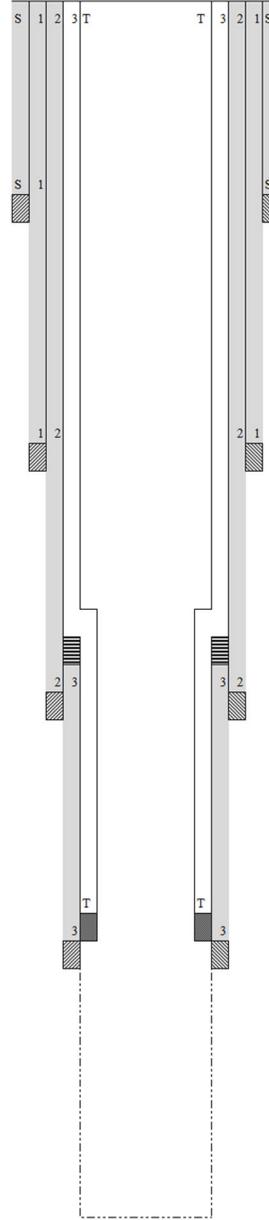
Hole Size: 8.5"
Casing: 7.625" - 39# HCL-80 FJ Casing
Depth Top: 11589'
Depth Btm: 16558'
Cement: 247 sks - Lite Class C (60:40:0) + Additives
Cement Top: 11589' - (Volumetric)

Intermediate #4 - (Open Hole)

Hole Size: 6.5"
Depth: 18429'
Inj. Interval: 16558' - 18429' (Open-Hole Completion)

Tubing - (Tapered)

Tubing Depth: 16513'
Tubing: 7" - 26# HCP-110 FJ Casing & 5.5" 17# HCL-80 FJ Casing (Fiberglass Lined)
X/O Depth: 11589'
X/O: 7" 26# HCP-110 FJ Casing - X - 5.5" 17# HCL-80 FJ Casing (Fiberglass Lined)
Packer Depth: 16523'
Packer: 5.5" - Perma-Pak or Equivalent (Inconel)



VI: There is one well within the proposed injection well's 1 mile area of review that penetrates the Devonian Formation. The well name is the Reno Com #1, API # 30-025-26867. The original well operator, Florida Exploration Corp. plugged the well in 1990. Robert Landreth permitted a re-entry to this well in 2000, but the permit expired without the re-entry having been performed, and the well was released to the State in P&A status. Please see attached P&A well documentation at end of application.

VII:

1. The average injected volume anticipated is 40,000 BWPD
The maximum injected volume anticipated is 50,000 BWPD
2. Injection will be through a closed system
3. The average injection pressure anticipated is 2,000 psi
The proposed maximum injection pressure is 3,312 psi
4. Disposal Sources will be produced waters from surrounding wells in the Delaware, Avalon, Bone Spring and Wolfcamp formations. These formation waters are known to be compatible with Devonian formation water. Representative area produced water analyses were sourced from Go-Tech's website and are listed below.

| WELL NAME | FIGHTING OKRA 18 FEDERAL COM #001H | SALADO DRAW 6 FEDERAL #001H | RATTLESNAKE 13 12 FEDERAL COM #001H | SNAPPING 2 STATE #014H |
|--------------------|---------------------------------------|--------------------------------|--|---------------------------|
| API | 3002540382 | 3002541293 | 3002540912 | 3001542688 |
| Latitude | 32.0435333 | 32.0657196 | 32.0369568 | 32.06555986 |
| Longitude | -103.5164566 | -103.5146942 | -103.416214 | -103.7413815 |
| Section | 18 | 6 | 13 | 2 |
| Township | 26S | 26S | 26S | 26S |
| Range | 34E | 34E | 34E | 31E |
| Unit | E | M | P | P |
| Ftg NS | 2590N | 200S | 330S | 250S |
| Ftg EW | 330W | 875W | 330E | 330E |
| County | Lea | Lea | Lea | EDDY |
| State | NM | NM | NM | NM |
| Formation | AVALON UPPER | BONE SPRING 3RD SAND | DELAWARE-BRUSHY CANYON | WOLFCAMP |
| Sample Date | 42046 | 41850 | 41850 | 42284 |
| PH | 8 | 6.6 | 6.2 | 7.3 |
| TDS mgL | 201455.9 | 99401.9 | 243517.1 | 81366.4 |
| Resistivity Ohm-cm | 0.032 | 0.064 | 0.026 | 0.1004 |
| Sodium_mgL | 66908.6 | 34493.3 | 73409.8 | 26319.4 |
| Calcium_mgL | 9313 | 3295 | 15800 | 2687.4 |
| Iron_mgL | 10 | 0.4 | 18.8 | 26.1 |
| Magnesium_mgL | 1603 | 396.8 | 2869 | 326.7 |
| Manganese_mgL | 1.6 | 0.37 | 3.12 | |
| Chloride_mgL | 121072.7 | 59986.5 | 149966.2 | 50281.2 |
| Bicarbonate_mgL | 1024.8 | 109.8 | 48.8 | |
| Sulfate_mgL | 940 | 710 | 560 | 399.7 |
| CO2_mgL | 1950 | 70 | 200 | 100 |

5. Devonian water analysis from the area of review is unavailable. Representative area water analyses were sourced from Go-Tech's website and are listed below.

| WELL NAME | ANTELOPE RIDGE UNIT #003 | BELL LAKE UNIT #006 |
|-----------------|--------------------------|---------------------|
| API | 3002521082 | 3002508483 |
| Latitude | 32.2593155 | 32.3282585 |
| Longitude | -103.4610748 | -103.507103 |
| Sec | 34 | 6 |
| Township | 23S | 23S |
| Range | 34E | 34E |
| Unit | K | O |
| Ftg NS | 1980S | 660S |
| Ftg EW | 1650W | 1980E |
| County | LEA | LEA |
| State | NM | NM |
| Field | ANTELOPE RIDGE | BELL LAKE NORTH |
| Formation | DEVONIAN | DEVONIAN |
| Sample Source | UNKNOWN | HEATER TREATER |
| PH | 6.9 | 7 |
| TDS_mgL | 80187 | 71078 |
| Chloride_mgL | 42200 | 47900 |
| Bicarbonate_mgL | 500 | 476 |
| Sulfate_mgL | 1000 | 900 |

VIII: Injection Zone Geology

Fluid injection will take place in the Devonian-Silurian formations. This sequence is bounded above by the Upper Devonian Woodford shale. Underlying the Woodford is the first injection formation, the Devonian, consisting of dolomitic carbonates & chert, followed by the Upper Silurian dolomites, and the Lower Silurian Fusselman dolomite. The lower bound of the injection interval is the limestone of the Upper Ordovician Montoya. This proposed well will TD above the top of the Montoya, and will not inject fluids into the Montoya itself, in order to provide a sufficient barrier to preclude fluid injection into the Middle Ordovician Simpson, the Lower Ordovician Ellenburger, the Cambrian, and the PreCambrian below.

Injection zone porosities are expected to range from 0% to a high of 8%, with the higher ranges being secondary porosity in the form of vugs & fractures due to weathering effects, with occasional interbedded shaly intervals. Permeabilities in the 2-3% porosity grainstone intervals are estimated to be in the 10-15 mD range, with the higher porosity intervals conservatively estimated to be in the 40-50 mD range. It is these intervals of high secondary porosity and associated high permeability that are expected to take the majority of the injected water.

The Devonian-Silurian sequence is well suited for SWD purposes, with a low permeability shale barrier overlying the injection interval to prevent upward fluid migrations to USDW's, sufficient permeabilities and porosities in zone, and multiple formations available over a large depth range. This large injection depth range means there is a large injection surface area available, allowing for low injection pressures at high injection rates.

Permian Oilfield Partners, LLC.
Polaris State SWD #1
1343' FSL, 248' FWL
Sec. 2, T25S, R35E, Lea Co. NM
Lat 32.1558112° N, Lon 103.3460499° W
GL 3216', RKB 3246'

| GEOLOGY PROGNOSIS | | | |
|--------------------------------|---------------------------|------------------------------|--------------------------|
| FORMATION | TOP KB TVD (ft) | BOTTOM KB TVD (ft) | THICKNESS (ft) |
| Salt | 1,228 | 3,500 | 2,272 |
| Delaware | 5,132 | 8,683 | 3,551 |
| Bone Spring | 8,683 | 11,739 | 3,056 |
| Wolfcamp | 11,739 | 12,317 | 578 |
| Lwr. Mississippian | 15,892 | 16,281 | 389 |
| Woodford | 16,281 | 16,523 | 242 |
| Devonian | 16,523 | 17,602 | 1,079 |
| Fusselman (Silurian) | 17,602 | 18,454 | 852 |
| Montoya (U. Ordovician) | 18,454 | 18,994 | 540 |
| Simpson (M. Ordovician) | 18,994 | 19,919 | 925 |

2. According to the New Mexico Office of the State Engineer, there is 1 fresh water well drilled within the proposed well's one-mile area of review, indicating fresh water in the Quaternary, at depths shallower than 510'. Regionally, shallow fresh water is known to exist at depths less than 510'. There are no underground sources of fresh water present below the injection interval.

IX: Formation chemical stimulation with 40,000 gals of 15% Hydrochloric Acid is planned after well completion.

X: A compensated neutron/gamma ray log will be run from surface to TD upon well completion. All logs will be submitted to the NMOCD upon completion.

XI: According to the New Mexico Office of the State Engineer, there is 1 fresh water well drilled within the proposed well's one-mile area of review, as shown in the table below. The well was unable to be located, and a sample was not taken.

| Well Name | Formation Name | Depth Top | Depth Bottom | Thickness | Status |
|------------------|-----------------------|------------------|---------------------|------------------|------------------|
| CP 00624 | Quaternary | Unknown | 510' | Unknown | Not found |

XII: Hydrologic affirmative statement attached.

XIII: Proof of notice and proof of publication attached.

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

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

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

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

| | | | | | |
|---|--|---|--|---|--|
| ¹ API Number 30-025- | | ² Pool Code 97869 | | ³ Pool Name SWD; DEVONIAN-SILURIAN | |
| ⁴ Property Code | | ⁵ Property Name POLARIS STATE SWD | | | ⁶ Well Number 1 |
| ⁷ OGRID NO. 328259 | | ⁸ Operator Name PERMIAN OILFIELD PARTNERS, LLC | | | ⁹ Elevation 3216' |

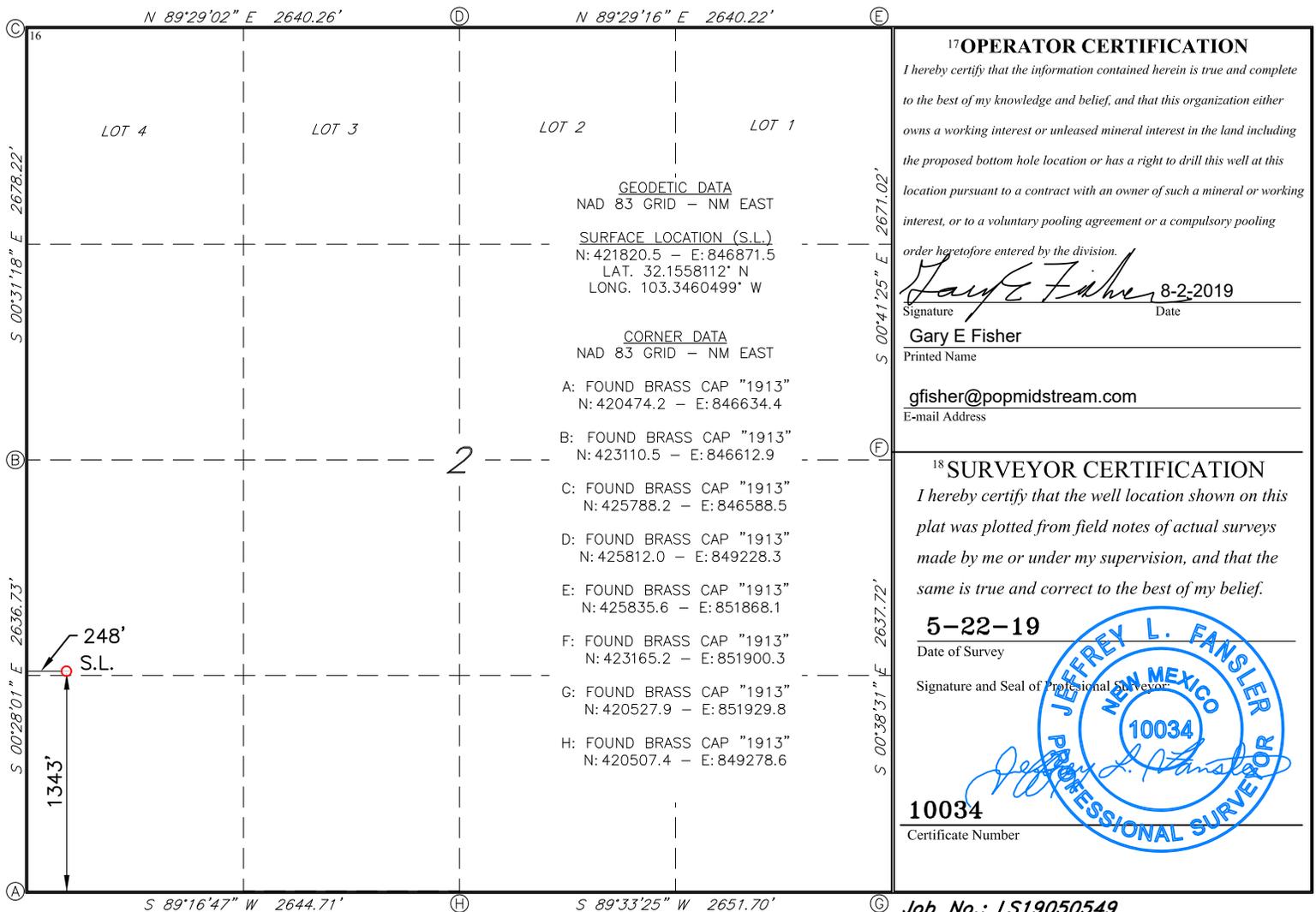
¹⁰ Surface Location

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet From the | East/West line | County |
|---------------|----------|------------|------------|---------|---------------|------------------|---------------|----------------|------------|
| L | 2 | 25S | 35E | | 1343 | SOUTH | 248 | WEST | LEA |

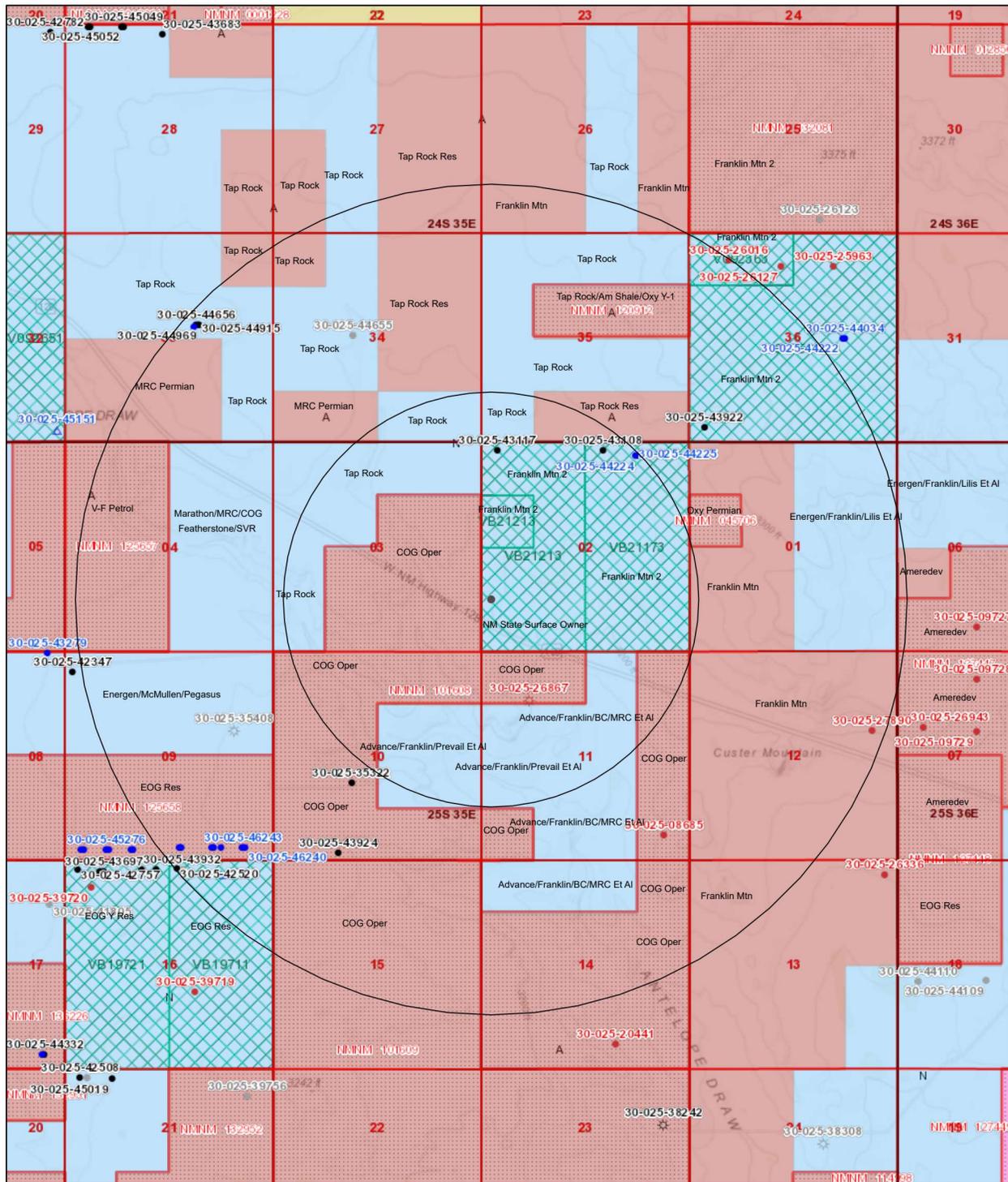
¹¹ Bottom Hole Location If Different From Surface

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|-------------------------------|---------|-------------------------------|-------|----------------------------------|---------------|-------------------------|---------------|----------------|--------|
| | | | | | | | | | |
| ¹² Dedicated Acres | | ¹³ Joint or Infill | | ¹⁴ Consolidation Code | | ¹⁵ Order No. | | | |
| | | | | | | | | | |

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

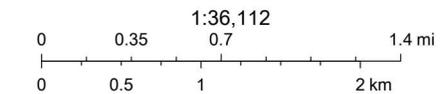


Polaris State SWD #1, 1 & 2 Mile AOR



9/20/2019, 12:12:33 PM

- | | | |
|-------------------------------------|----------------------------------|--|
| Override 1 | Gas Active | Oil, Plugged |
| Well Locations - Small Scale | Gas, Cancelled, Never Drilled | Oil, Temporarily Abandoned |
| Active | Gas, New | Salt Water Injection, Active |
| New | Gas, Plugged | Salt Water Injection, Cancelled |
| Plugged | Gas, Temporarily Abandoned | Salt Water Injection, New |
| Cancelled | Injection, Active | Salt Water Injection, Plugged |
| Temporarily Abandoned | Injection, Cancelled | Salt Water Injection Temporarily Abandoned |
| Well Locations - Large Scale | Injection, New | Water, Active |
| Miscellaneous | Injection, Plugged | Water, Cancelled |
| CO2 Active | Injection, Temporarily Abandoned | Water, New |
| CO2 Cancelled | Oil, Active | Water, Plugged |
| CO2 New | Oil, Cancelled | Water, Temporarily Abandoned |
| CO2, Plugged | Oil, New | PLSS First Division |
| CO2, Temporarily Abandoned | | |



U.S. BLM
 Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c)

Polaris State SWD #1 - Wells within 1 Mile Area of Review

| API Number | Current Operator | Well Name | Well Number | Well Type | Well Direction | Well Status | Section | Township | Range | OCD Unit Letter | Surface Location | Bottomhole Location | Formation | IMD | TVD |
|--------------|----------------------------------|-----------------------|-------------|-----------|----------------|------------------------|---------|----------|-------|-----------------|--------------------------------------|--------------------------------|-----------|-------|-------|
| 30-025-26867 | PACIFIC ENTERPRISES OIL CO (USA) | RENO COM | #001 | Gas | Vertical | Plugged, Site Released | 11 | T25S | R35E | D | D-11-25S-35E 1200 FNL 1200 FWL | D-11-25S-35E 1200 FNL 1200 FWL | FUSSELMAN | 19170 | 19170 |
| 30-025-43108 | Franklin Mountain Energy 2 LLC | PARADE BWY STATE | #001H | Oil | Horizontal | Active | 02 | T25S | R35E | B | B-02-25S-35E Lot: 2 200 FNL 2200 FEL | G-11-25S-35E 2290 FNL 2290 FEL | WOLFCAMP | 19209 | 12265 |
| 30-025-43117 | Franklin Mountain Energy 2 LLC | COUNTY FAIR BTY STATE | #001H | Oil | Horizontal | Active | 02 | T25S | R35E | D | D-02-25S-35E Lot: 4 200 FNL 400 FWL | M-02-25S-35E 330 FSL 400 FWL | WOLFCAMP | 16315 | 12012 |
| 30-025-44224 | Franklin Mountain Energy 2 LLC | PARADE WCB STATE COM | #001H | Oil | Horizontal | New | 02 | T25S | R35E | B | B-02-25S-35E Lot: 2 345 FNL 1321 FEL | O-11-25S-35E 380 FSL 1700 FEL | WOLFCAMP | 21858 | 12204 |
| 30-025-44225 | Franklin Mountain Energy 2 LLC | PARADE WCXY STATE COM | #001H | Oil | Horizontal | New | 02 | T25S | R35E | B | B-02-25S-35E Lot: 2 345 FNL 1371 FEL | O-11-25S-35E 380 FSL 1980 FEL | WOLFCAMP | 21637 | 11963 |



Statement of Notifications

Re: C-108 Application for Authorization to Inject
 Permian Oilfield Partners, LLC
 Polaris State SWD #1
 1343' FSL & 248' FWL
 Sec 2, T25S, R35E
 Lea County, NM

Permian Oilfield Partners, LLC has mailed notifications to Affected Persons as per the following list:

| Polaris State SWD #1 - Affected Persons within 1 Mile Area of Review | | | | | | |
|--|---|--------------------------------|------------------------------------|---------|------------------------|--------------|
| Notified Name | Notified Address | Notified City, State, ZIP Code | Lease Location | Shipper | Tracking No. | Mailing Date |
| Bureau Of Land Management | 620 E Greene St. | Carlsbad, NM 88220 | | USPS | 9414811899561538706265 | 9/25/2019 |
| New Mexico State Land Office | 310 Old Santa Fe Trail | Santa Fe, NM 87501 | | USPS | 9414811899561538706012 | 9/25/2019 |
| Franklin Mountain Energy 2 LLC | 2401 E. 2nd Ave, Suite 300 | Denver, Colorado 80206 | Sec 2-25S-35E | USPS | 9414811899561538706975 | 9/25/2019 |
| Franklin Mountain Energy LLC | 123 W. Mills, Suite 600 | El Paso, TX 79901 | Sec 1, 10, 11, 12-25S-35E | USPS | 9414811899561538706685 | 9/25/2019 |
| COG Operating LLC | 600 W. Illinois Ave | Midland, TX 79701 | Sec 3, 10, 11-25S-35E | USPS | 9414811899561538706715 | 9/25/2019 |
| Tap Rock Resources LLC | 602 Park Point Dr, Suite 200 | Golden, CO 80401 | Sec 3-25S-35E & Sec 34, 35-24S-35E | USPS | 9414811899561538701864 | 9/25/2019 |
| MRC Permian Co. | 5400 LBJ Freeway, Suite 1500 | Dallas, TX 75240 | Sec 11-25S-35E & Sec 34-24S-35E | USPS | 9414811899561538706395 | 9/25/2019 |
| Occidental Permian LP | 5 Greenway Plaza, Suite 110 | Houston, TX 77046 | Sec 1-25S-35E | USPS | 9414811899561538706036 | 9/25/2019 |
| Ameredev New Mexico LLC | 5707 Southwest Parkway, Building 1, Suite 275 | Austin, TX 78735 | Sec 10, 11-25S-35E | USPS | 9414811899561538707484 | 9/25/2019 |
| Lilis Energy Inc. | 1800 Bering Dr., Suite 510 | Houston, TX 77057 | Sec 10, 11-25S-35E | USPS | 9414811899561538706166 | 9/25/2019 |
| Chief Capital (O&G) II LLC | 8111 Westchester, Suite 900 | Dallas, TX 75225 | Sec 10, 11-25S-35E | USPS | 9414811899561538706814 | 9/25/2019 |
| BC Operating Inc | PO Box 50820 | Midland, TX 79710 | Sec 10, 11-25S-35E | USPS | 9414811899561538707521 | 9/25/2019 |
| Robert Landreth | 110 W. Louisiana St., Suite 404 | Midland, TX 79701 | Sec 10, 11-25S-35E | USPS | 9414811899561538468193 | 9/25/2019 |
| OGX Acreage Fund LP | PO Box 2064 | Midland, TX 79702 | Sec 10, 11-25S-35E | USPS | 9414811899561538706470 | 9/25/2019 |
| Advance Energy Partners LLC | 11490 Westheimer Rd, Suite 950 | Houston, TX 77077 | Sec 10, 11-25S-35E | USPS | 9414811899561538707422 | 9/25/2019 |
| Prevail Energy LLC | 521 Dexter St. | Denver, CO 80220 | Sec 10, 11-25S-35E | USPS | 9414811899561538706579 | 9/25/2019 |
| Rheiner Holdings LLC | PO Box 980552 | Houston, TX 77098 | Sec 10, 11-25S-35E | USPS | 9414811899561538701284 | 9/25/2019 |
| Encanto Minerals LLC | 2929 Allen Pkwy., Suite 200 | Houston, TX 77019 | Sec 10, 11-25S-35E | USPS | 9414811899561538706920 | 9/25/2019 |
| Tierra Royalties LLC | 2929 Allen Pkwy., Suite 200 | Houston, TX 77019 | Sec 10, 11-25S-35E | USPS | 9414811899561538701765 | 9/25/2019 |
| Monticello Minerals LLC | 5528 Vickery Blvd. | Dallas, TX 75206 | Sec 10, 11-25S-35E | USPS | 9414811899561538706135 | 9/25/2019 |


 Sean Puryear
 Permian Oilfield Partners, LLC
spuryear@popmidstream.com

Date: 9/25/2019

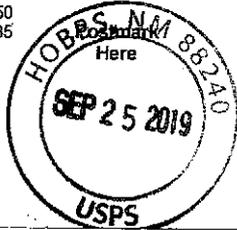
U.S. Postal Service **Certified Mail Receipt**

ARTICLE NUMBER: 9414 8118 9956 1538 7062 65

ARTICLE ADDRESSED TO:

Bureau of Land Management
620 E Greene St
Carlsbad NM 88220-6292

FEES
Postage Per Piece \$3.35
Certified Fee 3.50
Total Postage & Fees: 6.85



U.S. Postal Service **Certified Mail Receipt**

ARTICLE NUMBER: 9414 8118 9956 1538 7060 12

ARTICLE ADDRESSED TO:

New Mexico State Land Office
310 Old Santa Fe Trail
Santa Fe NM 87501-2708

FEES
Postage Per Piece \$3.35
Certified Fee 3.50
Total Postage & Fees: 6.85



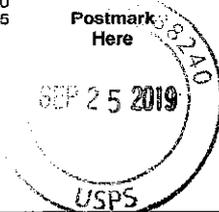
U.S. Postal Service **Certified Mail Receipt**

ARTICLE NUMBER: 9414 8118 9956 1538 7069 75

ARTICLE ADDRESSED TO:

Franklin Mountain Energy 2 LLC
2401 E. 2nd Ave, Suite 300
Denver CO 80206-4761

FEES
Postage Per Piece \$3.35
Certified Fee 3.50
Total Postage & Fees: 6.85



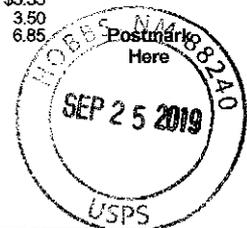
U.S. Postal Service **Certified Mail Receipt**

ARTICLE NUMBER: 9414 8118 9956 1538 7066 85

ARTICLE ADDRESSED TO:

Franklin Mountain Energy LLC
123 W. Mills Ave Suite 600
El Paso TX 79901-1577

FEES
Postage Per Piece \$3.35
Certified Fee 3.50
Total Postage & Fees: 6.85



U.S. Postal Service **Certified Mail Receipt**

ARTICLE NUMBER: 9414 8118 9956 1538 7067 15

ARTICLE ADDRESSED TO:

COG Operating LLC
600 W Illinois Ave
Midland TX 79701-4882

FEES
Postage Per Piece \$3.35
Certified Fee 3.50
Total Postage & Fees: 6.85



U.S. Postal Service **Certified Mail Receipt**

ARTICLE NUMBER: 9414 8118 9956 1538 7018 64

ARTICLE ADDRESSED TO:

Tap Rock Resources
602 Park Point Drive, Suite 200
Golden CO 80401-9359

FEES
Postage Per Piece \$3.35
Certified Fee 3.50
Total Postage & Fees: 6.85



U.S. Postal Service **Certified Mail Receipt**

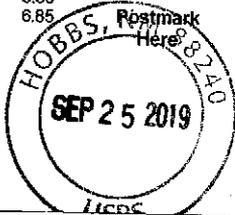
ARTICLE NUMBER: 9414 8118 9956 1538 7063 95

ARTICLE ADDRESSED TO:

MRC Permian
5400 LBJ Freeway, Suite 1500
Dallas TX 75240-1017

FEES

Postage Per Piece \$3.35
Certified Fee 3.50
Total Postage & Fees: 6.85



U.S. Postal Service **Certified Mail Receipt**

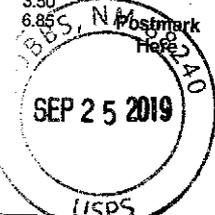
ARTICLE NUMBER: 9414 8118 9956 1538 7060 38

ARTICLE ADDRESSED TO:

Occidental Permian LP
5 Greenway Plaza, Suite 110
Houston TX 77046-0521

FEES

Postage Per Piece \$3.35
Certified Fee 3.50
Total Postage & Fees: 6.85



U.S. Postal Service **Certified Mail Receipt**

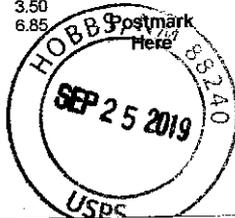
ARTICLE NUMBER: 9414 8118 9956 1536 7074 84

ARTICLE ADDRESSED TO:

Ameridev New Mexico LLC
5707 SW SW Parkway Building 1 Suite 275
Austin TX 78735

FEES

Postage Per Piece \$3.35
Certified Fee 3.50
Total Postage & Fees: 6.85



U.S. Postal Service **Certified Mail Receipt**

ARTICLE NUMBER: 9414 8118 9956 1538 7061 66

ARTICLE ADDRESSED TO:

Lilis Energy Inc.
1800 Bering Dr. Suite 510
Houston TX 77057-3158

FEES

Postage Per Piece \$3.35
Certified Fee 3.50
Total Postage & Fees: 6.85



U.S. Postal Service **Certified Mail Receipt**

ARTICLE NUMBER: 9414 8118 9956 1538 7068 14

ARTICLE ADDRESSED TO:

Chief Capital (O&G) II LLC
8111 Westchester Dr Suite 900
Dallas TX 75225-6146

FEES

Postage Per Piece \$3.35
Certified Fee 3.50
Total Postage & Fees: 6.85



U.S. Postal Service **Certified Mail Receipt**

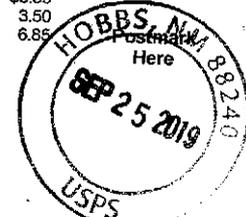
ARTICLE NUMBER: 9414 8118 9956 1538 7076 21

ARTICLE ADDRESSED TO:

BC Operating
PO BOX 50820
Midland TX 79710-0820

FEES

Postage Per Piece \$3.35
Certified Fee 3.50
Total Postage & Fees: 6.85



U.S. Postal Service **Certified Mail Receipt**

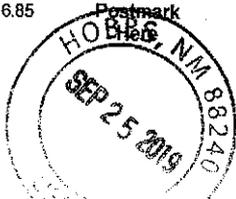
ARTICLE NUMBER: 9414 8118 9956 1538 1681 93

ARTICLE ADDRESSED TO:

Robert Landreth
110 W. Louisiana Ave Suite 404
Midland TX 79701-3486

FEES

| | |
|-----------------------|--------|
| Postage Per Piece | \$3.35 |
| Certified Fee | 3.50 |
| Total Postage & Fees: | 6.85 |



U.S. Postal Service **Certified Mail Receipt**

ARTICLE NUMBER: 9414 8118 9956 1538 7064 70

ARTICLE ADDRESSED TO:

OGX Acreage Fund LP
PO Box 2064
Midland TX 79702-2064

FEES

| | |
|-----------------------|--------|
| Postage Per Piece | \$3.35 |
| Certified Fee | 3.50 |
| Total Postage & Fees: | 6.85 |



U.S. Postal Service **Certified Mail Receipt**

ARTICLE NUMBER: 9414 8118 9956 1538 7074 22

ARTICLE ADDRESSED TO:

Advance Energy Partners LLC
11490 Westheimer Rd, Suite 950
Houston TX 77077-6841

FEES

| | |
|-----------------------|--------|
| Postage Per Piece | \$3.35 |
| Certified Fee | 3.50 |
| Total Postage & Fees: | 6.85 |



U.S. Postal Service **Certified Mail Receipt**

ARTICLE NUMBER: 9414 8118 9956 1538 7065 79

ARTICLE ADDRESSED TO:

Prevail Energy LLC
521 Dexter St.
Denver CO 80220-5035

FEES

| | |
|-----------------------|--------|
| Postage Per Piece | \$3.35 |
| Certified Fee | 3.50 |
| Total Postage & Fees: | 6.85 |



U.S. Postal Service **Certified Mail Receipt**

ARTICLE NUMBER: 9414 8118 9956 1538 7012 84

ARTICLE ADDRESSED TO:

Rheiner Holdings LLC
PO BOX 980552
Houston TX 77098-0552

FEES

| | |
|-----------------------|--------|
| Postage Per Piece | \$3.35 |
| Certified Fee | 3.50 |
| Total Postage & Fees: | 6.85 |



U.S. Postal Service **Certified Mail Receipt**

ARTICLE NUMBER: 9414 8118 9956 1538 7069 20

ARTICLE ADDRESSED TO:

Encanto Minerals LLC
2929 Allen Pkwy, Suite 200
Houston TX 77019-7123

FEES

| | |
|-----------------------|--------|
| Postage Per Piece | \$3.35 |
| Certified Fee | 3.50 |
| Total Postage & Fees: | 6.85 |



U.S. Postal Service Certified Mail Receipt

ARTICLE NUMBER: 9414 8118 9956 1538 7017 65

ARTICLE ADDRESSED TO:

Tierra Royalties LLC
2929 Allen Pkwy, Suite 200
Houston TX 77019-7123

FEES

| | |
|-----------------------|--------|
| Postage Per Piece | \$3.35 |
| Certified Fee | 3.50 |
| Total Postage & Fees: | 6.85 |



U.S. Postal Service Certified Mail Receipt

ARTICLE NUMBER: 9414 8118 9956 1538 7061 35

ARTICLE ADDRESSED TO:

Monticello Minerals LLC
5528 Vickery Blvd
Dallas TX 75206-6233

FEES

| | |
|-----------------------|--------|
| Postage Per Piece | \$3.35 |
| Certified Fee | 3.50 |
| Total Postage & Fees: | 6.85 |



Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA

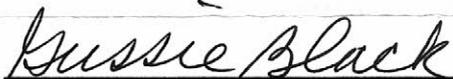
I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

Beginning with the issue dated
August 07, 2019
and ending with the issue dated
August 07, 2019.



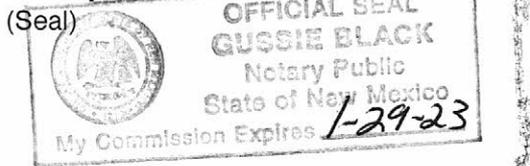
Publisher

Sworn and subscribed to before me this
7th day of August 2019.



Business Manager

My commission expires
January 29, 2023



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

LEGALS

LEGAL NOTICE
AUGUST 7, 2019

Permian Oilfield Partners, LLC, PO Box 3329, Hobbs, NM 88241, phone (817)606-7630, attention Gary Fisher, has filed form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking approval to drill a commercial salt water disposal well in Lea County, New Mexico. The well name is the Polaris State SWD #1, and is located 1343' FSL & 248' FWL, Unit Letter L, Section 2, Township 25 South, Range 35 East, NMPM. The well will dispose of water produced from nearby oil and gas wells into the Devonian formation from a depth of 16,558 feet to 18,429 feet. The maximum expected injection rate is 50,000 BWPD at a maximum surface injection pressure of 3,312 psi.

Interested parties must file objections or requests for hearing with the New Mexico Oil Conservation Division, 1220 South St. Francis Drive, Santa Fe, New Mexico, 87505 within 15 days.
#34541

67115647

00231821

GARY FISHER
PERMIAN OILFIELD PARTNERS, LLC
PO BOX 1220
STEPHENVILLE, TX 76401

Polaris State SWD #1, Water Wells Within 1 Mile



8/20/2019, 6:25:51 PM

Override 1

Points

Override 1

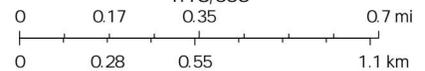
Override 3

PLSS First Division

PLSS Second Division

PLSS Townships

1:18,056



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



New Mexico Office of the State Engineer

Point of Diversion Summary

| Well Tag | POD Number | (quarters are 1=NW 2=NE 3=SW 4=SE) | | | | (quarters are smallest to largest) | | (NAD83 UTM in meters) | |
|-------------------------------------|------------|------------------------------------|-----|-------------------------|-----|------------------------------------|-----|-----------------------|----------|
| | | Q64 | Q16 | Q4 | Sec | Tws | Rng | X | Y |
| | CP 00624 | 4 | 1 | 1 | 11 | 25S | 35E | 656206 | 3558197* |
| Driller License: 46 | | Driller Company: | | ABBOTT BROTHERS COMPANY | | | | | |
| Driller Name: | | MURRELL ABBOTT | | | | | | | |
| Drill Start Date: 07/14/1980 | | Drill Finish Date: | | 07/17/1980 | | Plug Date: | | 07/17/1980 | |
| Log File Date: | | PCW Rcv Date: | | Source: | | | | | |
| Pump Type: | | Pipe Discharge Size: | | Estimated Yield: | | | | | |
| Casing Size: | | Depth Well: | | 510 feet | | Depth Water: | | | |

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

7/31/19 8:16 AM

POINT OF DIVERSION SUMMARY



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

| POD Number | POD Code | Sub-basin | County | Q 64 | Q 16 | Q 4 | Sec | Tws | Rng | X | Y | Distance | Well Depth | Water Column |
|--------------------------|----------|-----------|--------|------|------|-----|-----|-----|-----|--------|----------|----------|------------|--------------|
| CP 00624 | CP | LE | LE | 4 | 1 | 1 | 11 | 25S | 35E | 656206 | 3558197* | 746 | 510 | |
| C_02388 | CUB | LE | LE | | | 3 | 05 | 25S | 35E | 651467 | 3558832* | 4502 | 180 | 165 15 |
| C_02297 | CUB | LE | LE | 2 | 2 | 1 | 21 | 25S | 35E | 653436 | 3555140* | 4537 | 300 | 230 70 |
| C_02298 | CUB | LE | LE | 2 | 2 | 1 | 21 | 25S | 35E | 653436 | 3555140* | 4537 | 250 | 205 45 |

Average Depth to Water: **200 feet**

Minimum Depth: **165 feet**

Maximum Depth: **230 feet**

Record Count: 4

UTMNAD83 Radius Search (in meters):

Easting (X): 655969.123

Northing (Y): 3558904.732

Radius: 4828

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

8/20/19 5:18 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER



Item XII. Affirmative Statement

Re: C-108 Application for Authorization to Inject
Permian Oilfield Partners, LLC
Polaris State SWD #1
1343' FSL & 248' FWL
Sec 2, T25S, R35E
Lea County, NM

Permian Oilfield Partners, LLC. has 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.

A handwritten signature in black ink, appearing to read "Gary Fisher".

Gary Fisher
Manager
Permian Oilfield Partners, LLC.

Date: 8/2/2019

Section VI: P&A sundry notice & wellbore diagram for Reno Com #1, #30-025-26867

Form 3760-5
(December 1989)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: September 30, 1990

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals

5. Lease Designation and Serial No.
SRM-1538 NM-19209

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE

7. If Unit or CA, Agreement Designation

1. Type of Well

Oil Well Gas Well Other

8. Well Name and No.

Reno-Com #1

2. Name of Operator

Pacific Enterprises Oil Co. U.S. A.

9. API Well No.

3. Address and Telephone No.

P. O. Box 3083, Midland, Texas 79701 (915) 684-3861

10. Field and Pool, or Exploratory Area

Humphreys-Mills-Morrison

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

**1200' FNL & 1200' FWL
Sec. 11, T-25-S, R-35-E Unit B**

11. County or Parish, State

Lea, N. M.

12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION

TYPE OF ACTION

- Notice of Intent
- Subsequent Report
- Final Abandonment Notice

- Abandonment
- Recompletion
- Plugging Back
- Casing Repair
- Altering Casing
- Other

- Change of Plans
- New Construction
- Non Routine Fracturing
- Water Shut Off
- Conversion to Injection

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

| | | | |
|---------|--|---------|--------------------------|
| 6/19/90 | Baker Model D. B. Permian PKR. @ 14,490' | 20SKS | |
| 6/19/90 | Plug @ 12,550' | 150 SKS | Cement T&G @ 11,680' |
| 6/20/90 | Plug @ 8,090' | 80 SKS | Cement T&G @ |
| 6/20/90 | Plug @ 5,104' | 75 SKS | Cement T&G Plug @ 4,925' |
| 6/21/90 | Plug @ 3,570' | 50 SKS | Cement |
| 6/21/90 | Plug @ 1,200' | 50 SKS | Cement |
| 6/21/90 | Plug @ 465" | 50 SKS | Cement T&G Plug @ 345' |
| 6/22/90 | Plug @ Surf | 10 SKS | |

RECEIVED
 JUL 11 10 48 AM '90
 FEDERAL BUREAU OF LAND MANAGEMENT

API 30 025 26867

14. I hereby certify that the foregoing is true and correct

Signed Nancy Johnson Title Engineering Tech Date 7-10-90

(This space for Federal or State office use)

Approved by _____ Title PERMISSION ENGINEER Date 7-17-90

Conditions of approval, if any:

I hereby certify that the foregoing is true and correct. I am not a minor, and I am not a person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

EXHIBIT "A"
ROBERT E. LANDRETH
RENO FEDERAL COM. NO. 1
 1200' FNL & 1200' FWL, Sec. 11, T25S, R35E
 Lea County, NM
 Spud Date: 7-20-80 Plug Date: 6-22-90

| Plug Size & Depth | Existing Casing & Cement Plugs | Bit | Casing | Depth | Cement | |
|---|---|------|----------------------|-----------------------|--|------------|
| 10 0 sks. @ surface 50 0 sks. 465' to 345' (tagged) | | 26" | 20" 94# | 415' | 850 sks. | |
| 50 0 sks. spotted @ 1200' across top of Salt) | | | | | | |
| 50 0 sks. spotted @ 3570' across base of Salt) | | | | | | |
| 75 5 Sk. 5104' to 4925' (tagged) | | | 17½" | 13-3/8" 54#-72# | 5,029' | 6,000 sks. |
| 80 0 sks. spotted @ 8090' across DV tool) | | | | | | |
| 150 50 sks. 12,550' to 1,680' (tagged) | | 12¼" | 10-3/4" 51#-60.7# | 12,429' | Two Stages 1838 sks. & 1585 sks. | |
| Baker Model D.B. Perm. kr @ 14,490' capped /20 sks. cmt. | | | | | | |
| IBP @ 16,665' capped /17' cmt. | | | | | | |
| | Perfs: 15,246'-49' 15,260'-68' 15,390'-98' | 9½" | 7-3/4" 46.1# | 12,091' to 16,829' | 1130 sks. | |
| | | 6¼" | 5" 18#-23# | 16,667' to 19,170' | 235 sks. | |

Plugging Risk Assessment
Permian Oilfield Partners, LLC.
Polaris State SWD #1
1343' FSL & 248' FWL
Sec 2, T25S, R35E
Lea County, NM

WELLBORE SCHEMATIC

Permian Oilfield Partners, LLC.
Polaris State SWD #1
1343' FSL, 248' FWL
Sec. 2, T25S, R35E, Lea Co. NM
Lat 32.1558112° N, Lon 103.3460499° W
GL 3216', RKB 3246'

Surface - (Conventional)

Hole Size: 26"
Casing: 20" - 94# H-40 STC Casing
Depth Top: Surface
Depth Btm: 850'
Cement: 537 sks - Class C + Additives
Cement Top: Surface - (Circulate)

Intermediate #1 - (Conventional)

Hole Size: 17.5"
Casing: 13.375" - 61# J-55 STC Casing
Depth Top: Surface
Depth Btm: 5157'
Cement: 1669 sks - Lite Class C (50:50:10) + Additives
Cement Top: Surface - (Circulate)

Intermediate #2 - (Conventional)

Hole Size: 12.25"
Casing: 9.625" - 40# L-80 & 40# HCL-80 BTC Casing
Depth Top: Surface
Depth Btm: 11789'
Cement: 2053 sks - Lite Class C (60:40:0) + Additives
Cement Top: Surface - (Circulate)
ECP/DV Tool: 5257'

Intermediate #3 - (Liner)

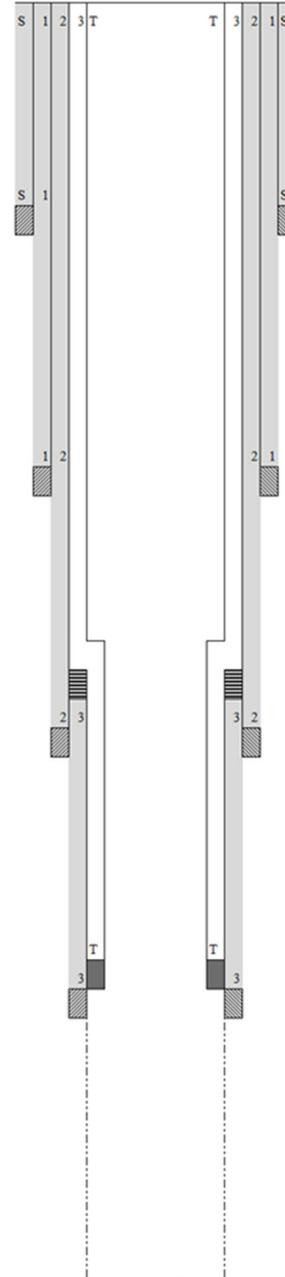
Hole Size: 8.5"
Casing: 7.625" - 39# HCL-80 FJ Casing
Depth Top: 11589'
Depth Btm: 16558'
Cement: 247 sks - Lite Class C (60:40:0) + Additives
Cement Top: 11589' - (Volumetric)

Intermediate #4 - (Open Hole)

Hole Size: 6.5"
Depth: 18429'
Inj. Interval: 16558' - 18429' (Open-Hole Completion)

Tubing - (Tapered)

Tubing Depth: 16513'
Tubing: 7" - 26# HCP-110 FJ Casing & 5.5" 17# HCL-80 FJ Casing (Fiberglass Lined)
X/O Depth: 11589'
X/O: 7" 26# HCP-110 FJ Casing - X - 5.5" 17# HCL-80 FJ Casing (Fiberglass Lined)
Packer Depth: 16523'
Packer: 5.5" - Perma-Pak or Equivalent (Inconel)



7" UFJ Tubing Inside of 9 5/8" 40# Casing

Bowen Series 150 Releasing and Circulation Overshots

Maximum Catch Size 6 5/8" to 7 1/8" Inclusive

| Maximum Catch Size (Spiral) | | 6 5/8" | 6 3/4" | 7" | 7 1/8" |
|-----------------------------|----------|--------|--------|--------|--------|
| Maximum Catch Size (Basket) | | 5 3/4" | 6 1/8" | 6 5/8" | 6 5/8" |
| Overshot O.D. | | 8 1/4" | 7 7/8" | 8 3/8" | 8 3/8" |
| Type | | F.S. | S.H. | S.H. | S.H. |
| Complete Assembly | Part No. | C-3032 | C-5222 | 9217 | C-5354 |
| (Dressed Spiral Parts) | Weight | 280 | 243 | 251 | 260 |

Replacement Parts

| | | | | | |
|------------------------|----------|--------|--------|------|--------|
| Top Sub | Part No. | A-3033 | A-5223 | 9218 | A-5355 |
| Bowl | Part No. | B-3034 | B-5224 | 9219 | B-5356 |
| Packer | Part No. | A-1814 | B-5225 | 9224 | B-5357 |
| Spiral Grapple | Part No. | N-84 | B-5227 | 9222 | B-5359 |
| Spiral Grapple Control | Part No. | M-89 | A-5228 | 9223 | B-5360 |
| Standard Guide | Part No. | A-1818 | A-5229 | 9226 | A-5361 |

Basket Parts

| | | | | | |
|------------------------|----------|----------|----------|--------|----------|
| Basket Grapple | Part No. | N-84 | B-5227 | 9222 | B-5359 |
| Basket Grapple Control | Part No. | M-89 | A-5228 | 9223 | B-5360 |
| Mill Control Packer | Part No. | A-1814-R | B-5225-R | 9224-R | B-5357-R |

A 8.125" O.D. Bowen Series 150 Overshot will be used to perform this overshot operation. Details on the overshot are listed above. Casing to tubing clearance dimensions are listed below.

| 7" 26# FJ Casing Inside 9.625" 40# BTC Casing | | | | | | | | | | | | | |
|---|----------------|--------------|---------|-------|--------|----------------|--------------------|-----------|------------|-----------------|-----------------|-----------------|------------------|
| Clearance (in) | Pipe Size (in) | Weight lb/ft | Grade | Conn. | Type | Body O.D. (in) | Coupling O.D. (in) | I.D. (in) | Drift (in) | Lined Wt. lb/ft | Lined I.D. (in) | Flare I.D. (in) | Lined Drift (in) |
| 0.840 | 9 5/8 | 40.0 | L-80 | BTC | Casing | 9.625 | 10.625 | 8.835 | 8.679 | - | - | - | - |
| | 7 | 26.0 | HCP-110 | FJ | Casing | 7.000 | 7.000 | 6.276 | 6.151 | 28.500 | 6.080 | 5.940 | 5.815 |

*Red Indicates Tubing

Fishing Procedure

Overshot Fishing Procedure

In the Event of a Connection Break

- If fishing neck is clean

1. Trip in hole with overshot and engage fish.
2. Pick up 2 points over neutral weight.
3. Turn pipe 10-15 turns to the right to release the seal assembly from the packer.
4. Once released from packer, trip out of hole with fish.

A skirted mill may be substituted for a standard mill to ensure pipe stabilization and the casing is not damaged while milling

- If dressing fishing neck is required

1. Trip in hole with mill and dress fishing neck to allow for overshot to engage tubing.
2. Trip out of hole with mill.
3. Trip in hole with overshot and engage fish.
4. Pick up 2 points over neutral weight.
5. Turn pipe 10-15 turns to the right to release the seal assembly from the packer.
6. Once released from packer, trip out of hole with fish.

A skirted mill may be substituted for a standard mill to ensure pipe stabilization and the casing is not damaged while milling

In the Event of a Body Break

- If fishing neck is clean

1. Trip in hole with overshot and engage fish.
2. Pick up 2 points over neutral weight.
3. Turn pipe 10-15 turns to the right to release the seal assembly from the packer.
4. Once released from packer, trip out of hole with fish.

- If dressing fishing neck is required

1. Trip in hole with mill and dress fishing neck to allow for overshot to engage tubing.
2. Trip out of hole with mill.
3. Trip in hole with overshot and engage fish.
4. Pick up 2 points over neutral weight.

5. Turn pipe 10-15 turns to the right to release the seal assembly from the packer.
6. Once released from packer, trip out of hole with fish.

A skirted mill may be substituted for a standard mill to ensure pipe stabilization and the casing is not damaged while milling

Spear Fishing Procedure

If an overshot cannot be used to retrieve the fish, a spear may be used.

- Due to the use of insert lined tubing, the composite liner must be removed from the tubing before engaging the fish with a spear.
1. Trip in hole with spear sized to engage the I.D. of the insert liner.
 2. Engage the insert liner inside the tubing with spear.
 3. Pull the insert liner out of the tubing.
 4. Trip out of hole with insert liner.
 5. Trip in hole with spear sized to engage the I.D. of the tubing.
 6. Engage the tubing with spear.
 7. Pick up 2 points over neutral weight.
 8. Turn pipe 10-15 turns to the right to release the seal assembly from the packer.
 9. Once released from packer, trip out of hole with fish.

Inside Diameter Cutting Tool Fishing Procedure

If an overshot is required but a mill cannot be used to dress off a fishing neck, an inside diameter cutting tool may be used.

- Due to the use of insert lined tubing, the composite liner must be removed from the tubing before engaging the fish with a spear.
1. Trip in hole with spear sized to engage the I.D. of the insert liner.
 2. Engage the insert liner inside the tubing with spear.
 3. Pull the insert liner out of the tubing.
 4. Trip out of hole with insert liner.
 5. Trip in hole with inside diameter cutting tool and cut the tubing below the damaged fishing neck.
 6. Trip out hole with cutting tool.
 7. Trip in hole with spear sized to engage the I.D. of the tubing.
 8. Engage the previously cut tubing segment with spear.
 9. Trip out hole with cut tubing segment and spear.
 10. Trip in hole with overshot and engage fish.
 11. Pick up 2 points over neutral weight.
 12. Turn pipe 10-15 turns to the right to release the seal assembly from the packer.
 13. Once released from packer, trip out of hole with fish.

5 1/2" UFJ Tubing Inside of 7 5/8" 39# Casing

Series 150 Overshots

Tools are listed in order of maximum catch size.

The following table shows only a partial listing of available NOV Dowhole Bowen® overshots.

NOTE: Nitralloy Grapples are available upon request.

Bowen Series 150 Releasing and Circulation Overshots

Maximum Catch Size 4 1/4" to 5 1/2" inclusive

| Maximum Catch Size (Spiral) | | 4 1/4" | 4 1/2" | 4 3/4" | 4 7/8" | 5" | 5 1/8" | 5 1/2" |
|-----------------------------|----------|--------|--------|----------|--------|----------|--------|----------|
| Maximum Catch Size (Basket) | | 3 3/4" | 4 1/4" | 4 3/4" | 4 7/8" | 5" | 5 1/8" | 5 1/2" |
| Overshot O.D. | | 5 3/4" | 5 1/2" | 5 3/4" | 5 7/8" | 5 7/8" | 6 1/4" | 6 1/4" |
| Type | | F.S. | S.H. | S.H. | S.F.S. | S.H. | F.S. | S.H. |
| Complete Assembly | Part No. | 5896 | 5898 | C-5168 | 8975 | C-5171 | C-4825 | 8825 |
| (Dressed Spiral Parts) | Weight | 130 | 130 | 133 | 138 | 140 | 192 | 185 |
| Replacement Parts | | | | | | | | |
| Top Sub | Part No. | 5897 | 5899 | A-5169 | 8976 | A-5172 | B-4826 | 8826 |
| Bowl | Part No. | 5898 | 5700 | B-5170 | 8977 | B-5173 | B-4827 | 8817 |
| Packer | Part No. | 169 | 1140 | B-2199 | 6114 | L-5950 | L-4505 | 8818 |
| Spiral Grapple | Part No. | 165 | 1135 | B-2201 | 6112 | B-4369 | M-1071 | 8819 |
| Spiral Grapple Control | Part No. | 188 | 1137 | B-2202 | 6113 | B-4370 | M-1072 | 8820 |
| Standard Guide | Part No. | 187 | 1143 | B-2203 | 6121 | B-4371 | L-1074 | 8821 |
| Basket Parts | | | | | | | | |
| Basket Grapple | Part No. | 165 | 1135 | B-2201 | 6112 | B-4369 | M-1071 | 8819 |
| Basket Grapple Control | Part No. | 188 | 1137 | B-2202 | 6113 | B-4370 | M-1072 | 8820 |
| Mill Control Packer | Part No. | 169-R | 1140-R | B-2199-R | 6114-R | L-5950-R | M-4505 | L-8818-R |

A (6.625" turned down to 6.500" O.D.) Bowen Series 150 Overshot will be used to perform this overshot operation. Details on the overshot are listed above. Casing to tubing clearance dimensions are listed below.

| 5.5" 17# FJ Casing Inside 7.625" 39# FJ Casing | | | | | | | | | | | | | |
|--|----------------|--------------|--------|-------|--------|----------------|--------------------|-----------|------------|-----------------|-----------------|-----------------|------------------|
| Clearance (in) | Pipe Size (in) | Weight lb/ft | Grade | Conn. | Type | Body O.D. (in) | Coupling O.D. (in) | I.D. (in) | Drift (in) | Lined Wt. lb/ft | Lined I.D. (in) | Flare I.D. (in) | Lined Drift (in) |
| 0.500 | 7 5/8 | 39.0 | HCL-80 | FJ | Casing | 7.625 | 7.625 | 6.625 | 6.500 | - | - | - | - |
| | 5 1/2 | 17.0 | HCL-80 | FJ | Casing | 5.500 | 5.500 | 4.892 | 4.767 | 18.500 | 4.520 | 4.400 | 4.275 |

*Red Indicates Tubing

Fishing Procedure

Overshot Fishing Procedure

In the Event of a Connection Break

- If fishing neck is clean

1. Trip in hole with overshot and engage fish.
2. Pick up 2 points over neutral weight.
3. Turn pipe 10-15 turns to the right to release the seal assembly from the packer.
4. Once released from packer, trip out of hole with fish.

A skirted mill may be substituted for a standard mill to ensure pipe stabilization and the casing is not damaged while milling

- If dressing fishing neck is required

1. Trip in hole with mill and dress fishing neck to allow for overshot to engage tubing.
2. Trip out of hole with mill.
3. Trip in hole with overshot and engage fish.
4. Pick up 2 points over neutral weight.
5. Turn pipe 10-15 turns to the right to release the seal assembly from the packer.
6. Once released from packer, trip out of hole with fish.

A skirted mill may be substituted for a standard mill to ensure pipe stabilization and the casing is not damaged while milling

In the Event of a Body Break

- If fishing neck is clean

1. Trip in hole with overshot and engage fish.
2. Pick up 2 points over neutral weight.
3. Turn pipe 10-15 turns to the right to release the seal assembly from the packer.
4. Once released from packer, trip out of hole with fish.

- If dressing fishing neck is required

1. Trip in hole with mill and dress fishing neck to allow for overshot to engage tubing.
2. Trip out of hole with mill.
3. Trip in hole with overshot and engage fish.
4. Pick up 2 points over neutral weight.

5. Turn pipe 10-15 turns to the right to release the seal assembly from the packer.
6. Once released from packer, trip out of hole with fish.

A skirted mill may be substituted for a standard mill to ensure pipe stabilization and the casing is not damaged while milling

Spear Fishing Procedure

If an overshot cannot be used to retrieve the fish, a spear may be used.

- Due to the use of insert lined tubing, the composite liner must be removed from the tubing before engaging the fish with a spear.
1. Trip in hole with spear sized to engage the I.D. of the insert liner.
 2. Engage the insert liner inside the tubing with spear.
 3. Pull the insert liner out of the tubing.
 4. Trip out of hole with insert liner.
 5. Trip in hole with spear sized to engage the I.D. of the tubing.
 6. Engage the tubing with spear.
 7. Pick up 2 points over neutral weight.
 8. Turn pipe 10-15 turns to the right to release the seal assembly from the packer.
 9. Once released from packer, trip out of hole with fish.

Inside Diameter Cutting Tool Fishing Procedure

If an overshot is required but a mill cannot be used to dress off a fishing neck, an inside diameter cutting tool may be used.

- Due to the use of insert lined tubing, the composite liner must be removed from the tubing before engaging the fish with a spear.
1. Trip in hole with spear sized to engage the I.D. of the insert liner.
 2. Engage the insert liner inside the tubing with spear.
 3. Pull the insert liner out of the tubing.
 4. Trip out of hole with insert liner.
 5. Trip in hole with inside diameter cutting tool and cut the tubing below the damaged fishing neck.
 6. Trip out hole with cutting tool.
 7. Trip in hole with spear sized to engage the I.D. of the tubing.
 8. Engage the previously cut tubing segment with spear.
 9. Trip out hole with cut tubing segment and spear.
 10. Trip in hole with overshot and engage fish.
 11. Pick up 2 points over neutral weight.
 12. Turn pipe 10-15 turns to the right to release the seal assembly from the packer.
 13. Once released from packer, trip out of hole with fish.

Abandonment Procedure

If the tubing cannot be recovered and the well is to be abandoned.

- The operator will ensure that all geologic formations are properly isolated.
- 1. Confirm the I.D. of the injection tubing is free from obstructions.
- 2. Run in hole with wireline set profile plug.
- 3. Set plug inside of packer assembly.
(Plug will allow cement to fill the I.D. of the injection tubing and the tubing to casing annulus)
- 4. Run in hole with wireline conveyed perforating guns and perforate the tubing immediately above the packer.
- 5. Trip in hole with an overshot, spear, cement retainer or isolation tool that will provide a work string-to- injection tubing seal.
- 6. Engage the fish with sealing tool.
- 7. Confirm circulation down the tubing and up the tubing-to-casing annulus.
- 8. Cement the work string, injection tubing, injection tubing-to-casing annulus and work string-to-casing annulus to surface.
- 9. Confirm the entirety of the wellbore is cemented to surface and all zones are isolated.
- 10. ND wellhead and install permanent capping flange.



**Attachment to C-108 Application for Authorization to Inject
Permian Oilfield Partners, LLC
Polaris State SWD #1
1343' FSL & 248' FWL
Sec 2, T25S, R35E
Lea County, NM**

August 2, 2019

STATEMENT REGARDING SEISMICITY

Examination of the USGS and TexNet seismic activity databases has shown minimal historic seismic activity in the area (< 30 miles) of our proposed above referenced SWD well as follows:

| Magnitude | Date | Lat | Lon | Distance (mi.) | Bearing (°) |
|------------------|-------------|------------|------------|-----------------------|--------------------|
| M2.9 USGS | 12/4/1984 | 32.266 | -103.556 | 14.48 | 301.70 |
| M4.6 USGS | 1/2/1992 | 32.336 | -103.101 | 19.01 | 49.13 |
| M3.3 USGS | 6/2/2001 | 32.334 | -103.141 | 17.21 | 44.36 |
| M2.6 USGS | 5/3/2017 | 32.082 | -103.023 | 19.63 | 164.95 |
| M2.6 TexNet | 5/3/2017 | 32.1066 | -103.028 | 18.96 | 169.67 |

Permian Oilfield Partners does not own any 2D or 3D seismic data in the area of this proposed SWD well. Our fault interpretations are based on well to well correlations and publicly available data and software as follows:

1. USGS Quaternary Fault & Fold database shows no quaternary faults in the nearby area.
2. Based on offset well log data, we have not interpreted any faults in the immediate area.
3. Basement PreCambrian faults are documented in the Snee & Zoback paper, "State of stress in the Permian Basin, Texas and New Mexico: Implications for induced seismicity", published in the February 2018 issue of the SEG journal, The Leading Edge, along with a method for determining the probability of fault slip in the area.
4. Fault data was also correlated to the publicly available USGS GIS geologic units & structural features database, to Ewing's 1990 Tectonic map of Texas (via Ruppel's 2005 Preparation of Maps Depicting Geothermal Gradient and PreCambrian Structure in the Permian Basin), and to fault maps as published in the New Mexico Geological Society Special Publication 13A, "Energy and Mineral Resources of New Mexico: Petroleum Geology," by R. F. Broadhead, 2017.

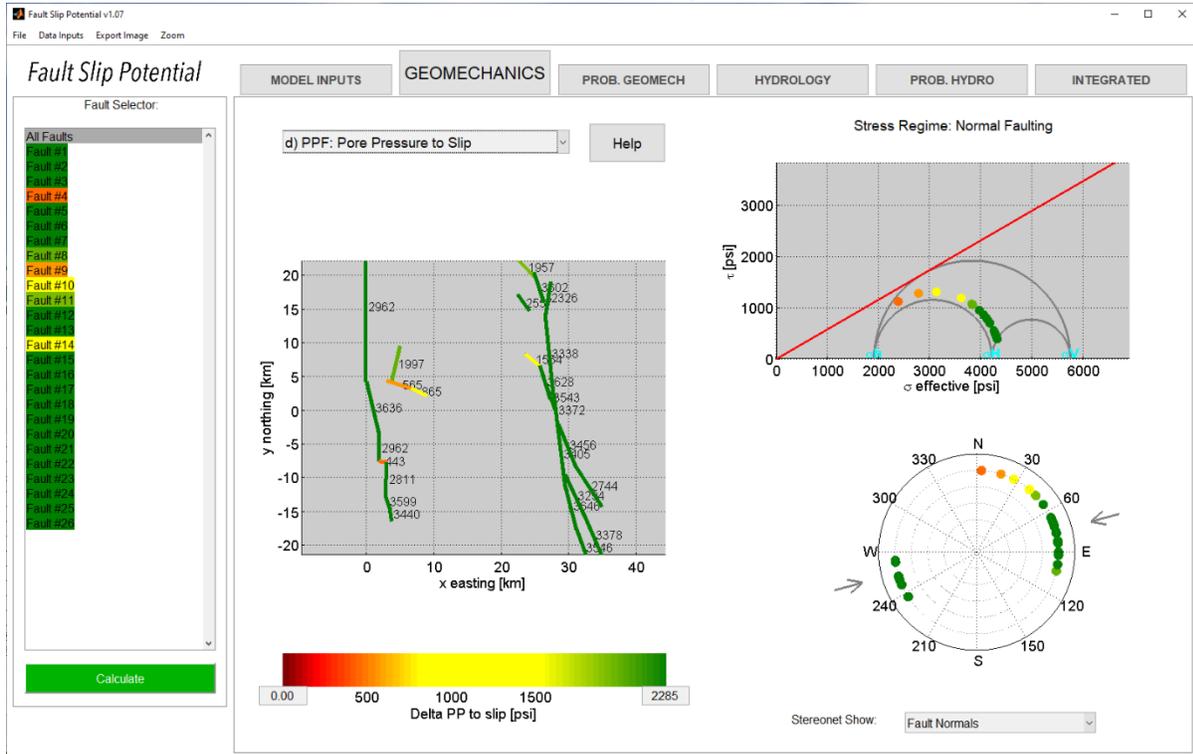
5. Software as discussed in #3 from the Stanford Center for Induced and Triggered Seismicity, "FSP 1.0: A program for probabilistic estimation of fault slip potential resulting from fluid injection", was used to calculate the probability of a fault being stressed so as to create an induced seismic event, assuming full proposed capacity of 50,000 BBL/day for 30 years.
6. Two FSP scenarios were run:
 - a. The first FSP scenario assumes PreCambrian faults as per the available data described above, with an improbable catastrophic well failure that would allow full rate injected water to penetrate the Montoya and Simpson permeability barriers, the Ellenburger, and the Cambrian to access the PreCambrian faults.
 - b. Because there is evidence that the PreCambrian faults extend into the Devonian in areas to the North and East, we ran a second FSP scenario with Devonian depth & lithology assumptions.
7. The distance from the proposed injection well to the nearest fault is approximately 11km. The probability of an induced seismic event in the PreCambrian is calculated to be 0% after 5, 10, 20, & 30 years as per the FSP results screenshots below. The probability of an induced seismic event in the Devonian is also calculated to be 0% after 5, 10, 20, & 30 years.
8. As per NM OCD requirements (injection well to injection well spacing minimum of 1.5 miles), this proposed above referenced SWD well is located 1.83 miles away from the nearest active or permitted Devonian disposal well (Solaris Screech State SWD #1, in Sec 16-25S-35E).

Part 6 a: PreCambrian Fault Scenario

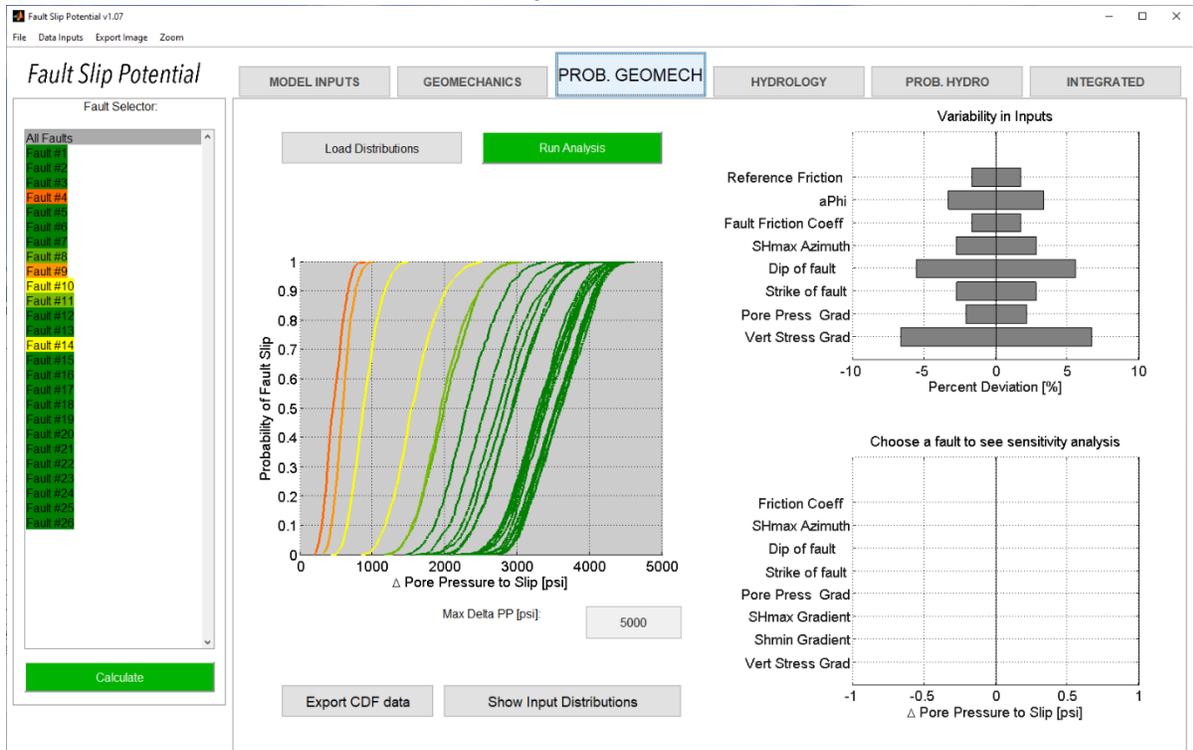
PreCambrian input assumptions:

| | |
|-------------------------------------|-----------|
| Rate (BBL/day) | 50000 |
| Interval height (ft) | 1500 |
| Average Porosity (%) | 3 |
| Vert stress gradient (psi/ft) | 0.75 |
| Hor stress direction (deg N) | 75 |
| Fault dip (deg) | 75 |
| Ref depth (ft) | 20500 |
| Initial res press gradient (psi/ft) | 0.47 |
| A phi | 0.6 |
| Friction coefficient | 0.58 |
| Average perm (mD) | 12.5 |
| Fluid density (kg/m3) | 1100 |
| Dynamic viscosity (Pa-s) | 0.0003 |
| Fluid compressibility (/Pa) | 4 e-10 |
| Rock compressibility (/Pa) | 1.08 e-09 |

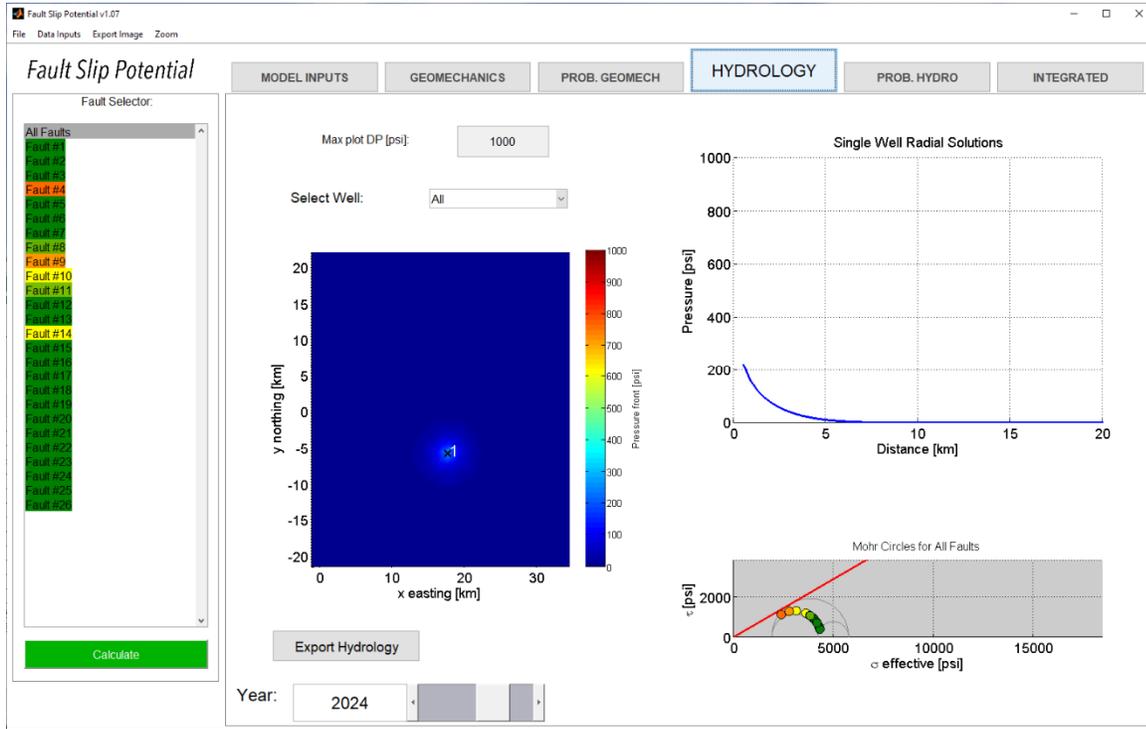
PreCambrian Geomechanics Pore Pressure to Slip



PreCambrian Geomechanics Variability

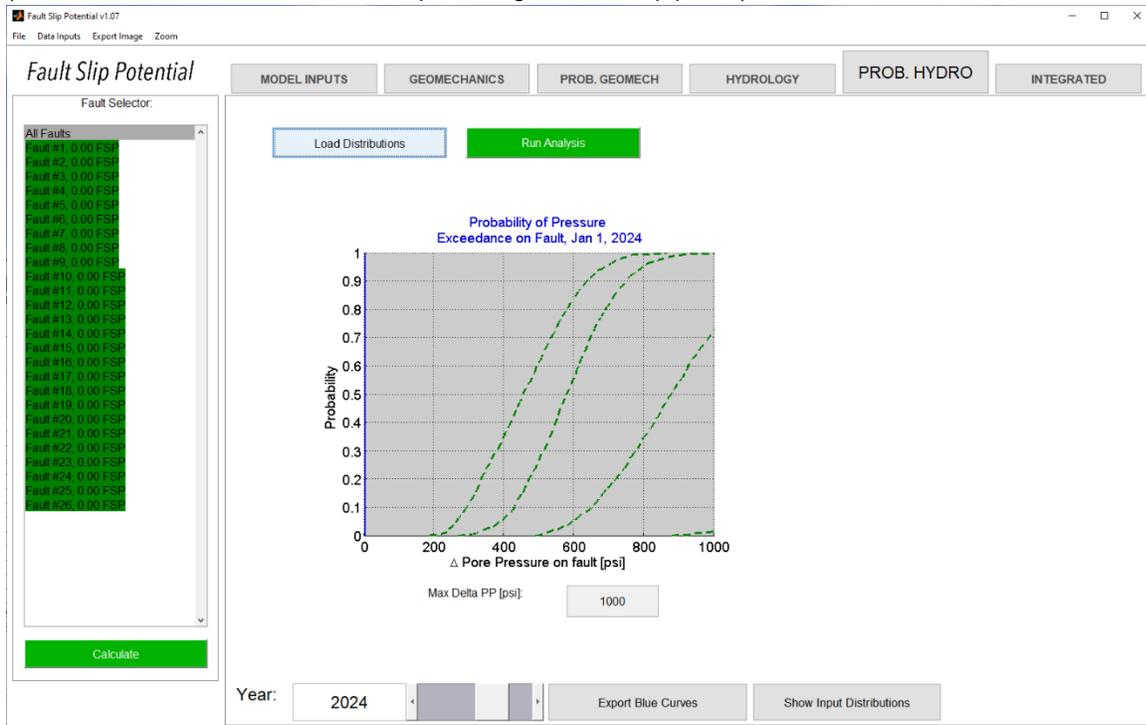


PreCambrian Year 5 Hydrology



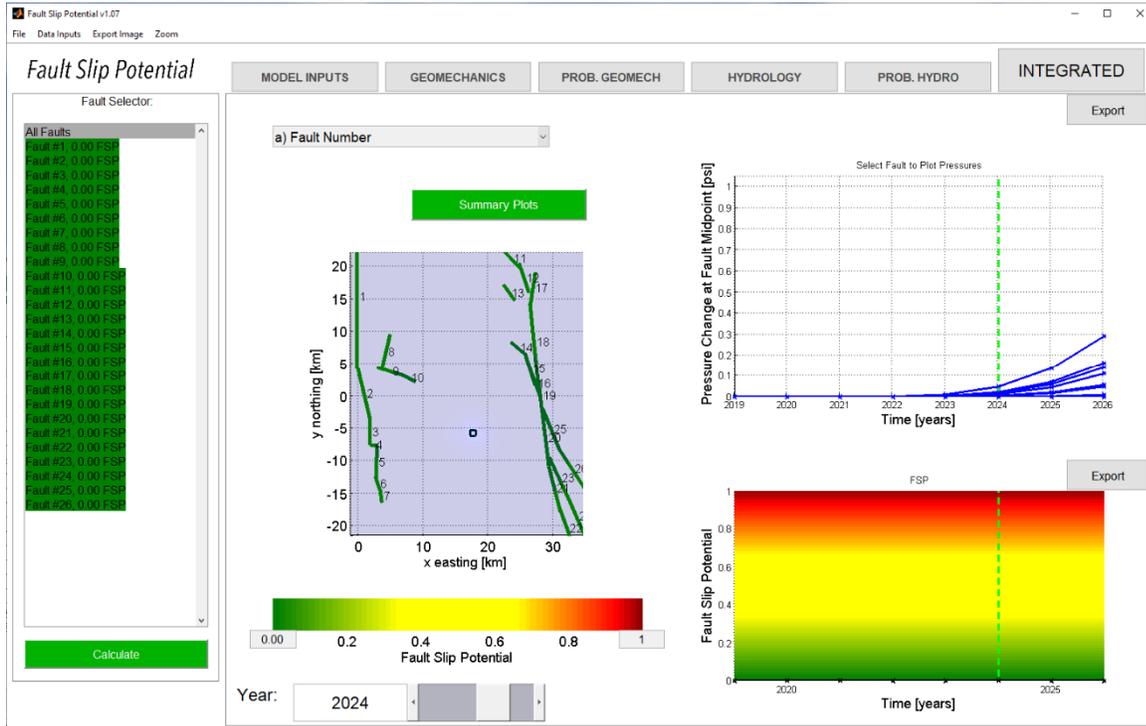
PreCambrian Year 5 Probabilistic Hydrology

(note no crossover between blue delta-press. & green fault slip press.)

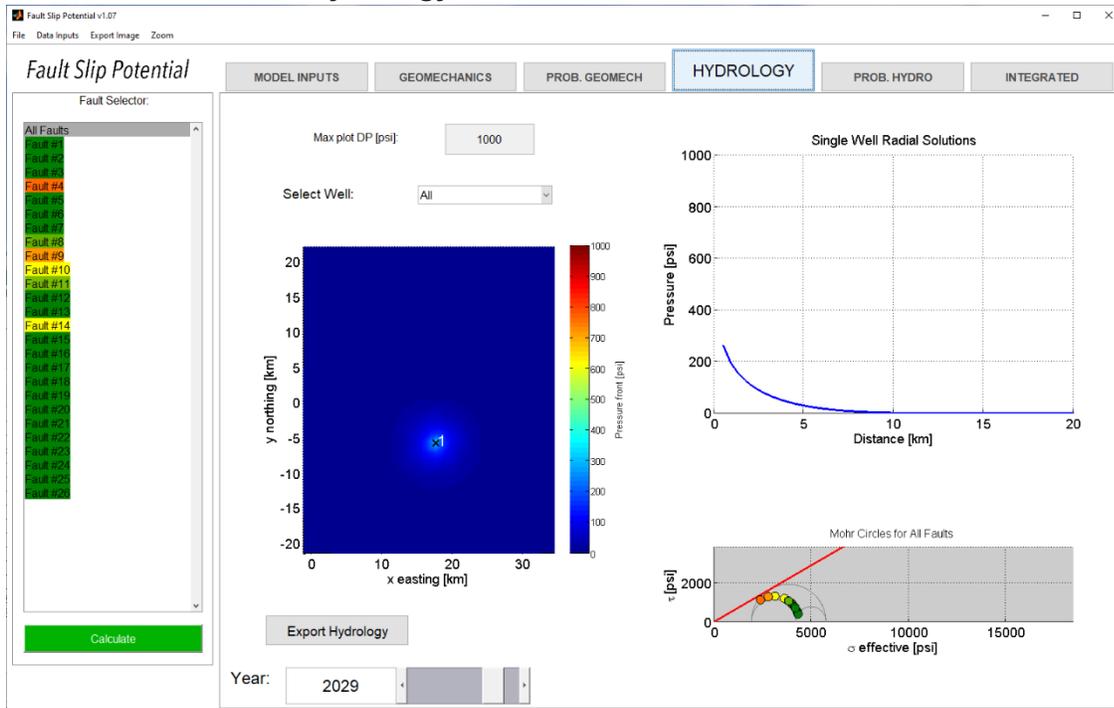


PreCambrian Year 5 Fault Slip Probability

(0% for all fault segments after 5 years)

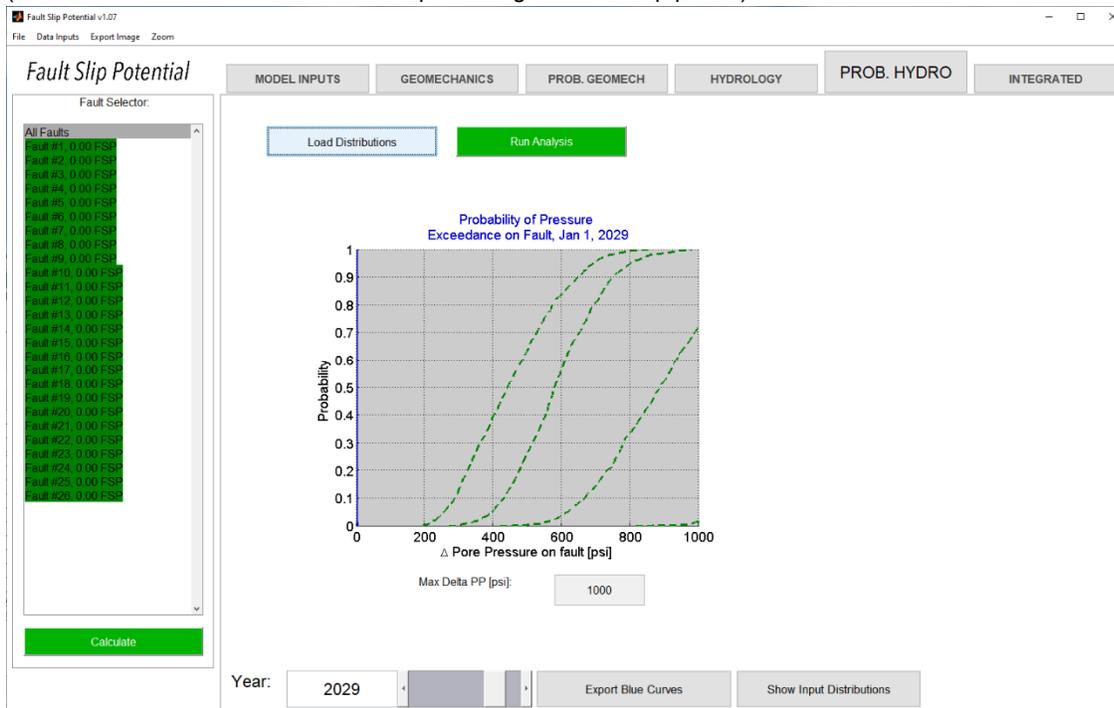


PreCambrian Year 10 Hydrology



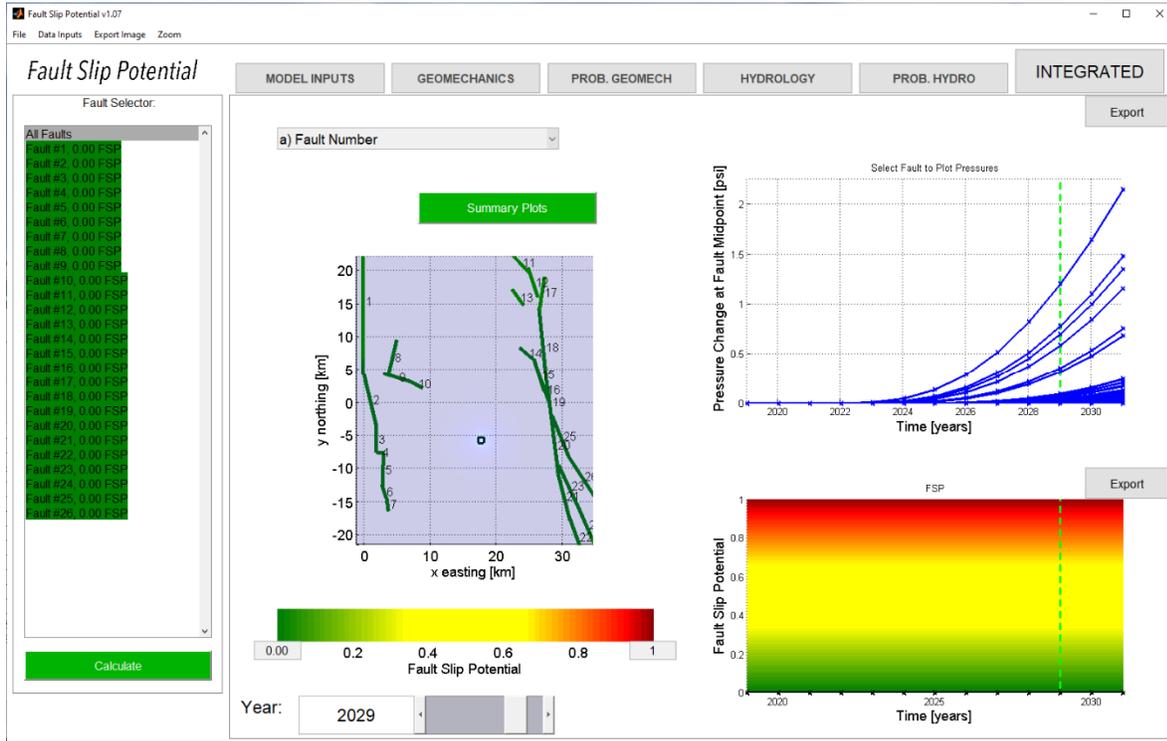
PreCambrian Year 10 Probabilistic Hydrology

(note no crossover between blue delta-press. & green fault slip press.)

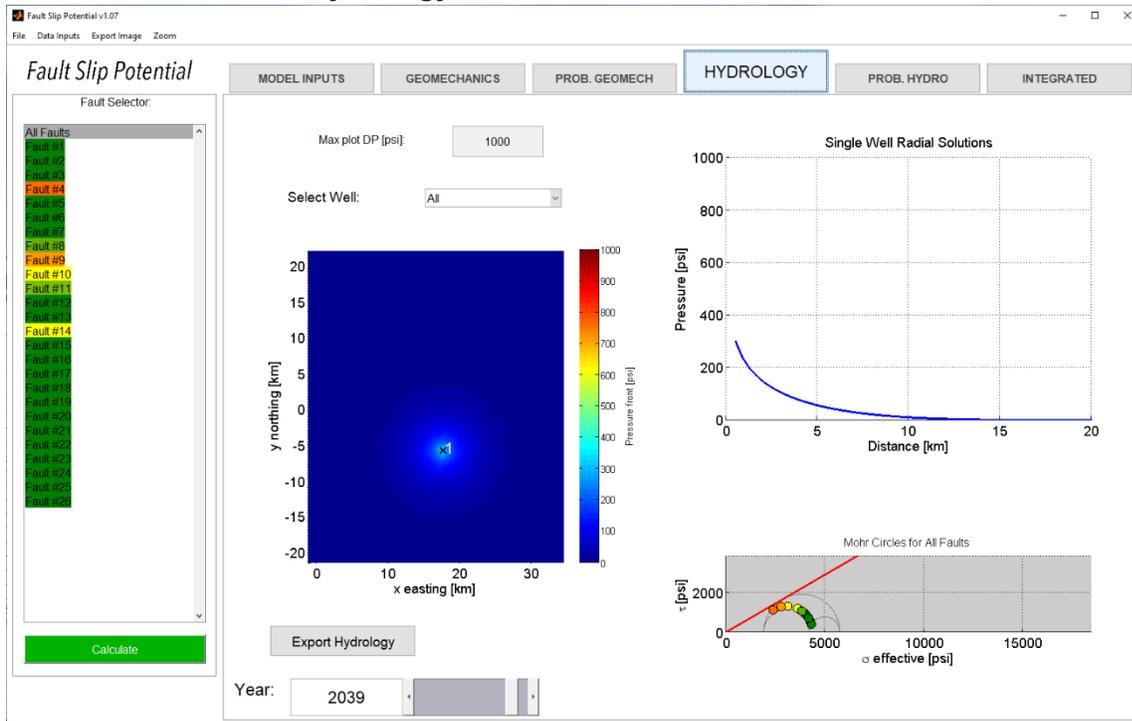


PreCambrian Year 10 Fault Slip Probability

(0% for all fault segments after 10 years)

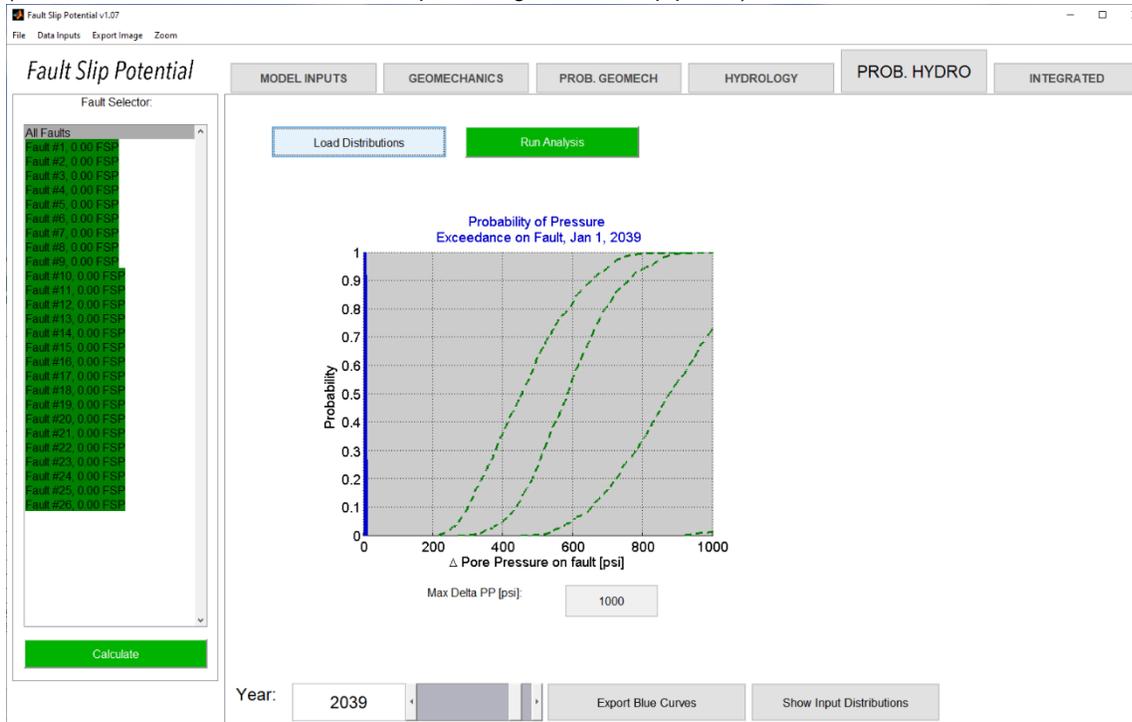


PreCambrian Year 20 Hydrology



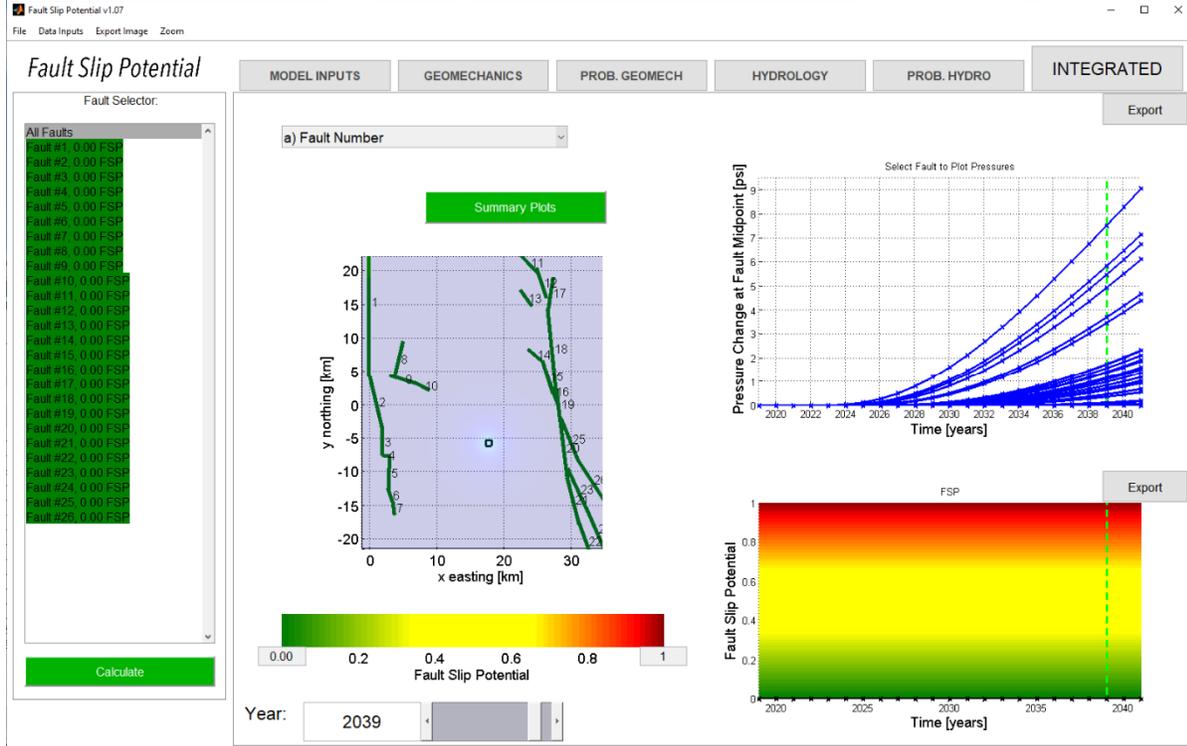
PreCambrian Year 20 Probabilistic Hydrology

(note no crossover between blue delta-press. & green fault slip press.)

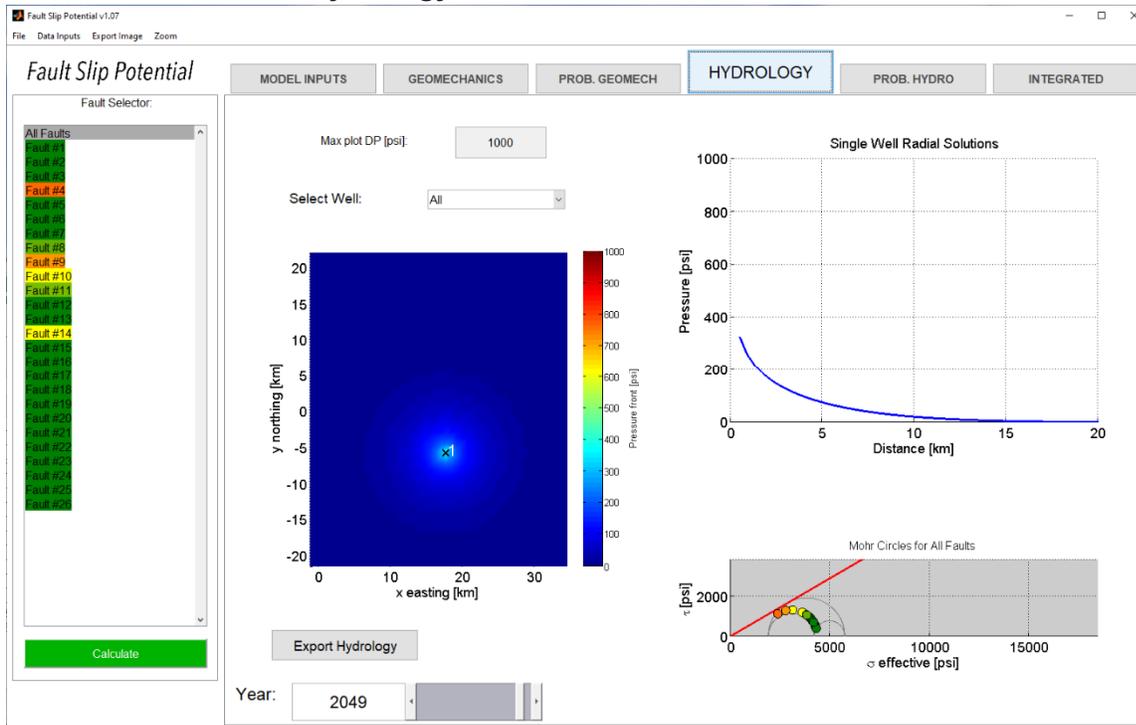


PreCambrian Year 20 Fault Slip Probability

(0% for all fault segments after 20 years)

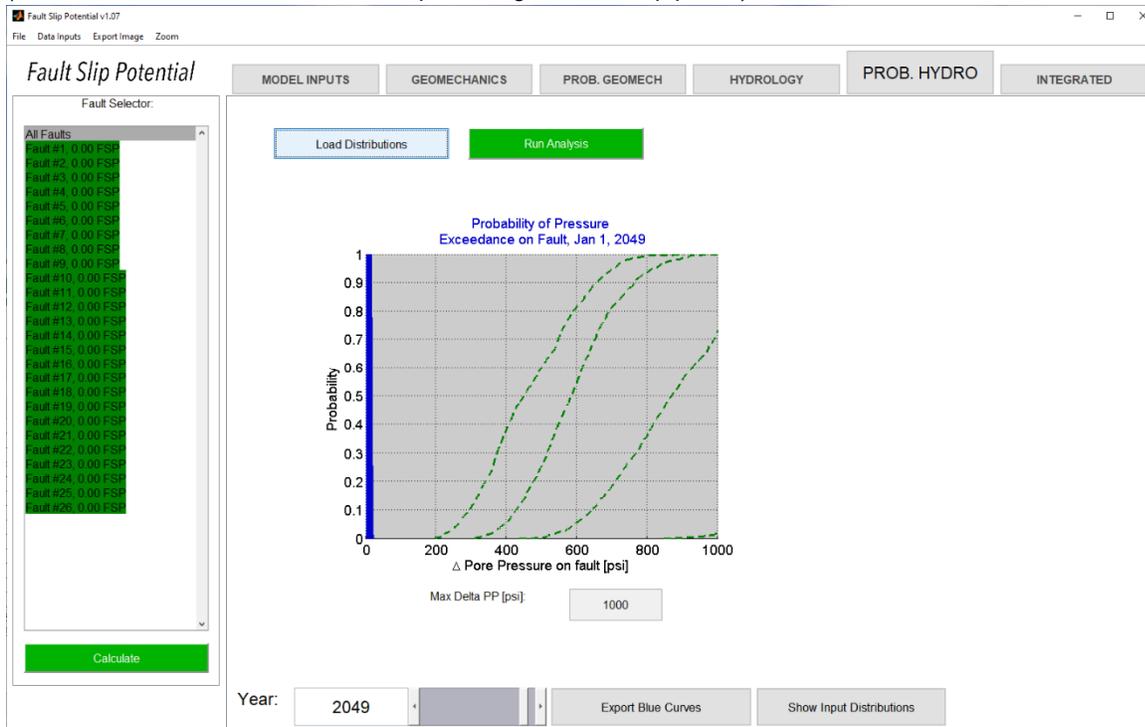


PreCambrian Year 30 Hydrology



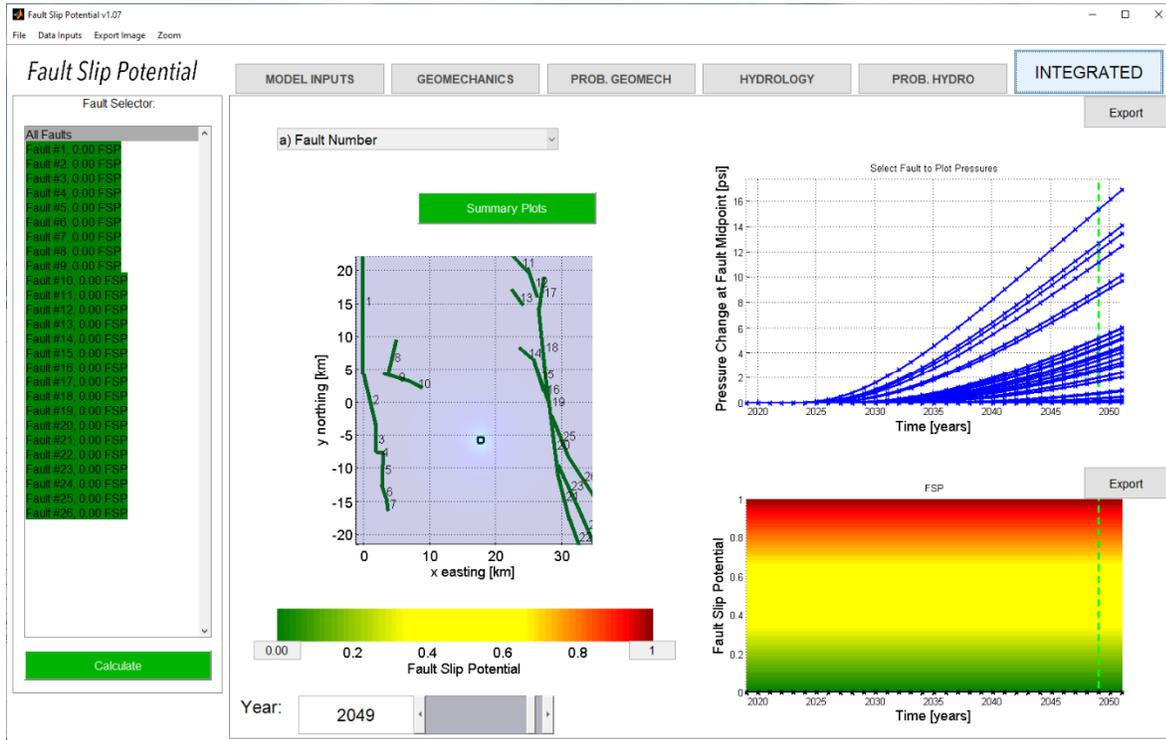
PreCambrian Year 30 Probabilistic Hydrology

(note no crossover between blue delta-press. & green fault slip press.)



PreCambrian Year 30 Fault Slip Probability

(0% for all fault segments after 30 years. 15 psi fault delta pressure is much less than the 3405 psi required for fault slip in the closest fault segment #20)

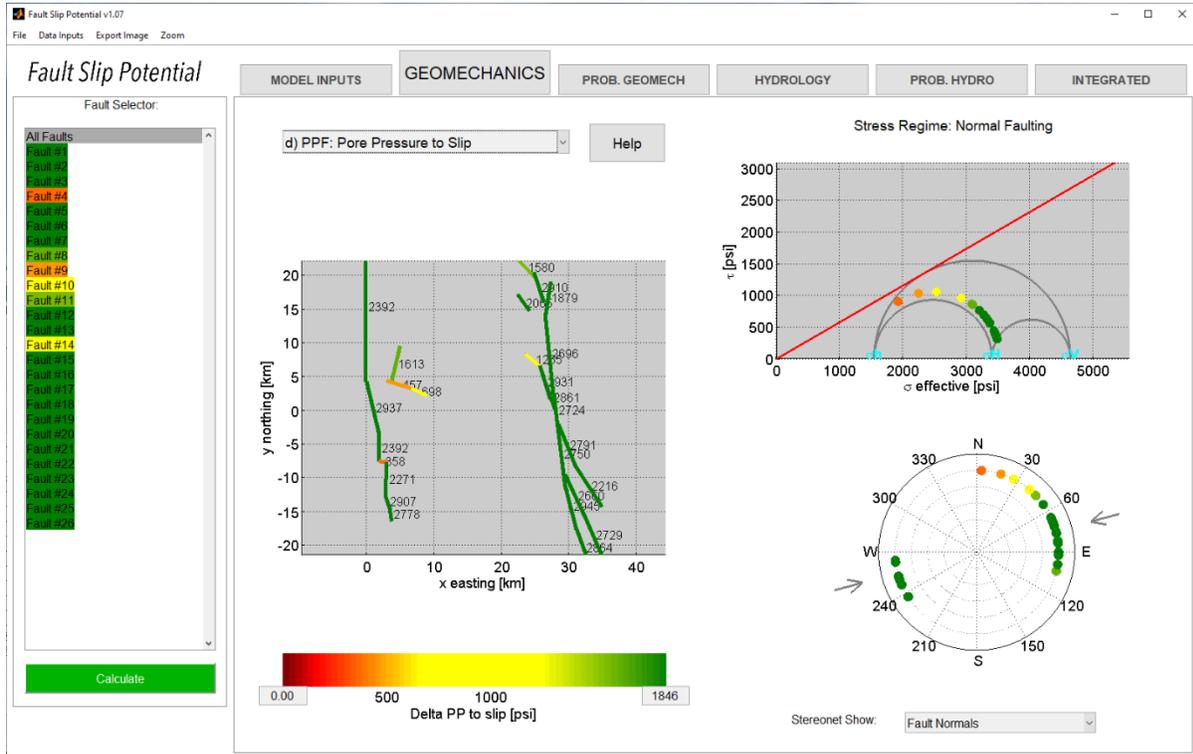


Part 6 b: Devonian Fault Scenario

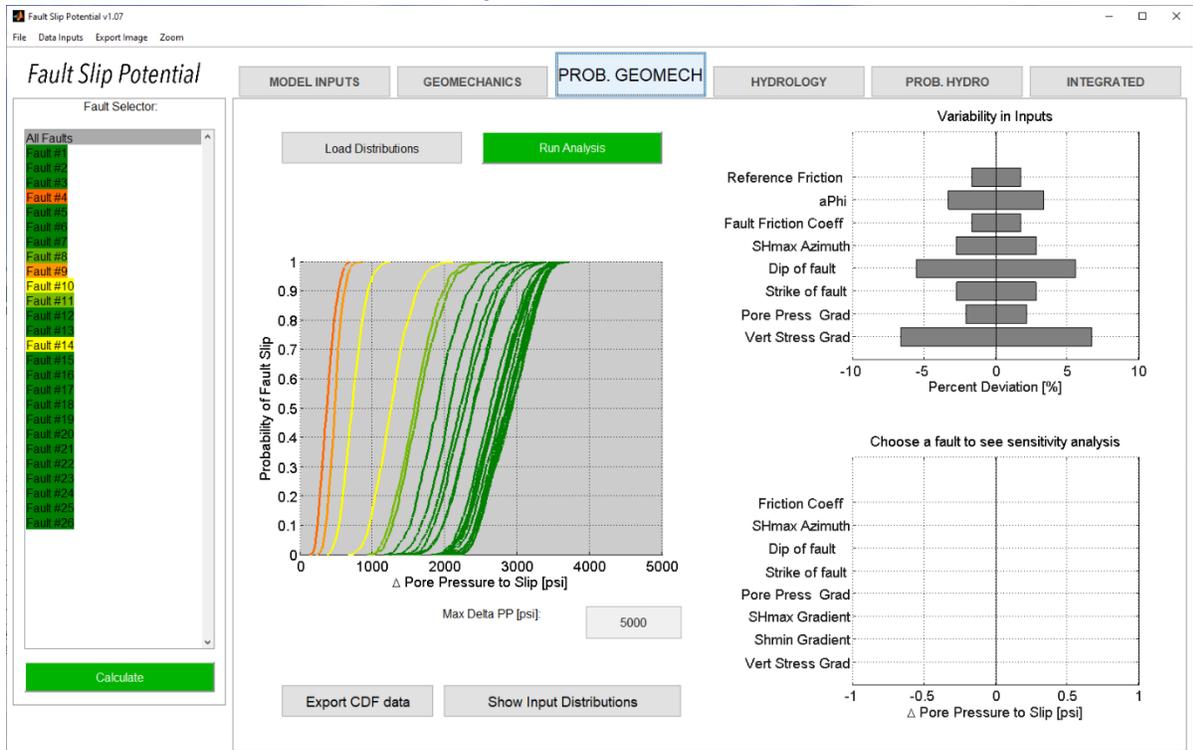
Devonian input assumptions:

| | |
|-------------------------------------|-----------|
| Rate (BBL/day) | 50000 |
| Interval height (ft) | 1871 |
| Weighted Average Porosity (%) | 3.3 |
| Vert stress gradient (psi/ft) | 0.75 |
| Hor stress direction (deg N) | 75 |
| Fault dip (deg) | 75 |
| Ref depth (ft) | 16558 |
| Initial res press gradient (psi/ft) | 0.47 |
| A phi | 0.6 |
| Friction coefficient | 0.58 |
| Weighted average perm (mD) | 19 |
| Fluid density (kg/m ³) | 1100 |
| Dynamic viscosity (Pa-s) | 0.0003 |
| Fluid compressibility (/Pa) | 4 e-10 |
| Rock compressibility (/Pa) | 1.08 e-09 |

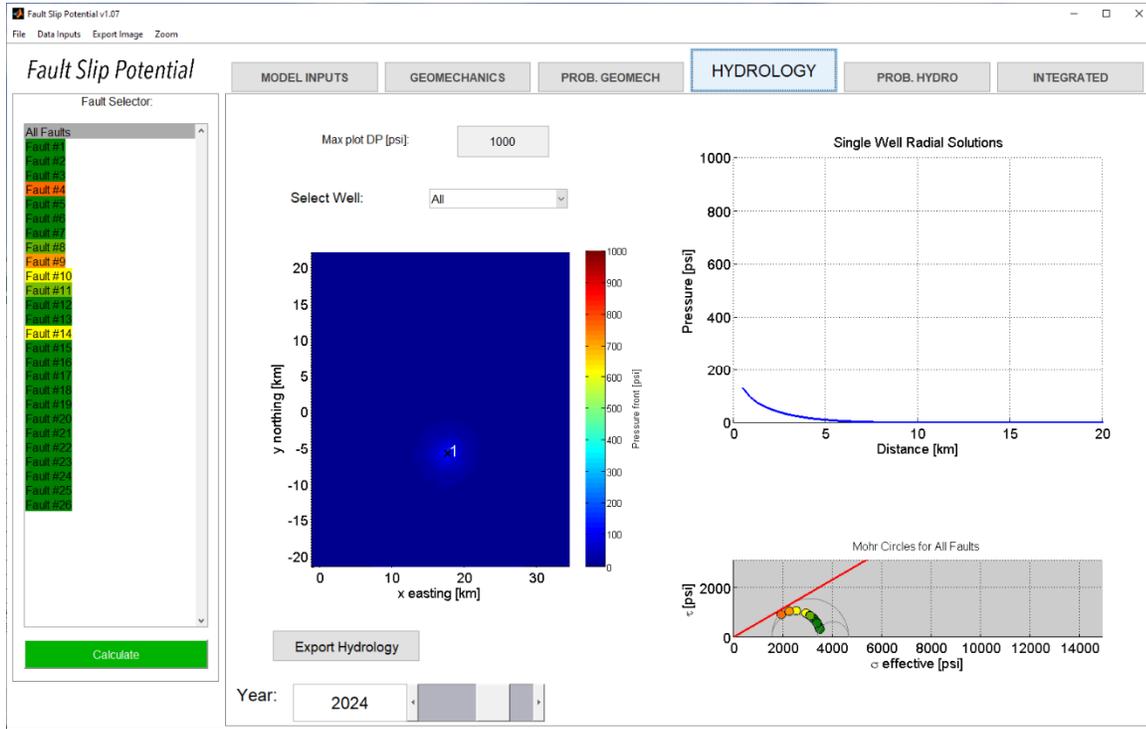
Devonian Geomechanics Pore Pressure to Slip



Devonian GeoMechanics Variability

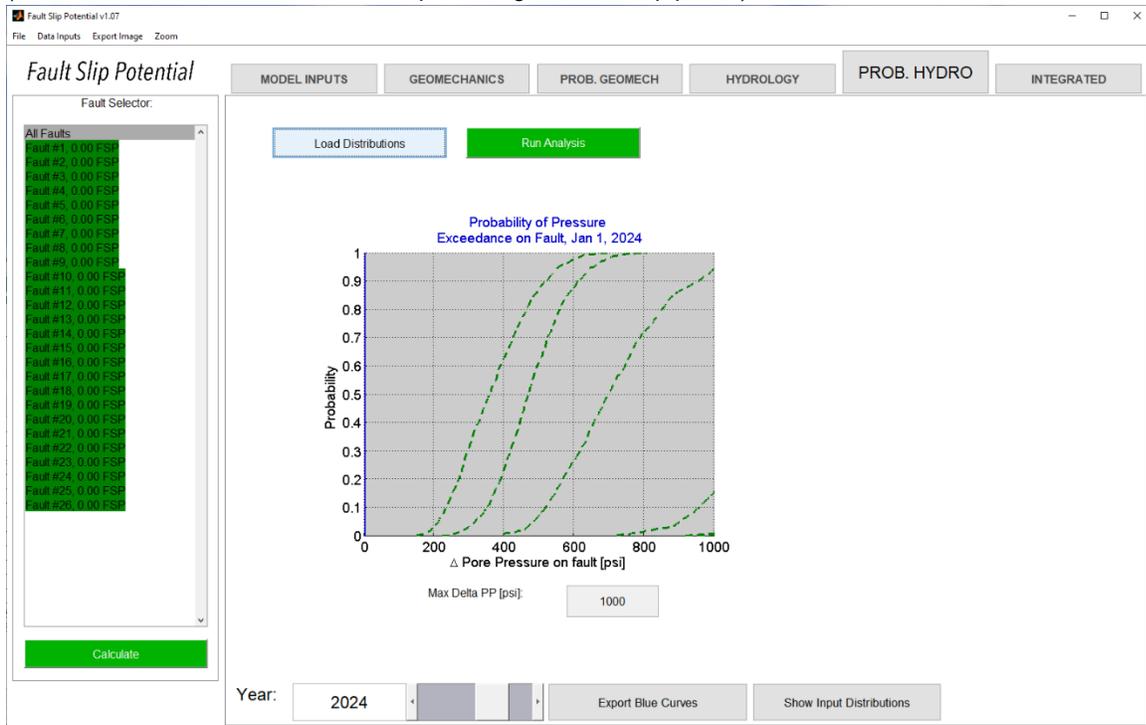


Devonian Year 5 Hydrology



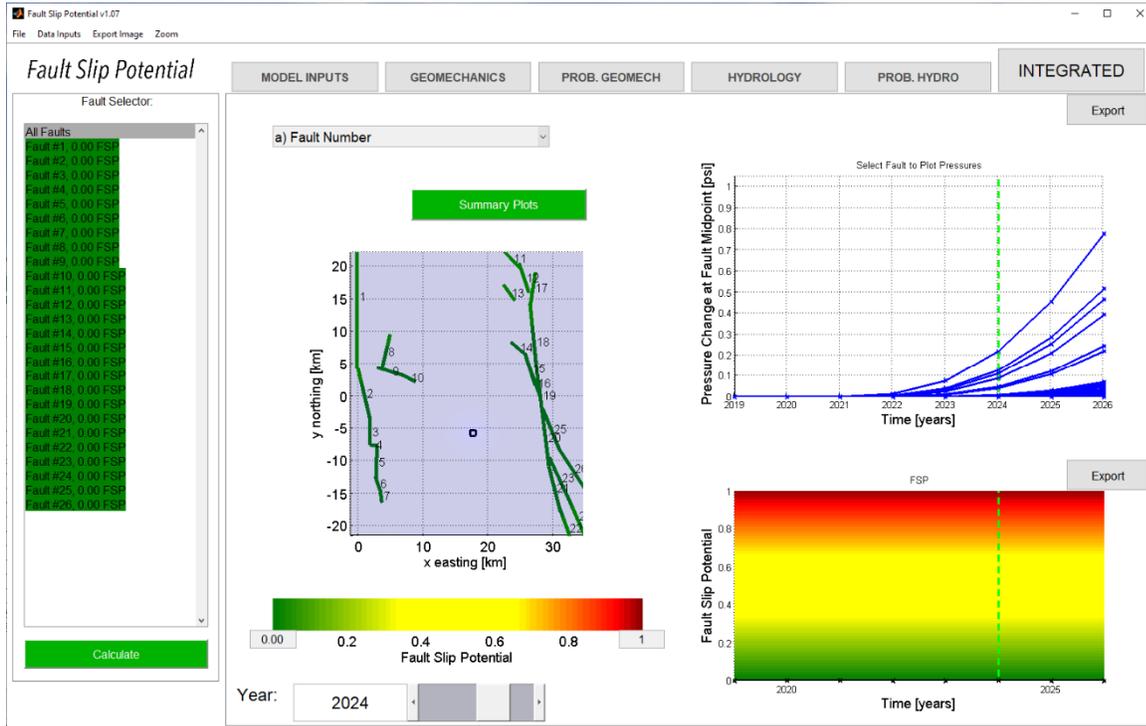
Devonian Year 5 Probabilistic Hydrology

(note no crossover between blue delta-press. & green fault slip press.)

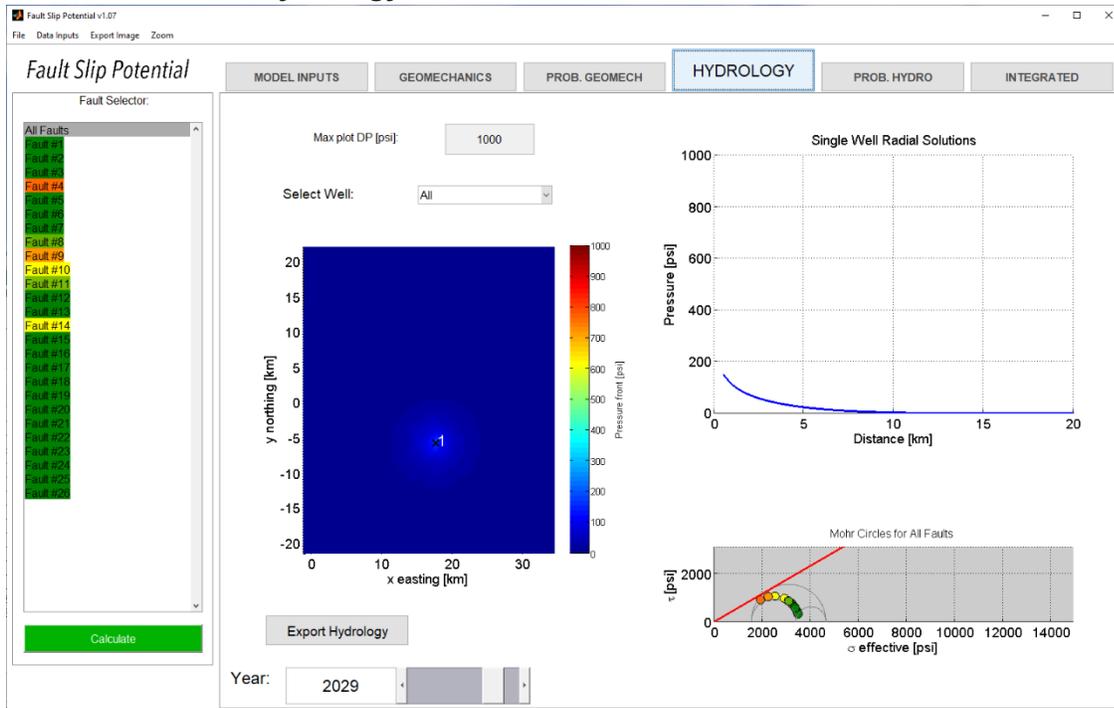


Devonian Year 5 Fault Slip Probability

(0% for all fault segments after 5 years)

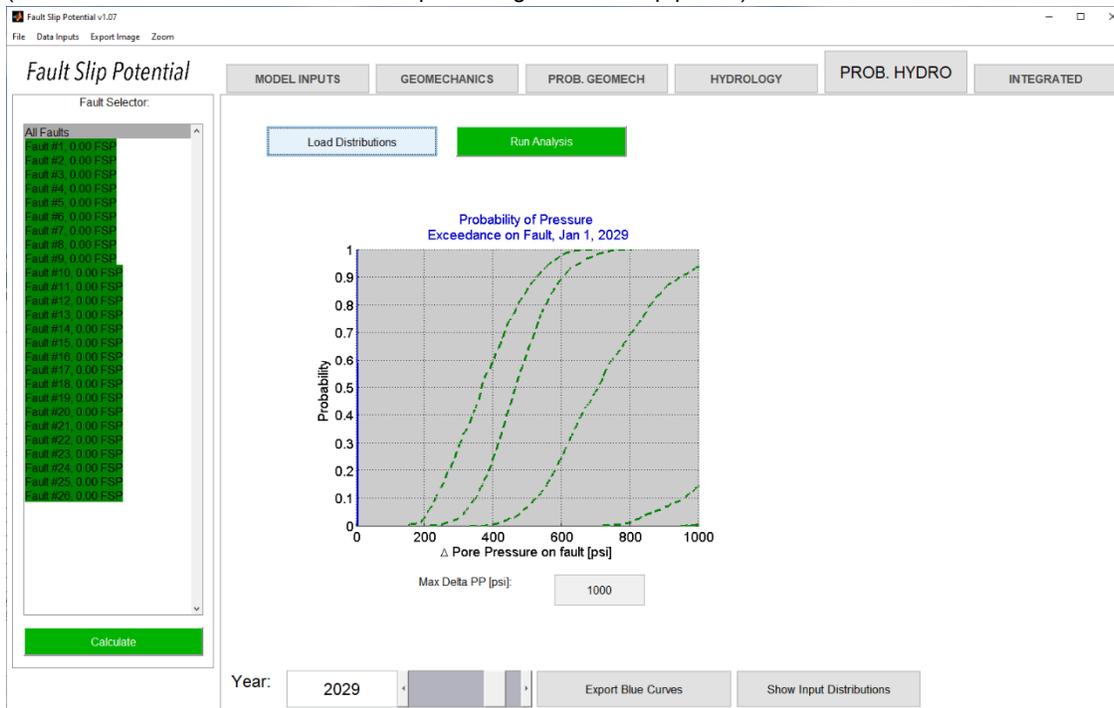


Devonian Year 10 Hydrology



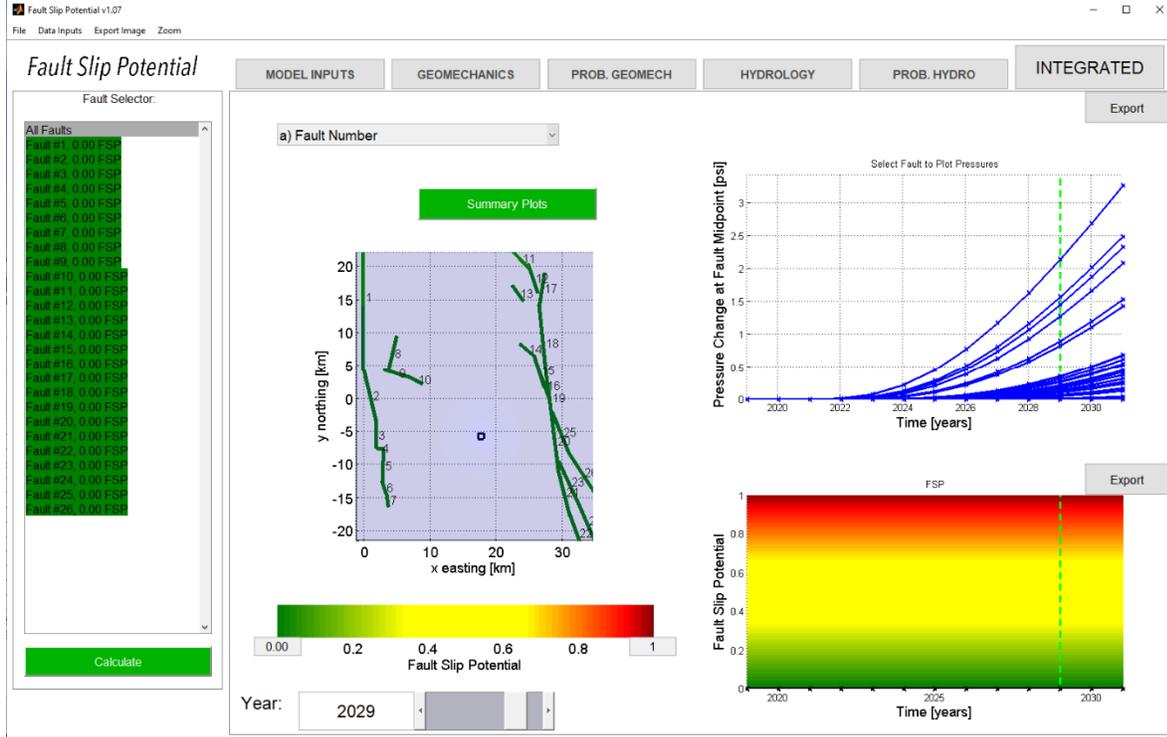
Devonian Year 10 Probabilistic Hydrology

(note no crossover between blue delta-press. & green fault slip press.)

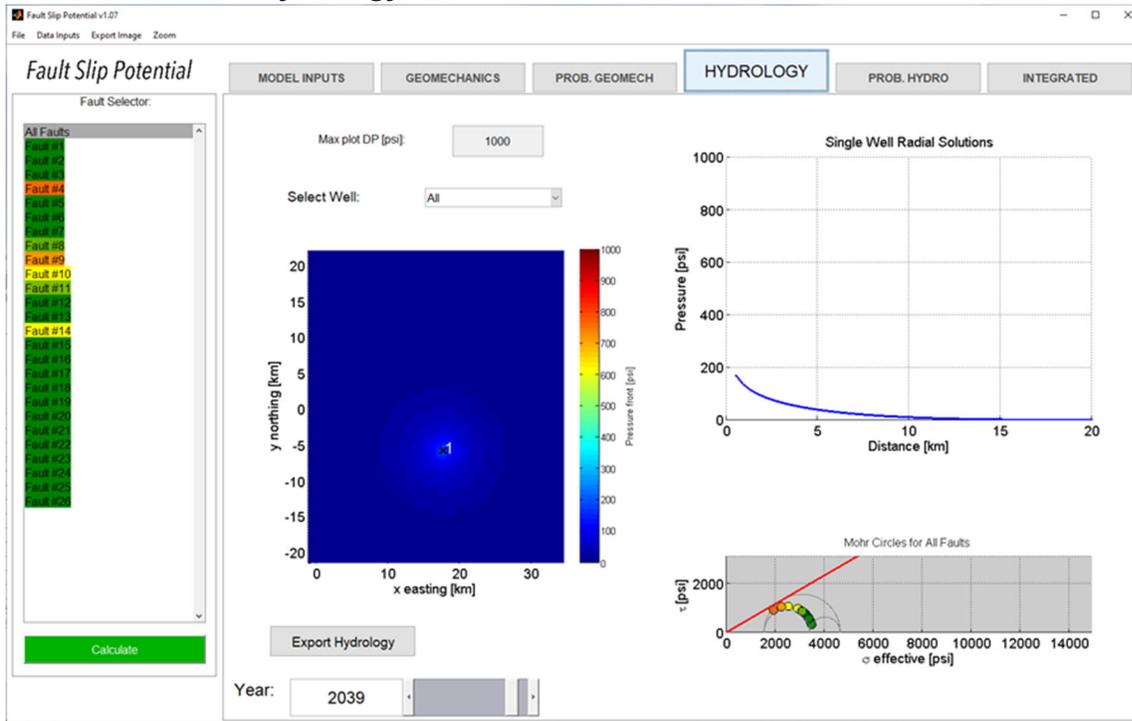


Devonian Year 10 Fault Slip Probability

(0% for all fault segments after 10 years)



Devonian Year 20 Hydrology



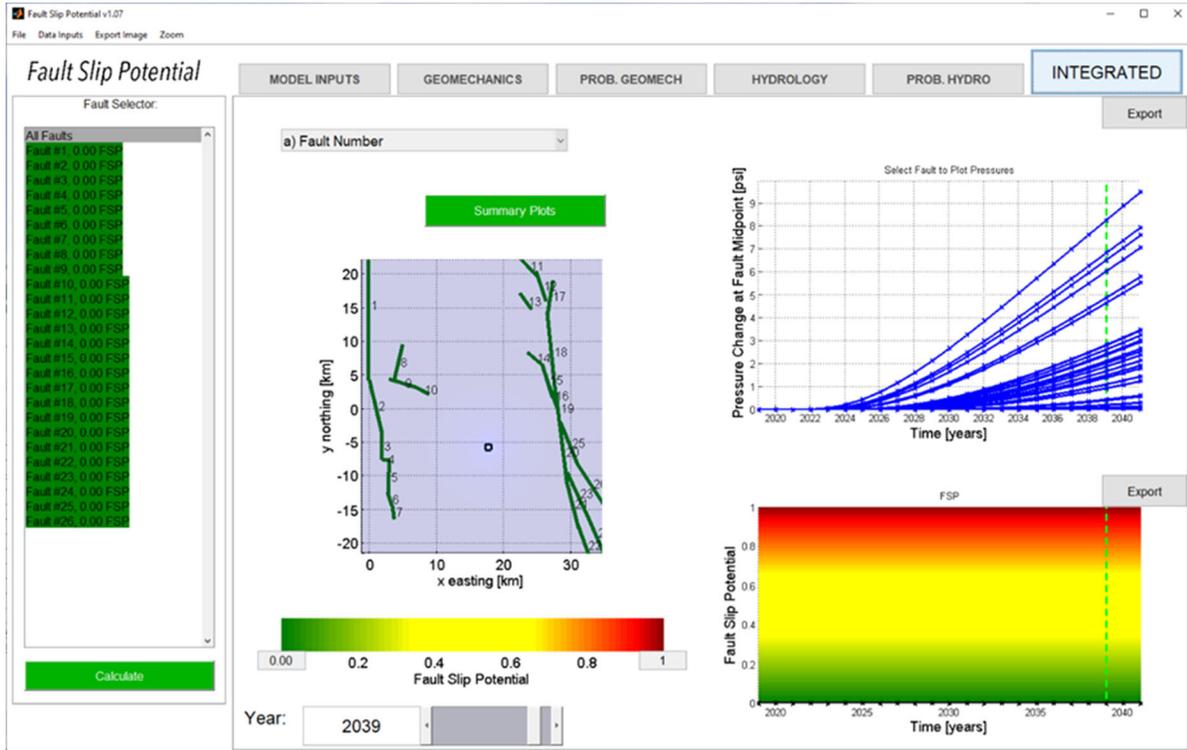
Devonian Year 20 Probabilistic Hydrology

(note no crossover between blue delta-press. & green fault slip press.)

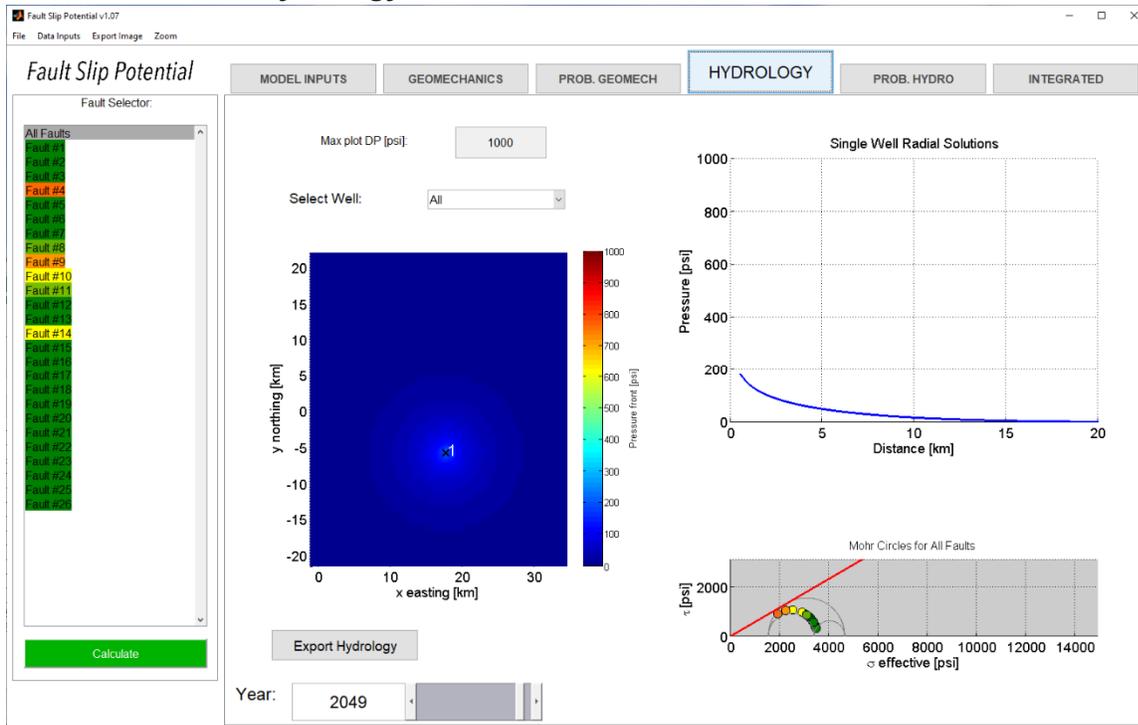


Devonian Year 20 Fault Slip Probability

(0% for all fault segments after 20 years)

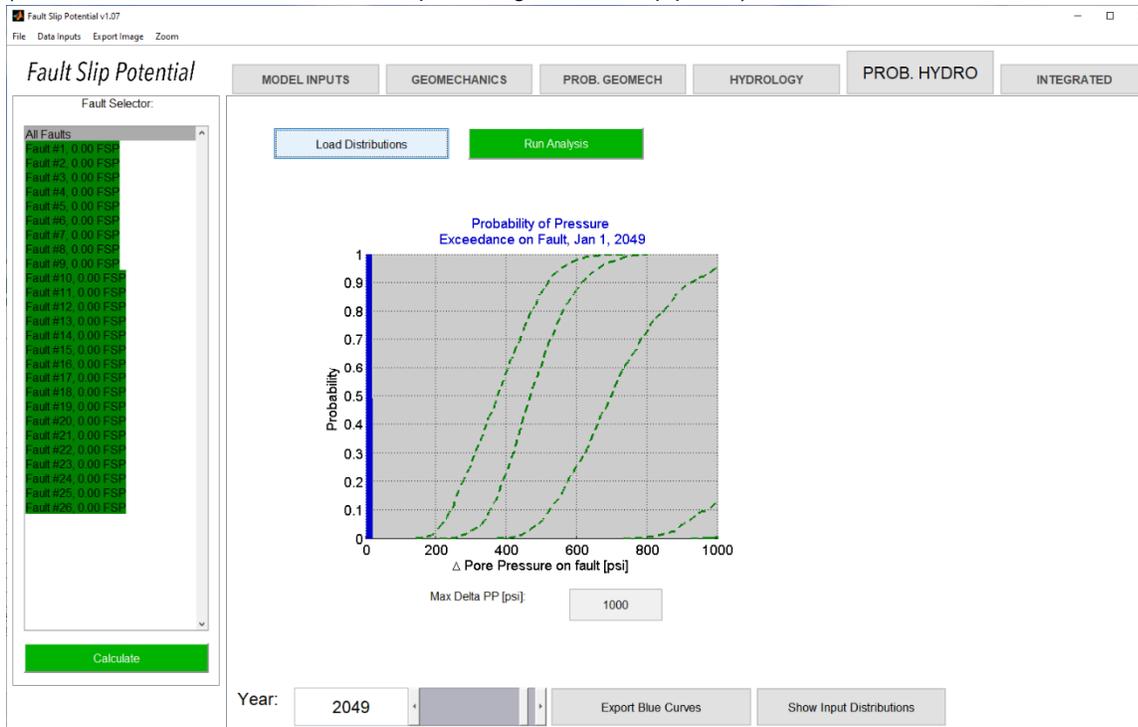


Devonian Year 30 Hydrology



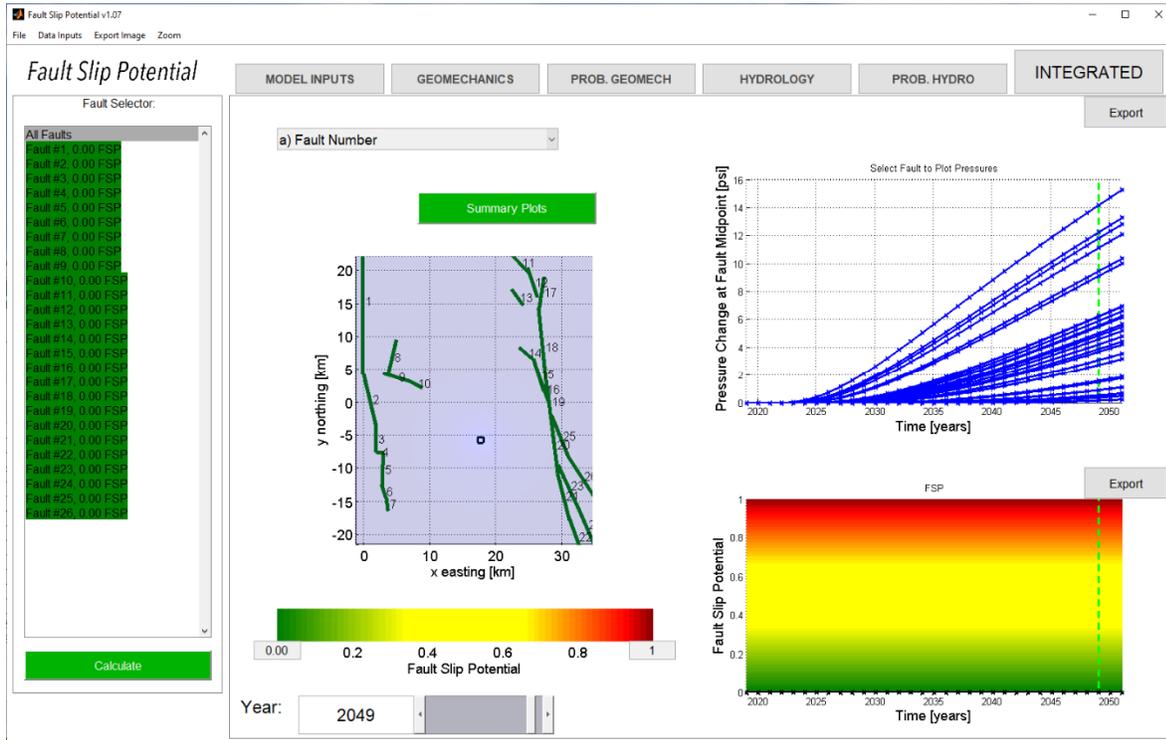
Devonian Year 30 Probabilistic Hydrology

(note no crossover between blue delta-press. & green fault slip press.)



Devonian Year 30 Fault Slip Probability

(0% for all fault segments after 30 years. 14 psi fault delta pressure is much less than the 2750 psi required for fault slip in the closest fault segment #20)



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