

Initial Application Part I

Received 03/14/22

This application is placed in file for record. It MAY or MAY NOT have been reviewed to be determined Administratively Complete

RECEIVED: 3/14/2022	REVIEWER:	TYPE: SWD	APP NO: pJZT2208854789
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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: <u>3Bear Field Services, LLC</u>	OGRID Number: <u>372603</u>
Well Name: <u>Kodiak SWD No. 1</u>	API: <u>30-025-45391</u>
Pool: <u>SWD; Devonian-Silurian</u>	Pool Code: <u>97869</u>

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

1) **TYPE OF APPLICATION:** Check those which apply for [A]

SWD-2473

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 – Agent of 3Bear Field Service

Print or Type Name

Signature

February 22, 2022

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: 3Bear Field Services, LLC
ADDRESS: 1512 Larimer St., Suite 540, Denver, CO 80202
CONTACT PARTY: Mike Solomon PHONE: 303-862-3962
- 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 Weyand  TITLE: Consulting Engineer – Agent for 3Bear Field Service
SIGNATURE: _____ DATE: 02/22/2022
E-MAIL ADDRESS: chris@lonquist.com
- * If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

III. WELL DATA

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

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

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

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

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

XIV. PROOF OF NOTICE

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

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

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

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

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

INJECTION WELL DATA SHEET

OPERATOR: 3Bear Field Services, LLC

WELL NAME & NUMBER: Kodiak SWD No. 1

WELL LOCATION: 736 FSL & 771' FWL
FOOTAGE LOCATION

M
UNIT LETTER

8
SECTION

19S
TOWNSHIP

33E
RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Conductor Casing

Hole Size: 26.000"

Casing Size: 20.00"

Cemented with: 328 sacks

or 361 ft³

Top of Cement: surface

Method Determined: circulation

Surface Casing

Hole Size: 17.500"

Casing Size: 13.375"

Cemented with: 1,374 sacks.

or 1,752 ft³

Top of Cement: surface

Method Determined: circulation

Production Casing

Hole Size: 12.250"

Casing Size: 9.625"

Cemented with: 2,079 sacks

or 4,548 ft³

Top of Cement: surface

Method Determined: circulation

Liner

Hole Size: 8.500"

Casing Size: 7.625"

Cemented with: 703 sacks.

or 850 ft³

Top of Cement: 7,440'

Method Determined: logged

Total Depth: 14,751'

Injection Interval

14,751 feet to 16,400 feet

(Open Hole)

INJECTION WELL DATA SHEET

Tubing Size: 5.5", 17 lb/ft, HCL-80, BTC from 0' – 14,651'

Lining Material: Duoline

Type of Packer: 7-5/8" X 5-1/2" Permanent Packer with High Temperature Elastomer and Full Inconel 925 Trim

Packer Setting Depth: 14,651'

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?

2. Name of the Injection Formation: Devonian, Siluran, Fusselman,

3. Name of Field or Pool (if applicable): SWD; Devonian-Silurian (Pool Code: 97869)

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:

Yates-Seven Rivers: 3,487'

Delaware: 5,714'

Bone Spring: 7,723'

Wolfcamp: 10,771'

Strawn: 12,093'

Atoka: 12,470'

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazon Road, Artec, NM 87410
District IV
1220 S. St Francis Dr., 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 30-025-45391	² Pool Code 97869	³ Pool Name SWD; Silurian-Devonian
⁴ Property Code	⁵ Property Name KODIAK SWD	⁶ Well Number #1
⁷ OGRID No. 372603	⁸ Operator Name 3BEAR FIELD SERVICES, LLC	⁹ Elevation 3655.32'

¹⁰ Surface Location

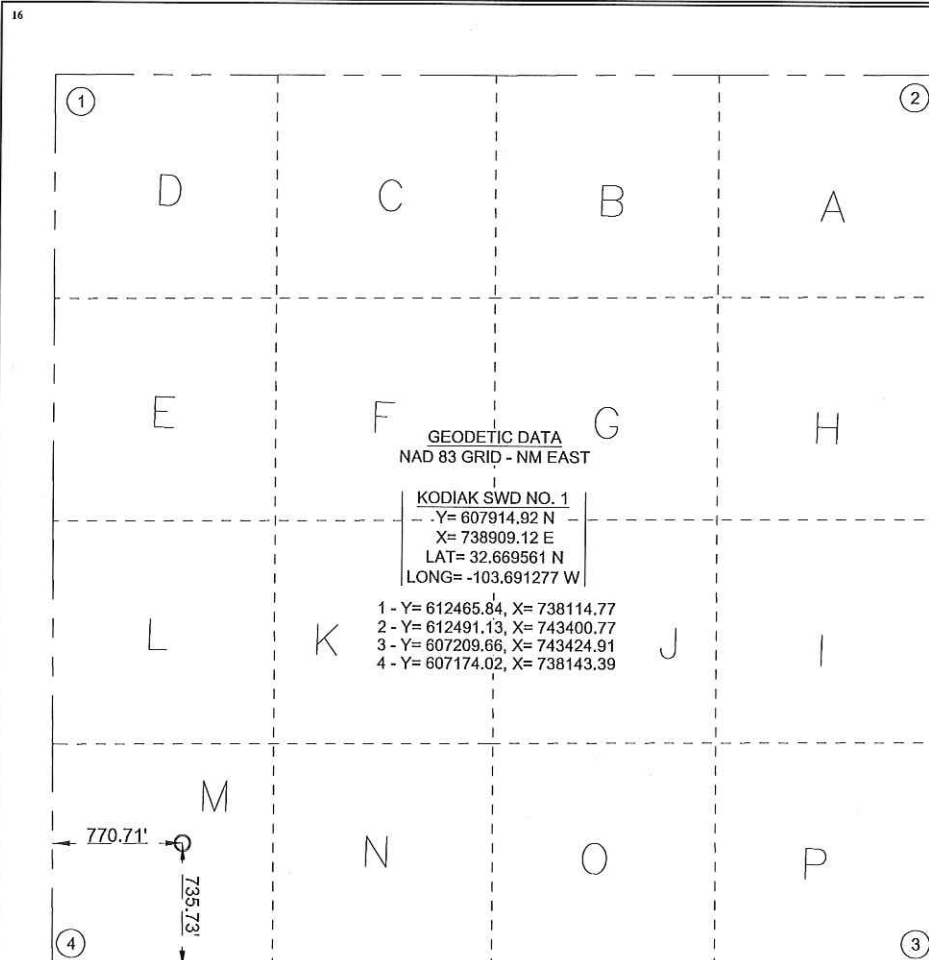
UL or lot no. M	Section 8	Township 19 S	Range 33 E	Lot Idn	Feet from the 736	North/South line SOUTH	Feet from the 771	East/West line WEST	County LEA
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¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
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¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



¹⁷ OPERATOR CERTIFICATION

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

[Signature] 11/12/2018
Signature Date
Tyler Moehlman 11/12/2018
Printed Name Date
tyler.moehlman@lonquist.com 11/12/2018
Email Address Date

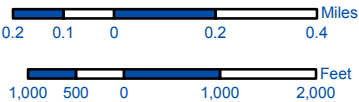
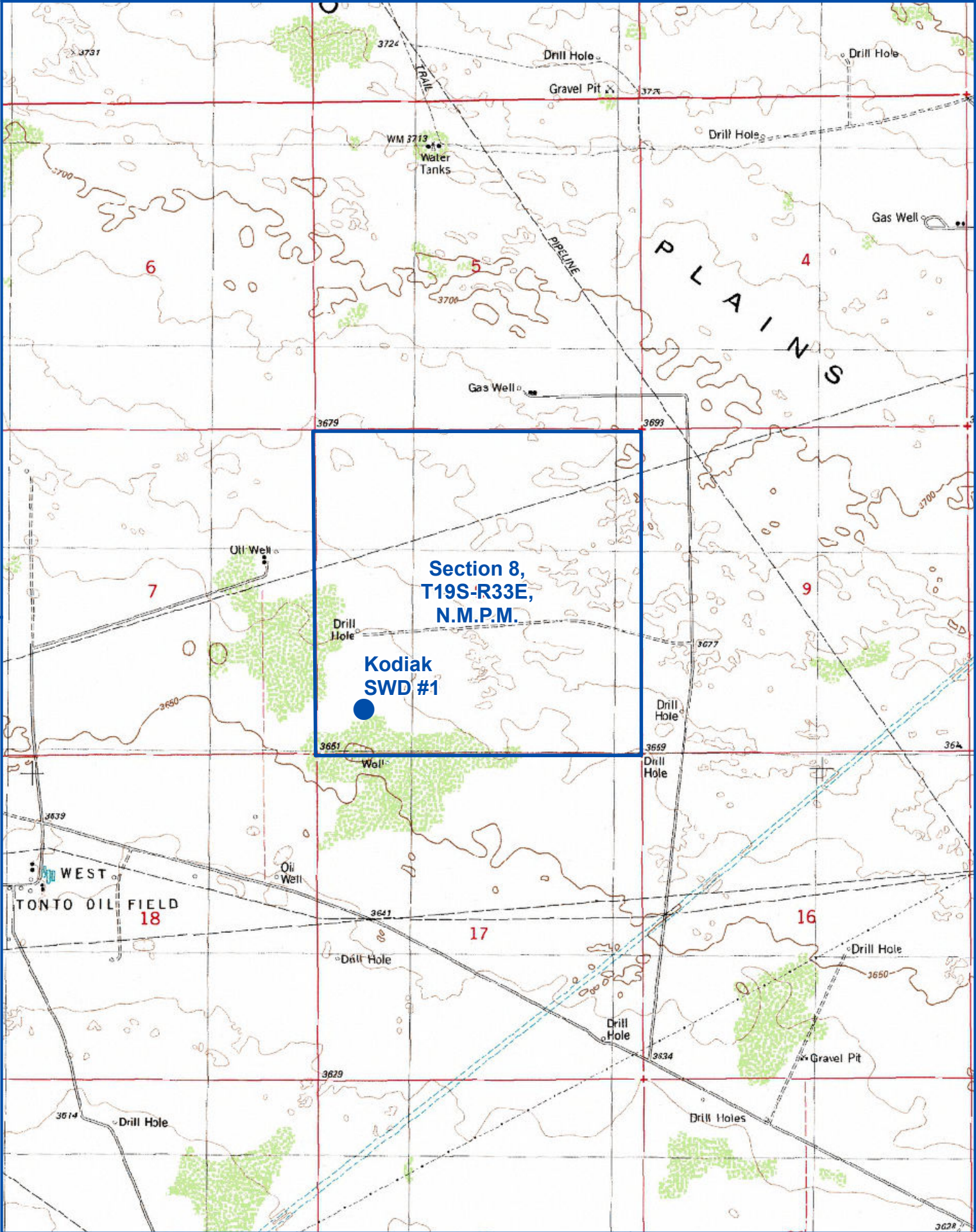
¹⁸ SURVEYOR CERTIFICATION

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

Date of Survey 12 Nov 2018 Date
Signature and Seal of Professional Surveyor:
[Signature]
Certificate Number 20559

LOCATION VERIFICATION MAP

Section eight (8), Township nineteen (19) South,
Range thirty-three (33) East of the Principal Meridian, Lea County, New Mexico

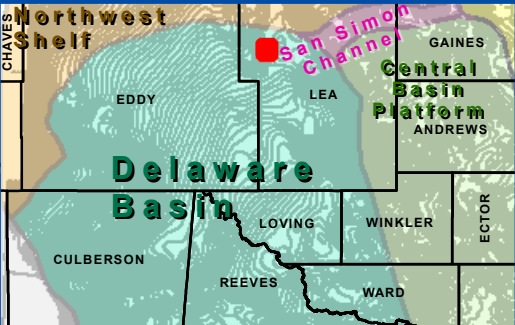


Map Tech: VKV

1" = 2,000'

Date: 11/8/2018

1:24,000



Coordinate System:
NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
Projection: Transverse Mercator
Datum: North American 1983
False Easting: 541,337.5000
False Northing: 0.0000
Central Meridian: -104.3333
Scale Factor: 0.9999
Latitude Of Origin: 31.0000
Units: Foot US



KODIAK SWD #1

SHL Location & Penetration Point:
736' FSL & 771' FWL
Section 8, Township 19 South,
Range 33 East of P.M.
Lea County, New Mexico

OPERATOR:
3BEAR FIELD SERVICES, LLC

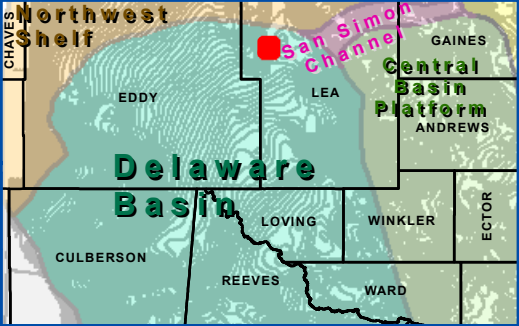
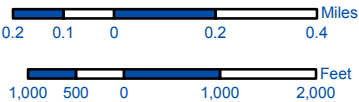


1100 Macon Street
Fort Worth, Texas 76102



AERIAL MAP

Section eight (8), Township nineteen (19) South,
Range thirty-three (33) East of the Principal Meridian, Lea County, New Mexico



KODIAK SWD #1

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736' FSL & 771' FWL
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Range 33 East of P.M.
Lea County, New Mexico

OPERATOR:
3BEAR FIELD SERVICES, LLC



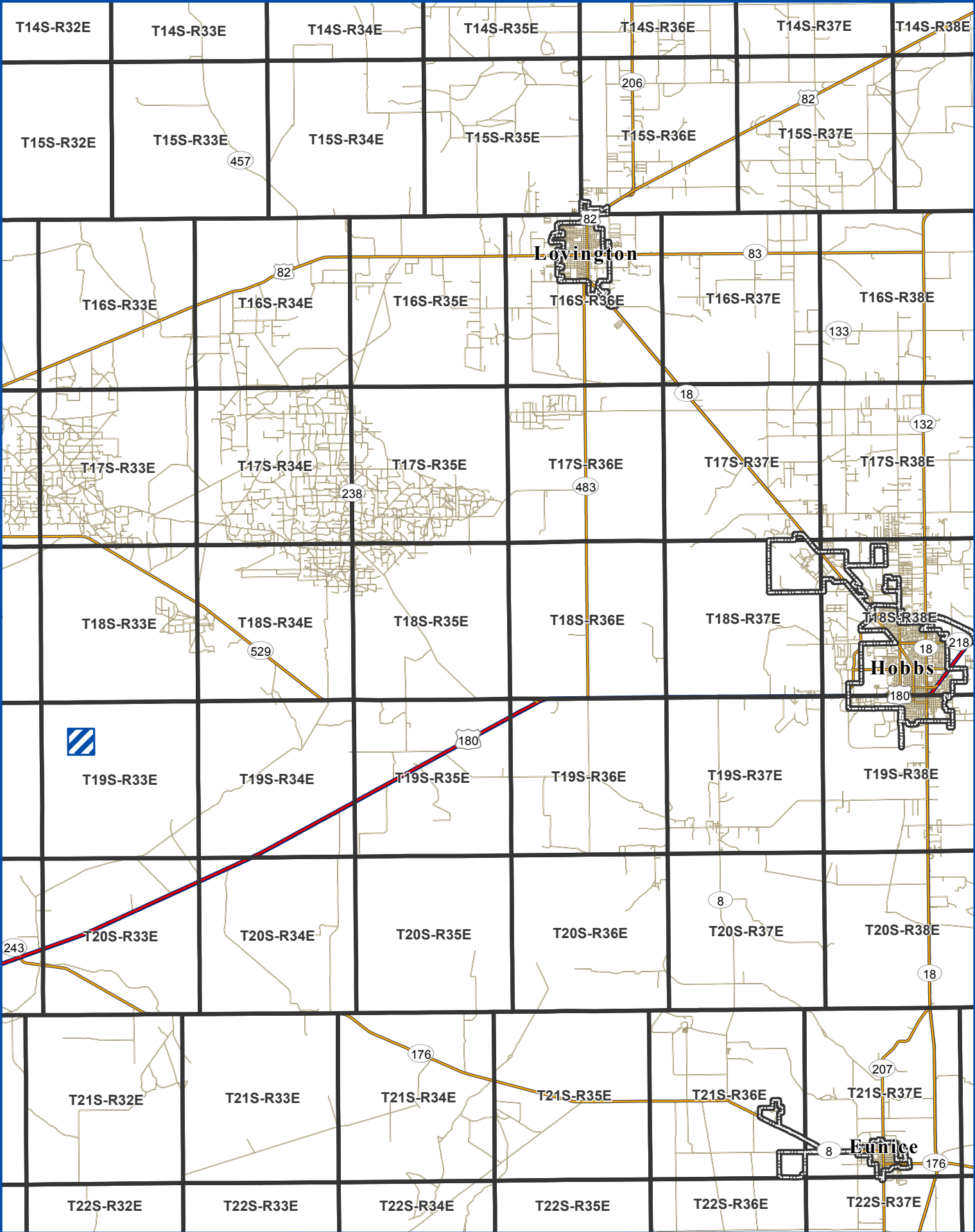
1100 Macon Street
Fort Worth, Texas 76102

Coordinate System:
NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
Projection: Transverse Mercator
Datum: North American 1983
False Easting: 541,337.5000
False Northing: 0.0000
Central Meridian: -104.3333
Scale Factor: 0.9999
Latitude Of Origin: 31.0000
Units: Foot US



VICINITY MAP

Section eight (8), Township nineteen (19) South,
Range thirty-three (33) East of the Principal Meridian, Lea County, New Mexico



Miles

5 2.5 0 5

Feet

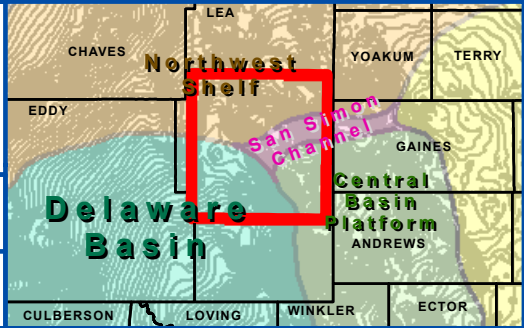
25,000 12,500 0 25,000

Map Tech: VKV

1 " = 25,000 '

Date: 11/8/2018

1:300,000



1100 Macon Street

Fort Worth, Texas 76102

Coordinate System:
NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
Projection: Transverse Mercator
Datum: North American 1983
False Easting: 541,337.5000
False Northing: 0.0000
Central Meridian: -104.3333
Scale Factor: 0.9999
Latitude Of Origin: 31.0000
Units: Foot US

N
W E
S

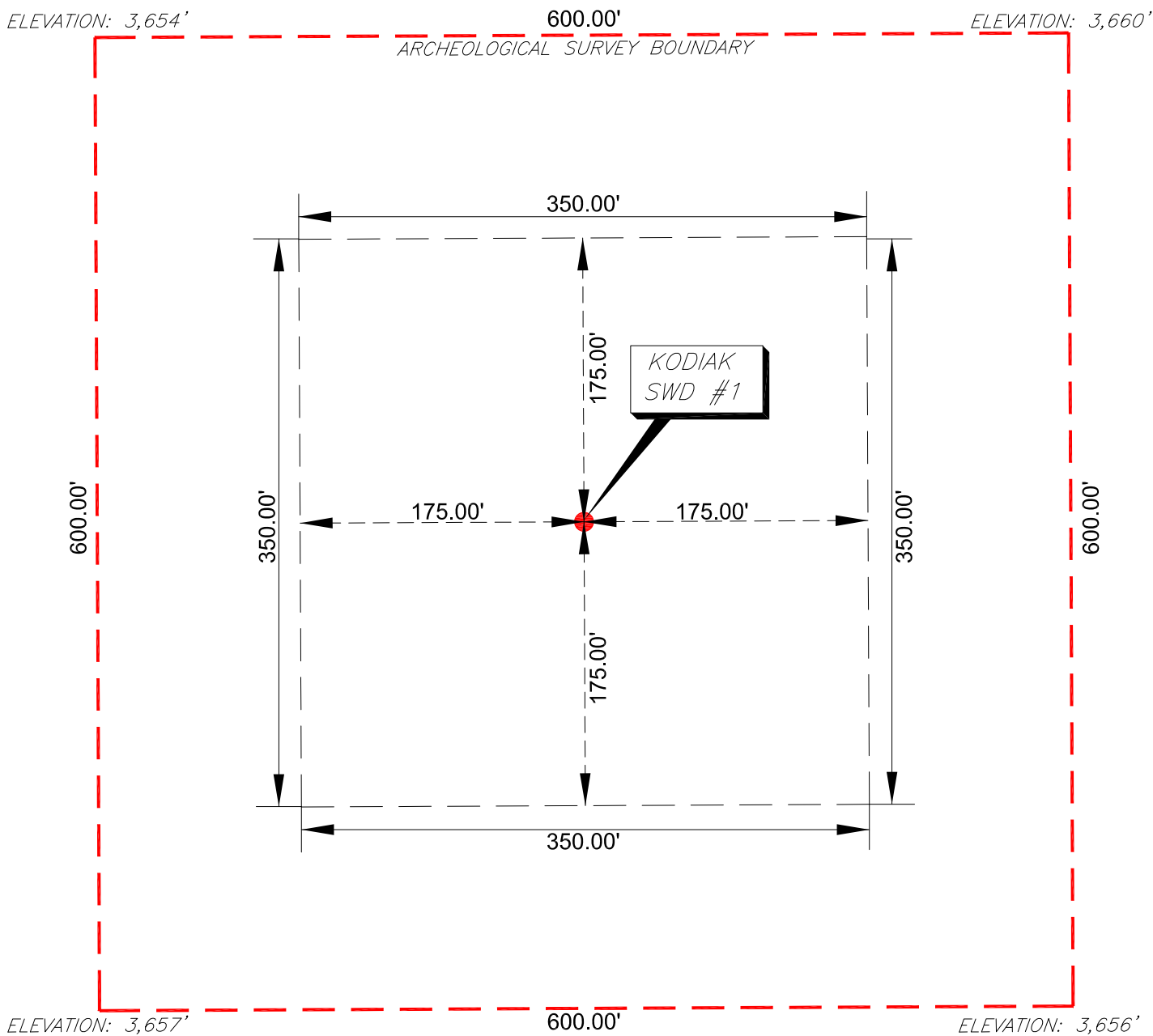
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Section 8, Township 19 South,
Range 33 East of P.M.
Lea County, New Mexico

OPERATOR:
3BEAR FIELD SERVICES, LLC

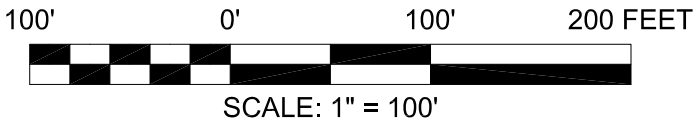
LEA COUNTY, NEW MEXICO

SECTION EIGHT (8), TOWNSHIP NINETEEN (19) SOUTH,
RANGE THIRTY-THREE (33) EAST OF THE PRINCIPAL MERIDIAN



COORDINATE TABLE				
WELL NAME	NORTHING (N.A.D. 27)	EASTING (N.A.D. 27)	NORTHING (N.A.D. 83)	EASTING (N.A.D. 83)
KODIAK SWD #1 SURFACE LOCATION & PENETRATION POINT	607851.67	697729.56	607914.92	738909.12
ELEVATION	LATITUDE (N.A.D. 27)	LONGITUDE (N.A.D. 27)	LATITUDE (N.A.D. 83)	LONGITUDE (N.A.D. 83)
3,655.32'	32.669439	-103.690778	32.669561	-103.691277

THE KODIAK SWD #1 IS LOCATED
APPROXIMATELY 25 MILES NORTHWEST
OF MONUMENT, NEW MEXICO



NOTES:

- 1.) BEARINGS & COORDINATES SHOWN HEREON ARE REFERENCED TO THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, N.A.D. 27 & 83 DATUM (NEW MEXICO EAST ZONE) DERIVED FROM GPS OBSERVATIONS AND ARE BASED REFERENCE STATIONS - "E 148" - MALJAMAR NE (1985)
- 2.) LATITUDE & LONGITUDE ARE NAD 83 & 27 GEOGRAPHIC.
- 3.) THIS IS AN WELL PLAT AND DOES NOT REPRESENT A TRUE BOUNDARY SURVEY. THIS SURVEY IS BASED ON OWNERSHIP AND EASEMENT INFORMATION PROVIDED BY APACHE CORPORATION. SURVEYOR DID NOT ABSTRACT SUBJECT TRACT AND THERE MAY BE EASEMENTS OR OTHER ENCUMBRANCES THAT AFFECT THE SUBJECT TRACT THAT ARE NOT SHOWN HEREON.



1100 Macon Street
Fort Worth, Texas 76102
(817) 529-1180 ~ Fax (817) 529-1181



Location of

KODIAK SWD #1

Surface Location & Penetration Point: 736' FSL & 771' FWL

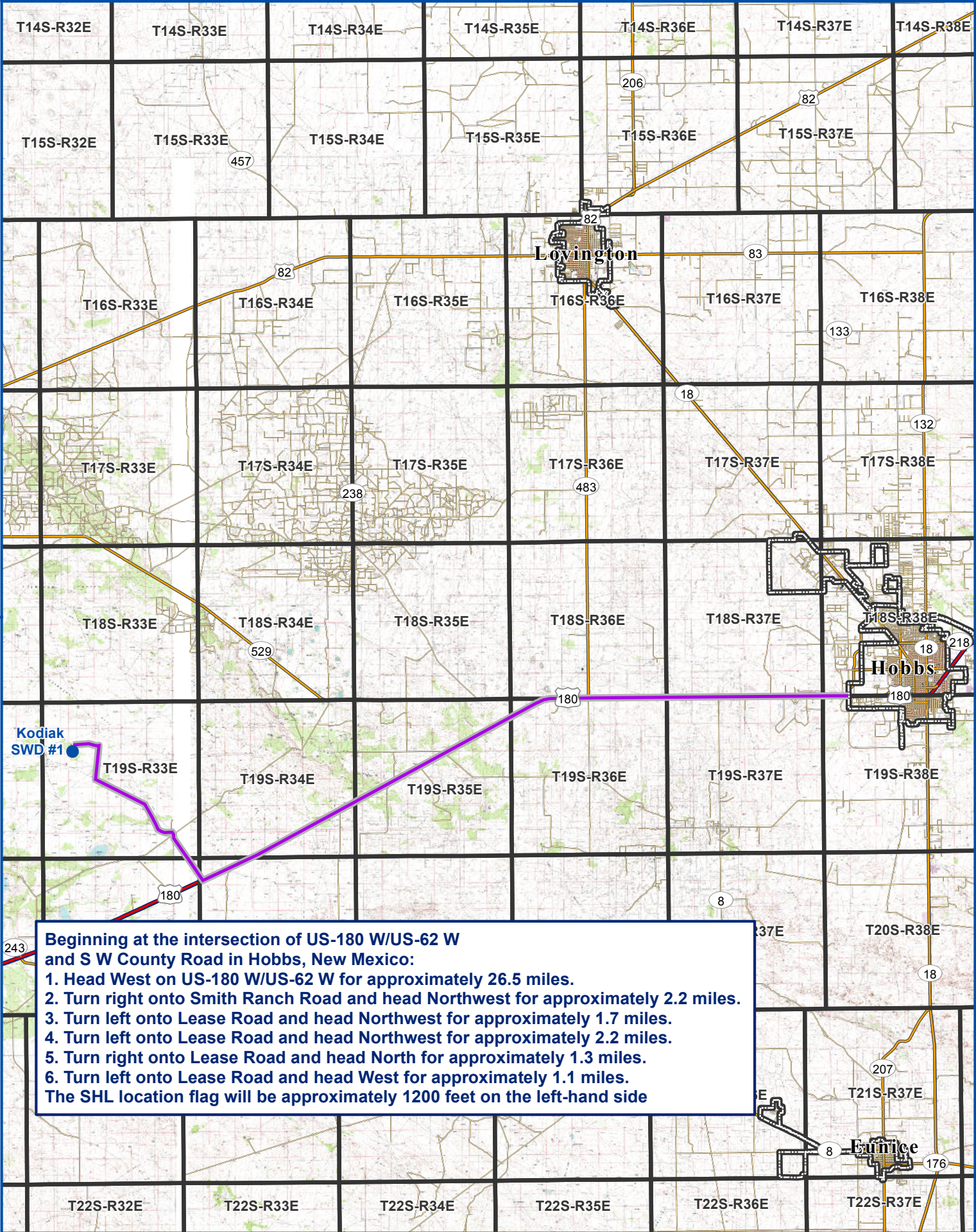
Section 8, Township 19 South, Range 33 East of P.M.

Lea County, New Mexico

DRAWN BY: JWP	DATE: 11-7-2018	DWG. NO.	REV.
CHECKED BY: JLW	DATE: 11-7-2018	D:\Dropbox (Tide Resources)\Tide Resources Team Folder\Longist\1810011_Kodiak SWD #1\Exhibits	1
SCALE: 1" = 100'	APP.:	PAGE 1 OF 1	

ROAD ROUTE MAP

Section eight (8), Township nineteen (19) South,
Range thirty-three (33) East of the Principal Meridian, Lea County, New Mexico



Beginning at the intersection of US-180 W/US-62 W
and S W County Road in Hobbs, New Mexico:

1. Head West on US-180 W/US-62 W for approximately 26.5 miles.
2. Turn right onto Smith Ranch Road and head Northwest for approximately 2.2 miles.
3. Turn left onto Lease Road and head Northwest for approximately 1.7 miles.
4. Turn left onto Lease Road and head Northwest for approximately 2.2 miles.
5. Turn right onto Lease Road and head North for approximately 1.3 miles.
6. Turn left onto Lease Road and head West for approximately 1.1 miles.

The SHL location flag will be approximately 1200 feet on the left-hand side

52.500

25.000

12.500

0

25.000

52.500

Miles

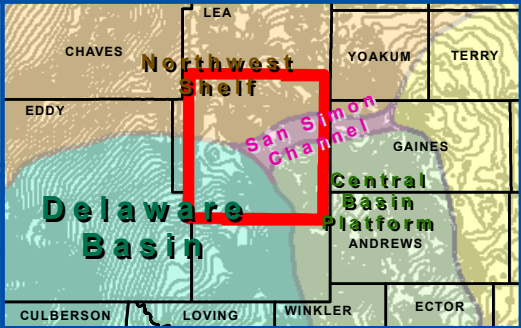
Feet

Map Tech: VKV

1 " = 25,000 '

Date: 11/8/2018

1:300,000



Coordinate System:
NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
Projection: Transverse Mercator
Datum: North American 1983
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False Northing: 0.0000
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SHL Location & Penetration Point:
736' FSL & 771' FWL
Section 8, Township 19 South,
Range 33 East of P.M.
Lea County, New Mexico

OPERATOR:
3BEAR FIELD SERVICES, LLC



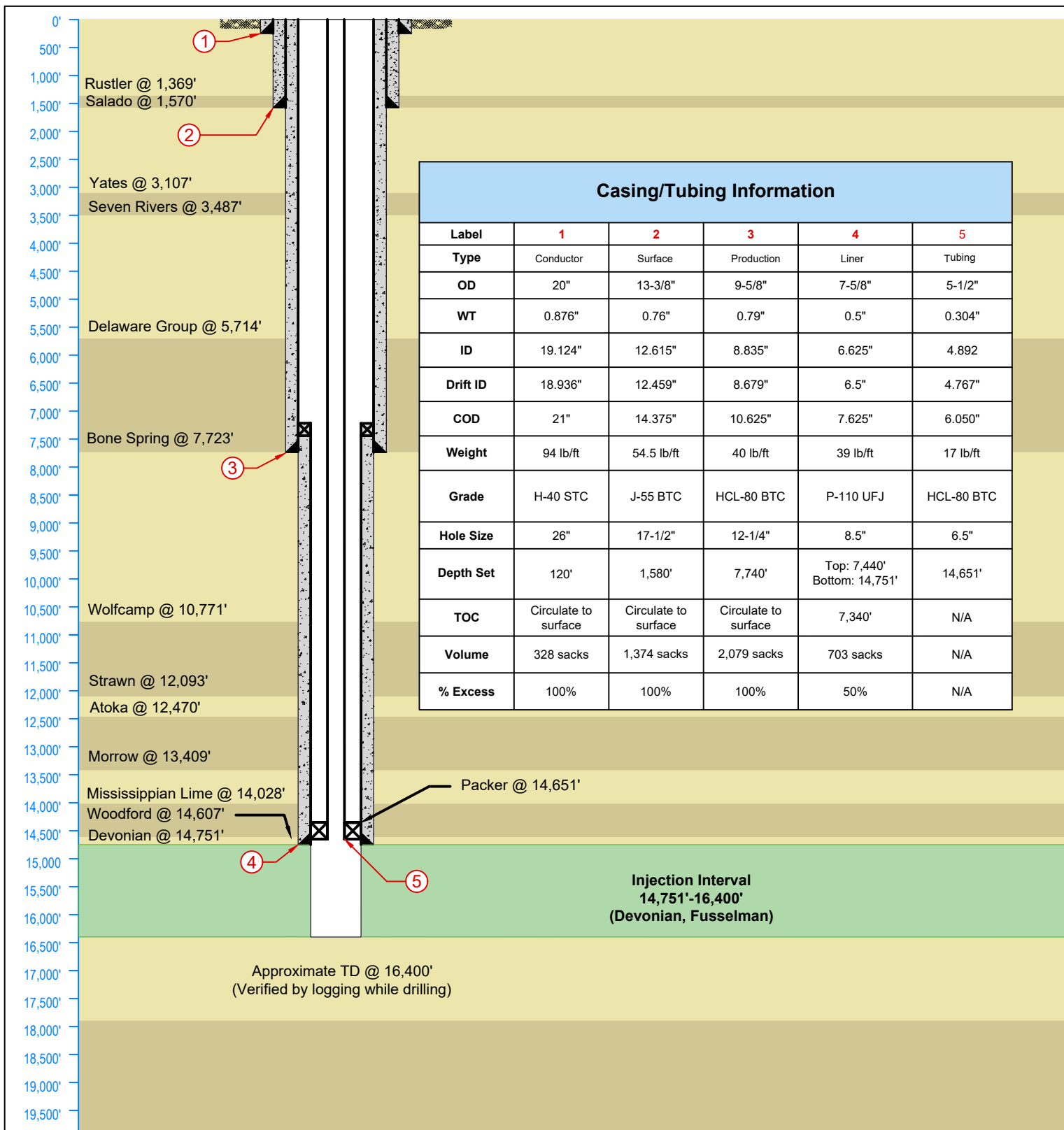


TRANSGLOBAL

SERVICES LLC

1100 Macon Street

Fort Worth, Texas 76102



<div>LONQUIST & CO. LLC</div> <div><div>PETROLEUM ENGINEERS</div><div>ENERGY ADVISORS</div></div> <div><div>HOUSTON CALGARY</div><div>AUSTIN WICHITA DENVER</div></div>	3Bear Field Services, LLC		Kodiak SWD No. 1	
	Country: USA		State/Province: New Mexico	County/Parish: Lea
	Location:		Site: 2,291 FNL 841 FWL	Survey: S17-T19S-R33E
	API No: NA		Field:	Well Type/Status: SWD
	Texas License F-9147		Project No: 1773	Date: 11/20/2019
12912 Hill Country Blvd. Ste F-200 Austin, Texas 78738 Tel: 512.732.9812 Fax: 512.732.9816	NMOCD District No: 1		Approved:	
	Drawn: TFM		Reviewed:	
	Rev No: 1		Notes: Amended injection interval and tubing depth	



3Bear Field Services, LLC

Kodiak SWD No. 1

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1.

Well information	
Lease Name	Kodiak SWD
Well No.	1
Location	S-8 T-19S R-33E
Footage Location	736' FSL & 771' FWL

2.

a. Wellbore Description

Casing Information				
Type	Conductor	Surface	Production	Liner
OD	20"	13-3/8"	9-5/8"	7-5/8"
WT	0.876"	0.76"	0.79"	0.5"
ID	19.124"	12.615"	8.835"	6.625"
Drift ID	18.936"	12.459"	8.679"	6.5"
COD	21"	14.375"	10.625"	7.625"
Weight	94 lb/ft	54.5 lb/ft	40 lb/ft	39 lb/ft
Grade	H-40 STC	J-55 BTC	HCL-80 BTC	P-110 UFJ
Hole Size	26"	17.5"	12.25"	8.5"
Depth Set	120'	1,580'	7,740'	7,440'-14,751'

Note: The openhole section, from the base of the production liner to total depth (TD) of 16,400' will be drilled with a 6-1/2" bit.

b. Cementing Program

Cement Information				
Casing String	Surface	Intermediate	Production	Liner
Lead Cement	Class H	HalCem	Stage 1: NeoCem Stage 2: NeoCem Stage 3: ExtendaCem	VERSACEM w/ gas migration control additives
Lead Cement Volume	328 sks	1,017 sks	Stage 1: 375 sks Stage 2: 782 sks Stage 3: 375 sks	703 sks
Tail Cement	-	HalCem	Stage 1: HalCem Stage 2: HalCem	Halcem
Tail Cement Volume	-	357 sks	Stage 1: 500 sks Stage 2: 47 sks	
Cement Excess	100%	100%	100%	50%
TOC	Surface	Surface	Surface	7,340'
Method	Circulate to Surface	Circulate to Surface	Circulate to Surface	Logged

3. Tubing Description

OD	5.5"
WT	0.304"
ID	4.892"
Drift ID	4.767"
Weight	17 lb/ft
Grade	HCL-80 BTC
Depth Set	0'-14,651'

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, will be set at a depth of 14,651'.

B. Completion Information

1. Injection Formation: Devonian, Silurian, Fusselman

2. Gross Injection Interval: 14,751' – 16,400'

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
Yates-Seven Rivers	3,487'
Delaware	5,714'
Bone Spring	7,723'
Wolfcamp	10,771'
Strawn	12,093'
Atoka	12,470'

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: 20,000 BPD

Maximum Volume: 25,000 BPD

The proposed Kodiak SWD No. 1 will be utilized as a commercial injection salt water disposal well.

2. Closed System
3. Anticipated Injection Pressure:

Average Injection Pressure: 2,213 PSI (surface pressure)

Maximum Injection Pressure: 2,950 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

Devonian Formation Lithology:

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.

Fusselman Formation Lithology:

The Silurian/Ordovician Fusselman Formation is stratigraphically below the Wristen Group and is above and separated from the Montoya Formation by the Sylvan Shale. The Sylvan Shale is the lower confining layer for the proposed Kodiak SWD No. 1 well. Fusselman facies include a laminated skeletal wackestone in the upper part and a buildup complex in the lower part composed of ooid and bryozoan grainstones. These grainstones can also be potentially prolific zones for disposal.

A. Injection Zone: Devonian-Silurian Formation

Formation	Depth
Rustler	1,369'
Salado	1,570
Yates	3,107'
Seven Rivers	3,487'
Delaware	5,714'
Bone Spring	7,723'
Wolfcamp	10,771'
Strawn	12,093'
Atoka	12,470'
Morrow	13,409'
Mississippian Lime	14,028'
Woodford	14,607'
Devonian	14,751'

B. Underground Sources of Drinking Water

Within 1-mile of the proposed Kodiak SWD No. 1 location, there is one water well. The water well has been reported of having a depth of 110 ft. Water wells in the surrounding area have an average depth of 265 ft and an average water depth of 182 ft. Additionally, the Rustler (top @ ~1,369') will be protected with surface casing set at 1,580' (just into the Salado Salt) and cemented to surface.

IX. Proposed Stimulation Program

No stimulation program planned.

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. It shall be noted that the top of cement for the liner will be determined through logging the liner section upon completion of running casing.

XI. Chemical Analysis of Fresh Water Wells

Attached is a map of all water wells that exist within one mile of the well location. One water well lies within a 1-mile radius of the Kodiak SWD No. 1. A Water Right Summary from the New Mexico Office of the State Engineer is attached for water well CP-00810-POD1. Water samples for the CP-00810-POD1 were attempted to be retrieved but the sample test was a dry run.

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 Kodiak SWD No. 1) and any underground sources of drinking water.

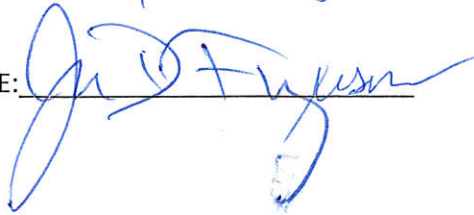
NAME:

Jerry D. Ferguson

TITLE:

Geologist

SIGNATURE:

A handwritten signature in blue ink, appearing to read "Jerry D. Ferguson", written over a horizontal line.

DATE:

10/23/2018



New Mexico Office of the State Engineer


Water Right Summary




[get image list](#)

WR File Number: CP 00810 **Subbasin:** CP **Cross Reference:-**
Primary Purpose: PLS NON 72-12-1 LIVESTOCK WATERING
Primary Status: DCL DECLARATION
Total Acres: 0 **Subfile:** -
Total Diversion: 3 **Cause/Case:** -
Owner: KENNETH SMITH

Documents on File

Trn #	Doc	File/Act	Status		Transaction Desc.	From/ To	Acres	Diversion	Consumptive
			1	2					
 get images	563319	DCL	1993-08-04		DCL PRC CP 00810	T	0	3	

Current Points of Diversion

POD Number	Source	Q Q Q			(NAD83 UTM in meters)		X	Y	Other Location Desc
		64	16	4	Sec	Tws			
CP 00810 POD1	Shallow	3	3	08	19S	33E	622675	3615385*	

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

Priority Summary

Priority	Status	Acres	Diversion	Pod Number	Source
12/31/1965	DCL	0	3	CP 00810 POD1	Shallow

Place of Use

Q Q Q Q				Acres	Diversion	CU	Use	Priority	Status	Other Location Desc
256	64	16	4							
				0	3		PLS	12/31/1965	DCL	NO PLACE OF USE GIVEN

Source

Acres	Diversion	CU	Use	Priority	Source Description
0	3		PLS	12/31/1965	GW



March 11, 2022

Dear Chris Weyand:

The following is in response to your request for proof of delivery on your item with the tracking number:
9314 8699 0430 0092 2977 57.

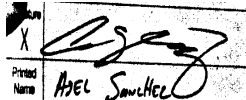
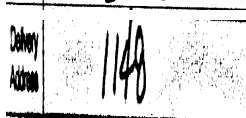
Item Details

Status:	Delivered, Individual Picked Up at Postal Facility
Status Date / Time:	March 2, 2022, 6:43 am
Location:	SANTA FE, NM 87501
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic
Recipient Name:	NEW MEXICO STATE LAND OFFICE

Shipment Details

Weight:	6.0oz
----------------	-------

Recipient Signature

Signature of Recipient:	
Address of Recipient:	

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Washington, D.C. 20260-0004



March 11, 2022

Dear Chris Weyand:

The following is in response to your request for proof of delivery on your item with the tracking number:
9314 8699 0430 0092 2977 64.

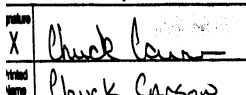
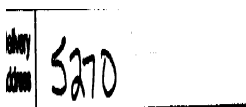
Item Details

Status:	Delivered, Individual Picked Up at Postal Facility
Status Date / Time:	February 28, 2022, 1:24 pm
Location:	HOBBS, NM 88240
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic
Recipient Name:	MEWBOURNE OIL CO

Shipment Details

Weight:	6.0oz
----------------	-------

Recipient Signature

Signature of Recipient:	
Address of Recipient:	

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Washington, D.C. 20260-0004



March 11, 2022

Dear Chris Weyand:

The following is in response to your request for proof of delivery on your item with the tracking number:
9314 8699 0430 0092 2977 71.

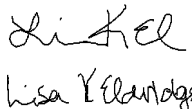

Item Details

Status:	Delivered, Individual Picked Up at Post Office
Status Date / Time:	March 1, 2022, 10:24 am
Location:	ROSWELL, NM 88201
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic
Recipient Name:	YATES ENERGY CORP

Shipment Details

Weight:	6.0oz
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Recipient Signature

Signature of Recipient:	
Address of Recipient:	

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Washington, D.C. 20260-0004



March 11, 2022

Dear Chris Weyand:

The following is in response to your request for proof of delivery on your item with the tracking number:
9314 8699 0430 0092 2978 18.

Item Details

Status:	Delivered, Individual Picked Up at Post Office
Status Date / Time:	March 1, 2022, 4:16 pm
Location:	ROSWELL, NM 88201
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic
Recipient Name:	SEALY H CAVIN INC

Shipment Details

Weight:	6.0oz
----------------	-------

Recipient Signature

Signature of Recipient:

CMcClelland
C McClelland
PO BOX 1125

Address of Recipient:

ROSWELL, NM 88202-1125

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March 11, 2022

Dear Chris Weyand:

The following is in response to your request for proof of delivery on your item with the tracking number:
9314 8699 0430 0092 2978 25.

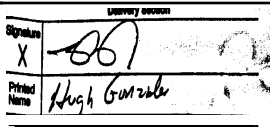

Item Details

Status:	Delivered, PO Box
Status Date / Time:	March 1, 2022, 9:27 am
Location:	SAN ANTONIO, TX 78205
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic
Recipient Name:	FROST BANK TRUSTEE JT HUDSON FBO JT ARD

Shipment Details

Weight:	6.0oz
----------------	-------

Recipient Signature

Signature of Recipient:	
Address of Recipient:	

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March 11, 2022

Dear Chris Weyand:

The following is in response to your request for proof of delivery on your item with the tracking number:
9314 8699 0430 0092 2978 32.

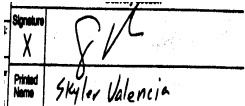
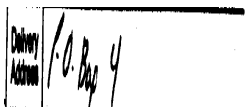
Item Details

Status:	Delivered
Status Date / Time:	February 28, 2022, 10:47 am
Location:	LOCO HILLS, NM 88255
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic
Recipient Name:	WESTALL OIL GAS LLC

Shipment Details

Weight:	6.0oz
----------------	-------

Recipient Signature

Signature of Recipient:	
Address of Recipient:	

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March 11, 2022

Dear Chris Weyand:

The following is in response to your request for proof of delivery on your item with the tracking number:
9314 8699 0430 0092 2978 49.

Item Details

Status:	Delivered, Individual Picked Up at Post Office
Status Date / Time:	March 8, 2022, 9:58 am
Location:	HUNTSVILLE, TX 77320
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic
Recipient Name:	SANDEL ENERGY INC

Shipment Details

Weight:	6.0oz
----------------	-------

Recipient Signature

Signature of Recipient:


KEVIN GREEN
PO BOX 1917

Address of Recipient:

HUNTSVILLE, TX 77342-1917

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Washington, D.C. 20260-0004



March 11, 2022

Dear Chris Weyand:

The following is in response to your request for proof of delivery on your item with the tracking number:
9314 8699 0430 0092 2978 56.

Item Details

Status:	Delivered, Individual Picked Up at Post Office
Status Date / Time:	February 28, 2022, 11:30 am
Location:	ARTESIA, NM 88210
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic
Recipient Name:	MACK ENERGY CORP

Shipment Details

Weight:	6.0oz
----------------	-------

Recipient Signature

Signature of Recipient:

K. Bee
Blauveyard

Address of Recipient:

960

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March 11, 2022

Dear Customer:

Proof-of-delivery letters are being provided for the following shipments:

7761 2457 2246	ROSWELL, NM
7761 2465 6253	ROSWELL, NM
7761 3081 8838	Hobbs, NM
7761 3086 4480	Santa Fe, NM
7761 3093 6510	Midland, TX
7761 3095 8319	Fort Worth, TX
7761 3098 5183	Midland, TX
7761 3107 7349	Midland, TX
7761 3110 1553	Bartlesville, OK
7761 3122 6608	Fort Worth, TX
7761 3150 1598	Midland, TX
7761 3153 5910	Canon City, CO
7761 3160 1031	Addison, TX
7761 3164 4777	Lake Arthur, NM
7761 3167 9495	Addison, TX
7761 3170 6610	Houston, TX
7761 3173 3717	Oklahoma City, OK
7761 3175 6214	Midland, TX
7761 3177 9693	Artesia, NM
7761 3194 7476	Houston, TX
7761 8198 7923	AUSTIN, TX
7762 2380 0675	HOUSTON, TX
7762 2397 7234	ANNA, TX
7762 6359 4700	FORT WORTH, TX
9882 8235 1800	HOUSTON, TX
7761 8187 4092	CULLMAN, AL

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1.800.GoFedEx 1.800.463.3339



March 11, 2022

Dear Customer,

The following is the proof-of-delivery for tracking number: 7761 2457 2246

Delivery Information:

Status:	Delivered	Delivered To:	FedEx Location
Signed for by:	S.SCOTT	Delivery Location:	
Service type:	FedEx 2Day		
Special Handling:	Deliver Weekday; Direct Signature Required		ROSWELL, NM,
		Delivery date:	Feb 28, 2022 17:20

Shipping Information:

Tracking number:	7761 2457 2246	Ship Date:	Feb 23, 2022
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
ROSWELL, NM, US,		HOUSTON, TX, US,	

Reference 1773-KODIAK SWD #1/LN

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March 11, 2022

Dear Customer,

The following is the proof-of-delivery for tracking number: 7761 2465 6253

Delivery Information:

Status:	Delivered	Delivered To:	FedEx Location
Signed for by:	S.SCOTT	Delivery Location:	
Service type:	FedEx 2Day		
Special Handling:	Deliver Weekday; Direct Signature Required		ROSWELL, NM,
		Delivery date:	Feb 28, 2022 17:20

Shipping Information:

Tracking number:	7761 2465 6253	Ship Date:	Feb 23, 2022
		Weight:	2.0 LB/0.91 KG
Recipient:		Shipper:	
ROSWELL, NM, US,		Houston, TX, US,	

Reference	1773-KODIAK SWD #1/LN
------------------	-----------------------

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March 11, 2022

Dear Customer,

The following is the proof-of-delivery for tracking number: 7761 3081 8838

Delivery Information:

Status:	Delivered	Delivered To:	
Signed for by:	SSMITHS	Delivery Location:	
Service type:	FedEx Ground		
Special Handling:	Direct Signature Required		Hobbs, NM,
		Delivery date:	Feb 28, 2022 10:51

Shipping Information:

Tracking number:	7761 3081 8838	Ship Date:	Feb 25, 2022
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
HOBBS, NM, US,		HOUSTON, TX, US,	

Reference	1773-KODIAK SWD #1/LN
------------------	-----------------------

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March 11, 2022

Dear Customer,

The following is the proof-of-delivery for tracking number: 7761 3086 4480

Delivery Information:

Status:	Delivered	Delivered To:	
Signed for by:	DDURAN	Delivery Location:	
Service type:	FedEx Ground		
Special Handling:	Direct Signature Required		Santa Fe, NM,
		Delivery date:	Feb 28, 2022 12:02

Shipping Information:

Tracking number:	7761 3086 4480	Ship Date:	Feb 25, 2022
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
SANTA FE, NM, US,		HOUSTON, TX, US,	

Reference	1773-KODIAK SWD #1/LN
------------------	-----------------------

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March 11, 2022

Dear Customer,

The following is the proof-of-delivery for tracking number: 7761 3093 6510

Delivery Information:

Status:	Delivered	Delivered To:	
Signed for by:	TFORESTER	Delivery Location:	
Service type:	FedEx Ground		
Special Handling:	Direct Signature Required		Midland, TX,
		Delivery date:	Feb 28, 2022 12:06

Shipping Information:

Tracking number:	7761 3093 6510	Ship Date:	Feb 25, 2022
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
MIDLAND, TX, US,		AUSTIN, TX, US,	

Reference 1773-KODIAK SWD #1/LN

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March 11, 2022

Dear Customer,

The following is the proof-of-delivery for tracking number: 7761 3095 8319

Delivery Information:

Status:	Delivered	Delivered To:	
Signed for by:	LLINDA	Delivery Location:	
Service type:	FedEx Ground		
Special Handling:	Direct Signature Required		Fort Worth, TX,
		Delivery date:	Feb 28, 2022 10:20

Shipping Information:

Tracking number:	7761 3095 8319	Ship Date:	Feb 25, 2022
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
FORT WORTH, TX, US,		AUSTIN, TX, US,	

Reference	1773-KODIAK SWD #1/LN
------------------	-----------------------

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March 11, 2022

Dear Customer,

The following is the proof-of-delivery for tracking number: 7761 3098 5183

Delivery Information:

Status:	Delivered	Delivered To:	
Signed for by:	EESPARSA	Delivery Location:	
Service type:	FedEx Ground		
Special Handling:	Direct Signature Required		Midland, TX,
		Delivery date:	Feb 28, 2022 14:25

Shipping Information:

Tracking number:	7761 3098 5183	Ship Date:	Feb 25, 2022
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
MIDLAND, TX, US,		AUSTIN, TX, US,	

Reference	1773-KODIAK SWD #1/LN
------------------	-----------------------

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March 11, 2022

Dear Customer,

The following is the proof-of-delivery for tracking number: 7761 3107 7349

Delivery Information:

Status:	Delivered	Delivered To:	
Signed for by:	HVARGAS	Delivery Location:	
Service type:	FedEx Ground		
Special Handling:	Direct Signature Required		Midland, TX,
		Delivery date:	Mar 1, 2022 15:42

Shipping Information:

Tracking number:	7761 3107 7349	Ship Date:	Feb 25, 2022
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
MIDLAND, TX, US,		AUSTIN, TX, US,	

Reference 1773-KODIAK SWD #1/LN

Thank you for choosing FedEx



March 11, 2022

Dear Customer,

The following is the proof-of-delivery for tracking number: 7761 3110 1553

Delivery Information:

Status:	Delivered	Delivered To:	
Signed for by:	GHG	Delivery Location:	
Service type:	FedEx Ground		
Special Handling:	Direct Signature Required		Bartlesville, OK,
		Delivery date:	Mar 2, 2022 11:48

Shipping Information:

Tracking number:	7761 3110 1553	Ship Date:	Feb 25, 2022
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
BARTLESVILLE, OK, US,		AUSTIN, TX, US,	

Reference	1773-KODIAK SWD #1/LN
------------------	-----------------------

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March 11, 2022

Dear Customer,

The following is the proof-of-delivery for tracking number: 7761 3122 6608

Delivery Information:

Status:	Delivered	Delivered To:	
Signed for by:	GGIOERT	Delivery Location:	
Service type:	FedEx Ground		
Special Handling:	Direct Signature Required		Fort Worth, TX,
		Delivery date:	Feb 28, 2022 12:38

Shipping Information:

Tracking number:	7761 3122 6608	Ship Date:	Feb 25, 2022
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
FORT WORTH, TX, US,		AUSTIN, TX, US,	

Reference 1773-KODIAK SWD #1/LN

Thank you for choosing FedEx



March 11, 2022

Dear Customer,

The following is the proof-of-delivery for tracking number: 7761 3150 1598

Delivery Information:

Status:	Delivered	Delivered To:	
Signed for by:	LLEWIZ	Delivery Location:	
Service type:	FedEx Ground		
Special Handling:	Direct Signature Required		Midland, TX,
		Delivery date:	Feb 28, 2022 16:32

Shipping Information:

Tracking number:	7761 3150 1598	Ship Date:	Feb 25, 2022
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
MIDLAND, TX, US,		AUSTIN, TX, US,	

Reference	1773-KODIAK SWD#1/LN
------------------	----------------------

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March 11, 2022

Dear Customer,

The following is the proof-of-delivery for tracking number: 7761 3153 5910

Delivery Information:

Status:	Delivered	Delivered To:	
Signed for by:	DJONES	Delivery Location:	
Service type:	FedEx Ground		
Special Handling:	Direct Signature Required		Canon City, CO,
		Delivery date:	Mar 1, 2022 10:31

Shipping Information:

Tracking number:	7761 3153 5910	Ship Date:	Feb 25, 2022
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
CANON CITY, CO, US,		AUSTIN, TX, US,	

Reference	1773-KODIAK SWD#1/LN
------------------	----------------------

Thank you for choosing FedEx



March 11, 2022

Dear Customer,

The following is the proof-of-delivery for tracking number: 7761 3160 1031

Delivery Information:

Status:	Delivered	Delivered To:	
Signed for by:	ADAVID	Delivery Location:	
Service type:	FedEx Ground		
Special Handling:	Direct Signature Required		Addison, TX,
		Delivery date:	Feb 28, 2022 15:50

Shipping Information:

Tracking number:	7761 3160 1031	Ship Date:	Feb 25, 2022
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
ADDISON, TX, US,		AUSTIN, TX, US,	

Reference	1773-KODIAK SWD#1/LN
------------------	----------------------

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March 11, 2022

Dear Customer,

The following is the proof-of-delivery for tracking number: 7761 3164 4777

Delivery Information:

Status:	Delivered	Delivered To:	
Signed for by:		Delivery Location:	
Service type:	FedEx Ground		
Special Handling:	Direct Signature Required		Lake Arthur, NM,
		Delivery date:	Feb 27, 2022 09:39

Shipping Information:

Tracking number:	7761 3164 4777	Ship Date:	Feb 25, 2022
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
LAKE ARTHUR, NM, US,		AUSTIN, TX, US,	

Reference	1773-KODIAK SWD#1/LN
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The following is the proof-of-delivery for tracking number: 7761 3167 9495

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Signed for by:	AJAKE	Delivery Location:	
Service type:	FedEx Ground		
Special Handling:	Direct Signature Required		Addison, TX,
		Delivery date:	Feb 28, 2022 15:50

Shipping Information:

Tracking number:	7761 3167 9495	Ship Date:	Feb 25, 2022
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
ADDISON, TX, US,		AUSTIN, TX, US,	

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Signed for by:	JRICHARD	Delivery Location:	
Service type:	FedEx Ground		
Special Handling:	Direct Signature Required		Houston, TX,
		Delivery date:	Feb 28, 2022 12:00

Shipping Information:

Tracking number:	7761 3170 6610	Ship Date:	Feb 25, 2022
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
HOUSTON, TX, US,		AUSTIN, TX, US,	

Reference	1773-KODIAK SWD#1/LN
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Signed for by:	MWELLS	Delivery Location:	
Service type:	FedEx Ground		
Special Handling:	Direct Signature Required		Oklahoma City, OK,
		Delivery date:	Mar 2, 2022 12:32

Shipping Information:

Tracking number:	7761 3173 3717	Ship Date:	Feb 25, 2022
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
OKLAHOMA CITY, OK, US,		AUSTIN, TX, US,	

Reference	1773-KODIAK SWD#1/LN
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The following is the proof-of-delivery for tracking number: 7761 3175 6214

Delivery Information:

Status:	Delivered	Delivered To:	
Signed for by:	XENERGY	Delivery Location:	
Service type:	FedEx Ground		
Special Handling:	Direct Signature Required		Midland, TX,
		Delivery date:	Feb 28, 2022 16:35

Shipping Information:

Tracking number:	7761 3175 6214	Ship Date:	Feb 25, 2022
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
MIDLAND, TX, US,		AUSTIN, TX, US,	

Reference	1773-KODIAK SWD#1/LN
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The following is the proof-of-delivery for tracking number: 7761 3177 9693

Delivery Information:

Status:	Delivered	Delivered To:	
Signed for by:	DCHASE	Delivery Location:	
Service type:	FedEx Ground		
Special Handling:	Direct Signature Required		Artesia, NM,
		Delivery date:	Feb 28, 2022 13:27

Shipping Information:

Tracking number:	7761 3177 9693	Ship Date:	Feb 25, 2022
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
ARTESIA, NM, US,		AUSTIN, TX, US,	

Reference	1773-KODIAK SWD#1/LN
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Dear Customer,

The following is the proof-of-delivery for tracking number: 7761 3194 7476

Delivery Information:

Status:	Delivered	Delivered To:	
Signed for by:	JRICHARD	Delivery Location:	
Service type:	FedEx Ground		
Special Handling:	Direct Signature Required		Houston, TX,
		Delivery date:	Feb 28, 2022 12:00

Shipping Information:

Tracking number:	7761 3194 7476	Ship Date:	Feb 25, 2022
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
HOUSTON, TX, US,		AUSTIN, TX, US,	

Reference	1773-KODIAK SWD#1/LN
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Dear Customer,

The following is the proof-of-delivery for tracking number: 7761 8198 7923

Delivery Information:

Status:	Delivered	Delivered To:	Shipping/Receiving
Signed for by:	S.SIGNATURE NOT REQ	Delivery Location:	
Service type:	FedEx 2Day		
Special Handling:	Deliver Weekday		AUSTIN, TX,
		Delivery date:	Mar 3, 2022 15:05

Shipping Information:

Tracking number:	7761 8198 7923	Ship Date:	Mar 2, 2022
		Weight:	0.5 LB/0.23 KG
Recipient:		Shipper:	
AUSTIN, TX, US,		AUSTIN, TX, US,	

Reference	1773-KODIAK SWD #1/LN
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The following is the proof-of-delivery for tracking number: 7762 2380 0675

Delivery Information:

Status:	Delivered	Delivered To:	Receptionist/Front Desk
Signed for by:	S.VANN	Delivery Location:	
Service type:	FedEx Standard Overnight		
Special Handling:	Deliver Weekday; Direct Signature Required		HOUSTON, TX,
		Delivery date:	Mar 8, 2022 09:35

Shipping Information:

Tracking number:	7762 2380 0675	Ship Date:	Mar 7, 2022
		Weight:	0.5 LB/0.23 KG
Recipient:		Shipper:	
HOUSTON, TX, US,		AUSTIN, TX, US,	

Reference	1773-KODIAK SWD#1/LN
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Dear Customer,

The following is the proof-of-delivery for tracking number: 7762 2397 7234

Delivery Information:

Status:	Delivered	Delivered To:	Residence
Signed for by:	R.CRESON	Delivery Location:	
Service type:	FedEx 2Day		
Special Handling:	Deliver Weekday; Residential Delivery; Direct Signature Required		ANNA, TX,
		Delivery date:	Mar 9, 2022 13:25

Shipping Information:

Tracking number:	7762 2397 7234	Ship Date:	Mar 7, 2022
		Weight:	0.5 LB/0.23 KG
Recipient:		Shipper:	
ANNA, TX, US,		AUSTIN, TX, US,	

Reference 1773-KODIAK SWD #1/LN

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Dear Customer,

The following is the proof-of-delivery for tracking number: 7762 6359 4700

Delivery Information:

Status:	Delivered	Delivered To:	Residence
Signed for by:	Signature not required	Delivery Location:	
Service type:	FedEx Priority Overnight		
Special Handling:	Deliver Weekday; Residential Delivery		FORT WORTH, TX,
		Delivery date:	Mar 11, 2022 11:41

Shipping Information:

Tracking number:	7762 6359 4700	Ship Date:	Mar 10, 2022
		Weight:	0.5 LB/0.23 KG
Recipient:		Shipper:	
FORT WORTH, TX, US,		Austin, TX, US,	

Reference	1773 KODIAK SWD #1/LN
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Dear Customer,

The following is the proof-of-delivery for tracking number: 9882 8235 1800

Delivery Information:

Status:	Delivered	Delivered To:	
Signed for by:	Signature release on file	Delivery Location:	
Service type:	FedEx Standard Overnight		
Special Handling:	Deliver Weekday		HOUSTON, TX,
		Delivery date:	Mar 11, 2022 09:11

Shipping Information:

Tracking number:	9882 8235 1800	Ship Date:	Mar 10, 2022
		Weight:	0.5 LB/0.23 KG
Recipient:		Shipper:	
HOUSTON, TX, US,		HOUSTON, TX, US,	

Reference	776221206917
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The following is the proof-of-delivery for tracking number: 7761 8187 4092

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Status:	Delivered	Delivered To:	Receptionist/Front Desk
Signed for by:	J.BLACKMAN	Delivery Location:	
Service type:	FedEx 2Day		
Special Handling:	Deliver Weekday		CULLMAN, AL,
		Delivery date:	Mar 4, 2022 11:42

Shipping Information:

Tracking number:	7761 8187 4092	Ship Date:	Mar 2, 2022
		Weight:	0.5 LB/0.23 KG
Recipient:		Shipper:	
CULLMAN, AL, US,		AUSTIN, TX, US,	

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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).

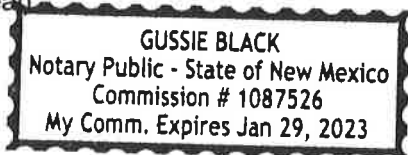
Beginning with the issue dated
February 23, 2022
and ending with the issue dated
February 23, 2022.


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Sworn and subscribed to before me this
23rd day of February 2022.


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



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AUSTIN, TX 78738

Kodiak 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	FIELD
01664	PRE-ONGARD WELL #001	Oil	Plugged (site released)	PRE-ONGARD WELL OPERATOR	3591	32.6729507000	-103.691658000	1/1/1900	
01665	PRE-ONGARD WELL #001	Oil	Plugged (site released)	PRE-ONGARD WELL OPERATOR	3610	32.6693077000	-103.674514800	1/1/1900	
01669	FEDERAL 18 #002	Oil	Plugged (site released)	MACK ENERGY CORP	3275	32.6620750000	-103.704544100	12/31/9999	[59490] TONTO, YATES-SEVEN RIVERS, WEST
01670	PRE-ONGARD WELL #003	Oil	Plugged (site released)	PRE-ONGARD WELL OPERATOR	3283	32.6620712000	-103.700271600	1/1/1900	[59490] TONTO, YATES-SEVEN RIVERS, WEST
01671	FEDERAL 18 #004	Salt Water Disposal	Active	Spur Energy Partners LLC	3450	32.6620674000	-103.695983900	5/4/1995	[59490] TONTO, YATES-SEVEN RIVERS, WEST; [96131] SWD, SEVEN RIVERS
01673	PRE-ONGARD WELL #006	Oil	Plugged (site released)	PRE-ONGARD WELL OPERATOR	3330	32.6647949000	-103.704528800	1/1/1900	
20699	PRE-ONGARD WELL #008	Oil	Plugged (site released)	PRE-ONGARD WELL OPERATOR	3330	32.6647911000	-103.697044400	1/1/1900	
23668	PRE-ONGARD WELL #001	Oil	Cancelled	PRE-ONGARD WELL OPERATOR	0	32.6584462000	-103.700310360	12/31/9999	
24624	PRE-ONGARD WELL #001	Oil	Plugged (site released)	PRE-ONGARD WELL OPERATOR	3500	32.6584473000	-103.692771900	1/1/1900	
25470	INEXCO AHY FEDERAL #001	Gas	Active	EOG RESOURCES INC	13649	32.6765785000	-103.695945700	12/31/9999	[73000] BUFFALO, PENN (GAS)
25912	PRE-ONGARD WELL #004	Oil	Plugged (site released)	PRE-ONGARD WELL OPERATOR	13700	32.6765747000	-103.691650400	1/1/1900	[59475] TONTO, BONE SPRING
26469	PRE-ONGARD WELL #001	Gas	Plugged (site released)	PRE-ONGARD WELL OPERATOR	13670	32.6656990000	-103.700264000	1/1/1900	[73000] BUFFALO, PENN (GAS)
26799	NELLIS C FEDERAL GAS COM #001	Gas	Active	LEGACY RESERVES OPERATING, LP	13701	32.6765671000	-103.678779600	4/28/1980	[73000] BUFFALO, PENN (GAS)
29880	PRE-ONGARD WELL #001	Oil	Cancelled	PRE-ONGARD WELL OPERATOR	0	32.6620510700	-103.679911030	12/31/9999	
30546	HUDSON FEDERAL #001	Oil	Plugged (site released)	YATES ENERGY CORP	13720	32.6620560000	-103.683113100	12/31/9999	[27210] GEM, WOLFCAMP, NORTH
32973	FEDERAL 7 #004	Oil	Cancelled	RAY WESTALL	0	32.6768552300	-103.704718890	12/31/9999	
34707	KUDU 9 FEDERAL COM #001	Gas	Active	CHISHOLM ENERGY OPERATING, LLC	13770	32.6693077000	-103.674514800	11/3/1999	[73000] BUFFALO, PENN (GAS); [77370] GEM, MORROW (GAS)
39870	SPYGLASS 17 FEDERAL COM #001H	Oil	Active	MEWBOURNE OIL CO	9966	32.6616364000	-103.692764300	1/1/2011	[59475] TONTO, BONE SPRING
40185	SPYGLASS 17 FEDERAL #002H	Oil	Active	MEWBOURNE OIL CO	9973	32.6656914000	-103.692749000	8/2/2011	[59475] TONTO, BONE SPRING
40589	NORTE 18 FEDERAL #001C	Oil	Cancelled	MEWBOURNE OIL CO	0	32.6626854000	-103.709953300	12/31/9999	[59475] TONTO, BONE SPRING
41701	EXCALIBUR 17 LI FEDERAL COM #001H	Oil	Active	MEWBOURNE OIL CO	9967	32.6576767000	-103.693168600	7/2/2014	[59475] TONTO, BONE SPRING
45391	KODAK SWD #001	Salt Water Disposal	New	3BEAR FIELD SERVICES, LLC	0	32.6695610000	-103.691277000	12/31/9999	[97869] SWD, DEVONIAN-SILURIAN
46396	NIGHT HAWK 5 B2DM FEDERAL COM #001H	Oil	New	MEWBOURNE OIL CO	0	32.6961030000	-103.691617100	12/31/9999	[13160] CORBIN, BONE SPRING, SOUTH
49415	SPANISH BAY 18 19 B1DM FEDERAL COM #001H	Oil	New	MEWBOURNE OIL CO	0	32.6670106000	-103.707382800	12/31/9999	[59476] TONTO, BONE SPRING, SOUTH
49416	SPANISH BAY 18 19 B2DM FEDERAL COM #001H	Oil	New	MEWBOURNE OIL CO	0	32.6670105000	-103.707285400	12/31/9999	[59476] TONTO, BONE SPRING, SOUTH
49534	SPANISH BAY 18 19 B2CN FEDERAL COM #001H	Oil	New	MEWBOURNE OIL CO	0	32.6670107000	-103.707188000	12/31/9999	[59476] TONTO, BONE SPRING, SOUTH
49712	BEL-AIR 5 8 2BS FEDERAL COM	Oil	New		0	0.0000000000	0.000000000	18991230	
49713	BEL-AIR 5 8 2BS FEDERAL COM	Oil	New		0	0.0000000000	0.000000000	18991230	
49714	BEL-AIR 5 8 2BS FEDERAL COM	Oil	New		0	0.0000000000	0.0000000000	18991230	

Kodiak SWD No. 1: Offsetting Produced Water Analysis																		
Well Name	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
INEXCO AHY FEDERAL #001	3002525470	7	19S	33E	H	LEA	PENNSYLVANIAN	6.5			5600	50	975.3			37062	610	12.5
BUFFALO FEDERAL UNIT #004	3002501661	4	19S	33E	H	LEA	PENNSYLVANIAN		163468							99880	415	848
BUFFALO FEDERAL UNIT #004	3002501661	4	19S	33E	H	LEA	PENNSYLVANIAN		17108							9398	610	991
BUFFALO FEDERAL UNIT #004	3002501661	4	19S	33E	H	LEA	PENNSYLVANIAN		21444							11400	881	1537
BUFFALO FEDERAL UNIT #004	3002501661	4	19S	33E	H	LEA	PENNSYLVANIAN		154414							94260	377	688
NELLIS FEDERAL #001	3002501663	5	19S	33E	O	LEA	PENNSYLVANIAN		38798							23050	366	360
NELLIS FEDERAL #001	3002501663	5	19S	33E	O	LEA	PENNSYLVANIAN		67912							40630	398	934
NELLIS FEDERAL #001	3002501663	5	19S	33E	O	LEA	PENNSYLVANIAN		24440							13420	825	990
FEDERAL AC #002	3002501675	18	19S	33E	E	LEA	PENNSYLVANIAN		46219							26980	734	850
FEDERAL AC #002	3002501675	18	19S	33E	E	LEA	PENNSYLVANIAN		1305							140	232	510
LAGUNA PLATA FEDERAL #001	3002501678	22	19S	33E	I	LEA	WOLFCAMP		46915							27270	714	1116
MAGNOLIA STATE #001	3002501701	32	19S	33E	B	LEA	ARTESIA		8771							4301	1538	180
MALACHITE 22 FEDERAL #001H	3002540318	22	19S	33E	D	Lea	BONE SPRING 1ST SAND	6.4		73407	1293	33	265	0.26	116995	780	480	250
NELLIS A FEDERAL #004	3002525912	8	19S	33E	E	LEA	BONE SPRING	6.9	48582							28900	763	160
NELLIS FEDERAL #003	3002526091	6	19S	33E	F	LEA	ARTESIA	6.8	70660							42600	549	365
MALACHITE 22 FEDERAL #001H	3002540318	22	19S	33E	D	Lea	BONE SPRING 1ST SAND	6.3		79136	1414	26	271	0.07	125827	1281	300	330
MALACHITE 22 FEDERAL #002H	3002540389	22	19S	33E	C	Lea	BONE SPRING 1ST SAND	6.65	94146	30411.4	4261	16.3	1102	0.3	56987.2	122	1085	120
BATE FEDERAL #003	3002522597	35	19S	33E	C	LEA	ARTESIA	7.8	117622							66700	506	5800
MALACHITE 22 FEDERAL #001H	3002540318	22	19S	33E	D	Lea	BONE SPRING 1ST SAND	7	153753.1	57364.9	1261	3.5	277	0.2	91996	732	593	250

3 BEAR FIELD SERVICES, LLC

Kodiak SWD #1

FSP Analysis

Lea Co., NM

Luis Canales

Lesly Carter

March 2nd, 2022

LONQUIST & CO. LLC

PETROLEUM
ENGINEERS

ENERGY
ADVISORS

AUSTIN • HOUSTON  CALGARY • WICHITA
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1.0 Summary

The location of Kodiak SWD #1, offsetting inactive injection wells, and published faults within 6 miles of the Kodiak SWD #1 in Lea County, New Mexico are shown on Figure 1. The Kodiak SWD #1 permit application is targeting the Siluro-Devonian Formation which is a porous limestone and dolomite with mudstone to grainstone at a measured depth of 14,751' to 16,500' (Figure 2). The proposed average injection rate of 25,000 barrels per day is equal to an average of 760,417 barrels per month which was forecasted for this FSP analysis.

The FSP models included utilize Devonian level fault traces documented on GeoMaps Section NM 106C **Siluro-Devonian**.

Injection fluids will be confined to the Siluro-Devonian formation, The top of the Ellenburger is approximately 1750 feet below the top Devonian (14,751). **None of the FSP models run utilizing the fault traces, proposed injection interval reservoir properties, and surrounding fluid injection data demonstrated evidence these faults would slip.**

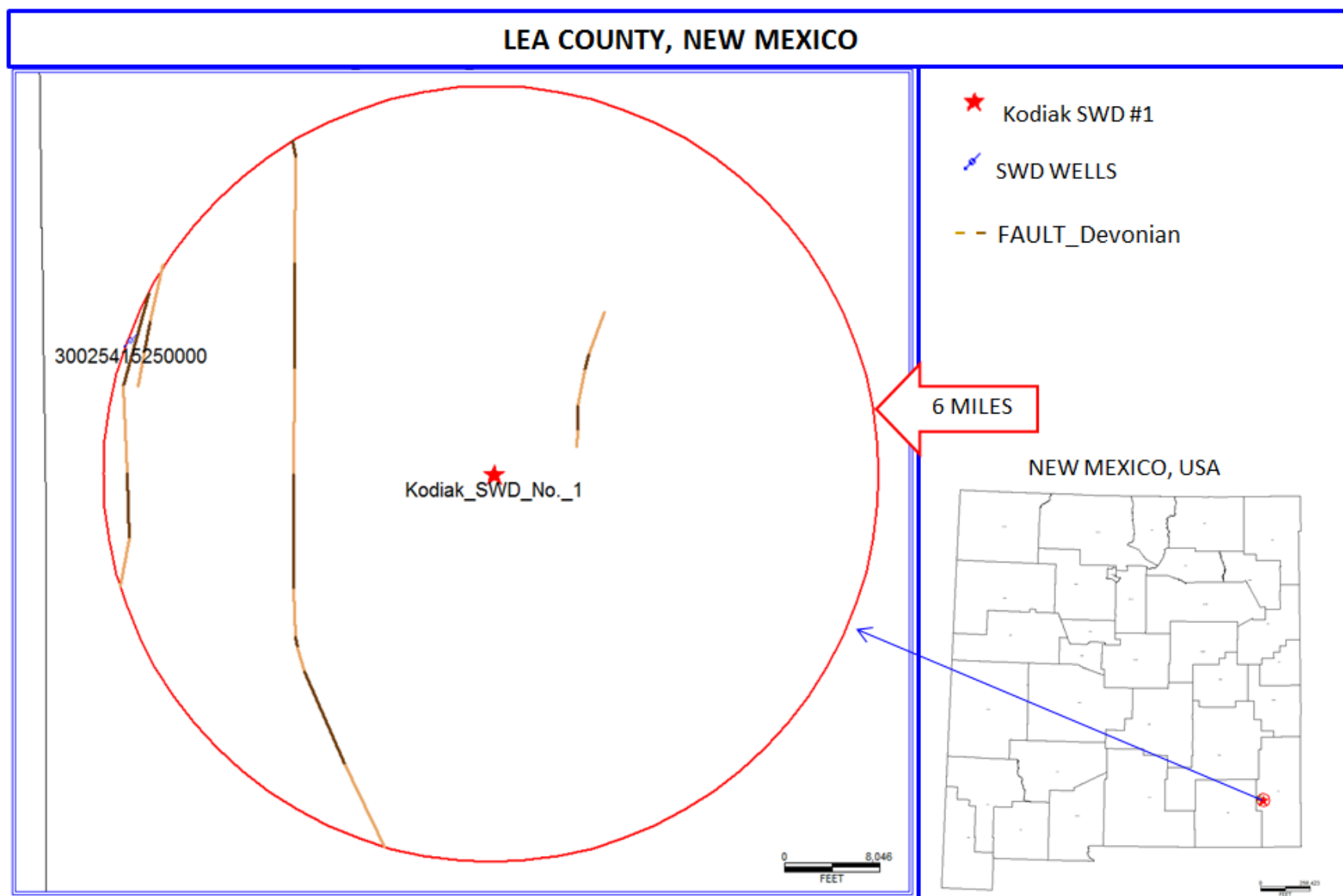


Figure 1 - Proposed location and FSP analysis area of interest ("AOI").

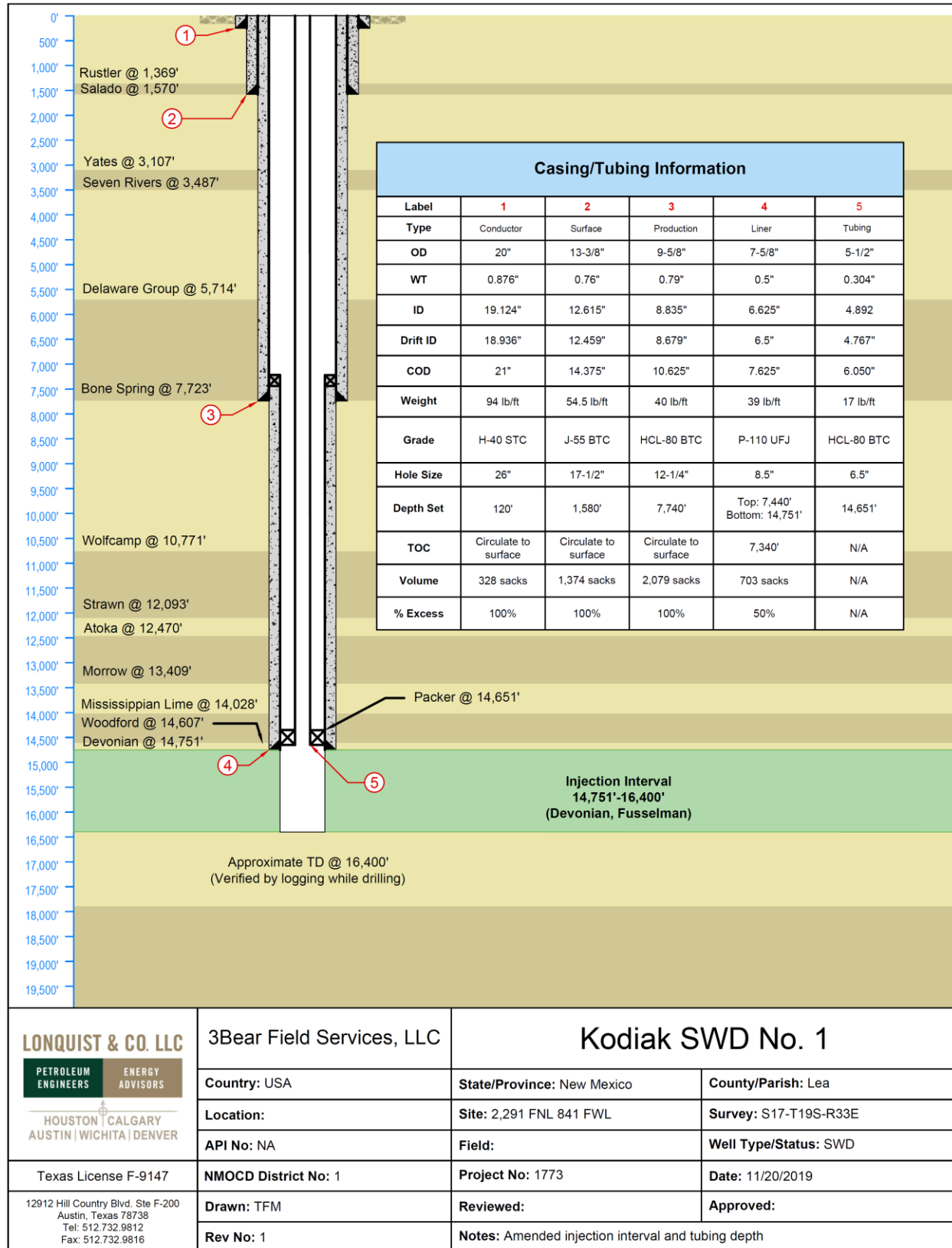


Figure 2 - Injection Target: Devonian, Fusselman

System	Series	Group/Formation	General Lithology
<i>Tertiary</i>		<i>Ogallala</i>	<i>fluvial and lacustrine clastics</i>
<i>Cretaceous</i>		<i>Fredericksburg</i>	<i>limestone sandstone</i>
		<i>Paluxy</i>	
<i>Triassic</i>		<i>Dockum</i>	<i>fluvial-deltaic and lacustrine clastics</i>
<i>Permian</i>	<i>Ochoan</i>	<i>Dewey Lake</i>	<i>sandstone</i>
		<i>Rustler</i>	<i>salt, anhydrite</i>
		<i>Salado</i>	<i>salt</i>
	<i>Guadalupian</i>	<i>Tansill</i>	<i>anhydrite</i>
		<i>Yates</i>	<i>sandstone</i>
		<i>Seven Rivers</i>	<i>anhydrite</i>
		<i>Queen</i>	<i>sandstone</i>
		<i>San Andres-Grayburg</i>	<i>dolomite-sandstone</i>
	<i>Leonardian</i>	<i>Clear Fork</i>	<i>limestone-dolomite</i>
		<i>Wichita</i>	
	<i>Wolfcampian</i>	<i>Wolfcamp</i>	<i>shelf limestones, minor shale</i>
		<i>Cisco</i>	
		<i>Canyon</i>	
<i>Pennsylvanian</i>		<i>Strawn</i>	
		<i>Atokan</i>	
		<i>Chester</i>	<i>shale</i>
<i>Mississippian</i>		<i>Mississippian Lime</i>	<i>limestone</i>
<i>Devonian</i>		<i>Woodford</i>	<i>shale</i>
		<i>Devonian</i>	<i>limestone</i>
<i>Silurian</i>		<i>Silurian</i>	<i>shale, limestone</i>
<i>Ordovician</i>		<i>Montoya</i>	<i>limestone</i>
		<i>Simpson</i>	<i>shale, limestone</i>
		<i>Ellenburger</i>	<i>dolomite</i>
<i>PRECAMBRIAN</i>			<i>igneous, metamorphic</i>

*(Bassett and Bentley, 1982)

Figure 3 - Stratigraphic column of the Delaware Basin with the proposed injection interval (Devonian section) indicated by the red arrow.

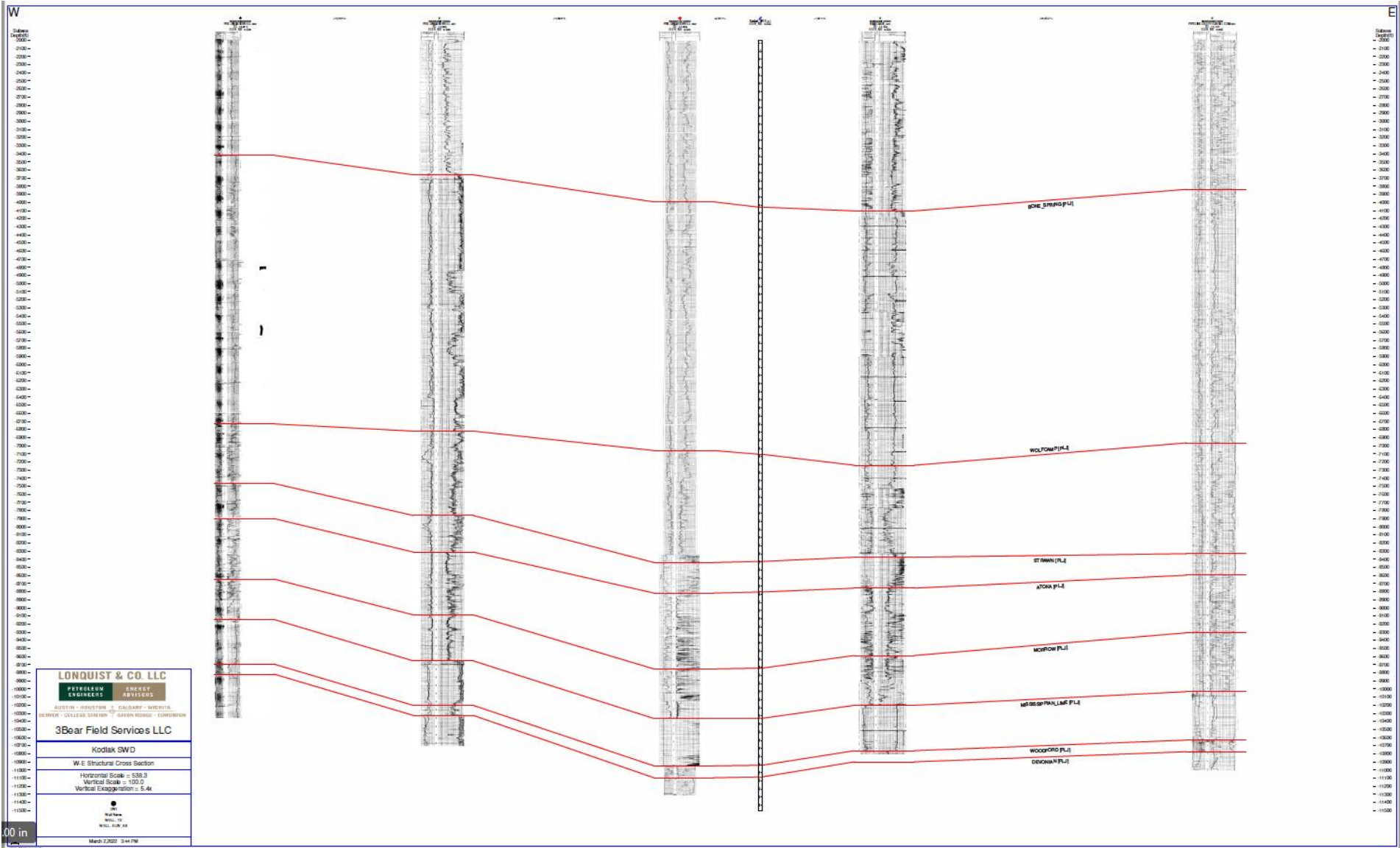


Figure 4 - Structural Cross Section

2.0 FSP Analysis MODEL 1 – Devonian Faults - All injectors

SCITS software (v 2.0) was used for the Fault Slip Potential (FSP) analysis.

Analysis includes:

- Fluid injection history from DrillingInfo within the 6 miles AOI.
- Proposed average injection rate (25,000 bpd) for Kodiak SWD #1.
- Proposed injection interval reservoir parameters and average depth.
- Local stress information and pressure gradients.
- Known fault locations within AOI with faults segmented to a maximum length of 3 km.

Two FSP models were run, including year-end analysis 20 years into the future.

- Model #1: includes permitted injection well in the AOI plus the proposed injection interval (2 wells total).
- Model #2: includes only the proposed injection well interval.

In summary, the proposed fluid injection does not significantly increase the risk that these faults will slip.

Figure 5 shows the location of existing fluid injection wells and the proposed Kodiak SWD #1 in relation to faults documented within the AOI. The Devonian fault traces utilized for these models are shown on **Figure 7**. The nearest fault has a throw of 200' and is nonexistent on available regional structure maps at the Strawn and Yates levels.

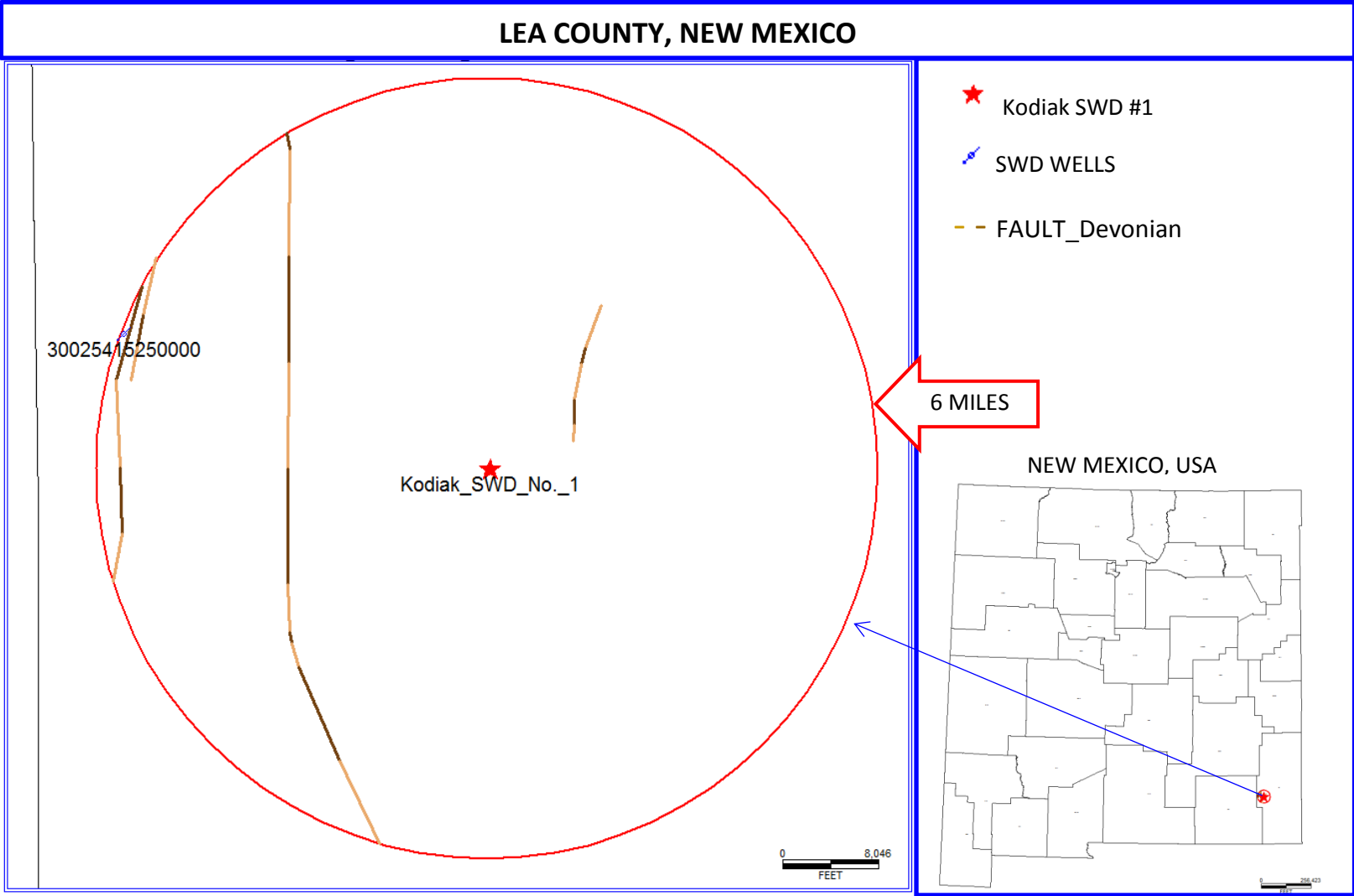


Figure 5 - FSP Analysis Injection Wells

Partial View of 2 Wells

Injection Wells

☐ Enter Wells Manually
☒ Load Wells Complete .csv

Number of file header lines:

	UniqueID/Name	Easting (km)	Northing (km)	Year	Month (1-12)	InjectionVolume (bbl/month)
30	2541525	203.2769657	188.7103912	2018	6	52230
31	2541525	203.2769657	188.7103912	2018	7	48942
32	2541525	203.2769657	188.7103912	2018	8	47194
33	2541525	203.2769657	188.7103912	2018	9	43750
34	2541525	203.2769657	188.7103912	2018	10	45140
35	2541525	203.2769657	188.7103912	2018	11	38132
36	2541525	203.2769657	188.7103912	2018	12	34949
37	2541525	203.2769657	188.7103912	2019	1	35668
38	2541525	203.2769657	188.7103912	2019	2	28298
39	2541525	203.2769657	188.7103912	2019	3	33047
40	2541525	203.2769657	188.7103912	2019	4	30181
41	2541525	203.2769657	188.7103912	2019	5	34895
42	2541525	203.2769657	188.7103912	2019	6	31301
43	2541525	203.2769657	188.7103912	2019	7	28844
44	2541525	203.2769657	188.7103912	2019	8	49759
45	2541525	203.2769657	188.7103912	2019	9	38765
46	2541525	203.2769657	188.7103912	2019	10	6287
47	2541525	203.2769657	188.7103912	2020	9	30
48	2541525	203.2769657	188.7103912	2021	6	59
49	2541525	203.2769657	188.7103912	2021	8	35
50	Kodiak SWD	212.6677819	185.2733751	2022	2	760417

Extrapolate Injection? ☒
 Accepts up to 100 wells

Figure 6 - FSP injection wells input Model 1

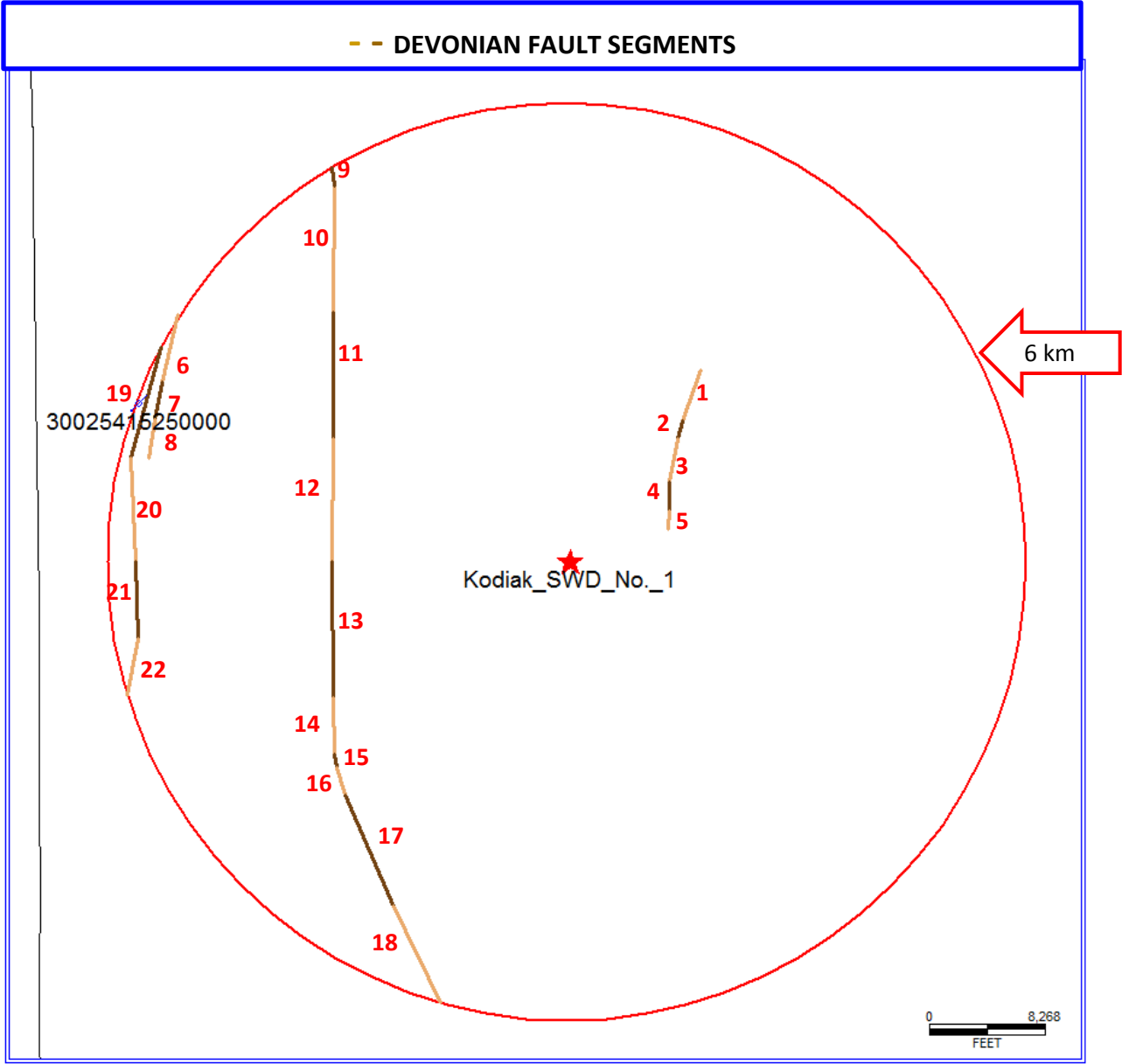



Figure 7 – Devonian Fault segments (22) used in FSP Analysis Models 1 and 2

Devonian Fault Segments



Fault Data

Number of faults (max 500)

22

Friction Coefficient mu

0.6

☐ Random Faults

☒ Enter Faults

	X [East km]	Y [North km]	Strike [Deg]	Dip [Deg]	Length [km]
7	203.6921	188.7864	190.6000	80	0.9700
8	203.5406	187.9570	189.7000	80	0.9700
9	207.4920	193.6662	168.7000	80	0.5800
10	207.5167	192.0908	180.5000	80	2.7800
11	207.4985	189.3412	180.5000	80	2.7700
12	207.4799	186.6210	180	80	2.7200
13	207.4743	183.7903	179.6000	80	2.9900
14	207.5021	181.6977	178.4000	80	1.2800
15	207.5517	180.9366	169.8000	80	0.5100
16	207.6667	180.4835	163.4000	80	0.8000
17	208.2821	178.9824	156	80	2.6200
18	209.3166	176.7273	154.9000	80	2.3400
19	203.4194	188.7415	195	80	2.5000
20	203.1355	186.4102	178.2000	80	2.2900
21	203.2033	184.4408	177.9000	80	1.7400
22	203.1243	182.9809	189.2000	80	1.2400

Load File

Help

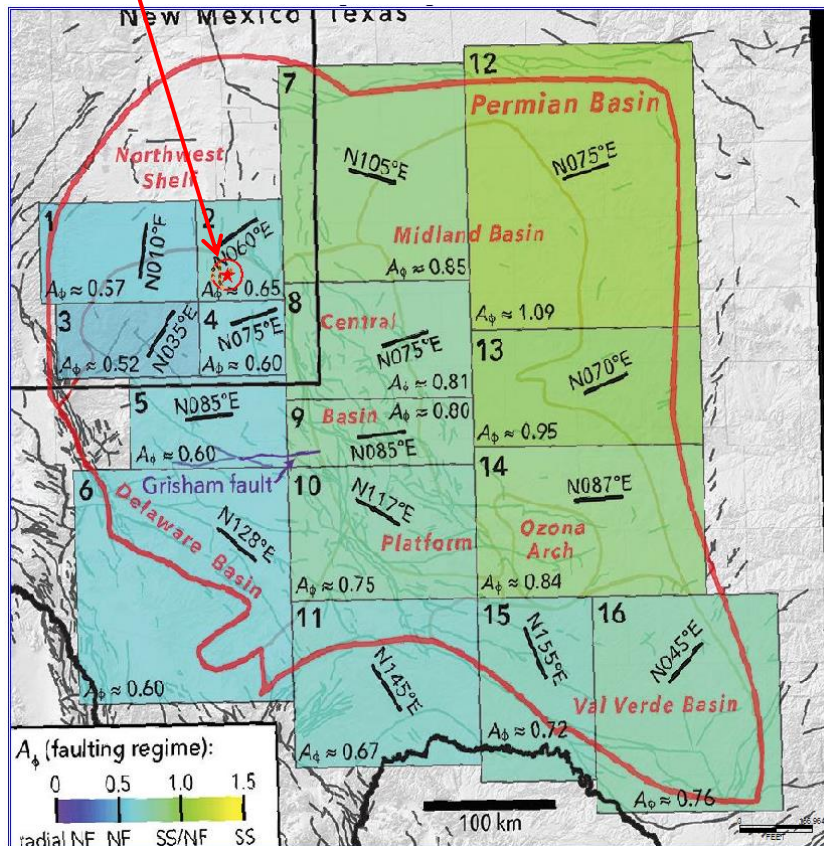
OK

Figure 8 - FSP Fault input for Models 1 and 2

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

Jens-Erik Lund Snee¹ and Mark D. Zoback¹ February 2018 THE LEADING EDGE

Kodiak SWD #1



"The A_ϕ parameter describes the ratio between the principal stress magnitudes using a single, readily interpolated value that ranges smoothly from 0 (the most extensional possible condition of radial normal faulting) to 3 (the most compressive possible condition of radial reverse faulting)." (Snee & Zoback)

Sh_{max} azimuth direction (N060°E) is taken from the mapped Area 2 corresponding to this FSP analysis published by Snee and Zoback. The maximum horizontal stress gradient is derived from the A_ϕ parameter (0.65) also for Area 2

Figure 9 - Local Stress Parameters used (Snee and Zoback, 2018) Models 1 thru 10

Sh_{max} azimuth direction (N060°E) is taken from the mapped Area 2 corresponding to this FSP analysis published by Snee and Zoback (Figure 10). The maximum horizontal stress gradient is derived from the A_ϕ parameter (0.65) also for Area 2. The same stress parameters are used for all models (1 and 2)

Stress Data

☐ Specify All Three Stress Gra...

☒ Use A-Phi Model

Vertical Stress Gradient [psi/ft]

A-Phi Parameter

☐ Min Horiz Stress Grad Avail...

Max Hor Stress Direction [deg N CW]

Initial Res. Pressure Gradient [psi/ft]

Reference Depth for Calculations [ft]

OK

Figure 10 - FSP Stress & Reservoir depth input Models 1 and 2

The following reservoir parameters were utilized for the AOI as input to FSP models 1 and 2.

Hydrology was estimated through offset well and regional geology data, and wellbore parameters were provided by 3Bear Field Services.

Hydrology Data

☒ Enter Hydrologic Parameters

☐ Load External Hydrologic Model

Aquifer Thickness [ft]

Porosity [%]

Permeability [mD]

OK

Figure 11 - Injection Interval (reservoir parameters) FSP Input Models 1 and 2.

Model 1 – Devonian

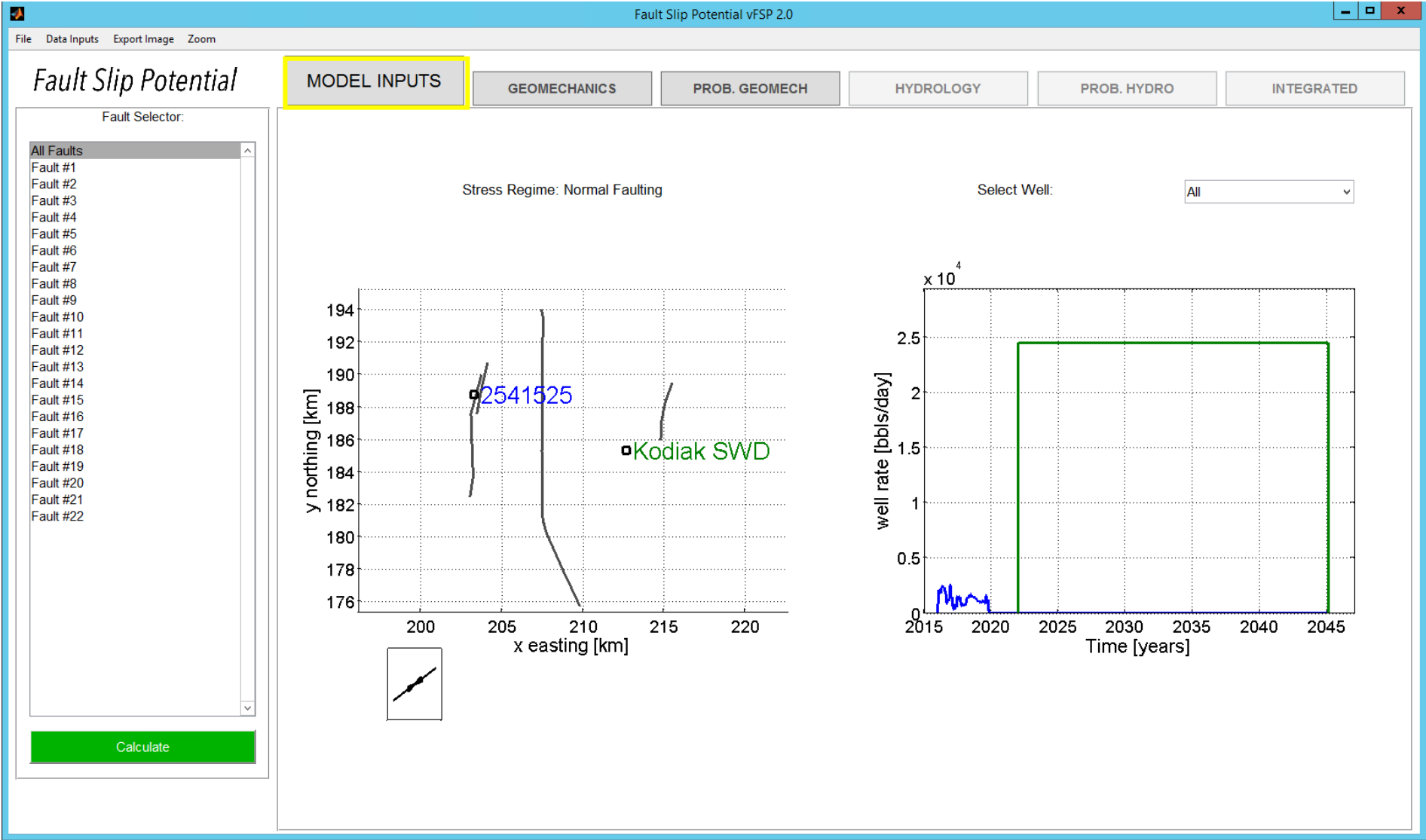


Figure 12 - FSP Model 1 Input: 2 injectors and 22 Devonian fault segments

Model 1 & 2

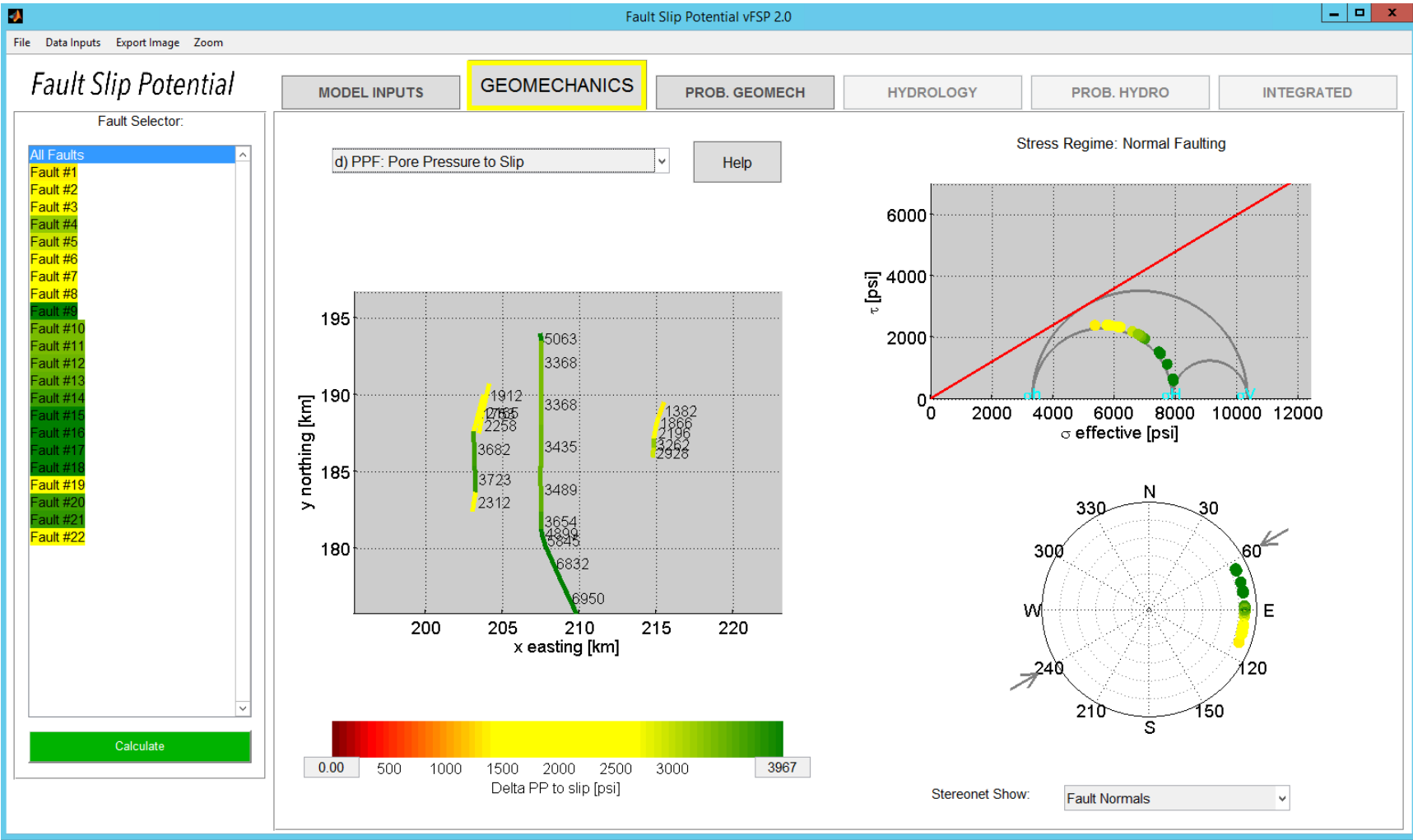


Figure 13 - FSP Geomechanics Tab, Model 1 and 2

Demonstrates pore pressure to slip (psi) for each fault segment, direction of SHmax, and a Mohr diagram with frictional slip line shown in red. Faults are colored according to the color scale.

Uniform Distribution bounds

A-Phi stress model is being used

	Plus/Minus
Vertical Stress Grad [1.1 psi/ft]	0.11
Initial PP Grad [0.44 psi/ft]	0.044
Strike Angles [varying, degrees]	5
Dip Angles [80 degrees]	8
Max Horiz. Stress Dir [60 degrees]	6
Friction Coeff Mu [0.6]	0.058
A Phi Parameter [0.65]	0.065

OK

Figure 14 - Input for Probabilistic Geomechanics Tab

The FSP program performs a probabilistic Monte Carlo analysis based on user specified variability of input parameters for both Geomechanical and Hydrology calculations.

Model 1 & 2

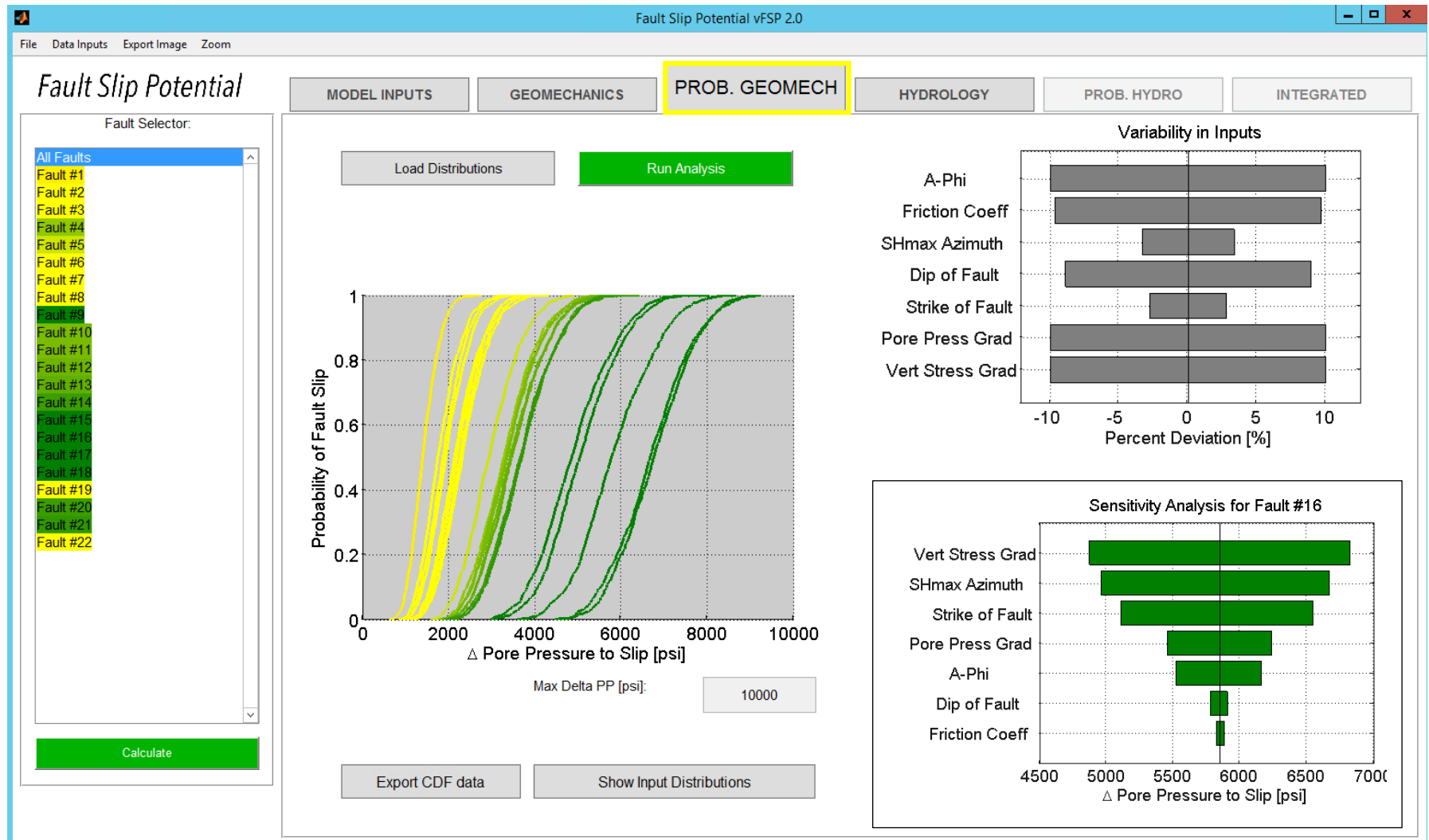


Figure 15 - FSP Probabilistic Geomechanics Tab, Model 1 and 2

The software propagates the relative uncertainties through the model producing a distribution of pore pressures to slip.

Model 1 – Initial conditions before Kodiak SWD #1 well is completed

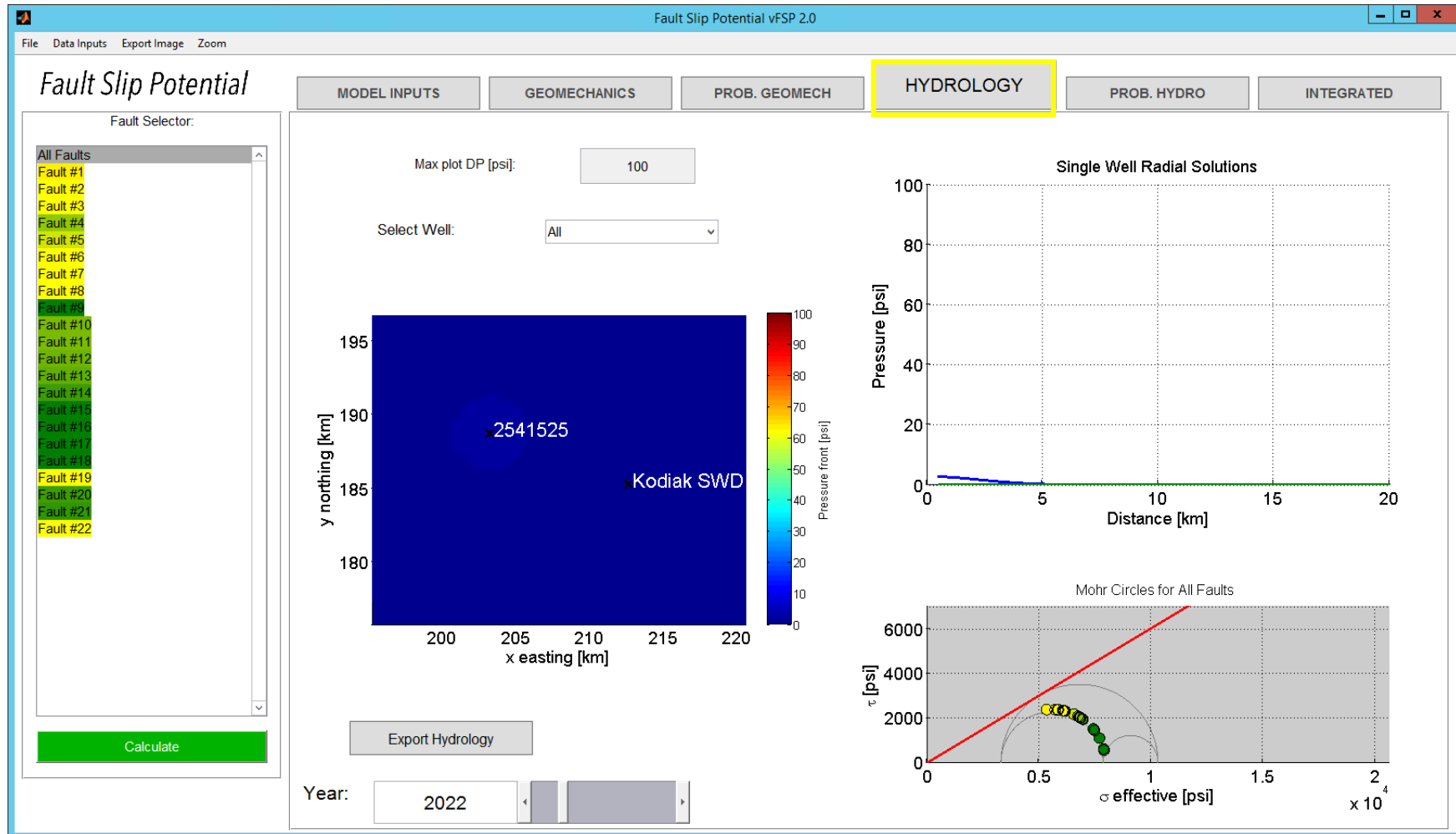


Figure 16 - FSP Hydrology Tab Before Proposed Completion

The software demonstrates pressure change as a function of distance from each of the 2 injection wells in Model #1.

Model 1 - Conditions in 2042, 20 years after Kodiak SWD #1 well is completed

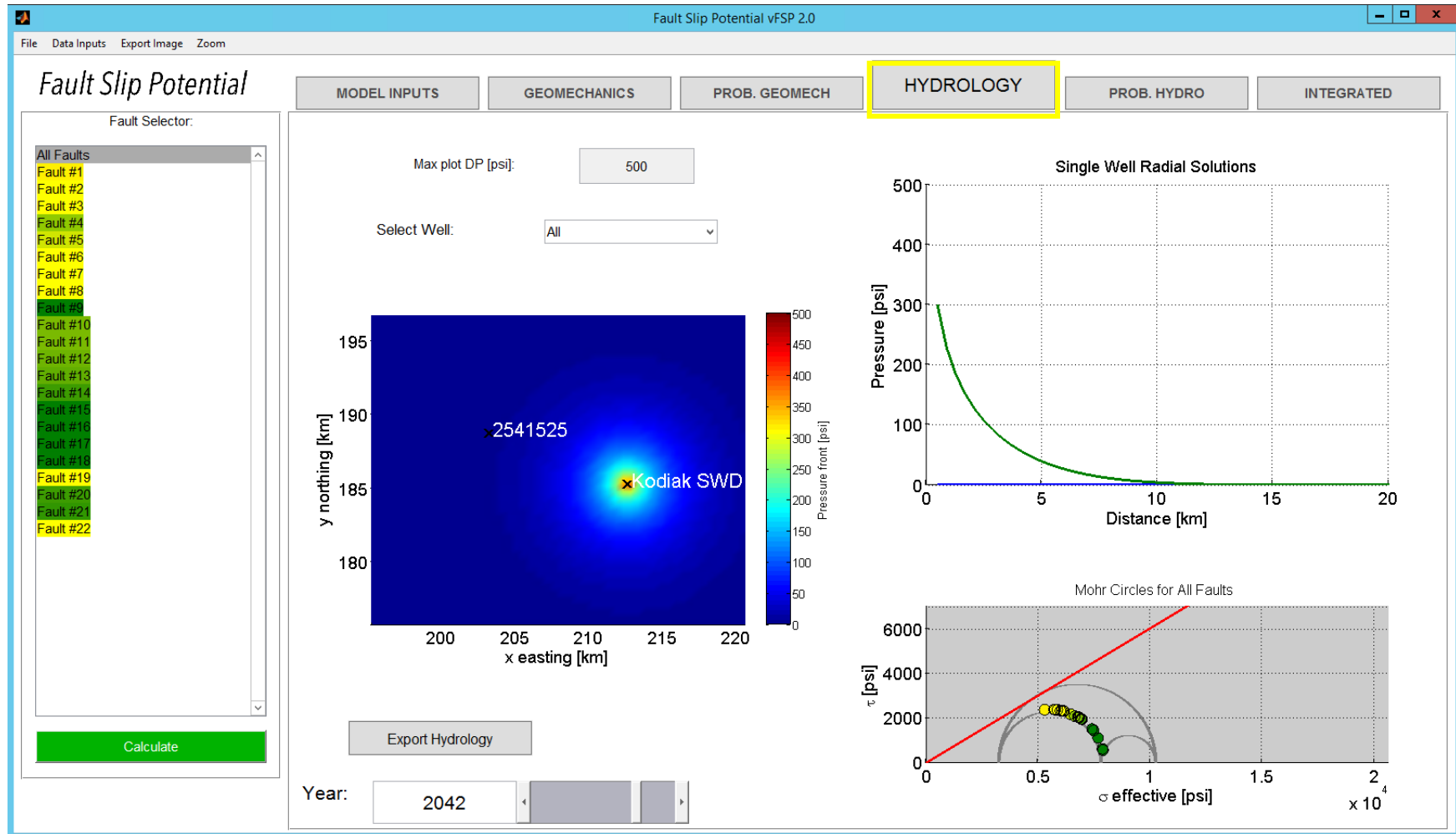


Figure 17 - Model 1 FSP Hydrology Tab

The software projects pressure changes away from each injector 20 years after completion.

Probabilistic analysis input utilized for this internal radial flow-based model

Uniform Distribution bounds

☒ Probabilistic Hydrology
☐ Deterministic Hydrology

	Plus/Minus:
Aquifer Thickness [1239 ft]	148.68
Porosity [4.7 %]	0.56
Perm [20 mD]	2.4
fluid density [1000 kg/(m ³)]	100
dynamic viscosity [0.0008 Pa.s]	0
Fluid Compressibility [3.6e-10 Pa ⁻¹]	0
Rock Compressibility [1.08e-09 Pa ⁻¹]	0
#Hydrologic Iterations=200, change?	200

Change Computations?

OK

Figure 18 - Probabilistic Hydrology tab parameters Models 1 and 2

Model 1 – Initial Conditions before Kodiak SWD #1 well is completed

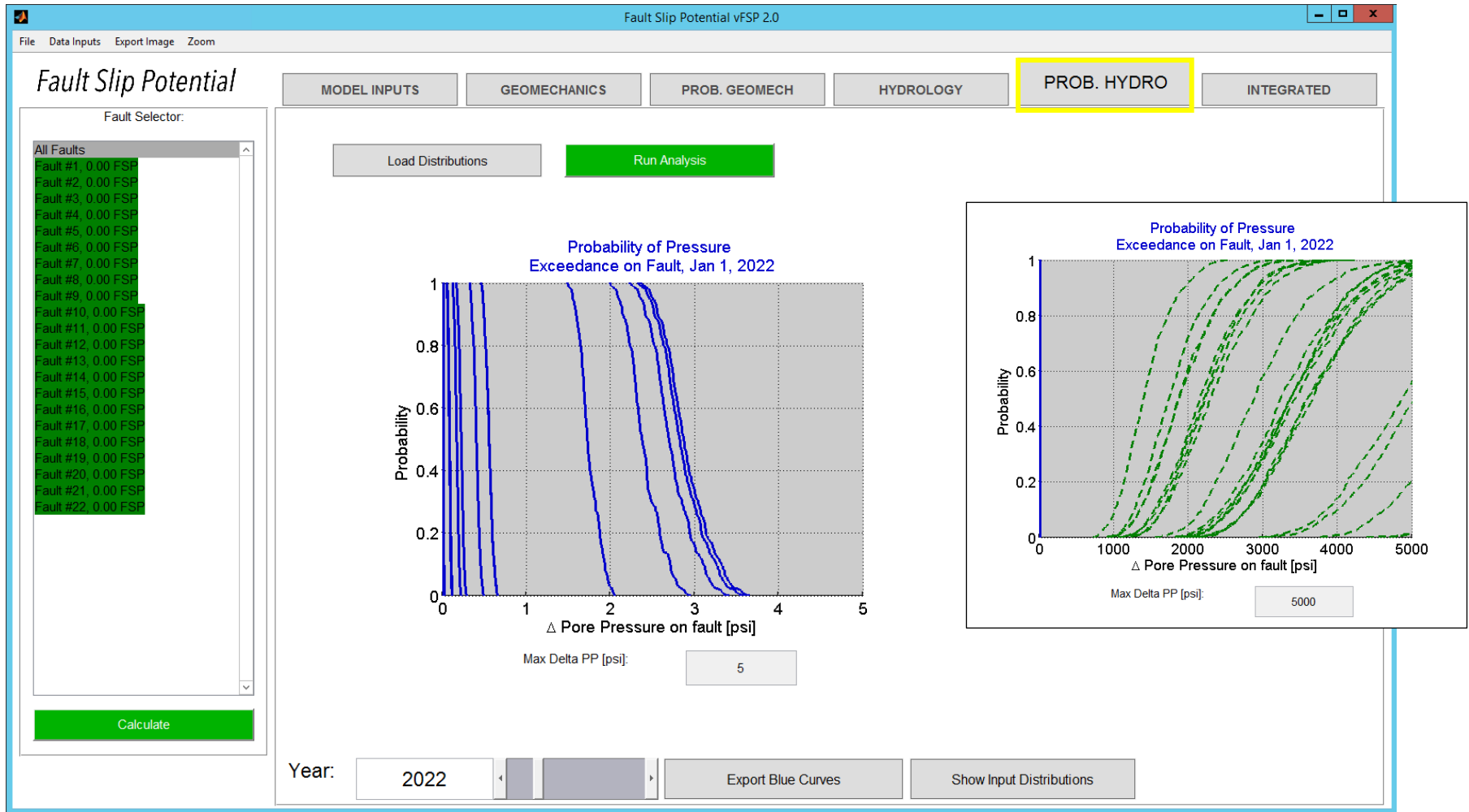


Figure 19 - Model 1 Probabilistic Hydrology Tab, before completion

The Probabilistic Hydrology tabs combine hydrology with the Probabilistic Geomechanical cumulative distribution function (CDF) of the pore pressure to slip.

Model 1 – Conditions in 2042, 20 years after Kodiak SWD #1 well is completed

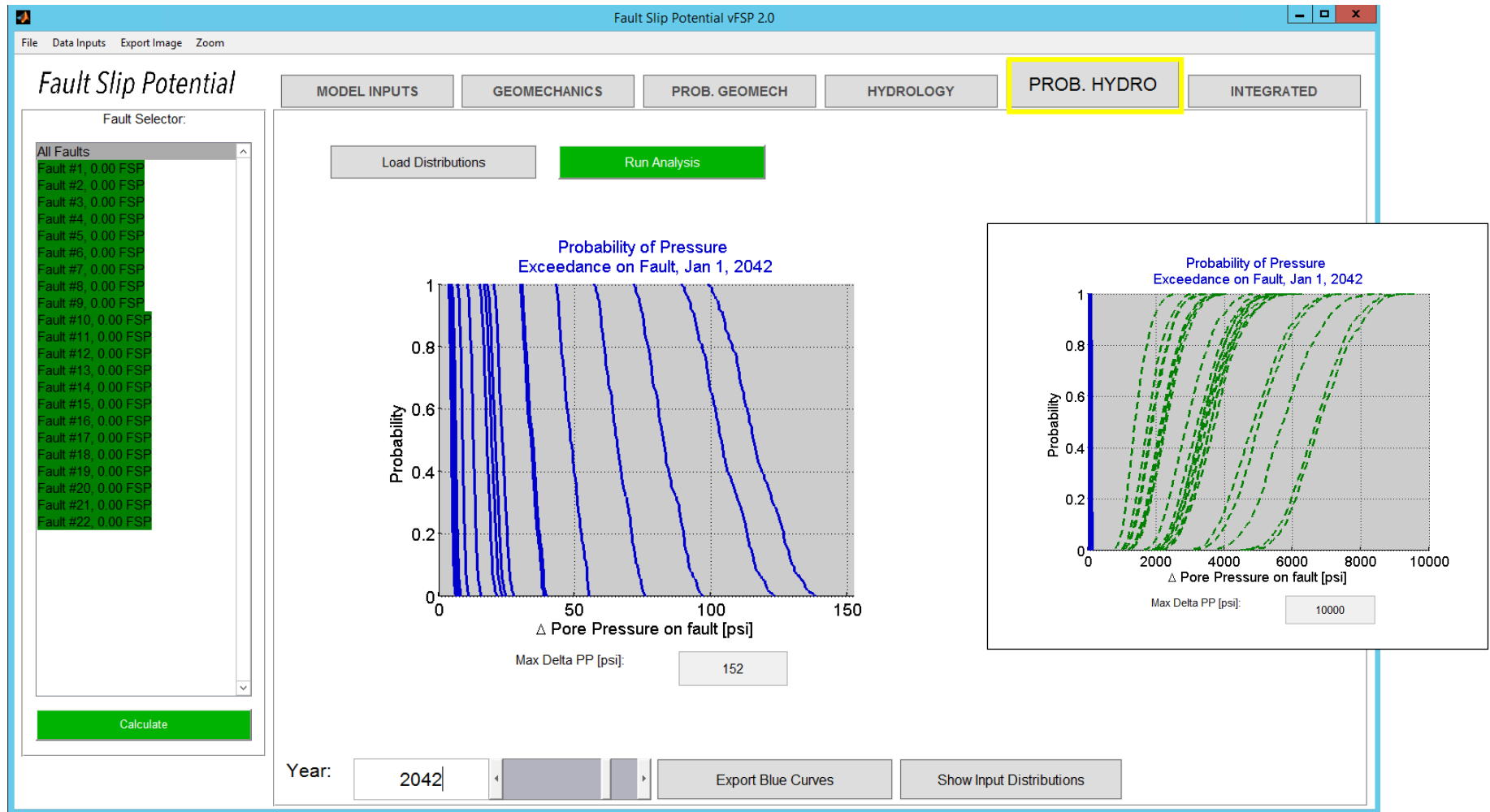


Figure 20 - Model 1 Probabilistic Hydrology Tab, 20 years after completion

The following integrated tabs show the combined results of probabilistic geomechanics and hydrology models run for all 22 Devonian fault segments.

Model 1 – Initial Conditions before Kodiak SWD #1 well is completed

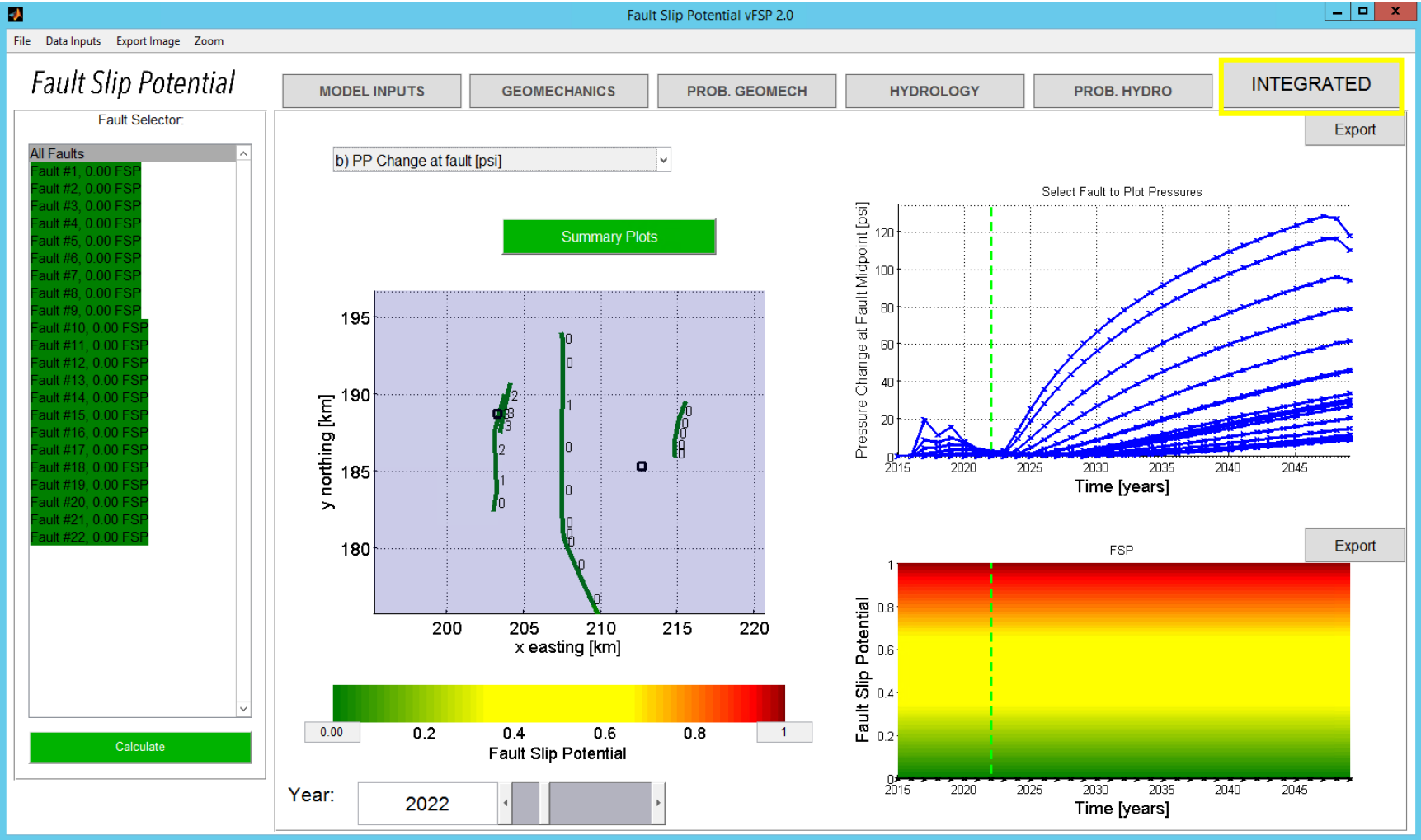


Figure 21 - Model 1 Integrated Tab, Initial Conditions before Kodiak completed

Pore Pressure change (psi) is posted for each fault segment.

Model 1 – Initial Conditions before Kodiak SWD #1 well is completed

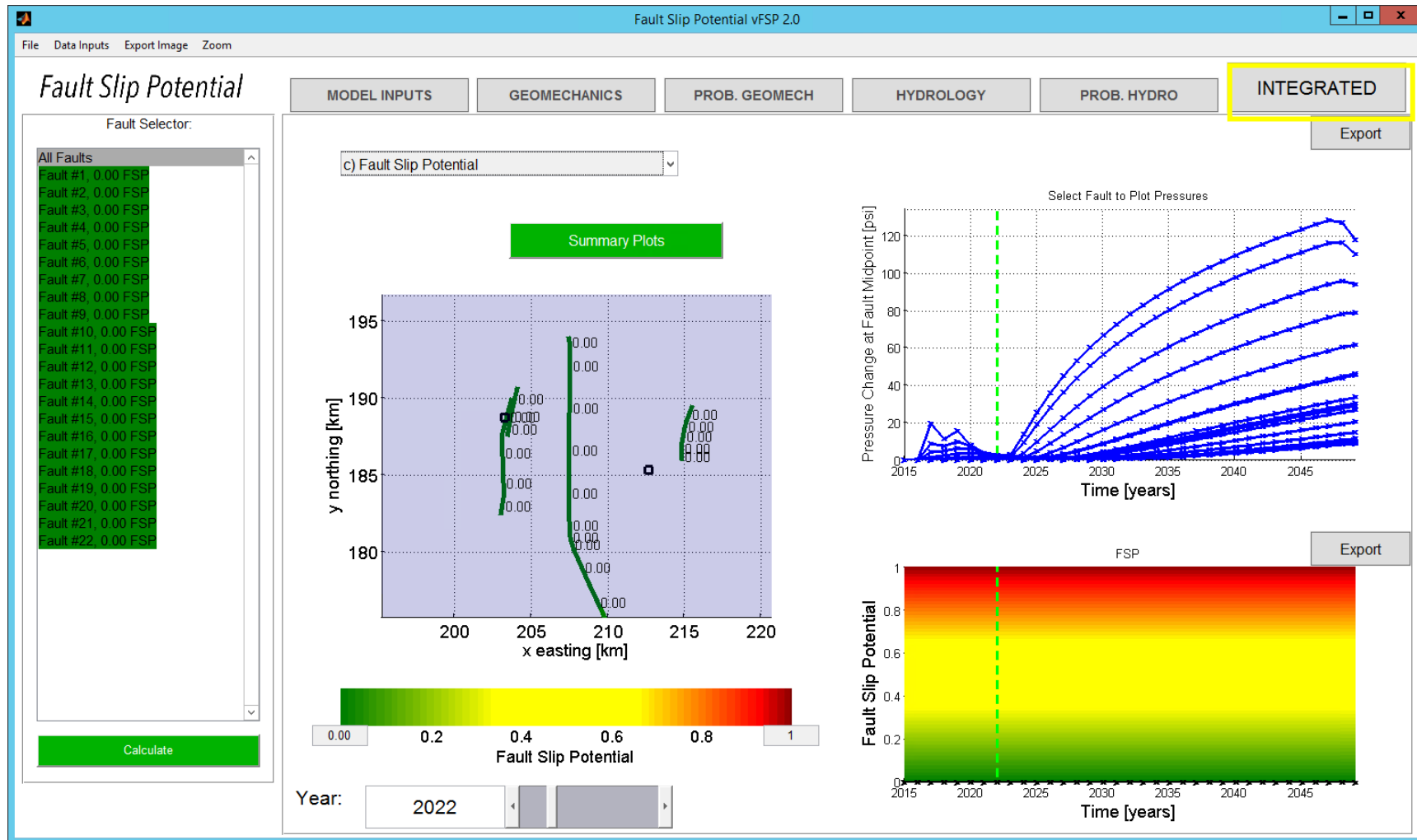


Figure 22 - Model 1 Integrated Tab, Initial Conditions

Fault Slip Potential for each fault segment is posted as a percentage likelihood.

Model 1 – Conditions in 2042, 20 years after Kodiak SWD #1 well is completed

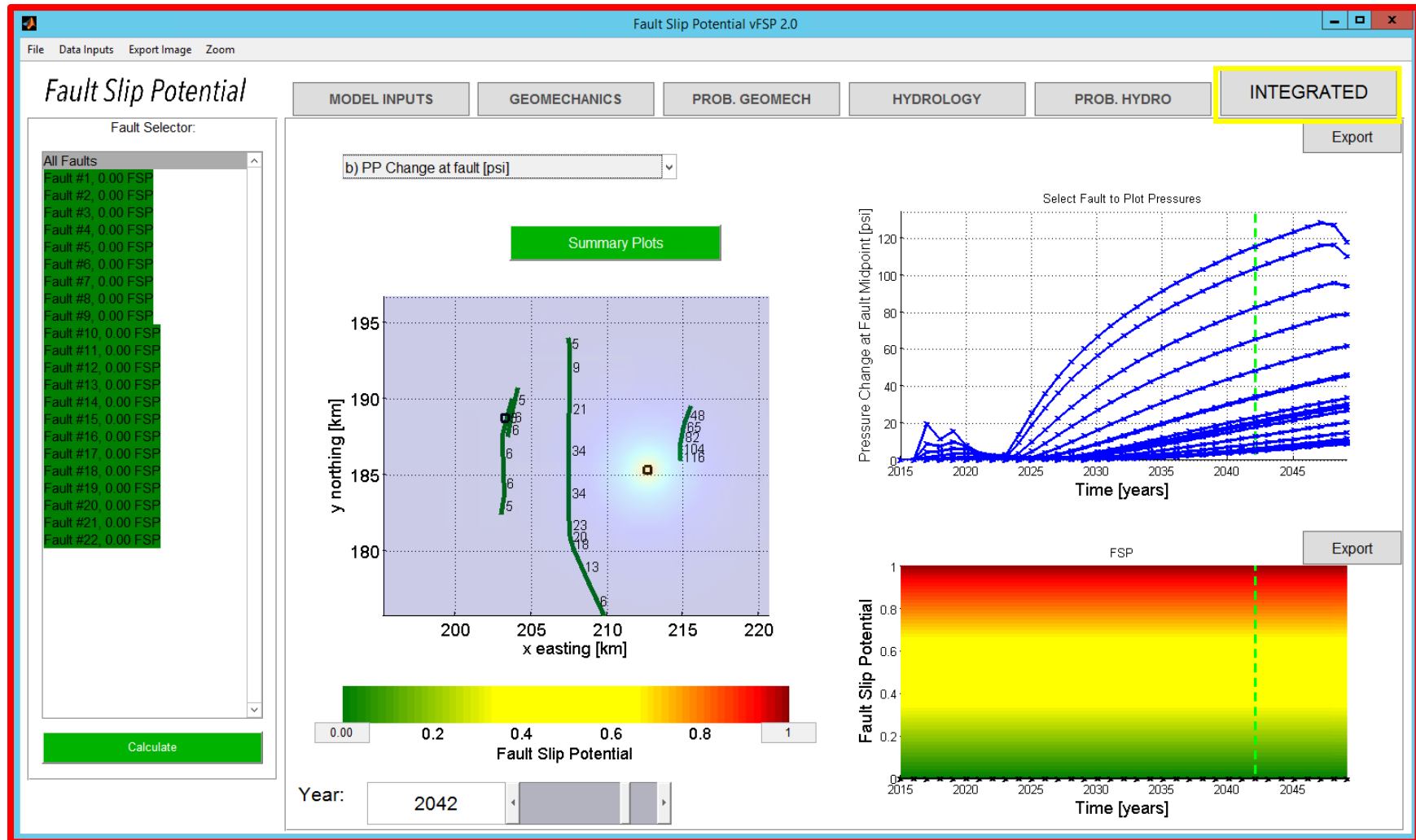


Figure 23 - Model 1 Integrated Tab, 20 years after completion

Pore Pressure change (psi) is posted for each fault segment.

Model 1 – Conditions in 2042, 20 years after Kodiak SWD #1 well is completed

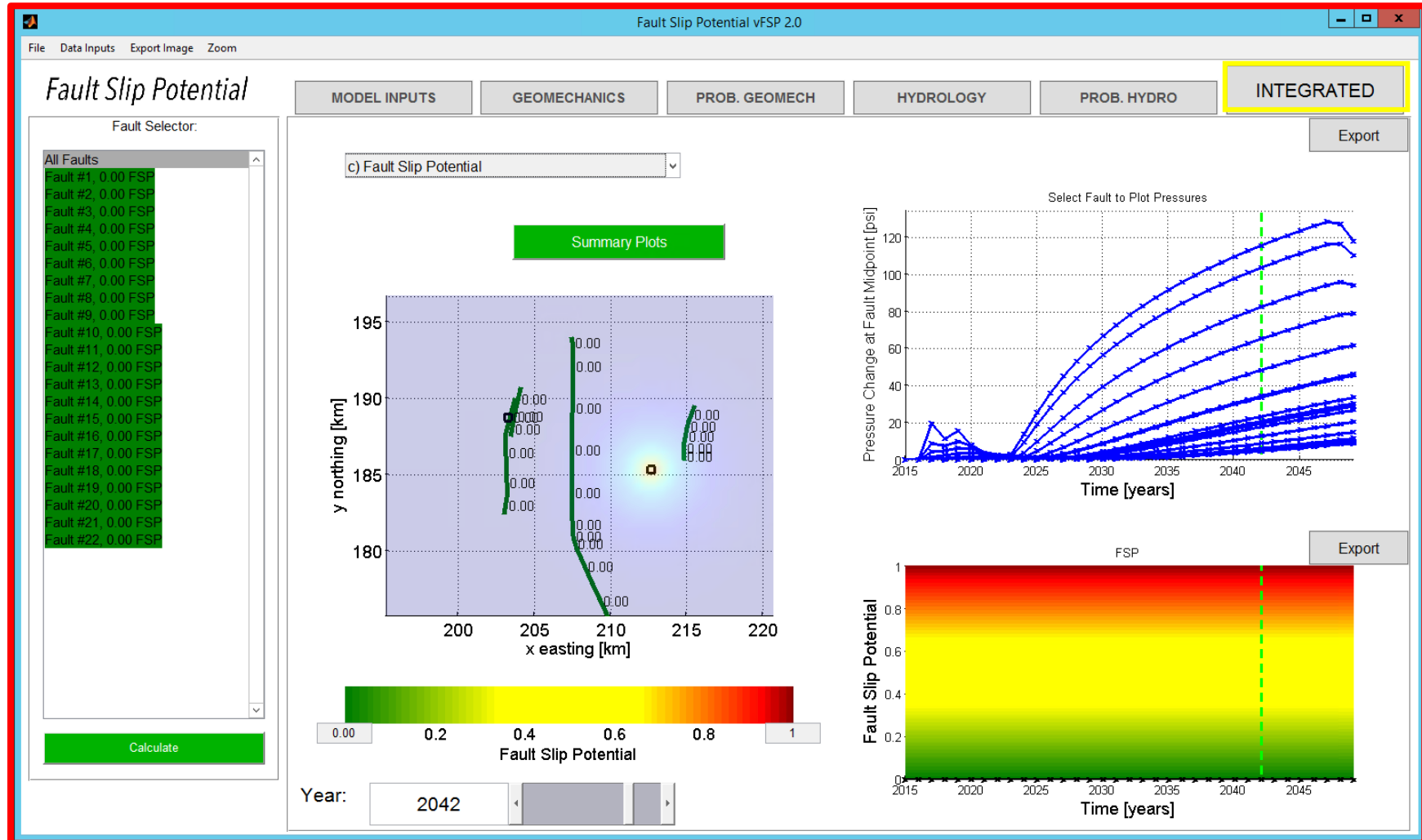


Figure 24 - Model 1 Integrated Tab, 20 years after completion

Fault Slip Potential for each fault segment is posted as a percentage likelihood.

3.0 FSP Analysis MODEL 2 – Devonian Faults - Only Kodiak SWD #1 well

Model #2 only incorporates the proposed Kodiak SWD #1 well with proposed injection rate of 25,000 barrels per day, or an average of 760,417 barrels per month.

All other parameters remain consistent as Model #1 such as faults, stress regime, reservoir, and probabilistic parameters. Below is the only change regarding Model #1 with respect to injector data.

The screenshot shows the 'Injection Wells' application window. It has two radio buttons: 'Enter Wells Manually' (unselected) and 'Load Wells Complete .csv' (selected). Below the radio buttons is a text input field for 'Number of file header lines:' with the value '1'. To the right of this field is a 'Load .csv File' button. Below these elements is a table with the following data:

	UniqueID/Name	Easting (km)	Northing (km)	Year	Month (1-12)	InjectionVolume (bbl/month)
1	Kodiak SWD	212.6677619	185.2733751	2022	2	760417

At the bottom of the window, there is a 'File Format Help' button, an 'Extrapolate Injection?' checkbox (checked), and the text 'Accepts up to 100 wells'. A large 'OK' button is centered at the bottom.

Figure 25 - Model 2 Injector Input

Model 2 - Devonian

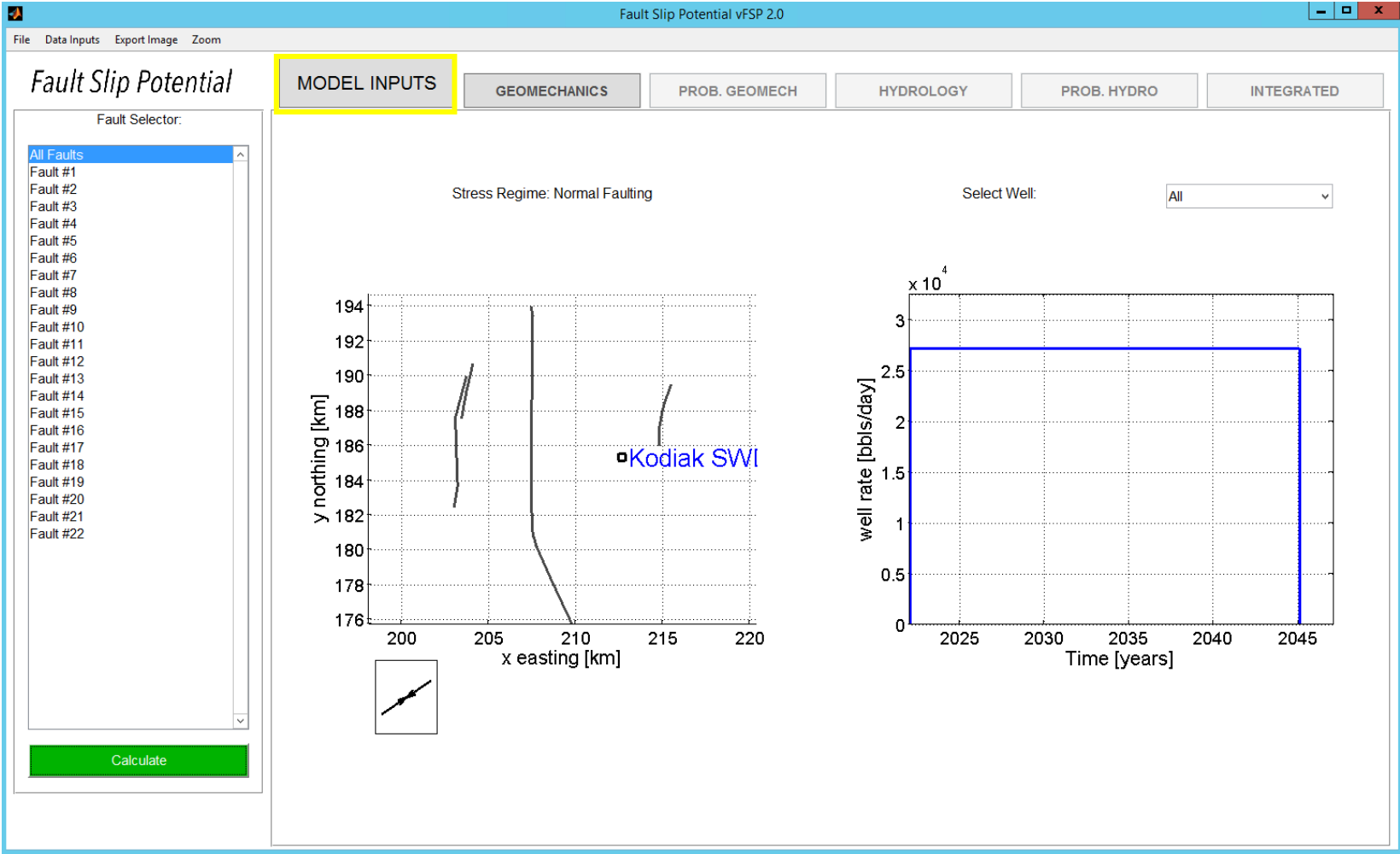


Figure 26 - Model 2 Inputs Tab

The following FSP result tabs are for the second model which includes only the proposed injection well.

Model 2 – Initial conditions before Kodiak SWD #1 well is completed

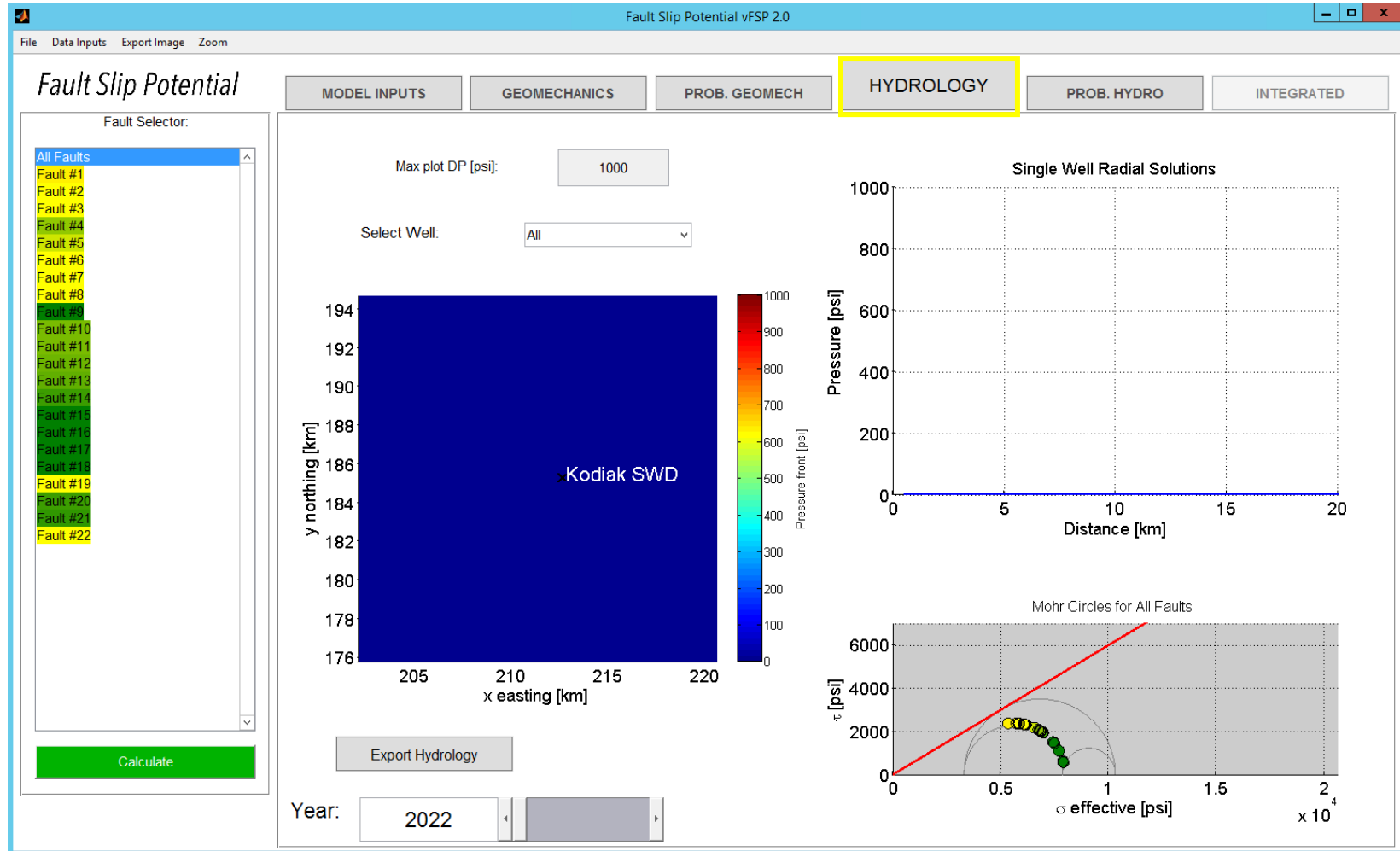


Figure 27 - Model 2 Hydrology Tab, Initial Conditions

Model 2 - Conditions in 2042, 20 years after Kodiak SWD #1 well is completed.

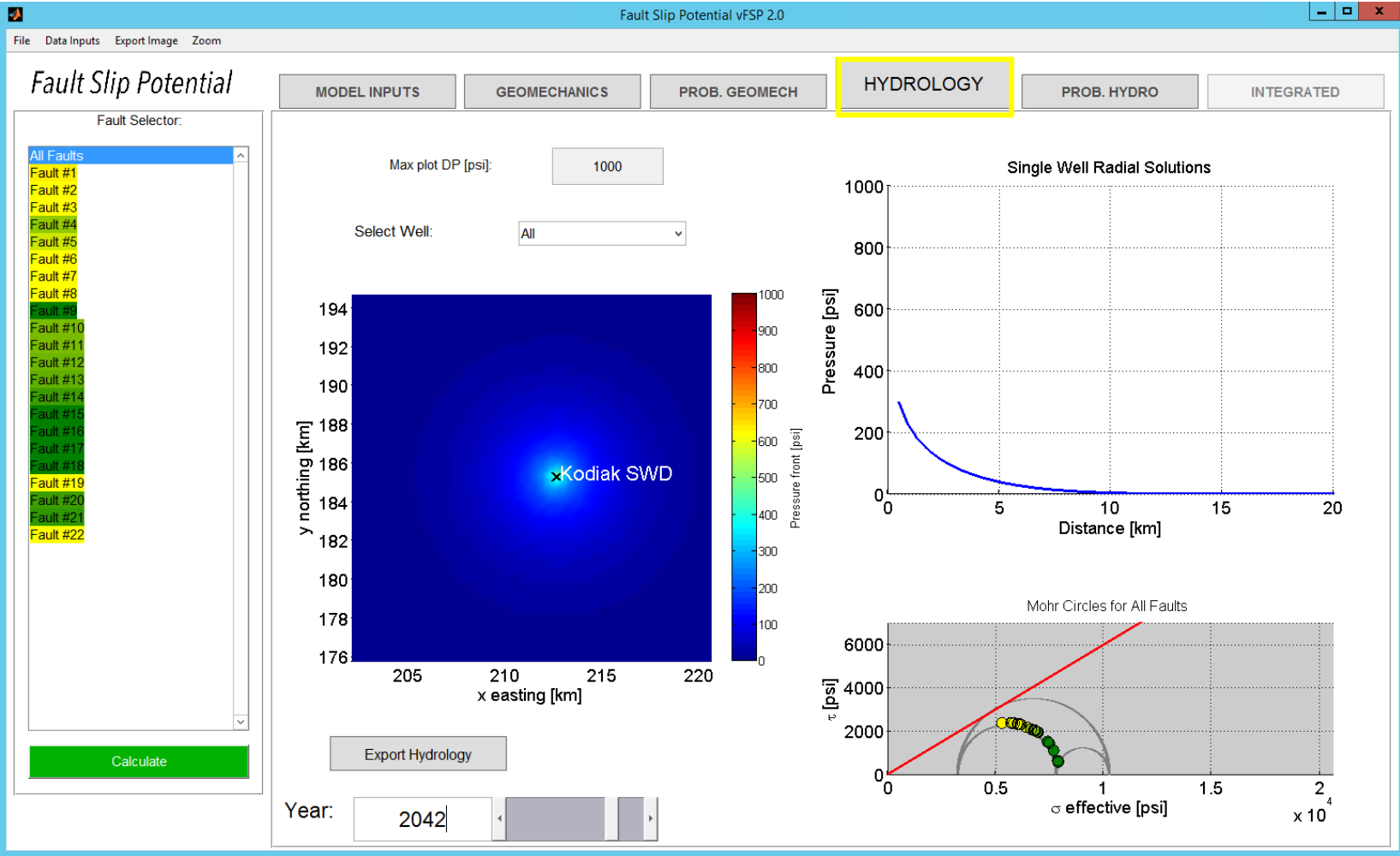


Figure 28 - Model 2 Hydrology Results, 20 years after Completion

Model 2 – Initial Conditions before Kodiak SWD #1 well is completed

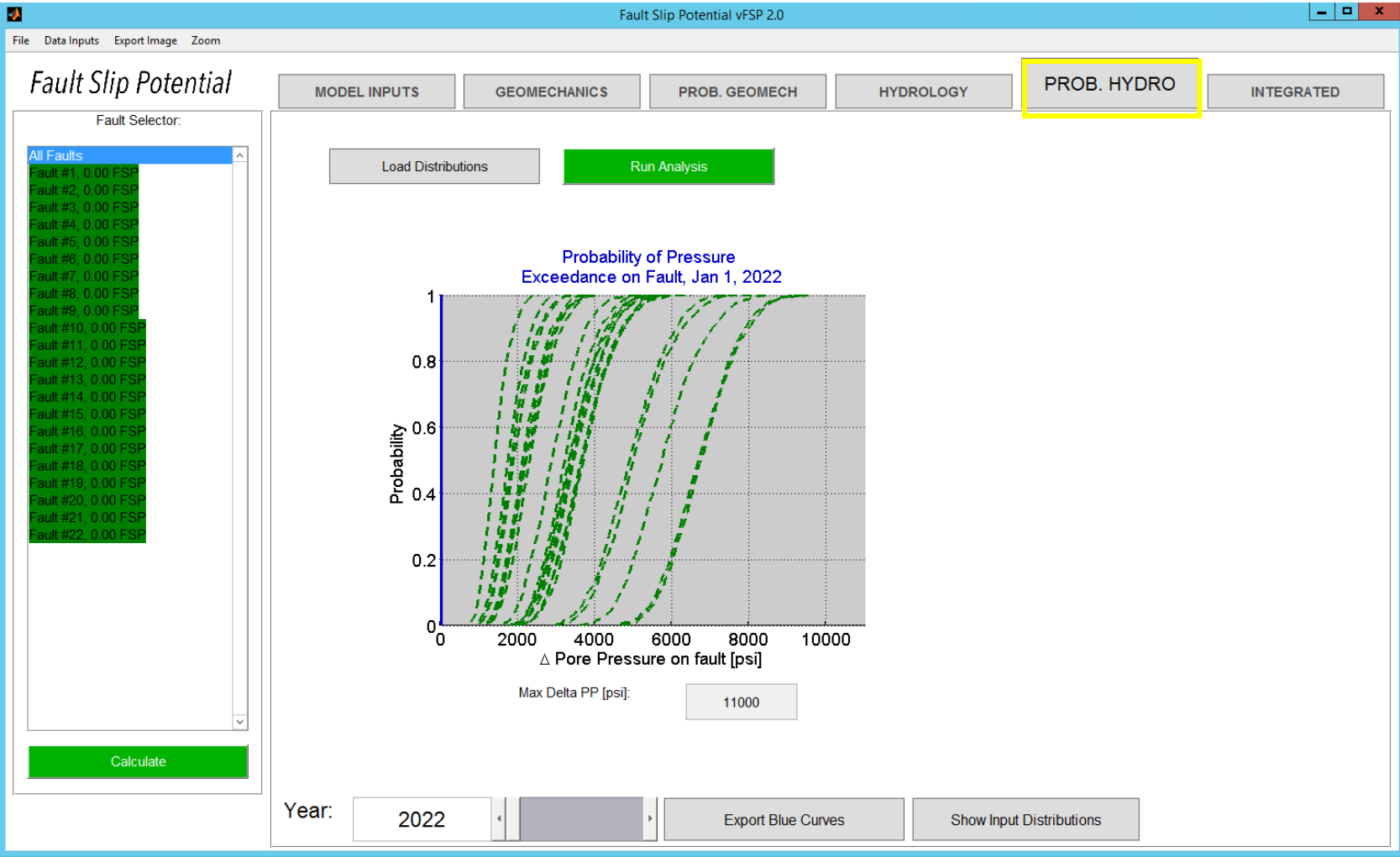


Figure 29 - Model 2 Probabilistic Hydrology Results Tab, Initial Conditions

Model 2 – Conditions in 2042, 20 years after Kodiak SWD #1 well is completed

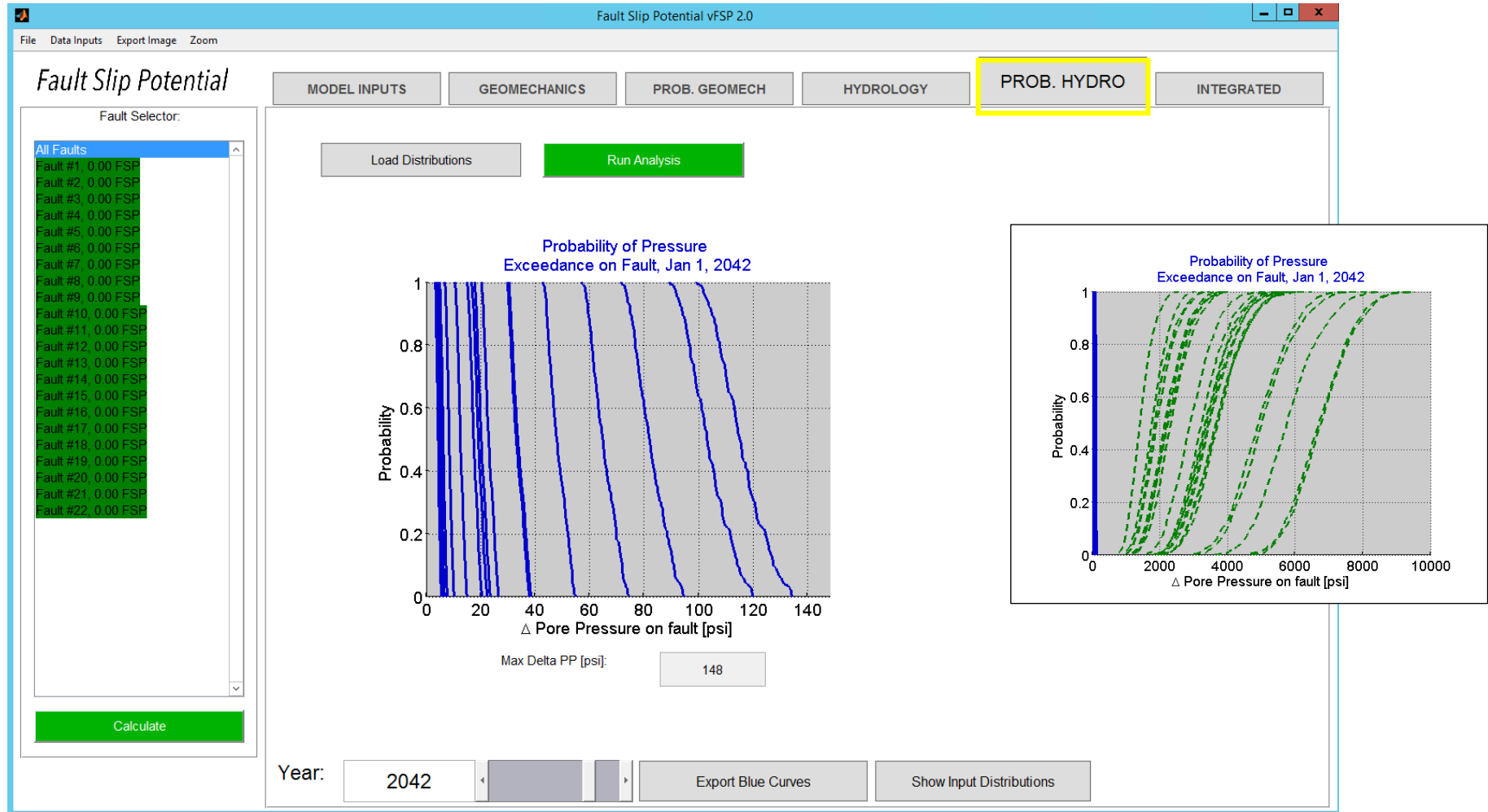


Figure 30 - Model 2 Probabilistic Hydrology Results Tab, 20 years after completion

Only includes proposed injector, held constant at the permitted rate.

Model 2 – Initial Conditions before Kodiak SWD #1 well is completed

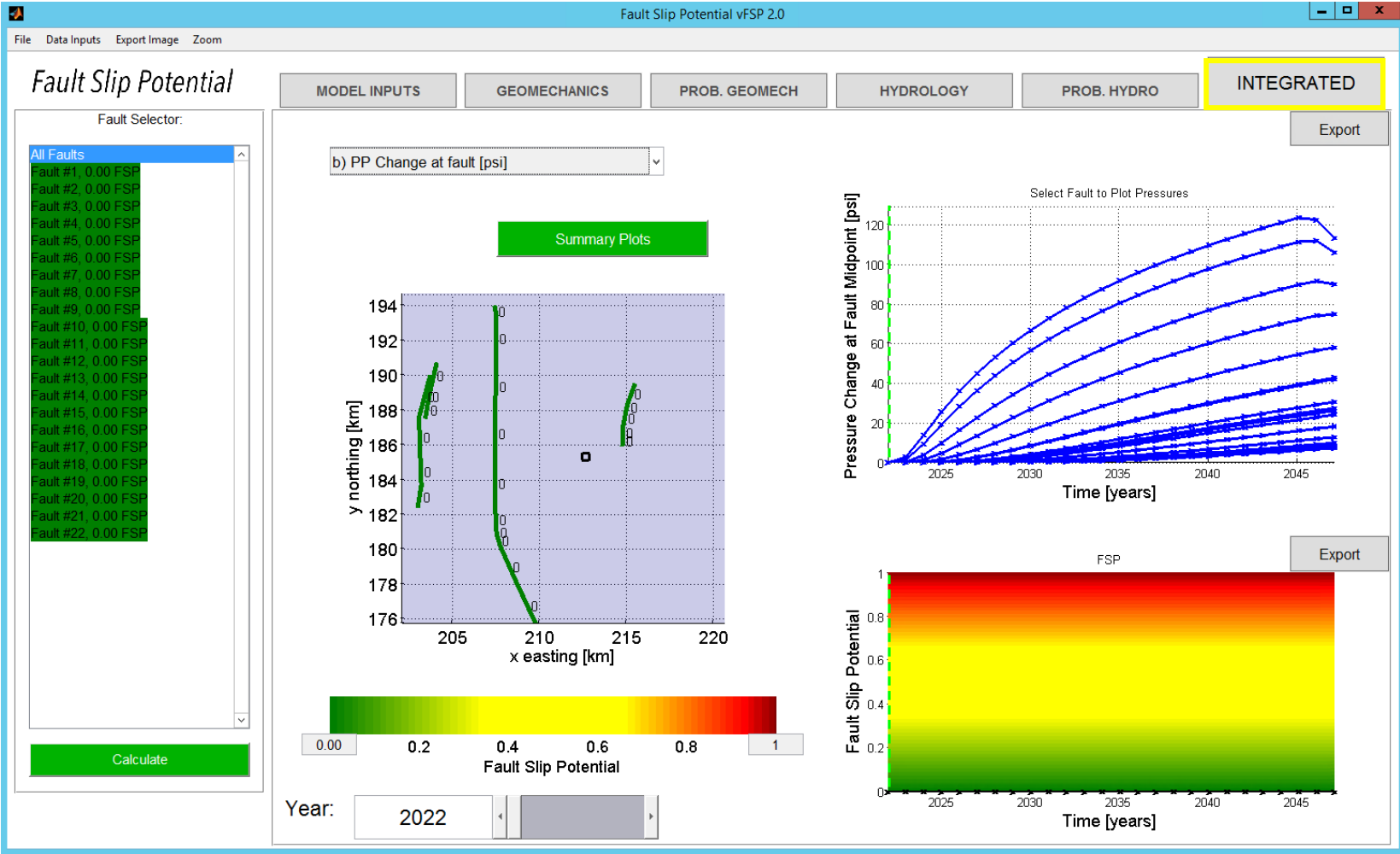


Figure 31 - Model 2 Integrated Results Tab, Initial Conditions

Pore Pressure change (psi) is posted for each fault segment.

Model 2 – Initial Conditions before Kodiak SWD #1 well is completed

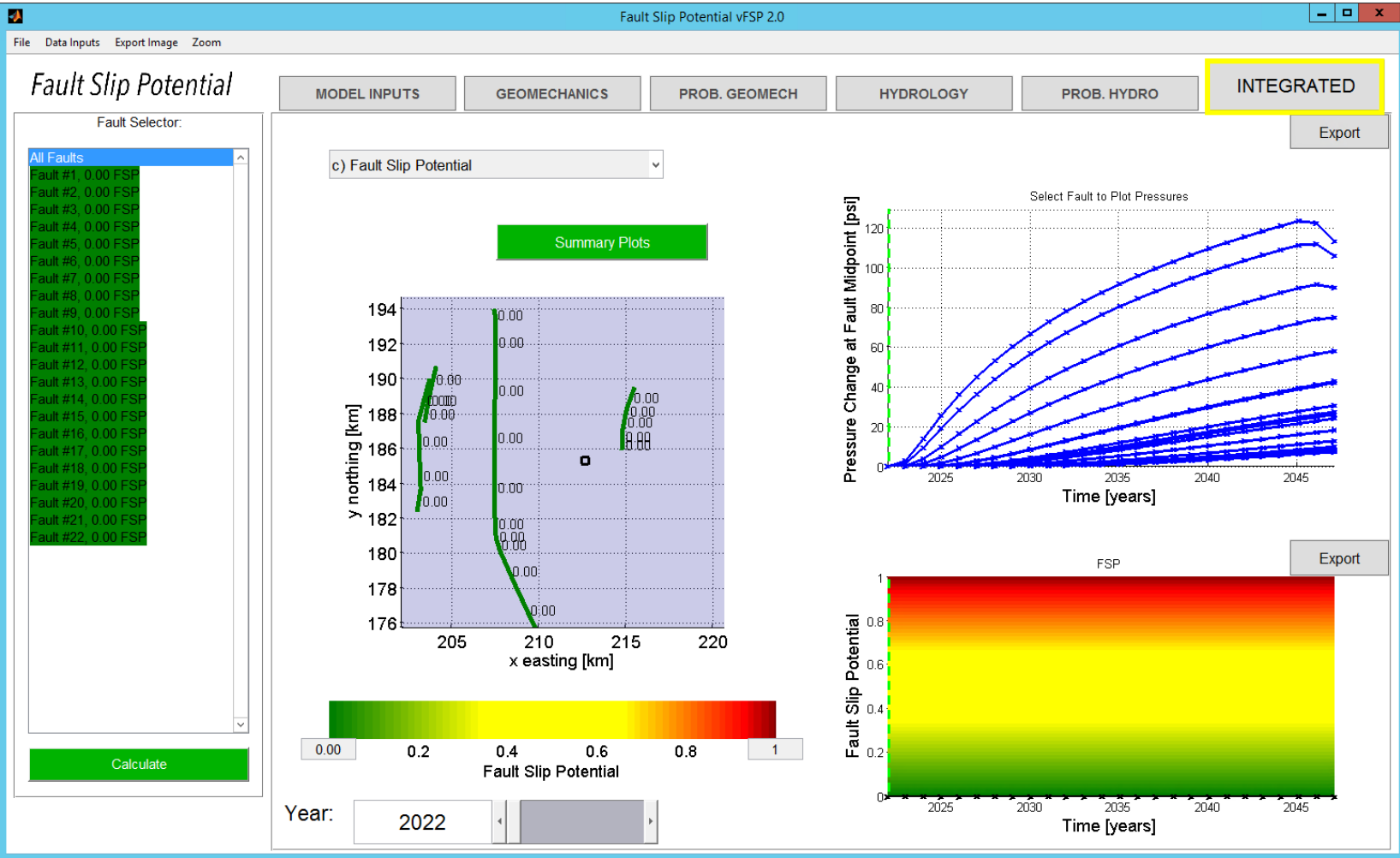


Figure 32 - Model 2 Integrated Results Tab, Initial Conditions

Fault Slip Potential for each fault segment is posted as a percentage likelihood.

Model 2 – Conditions in 2042, 20 years after Kodiak SWD #1 well is completed

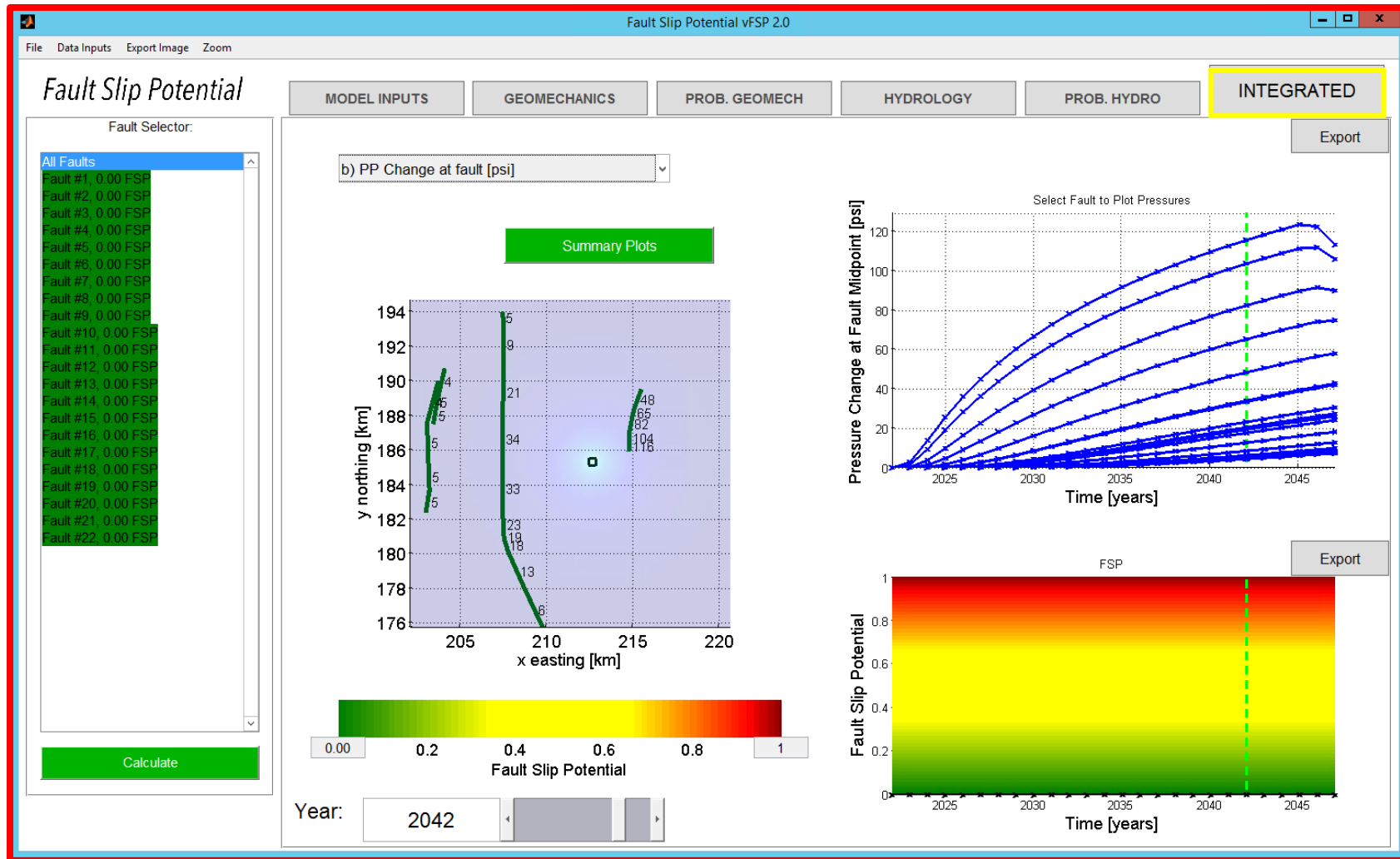


Figure 33 - Model 2 Integrated Results Tab, 20 years after completion

Pore Pressure change (psi) is posted for each fault segment.

Model 2 – Conditions in 2042, 20 years after Kodiak SWD #1 well is completed

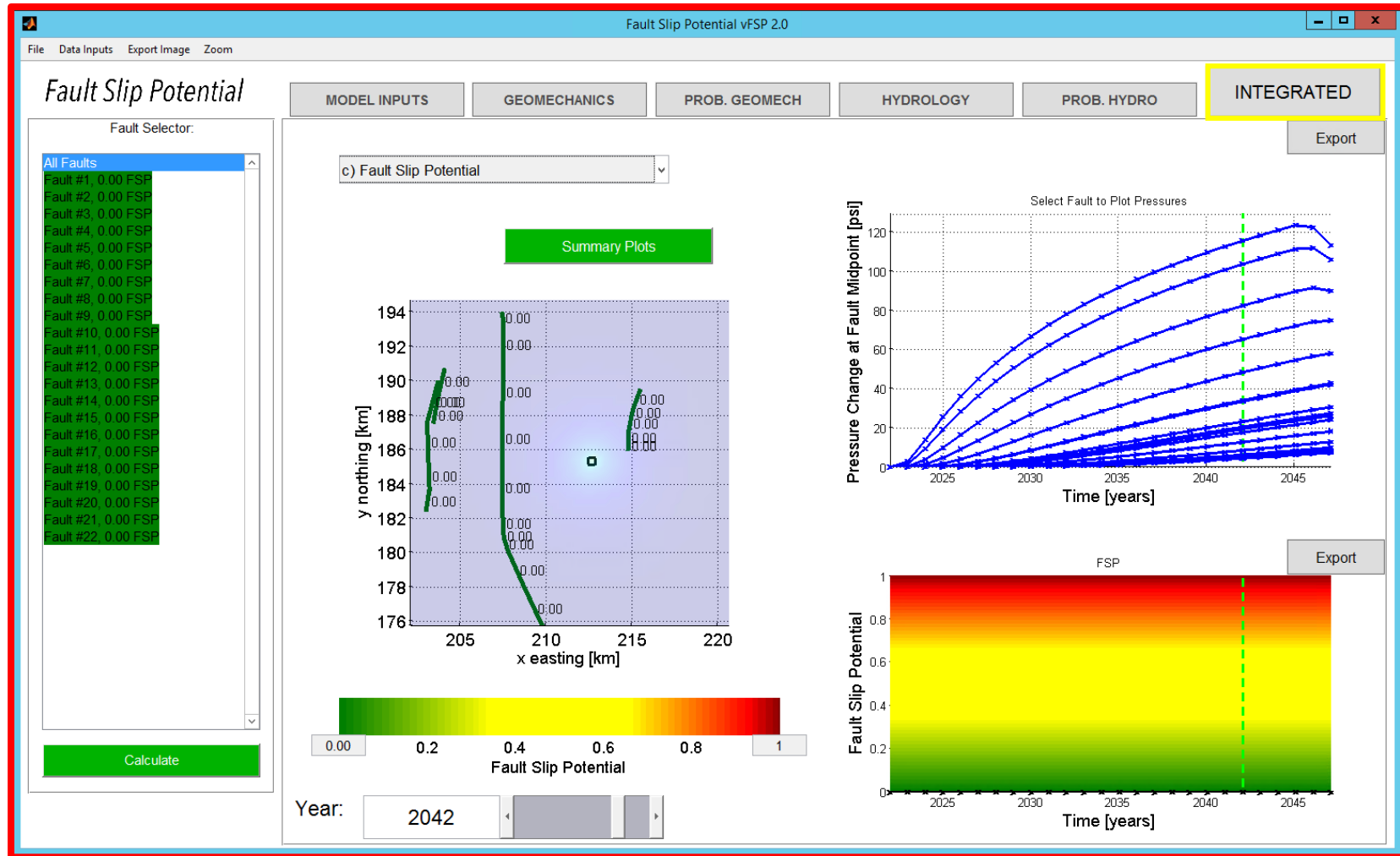


Figure 34 - Model 2 Integrated Results Tab, 20 years after completion

Fault Slip Potential for each fault segment is posted as a percentage likelihood.

4.0 MODEL 1 FSP Analysis Results

Model 1					
1 Injection Wells, Kodiak SWD & Devonian faults					
Fault	Pore Pressure to Slip	PP Change 2022	FSP 2022	PP Change 2042	FSP 2042
1	1382	0	0.00	48	0.00
2	1866	0	0.00	65	0.00
3	2196	0	0.00	82	0.00
4	3262	0	0.00	104	0.00
5	2928	0	0.00	116	0.00
6	1912	2	0.00	5	0.00
7	2165	3	0.00	6	0.00
8	2258	3	0.00	6	0.00
9	5063	0	0.00	6	0.00
10	3368	0	0.00	8	0.00
11	3368	1	0.00	21	0.00
12	3435	0	0.00	34	0.00
13	3489	0	0.00	34	0.00
14	3654	0	0.00	23	0.00
15	4899	0	0.00	20	0.00
16	5845	0	0.00	18	0.00
17	6832	0	0.00	13	0.00
18	6950	0	0.00	6	0.00
19	1783	3	0.00	5	0.00
20	3682	2	0.00	6	0.00
21	3723	1	0.00	6	0.00
22	2312	0	0.00	5	0.00

Table 1 - Model 1 FSP Results per fault segment

5.0 MODEL 2 FSP Analysis Results

Model 2 Kodiak SWD & Devonian faults					
Fault	Pore Pressure to Slip	PP Change 2022	FSP 2022	PP Change 2042	FSP 2042
1	1382	0	0.00	48	0.00
2	1866	0	0.00	65	0.00
3	2196	0	0.00	82	0.00
4	3262	0	0.00	104	0.00
5	2928	0	0.00	116	0.00
6	1912	0	0.00	4	0.00
7	2165	0	0.00	5	0.00
8	2258	0	0.00	5	0.00
9	5063	0	0.00	5	0.00
10	3368	0	0.00	8	0.00
11	3368	0	0.00	21	0.00
12	3435	0	0.00	34	0.00
13	3489	0	0.00	33	0.00
14	3654	0	0.00	23	0.00
15	4899	0	0.00	19	0.00
16	5845	0	0.00	18	0.00
17	6832	0	0.00	13	0.00
18	6950	0	0.00	6	0.00
19	1783	0	0.00	4	0.00
20	3682	0	0.00	5	0.00
21	3723	0	0.00	5	0.00
22	2312	0	0.00	5	0.00

Table 2 - Model 2 FSP Results per fault segment

6.0 Recorded Seismicity

Between 1/1/1900 and 3/01/2022 **0 earthquakes** with magnitudes 2 or greater were recorded by **USGS or TexNet** within the Kodiak SWD #1 FSP AOI (6 miles).

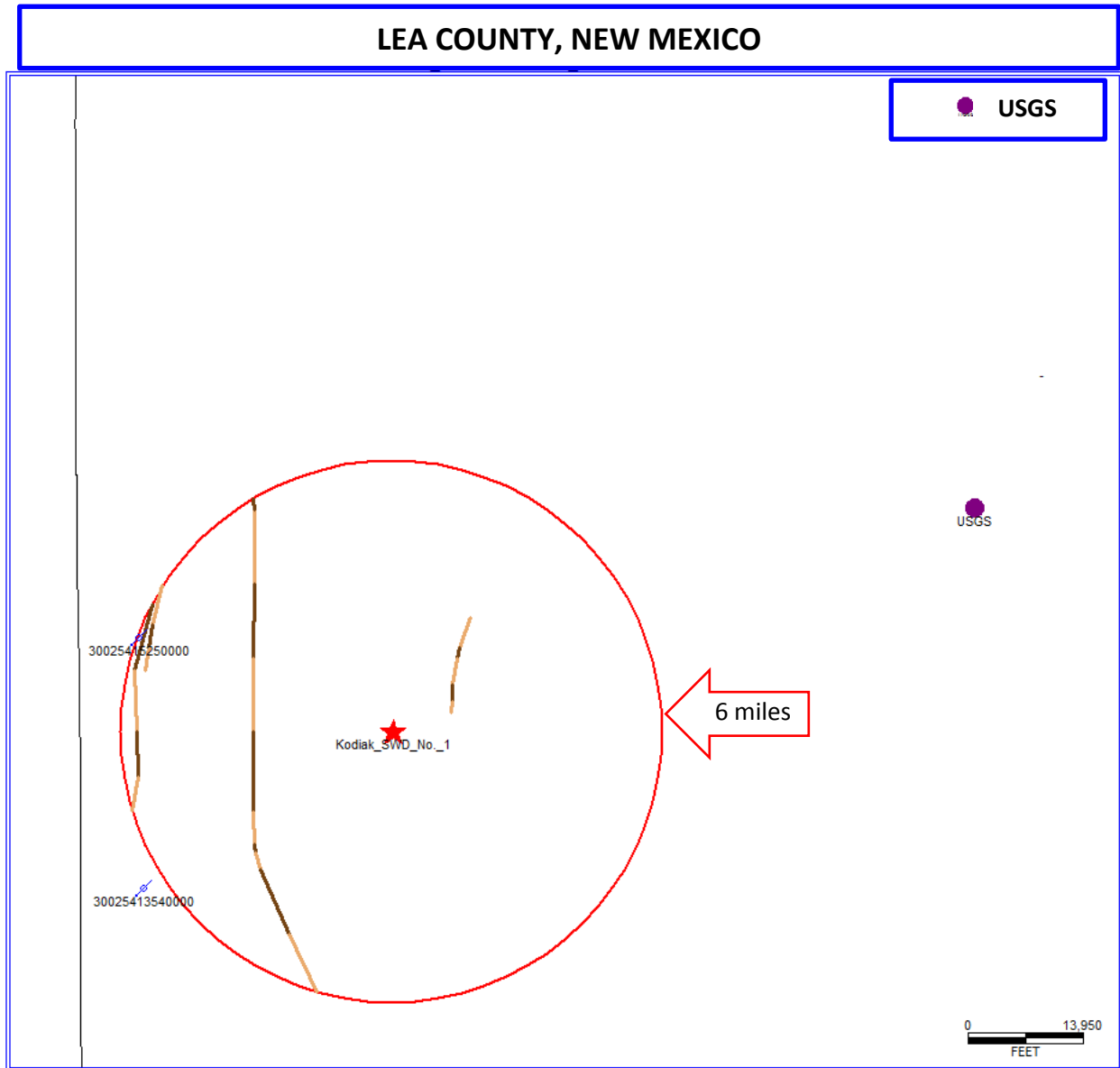


Figure 35 – USGS reported seismicity

0 Earthquakes with magnitude of 2 or greater inside the Kodiak SWD #1 FSP ANALYSIS AREA

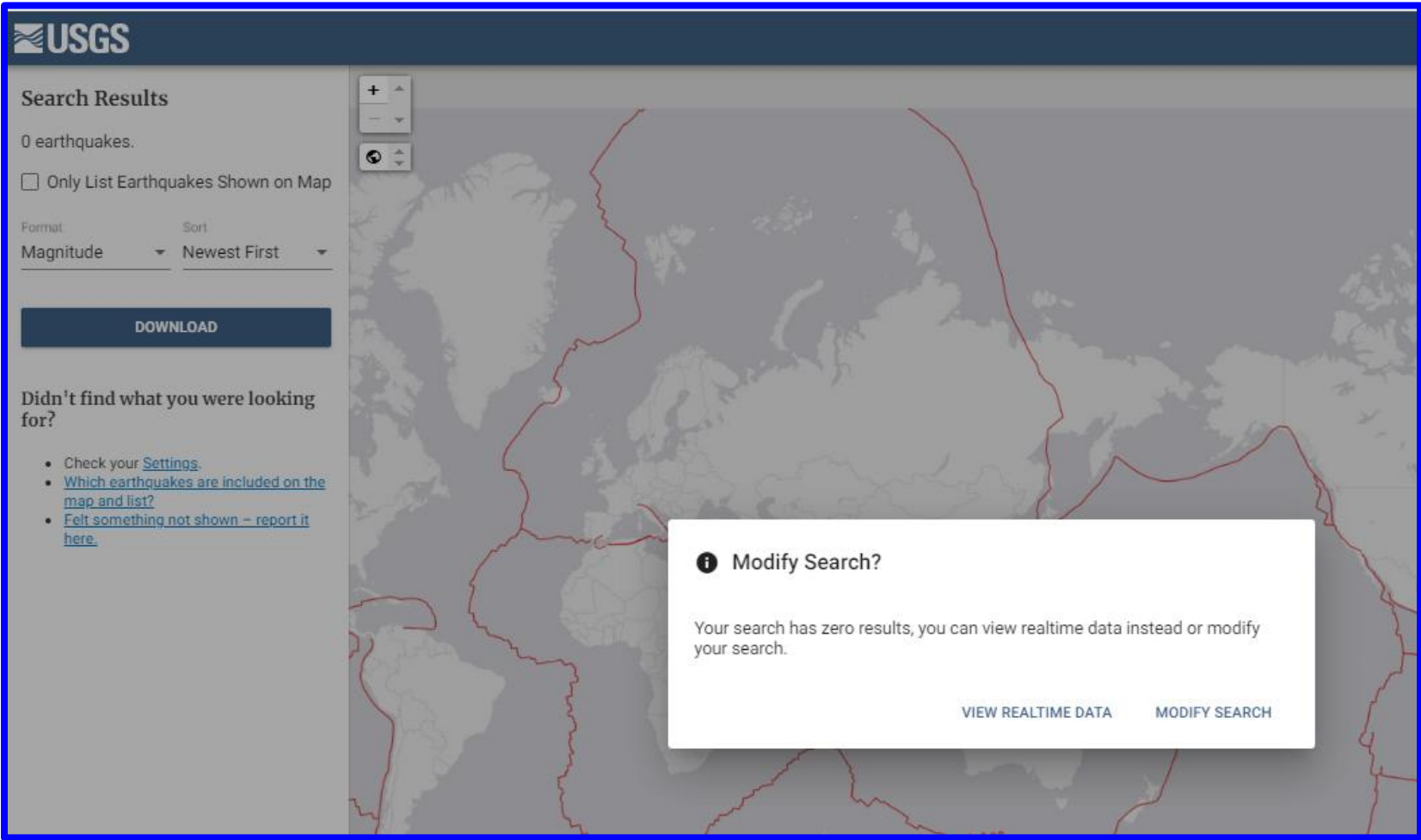


Figure 36 - USGS Earthquake catalog within Kodiak SWD #1 FSP AOI

0 Earthquakes with magnitude of 2 or greater inside the Kodiak SWD #1 FSP ANALYSIS AREA

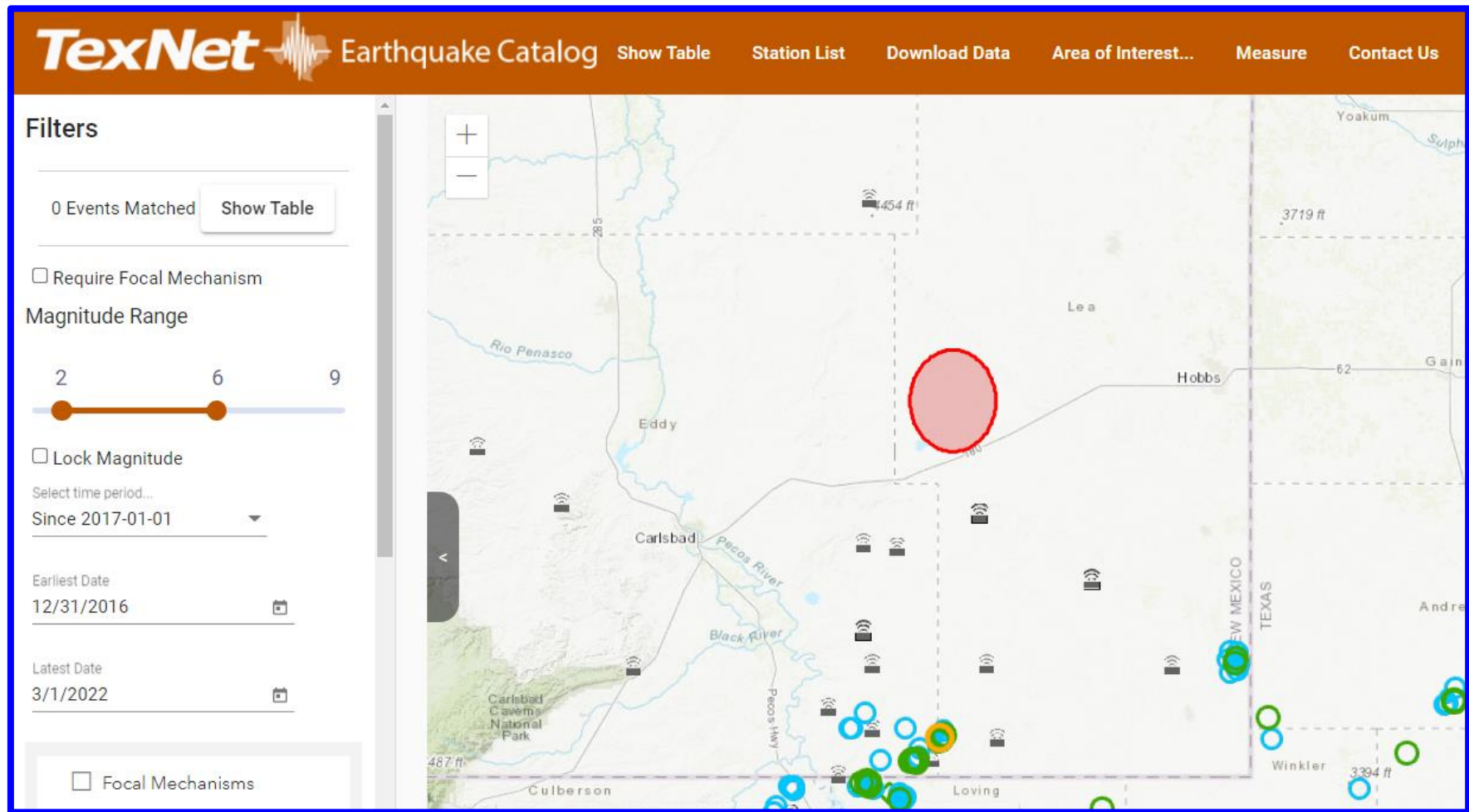


Figure 37 - TexNet Earthquake catalog within Kodiak SWD #1 FSP AOI


7.0 Conclusion

Two (2) FSP models were run within Kodiak SWD #1 AOI analyzing the Devonian fault traces, the first included all currently active injectors and select permitted injectors within the 6-mile AOI (including the proposed Kodiak SWD #1 location), and the second model only includes the proposed SWD well. The reservoir and stress parameters for the proposed injection interval do not increase the potential for the faults analyzed to slip.

In our opinion the proposed Kodiak SWD #1 injection well does not pose a risk of increasing seismicity within this FSP AOI.

Appendix 1 - Earthquake Backup

3 BEAR FIELD SERVICES, LLC FSP ANALYSIS



Earthquake Hazards Program

Earthquakes

Latest Earthquakes
Lists, Maps & Statistics
Special Earthquakes, Earthquake Sequences, and Fault Zones
Earthquake Photo Collections
Search Earthquake Catalog

Search Earthquake Catalog

Search results are limited to 20,000 events. To get URL for a search, click the search button, then copy the URL from the browser address bar.

- [Help](#)
- [ANSS Comprehensive Earthquake Catalog \(ComCat\) Documentation](#)
- [Developer's Corner - Library of functions and wrapper scripts for accessing and using tools for the NEIC's ComCat data](#)
- [Significant Earthquakes Archive](#)

Basic Options

Magnitude	Date & Time	Geographic Region
<input type="radio"/> 2.5+	<input type="radio"/> Past 7 Days	<input type="radio"/> World
<input type="radio"/> 4.5+	<input type="radio"/> Past 30 Days	<input type="radio"/> Conterminous U.S. ¹
<input checked="" type="radio"/> Custom	<input checked="" type="radio"/> Custom	<input checked="" type="radio"/> Custom

Minimum: 2
Maximum:
Start (UTC): 1900-02-22 00:00:00
End (UTC): 2022-03-01 23:59:59

Custom Circle:
• 32.669561 Latitude
• -103.691277 Longitude
• 10 Radius (km)

[Draw Rectangle on Map](#)

Search...

NAD 83 GRID - NM EAST

KODIAK SWD NO. 1

.Y= 607914.92 N
X= 738909.12 E
LAT= 32.669561 N
LONG= -103.691277 W


Circle

Center Latitude:
Center Longitude:
Outer Radius (km):

Review Status

☐ Any
☒ Automatic
☐ Reviewed

0 Earthquakes with magnitude of 2 or greater inside the Kodiak SWD #1 FSP ANALYSIS AREA



Search Results

0 earthquakes.

☐ Only List Earthquakes Shown on Map

Format: Magnitude | Sort: Newest First

[DOWNLOAD](#)

Didn't find what you were looking for?

- Check your [Settings](#).
- Which earthquakes are included on the map and list?
- Felt something not shown - report it [here](#).

Modify Search?

Your search has zero results, you can view realtime data instead or modify your search.

Earthquakes

Latest Earthquakes

Lists, Maps & Statistics

Special Earthquakes, Earthquake Sequences, and Fault Zones

Earthquake Photo Collections

Search Earthquake Catalog

Real-time Notifications

Information by Region

Earthquakes

Hazards

Data

Education

Monitoring

Search Earthquake Catalog

Search results are limited to 20,000 events. To get URL for a search, click the search button, then copy the URL from the browser address bar.

[Help](#)

[ANSS Comprehensive Earthquake Catalog \(ComCat\) Documentation](#)

[Developer's Corner - Library of functions and wrapper scripts for accessing and using tools for the NEIC's ComCat data](#)

[Significant Earthquakes Archive](#)

Basic Options

Magnitude

☐ 2.5+
 ☐ 4.5+
 ☒ Custom

Minimum

2

Date & Time

☐ Past 7 Days
 ☐ Past 30 Days
 ☒ Custom

Start (UTC)

1900-02-22 00:00:00

Geographic Region

☐ World
 ☐ Conterminous U.S.¹
☒ Custom

Custom Circle

• 32.669561 Latitude
 • -103.691277 Longitude

One USGS earthquake within 23 km of the Kodiak

USGS

Search Results

1 earthquakes.

☐ Only List Earthquakes Shown on Map

Format

Magnitude

Sort

Newest First

2.7

22 km NW of Monument, New ...

2020-06-30 17:06:21 (UTC-06:00)

5.0 km

DOWNLOAD

Didn't find what you were looking for?

Check your [Settings](#).

Which earthquakes are included on the map and list?

Felt something not shown – report it [here](#).

NEW MEXICO

+

-

+

-

2.7

22 km NW of Monument, New ...

2020-06-30 17:06:21 (UTC-06:00)

5.0 km

3 BEAR FIELD SERVICES, LLC FSP ANALYSIS

NAD 83 GRID - NM EAST

KODIAK SWD NO. 1

.Y= 607914.92 N

X= 738909.12 E

LAT= 32.669561 N

LONG= -103.691277 W

Circle

Center Latitude

32.669561

Center Longitude

-103.691277

☒ Any

☐ Automatic

☐ Reviewed

Outer Radius (km)

23

M 2.7 – 22 km NW of Monument, New Mexico

2020-06-30 23:06:21 (UTC) | 32.743°N 103.462°W | 5.0 km depth

Origin

[View all origin products \(1 total\)](#)

Contributed by [US¹](#) last updated 2020-09-05 17:35:38 (UTC)

✓ The data below are the most preferred data available

✓ The data below have been reviewed by a scientist

Details	Phases	Magnitudes
Magnitude uncertainty	2.7 mb _{lg} ± 0.1	
Location uncertainty	32.743°N 103.462°W ± 0.9 km	
Depth uncertainty	5.0 km ± 2.0	
Origin Time	2020-06-30 23:06:21.348 UTC	
Number of Stations	-	

LONQUIST &
PETROLEUM
ENGINEERS

AUSTIN • HOUSTON • CALHOUN • WHITEHALL
DENVER • COLLEGE STATION • BATON ROUGE • EDMONTON

Kodiak SWD #1

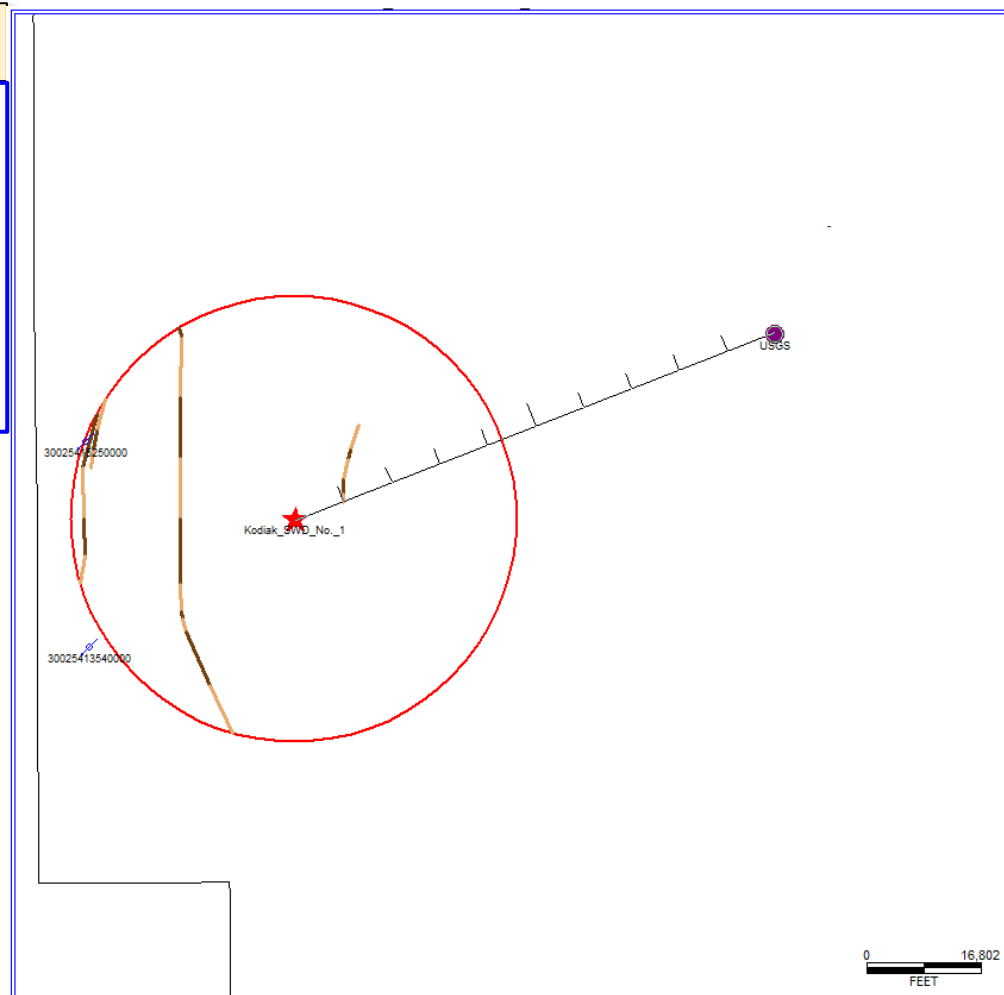
The closest earthquake it's 23.09 km (14.35 miles) away from Kodiak SWD #1.

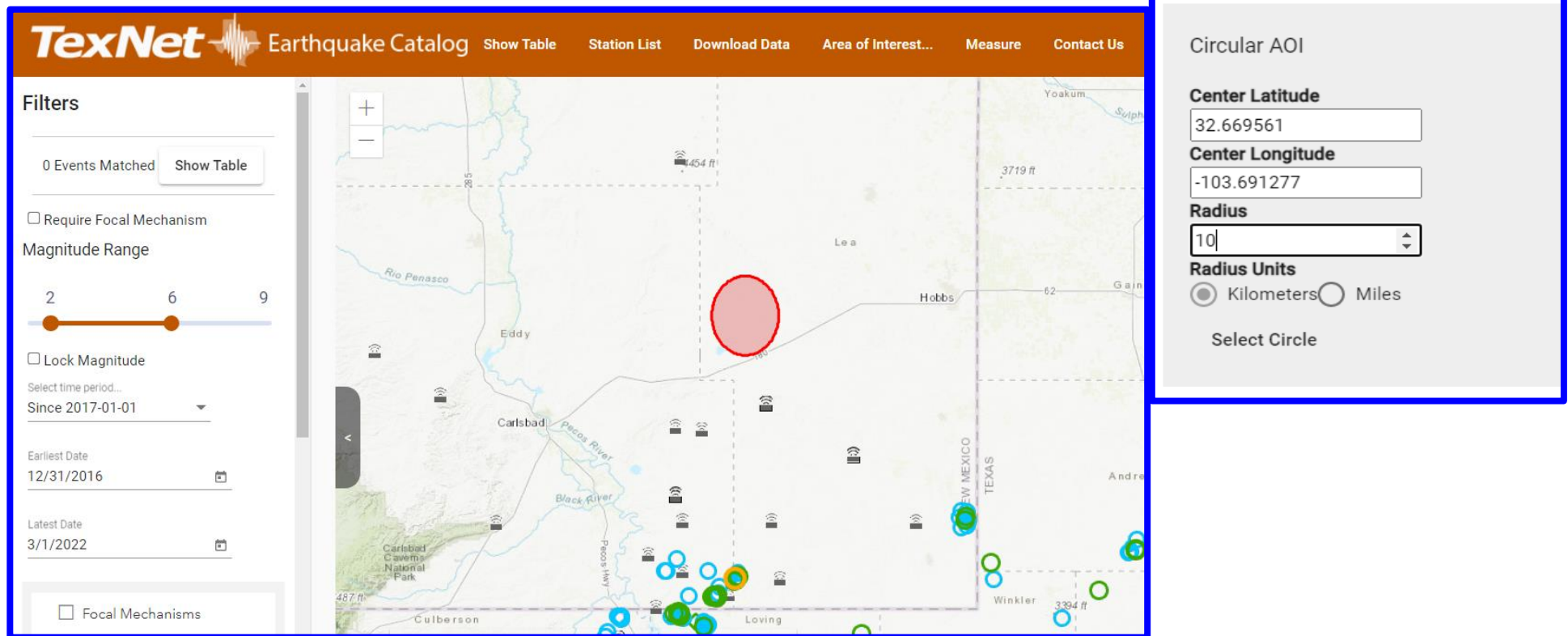
NAME: M 2.7 - 22 km NW of Monument, New Mexico.

DATE: 2020-06-30 23:06:21 (UTC).

LOCATION: NAD 27; Lat 32.7423828643, Long -103.4610034502,

Mag; 2.7



ZERO earthquakes within 10 km of the Kodiak SWD #1

The closest earthquakes using TexNet are about 76.12 km away from Kodiak SWD #1

