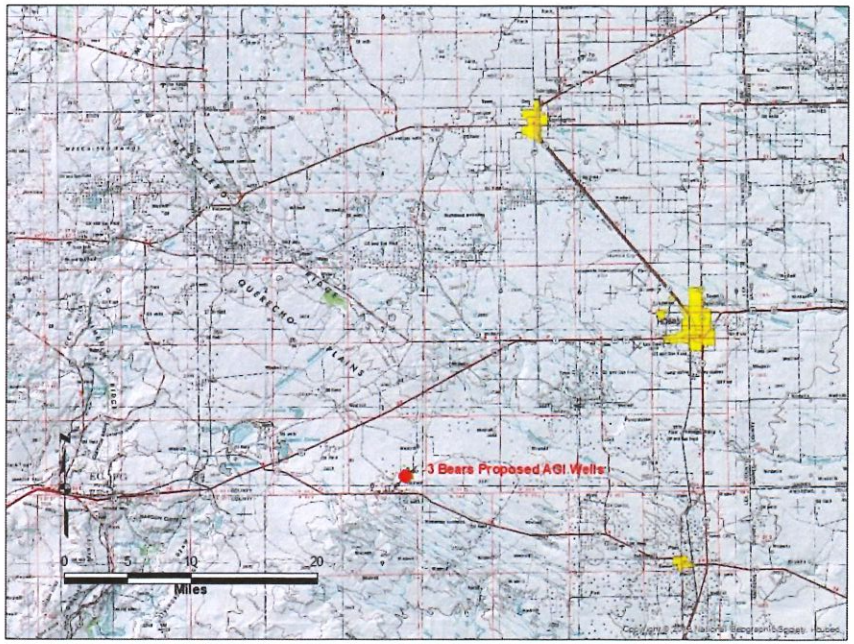
3Bear Field Services, LLC

Application for Authorization to Inject
Libby Gas Processing Plant AGI System
C-108 Application for Libby AGI #1 and AGI #2



Presented in a Hearing Before the
New Mexico Oil Conservation Commission
Case 20409

June 6, 2019
Santa Fe, New Mexico

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Application of 3Bear Field Services, LLC
Case No. 20409
Power Point Slides EXHIBIT #3

3Bear Energy

3 Bear Field Services LLC Witnesses

- Mr. Michael Solomon– 3Bear Energy
  - Education: BS Chemical Engineering
  - Midstream Engineer with 15 Years of Experience
  - SVP of Engineering & Operations for 3Bear Energy
  - Corporate Representative for 3Bear
- Mr. Alberto A. Gutierrez, RG – Geolex, Inc.
  - Master's Degree in Geology (UNM 1980)
  - Registered Geologist in 21 States; 40 Years Experience
  - Petroleum Geology and Hydrogeology Expert
  - Expert in Permitting, Design, Construction and Operation of AGI Wells

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Presentation Topics for Each Witness

- Describe overall history and benefits of 3Bear's Gas Processing Plant and role of AGI project in gas plant operations. --- **Mr. Michael Solomon**

- Describe relevant site geology and hydrogeology, system design, operation, analyses of anticipated effect on injection zone and all components of C-108 application. --- **Alberto A. Gutiérrez, RG**

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Introduction to 3Bear Field Services LLC

- Founded by Robert J. Clark in 2013
  - Long time industry veteran, formerly founder and CEO of Bear Tracker Energy, Bear Paw Energy and Bear Cub Energy
  - Management and Technical team has built and operated numerous systems in the Mid-Con, Rockies and Texas
- Financial backing from GSO Capital Partners; one of the industry's leading investment and advisory firms
  - 86.2 Billion AUM; 5.2 Billion in dedicated energy funds
- 3 Bear Provides a 4 stream solution to producers in Lea and Eddy County, NM
  - Gas Gathering, Compression and Processing
  - Oil Gathering and Terminaling
  - Water Gathering, Disposal and Treating
- 3 Bear currently serves 15 producers, including some of the major players in the basin:

CHISHOLM ENERGY

CIMAREX

CENTENNIAL RESOURCE DEVELOPMENT, INC

LEGACY RESERVES

Marathon Oil

MEWBOURNE OIL COMPANY

devon

McElvain Energy, Inc.

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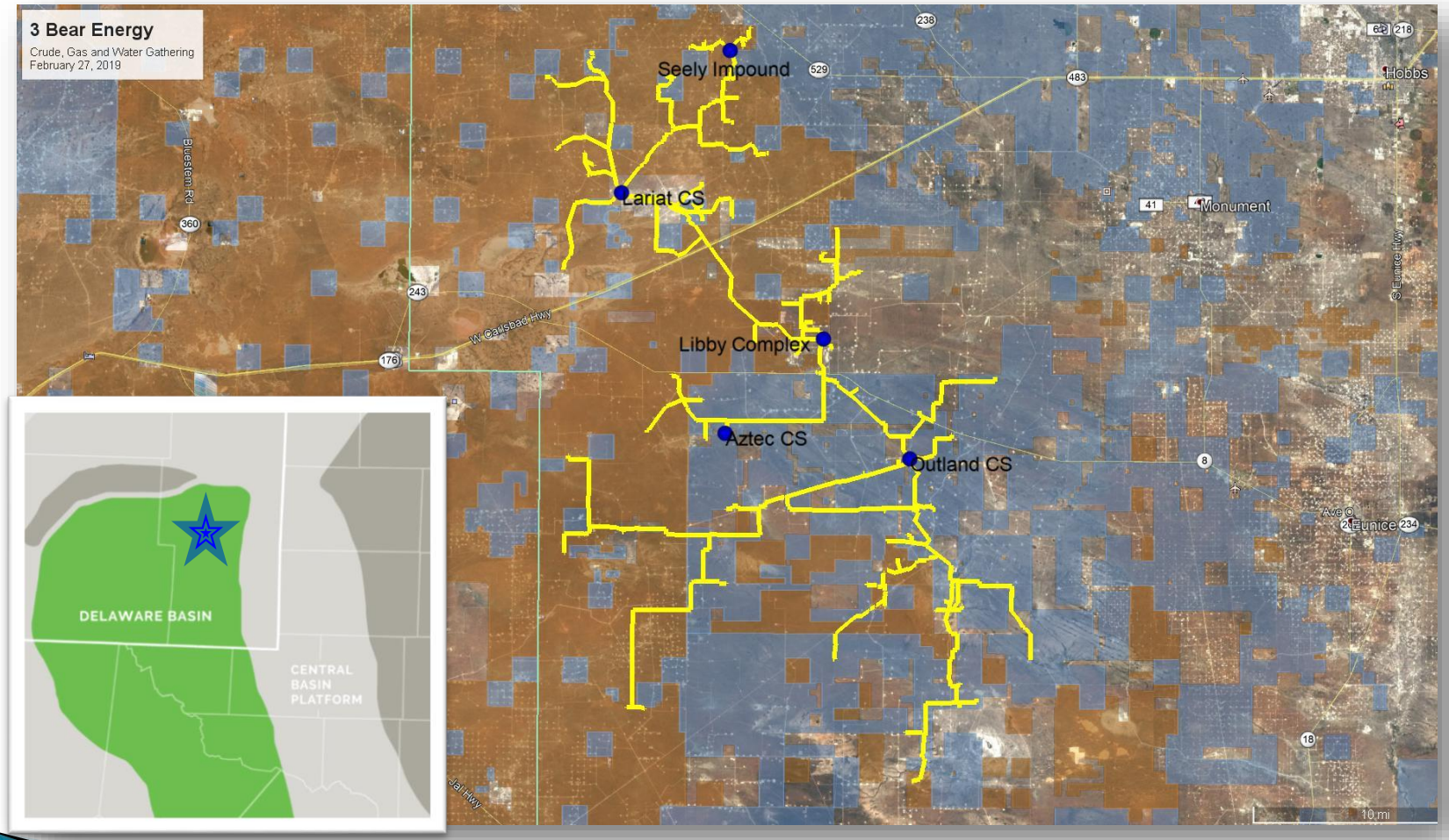
Summary of Current Libby Plant Operations

- History
  - 3Bear Energy entered NM in the 3rd Quarter of 2017. The Libby Gas Plant began construction in the 1st Quarter of 2018 and went into service in the 3rd Quarter of the same year.
  - 3Bear's New Mexico permanent full time staff is up to 19 people (including water and oil operations) with plans to continue to grow in order to support development in the Basin.
- Gathering
  - Extensive system metering with electronic flow measurement and real-time SCADA communications aiding in leak detection and loss prevention
  - Low pressure gathering pipe from wellhead to compressor station
    - 45 miles of 6"-16" HDPE SDR 11
  - High pressure pipe from compressor station to gas plant – Built to NACE SSC Region 3 Specs
    - 24 miles of steel 8" API 5L X52 – ANSI 600 class
- Compressor Stations
  - 3 remote compressor stations on fee land
  - Gas engine driven compressors
  - Dehydration and liquids handling
- Processing and Treating
  - 60 MMCF/D cryogenic processing plant with refrigeration assist (99+% Uptime)
  - Amine unit for removal of CO2 and H2S
  - Residue gas recompression
- Interconnects
  - Residue gas to Transwestern with plans to add NGPL
    - 3.5 miles of steel 6" API 5L X52– ANSI 600 class
  - Natural gas liquids to Sand Hills with plans to add CP Chem
    - 5 miles of steel 6" API 5L X52 – ANSI 600 class

Lea County Project Map



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Summary of Proposed Gas Processing Expansion and AGI Facility

- Gathering
  - LP/HP Gathering currently meets industry requirements for processing sour gas
  - All new steel pipe will be constructed and tested to meet NACE SSC Region 3 Specs
- Compressor Stations
  - Compressor Stations will be designed to meet NACE SSC Region 3 Specs
  - Compression (Including AGI Compressors) will be designed for Ariel Sour Level 2 Service:
    - Two compartment distance pieces/crosshead
    - SS Valves and Piston Rod
    - Purge Packing for proper venting
- Processing/Treating/AGI Facilities
  - Planned future addition of 200 MMSCFD Cryo for a total design capacity of 260 MMSCFD (Aprox. 100 MMSCFD of Sour Gas/160 MMSCFD of Sweet Gas)
  - Additional Amine unit for removal of CO2 and H2S
  - Dual 6 Stage AGI Compressors for injection into well (Ariel Sour Level 2)
  - Dehydration of gas prior to injection
  - H2S monitors/Horns/Strobes & Air Packs installed at strategic locations for safety.
  - Sour water treating
  - H2S removal from condensate prior to sales

Environmental and Economic Benefits of the Libby Plant

- Permanent sequestration of GHG – reduced carbon footprint.
  - Eliminates sulfur compounds and GHG emissions to atmosphere
  - Injection reduced H2S and combustion SO2 emissions as well as improves worker safety.
- Construction jobs for building the facility and wells.
- Permanent operations jobs for the plant.
- Allows increased royalties to flow to New Mexico by increasing production capacity by providing additional gas treatment capacity.
- Allowing increased royalties to the United States due to increased production.

AGI Wells are Integral to Libby Plant

- Sequestration of GHGs is an environmental benefit.
- AGI system integral to the facility
  - Air Permit – Title V facility w/ Quarterly emission testing, LDAR monitoring, TO testing etc.
  - In lieu of SRU with Tail Gas Treatment
- Allows a significant net reduction in carbon emissions from various SE NM 3Bear assets.
- Two wells will create redundancy by allowing the plant to be operated without interruption should one well require maintenance or repairs.

C-108 Application Summary

1. 3Bear is requesting authority to inject acid gas into two deep wells:
   - Into the Silurian Fusselman and Wristen, and Devonian Formations, at depths of approximately 14,900 to 16,400 feet
   - At a maximum rate of 8.0 MMSCFD injecting at a maximum operating surface pressure of 4,525 psig.
2. AGI #1 will be drilled vertically, while AGI #2, located approximately 300 feet north of AGI #1, will be deviated approximately 1000 feet to the northwest to avoid any pressure or material interference between the wells.
3. The depth of the propose intermediate casing strings, at 12,300', was selected to protect existing Wolfcamp lateral wells (at approximately 11,000') in the vicinity of the proposed AGI wells.
4. Using a safety factor of 100 % (total injection into a single well at 8.0 MMSCFD), the radius of influence for either well after injecting for 30-years will be 0.38 mile (2,027 feet).
5. There is no current or anticipated production in the Siluro-Devonian Formations within at least three miles of the proposed injection site.
6. Only two wells penetrates the injection zone within the one-mile radius area of review. One is a plugged Devonian dry hole (Arlen L. Edgar Federal 001) which lies approximately 0.40 miles south of the proposed AGI wells. The second well is 3Bear's on-site SWD, situated 0.49 miles northeast.
7. The Arlen L. Edgar well is properly plugged and abandoned, such that the proposed injection zones are properly isolated from producing and fresh water zones.
8. The proposed injection zone is capable of permanently containing the injected fluid due to low porosity and permeability of cap rock above and below zone.
9. Appropriate materials and drilling procedures will be employed to assure well integrity and prevent migration of injected fluids to adjacent production and/or underground sources of drinking water.

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Key Elements of 3Bear's C-108

- AGI project has substantial environmental benefits of greenhouse gas reduction due to sequestration of CO_2 which otherwise would be released to atmosphere.
- AGI project reduces waste and air emissions by eliminating flaring of acid gas or operation of a sulfur recovery unit as sulfur control measures.
- Nearby oil and gas wells, nearby water wells and surface water are all protected by well design, best practices operations, and geologic factors.

Key Elements of 3Bear's C-108 (cont.)

- 3Bear's C-108 application details the full information needed to approve the installation of the proposed AGI wells.
- Revised H_2S Contingency Plan for the Libby plant in under preparation and will submitted for approval by OCD prior to the commencement of operations.
- Adjacent operators, NMOCD and the BLM strongly support the project's use of deep Devonian reservoir versus the shallower Delaware Group.
- Operators and surface owners have received proper notice and there are no objections to the AGI project.

Location, Background and Legal Description of Well Locations

- The proposed AGI wells are designed to support the operations of 3Bear's Libby Gas Plant.
- The plant is located in Section 26, T20S, R34E in Lea County, New Mexico (see location map on Figure 1).
- When fully operational, the plant will process approximately 100 million cubic feet of natural gas per day.
- 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 (see Figure 2).

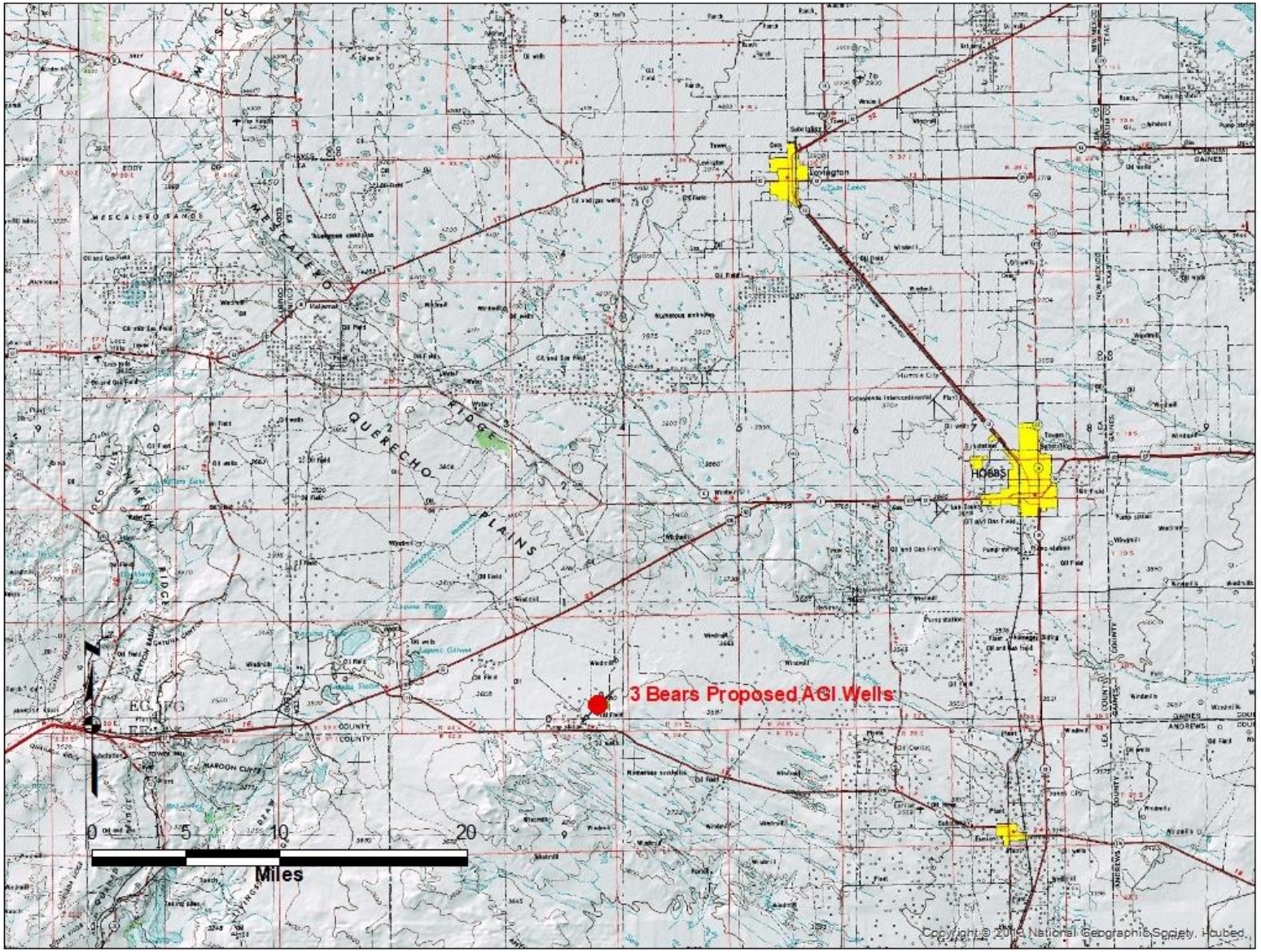

Figure 1: Location of Proposed 3Bear AGI Wells

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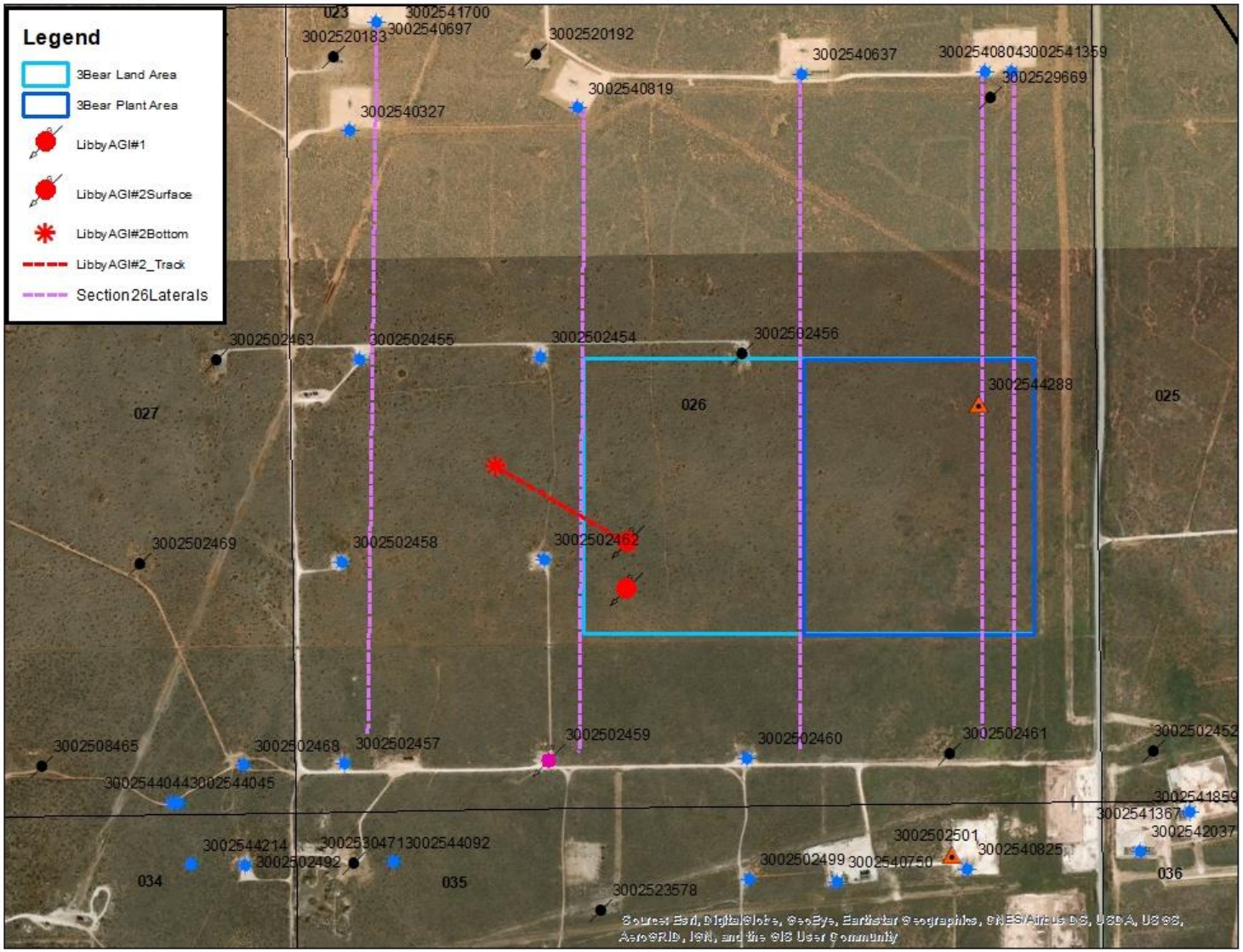

Figure 2: Detailed Location Map, 3Bear Plant Area and Proposed AGI Wells

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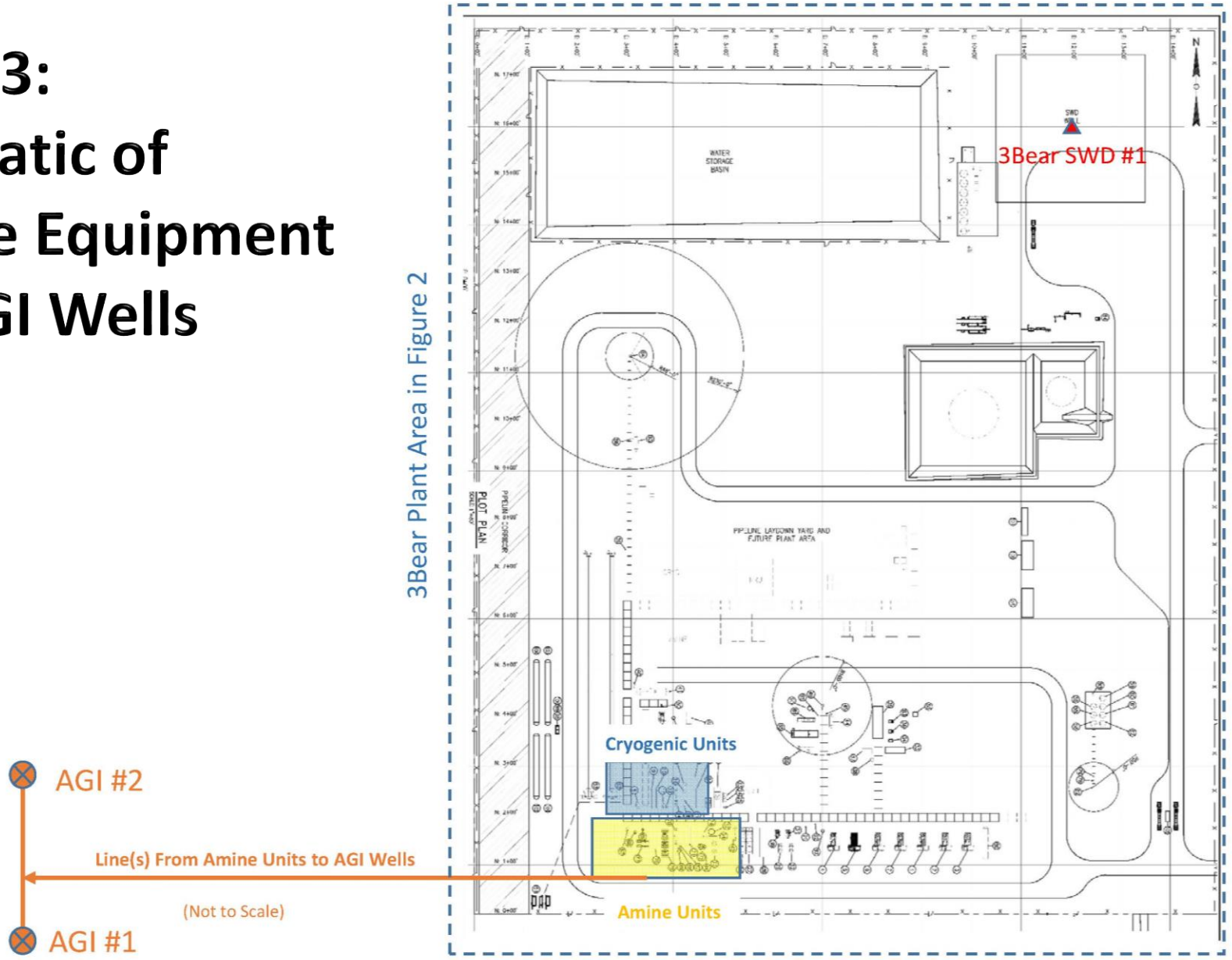
Plant Site Details

- The overall site encompasses approximately 120 acres, and the plant operations area occupy approximately 60 acres (see Figure 3).
- All lands are owned in fee by 3Bear.
- Underlying mineral rights are owned by the United States and administrated by the BLM.
- Field gas will be “sweetened” by two amine units, and the TAG will then be compressed and piped to the AGI wells.
- The proposed wells and all surface equipment will be contained within or immediately adjacent to the plant area.

Figure 3: Schematic of Surface Equipment and AGI Wells



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Injection Fluid Volume, Composition and Pressure Calculations for AGI Wells

- Maximum combined injection rate for system is approximately 8 MMSCFD.
- Injected fluid composition is 20% H_2S, 80% CO_2, and traces of light hydrocarbons (C1 – C8).
- Injected fluid compatibility is determined through nearby injection experience and formation fluid analysis.
- The Maximum Allowable Operating Pressure (MAOP) requested was calculated per NMOCD guidelines to be 4,525 psig at the surface.
- Actual average injection pressures are anticipated to be in the range of 1,400 to 1,600 psig.

Reservoir Volume and Area Calculations

- At the anticipated reservoir conditions of 210° F and 6,400 psig, each MMSCF of TAG will occupy a volume of 2,628 cubic feet (468 barrels). At the anticipated maximum operational capacity of 8 MMSCFD, the compressed TAG will occupy 3,475 barrels per day at the surface.
- Table 1 below shows the calculations for the proposed wells injection areas and proposed Maximum Allowable Operating Pressure (MAOP) of 4,525 psig.
- After 30 years of operation, the TAG will occupy an area of approximately 296 acres, or a radius of 2,027’ (0.38 miles) from the bottom of the well.
- Figure 4 shows the area of the calculated plumes, if each well received a total of 8 MMSCFD.
- **This plume geometry is extremely conservative, as the TAG will be distributed between the wells during operations, resulting in significantly smaller individual plumes and an overall smaller combined plume.**

PROPOSED INJECTION STREAM CHARACTERISTICS

TAG	H_2S	CO_2	H_2S	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 F	Pressure psi	Gas vol MMSCFD	Comp CO_2:H_2S	Inject Rate lb/day	Density[1] kg/m^3	SG[2]	density lb/gal	volume ft^3	volume bbl
90	1800	8	80:20	936365	787.00	0.79	6.57	19049	3393

CONDITIONS AT BOTTOM OF WELL

Injection Zone Conditions					TAG				
Temp F	Pressure[3] psi	$Depth_{top}$ ft	$Depth_{bottom}$ ft	Thickness[4] ft	Density[1] kg/m^3	SG[2]	density lb/gal	volume ft^3	volume bbl
210	6700	14900	16400	1500	814.00	0.81	6.80	18418	3280

CONDITIONS IN RESERVOIR AT EQUILIBRIUM

Injection Reservoir Conditions					TAG				
Temp[5] F	Pressure[3] psi	Ave. Porosity[6] %	Swr	Porosity ft	Density[1] kg/m^3	SG[2]	density lb/gal	volume ft^3	volume 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_2S	34.0809	0.0751
Molar weight of CO_2	44.0096	0.0970
Molar weight of H_2O	18.015	0.0397

[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

CALCULATION OF MAXIMUM INJECTION PRESSURE LIMITATION

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

Table 1: Reservoir Volume and MAOP Calculations

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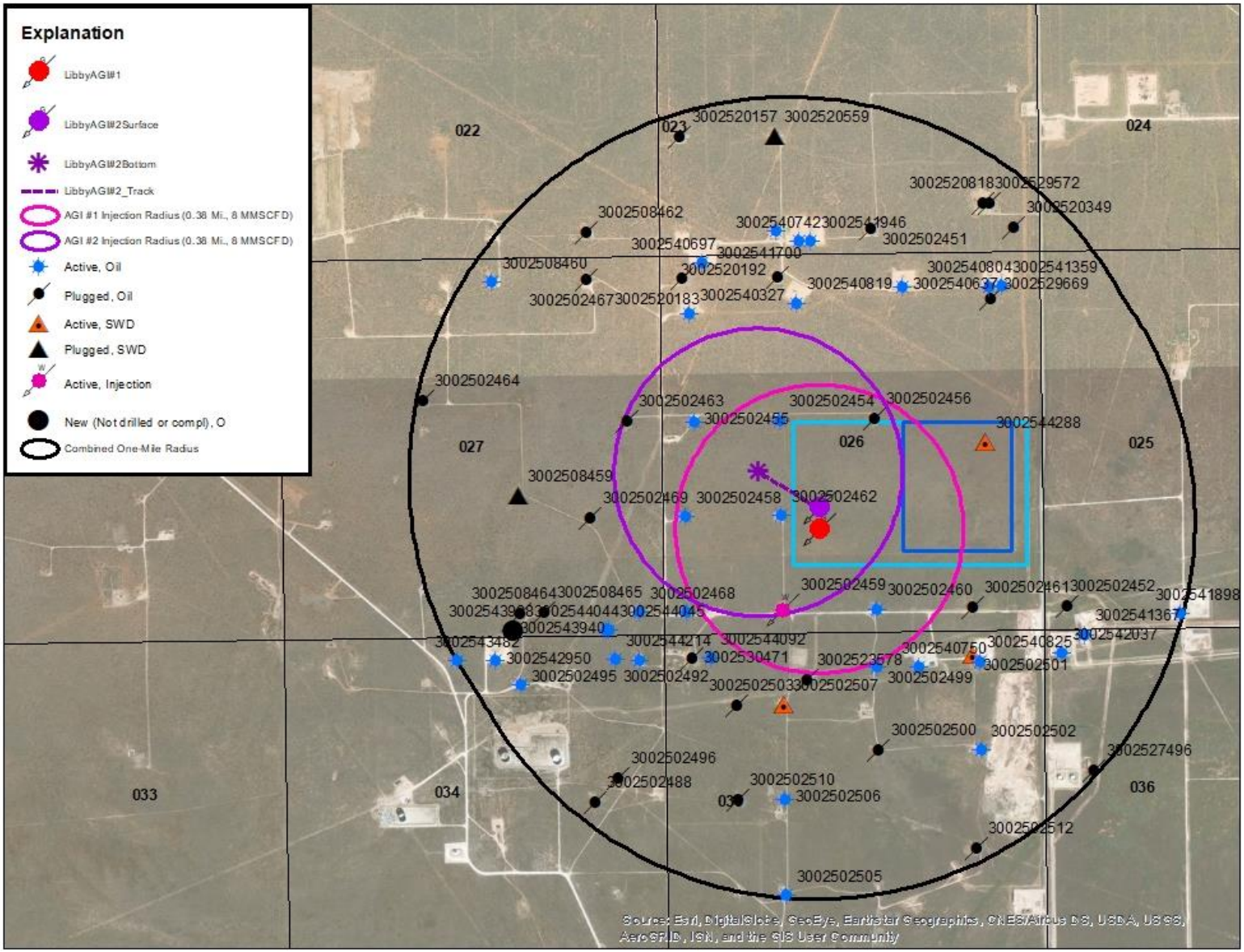

Figure 4: Calculated Radii of Injection After 30 Years at 8.0 MMSCFD

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Adjacent Operators and Surface Owner Notification and Notices

- 3Bear's C-108 application was sent to adjacent operators and surface owners within the one mile radius of the proposed wells via Certified Mail, Return Receipt Requested.
- Notice of the application and the Commission hearing were published in the local paper by NMOCC.
- No objections to 3Bear's application have been submitted.
- Adjacent operators and the BLM support the AGI project which will:
  - allow increased throughput and production capacity
  - increase royalties paid to State of New Mexico
  - protect fresh water resources and correlative rights
  - reduce operator concerns about drilling through injection zones in shallower units

What Are We Looking For in a Reservoir For CO_2 and Acid Gas Sequestration?

- Geologic seal (caprock) to permanently contain injected TAG.
- Isolated from, and fully protective of, any fresh groundwater.
- No effect on existing or potential production.
- Laterally extensive, permeable, good porosity.
- Excess capacity for anticipated injection volumes.
- Compatible injection zone fluid chemistry.

✓ **3Bear's Proposed AGI Wells Meet all of These Criteria**

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Identification & Characterization of Wells, Stratigraphy & Geologic Structure in Project Area

- There are 69 completed wells within one mile of the proposed 3Bear AGI wells. Of these 39 are active, and 29 are plugged and abandoned (Figure 5).
- There is also one approved location that has not been drilled (exclusive of the proposed AGI wells). This well is not designed to penetrate the injection zone.
- 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.
- The Arlen L. Edgar well is properly plugged and presents no risks of releases from the injection zone.
- There are 5 lateral wells in the Wolfcamp, at depths of 10,000' to 11,500', in Section 26. The lateral of the Cimarex Hanson 26 Federal Com 001 (3002540818) runs north-south at 11,112' approximately 300' west of the proposed AGI wells.
- As discussed further in the section on well designs, both AGI wells will have the intermediate casing extended to 12,300', well below the Wolfcamp zone. The "kick off" deviation point of AGI #2 will begin below the intermediate casing.

The two wells penetrating the injection zone, 3Bear SWD #1 and the Arlen L. Edgar Fed 001 are circled in red in this map.

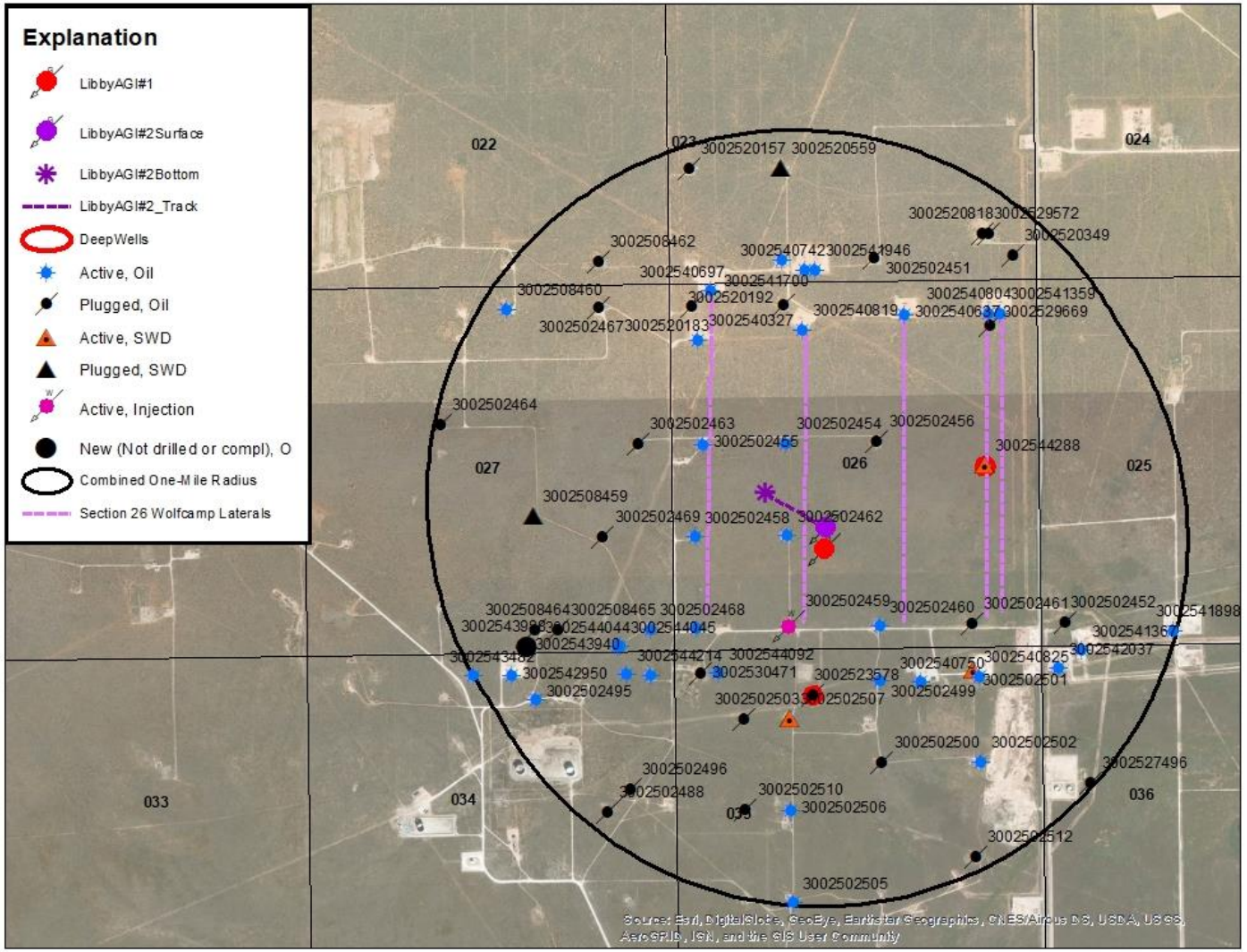

Figure 5: Wells within One Mile of Proposed 3Bear AGI Wells

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Stratigraphy of Proposed Injection Area

- The proposed wells will be located on the southern slope of the Northwest Shelf of the Permian Basin (Figure 6).
- The Siluro-Devonian Formations in this area are carbonate units that are variously dolomitized (and sporadically porous), and are contained above and below by low-permeability limestones and shales.
- The injection zone is capped above by the Woodford Shale (approximately 200 feet thick in this area) and the overlying 900 feet of tight Mississippian rocks, and below by the tight carbonates of the Montoya.
- Figure 7 details the general stratigraphy of the proposed project area.

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

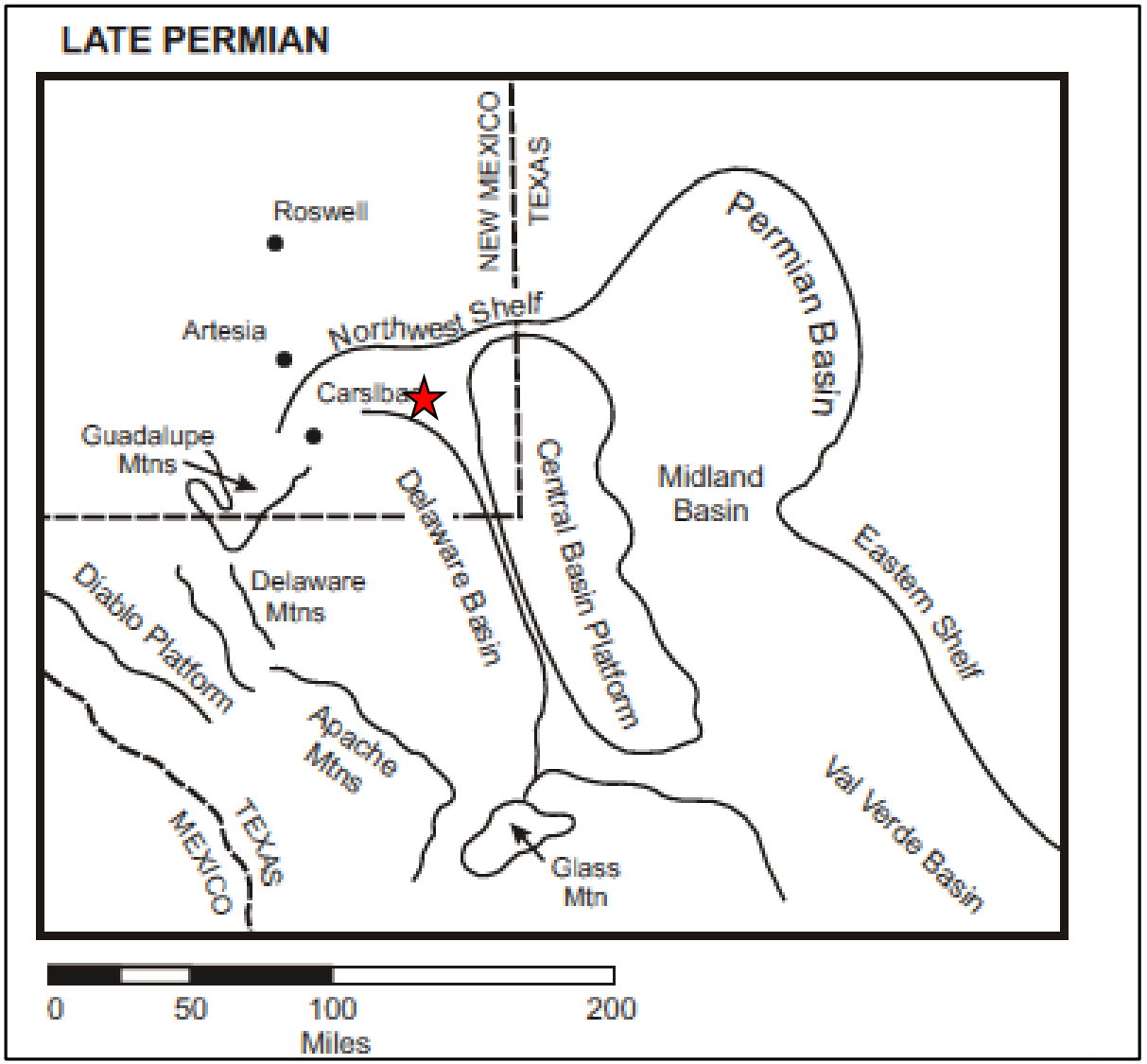

Figure 6: General Structural Features of the Permian Basin

(Modified from Ward, et al 1968)

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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.

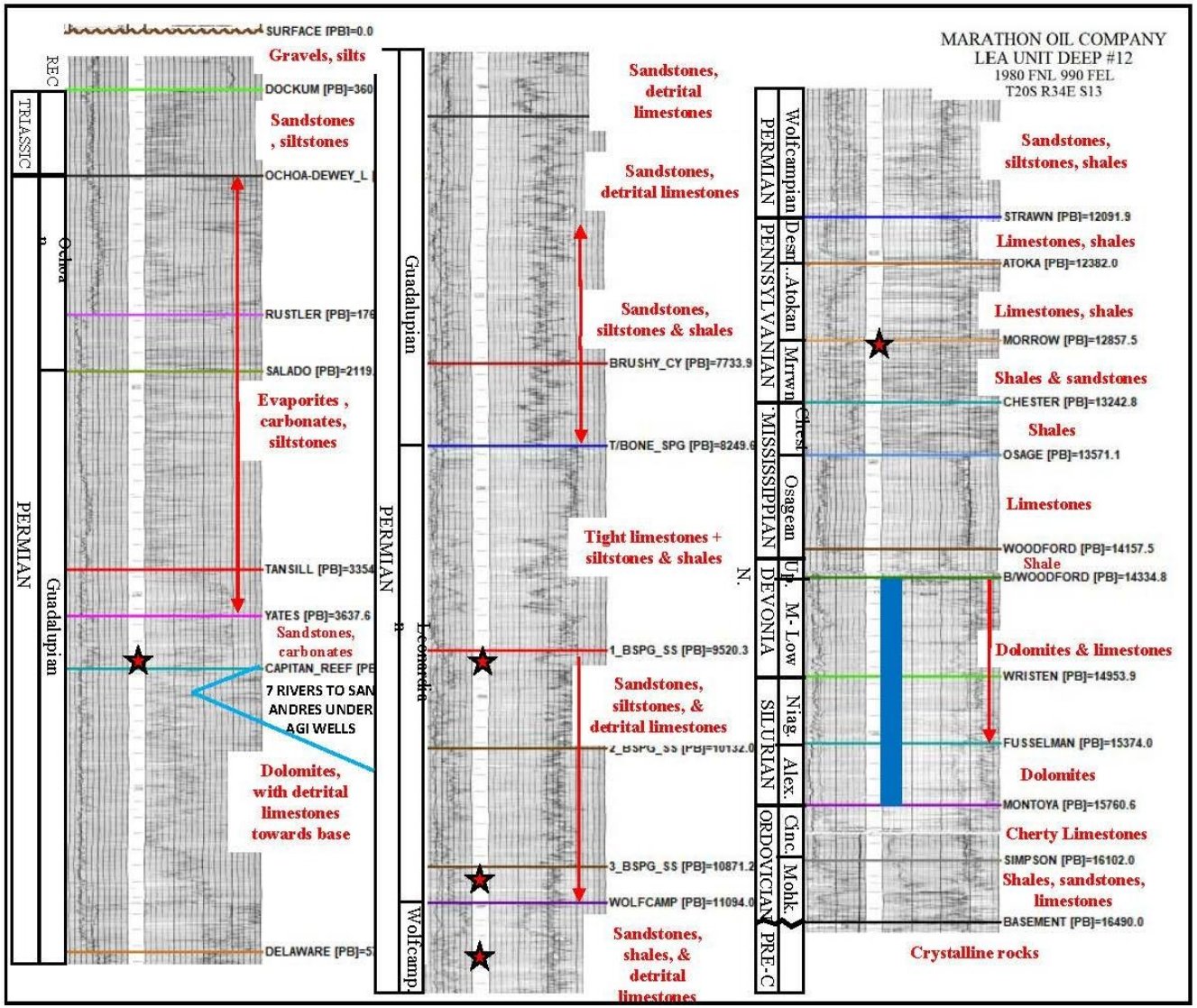

Figure 7: Stratigraphy and Pay Zones Under Proposed AGI Well Sites

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Structure of the Proposed Injection Area

- Figure 8 showing the only wells that penetrated below the Woodford shale in the immediate area of the 3 Bear plant site.
- Due to the relative lack 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 indicate a somewhat steep dip to the south-southwest; however no known faults intersect the Siluro-Devonian section within this map area.
- The line of cross-section shown in Figure 9 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.

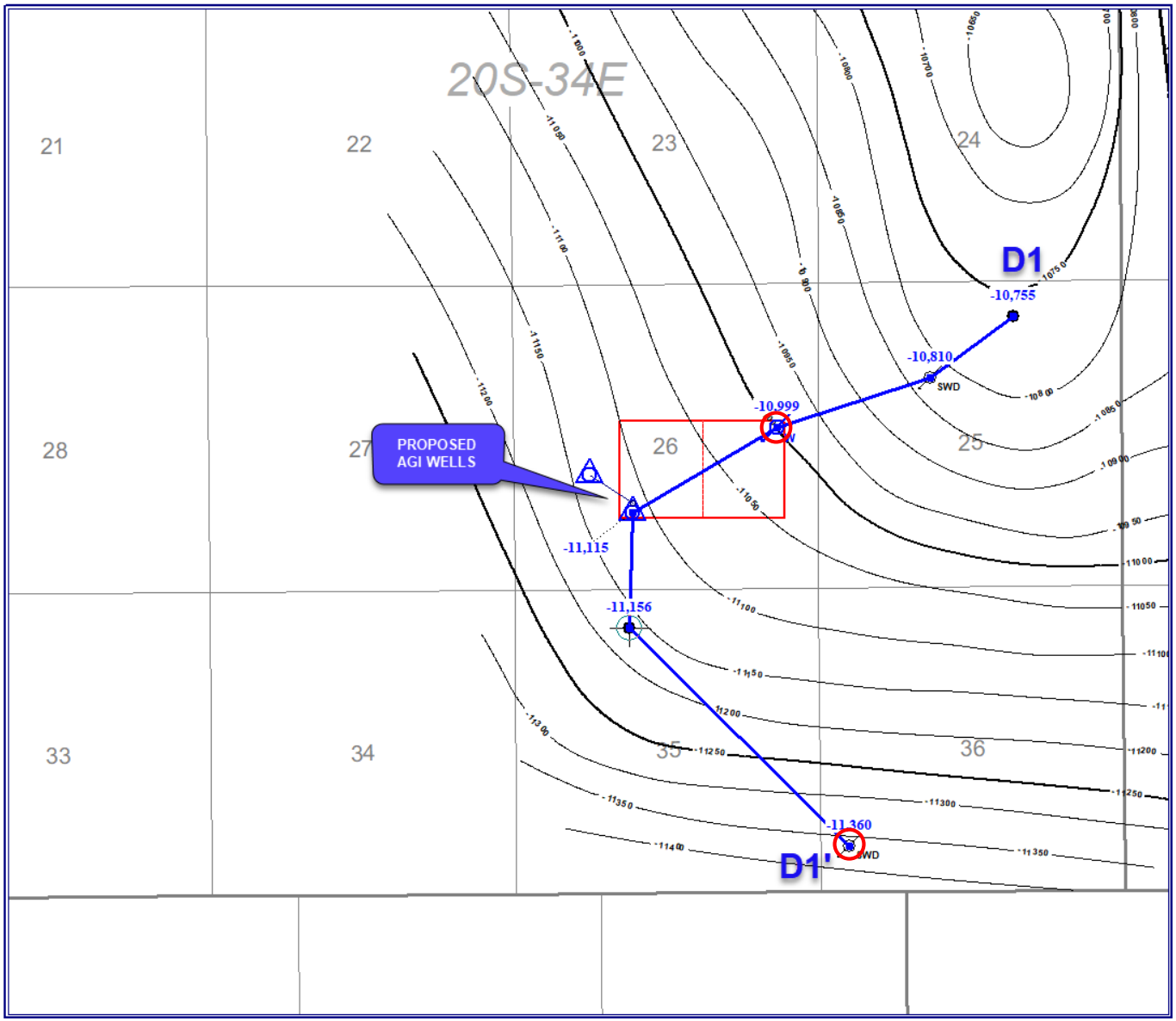

Figure 8: Structure on Top of the Devonian

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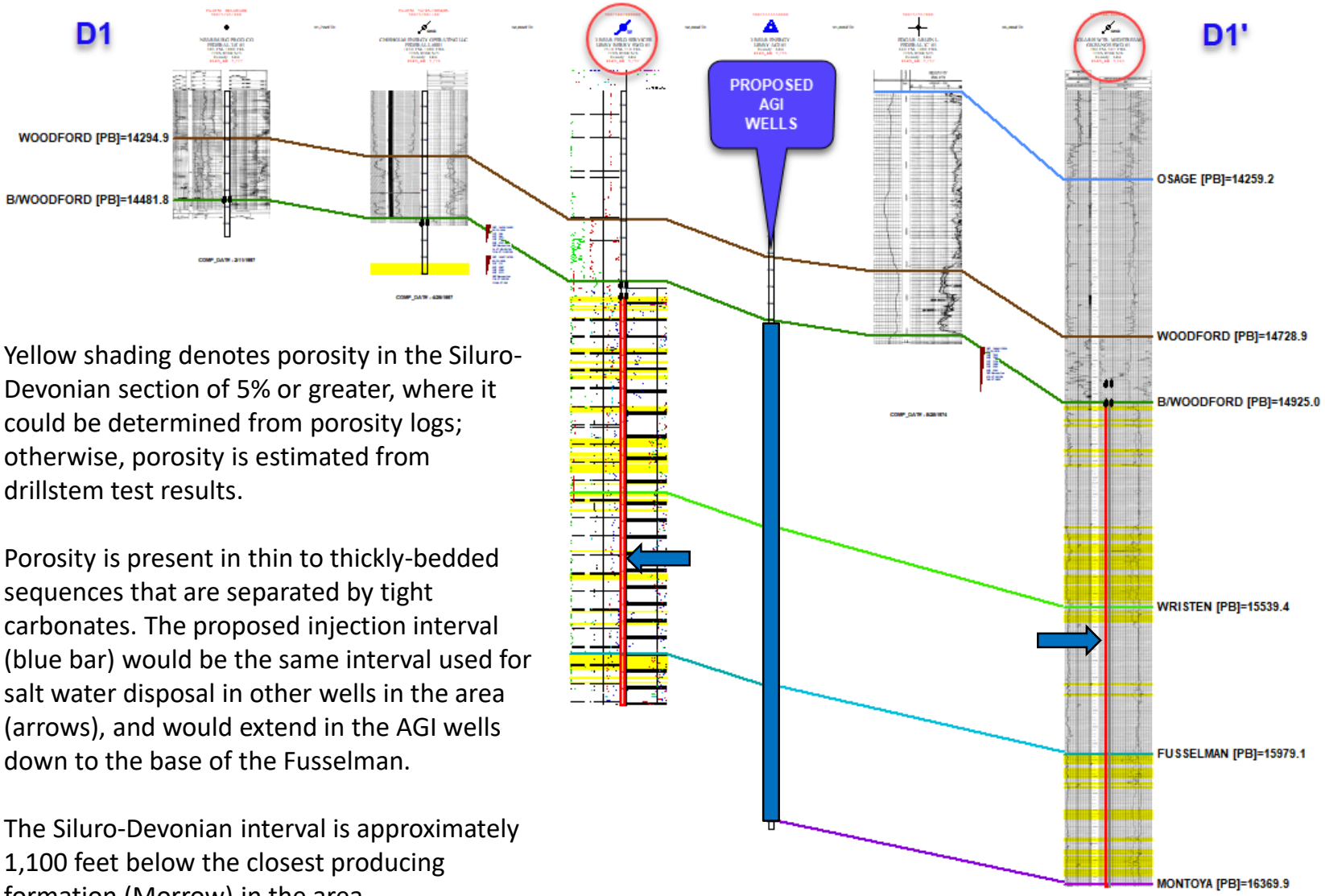

Yellow shading denotes porosity in the Siluro-Devonian section of 5% or greater, where it could be determined from porosity logs; otherwise, porosity is estimated from drillstem test results.

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

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Major Geological Structures in the General Vicinity of the Site

- Data from the Lea Field to the north shows one north-south trending, east dropping normal fault bounding the eastern edge of the field (Figure 10).
- This projected fault trend is approximately two miles east of the proposed AGI wells, and poses no hazards to the project nor will have any effect on the plume geometry (plumes are anticipated to have less than 0.5 miles in radius after 30 years of operation).
- Cross-section D2-D2', presented on Figure 11, illustrates the porosity profile of the section from the Morrow to the basement, including the cap rock and bottom seals for the injection zone.

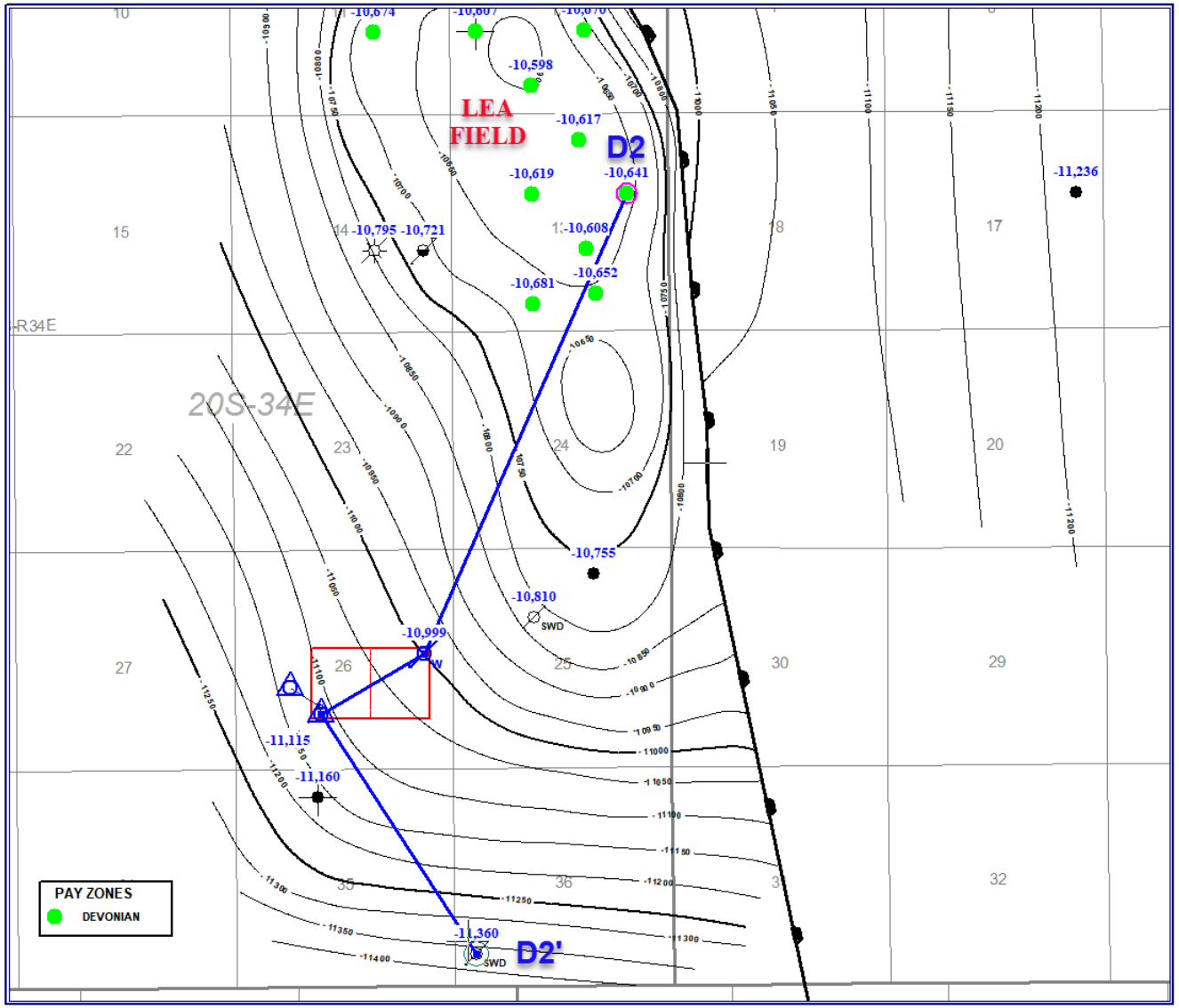

Figure 10: Structure on the Top of the Devonian, From Lea Field

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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 about 1,100 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 bottom of the proposed injection zone.

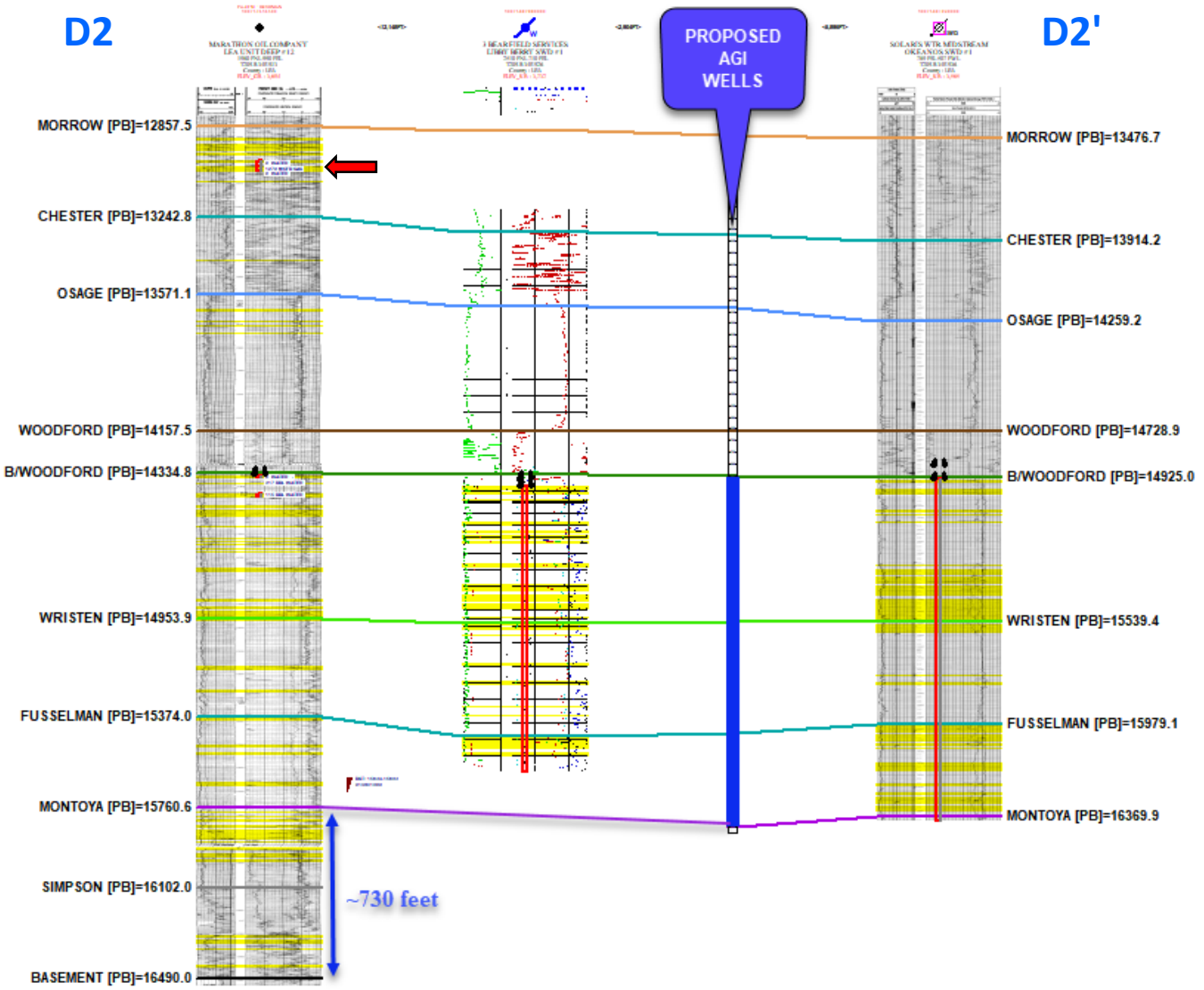

Figure 11: Porosity Profile Above and Below Injection Zone

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General Design of AGI System

- A schematic of the 3Bear Libby Plant AGI system is shown on Figure 12.
- The surface compressors and lines will be protected with automatic safety valves to prevent overpressure, and to isolate the TAG lines in the event of leaks.
- The wells will include an automatic subsurface safety valve (SSSV).
- Fresh water will be protected by the surface casing, extending to 1950’.
- Approximately 300 feet of corrosion-resistant production casing will be installed immediately above the open-hole injection zone to protect the packer and packer seat.
- The tubing is a combination of corrosion resistant HL80 and a 300’ CRA section immediately above the packer
- The annulus between the production casing and tubing will be filled with corrosion-inhibited diesel fuel.
- Annular pressure and injection tubing pressures and temperatures will be continuously monitored and recorded.
- Bottom hole injection pressure and temperature will also be continuously monitored and recorded with sensors installed at the packer.

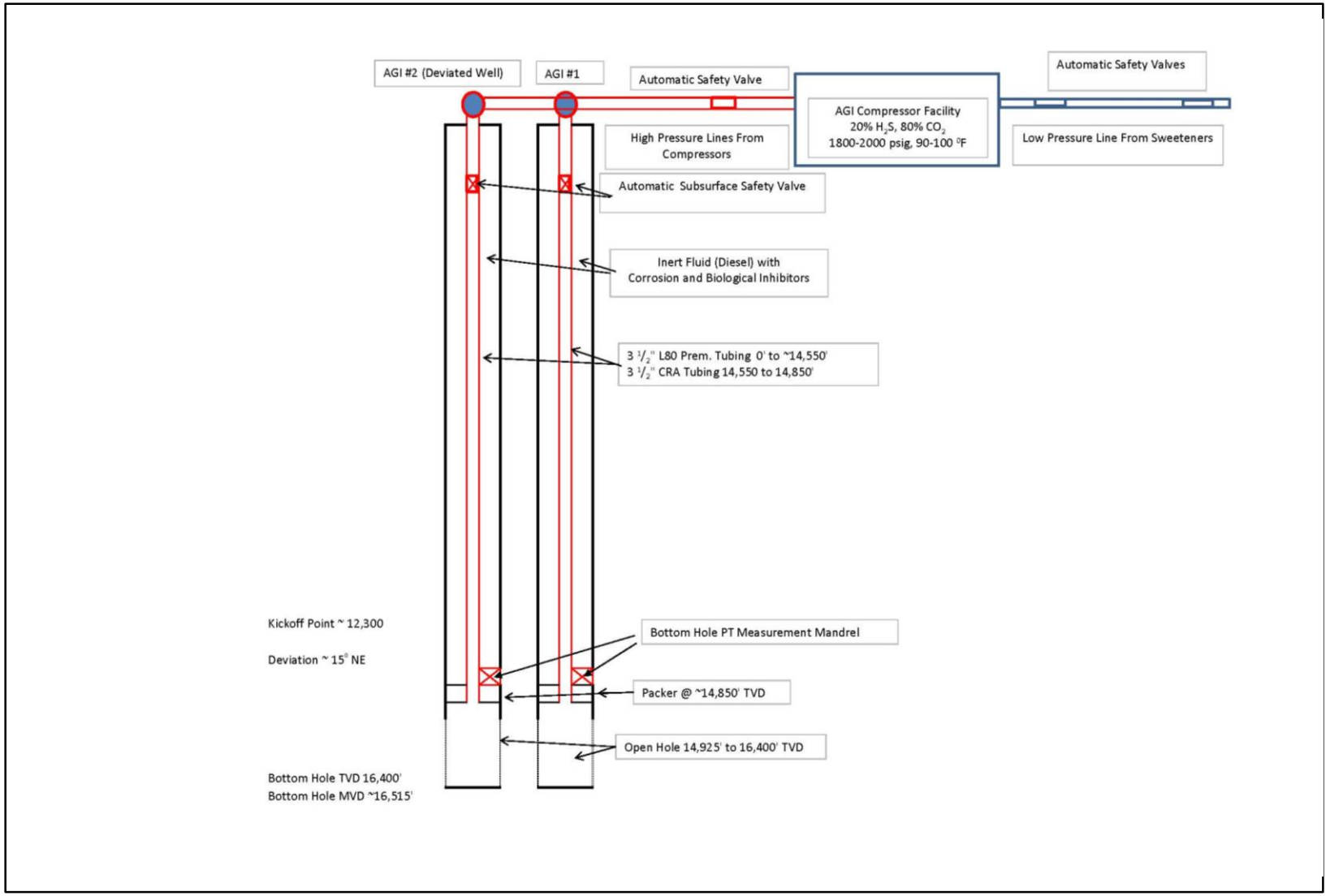

Figure 12: Schematic of 3Bear AGI System

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Design of AGI #1

- Schematic designs of AGI #1 and AGI #2 are presented as Figure 13 and 14 respectively. Corrosive-Resistant Alloy (CRA) material will be used in critical areas immediately above the packer and in the top of the injection zone and caprock.
- Both wells will be completed as 5 7/8" open-hole wells, from approximately 14,925' to 16,400'
- AGI #1 (Figure 13) will be advanced as a vertical well, using:
  - 20" conductor casing to 300'
  - 13 3/8" surface casing to 1,950'
  - 9 5/8" intermediate casing to 12,300'
  - 7" steel production casing from surface to 14,625'
  - 7" CRA material from 14,625' to 14,925'
- The well will be completed using:
  - 3 ½" HL-80 steel tubing (with subsurface safety valve set at ~250') from the surface to 14,550'
  - 3 ½" CRA tubing from 14,550' to 14,850'
  - A permanent CRA packer, set at 14,850'
  - Bottom-hole pressure and temperature sensors set immediately above the packer.
- All casing strings will be cemented to the surface, and tested using 360° cement bond logging prior to final acceptance.
- The annular space adjacent to the CRA casing (14,625' to 14,925') will be cemented with Halliburton WellLock™ cement, which has superior resistance to acid gases.
- Once the 7" casing is set and tested, the well will be advanced with a 5 7/8" bit until total depth at the top of the Montoya is reached.

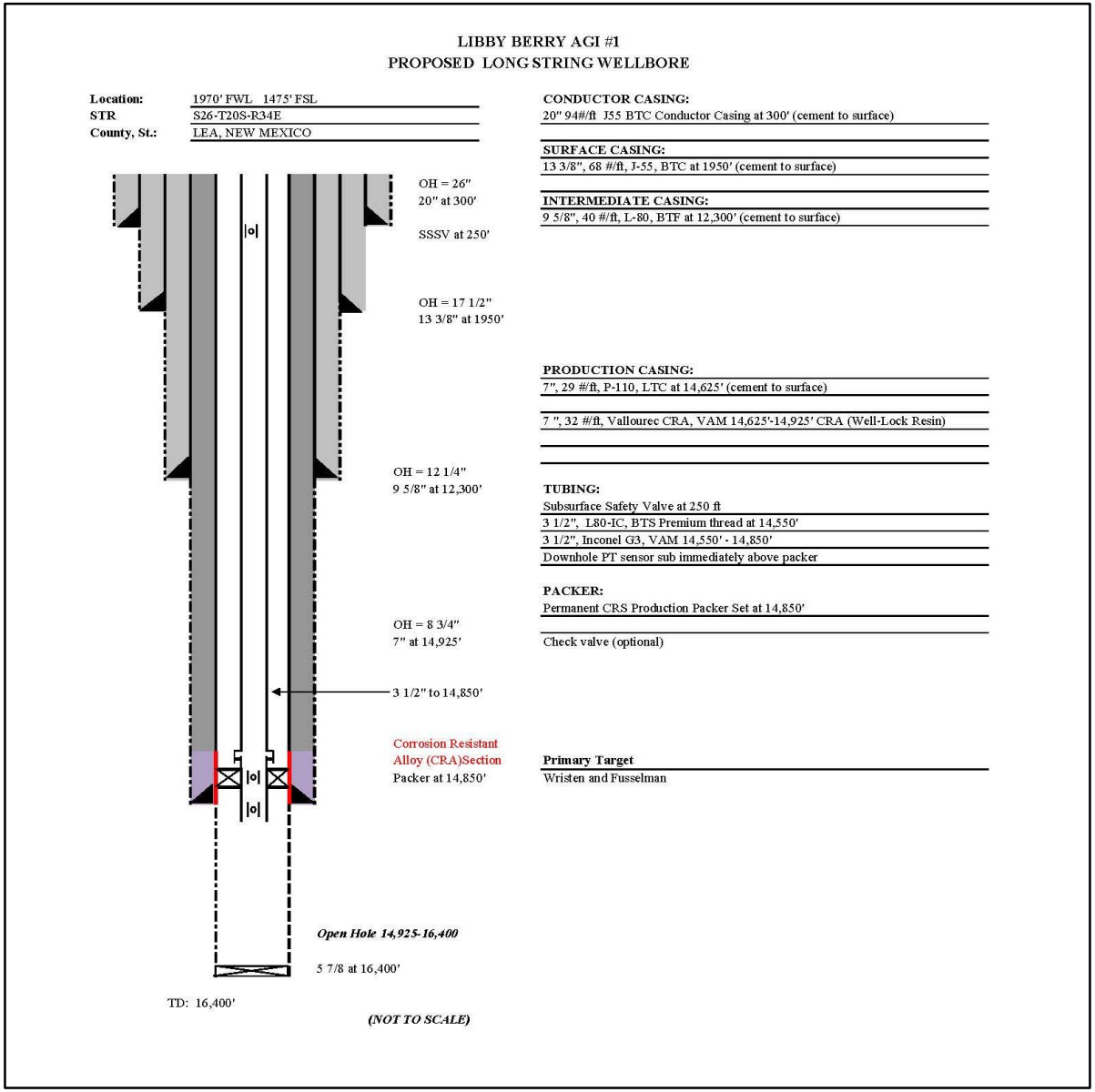


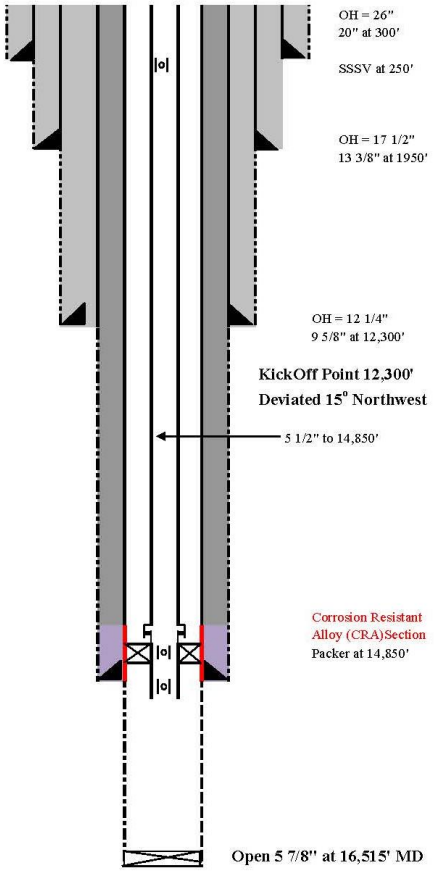
Figure 13: Schematic of Proposed AGI #1

Design of AGI #2

- AGI #2 will be drilled in an identical fashion as AGI #1 until the 9 5/8" intermediate casing is set and cemented at 12,300'.
- After testing the intermediate casing, the bore hole will be "kicked off" to the northeast, building up to a deviation angle of approximately 15 degrees.
- The length of the intermediate casing and the depth for the "kick off" is selected to assure that nearby Wolfcamp laterals (at approximately 11,000') will be protected.
- Once the bottom of the Woodford is reached, the 7" production casing will be installed as in AGI #1, and the 5 7/8" hole will be advanced to the total depth at top of the Montoya.

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

Surface Location:	1970' FWL 1475' FSL
Bottom Location:	1320' FWL, 2275' FSL
STR	S26-T20S-R34E
County, St.:	LEA, NEW MEXICO



CONDUCTOR CASING:
20" 94#/ft J55 BTC Conductor Casing at 300' (cement to surface)

SURFACE CASING:
13 3/8", 68 #/ft, J-55, BTC at 1950' (cement to surface)

INTERMEDIATE CASING:
9 5/8", 40 #/ft, L-80, BTF 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-Lock Resin)

TUBING:
Subsurface Safety Valve at 250 ft
3 1/2", L80-IC, BTS Premium thread at 14,550'
3 1/2", Inconel G3, VAM 14,550' - 14,850'
Downhole PT sensor sub immediately above packer

PACKER:
Permanent CRS Production Packer Set at 14,850'

Check valve (optional)

Primary Target
Wristen and Fusselman

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 15^0 to reach a total vertical depth of 16,400 feet and a measures depth of ~16,515 feet.

Figure 14: Schematic of Deviated Proposed AGI #2

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Casing and Cement Details

- All casing strings will be cemented to the surface, pressure tested, and verified using 360-degree cement bond logs.
- The production string will be cemented above the injection zone and the critical cap-rock area will be emplaced with acid-resistant cement (WellLock™ or equivalent).
- This casing and cement program is consistent with BLM guidelines applicable to wells on BLM-mineral lease lands in this area.

Groundwater Conditions in the Area of Review

- Based on the New Mexico Water Rights Database from the New Mexico Office of the State Engineer, there are no reported freshwater wells located within a one mile radius of the proposed 3Bear AGI wells.
- There are no permanent surface water bodies within a one-mile radius of the proposed well locations.

Seismic Review & FSP Modeling

- In response to input from NMOCD, Geolex completed an Induced-Seismicity Risk Assessment to evaluate the potential for injection-related seismic events

- Components of Risk Assessment:

    1. Review and interpretation of licensed seismic surveys covering the area of the proposed AGI wells (surveys licensed to Chisholm Energy by Fairfield Geotechnologies)

    2. Fault slip probability modeling of a six-well injection scenario over 30 years to evaluate the potential for induced-seismic events utilizing the Stanford Center for Induced and Triggered Seismicity's Fault Slip Potential Model (FSP)

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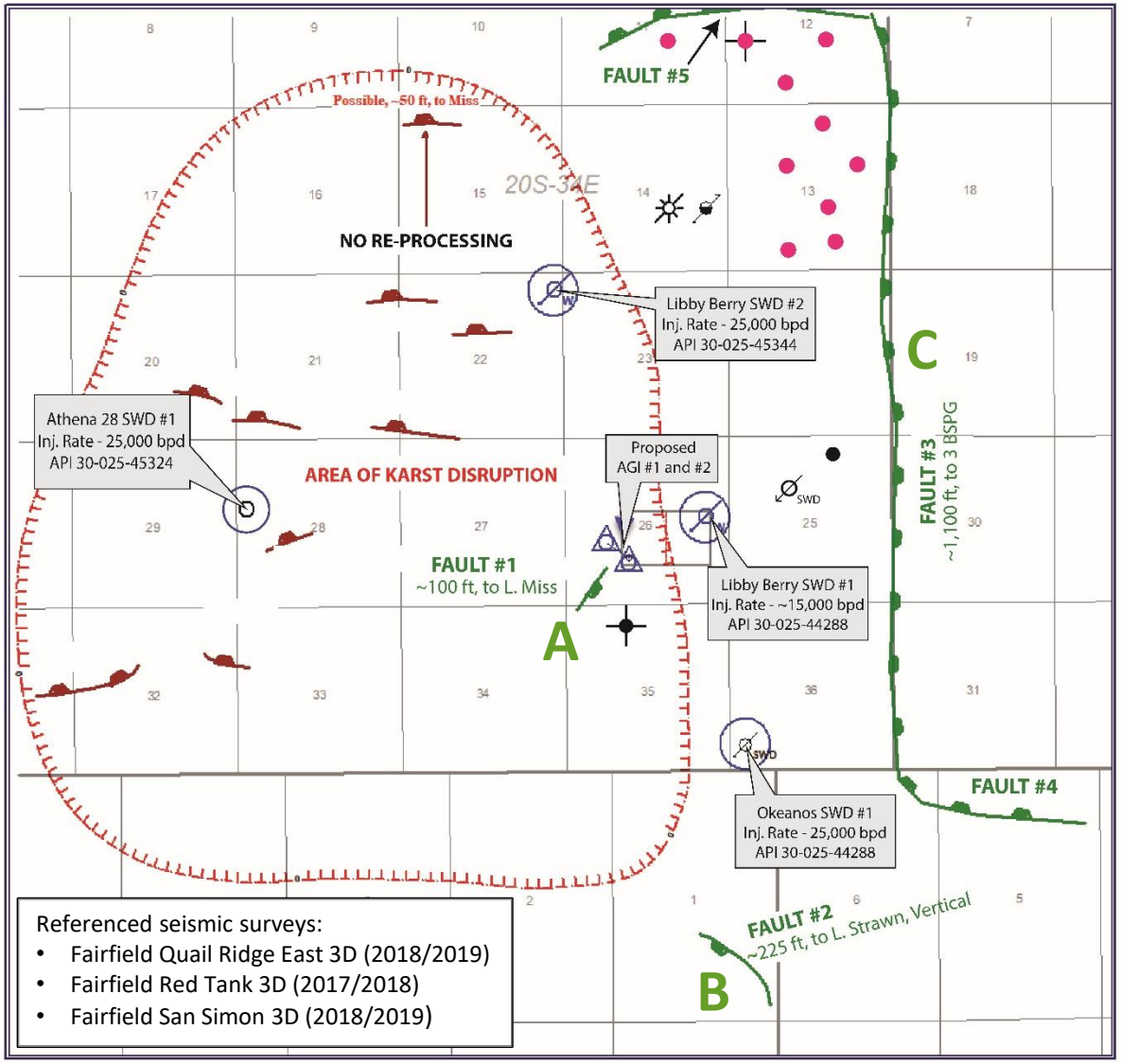
Seismic Review

- Large area displaying features interpreted as karst-collapse structures that display minimal displacement and are not laterally extensive (red hachured region
- One feature interpreted as karst-collapse structure observed in close proximity to proposed AGI locations (Feature A)
- Two features that *may be* considered capable of creating induced-seismic activity (Features B and C)
- Features A, B, and C included in Geolex's FSP model simulation



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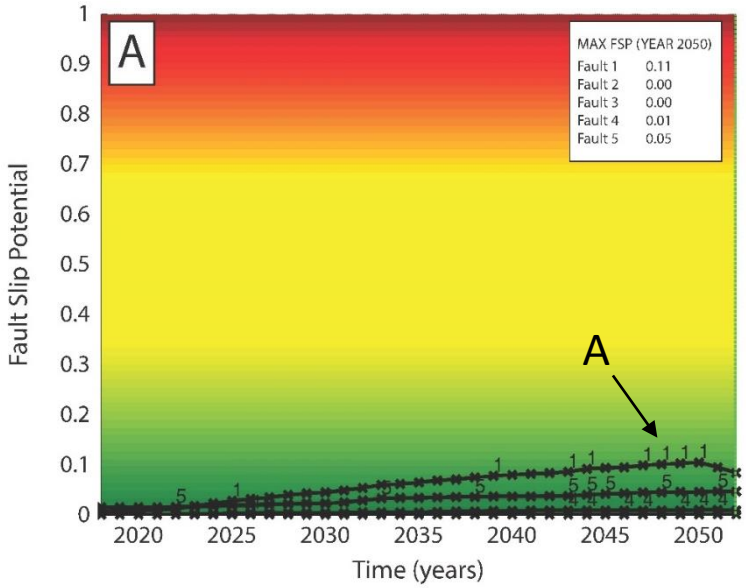
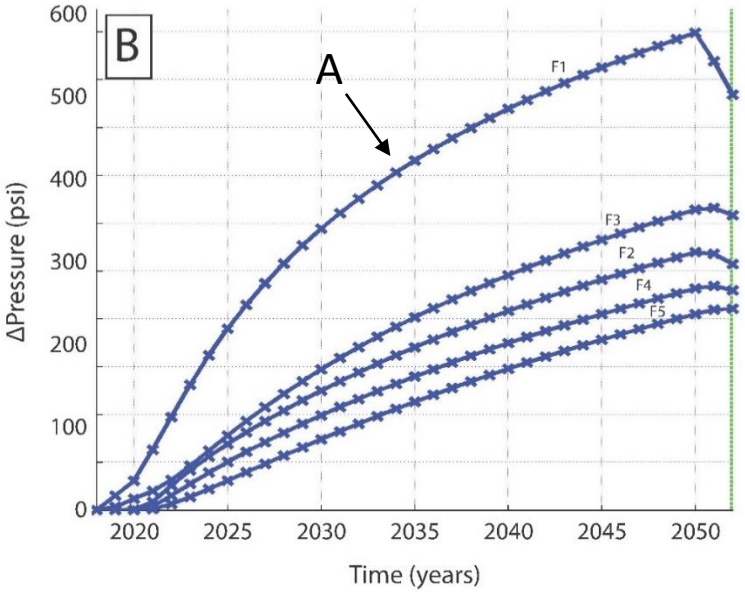
FSP Modeling

Six-well injection scenario over 30 years





- Model predicts low probability for induced-seismic events along Features A and C (Probability = 0.11 and 0.05, respectively), however, Feature A is interpreted by Geolex to be a karst-collapse feature that lacks potential for induced-motion
- Excluding the proposed AGI wells from subsequent simulations illustrates their combined effect on reservoir pressure is minimal (+43 psi along Feature A after 30 years, detailed in submitted exhibits)
- Generally, features included in this simulation do not display significant risk for injection-induced slip and the approval of the proposed wells will have only a minimal effect on local reservoir conditions

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Summary of Geologic Factors Assuring Integrity and Safety of Proposed AGI Wells

- The two wells penetrating injection zone within area of review are well isolated and properly protected in that zone.
- Caprock is low porosity, impermeable rock which is effective barrier above injection zone.
- Injection zone is vertically isolated from adjacent production zones.
- All fresh water zones isolated by conductor and surface casing.
- Proposed injection pressure is well below fracture pressure of reservoir and caprock.
- Step-rate testing will verify that an appropriate MAOP is approved.
- The proposed injection zone is fully capable of permanently sequestering the injected TAG without any measureable risk of induced seismicity.

3Bear's Request for NMOCC Order

- Authority to drill, test and complete and operate the AGI wells as specified in 3Bear's application.
- 3Bear requests permission to inject acid gas at maximum rate of 8 MMSCFD and maximum operating pressure of 4,525 psig for at least 30 years.
- 3Bear will begin drilling as soon as all NMOCC and BLM permits are in place.
- 3Bear also requests to be permitted to resolve normal technical changes in the drilling program by administrative approval of the NMOCD.
- As proposed, these wells will enhance the reliability of the plant and the AGI system and the project is supported by the BLM and adjacent producers.
- These proposed wells will dispose of acid gas safely and effectively and assures protection of surface and groundwater resources and correlative rights.
- Injection of TAG and operation of the sour-gas processing plant will begin only after the Rule 11 H2S Contingency Plan is approved.