

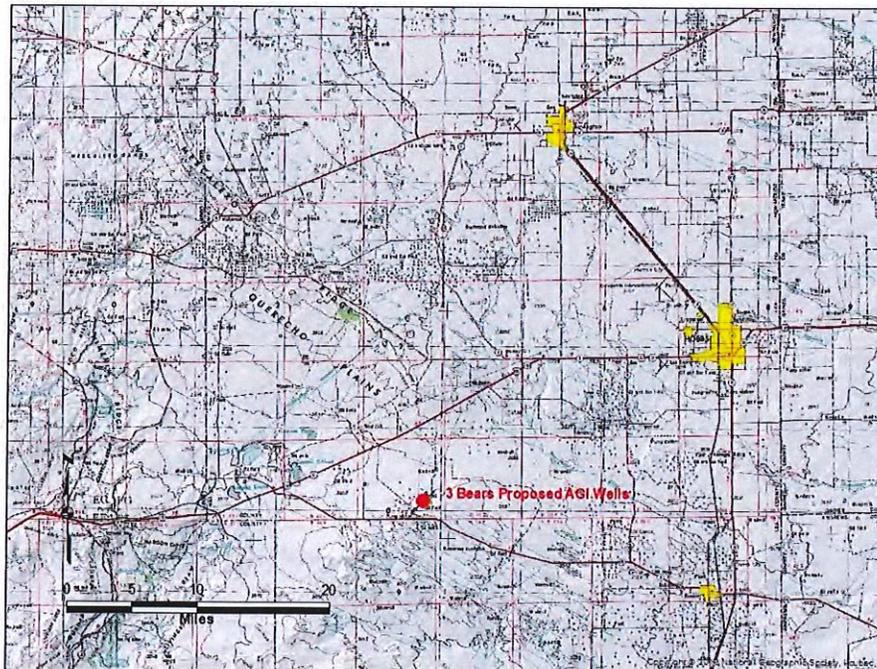
Application for Class II AGI Wells 3Bear Field Services, LLC

Libby AGI #1 and AGI #2

AGI #1 Surface Location: 1970' FWL, 1475' FSL Section 26, T20S, R34E
 AGI #1 Bottom Location: 1970' FWL, 1475' FSL Section 26, T20S, R34E

AGI #2 Surface Location: 1970' FWL & 1910' FSL Section 26, T20S, R34E
 AGI #2 Bottom Hole Location: 1320' FWL & 2275' FSL Section 26, T20S, R34E

Lea County, New Mexico



March 4, 2019

Prepared for:

3Bear Field Services, LLC
 500 Don Gaspar Ave.
 Santa Fe, NM 87505

Prepared by:

Geolex, Inc.
 500 Marquette Avenue, NW, Suite 1350
 Albuquerque, New Mexico 87102
 (505)-842-8000

Application of 3Bear Field Services, LLC
 Case No. 20409
 C-108 EXHIBIT #1

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: _____ Secondary Recovery _____ Pressure Maintenance X Disposal _____ Storage
Application qualifies for administrative approval? _____ Yes X No
- II. OPERATOR: 3Bear Field Services, LLC.
ADDRESS: 500 Don Gaspar Ave., Santa Fe NM 87505
CONTACT PARTY: Alberto A. Gutierrez, R.G. - GEOLEX, INC. PHONE: (505)-842-8000
- 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. **A CROSS REFERENCE TO THE APPLICABLE SECTIONS OR APPENDICES IN THE ATTACHED C108 APPLICATION FOR EACH ROMAN NUMERAL BELOW IS SPECIFIED BY SECTION AND/OR APPENDIX NUMBERS.**
- IV. Is this an expansion of an existing project? _____ Yes X No
If yes, give the Division order number authorizing the project: _____ N/A
- 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. **SECTIONS 5 and 6; APPENDICES A and B.**
- 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.
SECTION 5; APPENDIX A.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected; **SECTIONS 1, 2, and 3**
 2. Whether the system is open or closed; **SECTIONS 1, 2, 4 and 7**
 3. Proposed average and maximum injection pressure; **SECTIONS 1 and 3**
 4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and, **SECTIONS 3 and 4**
 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.). **SECTIONS 3 and 4**
- *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. **SECTIONS 4 and 5 and APPENDIX A**
- IX. Describe the proposed stimulation program, if any. N/A
- *X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted). **WELLS ARE NOT YET DRILLED**
- *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. **SECTION 4.5**
- 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.
SECTION 7
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form. **APPENDIX B**
- 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: Alberto A. Gutierrez, C.P.G. TITLE: President, Geolex, Inc.®, Consultant to DCP Midstream LP

SIGNATURE: _____  DATE: 03/04/2019

E-MAIL ADDRESS: aag@geolex.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: **SEE ATTACHED APPLICATION**

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.

AGI #1 Surface: 1970' FWL, 1475' FSL Section 26, T20S, R34E, - SECTIONS 1, 3 and 4.

AGI #2 Surface: 1970' FWL, 1910' FSL Section 26, T20S, R34E, - SECTIONS 1, 3 and 4. (Inclined Well)

AGI #2 Bottom Hole: 1320' FWL, 2275' FSL Section 26, T20S, R34E, - SECTIONS 1, 3 and 4.

(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. **SEE SECTION 3 FOR PROPOSED WELL DESIGNS. FINAL DESIGNS WILL BE SUBMITTED WHEN PROPOSED WELLS ARE DRILLED AND COMPLETED.**

(3) A description of the tubing to be used including its size, lining material, and setting depth. **SECTION 3 AND FIGURES 4 and 5 FOR PROPOSED WELL DESIGNS**

(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used. **SECTION 3**

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. **SECTIONS 1 and 4**

(2) The injection interval and whether it is perforated or open-hole. **SECTION 3**

(3) State if the well was drilled for injection or, if not, the original purpose of the well. **N/A- WELLS NOT YET DRILLED**

(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. **N/A**

(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. **SECTIONS 4 and 5; APPENDICES A and B**

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. **SECTION 5; APPENDIX B WE WILL NOTIFY OPERATORS AND LEASEHOLD OWNERS AND SURFACE OWNERS WITHIN THE AREA OF REVIEW PURSUANT TO NMOCD REGULATIONS AND WE WILL SUBMIT AFFIDAVITS OF PUBLICATION OF NOTICE AND CERTIFIED MAIL RETURN RECEIPTS AT HEARING.**

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: **SEE APPENDIX B FOR DRAFT OF PUBLIC NOTICE – AFFIDAVIT OF PUBLICATION OF NOTICE FROM NEWSPAPER WILL BE SUBMITTED AT HEARING.**

(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.

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY	1
2.0 INTRODUCTION AND ORGANIZATION OF C-108 APPLICATION.....	3
3.0 PROPOSED CONSTRUCTION AND OPERATION OF 3BEAR AGI #1 and #2 WELLS..	4
3.1 DESIGN OF 3BEAR LIBBY AGI #1	4
3.2 DESIGN OF 3BEAR LIBBY AGI #2	5
3.3 INJECTION VOLUME CALCULATIONS	5
3.4 CALCULATED MAXIMUM ALLOWABLE OPERATING PRESSURE (MAOP).....	7
4.0 REGIONAL AND LOCAL GEOLOGY AND HYDROGEOLOGY.....	8
4.1 GENERAL GEOLOGIC SETTING/SURFICIAL GEOLOGY.....	8
4.2 BEDROCK GEOLOGY	8
4.3 LITHOLOGIC AND RESERVOIR CHARACTERISTICS OF THE SILURO- DEVONIAN FORMATIONS	9
4.4 CHEMISTRY OF THE RESERVOIR FLUIDS	9
4.5 GROUNDWATER HYDROLOGY IN THE VICINITY OF THE PROPOSED INJECTION WELL	9
5.0 OIL AND GAS WELLS IN THE 3BEAR AGI WELL AREA OF REVIEW	10
6.0 IDENTIFICATION AND REQUIRED NOTIFICATION OF OPERATORS, SUBSURFACE LESSEES, AND SURFACE OWNERS WITHIN THE AREA OF REVIEW.	11
7.0 AFFIRMATIVE STATEMENT OF LACK OF HYDRAULIC CONNECTION BETWEEN PROPOSED INJECTION ZONE AND KNOWN SOURCES OF DRINKING WATER.....	11

LIST OF FIGURES

- Figure 1: Location of Proposed 3Bear AGI Wells
- Figure 2: Detailed Location Map, 3Bear Plant Area and Proposed AGI Wells
- Figure 3: Schematic of 3Bear AGI System
- Figure 4: Schematic of Proposed AGI #1
- Figure 5: Schematic of Proposed Deviated AGI #2
- Figure 6: Calculated Radii of Injection After 30 Years at 8.0 MMSCFD
- Figure 7: General Structural Features of the Permian Basin
- Figure 8: Stratigraphy and Pay Zones Under Proposed AGI Well Sites
- Figure 9: Structure on Top of the Devonian
- Figure 10: Cross-section Through the Deeper Horizons Across The 3bear Plant Site
- Figure 11: Structure on the Top of the Devonian, From Lea Field
- Figure 12: Porosity Profile Above and Below Injection Zone

LIST OF APPENDICES

- Appendix A: Information on Oil and Gas Wells within One Mile and Two Miles of Proposed 3Bear AGI Wells and Plugging Data for Plugged Well Within One Mile of Proposed 3Bear AGI Wells
- Appendix B: Identification of Operators, Surface Owners, Lessees, Working Interest Operators and other Interested Parties for Notices, Copies of Notice Letters and Certified Mail Receipts

1.0 EXECUTIVE SUMMARY

On the behalf of 3Bear Field Services, LLC (“3Bear”) Geolex, Inc. (Geolex) has prepared and is hereby submitting a complete C-108 application for approval to drill, complete, and operate two acid gas injection (AGI) wells (Libby AGI#1 and Libby AGI #2) in Section 26, T20S, R34E in Lea County, New Mexico (Figure 1). These wells are intended as redundant wells to assure continuous operation of the plant should one well require repairs. Under normal operations both wells may be operated simultaneously, or 3Bear could use either independently.

3Bear operates the Libby Gas Plant facilities at this location, and the proposed wells are designed to accept a cumulative total of up to 8 MMSCFD of treated acid gases (TAG) from this facility. AGI #1 will be a vertical well, located at 1970’ FWL, 1475’ FSL in Section 26. AGI #2 will be a deviated well, and the surface location will be at 1970’ FWL and 1910 FSL, with a bottom hole location of 1320 FWL and 2275 FWS, also in Section 26 (Figure 2).

The proposed injection zone will be in the Devonian and Upper Silurian Wristen and Fusselman Formations, at depths of approximately 14,900 to 16,400 feet. Analysis of the reservoir characteristics of these units confirms that they act as excellent closed-system reservoir that will accommodate 3Bear’s TAG disposal needs.

The caprock above the injection zone consists of approximately 200 feet of the dense Woodford Shale, as well as a significant thickness of the tight Mississippian carbonates that overly the Woodford. These formations will contain the injected TAG, and prevent any up migration.

All casing segments will be cemented to the surface, and the disposal zone in the well will be completed as an open-hole interval, from approximately 14,900 to 16,400 feet. Specific casing setting and completion depths will be selected following analysis of geophysical logs, mud logs, and sidewall cores.

There are 69 completed wells within one mile of the proposed 3Bear AGI wells. Specific well data is summarized in Appendix A. Of these 39 are active, 29 are plugged and abandoned. This is also one approved location that have not been drilled (exclusive of the proposed AGI wells). Only two of these completed wells penetrate deeper than the top of the injection zone (14,950’). These are the 3Bear SWD #1, located 0.49 miles northeast of the proposed AGI wells, and the plugged and abandoned Arlen L. Edgar Federal 001, located 0.40 miles south of the project.

All mineral leases in the one-mile circle of the well location are owned by the United States Government, administrated by the Bureau of Land Management (BLM). Operators, surface owners, lessees, and other interested parties are identified in Appendix B.

Based on the New Mexico Water Rights Database from the New Mexico Office of the State Engineer, there are no freshwater wells within the one-mile area of review for the proposed AGI wells. The area surrounding the proposed injection site is arid and there are no natural bodies of surface water within one mile of the proposed well locations.

In preparing this C-108 application, Geolex conducted a detailed examination of all of the elements required to be evaluated in order to prepare and obtain approval for this application for injection. The elements of this evaluation include:

- Identification and characterization of all hydrocarbon-producing zones of wells that surround and are present on the plant site.
- The depths of perforated pay intervals in those wells relative to the depth of the target injection zones (Devonian/Silurian, Wristen and Fusselman).
- The past and current uses of the proposed intervals.
- The stratigraphic and structural setting of the targeted zones relative to any nearby active or plugged wells, and other wells penetrating the intervals.
- The identification of and sample notification letter that will be sent to all surface owners within a one-mile radius of the proposed injection well.
- Identification and characterization of all plugged and operating wells penetrating the proposed injection zone within a one-mile radius of the proposed injection well.
- The details of the proposed injection operation, including general well design and average and maximum daily rates of injection and injection pressures.
- Sources of injection fluid and compatibility with the formation fluid of the injection zone.
- Location and identification of any fresh water bearing zones in the area; the depth and quality of available groundwater in the vicinity of the proposed well, including a determination that there are no structures which could possibly communicate the disposal zone with any known sources of drinking water.

Based upon this detailed evaluation 3Bear has determined that the proposed AGI wells are a safe and environmentally-sound project for the disposal of TAG. Furthermore, our analyses demonstrate that the proposed injection wells will not negatively impact any waters of the State, nor have any actual or potential impacts to production in the area. This application is fully protective of correlative rights.

2.0 INTRODUCTION AND ORGANIZATION OF C-108 APPLICATION

The completed NMOCD Form C-108 is included before the Table of Contents of this document and references appropriate sections where data required to be submitted are included herein.

This application organizes and details all of the information required by NMOCD and NMOCC to evaluate and approve the submitted Form C-108 – Application for Authorization to Inject. This information is presented in the following categories:

- A detailed description of the location, construction, and operation of the proposed disposal well (Section 3.0)
- A summary of the regional and local geology, the hydrogeology, and the location of drinking water wells within the area of review (Section 4.0)
- The identification, location, status, production zones, and other relevant information on oil and gas wells within the area of review. (Section 5.0)
- The identification and required notification for operators and surface land owners that are located within the area of review (Section 6.0)
- An affirmative statement, based on analysis of geologic conditions at the site, that there is no hydraulic connection between the proposed injection zone and any known sources of drinking water (Section 7.0)

3.0 PROPOSED CONSTRUCTION AND OPERATION OF 3BEAR AGI #1 and #2 WELLS

TAG from the plant’s sweeteners will be routed to a central compressor facility, located east of the well heads. Compressed TAG will then be routed to the wells via high-pressure rated lines. Design details are provided in Sections 3.1 and 3.2 below.

3.1 DESIGN OF 3BEAR LIBBY AGI #1

The locations of the two AGI wells, and adjacent other wells, are shown in Figure 2, and a schematic of the injection system is shown in Figure 3. The AGI #1 will be advanced vertically to its anticipated total depth of approximately 16,400 feet. The injection zone (approximately 14,900 to 16,400 feet) will be completed as an open hole interval. Libby AGI #2 will be deviated to a bottom-hole location approximately 1,000 feet northwest of its surface location.

The AGI facilities and wells will be integrated components of the Libby Plant design. The preliminary well design for the new injection well AGI #1 is shown on Figure 4, and Figure 5 shows a schematic of AGI #2. These wells are designed to accommodate injection of 8 MMSCFD of TAG. The tubing and cement details of the well design may be modified after review with BLM. Since the subsurface mineral rights are owned by the United States, all well designs and drilling operations and testing will be conducted in accordance with the regulations and guidance provided by the governing agency, the BLM.

Table 1 below summarizes the proposed casing schedule for the wells. The conductor casing (20”) will be set in a competent bed above the salt, at approximately 300 feet. The surface casing (13 3/8”) will be set through the salt to approximately 1,950 feet in the upper Delaware Group. The 9 5/8” intermediate casing will be advanced to approximately 12,300 feet below the base of the Wolfcamp.

Table 1: Summary of Proposed Casing Schedule

	Borehole (in)	OD (in)	PPF	Grade	Thread	Top (ft)	Bottom (ft)	Length (ft)
Conductor	26	20.000	94	J55	BTC	0	300	300
Surface	17.50	13.375	68	J55	BTC	0	1950	1950
Intermediate	12.25	9.625	40	L80-IC	BTC	0	12300	12300
Production_1	8.625	7.000	29	P110	LTC	0	14625	14625
Production_2	8.625	7.000	32	Vallourec	VAM	14625	14925	300
Tubing_1	na	3.500	9.3	L80-IC	BTS-8	0	14550	14550
Tubing_2	na	3.500	9.2	Inconel G3	VAM	14550	14850	300
Open Hole	5.875	na	na	na	na	14925	16400	1475

The 7” production casing will be set in the Woodford Formation at approximately 14,925 feet. Approximately 14,625 feet of conventional steel casing will be used, as well as 300 feet of Corrosive Resistant Alloy (CRA) to 14,925 feet. The final completion will be constructed as a 5 7/8” open hole interval, to a total depth of approximately 16,400 feet at the top of the Montoya Formation.

Both intermediate segments will be logged using Dual Induction and Density-Neutron-Gamma Ray Porosity. The proposed open hole logging suite for the TD run consists of a Dual Induction, Density-Neutron-Gamma Ray Porosity and Fracture Matrix Identification (FMI) log in the lower Woodford (cap rock) and the Devonian, Wristen and Fusselman units

Sidewall cores will be collected from the tight Woodford caprock above the Devonian and in the Devonian and target reservoir units. Representative core samples will be analyzed in the laboratory to determine caprock and reservoir permeabilities and porosity.

All casing segment will be cemented to the surface. A casing integrity test (pressure test) will be performed to test the casing. Full 360-degree cement-bond logs will be performed for each casing segment as well.

Once the integrity of the cement jobs has been determined a temporary string of removable packer and tubing will be run, and injection tests (step tests) will be performed to determine the final injection pressures and volumes. Once the reservoirs have been tested, the final tubing string will include a permanent packer, approximately 14,550 feet of 5 1/2-inch premium thread tubing, and 300' of 3 1/2" CRA tubing to extend to the packer at 14,850 feet.

3.2 DESIGN OF 3BEAR LIBBY AGI #2

Libby AGI #2 will be drilled, tested and completed as described above for Libby AGI #1, but will be deviated to a bottom-hole location approximately 1,000 feet northwest of the surface location.

Libby AGI #2 will be deviated to safely avoid the horizontal segment of the Cimarex Hanson 26 Federal Com 002 (3002540819), which runs north-south at a depth of approximately 11,100 feet along the western border of the 3Bear facility (Figure 2). The kick-off point of the well will be at an approximate depth of 12,300 feet below the bottom of the 9 5/8" casing, and deviated northwest at an angle of approximately 15 degrees. This track will intercept the target zone approximately 700 feet northwest of the surface location, and will reach the true vertical total depth approximately 1,000 feet away from the surface location. The estimated measured depth will be approximately 16,515 feet.

A schematic of the Libby AGI #2 is provided as Figure 5.

3.3 INJECTION VOLUME CALCULATIONS

Table 2 below summarizes the calculations used to determine the radius of injection after 30 years of operating at an average rate of 8.0 MMSCFD.

Review of available log data and other geological information indicates that there is approximately 1500 feet of reservoir rock in the proposed injection zone with an average porosity of 3.5 percent or more. Incorporating the calculated residual water (S_w) of 0.66, this yields a net available porosity of 17.85 feet.

Based on these values, the injection plume is calculated to cover approximately 296 acres, with a radius of 2,027 feet (0.38 miles). The calculated plume is shown in Figure 6. This figure shows that the calculated plume is well within the one-half mile area of review.

Figure 6 shows the calculated plumes as if the complete 8 MMSCFD was injected in each well for 30 years. Although the total amount of TAG will be distributed between the wells, this figure shows the most conservative scenario if one well was used exclusively. In reality, smaller plumes for each well will be created over the life of the plant.

Even in the most conservative model, the 0.38-mile TAG plume would not reach the 3Bear Libby SWD (3002544288) at 0.5 miles northeast from the nearest AGI well, nor would the TAG reach the plugged Arlen Edgar well (3002523578) located 0.40 miles south in Section 35.

Table 2: Calculated Injection Area and Radius

PROPOSED INJECTION STREAM CHARACTERISTICS					
TAG	H ₂ S	CO ₂	H ₂ S	CO ₂	TAG
Gas vol MMSCFD	conc. mol %	conc. mol %	inject rate lb/day	inject rate lb/day	inject rate lb/day
8	20	80	151876	784489	936365

CONDITIONS AT WELL HEAD									
Well Head Conditions		TAG							
Temp	Pressure	Gas vol	Comp	Inject Rate	Density ¹	SG ²	density	volume	volume
F	psi	MMSCFD	CO ₂ :H ₂ S	lb/day	kg/m ³		lb/gal	ft ³	bbl
90	1800	8	80:20	936365	787.00	787.00	6.57	19049	3393

CONDITIONS AT BOTTOM OF WELL									
Injection Zone Conditions					TAG				
Temp	Pressure ³	Depth _{top}	Depth _{bottom}	Thickness ⁴	Density ¹	SG ²	density	volume	volume
F	psi	ft	ft	ft	kg/m ³		lb/gal	ft ³	bbl
210	6700	14900	16400	1500	814.00	814.00	6.80	18418	3280

CONDITIONS IN RESERVOIR AT EQUILIBRIUM									
Injection Reservoir Conditions					TAG				
Temp ⁵	Pressure ³	Ave. Porosity ⁶	Swr	Porosity	Density ¹	SG ²	density	volume	volume
F	psi	%		ft	kg/m ³		lb/gal	ft ³	bbl
210	6400	3.5	0.66	17.85	713.00	0.71	5.95	21027	3745

CONSTANTS			
	SCF/mol		
Molar volume at STD	0.7915		
	g/mol	lb/mol	
Molar weight of H ₂ S	34.0809	0.0751	
Molar weight of CO ₂	44.0096	0.0970	
Molar weight of H ₂ O	18.015	0.0397	

CALCULATION OF MAXIMUM INJECTION PRESSURE LIMITATION	
SG _{TAG}	0.8005
PG = 0.2 + 0.433 (1.04-SG _{TAG})	0.304 psi/ft
IP _{max} = PG * Depth	4525 psi

Where: SG_{TAG} is specific gravity of TAG; PG is calculated pressure gradient; and IP_{max} is calculated maximum injection pressure.

CALCULATION OF 30 YEAR AREA OF INJECTION		
Cubic Feet/day (5.6146 ft ³ /bbl)	21027	ft ³ /day
Cubic Feet/30 years	230398136	ft ³ /30 years
Area = V/Net Porosity (ft)	12907459	ft ² /30 years
Area = V/Net Porosity (ft) (43560 ft ² /)	296.3	acres/30 years
Radius =	2027	ft
Radius =	0.38	miles

¹ Density calculated using AQUALibrium software
² Specific gravity calculated assuming a constant density for water
³ PP is extrapolated using successful Drill Stem Tests at nearby wells
⁴ Thickness is the average total thickness of porous units in the reservoir zone
⁵ Reservoir temp. is extrapolated from bottomhole temp. measured at nearby wells
⁶ Porosity is estimated using geophysical logs from nearby wells

3.4 CALCULATED MAXIMUM ALLOWABLE OPERATING PRESSURE (MAOP)

The total volume of TAG to be injected under this scenario will be approximately 6 MMSCFD. Pressure reduction valves will be incorporated to assure that maximum allowable operating pressure allowed by NMOCD will not be exceeded.

The MAOP for the 3Bear Libby AGI wells is calculated using the following method approved by NMOCD as shown below:

$$\text{IPmax} = \text{PG} (\text{Dtop}) \quad \text{where: } \begin{array}{l} \text{IPmax} = \text{maximum surface injection pressure (psig)} \\ \text{PG} = \text{pressure gradient of mixed injection fluid (psig/foot)} \\ \text{Dtop} = \text{depth at top of perforated interval of injection zone (feet)} \end{array}$$

and $\text{PG} = 0.2 + 0.433 (1.04 - \text{SG}_{\text{TAG}})$ where:

SG_{TAG} = specific gravity of the Treated Acid Gas (~0.8005)

Therefore:

$$\text{PG} = 0.2 + 0.433 (1.04 - 0.8005) = 0.304$$

$$\text{IPmax} = \text{PG} (\text{Dtop}) = 0.304 \times 14,900 = 4,525 \text{ psig}$$

3Bear requests a MAOP to 4,525 psig.

4.0 REGIONAL AND LOCAL GEOLOGY AND HYDROGEOLOGY

4.1 GENERAL GEOLOGIC SETTING/SURFICIAL GEOLOGY

The Libby Facility will be located in central area of Section 26, T20S, R34E in Lea County, New Mexico, about 30 miles west of Hobbs, New Mexico (Figure 1).

The Plant location is within a portion of the Pecos River basin referred to as the Querecho Plains reach (Nicholson & Clebsch, 1961). This area is relatively flat and largely covered by sand dunes underlain by a hard caliche surface. The dune sands are locally stabilized with shin oak, mesquite and some burr-grass. There are no natural surface bodies of water or groundwater discharge sites within one mile of the Plant and where drainages exist in interdunal areas, they are ephemeral, discontinuous, dry washes. The proposed well site is underlain by Quaternary alluvium overlying the Triassic redbeds of the Santa Rosa Formation (Dockum Group), both of which are local sources of groundwater. The thick sequences of Permian through Ordovician rocks that underlie these deposits are described generally below.

4.2 BEDROCK GEOLOGY

The 3Bear Facility and proposed wells are located in the northern portion of the Delaware Basin, a sub-basin of the larger, encompassing Permian Basin, which covers a large area of southeastern New Mexico and west Texas (Figure 7). The Permian Basin lies within the area of the larger, ancestral (pre-Mississippian) Tabosa Basin, which covered an area that included the entire present-day Permian Basin area and beyond. The Tabosa Basin was a shallow sub-tropical basin throughout the period between the Ordovician and early Mississippian (Osagean). The Permian Basin as we know it today began to take form during the Middle to Late Mississippian, with various segments (Delaware and Midland Basins, Central Basin Platform, North Platforms) arising from the ancestral Tabosa Basin. The Delaware Basin was subsequently deepened by periodic deformation during the Hercynian orogeny of the Pennsylvanian through Early Permian. Following the orogeny, the Delaware Basin was structurally stable and gradually was filled by large quantities of clastic sediments while carbonates were deposited on the surrounding shelves, and was further deepened by basin subsidence.

Figure 8 is based on a reference well showing the formations that underlie the proposed well site. Production in this area is found in the shallow Permian Yates and Seven Rivers Formations, and in the deeper Leonardian and Wolfcamp zones. Production is also found in the Pennsylvanian Morrow Formation, at depth to 13,240 feet. No deeper production occurs in this area in deeper units, and the proposed injection zone is separated by approximately 1,100 feet from the Morrow.

Figure 9 shows the structural geometry of the top of the Devonian. The Devonian dips southwest in this area, off the flank of the Central Basin Platform (Figure 7). Although control is limited for the Devonian in this area, there is little evidence for significant faulting at these depths.

Figure 10 is a North-South structural cross section of the area of interest, and the wells employed are shown in Figure 9. Zones with porosity in excess of 5% are shaded in yellow. Approximately 200 feet of the tight shales of the Woodford lie immediately above the proposed injection zone.

Figure 11 is another Devonian-top structure map, including other deep wells from the Lea Field. This also shows the southwesterly structure trends. A significant east-down normal fault trends north-south approximately 2 miles east of the proposed AGI wells, and poses no threat to the project.

Figure 12 is stratigraphic cross-section, with control wells shown in Figure 11. It shows in more detail the zones with porosity above 5%, and also indicates that the base of the proposed injection zone is approximately 730 feet above the Precambrian basement

4.3 LITHOLOGIC AND RESERVOIR CHARACTERISTICS OF THE SILURO-DEVONIAN FORMATIONS

The proposed injection interval includes the Devonian Thirty-one, and Silurian Wristen and Fusselman Formations, collectively referred to as the Siluro-Devonian. The injection interval also includes the Ordovician upper Montoya Formation. The proposed injection interval includes a number of intervals of dolomites and dolomitic limestones with moderate to high primary porosity, and secondary, solution-enlarged porosity that is related to karst events that periodically occurred throughout the section, most notably in the Fusselman Formation (see Figures 10 and 12). These karst events produced solution cavities and enlarged fractures throughout the section, which can be substantial enough to provide additional permeability that is not readily apparent on well logs. The porous zones are separated by tight limestones and dolomites.

There are no producing zones within or below the Siluro-Devonian in the area of the proposed well, and the injection interval is separated from the nearest producing zone (Morrow) by 200 feet of Woodford shale.

4.4 CHEMISTRY OF THE RESERVOIR FLUIDS

Reservoir fluids were collected and analyzed from the Devonian interval at the DCP Midstream Zia AGI #2 (3002542207), located in Section 19, T19S, R 32E, approximately 11 miles northeast of the proposed AGI wells. These analyses showed an average of TDS of 42,750 parts per million (ppm). The major ions were chloride (23,700 ppm) and sodium (15,140 ppm). The Devonian reservoir fluids will be compatible with produced waters from wells in this area.

4.5 GROUNDWATER HYDROLOGY IN THE VICINITY OF THE PROPOSED INJECTION WELL

A review of the State Engineer's files shows no reported water wells within one mile of the proposed 3Bear AGI well location. Total dissolved solids in the shallow groundwater in the project area is highly variable, ranging from 5,000 to over 125,000 parts per million (Hydrological Assessment, Figure 4-9, p. 4-15). As described in Section 3.1, the surface casing will be extended to approximately 1950 feet, effectively isolating the shallow ground water.

5.0 OIL AND GAS WELLS IN THE 3BEAR AGI WELL AREA OF REVIEW

Appendix A summarizes the recorded wells within one mile and two miles of the bottom-hole locations of the 3Bear proposed Libby AGI #1 and Libby AGI #2. Figure A-1 shows the locations of the one-mile wells, and Figure A-1 shows wells in the two-mile radius. Table A-1 identifies the wells within one mile of the bottom-hole location of proposed Libby AGI #1 (a vertical well), and Table A-2 identifies the wells within one mile of the bottom-hole location of the deviated proposed Libby AGI #2. Table A-3 identifies all recorded wells within two miles of the proposed 3Bear AGI wells

Within the one-mile radius area of review for the proposed bottom hole location of the 3Bear Libby AGI #1 well, NMOCD records identify a total of 65 completed wells. Of these 38 are active and 26 are plugged and abandoned. There is also one well application approved and awaiting drilling. Two of these completed wells penetrate deeper than the top of the injection zone (14,950'). These are the 3Bear SWD #1, located 0.40 miles northeast of the proposed AGI wells, and the plugged and abandoned Arlen L. Edgar Federal 001, located 0.50 miles south of the project.

Within the one-mile radius area of review for the proposed bottom hole location of the 3Bear Libby AGI #2 well, NMOCD records identify a total of 66 completed wells. Of these 38 are active and 27 are plugged and abandoned. There is also one well application approved and awaiting drilling. Two of these completed wells penetrate deeper than the top of the injection zone (14,950'). These are the 3Bear SWD #1, located 0.59 miles northeast of the proposed AGI wells, and the plugged and abandoned Arlen L. Edgar Federal 001, located 0.57 miles south of the project.

Appendix A also provides the plugging information for the Arlen L. Edgar Federal 001.

6.0 IDENTIFICATION AND REQUIRED NOTIFICATION OF OPERATORS, SUBSURFACE LESSEES, AND SURFACE OWNERS WITHIN THE AREA OF REVIEW

Geolex contracted with Elkhorn Land and Title of Roswell, New Mexico to research land records in Eddy Counties to obtain a listing of all operators, oil, gas and mineral lessees, and surface owners within a one-mile radius of the proposed AGI well. Appendix B includes the results from that search.

Table B-1 summarizes the surface owners, Table B-2 identifies the Operators, and Table B-3 lists working interest owners in the one-mile area of review. Table B-4 comprises the universe of persons that must be notified 20 days prior to the NMOCC hearing. Figure B-1 shows the locations of the surface owners, and Figure B-2 shows the Operators and the working interest owners

Appendix B also includes a copy of the notice letter text that will be provided to the parties. Individual notices will be sent and copies of the individual Notice Letters and Certified Mail Receipts, and Copies of the newspaper notice and affidavit of publication, will be provided to the Commission after the receipt of a Case Number and a date for the hearing.

7.0 AFFIRMATIVE STATEMENT OF LACK OF HYDRAULIC CONNECTION BETWEEN PROPOSED INJECTION ZONE AND KNOWN SOURCES OF DRINKING WATER

As part of the work performed to support this application, a detailed investigation of the structure, stratigraphy and hydrogeology of the area surrounding the proposed 3 Bear AGI wells has been performed. The investigation included the analysis of available geologic data and hydrogeologic data from wells and literature identified in Sections 3, 4 and 5 above including related appendices. Based on this investigation and analysis of these data, it is clear that there are no open fractures, faults or other structures which could potentially result in the communication of fluids between the proposed injection zone with any known sources of drinking water or oil or gas production in the vicinity as described above in Sections 4 and 5 of this application.

I have reviewed this information and affirm that is correct to the best of my knowledge.

James C. Hunter, R.G
Senior Geologist
Geolex, Inc.

_____ Date: _____

Figures

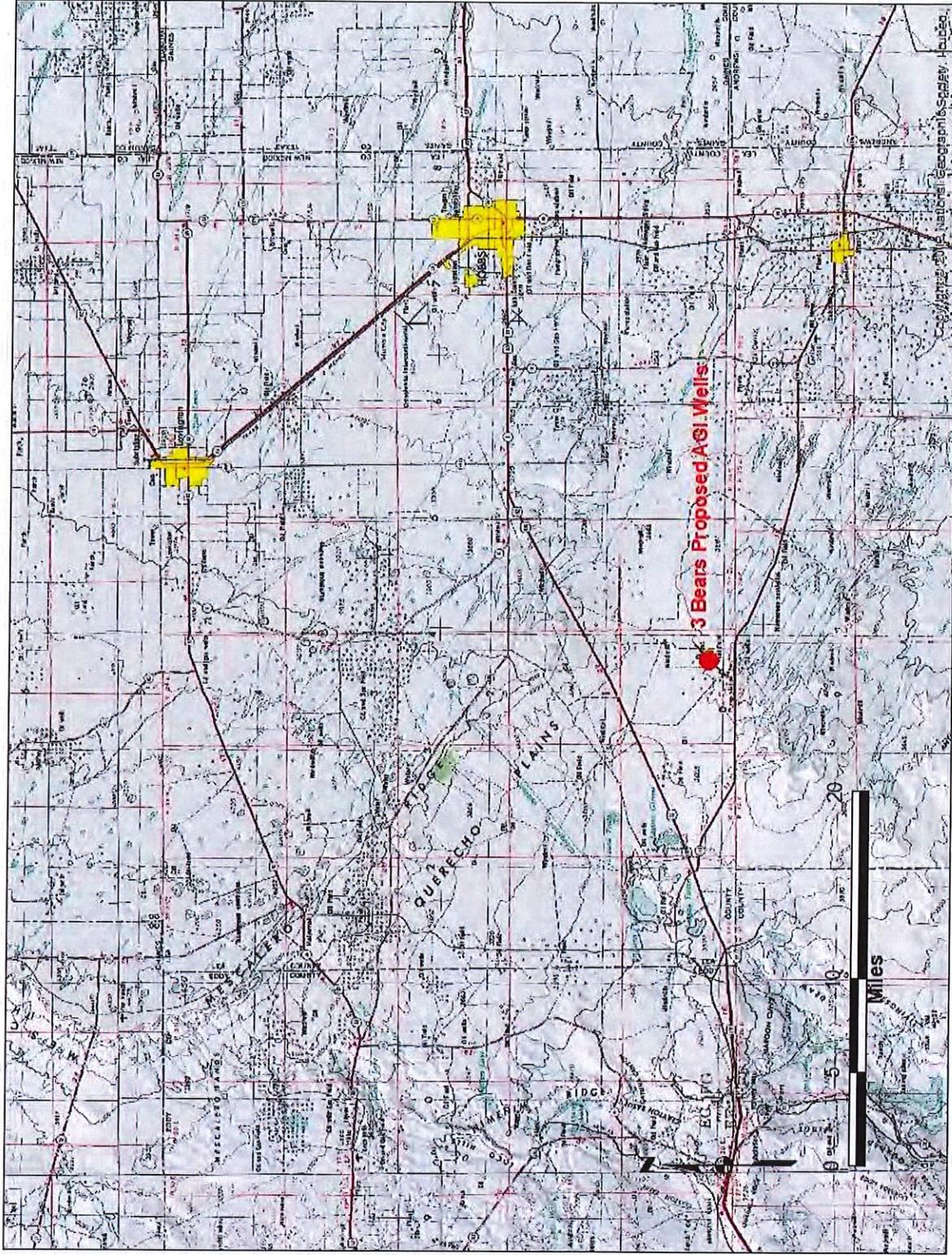


Figure 1: Location of Proposed 3Bear AGI Wells

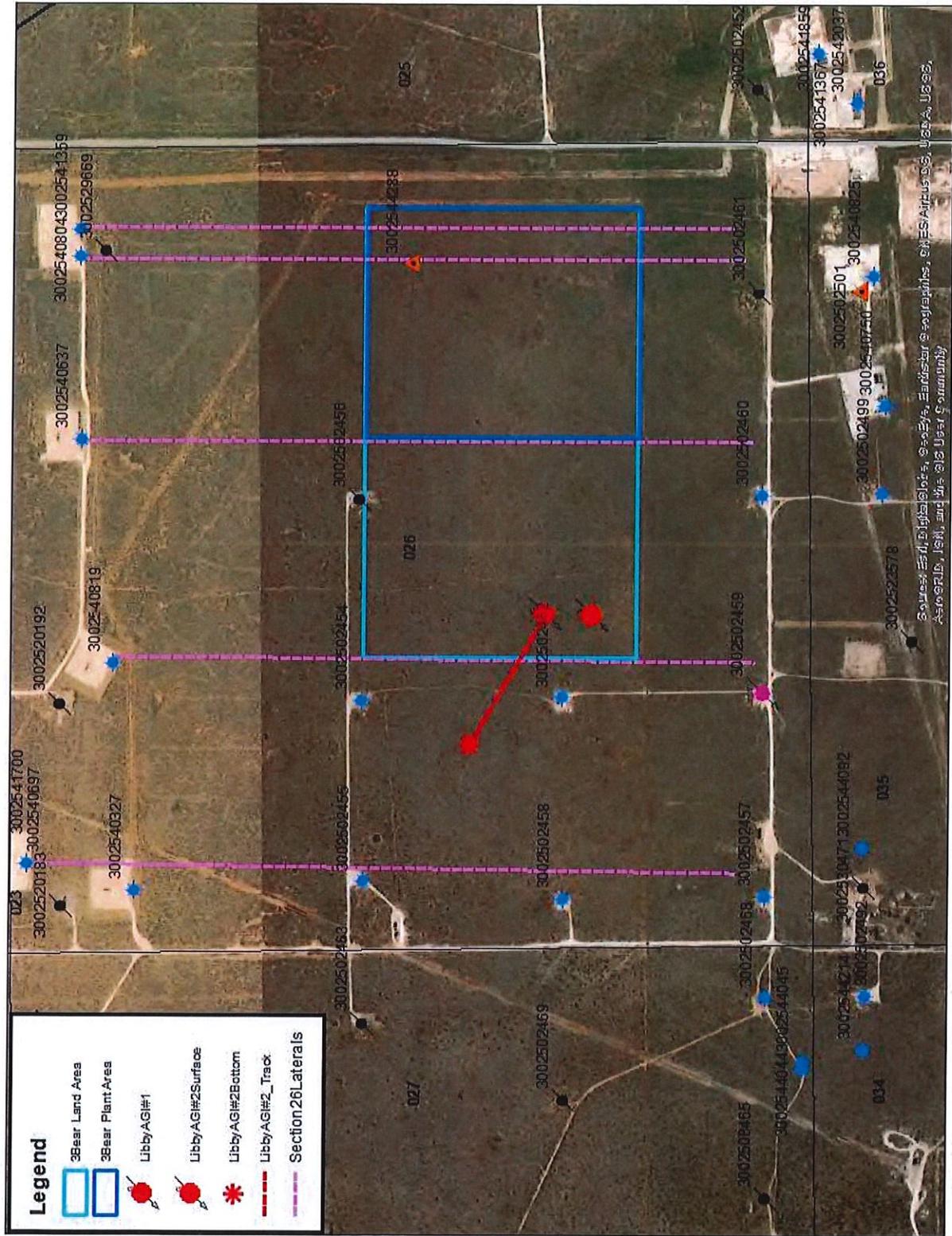


Figure 2: Detailed Location Map, 3Bear Plant Area and Proposed AGI Wells

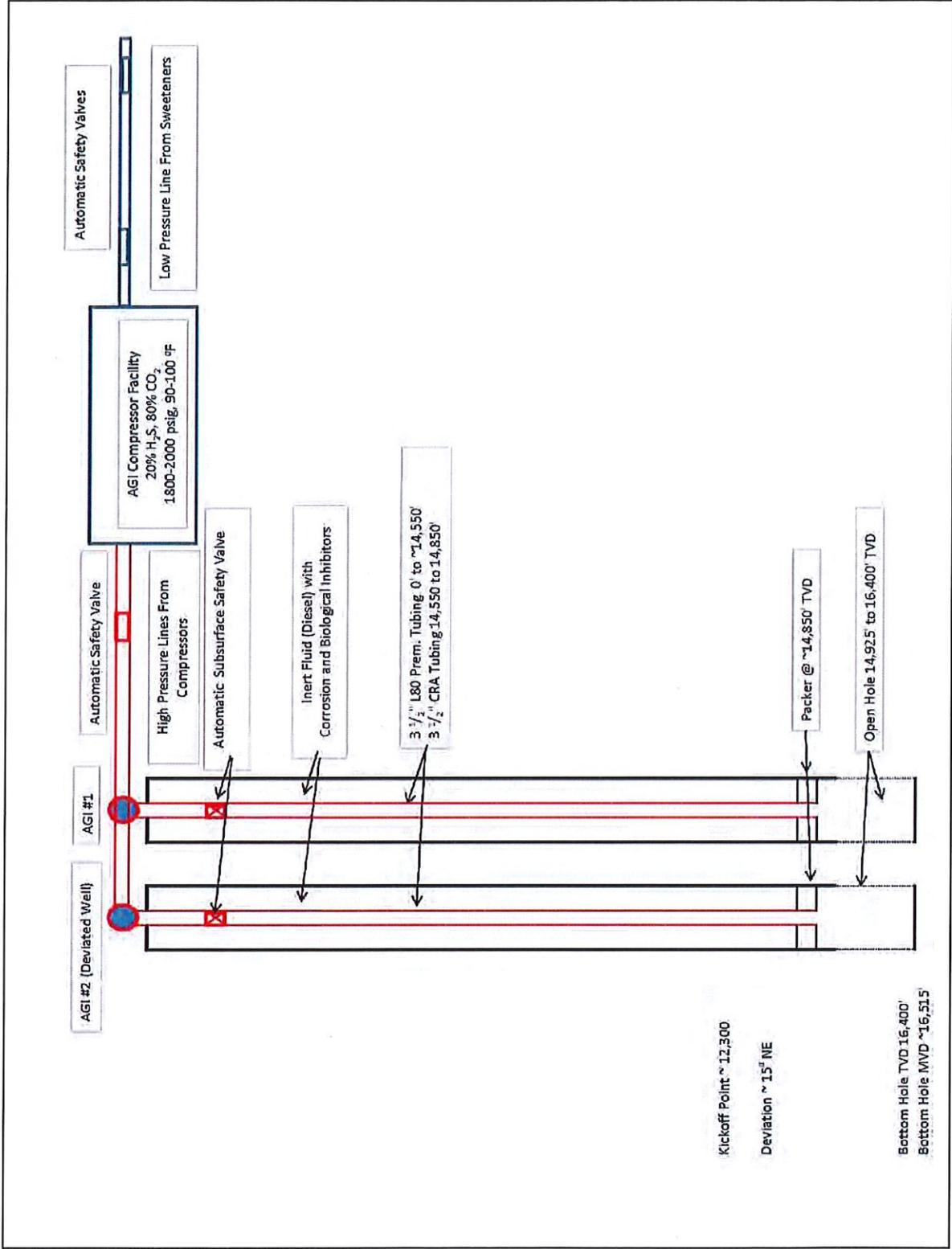


Figure 3: Schematic of 3Bear AGI System

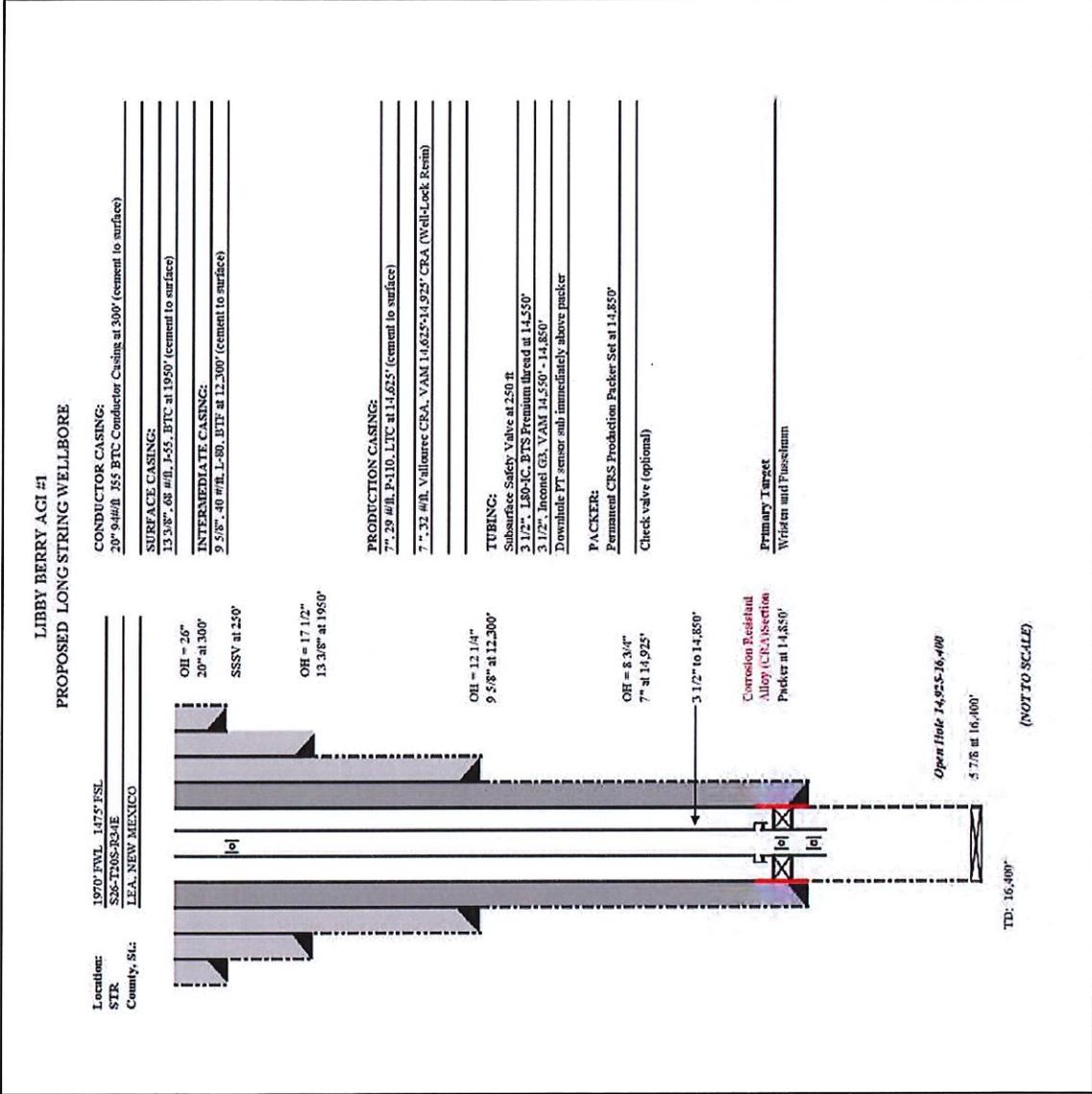
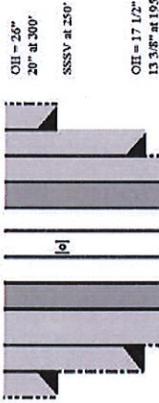


Figure 4: Schematic of Proposed AGI #1

LIBBY BERRY AGI #2
PROPOSED LONG-STRING WELLBORE (DEVIATED)

Surface Location: 1970' FWL, 1475' FSL
 Bottom Location: 1320' FWL, 2275' FSL
 STR: SZ6-T209-R34E
 County, State: LEA, NEW MEXICO



CONDUCTOR CASING:
 20" 94#/ft 155 BTC Conductor Casing at 300' (cement to surface)
 SURFACE CASING:
 13 3/8" 68#/ft 155 BTC at 1950' (cement to surface)
 INTERMEDIATE CASING:
 9 5/8" 40#/ft 140 BTC at 12,300' (cement to surface)

PRODUCTION CASING:
 7" 29#/ft P-110 LTC at 14,625' (cement to surface)
 7" 32#/ft Vallourec CRA-VAM 14,625'-14,925' CRA (Well-Log Resin)

TUBING:
 Subsurface Safety Valve at 250' ft
 3 1/2" 130-IC, B7S Premium thread at 14,530'
 3 1/2" Inconel 63, VAM 14,550' - 14,850'
 Downhole PT sensor and immediately above packer

PACKER:
 Permanent CBSS Production Packer Set at 14,850'
 Check valve (optional)

Primary Target
 Whistler and Busselman

The Bottom Hole Location of Libby AGI #2 will be deviated approximately 1,000 feet NW of the surface location. Deviation will begin at ~12,100 feet and proceed with an angle of approximately 15° to reach a total vertical depth of 16,400 feet and a measures depth of ~16,515 feet.

MVD: 16,515'
 (NOT TO SCALE)

Figure 5: Schematic of Deviated Proposed AGI #2

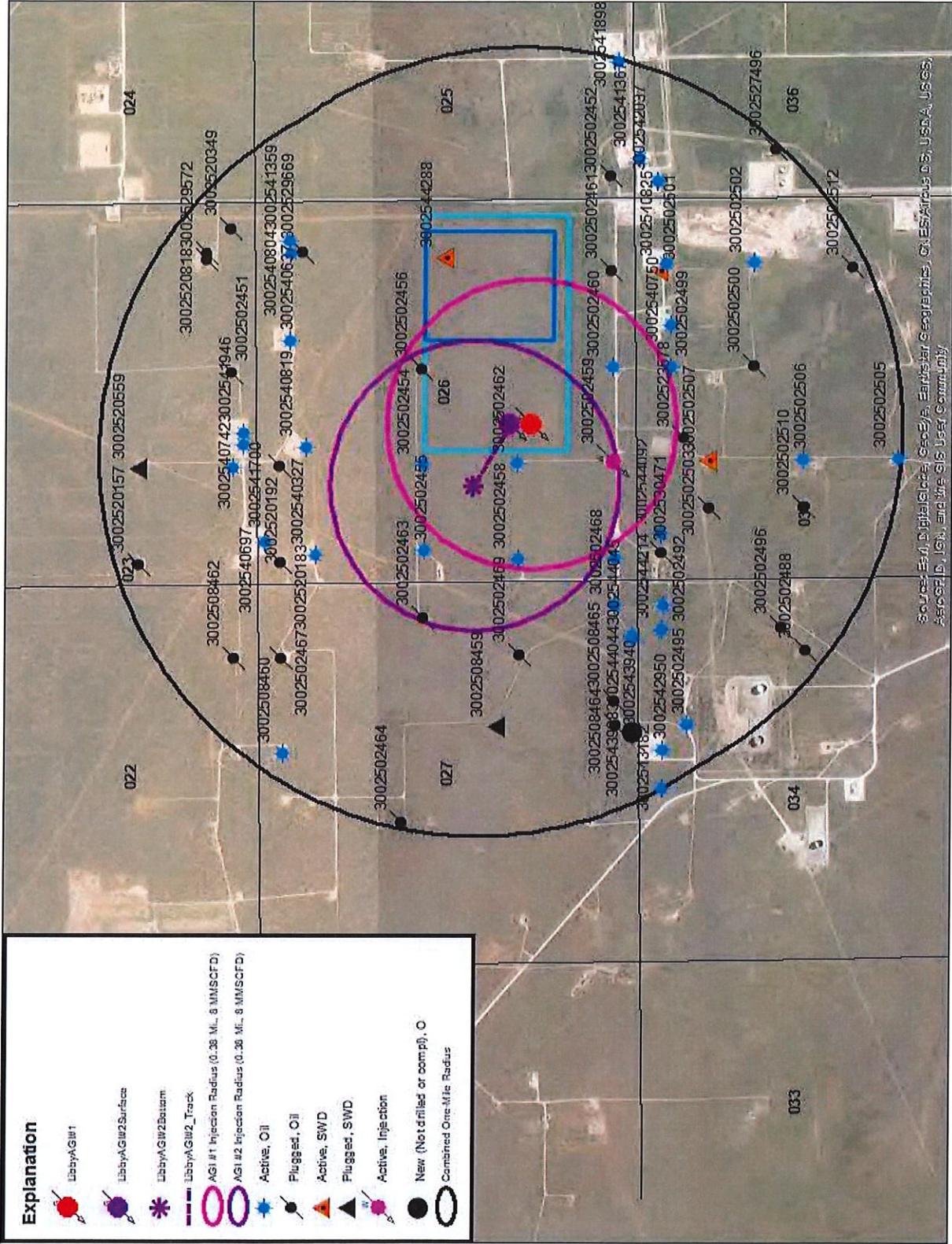
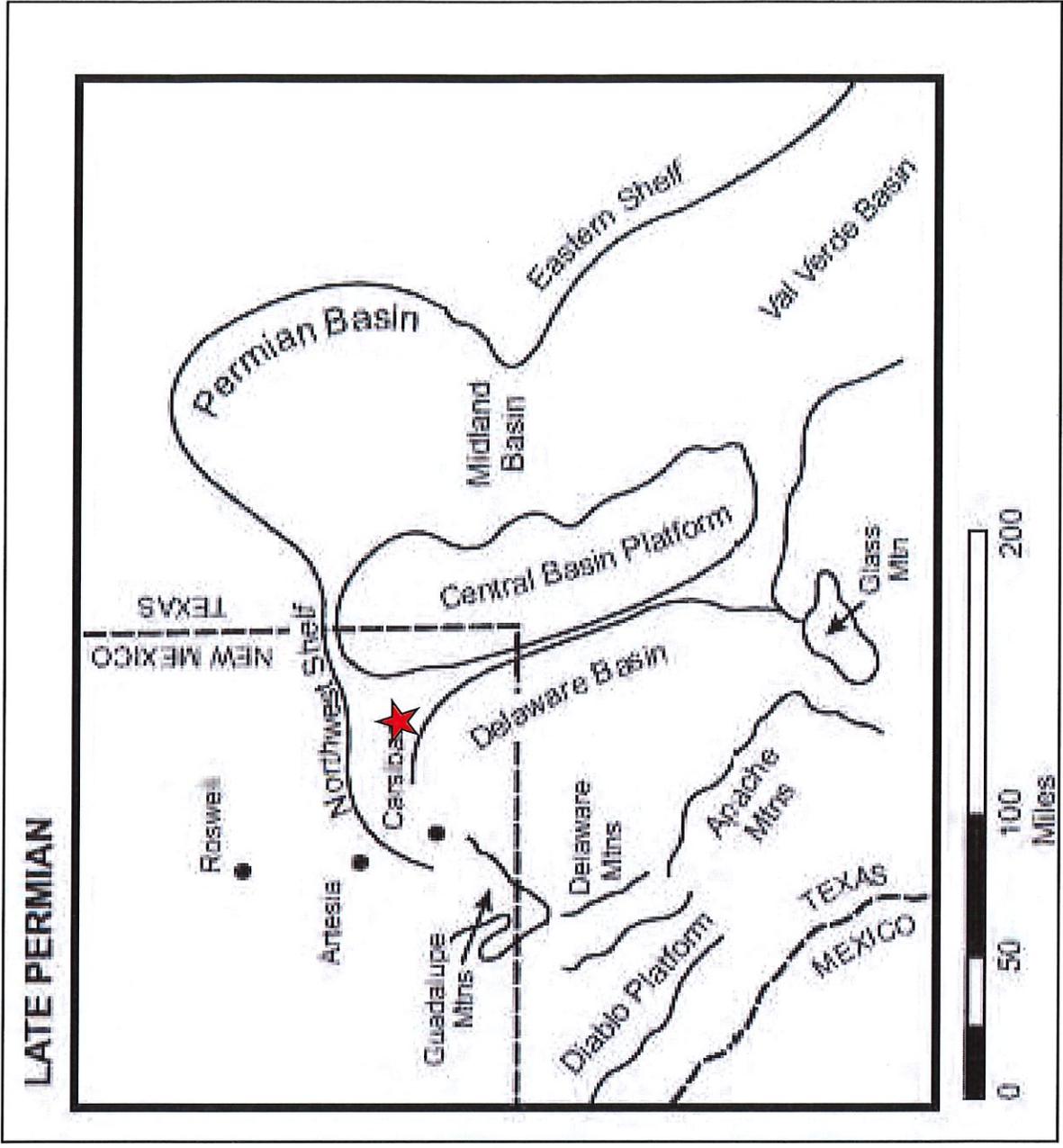


Figure 6: Calculated Radii of Injection After 30 Years at 8.0 MMSCFD



Location of the proposed 3Bear AGI wells is shown by the red star.

Figure 7: General Structural Features of the Permian Basin

(Modified from Ward, et al 1968)

Stratigraphy and generalized lithologies of the subsurface formations underlying the proposed AGI # and #2 locations.

Zones with active pay within the radii of investigation are shown by the red stars. The interval shown by the blue bar includes the Devonian (Thirtyone Formation), and Silurian Wristen and Fusselman Formations, which contain intervals of karst-related solution-enlarged and fracture porosity in dolomites that alternate with tight, dolomitic limestones.

These formations are sufficiently isolated from the active pay zones by over 1,000 feet of tight, Mississippian (Chester through upper Woodford) limestones and shales.

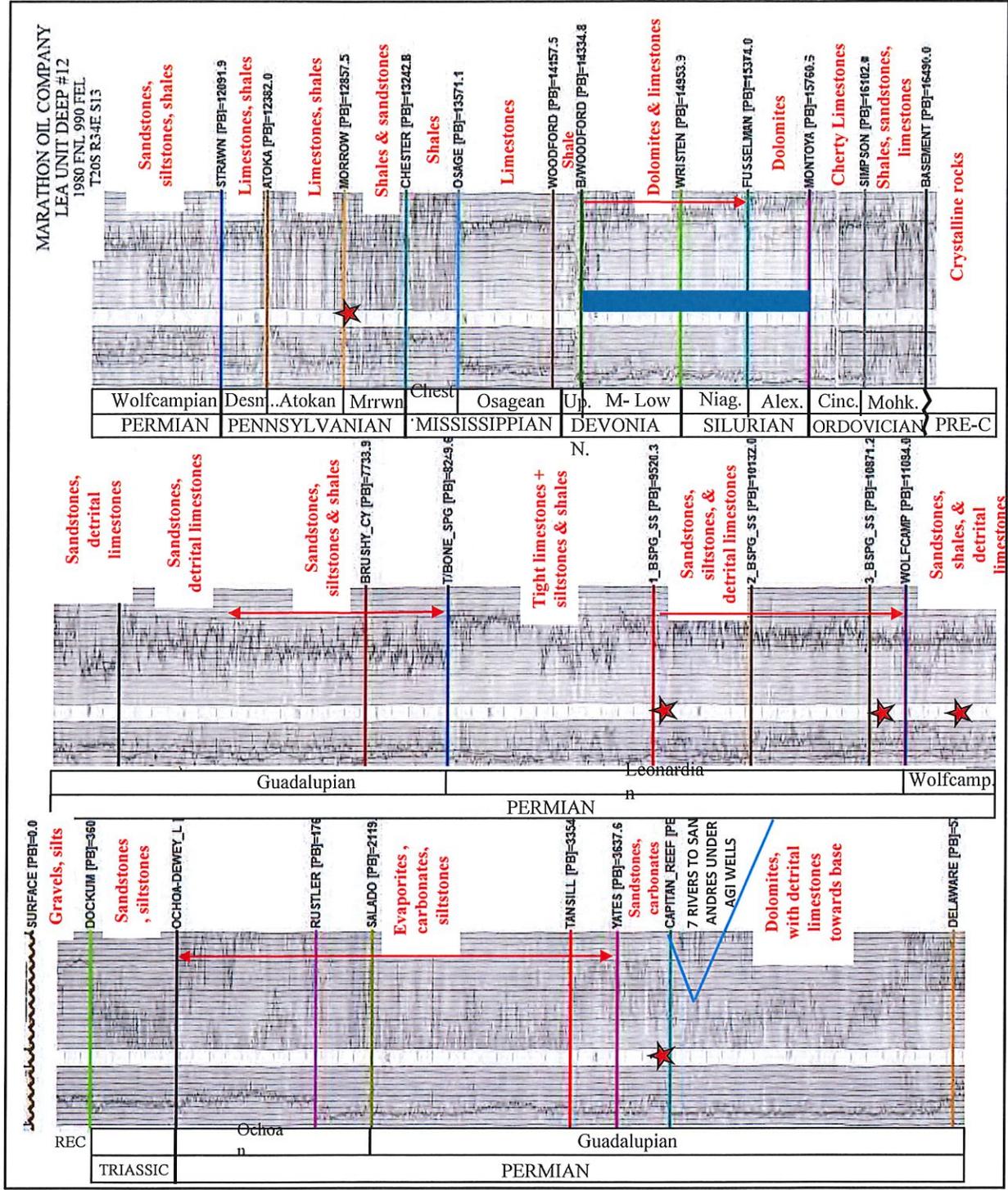


Figure 8: Stratigraphy and Pay Zones Under Proposed AGI Well Sites

Map showing the only wells that penetrated below the Woodford shale in the immediate area of the 3 Bear plant site.

Because of the sparsity of deep well control, the map was drawn from extension of the structural trend coming off the Lea Field to the northeast. These limited number of control wells seem to indicate steep dip to the south-southwest, but it is unknown whether any faults intersect the Siluro-Devonian section within this map area.

The line of cross-section shown on the next slide is indexed here. Two of the wells on this cross-section (circled in red) are active salt water disposal wells (SWDwS) completed in the Siluro-Devonian, one of which is the 3 Bear SWDw on their plant site.

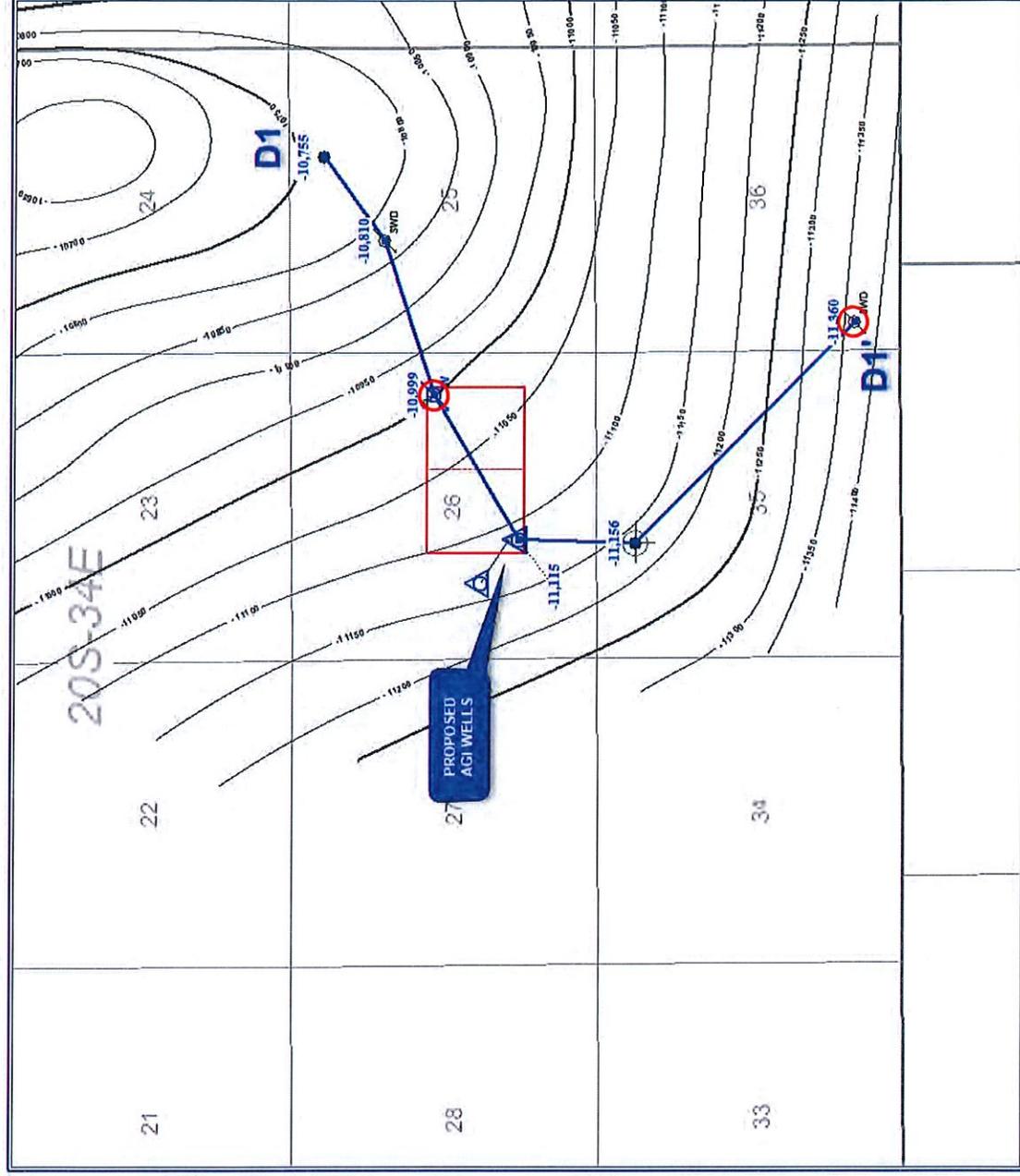
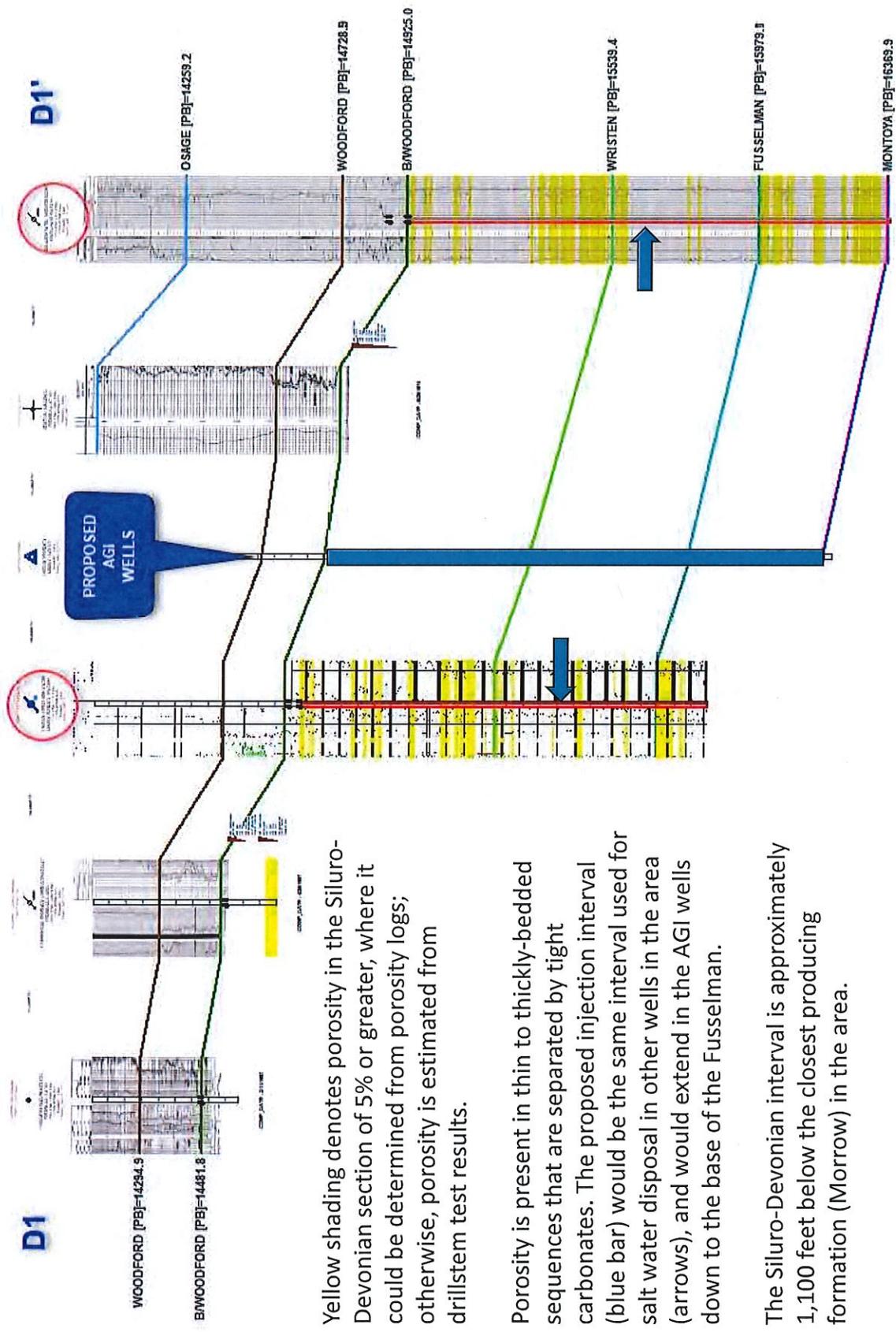


Figure 9: Structure on Top of the Devonian



Yellow shading denotes porosity in the Siluro-Devonian section of 5% or greater, where it could be determined from porosity logs; otherwise, porosity is estimated from drillstem test results.

Porosity is present in thin to thickly-bedded sequences that are separated by tight carbonates. The proposed injection interval (blue bar) would be the same interval used for salt water disposal in other wells in the area (arrows), and would extend in the AGI wells down to the base of the Fusselman.

The Siluro-Devonian interval is approximately 1,100 feet below the closest producing formation (Morrow) in the area.

Figure 10: Cross-section Through The Deeper Horizons Across The 3Bear Plant Site

There are only three wells in this area that penetrated to at least the Fusselman Formation, and one (circled in red) that drilled to the basement.

Cross-section D2-D2', presented on the next slide, illustrates the porosity profile of the section from the Morrow to the basement.

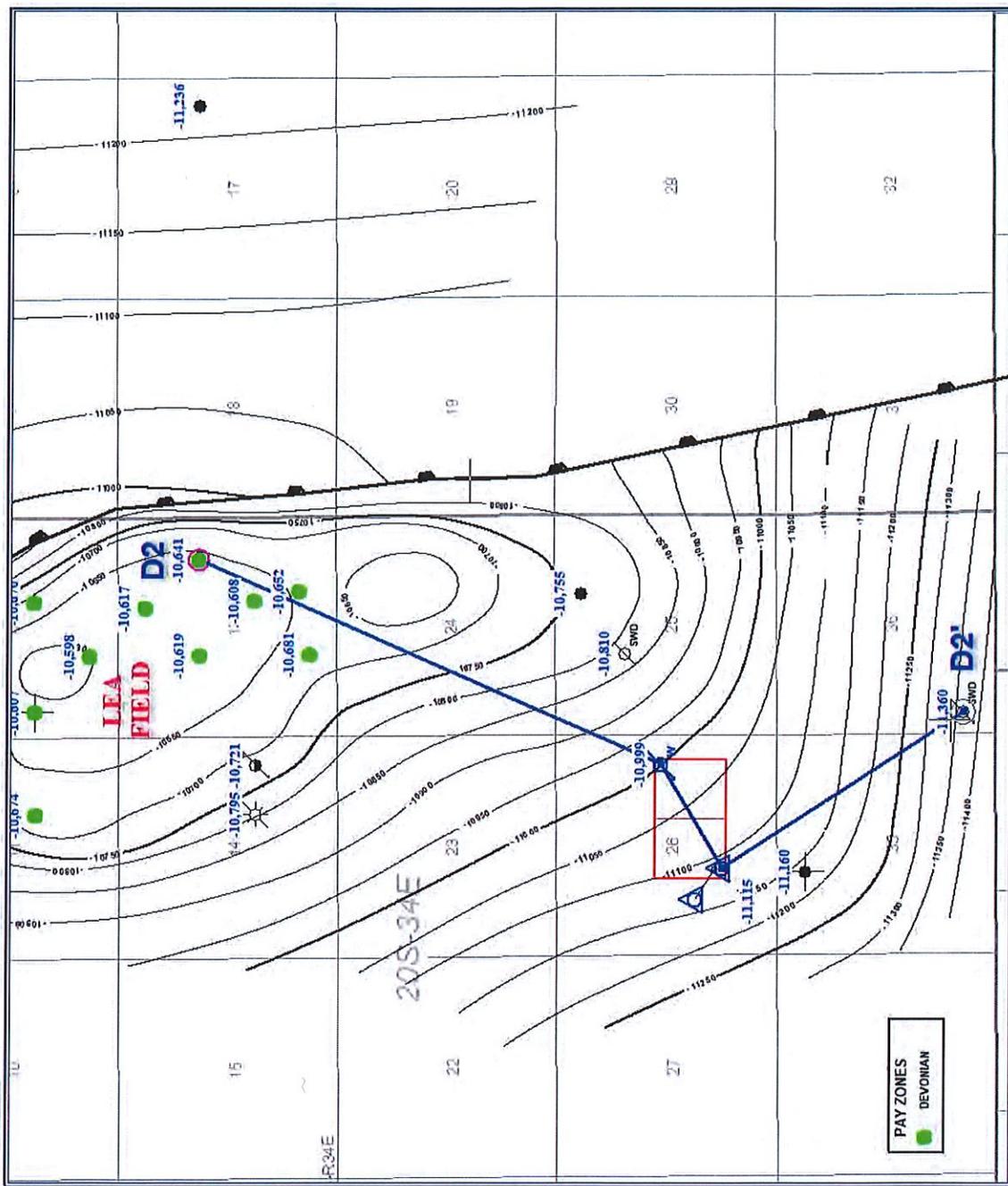


Figure 11: Structure on the Top of the Devonian, From Lea Field

This section is hung on top of the Woodford Shale. Yellow shading shows porosity; no shading indicates tight rock.

The closest producing zone to the injection target is over 1,000 feet above in the Morrow (arrow). Between the Devonian and Morrow is primarily tight limestones and shales.

The basement is approximately 730 feet below the base of the Fusselman, which is the deepest intended injection zone.

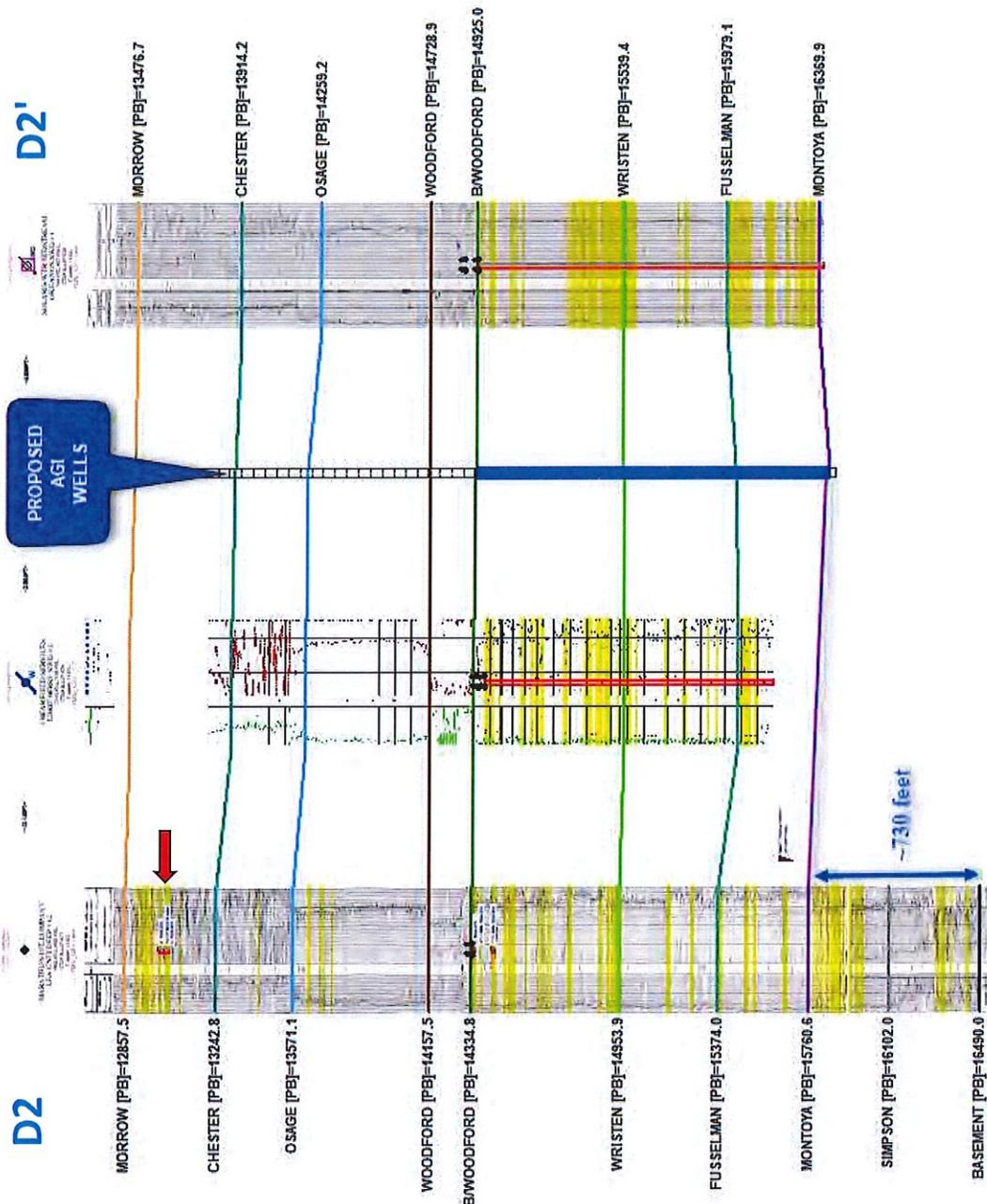


Figure 12: Porosity Profile Above and Below Injection Zone

Appendix A:

Information on Oil and Gas Wells within One Mile and Two Miles of Proposed 3Bear AGI Wells and Plugging Data for Plugged Well Within One Mile of Proposed 3Bear AGI Wells

- Table A-1:** Wells within One Mile of Bottom Hole of Proposed
3Bear Libby AGI #1
- Table A-2:** Wells within One Mile of Bottom Hole of Proposed
3Bear Libby AGI #2
- Table A-3:** Wells within Two Miles of Proposed 3Bear Libby AGI Wells
- Figure A-1:** Wells within One Mile of Proposed 3Bear AGI Wells
Figure A-2: Wells within Two Miles of Proposed 3Bear AGI Wells
- Attachment A:** Plugging Diagram of Arlen Edgar Federal C #1

Table A-1: Wells within One Mile of Bottom Hole of Proposed 3Bear Libby AGI #1

API	OPERATOR	WELLNAME	TOWNSHIP	RANGE	SECTION	S/BUDDATE	PLUGDATE	COMPLSTAT	TYDDEPTH	WELLTYPE	LANDTYPE	Dist (MI)
3002502462	3 BEAR DELAWARE OPERATING NM LLC	LIBBY AGI#2 (BOTTOM)	20.05	34E	26			New (Not drilled or comp)	16370 AGI	P		0.00
3002502462	3 BEAR DELAWARE OPERATING NM LLC	LIBBY AGI#2 (BOTTOM)	20.05	34E	26	5/8/1960		New (Not drilled or comp)	3700 O	F		0.21
3002502459	BURK ROYALTY CO., LTD.	CRUCES FEDERAL 006	20.05	34E	26	7/18/1957		Active	3730 O	F		0.10
3002502460	BURK ROYALTY CO., LTD.	CRUCES FEDERAL 003	20.05	34E	26	7/15/1957		Active	3750 O	F		0.23
3002502454	BURK ROYALTY CO., LTD.	HANSON B 002	20.05	34E	26	11/18/1959		Active	3744 O	F		0.30
3002502456	BURK ROYALTY CO., LTD.	HANSON B 003	20.05	34E	26	12/3/1959	12/4/1959	Plugged	3829 O	F		0.30
3002502458	BURK ROYALTY CO., LTD.	CRUCES FEDERAL 002	20.05	34E	26	5/24/1957		Active	3718 O	F		0.33
3002502459	BURK ROYALTY CO., LTD.	NEAL 001	20.05	34E	35	4/6/1959		Active	3743 O	P		0.40
3002502457	ARLEN L EDGAR	FLETCHER C 001	20.05	34E	35	8/16/1970	8/25/1969	Plugged	14939 O	F		0.40
3002502457	BURK ROYALTY CO., LTD.	CRUCES FEDERAL 001	20.05	34E	26	3/19/1957		Active	3705 O	F		0.41
3002502455	BURK ROYALTY CO., LTD.	HANSON B 001	20.05	34E	26	8/31/1959		Active	3767 O	F		0.43
3002544962	COG OPERATING LLC	MAS FEDERAL COM 001H	20.05	34E	35	12/20/2017		Active	11338 O	F		0.44
3002540750	CIMAREX ENERGY CO.	LYNCH 35 002H	20.05	34E	35	1/18/2013		Active	11316 O	P		0.45
3002502507	PHILLIPS PETROLEUM CO	CRUCES FEDERAL 005	20.05	34E	26	11/7/1959	12/7/1959	Plugged	3760 O	F		0.46
3002502501	PHILLIPS PETROLEUM CO	W H MILLNER FEDERAL 004	20.05	34E	35	1/26/1954		Active	3850 S	F		0.47
3002530471	OLSEN ENERGY INC	FLETCHER A FED 001	20.05	34E	35	9/26/1988	11/19/1999	Plugged	3860 O	F		0.48
3002544288	3BEAR FIELD SERVICES, LLC	LIBBY BERRY FEE SWD 001	20.05	34E	26	3/23/2018		Active	16000 S	F		0.50
3002502503	ATLANTIC RICHFIELD	FLETCHER A DE FEDERA 001	20.05	34E	35	9/17/1956	3/2/1972	Plugged	3715 O	F		0.51
3002502468	MARATHON OIL PERMIAN LLC	FLETCHER A DE FEDERA 002	20.05	34E	27	11/12/1966		Active	3705 O	F		0.52
3002540825	CIMAREX ENERGY CO.	LYNCH 35 001H	20.05	34E	35	6/9/1959		Active	3805 S	P		0.53
3002502463	BURK ROYALTY CO.	RIDER FEDERAL 001	20.05	34E	35	6/6/2013		Active	11293 O	P		0.56
3002502492	MAS OPERATING CO.	B V LYNCH A FEDERAL 012	20.05	34E	34	8/16/1957		Active	3797 O	F		0.58
3002540819	CIMAREX ENERGY CO.	HANSON 26 FEDERAL COM 002	20.05	34E	26	1/19/2013		Active	3694 O	F		0.58
3002502469	ATLANTIC RICHFIELD	FLETCHER A DE FEDERA 003	20.05	34E	26	1/19/2013		Active	11112 O	F		0.60
3002502500	BURK ROYALTY CO., LTD.	NEAL 002	20.05	34E	27	1/23/1957	8/7/1972	Plugged	3690 O	F		0.60
3002544045	APACHE CORPORATION	BLACK & TAN 27 FEDERAL COM 308H	20.05	34E	25	7/15/1959	6/18/1986	Plugged	3780 O	P		0.61
3002544044	APACHE CORPORATION	BLACK & TAN 27 FEDERAL COM 307H	20.05	34E	27	1/30/2018		Active	11125 O	F		0.62
3002544214	COG OPERATING LLC	MAS FEDERAL COM 002H	20.05	34E	34	12/12/2017		Active	11086 O	F		0.62
3002540327	CIMAREX ENERGY CO.	HANSON 26 FEDERAL 001H	20.05	34E	26	12/7/2013		Active	11415 O	F		0.63
3002520192	BURK ROYALTY CO., LTD.	HANSON D FEDERAL 002	20.05	34E	26	9/26/1963	10/2/1963	Plugged	11186 O	F		0.65
3002540837	CIMAREX ENERGY CO.	HANSON 26 FEDERAL COM 003H	20.05	34E	26	7/30/2012		Active	11141 O	F		0.68
3002502452	BURK ROYALTY CO., LTD.	HANSON FEDERAL 001	20.05	34E	25	6/23/1959	10/30/1959	Plugged	3864 O	F		0.69
3002502506	BURK ROYALTY CO., LTD.	W H MILLNER FEDERAL 003	20.05	34E	35	11/12/1952		Active	3723 O	F		0.72
3002542037	COG OPERATING LLC	STRATOSPHERE 36 STATE COM 006H	20.05	34E	36	5/2/2015		Active	11393 O	S		0.72
3002502502	BURK ROYALTY CO., LTD.	NEAL 004	20.05	34E	35	7/29/1959		Active	3822 O	P		0.73
3002520183	BURK ROYALTY CO.	HANSON D FEDERAL 001	20.05	34E	35	1/1/1953	8/2/1989	Plugged	3734 O	F		0.75
3002508465	BURK ROYALTY CO., LTD.	KEOHANE A 001	20.05	34E	26	8/25/1963	12/7/1987	Plugged	3730 O	F		0.75
3002541946	CHISHOLM ENERGY OPERATING, LLC	LAGUNA 23 FEDERAL COM 003H	20.05	34E	23	9/19/1957		Active	3760 O	F		0.75
3002540742	CHISHOLM ENERGY OPERATING, LLC	LAGUNA 23 FEDERAL COM 001H	20.05	34E	23	9/19/1957	7/23/2007	Plugged	3760 O	F		0.75
3002529669	NEARBURG PRODUCING	RITTSER FEDERAL 001	20.05	34E	26	4/18/2013		Active	9520 O	F		0.76
3002541367	CHISHOLM ENERGY OPERATING, LLC	LEA SOUTH 25 FEDERAL COM 005H	20.05	34E	26	4/18/1986	5/29/1987	Plugged	10874 O	F		0.76
3002540897	CHISHOLM ENERGY OPERATING, LLC	LAGUNA 23 FEDERAL COM 002H	20.05	34E	25	10/18/2013		Active	288 O	F		0.76
3002540804	CIMAREX ENERGY CO.	HANSON 26 FEDERAL COM 004H	20.05	34E	23	1/11/2014		Active	11251 O	F		0.76
3002508459	ARCO PERMIAN	FLETCHER A DE FEDERA 004	20.05	34E	26	12/11/2012		Active	11079 O	F		0.76
3002520284	BURK ROYALTY CO., LTD.	HANSON C 003	20.05	34E	27	10/4/1957	12/18/1984	Plugged	3682 S	F		0.78
3002502451	ERNEST A HANSON	D & E FEDERAL 001	20.05	34E	23	9/15/1963		Active	3702 O	F		0.79
3002541359	CIMAREX ENERGY CO.	HANSON 26 FEDERAL COM 005H	20.05	34E	26	7/10/1961	8/1/1961	Plugged	3601 O	F		0.80
3002508464	EDWARD E WINNEY	GULF FEDERAL 002	20.05	34E	27	10/7/1954	10/19/1954	Plugged	9692 O	F		0.80
3002502496	TEXAS CO	B V LYNCH A 004	20.05	34E	34	9/12/1934	12/31/1934	Plugged	3341 O	F		0.81
3002543988	APACHE CORPORATION	BLACK & TAN 27 FEDERAL COM 306H	20.05	34E	27	12/11/2017		New (Not drilled or comp)	3797 O	F		0.84
3002543940	APACHE CORPORATION	BLACK & TAN 27 FEDERAL COM 305H	20.05	34E	27	12/11/2017		Active	3743 O	F		0.85
3002502495	MAS OPERATING CO.	B V LYNCH A FEDERAL 003	20.05	34E	34	9/9/1957		Active	3745 O	F		0.85
3002502467	MARATHON OIL PERMIAN LLC	BALLARD DE FEDERA 004	20.05	34E	27	8/8/1961	10/11/2018	Plugged	3690 O	F		0.89
3002542550	COG OPERATING LLC	MAS FEDERAL 003H	20.05	34E	34	11/29/2015		Active	3690 O	F		0.91
3002502488	OLEN F FEATHERSTONE	ROACH FEDERAL 001	20.05	34E	34	1/21/1958	12/3/1960	Plugged	3772 O	F		0.93
3002502512	PHILLIPS PETROLEUM CO	NEAL 002	20.05	34E	35	10/28/1959	11/30/1959	Plugged	3825 O	F		0.94
3002520349	BURK ROYALTY CO., LTD.	HANSON C 001	20.05	34E	23	7/9/1963	7/17/2006	Plugged	3700 O	F		0.95
3002529572	NEARBURG PRODUCING CO	RETT FEDERAL COM 003Y	20.05	34E	23	6/8/1985	9/6/2000	Plugged	13700 O	F		0.96
3002520818	CHAMA PETROLEUM CO	RETT FEDERAL COM 001	20.05	34E	23	4/25/1964	6/8/1964	Plugged	10500 O	F		0.97
3002502505	BURK ROYALTY CO., LTD.	W H MILLNER FEDERAL 002	20.05	34E	35	8/21/1952		Active	3747 O	F		0.97
3002537496	GETTY OIL CO	LYNCH 36 STATE 001	20.05	34E	36	10/31/1981	11/24/1981	Plugged	3820 O	S		0.97
3002541998	CHISHOLM ENERGY OPERATING, LLC	LEA SOUTH 25 FEDERAL COM 006H	20.05	34E	25	8/15/2014		Active	11174 O	F		0.98
3002508462	MACCK ENERGY CORP	PERRY FEDERAL 001	20.05	34E	22	2/13/1962	2/12/1996	Plugged	3669 O	F		0.99
3002543482	COG OPERATING LLC	MAS FEDERAL 004H	20.05	34E	34	12/1/2016		Active	11371 O	F		1.01

Table A-2: Wells within One Mile of Bottom Hole of Proposed 3Bear Libby AGI #2

API	OPERATOR	WELLNAME	TOWNSHIP	RANGE	SECTION	SUDDATE	PLUGDATE	COMPLSTAT	TYVDEPTH	WELLTYPE	LANDTYPE	Dist. (MI)
3002502462	3 BEAR DELAWARE OPERATING NM4 LLC	LIBBY AGI (Z BOTTOM)	20.05	34E	26	5/8/1960		New (Not drilled or compl)	16400	AGI	P	0.00
3002502462	BURK ROYALTY CO., LTD.	CRUCES FEDERAL 006	20.05	34E	26	5/8/1960		Active	3700	O	F	0.13
3002502454	BURK ROYALTY CO., LTD.	HANSON B 002	20.05	34E	26	11/18/1959		Active	3744	O	F	0.14
3002502455	3 BEAR DELAWARE OPERATING NM4 LLC	LIBBY AGI #1	20.05	34E	26	8/23/1959		New (Not drilled or compl)	16400	AGI	P	0.15
3002502455	BURK ROYALTY CO., LTD.	HANSON B 001	20.05	34E	26	5/24/1957		Active	3767	O	F	0.23
3002502458	BURK ROYALTY CO., LTD.	CRUCES FEDERAL 002	20.05	34E	26	5/24/1957		Active	3718	O	F	0.24
3002502458	BURK ROYALTY CO., LTD.	HANSON B 003	20.05	34E	26	12/3/1959	12/14/1959	Plugged	3822	O	F	0.32
3002502459	BURK ROYALTY CO., LTD.	CRUCES FEDERAL 003	20.05	34E	26	7/18/1957		Active	3730	O	F	0.37
3002502463	BURK ROYALTY CO., LTD.	RIDER FEDERAL 001	20.05	34E	27	9/10/1959	6/11/1985	Plugged	3797	O	F	0.39
3002502457	BURK ROYALTY CO., LTD.	CRUCES FEDERAL 001	20.05	34E	26	3/19/1957		Active	3705	O	F	0.42
3002540819	CINAREX ENERGY CO.	HANSON 26 FEDERAL COM 002	20.05	34E	26	1/19/2013		Active	11112	O	F	0.45
3002540327	CINAREX ENERGY CO.	HANSON 26 FEDERAL 001H	20.05	34E	26	12/7/2013		Active	11186	O	F	0.46
3002502460	BURK ROYALTY CO., LTD.	CRUCES FEDERAL 004	20.05	34E	26	7/15/1957		Active	3750	O	F	0.47
3002502469	ATLANTIC RICHFIELD	FLETCHER A DE FEDERA 003	20.05	34E	27	1/23/1957	8/7/1972	Plugged	3690	O	F	0.48
3002502468	MARATHON OIL PERMIAN LLC	FLETCHER A DE FEDERA 002	20.05	34E	27	11/12/1966		Active	3705	O	F	0.50
3002520192	BURK ROYALTY CO.	HANSON D FEDERAL 002	20.05	34E	26	9/26/1963	10/2/1963	Plugged	3667	O	F	0.51
3002540492	COG OPERATING LLC	MAS FEDERAL COM 001H	20.05	34E	35	12/20/2017		Active	11338	O	F	0.51
3002590471	DOSEN ENERGY INC	FLETCHER A FED 001	20.05	34E	35	9/26/1988	11/49/1999	Plugged	3860	O	F	0.53
3002502183	BURK ROYALTY CO.	HANSON D FEDERAL 001	20.05	34E	26	8/25/1963	12/17/1987	Plugged	3730	O	F	0.53
3002523578	ARLEN LEDGAR	FEDERAL C 001	20.05	34E	35	8/16/1970	8/25/1989	Plugged	14939	O	F	0.57
3002540697	CHISHOLM ENERGY OPERATING, LLC	LAGUNA 23 FEDERAL COM 002H	20.05	34E	23	1/11/2014		Active	11079	O	F	0.57
3002544288	3BEAR FIELD SERVICES, LLC	LIBBY BERRY FEE SWD 001	20.05	34E	26	3/23/2018		Active	16006	S	F	0.58
3002544045	APACHE CORPORATION	BLACK & TAN 27 FEDERAL COM 308H	20.05	34E	27	1/90/2018		Active	11125	O	F	0.59
3002544044	APACHE CORPORATION	BLACK & TAN 27 FEDERAL COM 307H	20.05	34E	27	1/7/2018		Active	11086	O	F	0.59
3002502499	BURK ROYALTY CO., LTD.	NEAL 001	20.05	34E	35	4/6/1959		Active	3743	O	P	0.59
3002502492	MAS OPERATING CO.	B V LYNCH A FEDERAL 012	20.05	34E	34	8/16/1957		Active	3694	O	F	0.60
3002540637	CINAREX ENERGY CO.	HANSON 26 FEDERAL COM 003H	20.05	34E	26	7/30/2012		Active	11141	O	F	0.60
3002540742	CHISHOLM ENERGY OPERATING, LLC	LAGUNA 23 FEDERAL COM 001H	20.05	34E	23	8/18/2013		Active	10874	O	F	0.61
3002541946	CHISHOLM ENERGY OPERATING, LLC	LAGUNA 23 FEDERAL COM 003H	20.05	34E	23	9/19/2014		Active	9620	O	F	0.62
3002502507	BURK ROYALTY CO., LTD.	W H MILNER FEDERAL 004	20.05	34E	35	1/26/1954		Active	3853	S	F	0.62
3002502503	ATLANTIC RICHFIELD	FLETCHER A DE FEDERA 001	20.05	34E	35	9/17/1956	3/2/1972	Plugged	3715	O	F	0.62
3002502084	BURK ROYALTY CO., LTD.	HANSON C 003	20.05	34E	23	9/15/1963		Active	3702	O	F	0.63
3002544214	COG OPERATING LLC	MAS FEDERAL COM 002H	20.05	34E	34	12/21/2017		Active	11415	O	F	0.63
3002508459	ARCO PERMIAN	FLETCHER A DE FEDERAL 004	20.05	34E	27	10/4/1957	12/18/1984	Plugged	3682	S	F	0.65
3002502461	PHILLIPS PETROLEUM CO	CRUCES FEDERAL 005	20.05	34E	26	11/7/1959	12/7/1959	Plugged	3760	O	F	0.65
3002540750	CINAREX ENERGY CO.	LYNCH 35 002H	20.05	34E	35	1/18/2013		Active	11316	O	P	0.66
3002502467	MARATHON OIL PERMIAN LLC	BALLARD DE FEDERAL 004	20.05	34E	27	8/18/1961	10/11/2018	Plugged	3690	O	F	0.69
3002508465	BURK ROYALTY CO., LTD.	KEOHANIE A 001	20.05	34E	27	9/19/1957	7/23/2007	Plugged	3760	O	F	0.69
3002502451	ERNEST A HANSON	D & E FEDERAL 001	20.05	34E	23	7/10/1961	8/17/1961	Plugged	3601	O	F	0.69
3002502501	BURK ROYALTY CO., LTD.	NEAL 003	20.05	34E	35	6/9/1959		Active	3805	S	P	0.73
3002508464	EDWARD E KINNEY	GULF FEDERAL 002	20.05	34E	27	10/1/1954	10/19/1954	Plugged	3341	O	F	0.75
3002596669	NEARBURG PRODUCING	RITTSER FEDERAL 001	20.05	34E	26	4/4/1986	8/29/1987	Plugged	288	O	F	0.75
3002540825	CINAREX ENERGY CO.	LYNCH 35 001H	20.05	34E	35	6/6/2013		Active	11293	O	P	0.76
3002540804	CINAREX ENERGY CO.	HANSON 26 FEDERAL COM 004H	20.05	34E	26	12/11/2012		Active	11185	O	F	0.76
3002508462	MACK ENERGY CORP	PERRY FEDERAL 001	20.05	34E	22	2/13/1962	2/12/1986	Plugged	3668	O	F	0.78
3002543988	APACHE CORPORATION	BLACK & TAN 27 FEDERAL COM 306H	20.05	34E	27			New (Not drilled or compl)				
3002541359	CINAREX ENERGY CO.	HANSON 26 FEDERAL COM 005H	20.05	34E	26	11/2/2013		Active	9692	O	F	0.79
3002549540	APACHE CORPORATION	BLACK & TAN 27 FEDERAL COM 305H	20.05	34E	27	12/11/2017		Active	3743	O	F	0.79
3002502500	BURK ROYALTY CO., LTD.	NEAL 002	20.05	34E	35	7/15/1959	6/18/1986	Plugged	3780	O	P	0.80
3002502495	MAS OPERATING CO.	B V LYNCH A FEDERAL 003	20.05	34E	34	9/9/1957		Active	3745	O	F	0.86
3002542950	COG OPERATING LLC	MAS FEDERAL 003H	20.05	34E	34	11/29/2015		Active	11318	O	F	0.87
3002502506	BURK ROYALTY CO., LTD.	W H MILNER FEDERAL 003	20.05	34E	35	11/12/1952		Active	3723	O	F	0.87
3002502510	HUDSON OIL COMPANY OF TEXAS	FEDERAL 001	20.05	34E	35	1/1/1953	8/22/1989	Plugged	3734	O	F	0.87
3002502452	BURK ROYALTY CO., LTD.	HANSON FEDERAL 001	20.05	34E	25	6/23/1959	10/30/1959	Plugged	3864	O	F	0.87
3002508460	CHESTNUT EXPLORATION AND PRODUCTION, INC.	D AND E FEDERAL 002	20.05	34E	27	9/14/1960		Active	3701	O	F	0.88
3002502509	BURK ROYALTY CO., LTD.	HANSON C 004	20.05	34E	23	1/9/1964	8/29/2012	Plugged	3642	S	F	0.88
3002502496	TEXAS CO	B V LYNCH A 004	20.05	34E	34	9/12/1934	12/31/1934	Plugged	3797	O	F	0.90
3002529572	NEARBURG PRODUCING CO	RETT FEDERAL COM 001Y	20.05	34E	23	6/8/1985	9/6/2000	Plugged	13700	O	F	0.91
3002520157	BURK ROYALTY CO., LTD.	HANSON C 002	20.05	34E	23	8/17/1963	8/24/1963	Plugged	3672	O	F	0.91
3002520349	BURK ROYALTY CO., LTD.	HANSON C 001	20.05	34E	23	7/9/1963	7/17/2006	Plugged	3700	O	F	0.92
3002542037	COG OPERATING LLC	STRATOSPHERE 36 STATE COM 006H	20.05	34E	36	5/2/2015		Active	11393	O	S	0.92
3002520818	CHAMA PETROLEUM CO	RETT FEDERAL COM 001	20.05	34E	23	4/25/1964	6/8/1964	Plugged	10500	O	F	0.92
3002502464	DRIILLING & EXPLORATION CO INC	BALLARD 001	20.05	34E	27	1/21/1900	1/21/1900	Plugged	3683	O	F	0.92
3002502502	BURK ROYALTY CO., LTD.	NEAL 004	20.05	34E	35	7/29/1959		Active	3822	O	P	0.93
3002541367	CHISHOLM ENERGY OPERATING, LLC	LEA SOUTH 25 FEDERAL COM 005H	20.05	34E	25	10/18/2013		Active	11251	O	F	0.95
3002543482	COG OPERATING LLC	MAS FEDERAL 004H	20.05	34E	34	12/1/2016		Active	11371	O	F	0.95
3002502488	OLEN F FEATHERSTONE	ROACH FEDERAL 001	20.05	34E	34	1/21/1958	12/3/1960	Plugged	3772	O	F	0.98
3002502505	BURK ROYALTY CO., LTD.	W H MILNER FEDERAL 002	20.05	34E	35	8/21/1952		Active	3747	O	F	1.12

Table A-3: Wells within Two Miles of Proposed 3Bear Libby AGI Wells

API	OPERATOR	WELLNAME	SPUDDATE	PLUGDATE	TOWNSHIP	RANGE	SECTION	TVDDEPTH	WELLTYPE	COMPLSTATU	LANDTYPE	DISTANCE (MI)
3 BEAR DELAWARE OPERATING NM LLC	LIBBY AGI #1				20.0S	34E	26	16370 AGI	New (Not drilled or compl)			0.00
3002502454	BURK ROYALTY CO., LTD.	HANSON B 002	18-Nov-59		20.0S	34E	26	3744 O	Active		F	0.15
3002502456	BURK ROYALTY CO., LTD.	HANSON B 003	2-Jan-00		20.0S	34E	26	3829 O	Plugged		F	0.18
3002502462	BURK ROYALTY CO., LTD.	CRUCES FEDERAL 006	8-May-60		20.0S	34E	26	3700 O	Active		F	0.18
3 BEAR DELAWARE OPERATING NM LLC	LIBBY AGI #2				20.0S	34E	26	16370 AGI	New (Not drilled or compl)			0.21
3002502455	BURK ROYALTY CO., LTD.	HANSON B 001	23-Aug-57		20.0S	34E	26	3767 O	Active		F	0.35
3002502458	BURK ROYALTY CO., LTD.	CRUCES FEDERAL 002	24-May-57		20.0S	34E	26	3718 O	Active		F	0.39
3002502459	BURK ROYALTY CO., LTD.	CRUCES FEDERAL 003	18-Jul-57		20.0S	34E	26	3730 O	Active		F	0.41
3002540819	CIMAREX ENERGY CO.	HANSON 26 FEDERAL COM 002	19-Jan-13		20.0S	34E	26	11112 O	Active		F	0.41
3002502460	BURK ROYALTY CO., LTD.	CRUCES FEDERAL 004	15-Jul-59		20.0S	34E	26	3750 O	Active		F	0.42
3002544288	3BEAR FIELD SERVICES, LLC	LIBBY BERRY FEE SWD 001	23-Mar-18		20.0S	34E	26	16000 S	Active		F	0.44
3002502452	BURK ROYALTY CO., LTD.	CRUCES FEDERAL 005	24-Aug-57		20.0S	34E	26	3667 O	Plugged		F	0.49
3002540637	CIMAREX ENERGY CO.	HANSON 26 FEDERAL COM 003H	2-Jan-00		20.0S	34E	26	11141 O	Active		F	0.50
3002540327	CIMAREX ENERGY CO.	HANSON 26 FEDERAL COM 001H	30-Jul-12		20.0S	34E	26	11186 O	Active		F	0.51
3002502463	BURK ROYALTY CO.	RIDER FEDERAL 001	7-Dec-13		20.0S	34E	26	11186 O	Active		F	0.51
3002502457	BURK ROYALTY CO., LTD.	CRUCES FEDERAL 001	2-Jan-00		20.0S	34E	27	3797 O	Plugged		F	0.52
3002502461	PHILLIPS PETROLEUM CO	CRUCES FEDERAL 005	9-May-57		20.0S	34E	26	3705 O	Active		F	0.53
3002502499	BURK ROYALTY CO., LTD.	NEAL 001	2-Jan-00		20.0S	34E	26	3760 O	Plugged		F	0.56
3002541946	CHISHOLM ENERGY OPERATING, LLC	LAGUNA 23 FEDERAL COM 003H	6-Apr-59		20.0S	34E	35	3743 O	Active		P	0.57
3002540742	CHISHOLM ENERGY OPERATING, LLC	LAGUNA 23 FEDERAL COM 001H	19-Sep-14		20.0S	34E	23	9620 O	Active		F	0.57
3002541700	NEARBURG PRODUCING CO	LAGUNA 23 FEDERAL COM 004C	18-Aug-13		20.0S	34E	23	10874 O	Active		F	0.57
3002523578	ARLEN L EDGAR	FEDERAL C 001			20.0S	34E	23	0	Expired Permit		F	0.59
3002520183	BURK ROYALTY CO	HANSON D FEDERAL 001	18-May-74	25-Aug-89	20.0S	34E	35	15080 O	Plugged		F	0.59
3002544092	COG OPERATING LLC	MAS FEDERAL COM 001H	2-Jan-00		20.0S	34E	26	3730 O	Plugged		F	0.60
3002540697	CHISHOLM ENERGY OPERATING, LLC	LAGUNA 23 FEDERAL COM 002H	20-Dec-17		20.0S	34E	35	11338 O	Active		F	0.60
3002540750	CIMAREX ENERGY CO.	LYNCH 35 002H	11-Jan-14		20.0S	34E	23	11079 O	Active		P	0.61
3002520284	BURK ROYALTY CO., LTD.	HANSON C 003	18-Jan-13		20.0S	34E	35	11316 O	Active		F	0.61
3002529669	NEARBURG PRODUCING	HANSON C 001	15-Sep-63		20.0S	34E	23	3702 O	Active		F	0.61
3002502451	ERNEST A HANSON	D & E FEDERAL 001	2-Jan-00		20.0S	34E	26	288 O	Plugged		F	0.62
3002502469	ATLANTIC RICHFIELD	FLETCHER A DE FEDERA 003	2-Jan-00		20.0S	34E	23	3601 O	Plugged		F	0.62
3002502468	MARATHON OIL PERMIAN LLC	FLETCHER A DE FEDERAL 002	2-Jan-00		20.0S	34E	27	3690 O	Plugged		F	0.62
3002530471	OLSEN ENERGY INC	FLETCHER A FED 001	12-Nov-66		20.0S	34E	37	3705 O	Active		F	0.62
3002540804	CIMAREX ENERGY CO.	HANSON 26 FEDERAL COM 004H	26-Sep-88	19-Nov-99	20.0S	34E	35	3860 O	Plugged		F	0.63
3002502501	BURK ROYALTY CO., LTD.	NEAL 003	11-Dec-12		20.0S	34E	26	11185 O	Active		F	0.64
3002502507	BURK ROYALTY CO., LTD.	W H MILNER FEDERAL 004	9-Jun-59		20.0S	34E	35	3805 S	Active		P	0.66
3002541359	CIMAREX ENERGY CO.	HANSON 26 FEDERAL COM 003H	26-Jan-54		20.0S	34E	35	3850 S	Active		F	0.66
3002540825	CIMAREX ENERGY CO.	LYNCH 35 001H	2-Nov-13		20.0S	34E	26	9692 O	Active		F	0.66
3002502492	MAS OPERATING CO.	FLETCHER A DE FEDERA 001	6-Jun-13		20.0S	34E	35	11293 O	Active		P	0.68
3002544045	APACHE CORPORATION	BLACK & TAN 27 FEDERAL COM 308H	2-Jan-00		20.0S	34E	35	3715 O	Plugged		F	0.69
3002544214	COG OPERATING LLC	MAS FEDERAL COM 002H	4-Nov-57		20.0S	34E	34	3694 O	Active		F	0.71
3002502452	BURK ROYALTY CO., LTD.	BALLARD DE FEDERAL 004	30-Jan-18		20.0S	34E	27	1125 O	Active		F	0.72
3002544044	APACHE CORPORATION	BLACK & TAN 27 FEDERAL COM 307H	7-Jan-18		20.0S	34E	27	11086 O	Active		F	0.72
3002502452	BURK ROYALTY CO., LTD.	MAS FEDERAL COM 001	21-Dec-17		20.0S	34E	34	11415 O	Active		F	0.72
3002502467	MARATHON OIL PERMIAN LLC	BALLARD DE FEDERAL 004	23-Jun-59	30-Oct-59	20.0S	34E	25	3864 O	Plugged		F	0.75
3002502500	BURK ROYALTY CO., LTD.	NEAL 002	15-Jul-59	11-Oct-18	20.0S	34E	27	3690 O	Plugged		F	0.77
3002520349	BURK ROYALTY CO., LTD.	HANSON C 001	9-Jul-63	17-Jul-06	20.0S	34E	35	3780 O	Plugged		P	0.79
3002529572	NEARBURG PRODUCING CO	RETT FEDERAL COM 001Y	8-Jun-85	6-Sep-00	20.0S	34E	23	13700 O	Plugged		F	0.80
3002508459	ARCO PERMIAN	FLETCHER A DE FEDERAL 004	18-Dec-84	20.0S	34E	27	3682 S	Plugged		F	F	0.80
3002520818	CHAMA PETROLEUM CO	RETT FEDERAL COM 001	2-Jan-00		20.0S	34E	23	10500 O	Plugged		F	0.81
3002542037	COG OPERATING LLC	STRATOSPHERE 36 STATE COM 006H	2-May-15		20.0S	34E	36	11393 O	Active		S	0.82
3002508465	BURK ROYALTY CO., LTD.	KEOHANE A 001	19-Sep-57	23-Jul-07	20.0S	34E	27	3760 O	Plugged		F	0.83
3002541367	CHISHOLM ENERGY OPERATING, LLC	LEA SOUTH 25 FEDERAL COM 005H	18-Oct-13		20.0S	34E	25	11251 O	Active		F	0.84
3002508462	MACK ENERGY CORP	PERRY FEDERAL 001	13-Feb-62	12-Feb-96	20.0S	34E	22	3669 O	Plugged		F	0.86
3002541859	NEARBURG PRODUCING CO	LEA SOUTH 25 FEDERAL COM 009C			20.0S	34E	25	0	Expired Permit		F	0.86
3002502502	BURK ROYALTY CO., LTD.	NEAL 004	29-Jul-59		20.0S	34E	35	3822 O	Active		P	0.88
3002508464	EDWARD E KINNEY	GULF FEDERAL 002	2-Jan-00		20.0S	34E	27	3341 O	Plugged		F	0.89
3002502506	BURK ROYALTY CO., LTD.	W H MILNER FEDERAL 003	12-Nov-52		20.0S	34E	35	3723 O	Active		F	0.91

3002502510	HUDSON OIL COMPANY OF TEXAS	FEDERAL 001	2-Jan-00	2-Jan-00	20.05	34E	35	3734	O	Plugged	F	0.93
3002543988	APACHE CORPORATION	BLACK & TAN 27 FEDERAL COM 308H		20.05	34E	27		0	O	New (Not drilled or compl)	F	0.93
3002543940	APACHE CORPORATION	BLACK & TAN 27 FEDERAL COM 305H	11-Dec-17	20.05	34E	27	3743	O		Active	F	0.94
3002508460	CHESTNUT EXPLORATION AND PRODUCTION, INC.	D AND E FEDERAL 002	14-Sep-60	20.05	34E	27	3701	O		Active	F	0.98
3002520811	CHISHOLM ENERGY OPERATING, LLC	FEDERAL L 001	21-Dec-87	20.05	34E	25	14700	S		Active	F	0.99
3002502485	IMAS OPERATING CO.	B V LYNCH A FEDERAL 003	2-Jan-57	20.05	34E	34	3745	O		Active	F	0.99
3002502496	TEXAS CO	B V LYNCH A 004	2-Jan-00	20.05	34E	34	3797	O		Plugged	F	1.00
3002542950	COG OPERATING LLC	MAS FEDERAL 003H	29-Nov-15	20.05	34E	34	11318	O		Active	F	1.01
3002541898	CHISHOLM ENERGY OPERATING, LLC	LEA SOUTH 25 FEDERAL COM 006H	15-Aug-14	20.05	34E	25	11174	O		Active	F	1.04
3002502449	CHESTNUT EXPLORATION AND PRODUCTION, INC.	R AND B FEDERAL 001	3-Jun-60	20.05	34E	22	3625	O		Active	F	1.05
3002502464	DRILLING & EXPLORATION CO INC	BALLARD 001	2-Jan-00	20.05	34E	27	3683	O		Plugged	F	1.06
3002543409	CHISHOLM ENERGY OPERATING, LLC	LEA SOUTH 25 FEDERAL COM 2BS 010H	4-Jul-17	20.05	34E	25	10680	O		Active	F	1.06
3002502488	OLEN F FEATHERSTONE	ROACH FEDERAL 001	2-Jan-00	20.05	34E	34	3772	O		Plugged	F	1.08
3002502465	MARATHON OIL PERMIAN LLC	BALLARD DE FEDERAL 002	13-Dec-61	20.05	34E	27	3663	O		Active	F	1.09
3002543482	COG OPERATING LLC	MAS FEDERAL 004H	1-Dec-16	20.05	34E	34	11371	O		Active	F	1.09
3002508461	MAS OPERATING CO.	B V LYNCH B FEDERAL 002	1-Jan-59	20.05	34E	27	3805	O		Active	F	1.10
3002527486	GETTY OIL CO	LYNCH 36 STATE 001	2-Jan-00	20.05	34E	36	3820	O		Plugged	S	1.10
3002543996	APACHE CORPORATION	BLACK & TAN 27 FEDERAL COM 304H	22-Sep-17	20.05	34E	27	11145	O		New (Not drilled or compl)	F	1.10
3002543921	APACHE CORPORATION	BLACK & TAN 27 FEDERAL COM 303H	28-Oct-59	20.05	34E	27	11145	O		Active	F	1.11
3002502512	PHILLIPS PETROLEUM CO	NEAL 002	27-May-15	20.05	34E	35	3825	O		Plugged	P	1.11
3002542036	COG OPERATING LLC	STRATOSPHERE 36 STATE COM 005H	27-May-15	20.05	34E	36	11443	O		Active	S	1.12
3002502491	OLSEN ENERGY INC	B V LYNCH A FEDERAL 011	10-Aug-53	20.05	34E	34	3720	S		Plugged	F	1.12
3002502505	BURK ROYALTY CO., LTD.	W H MILLNER FEDERAL 002	29-Sep-52	20.05	34E	35	3747	O		Active	F	1.16
3002502511	PHILLIPS PETROLEUM CO	NEAL 001	23-Jun-53	20.05	34E	35	3775	O		Plugged	P	1.16
3002502509	MAS OPERATING CO.	B V LYNCH A FEDERAL 007	22-Dec-52	20.05	34E	35	3707	O		Active	F	1.17
3002512580	IMAS OPERATING CO.	D AND E FEDERAL 010	1-Aug-53	20.05	34E	34	3734	S		Active	F	1.20
3002502448	CHESTNUT EXPLORATION AND PRODUCTION, INC.	D AND E FEDERAL 001	22-Jan-60	20.05	34E	22	3708	S		Active	F	1.24
3002502490	MAS OPERATING CO.	B V LYNCH A FEDERAL 009	18-Jun-53	20.05	34E	34	3690	O		Active	F	1.25
3002502489	OLSEN ENERGY INC	B V LYNCH A FEDERAL 008	15-Jan-53	20.05	34E	34	3759	S		Plugged	F	1.27
3002543029	CHISHOLM ENERGY OPERATING, LLC	LEA SOUTH 25 FEDERAL COM 3BS 007H	14-Aug-17	20.05	34E	25	11298	O		Active	F	1.27
3002502466	MARATHON OIL PERMIAN LLC	BALLARD DE FEDERAL 003	22-May-64	20.05	34E	27	4026	S		Plugged	F	1.28
3002541703	BC OPERATING, INC.	BERRY SWD 001	5-Mar-15	20.05	34E	35	7062	S		Active	P	1.30
3002543036	CHISHOLM ENERGY OPERATING, LLC	LEA SOUTH 25 FEDERAL COM 1BS 011H	14-Sep-17	20.05	34E	25	9702	O		Active	F	1.30
3002529518	CHISHOLM ENERGY OPERATING, LLC	FEDERAL LS 001	29-Nov-85	20.05	34E	25	14590	O		Active	F	1.30
3002525666	HARVARD PETROLEUM COMPANY, LLC	FLETCHER FEDERAL 001	7-Jun-77	20.05	34E	27	3718	O		Active	F	1.30
3002542035	COG OPERATING LLC	STRATOSPHERE 36 STATE COM 004H	27-May-15	20.05	34E	36	11484	O		Active	S	1.33
3002512550	IMAS OPERATING CO.	B V LYNCH A FEDERAL 001	19-Sep-89	20.05	34E	34	3916	O		Active	F	1.34
3002520071	SUNDOWN ENERGY LP	GULF DE FEDERAL 001	18-Dec-62	10-Oct-06	20.05	34E	27	3720	O	Plugged	F	1.34
3002526164	WALLEN PRODUCTION CO	WALLEN KINNEY 001	2-Jan-00	20.05	34E	34	3765	O		Plugged	F	1.34
3002502487	FULFER OIL & CATTLE LLC	KINNEY 001	4-Apr-54	20.05	34E	34	3776	O		Active	F	1.36
3002544018	APACHE CORPORATION	BLACK & TAN 27 FEDERAL COM 302H	11-Dec-17	20.05	34E	27	11097	O		Active	F	1.37
3002502445	MARATHON OIL PERMIAN LLC	BALLARD DE FEDERAL 005	3-Dec-62	20.05	34E	22	3627	O		Active	F	1.37
3002544017	APACHE CORPORATION	BLACK & TAN 27 FEDERAL COM 301H	15-Nov-17	20.05	34E	27	11512	O		Active	F	1.37
3002502453	DRILLING & EXPLORATION CO INC	GORMAN 001	2-Jan-00	20.05	34E	25	3825	O		Plugged	F	1.47
3002531183	BTA OIL PRODUCERS, LLC	ALINE 9012 JVP 001	21-Mar-91	20.05	34E	36	13760	O		Active	S	1.47
3002541294	EOG RESOURCES INC	CHUKAR BTA FEDERAL COM 001C		20.05	34E	28	0	O		Expired Permit	F	1.49
3002540723	NEARBURG PRODUCING CO	LEA SOUTH 25 FEDERAL COM 001		20.05	34E	25	0	O		Expired Permit	F	1.53
3002543895	CHISHOLM ENERGY OPERATING, LLC	H H FLINT PERMIT 001	2-Jan-00	20.05	34E	25	0	O		New (Not drilled or compl)	F	1.53
3002502498	TEXACO EXPLORATION & PRODUCTION INC	LYNCH PERMIT B 001	2-Jan-00	20.05	34E	28	3840	O		Plugged	F	1.54
3002543057	CHISHOLM ENERGY OPERATING, LLC	LEA SOUTH 25 FEDERAL COM 008	29-Jun-16	20.05	34E	34	3808	O		Plugged	F	1.54
3002502473	HUDSON & HUDSON INC	HOVER FEDERAL 001	2-Jan-00	20.05	34E	25	11652	O		Active	F	1.54
3002542034	COG OPERATING LLC	STRATOSPHERE 36 STATE COM 003H	1-May-15	20.05	34E	28	3731	O		Plugged	F	1.55
3002543110	CHISHOLM ENERGY OPERATING, LLC	LEA SOUTH 25 FEDERAL COM WCA 012H	14-Dec-17	20.05	34E	36	11557	O		Active	S	1.56
3002541090	CHISHOLM ENERGY OPERATING, LLC	LEA SOUTH 25 FEDERAL COM 002H		20.05	34E	25	11466	O		Active	F	1.57
3002525904	RHICI ENTERPRISES, LLC	WALLEN BASS 003	16-Oct-78	20.05	34E	25	0	O		New (Not drilled or compl)	F	1.59
3002502471	CARPER DRILLING CO	THRAKLEID ETAL 001	17-Oct-62	20.05	34E	21	3681	O		Active	F	1.63
3002540694	CIMAREX ENERGY CO.	CHIEF 30 STATE 002H	11-Aug-12	20.05	34E	28	3775	O		Plugged	P	1.64
3002540872	CIMAREX ENERGY CO.	CHIEF 30 STATE 003H	8-Jan-13	20.05	35E	30	10796	O		Active	P	1.64
				20.05	35E	30	10897	O		Active	S	1.65

3002540406	CIMAREX ENERGY CO.	CHIEF 30 STATE 001H	21-Apr-12	20.05	35E	30	10845	O	Active	S	1.68
3002502493	WILSON OIL CO	MUSE FEDERAL 002	2-Jan-00	20.05	34E	21	3705	O	Plugged	F	1.68
3002542771	BTA OIL PRODUCERS, LLC	ALINE 9012.JVP 002	2-Feb-16	20.05	34E	36	11488	O	Active	S	1.69
3002541066	CIMAREX ENERGY CO.	CHIEF 30 STATE 004H	3-May-13	20.05	35E	30	10979	O	Active	S	1.69
3002543195	BTA OIL PRODUCERS, LLC	ALINE 9012.JVP 003	2-May-16	20.05	34E	36	11493	O	Active	P	1.71
3002540906	CIMAREX ENERGY CO.	CHIEF 30 STATE 005	29-Jan-13	20.05	35E	30	11395	O	Active	S	1.71
3002543292	CIMAREX ENERGY CO.	CHIEF 30 STATE 006	21-Jul-16	20.05	35E	30	11650	O	Active	S	1.73
3002531441	STEVEN D RUPPERT	SILVER FEDERAL 002	10-Nov-91	20.05	34E	28	3684	O	Active	F	1.73
3002540471	CAZA OPERATING, LLC	IGLOO BRR STATE 001C		20.05	35E	19	0	O	New (Not drilled or compl)	S	1.79
3002502474	STEVEN D RUPPERT	SILVER FEDERAL 001	8-Jan-59	20.05	34E	28	3719	O	Active	F	1.80
3002502470	CARPER DRILLING CO	CARPER SINGLETON 001	27-Feb-59	20.05	34E	28	3846	O	Plugged	P	1.80
3002542361	CAZA OPERATING, LLC	IGLOO 19 STATE 007C		20.05	35E	19	0	O	Expired Permit	S	1.81
3002502476	STEVEN D RUPPERT	SILVER FEDERAL 004	4-May-59	20.05	34E	28	3787	S	Active	F	1.83
3002542380	CAZA OPERATING, LLC	IGLOO 19 STATE 008C		20.05	35E	19	0	O	Expired Permit	S	1.84
3002526288	RHCI ENTERPRISES, LLC	WALLEN BASS 004	1-Jun-79	20.05	34E	21	3669	O	Active	F	1.85
3002526952	EOG Y RESOURCES, INC.	WEST LYNCH DEEP UNIT 001		20.05	34E	28	13875	G	Plugged	F	1.89
3002540618	COG OPERATING LLC	STRATOSPHERE 96 STATE 001H	12-Dec-12	20.05	34E	36	10672	O	Active	S	1.93
3002502486	C L NORSWORTHY JR	PERRY FEDERAL 001	2-Jan-00	20.05	34E	33	3777	O	Plugged	F	1.93
3002534627	OGS OPERATING CO INC	GOB 33 FEDERAL 001	19-Jul-99	20.05	34E	33	3874	O	Plugged	F	1.97
3002502475	STEVEN D RUPPERT	SILVER FEDERAL 003	23-Oct-59	20.05	34E	28	3693	O	Active	F	2.07

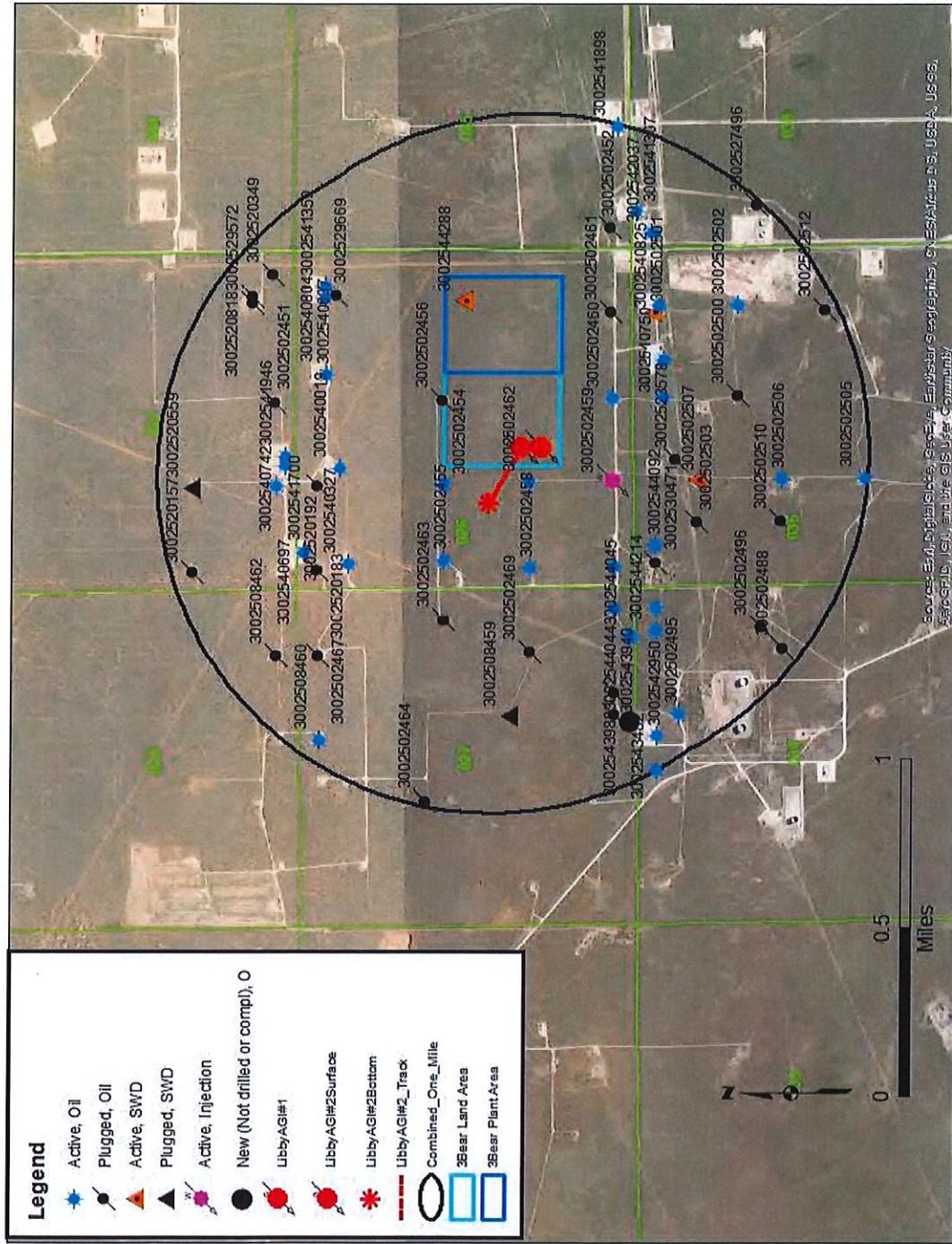


Figure A-1: Wells within One Mile of Proposed 3Bear AGI Wells

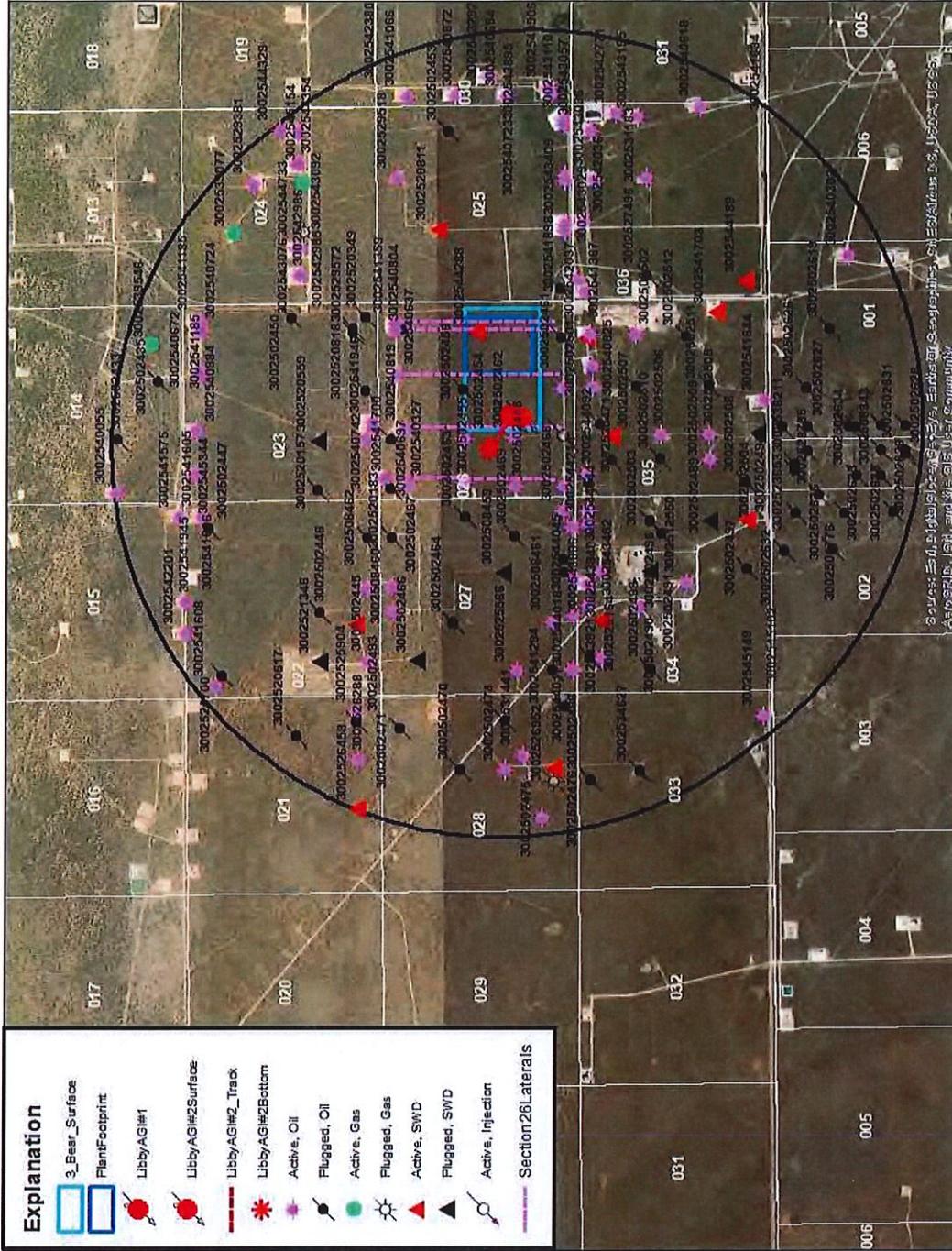
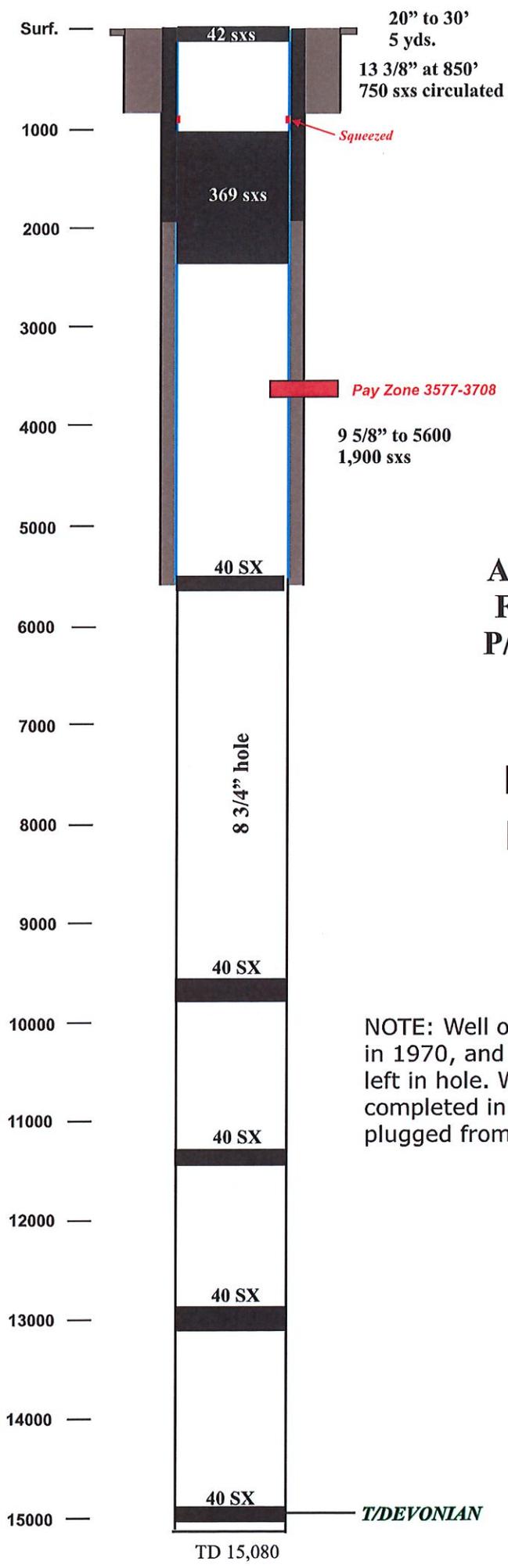


Figure A-2: Wells within Two Miles of Proposed 3Bear AGI Wells



**30-025-23578
ARLEN EDGAR
FEDERAL C #1
P/A Yates-7Rivers
August, 1989**

 CEMENT REPORTED
 CEMENT PLUGS & SQUEEZE

NOTE: Well originally drilled to the Devonian in 1970, and P/A as a dry hole. 9 5/8" casing left in hole. Well was re-entered in 1974 and completed in the Yates-Seven Rivers. Well was plugged from the Yates-Seven Rivers in 1989.

Appendix B:

Identification of Operators, Surface Owners, Lessees, Working Interest Operators and other Interested Parties for Notices, Copies of Notice Letters and Certified Mail Receipts

Table B-1:	Surface Owners
Table B-2:	Operators
Table B-3:	Working Interest Operators
Table B-4:	Parties to be Individually Notified
Figure B-1:	Operators Surface Owners within One Mile of Proposed 3Bear AGI Wells
Figure B-2:	Operators within One Mile of Proposed 3Bear AGI Wells
Attachment A:	Draft Notice Letter
Attachment B:	Land Data Supplied by Elkhorn Land & Title, LLC

**Table B-1
Surface Owners:**

Section 22, Township 20 South, Range 34 East

T Over V Ranch Land LLLP **S/2 SE/4**
P.O. Box 160
Eunice, New Mexico 88231

Section 23, Township 20 South, Range 34 East

Bureau of Land Management **S/2**
301 Dinosaur Trail
Santa Fe, New Mexico 87508

Section 24, Township 20 South, Range 34 East

S&S Inc. **SW/4 SW/4**
P.O. Box 1046
Eunice, New Mexico 88231

Section 25, Township 20 South, Range 34 East

Martha W. Skeen **W/2**
301 South Canyon
Carlsbad, New Mexico 88220

The Kelly Skeen Testamentary Trust,
Linda Ann Jurva & Curtis Kelly Skeen, Trustees
301 South Canyon
Carlsbad, New Mexico 88220

Curtis K. Skeen & Carole D. Skeen
1508 Riverside Drive
Carlsbad, New Mexico 88220

Linda Skeen Jurva
1134 Tracy Place
Carlsbad, New Mexico 88220

Section 26, Township 20 South, Range 34 East

T Over V Ranch Land LLLP **All**
P.O. Box 160
Eunice, New Mexico 88231

3 Bear Delaware Operating-NM LLC
1512 Larimer Street, Suite 540
Denver, Colorado 80202

Section 27, Township 20 South, Range 34 East

T Over V Ranch Land LLLP
P.O. Box 160
Eunice, New Mexico 88231

E/2, E/2 W/2

Bureau of Land Management
301 Dinosaur Trail
Santa Fe, New Mexico 87508

Section 34, Township 20 South, Range 34 East

T Over V Ranch Land LLLP
P.O. Box 160
Eunice, New Mexico 88231

NE/4, NE/4 NW/4, NE/4 SE/4

Plains Pipeline LP
P.O. Box 4648
Houston, Texas 77210

Section 35, Township 20 South, Range 34 East

T Over V Ranch Land LLLP
P.O. Box 160
Eunice, New Mexico 88231

N/2, N/2 S/2

Bureau of Land Management
301 Dinosaur Trail
Santa Fe, New Mexico 87508

Section 36, Township 20 South, Range 34 East

S&S Inc.
P.O. Box 1046
Eunice, New Mexico 88231

**N/2 NW/4, SW/4 NW/4, NW/4
SW/4**

**Table B-2
Operators:**

Section 22, Township 20 South, Range 34 East

Chestnut Exploration & Production, Inc.
2201 N. Central Expressway, Suite 240
Richardson, Texas 75080
972-715-8807

S/2 SE/4

Cimarex Energy Company
600 N. Marienfeld Street, Suite 600
Midland, Texas 79701
432-620-1936

Section 23, Township 20 South, Range 34 East

Cimarex Energy Company
600 N. Marienfeld Street, Suite 600
Midland, Texas 79701
432-620-1936

S/2

Chisholm Energy Operating, LLC
801 Cherry Street
Fort Worth, Texas 76102
817-953-3728

Burk Royalty Co., Ltd.
P.O. Box 94903
Wichita Falls, Texas 76308
940-397-8650

Section 25, Township 20 South, Range 34 East

Chisholm Energy Operating, LLC
801 Cherry Street
Fort Worth, Texas 76102
817-953-3728

W/2

Section 26, Township 20 South, Range 34 East

Cimarex Energy Company
600 N. Marienfeld Street, Suite 600
Midland, Texas 79701
432-620-1936

All

Burk Royalty Co., Ltd.
P.O. Box 94903
Wichita Falls, Texas 76308
940-397-8650

3 Bear Field Services, LLC
500 Don Gaspar Avenue
Santa Fe, New Mexico 87505
575-626-7100

Section 27, Township 20 South, Range 34 East

Chestnut Exploration & Production, Inc.
2201 N. Central Expressway, Suite 240
Richardson, Texas 75080
972-715-8807

E/2, E/2 W/2

Marathon Oil Permian LLC
5555 San Felipe Street
Houston, Texas 77056
713-296-2500

Mas Operating Co.
P.O. Box 52167
Midland, Texas 79710
432-618-0678

Apache Corporation
303 Veterans Airpark Lane, Suite 1000
Midland, Texas 79705
432-818-1000

Section 34, Township 20 South, Range 34 East

Mas Operating Co.
P.O. Box 52167
Midland, Texas 79710
432-618-0678

NE/4, NE/4 NW/4, NE/4 SE/4

COG Operating LLC
600 W. Illinois Ave.
Midland, Texas 79701
432-683-7443

Section 35, Township 20 South, Range 34 East

Cimarex Energy Company
600 N. Marienfeld Street, Suite 600
Midland, Texas 79701
432-620-1936

Burk Royalty Co., Ltd.
P.O. Box 94903
Wichita Falls, Texas 76308
940-397-8650

N/2, N/2 S/2

COG Operating LLC
600 W. Illinois Avenue
Midland, Texas 79701
432-683-7443

BC Operating, Inc.
P.O. Box 50820
Midland, Texas 79710
432-684-9696

Mas Operating Co.
P.O. Box 52167
Midland, Texas 79710
432-616-0678

Section 36, Township 20 South, Range 34 East

COG Operating LLC
600 W. Illinois Avenue
Midland, Texas 79701
432-683-7443

**N/2 NW/4, SW/4 NW/4, NW/4
SW/4**

**Table B-3
Working Interest Owners:**

Section 24, Township 20 South, Range 34 East

COG Operating LLC
600 W. Illinois Ave.
Midland, Texas 79701
432-683-7443

SW/4 SW/4