State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd E. Leahy, JD, PhD
Deputy Secretary

Adrienne Sandoval, Division Director
Oil Conservation Division

BY ELECTRONIC MAIL ONLY

Mike Solomon
3Bear Field Services, LLC
1512 Larimer St, Suite 540
Denver, CO 80202
E-mail: Mike Solomon MSolomon@3bearllc.com

Re: Extension of Injection Authority

COMMISSION ORDER NO. R-20694
LIBBY BERRY AGI NO. 1
LIBBY BERRY AGI NO. 2

Dear Mr. Solomon,

The Oil Conservation Division ("OCD") has reviewed the requests to extend the deadline in the referenced order to commence injection into referenced wells. The request, which was received prior to the deadline, states the reasons for granting an extension, that no additional wells penetrating the approved injection interval have been drilled within the Area of Review ("AOR") since the referenced order was granted, and that additional affected parties in the AOR, if any, were notified of your extension request and did not protest the extension. Accordingly, OCD reviews your request administratively as provided in Ordering Paragraph 21 of the referenced order.

The OCD finds that for reasons you have stated, the granting of this request to extend the deadline is in the interest of conservation, will prevent waste, and will protect the environment. Therefore, the deadline to commence injection for the existing order is hereby extended until **July 18, 2024**.

The remaining terms and conditions in the referenced order continue in full force and effect, including the requirements for the reduced operation of the Libby Berry Fee SWD No. 1 and the timely completion of the redundant well, Libby Berry AGI No. 2.

Date: 4/1/2022

ADRIENNE E. SANDOVAL
Division Director

AES/prg

cc: David A. White, Geolex
Case No. 20409

Attachment: Copy of 3Bear Request for Extension Correspondence Dated January 31, 2022

Alberto A. Gutiérrez, C.P.G.

January 31, 2022 VIA ELECTRONIC MAIL

New Mexico Oil Conservation Commission
1220 South St. Francis Drive
Santa Fe, NM 87505

RE: 3BEAR FIELD SERVICES, REQUEST FOR EXTENSION OF NMOCC ORDER R-20694 FOR GOOD CAUSE FOR THE LIBBY BERRY AGI NO. 1 AND LIBBY BERRY AGI NO. 2 WELLS

Commissioners,

On behalf of 3Bear Field Services, LLC (3Bear), Geolex, Inc.® (Geolex) is hereby requesting a one-time extension of NMOCC Order No. R-20694 to provide additional time to drill and complete the Libby Berry AGI injection wells.

Similar to many operators of New Mexico assets, COVID-19 pandemic uncertainties have necessitated careful prioritization of on-going projects, which has resulted in the delay of 3Bear's efforts to construct these wells. That being said, 3Bear is fully committed to drill and complete these wells and has continued to make progress and plan internally for these operations. It is currently anticipated the first well will be spud in Q4 of calendar year 2022 or Q1 of calendar year 2023. As such, we respectfully request a one-time extension to NMOCC Order No. R-20694 for a period of two (2) years to allow sufficient time to drill, complete, and commission the first Libby AGI well.

In support of this request, Geolex has completed the following tasks in accordance with guidance provided by NMOCD UIC personnel. First, an additional investigation of the area of review has been completed to identify any new potentially interested parties. From this review, one new party (HEXP Operating) has entered the area of review. Notification of 3Bear's request for extension to NMOCC Order No. R-20694 was provided to HEXP Operating on January 27, 2022, and, to date, no response has been received. Updated materials related to surface ownership, operatorship, and oil and gas wells within the area of review are included in Attachment 1 of this correspondence.

Additionally, Geolex has updated and revised the Induced Seismicity Risk Assessment originally completed for the Libby AGI project, in order to evaluate the project in the context of the current active, new, and proposed injection operations. From this updated investigation, it remains clear that the proposed Libby AGI wells will not contribute significantly to the total potential for injection-induced seismicity in the area. The complete updated and revised Induced Seismicity Risk Assessment has been included as Attachment 2 of this correspondence.

With submission of these requested materials, we respectfully request approval for a one-time extension to the injection authority granted by NMOCC Order No. R-20694, in order to provide adequate additional time to drill and complete these wells.

phone: 505-842-8000
fax: 505-842-7380
500 Marquette Avenue NW, Suite 1350
Albuquerque, New Mexico 87102
email: aag@geolex.com
web: www.geolex.com

If you have any questions regarding this request or wish to discuss further, please do not hesitate to contact Alberto A. Gutiérrez, C.P.G. or David White at (505) 842-8000 at Geolex, Inc.®; 500 Marquette Avenue NW, Suite 1350; Albuquerque, New Mexico.

Sincerely,
Geolex, Inc.®

David A. White, P.G.
Consultant to 3Bear Field Services, LLC

Enclosures: Attachment 1 - Updated Area of Review and Correspondence Record
Attachment 2 - Revised and Updated Induced Seismicity Risk Assessment

c.c. Mike Solomon – 3Bear Field Services, LLC (msolomon@3bearllc.com)

P:\18-025 (3 Bear AGIs)\Reports - Libby AGI #1 & 2\Extension Request (Jan 2022)\Cover Letter.docx

phone: 505-842-8000
fax: 505-842-7380
500 Marquette Avenue NW, Suite 1350
Albuquerque, New Mexico 87102
email: aag@geolex.com
web: www.geolex.com

ATTACHMENTS

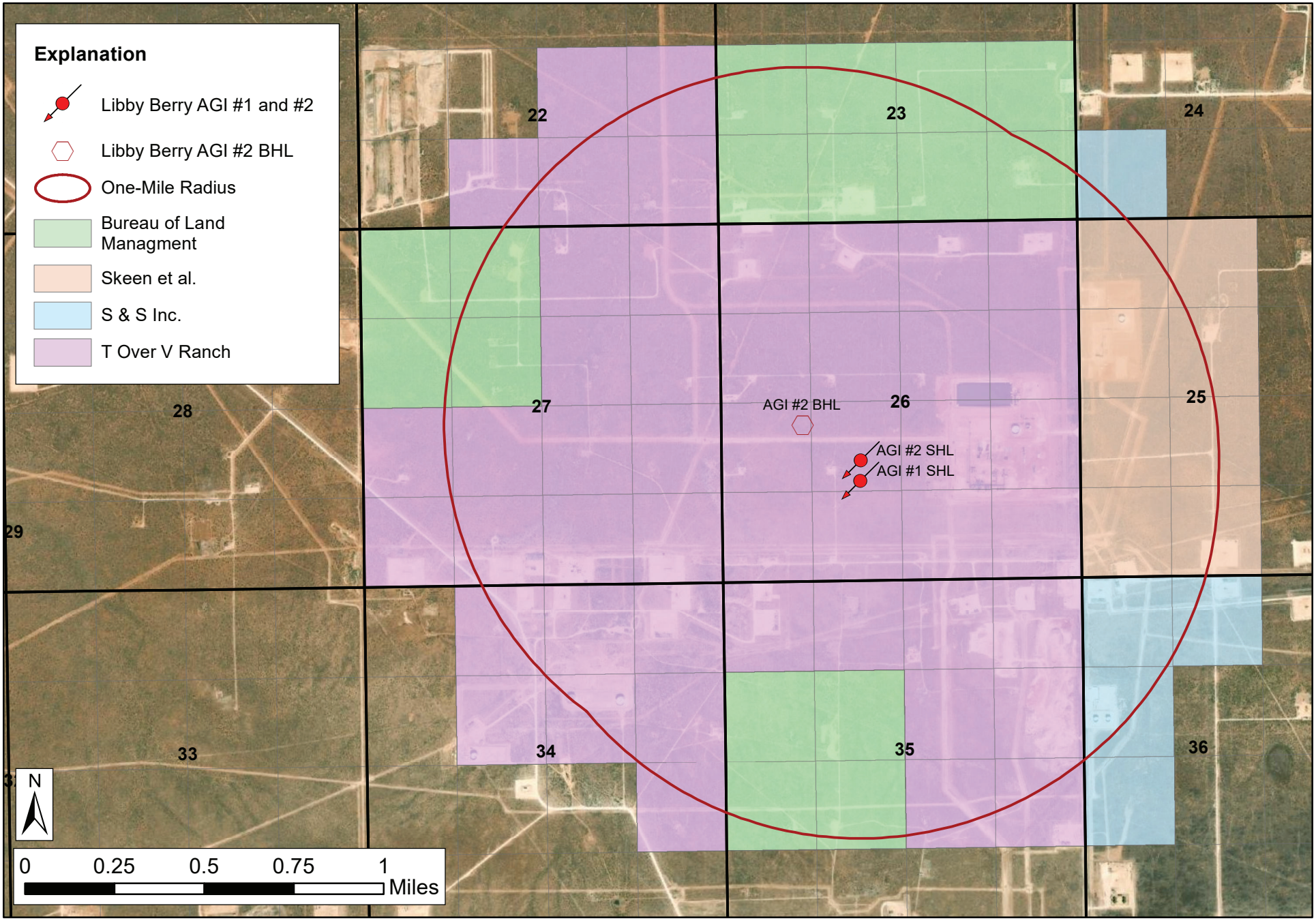
ATTACHMENT 1 – UPDATED AREA OF REVIEW AND CORRESPONDENCE RECORD

ATTACHMENT 2 – REVISED AND UPDATED INDUCED SEISMICITY RISK ASSESSMENT

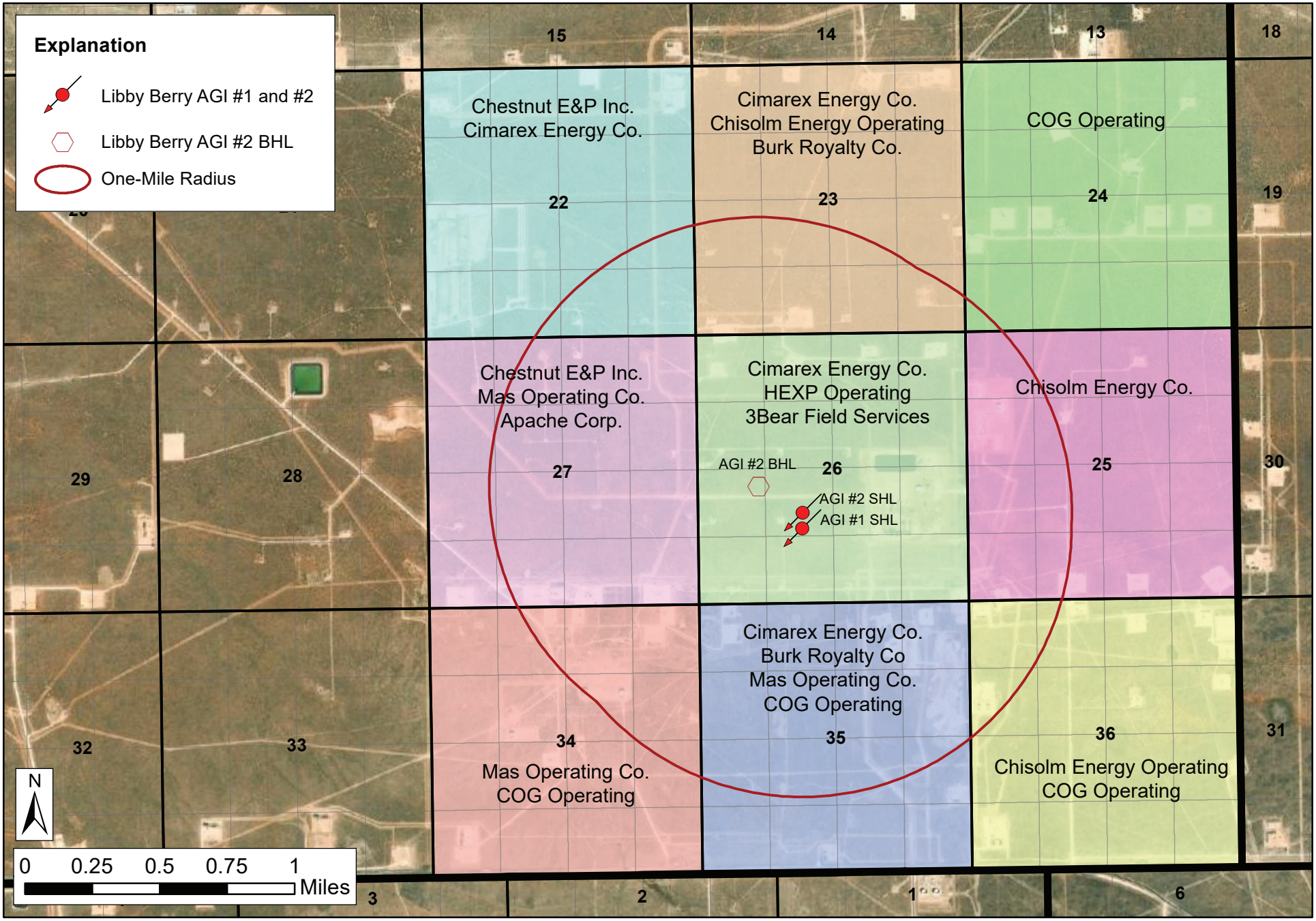
ATTACHMENT 1

SURFACE OWNERS, OPERATORS, AND WELLS WITHIN ONE MILE OF THE PROPOSED 3BEAR LIBBY AGI WELLS (UPDATED 1/2022)

CORRESPONDENCE WITH HEXP OPERATING REGARDING NOTIFICATION OF THE LIBBY BERRY AGI ORDER EXTENSION REQUEST (SENT 1/2022)



Surface owners within one mile of the proposed 3Bear Libby AGI Wells. Note: Surface ownership has not changed in the vicinity of the Libby Berry AGI wells since the submittal of the original application.



Operators within one mile of the proposed 3Bear Libby AGI Wells. Note: HEXP Operating was recently identified as an operator within one mile of the Libby Berry AGI wells and has been notified as such.

SUMMARY OF WELLS WITHIN ONE MILE OF THE LIBBY BERRY AGI #1 AND #2 BOTTOM-HOLE LOCATIONS

API	OPERATOR	WELL NAME	TYPE	STATUS	SPUD	PLUGGED	LAT83	LONG83	TVD	POOL	MILES TO AGI #1
3002502462	HEXP OPERATING	CRUCES FED 006	Oil	Active	1960	-	32.54136	-103.53409	3700	YATES-7RIV	0.08
3002502459	HEXP OPERATING	CRUCES FED 003	INJ	Active	1957	-	32.53773	-103.53407	3730	YATES-7RIV	0.23
3002502460	HEXP OPERATING	CRUCES FED 004	Oil	Active	1959	-	32.53774	-103.52977	3750	YATES-7RIV	0.28
3002502454	HEXP OPERATING	HANSON B 002	Oil	Active	1959	-	32.54501	-103.53410	3744	YATES-7RIV	0.29
3002502458	HEXP OPERATING	CRUCES FED 002	Oil	Active	1957	-	32.54137	-103.53838	3718	YATES-7RIV	0.33
3002502456	HEXP OPERATING	HANSON B 003	Oil	Plugged	1900	14-Dec-59	32.54501	-103.52977	3829	YATES-7RIV	0.33
3002502457	HEXP OPERATING	CRUCES FED 001	Oil	Active	1957	-	32.53773	-103.53836	3705	YATES-7RIV	0.39
3002523578	ARLEN L EDGAR	FEDERAL C 001	Oil	Plugged	-	25-Aug-89	32.53502	-103.53300	14939	YATES-7RIV	0.41
3002502455	HEXP OPERATING	HANSON B 001	Oil	Active	1959	-	32.54501	-103.53794	3767	YATES-7RIV	0.41
3002502499	HEXP OPERATING	NEAL 001	Oil	Active	1959	-	32.53555	-103.52975	3752	YATES-7RIV	0.41
3002544092	COG OPERATING LLC	MAS FED COM 001H	Oil	Active	2017	-	32.53632	-103.53736	11338	B. SPRING, WLFCMP	0.41
3002540750	CIMAREX ENERGY CO.	LYNCH 35 002H	Oil	Active	2013	-	32.53583	-103.52760	11316	BONE SPRING	0.47
3002530471	OLSEN ENERGY	FLETCHER A FED 001	Oil	Plugged	1988	19-Nov-99	32.53592	-103.53820	3860	YATES-7RIV	0.47
3002502507	HEXP OPERATING	W H MILNER FED 004	SWD	Plugged	1954	7-Feb-19	32.53411	-103.53407	3850	YATES	0.48
3002502461	PHILLIPS PETRO. CO.	CRUCES FED 005	Oil	Plugged	1900	1-Jan-00	32.53774	-103.52547	3760	YATES-7RIV	0.48
3002502468	MARATHON OIL	FLETCHER A DE FED 002	Oil	Plugged	1966	26-Jul-19	32.53773	-103.54050	3705	YATES-7RIV	0.50
3002502503	ATLANTIC RICHFIELD	FLETCHER A DE FED 001	Oil	Plugged	1900	1-Jan-00	32.53411	-103.53621	3715	YATES-7RIV	0.51
3002544288	3BEAR FIELD SERVICES	LIBBY BERRY FEE SWD 001	SWD	Active	2018	-	32.54446	-103.52463	16000	DEV-SIL	0.54
3002502501	HEXP OPERATING	NEAL 003	SWD	Active	1959	-	32.53592	-103.52547	3805	YATES	0.55
3002502463	BURK ROYALTY CO.	RIDER FED 001	Oil	Plugged	1900	1-Jan-00	32.54501	-103.54097	3797	YATES-7RIV	0.55
3002502492	MAS OPERATING	B V LYNCH A FED 012	Oil	Active	1957	-	32.53592	-103.54050	3694	YATES-7RIV	0.57
3002502469	ATLANTIC RICHFIELD	FLETCHER A DE FED 003	Oil	Plugged	1900	1-Jan-00	32.54136	-103.54266	3690	YATES-7RIV	0.58
3002540825	CIMAREX ENERGY CO.	LYNCH 35 001H	Oil	Active	2013	-	32.53603	-103.52484	11293	BONE SPRING	0.58
3002544045	APACHE CORPORATION	BLACK & TAN 27 FED COM 308H	Oil	Active	2018	-	32.53744	-103.54191	11125	BONE SPRING	0.58
3002546075	APACHE CORPORATION	BLACK & TAN 27 FED COM 406H	Oil	Active	2019	-	32.53744	-103.54197	11238	B. SPRING, WLFCMP	0.59
3002544044	APACHE CORPORATION	BLACK & TAN 27 FED COM 307H	Oil	Active	2018	-	32.53744	-103.54204	11086	BONE SPRING	0.59
3002546916	APACHE CORPORATION	BLACK & TAN 27 FED COM 204H	Oil	New	-	-	32.53744	-103.54217	0	BONE SPRING	0.60
3002544214	COG OPERATING LLC	MAS FED COM 002H	Oil	Active	2017	-	32.53632	-103.54164	11415	WOLFCAMP	0.61
3002540819	CIMAREX ENERGY CO.	HANSON 26 FED COM 002	Oil	Active	2013	-	32.54990	-103.53320	11112	BONE SPRING	0.62
3002502500	HEXP OPERATING	NEAL 002	Oil	Plugged	1959	18-Jun-86	32.53230	-103.52975	3780	YATES-7RIV	0.62
3002520192	BURK ROYALTY CO.	HANSON D FED 002	Oil	Plugged	1900	1-Jan-00	32.55045	-103.53411	3667	YATES-7RIV	0.66
3002540327	CIMAREX ENERGY CO.	HANSON 26 FED 001H	Oil	Active	2013	-	32.54955	-103.53804	11186	BONE SPRING	0.67
3002540637	CIMAREX ENERGY CO.	HANSON 26 FED COM 003H	Oil	Active	2012	-	32.55045	-103.52831	11141	BONE SPRING	0.71

SUMMARY OF WELLS WITHIN ONE MILE OF THE LIBBY BERRY AGI #1 AND #2 BOTTOM-HOLE LOCATIONS

API	OPERATOR	WELL NAME	TYPE	STATUS	SPUD	PLUGGED	LAT83	LONG83	TVD	POOL	MILES TO AGI #1
3002502452	HEXP OPERATING	HANSON FED 001	Oil	Plugged	1959	29-Oct-59	32.53774	-103.52118	3864	YATES-7RIV	0.71
3002502506	HEXP OPERATING	W H MILNER FED 003	Oil	Plugged	1952	22-Mar-19	32.53048	-103.53406	3723	YATES-7RIV	0.72
3002520183	BURK ROYALTY CO.	HANSON D FED 001	Oil	Plugged	1900	1-Jan-00	32.55046	-103.53840	3730	YATES-7RIV	0.73
3002508465	BURK ROYALTY CO.	KEOHANE A 001	Oil	Plugged	1957	23-Jul-07	32.53773	-103.54479	3760	YATES-7RIV	0.73
3002502502	BURK ROYALTY CO.	NEAL 004	Oil	Active	1959	-	32.53230	-103.52515	3822	YATES-7RIV	0.74
3002502510	HUDSON OIL CO.	FED 001	Oil	Plugged	1900	1-Jan-00	32.53048	-103.53620	3734	YATES-7RIV	0.75
3002542037	COG OPERATING LLC	STRATOSPHERE 36 ST COM 006H	Oil	Active	2015	-	32.53631	-103.52118	11393	BONE SPRING	0.75
3002546394	CHISHOM ENERGY	LAGUNA 23 2BS FED COM 005H	Oil	Active	2019	-	32.55200	-103.53284	10525	BONE SPRING	0.76
3002508459	ARCO PERMIAN	FLETCHER A DE FED 004	SWD	Plugged	-	18-Dec-84	32.54227	-103.54588	3682	YATES-7RIV	0.77
3002529669	NEARBURG PROD.	RITTSTER FED 001	Oil	Plugged	1900	1-Jan-00	32.54955	-103.52443	288	No Data	0.77
3002540697	CHISHOM ENERGY	LAGUNA 23 FED COM 002H	Oil	Active	2014	-	32.55150	-103.53743	11079	BONE SPRING	0.78
3002540742	CHISHOM ENERGY	LAGUNA 23 FED COM 001H	Oil	Active	2013	-	32.55227	-103.53304	10874	BONE SPRING	0.78
3002541946	CHISHOM ENERGY	LAGUNA 23 FED COM 003H	Oil	Active	2014	-	32.55227	-103.53256	9620	BONE SPRING	0.78
3002520284	HEXP OPERATING	HANSON C 003	Oil	Active	1963	-	32.55227	-103.53412	3702	YATES-7RIV	0.78
3002546349	CHISHOM ENERGY	LAGUNA 23 2BS FED COM 004H	Oil	Active	2019	-	32.55151	-103.53783	10540	BONE SPRING	0.79
3002541367	CHISHOM ENERGY	LEA SOUTH 25 FED COM 005H	Oil	Active	2013	-	32.53699	-103.52010	11251	BONE SPRING	0.79
3002549160	CHISHOM ENERGY	LEA SOUTH 25 FED COM 2BS 009H	Oil	New	-	-	32.53701	-103.52009	0	BONE SPRING	0.79
3002508464	EDWARD E KINNEY	GULF FED 002	Oil	Plugged	1900	1-Jan-00	32.53773	-103.54586	3341	No Data	0.79
3002502451	ERNEST A	HANSON D&E FED 001	Oil	Plugged	1900	1-Aug-61	32.55227	-103.52979	3601	No Data	0.80
3002540804	CIMAREX ENERGY CO.	HANSON 26 FED COM 004H	Oil	Active	2012	-	32.55045	-103.52443	11185	BONE SPRING	0.82
3002546124	APACHE CORPORATION	BLACK & TAN 27 FED COM 405H	Oil	Active	2019	-	32.53744	-103.54622	11368	B. SPRING, WLFCMP	0.82
3002543940	APACHE CORPORATION	BLACK & TAN 27 FED COM 305H	Oil	Active	2017	-	32.53744	-103.54635	3743	BONE SPRING	0.83
3002502496	TEXAS CO.	BV LYNCH A 004	Oil	Plugged	1900	1-Jan-00	32.53138	-103.54156	3797	No Data	0.83
3002546074	APACHE CORPORATION	BLACK & TAN 27 FED COM 404H	Oil	New	-	-	32.53744	-103.54655	0	BONE SPRING	0.84
3002541359	CIMAREX ENERGY CO.	HANSON 26 FED COM 005H	Oil	Active	2013	-	32.55045	-103.52385	9692	BONE SPRING	0.84
3002502495	MAS OPERATING	B V LYNCH A FED 003	Oil	Active	1900	-	32.53501	-103.54585	3745	YATES-7RIV	0.86
3002502467	MARATHON OIL	BALLARD DE FED 004	Oil	Plugged	-	11-Oct-18	32.55045	-103.54268	3690	YATES-7RIV	0.87
3002542950	COG OPERATING LLC	MAS FED 003H	Oil	Active	2015	-	32.53632	-103.54699	11318	BONE SPRING	0.89
3002502488	OLEN F FEATHERSTONE	ROACH FED 001	Oil	Plugged	1900	1-Jan-00	32.53048	-103.54263	3772	YATES-7RIV	0.92
3002520349	HEXP OPERATING	HANSON C 001	Oil	Plugged	1963	17-Jul-06	32.55227	-103.52337	3700	YATES-7RIV	0.96
3002502512	PHILLIPS PETRO. CO.	NEAL 002	Oil	Plugged	1900	1-Jan-00	32.52851	-103.52544	3825	No Data	0.96
3002529572	NEARBURG PROD.	RETT FED COM 001Y	Oil	Plugged	1985	6-Sep-00	32.55317	-103.52477	13700	B. SPRING, MORROW	0.96
3002508462	MACK ENERGY	PERRY FED 001	Oil	Plugged	1962	12-Feb-96	32.55227	-103.54269	3669	YATES-7RIV	0.97

SUMMARY OF WELLS WITHIN ONE MILE OF THE LIBBY BERRY AGI #1 AND #2 BOTTOM-HOLE LOCATIONS

API	OPERATOR	WELL NAME	TYPE	STATUS	SPUD	PLUGGED	LAT83	LONG83	TVD	POOL	MILES TO AGI #1
3002520818	CHAMA PETROLEUM	RETT FED COM 001	Oil	Plugged	1900	1-Jan-00	32.55317	-103.52444	10500	PENN	0.97
3002502505	HEXP OPERATING	W H MILNER FED 002	Oil	Plugged	1952	15-Mar-19	32.52683	-103.53405	3747	YATES-7RIV	0.97
3002543482	COG OPERATING LLC	MAS FED 004H	Oil	Active	2016	-	32.53632	-103.54875	11371	B. SPRING, WLFCMP	0.98
3002502511	PHILLIPS PETRO. CO.	NEAL 001	Oil	Plugged	1900	1-Jan-00	32.52683	-103.52972	3775	YATES-7RIV	0.99
3002527496	GETTY OIL	LYNCH 36 STATE 001	Oil	Plugged	1981	24-Nov-81	32.53139	-103.52010	3878	No Data	0.99
3002502509	MAS OPERATING	B V LYNCH A FED 007	Oil	Active	1952	-	32.52683	-103.53619	3707	YATES-7RIV	0.99
3002546123	APACHE CORPORATION	BLACK & TAN 27 FED COM 403H	Oil	Active	2019	-	32.53744	-103.54953	11372	B. SPRING, WLFCMP	1.00
3002543921	APACHE CORPORATION	BLACK & TAN 27 FED COM 303H	Oil	Active	2017	-	32.53744	-103.54966	11145	BONE SPRING	1.01
3002546864	APACHE CORPORATION	BLACK & TAN 27 FED COM 202H	Oil	New	-	-	32.53744	-103.54972	0	BONE SPRING	1.02
3002541898	CHISHOM ENERGY	LEA SOUTH 25 FED COM 006H	Oil	New	2014	-	32.53774	-103.51582	11174	BONE SPRING	1.02
3002546073	APACHE CORPORATION	BLACK & TAN 27 FED COM 402H	Oil	Active	2019	-	32.53744	-103.54985	11250	B. SPRING, WLFCMP	1.02
3002508461	MAS OPERATING	B V LYNCH B FED 002	Oil	Active	1961	-	32.53864	-103.55019	3805	YATES-7RIV	1.03
3002520559	HEXP OPERATING	HANSON C 004	SWD	Plugged	-	29-Aug-12	32.55590	-103.53413	3642	YATES	1.03
3002508460	CHESTNUT EXPLORATION	D AND E FED 002	Oil	Active	1960	-	32.55045	-103.54697	3701	YATES-7RIV	1.05
3002502464	DRILLING & EXPL CO.	BALLARD 001	Oil	Plugged	1900	1-Jan-00	32.54591	-103.55021	3683	No Data	1.07
3002520157	HEXP OPERATING	HANSON C 002	Oil	Plugged	1900	1-Jan-00	32.55590	-103.53841	3672	No Data	1.08
3002502449	CHESTNUT EXPLORATION	R AND B FED 001	Oil	Active	1960	-	32.55227	-103.54697	3625	YATES-7RIV	1.14
3002502465	MARATHON OIL	BALLARD DE FED 002	Oil	Plugged	-	9-Jan-19	32.55045	-103.54915	3663	YATES-7RIV	1.16

GEOLEX®
INCORPORATED

Alberto A. Gutiérrez, C.P.G.

January 27, 2022 VIA FEDERAL EXPRESS

HEXP Operating, LLC
113 Corporate Drive
Midland, TX 79705
(432) 682-4081

RE: 3BEAR FIELD SERVICES REQUEST FOR EXTENSION OF NMOCC ORDER R-20694 FOR GOOD CAUSE FOR THE LIBBY BERRY AGI NO. 1 AND LIBBY BERRY AGI NO. 2 WELLS

To Whom it May Concern,

On behalf of 3Bear Field Services, LLC (3Bear), we (Geolex, Inc.®) are providing you notification of 3Bear's intent to file a formal request with the New Mexico Oil Conservation Division (NMOCD) for an extension to the injection authority granted by the New Mexico Oil Conservation Commission (NMOCC) Order R-20694 for the Libby Berry AGI No. 1 and No. 2 wells.

NMOCC Order R-20694, which authorizes 3Bear to inject treated acid gas via the AGI wells, was issued on July 18, 2019. During the initial permitting and NMOCD technical review period, required notification of the application and public hearing was provided to Burk Royalty Co. as they were identified as the operator of record for assets within the one-mile Area of Review (AOR) for the AGI wells. As part of the extension request being currently pursued, a re-evaluation of the AOR has been conducted and HEXP Operating, LLC has been identified as the current operator of some formerly Burk Royalty Co. production wells. As such, we are providing your organization with notification of 3Bear's intent to request a one-time extension to NMOCC Order No. R-20694 for a period of two (2) years to allow sufficient time to drill, complete, and commission the first Libby AGI well. Additionally, we are providing a complete copy of the formal extension request that will be submitted to NMOCD.

The wells are to be located on the Libby Gas Plant property, with the AGI No. 1 surface location at approximately 1,970' FWL and 1,475' FSL and the AGI No. 2 surface location at approximately 1,970' FWL and 1,910 FSL in Section 26, Township 20 South, Range 34E, in Lea County, New Mexico. The AGI No. 2 well is to be a deviated well with a bottom-hole location of approximately 1,320' FWL and 2,275' FSL, also in Section 26. Under the current NMOCC Order, 3Bear has been granted authorization to inject up to eight (8) million standard cubic feet per day of treated acid gas from the Libby Gas Plant at a maximum injection pressure of 4,525 psig into the Devonian and Upper Silurian Wristen and Fusselman formations at depths of approximately 14,900 to 16,400 feet.

As your organization has been identified as an operator within the Libby AGI wells Area of Review, we are available to answer questions you may have regarding the AGI well project. If you have questions or would like additional information, you may contact Alberto A. Gutiérrez, C.P.G. or David White, P.G. at Geolex, Inc.®; 500 Marquette Avenue NW, Suite 1350; Albuquerque, New Mexico; at (505) 842-8000.

Sincerely,
Geolex, Inc.®

David A. White, P.G.
Project Manager – Consultant to 3Bear

Enclosure: Libby AGI Order Extension Request

Y:\18-025 (3 Bear AGIs)\Reports - Libby AGI #1 & 2\Extension Request (Jan 2022)\Notification Letters\Notice_Letter_HEXP.docx

dwhite@geolex.com

From: TrackingUpdates@fedex.com
Sent: Monday, January 31, 2022 11:51 AM
To: dwhite@geolex.com
Subject: FedEx Shipment 775889360968: Your package has been delivered

Hi. Your package was delivered Mon, 01/31/2022 at 12:48pm.

Delivered to 113 CORPORATE DR, MIDLAND, TX 79705
Received by V.VICTOR CHINIGOTY

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER	775889360968
FROM	Liz Hill 500 MARQUETTE AVE. NW #1350 ALBUQUERQUE, NM, US, 87102
TO	HEXP Operating, LLC HEXP Operating, LLC

	113 Corporate Drive MIDLAND, TX, US, 79705
DOOR TAG NUMBER	DT106246644460
REFERENCE	18-025
SHIPPER REFERENCE	18-025
SHIP DATE	Thu 1/27/2022 05:51 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	ALBUQUERQUE, NM, US, 87102
DESTINATION	MIDLAND, TX, US, 79705
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ATTACHMENT 2

REVISED AND UPDATED INDUCED SEISMICITY RISK ASSESSMENT

FIGURE 1. LOCATION MAP

FIGURE 2. FAULT SLIP PROBABILITIES

FIGURE 3. RESERVOIR PRESSURE EFFECTS

3BEAR FIELD SERVICES, LLC
REVISED FAULT-SLIP PROBABILITY ASSESSMENT

LIBBY BERRY AGI WELL #1 AND #2
T20S, R34E, Section 26 -- Lea County, New Mexico

In support of 3Bear's request for an extension to NMOCC Order R-20694, Geolex, Inc.® has revised and updated the previously developed Induced Seismicity Risk Assessment, which was originally submitted on May 1, 2019, to fulfill the request of NMOCD technical staff and to support the original C-108 application for the Libby Berry AGI #1 and #2 wells. Updates to this assessment were completed to consider the reservoir impacts of injection operations that have been on-going since the time of the original C-108 application, and to incorporate new active, planned, and permitted injection wells in the vicinity of the two proposed Libby Berry acid gas injection (AGI) wells.

Presented herein are the results of that revised and updated Induced Seismicity Risk Assessment, which clearly demonstrate the Libby AGI wells will not contribute significantly to the total potential for induced seismicity in the area. This assessment models the impact of 15 saltwater disposal (SWD) wells over a 37-year period and estimates the fault-slip probability associated with that injection scenario. This assessment was completed utilizing the Stanford Center for Induced and Triggered Seismicity's Fault Slip Potential (FSP) modeling package. Results of the model simulations presented here predict that operation of the two proposed AGI wells at the designed injection volumes will not contribute significantly to the potential for induced-seismic events.

The two 3Bear AGI wells are to be located in Section 26 of Township 20 South, Range 34 East, in Lea County, New Mexico. Within approximately eight (8) miles of these locations, there are eleven (11) active and new saltwater disposal (SWD) wells, as well as four (4) SWD wells recently approved or in the administrative and technical review process (Figure 1, Table 1). Permitted and proposed maximum daily injection volumes for these SWD wells range from 20,000 to 30,000 barrels per day (bpd).

Table 1. Location and characteristics of injection wells modeled in FSP assessment.

#	API	Well Name	Latitude	Longitude	Volume (bbls/day)	Start (year)	End (year)
1	TBD	Libby Berry AGI #1	32.54094	-103.532811	1900	2022	2051
2	TBD	Libby Berry AGI #2	32.543184*	-103.535536*	1900	2022	2051
3	30-025-42527	Corazon 4 St. SWD #2	32.54094	-103.532811	25000	2015	2051
4	30-025-43422	Quail 16 St. SWD #9	32.543184	-103.535536	30000	2017	2051
5	30-025-45344	Libby Berry Fee SWD #2	32.51269	-103.57707	25000	2019	2051
6	30-025-43474	Lightning 1 St. SWD #2	32.56877	-103.5663	25000	2017	2051
7	30-025-44288	Libby Berry Fee SWD #1	32.56442	-103.54039	25000	2018	2051
8	30-025-44189	Okeanos SWD #1	32.510954	-103.527257	25000	2018	2051
9	30-025-42974	Smith Ranch SWD #1	32.54446	-103.52463	20000	2022	2051
10	30-025-45470	Smith Ranch SWD #2	32.5245	-103.5207	25000	2022	2051
11	30-025-45815	Dagger St. SWD #1	32.59903	-103.59323	25000	2019	2051
12	30-025-46747	Klein 4 SWD #1	32.63484	-103.61186	25000	2022	2051
13	30-025-47424	Lombard St. SWD #1	32.44993	-103.60744	25000	2022	2051
14	TBD	Coombes SWD #1	32.59713	-103.47015	30000	2022	2051
15	TBD	Bear Paw SWD #1	32.51168	-103.619	30000	2022	2051
16	30-025-20506	Lea Unit #10D	32.55578	-103.643106	20000	2022	2051
17	TBD	Klein 6 SWD #1	32.470357	-103.535079	30000	2022	2051

To identify subsurface structures within the area of review, Geolex collaborated with Chisholm Energy Holdings, LLC (Chisholm), to evaluate and interpret licensed seismic survey data in the area of the Libby Berry AGI wells. The original analysis of these data identified two potential faults and one karst collapse feature in the general area of the Libby AGI wells. Subsequent review of the area identified two additional two fault structures approximately nine miles west of the AGI well locations. These five features are shown in Figure 1 and have been included in this updated and revised fault-slip probability assessment. For modeling purposes, these faults have been represented as 19 fault segments, in order to characterize their non-linear expression. It should be noted that the interpreted karst collapse feature (Figure 1 – Fault Segment 16) underlying the Libby AGI locations is not interpreted to represent a feature with any potential for induced slip, as it exhibits minimal lateral extent and minimal offset in seismic data. It was included in all simulations for the AGI wells only due to its close proximity to the project area and to remain consistent with the prior FSP investigation for the Libby AGI wells.

To estimate the fault-slip potential of the proposed injection scenario, input parameters characterizing the local stress field, reservoir characteristics, subsurface features, and injected fluids are required by the FSP model. Input parameters and their sources for this study are included in Table 2. The location and orientation of potential faults in the area of review were determined through analysis and interpretation of the previously discussed seismic survey data.

Table 2. Input parameters and source material for FSP simulations.

Modeled Parameter	Input Value	Variability (+/-)	UOM	Source
Stress Parameters				
Vertical Stress Gradient	1.05	0.105	psi ft^{-1}	Nearby well estimate
Max Horizontal Stress Direction	N60E	5	Deg.	Lund Snee & Zoback, 2018
Reference Depth	16,400		ft	Nearby well evaluation
Initial Res. Pressure Gradient	0.43	0.043	psi ft^{-1}	Lund Snee & Zoback, 2018
A_Φ Parameter	0.65	0.065	-	Lund Snee & Zoback, 2018
Reference Friction Coefficient (μ)	0.6	0.06	-	Standard Value
Hydrologic Parameters				
Aquifer Thickness	1,450	120	ft	Nearby well evaluation
Porosity	3.5	0.35	%	Nearby well evaluation
Permeability	20	2	mD	Nearby well evaluation
Material properties				
Density (Water)	1040	40	kg m^{-3}	Standard Value
Dynamic Viscosity (Water)	0.0008	0.0001	Pa.s	Standard Value
Fluid Compressibility (water)	3.6×10^{-10}	0	Pa^{-1}	Standard Value
Rock Compressibility	1.08×10^{-9}	0	Pa^{-1}	Standard Value
Acid gas @ 210 °F, 6,700 psi				
Density	811.00	-	kg m^{-3}	AQUAlibrium™
Dynamic Viscosity	0.0000787	-	Pa.s	AQUAlibrium™

For this study, limitations of the FSP model required a conservative approach be taken in determining the fault slip probability of the simulated injection scenario. Specifically, the FSP model is only capable of considering a single set of injection fluid characteristics and this study aims to model a scenario consisting of SWD wells and two AGI wells. To ensure a conservative fault slip probability result, the two proposed AGI wells were simulated with the injection fluid characteristics of an SWD well. This approach yields a more conservative prediction as water displays greater density, dynamic viscosity, and is significantly less compressible than acid gas. For comparison, Table 2 includes the properties of the acid gas at the anticipated reservoir conditions, as predicted by AQUAlibrium™ software and reinforces that a water-injection scenario provides a more conservative estimate of slip probability.

Results of the FSP assessment demonstrate that the majority of fault segments exhibit no potential for induced slip in response to the simulated injection scenario. After 37 years of simulated injection at the maximum daily injection rate, only fault segments 1, 2, 3, and 16 exhibit a non-zero probability of slip (Figure 2, Table 3). Table 3 below summarizes the results of the FSP simulation and includes the required change in pore pressure to induce slip, as well as the model-predicted actual change in pore pressure resulting from the simulated injection operations.

Table 3. Summary of model-simulation results showing the required pressure change to induce fault slip, actual pressure change as predicted by the FSP model, and probability of fault slip at the end of the 30-year injection scenario.

Fault Segment	ΔPressure necessary to induce fault slip	Model Predicted ΔPressure after 30 years of injection	Fault Slip Potential (FSP) after 30 years of injection	FSP Excluding AGI
1	1423	574	0.15	0.15
2	897	593	0.14	0.13
3	1103	621	0.01	0.01
4	5531	630	0.00	0.00
5	3440	619	0.00	0.00
6	2909	602	0.00	0.00
7	4313	581	0.00	0.00
8	3151	574	0.00	0.00
9	3792	555	0.00	0.00
10	5746	512	0.00	0.00
11	1173	442	0.00	0.00
12	1011	359	0.00	0.00
13	3265	653	0.00	0.00
14	5690	570	0.00	0.00
15	4623	528	0.00	0.00
16	896	750	0.26*	0.20
17	4043	108	0.00	0.00
18	2989	82	0.00	0.00
19	1835	97	0.00	0.00

***NOTE:** Fault Segment #16 is interpreted to represent a karst collapse feature contained within Siluro-Devonian strata and exhibits minimal lateral extent. This feature was originally included in FSP simulations (May 2019) due to its close proximity to the proposed AGI wells and was included in this simulation only to remain consistent with past simulation parameters. It is not currently interpreted to be a feature with potential for injection-induced slip.

Each fault in this scenario requires an increase of at least 896 psi, or greater, to potentially induce slip. As shown in Table 3, fault pressure conditions at fault midpoints generally remain sufficiently lower than the predicted pressure thresholds to induce slip, with the exception of Fault Segment #16. As described previously, this feature exhibits minimal lateral extent and vertical offset, and is interpreted to be a karst collapse feature within the Siluro-Devonian interval. It was included in simulation due to its close proximity to the AGI wells, but it not interpreted to be a feature with any potential for slip.

Figure 3 (panel A) illustrates the resultant reservoir pressure front upon completion of the simulation. The FSP model predicts the highest-pressure conditions at fault midpoints (approximately 750 psi) to occur at Fault Segment #16, which is generally surrounded by multiple SWDs and the proposed AGI wells. Single well radial solutions, shown in Figure 3, illustrate the minimal pressure impact the AGI wells impart on the reservoir in comparison to high-volume SWD wells. This is further demonstrated when the additional simulations are completed that exclude the volume contributions of the proposed AGI wells. As shown in Table 3, removal of the AGI wells from the simulation only results in a reduction of fault slip probability for Fault Segment #2 by 0.01. No other reduction in fault slip probability is observed when the AGI wells are removed from the simulation, indicating that high-volume SWDs primarily drive the potential for slip.

Generally, operation of the Libby Berry AGI #1 and #2 wells is not predicted to contribute significantly to the potential for induced slip in the area. As the additional simulation that excludes contribution from the AGI wells demonstrates, probability of slip is reduced by only 0.01 along one fault feature under these conditions, clearly indicating that SWD injection exerts a primary control on the model simulation results. The greatest probability of slip in these simulations is observed along Fault Segments 1 and 2, which exhibit orientations more in alignment with the regional maximum horizontal stress direction and are in close proximity to four SWD wells, which were simulated to inject at rates between 20,000 and 30,000 bpd. It should be noted, that the FSP simulation presented in this report assumes constant injection at the maximum daily injection rate for each well included. This provides a very conservative, but not necessarily accurate, prediction of slip probability potential. At times, SWD well injection volumes decline as production rates decline, which would significantly reduce the probability of injection-induced seismicity for an area.

In summary, the 15-well injection scenario modeled in this study predicts three potential fault segments to have a non-zero probability of slip of ≤0.15 upon completion of the 37-year period of simulation. One feature (Fault Segment #16) that is interpreted as a karst collapse feature was included in simulation due to its close proximity to the AGI well locations. The FSP model predicts this feature may have a 0.26 probability of slip at the end of the simulation period, however, due to its minimal observed vertical offset and limited lateral extent, it is not interpreted to be a feature with any potential for injection-induced slip. Ultimately, the results of simulations presented in this report demonstrate that the operation of the Libby AGI #1 and AGI #2 will have only a minimal impact on reservoir pressure conditions and, only a minimal reduction in slip probability is observed when their injection volume contributions are excluded.

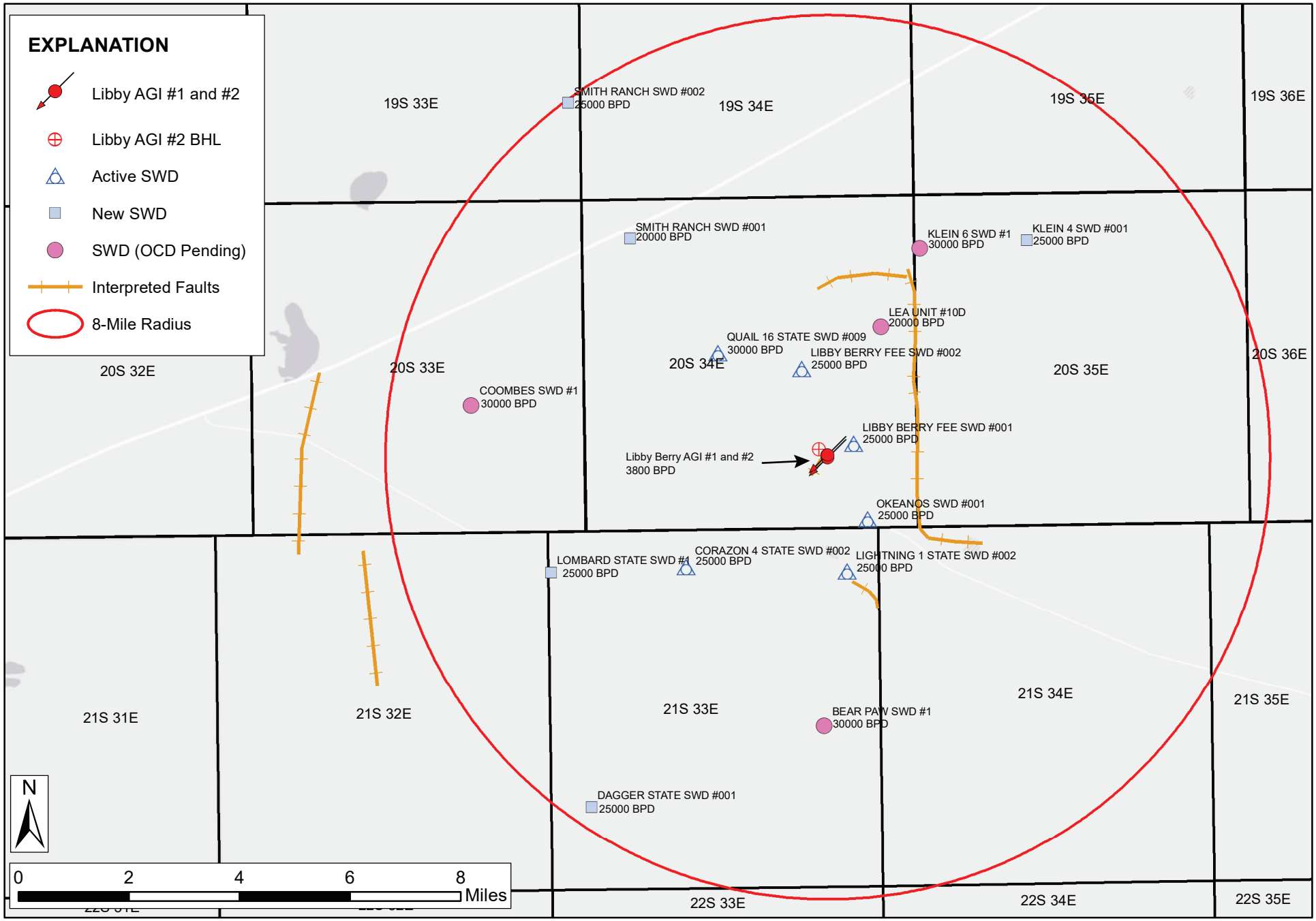
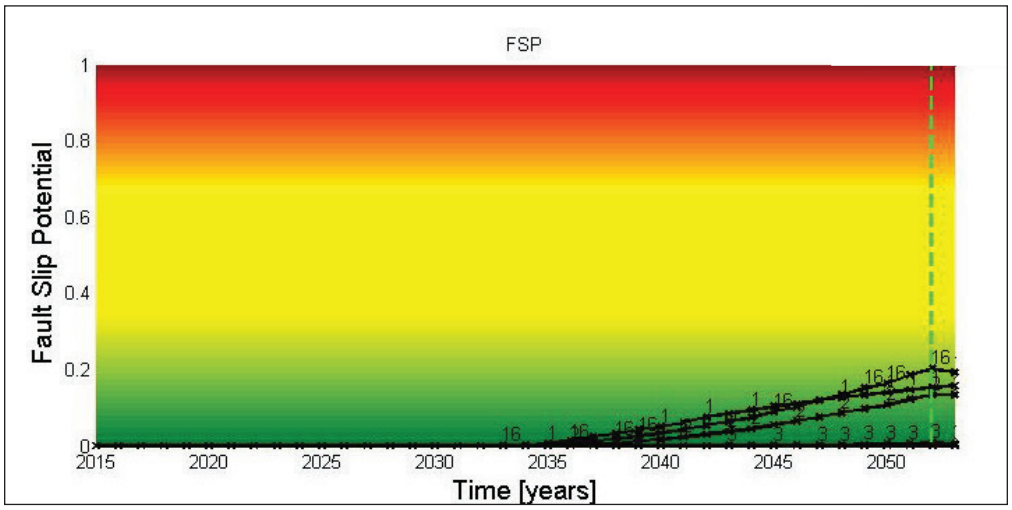
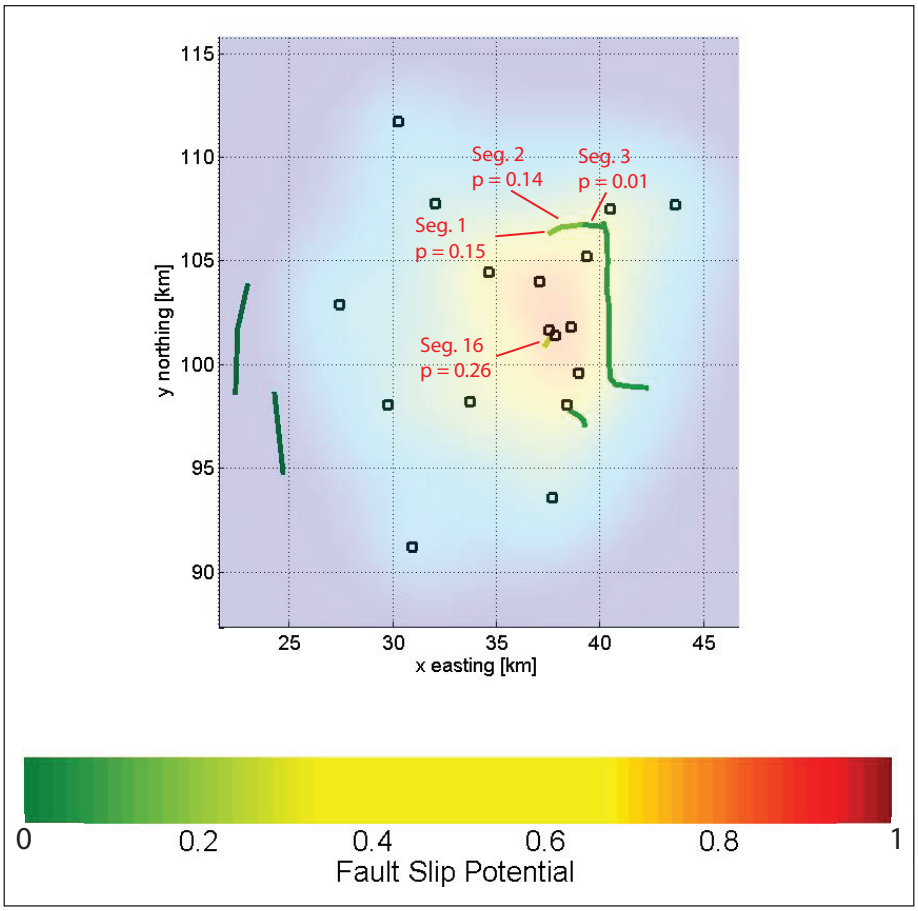


Figure 1. Map illustrating the location of the proposed AGI wells, nearby injection wells, and faults interpreted in the area of the 3Bear Facility, which are included in FSP simulations.

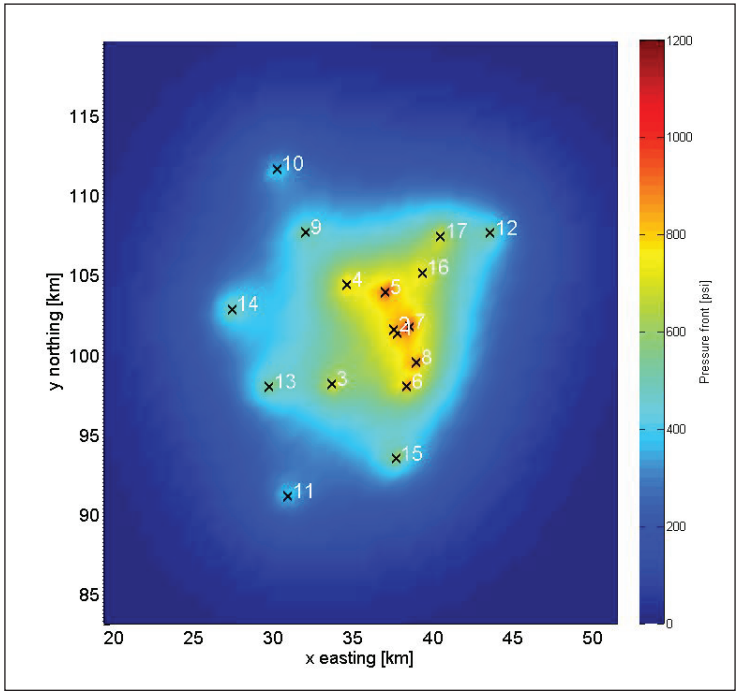


Panel A. Fault-slip probability throughout the entire simulated injection period. While included in FSP simulations due to the proximity to the proposed AGI wells, segment 16 is interpreted to represent karst collapse with no potential for induced-slip. The feature was included to remain consistent with previously completed FSP assessments.

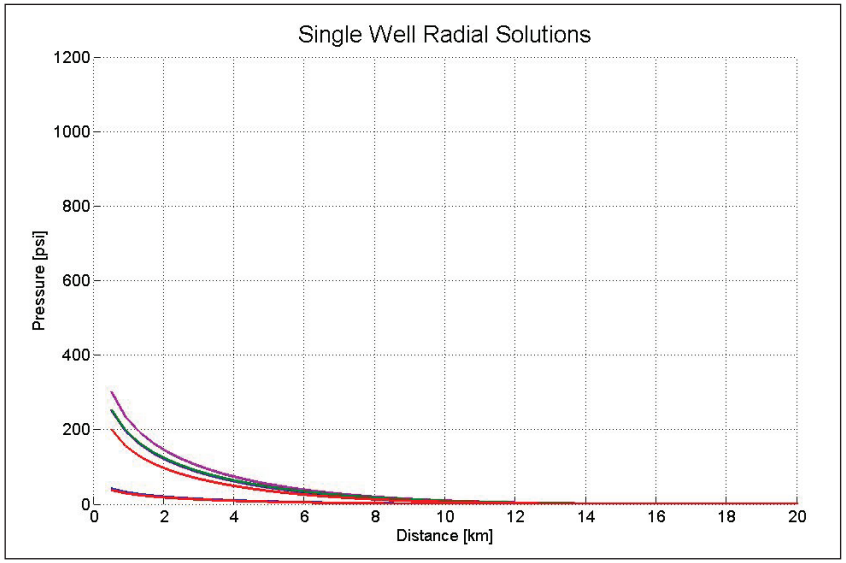


Panel B. Map view illustrating the model-estimated slip potential of faults at the end of the simulated injection scenario. Any feature estimated to have a non-zero slip potential determination is labeled on the above map.

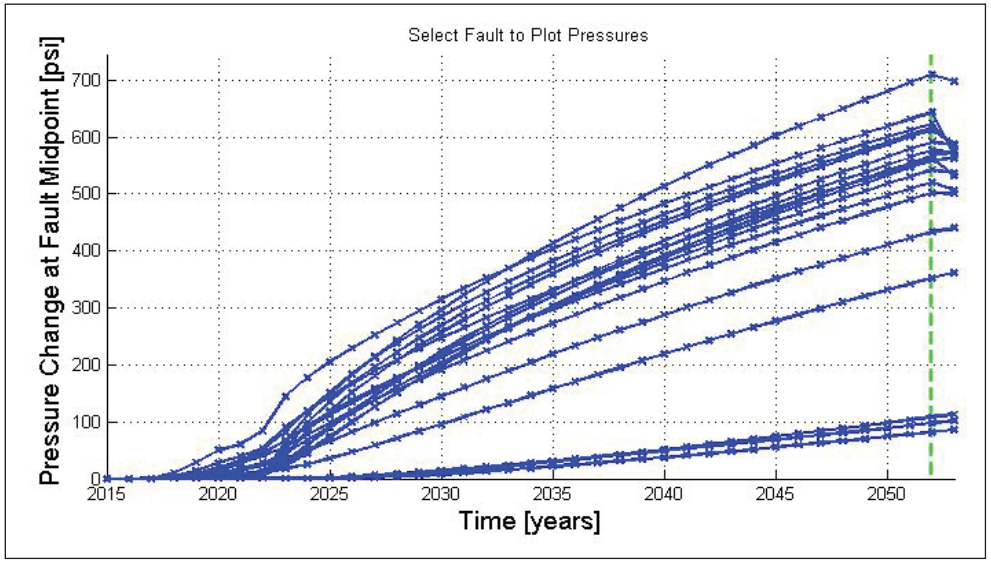
Figure 2. Summary of model-determined fault-slip probabilities over the simulated injection period (2015 through 2051).



Panel A. Resultant pressure front after 30 years of injection operations at the maximum anticipated injection rates, as reported in NMOCD records.



Panel B. Single well radial solutions, as determined by the FSP model.



Panel C. Model-predicted pressure change through time at the midpoint of each fault segment included in the simulation

Figure 3. Summary of model-predicted pressure effects in the reservoir in response to the simulated injection well scenario.