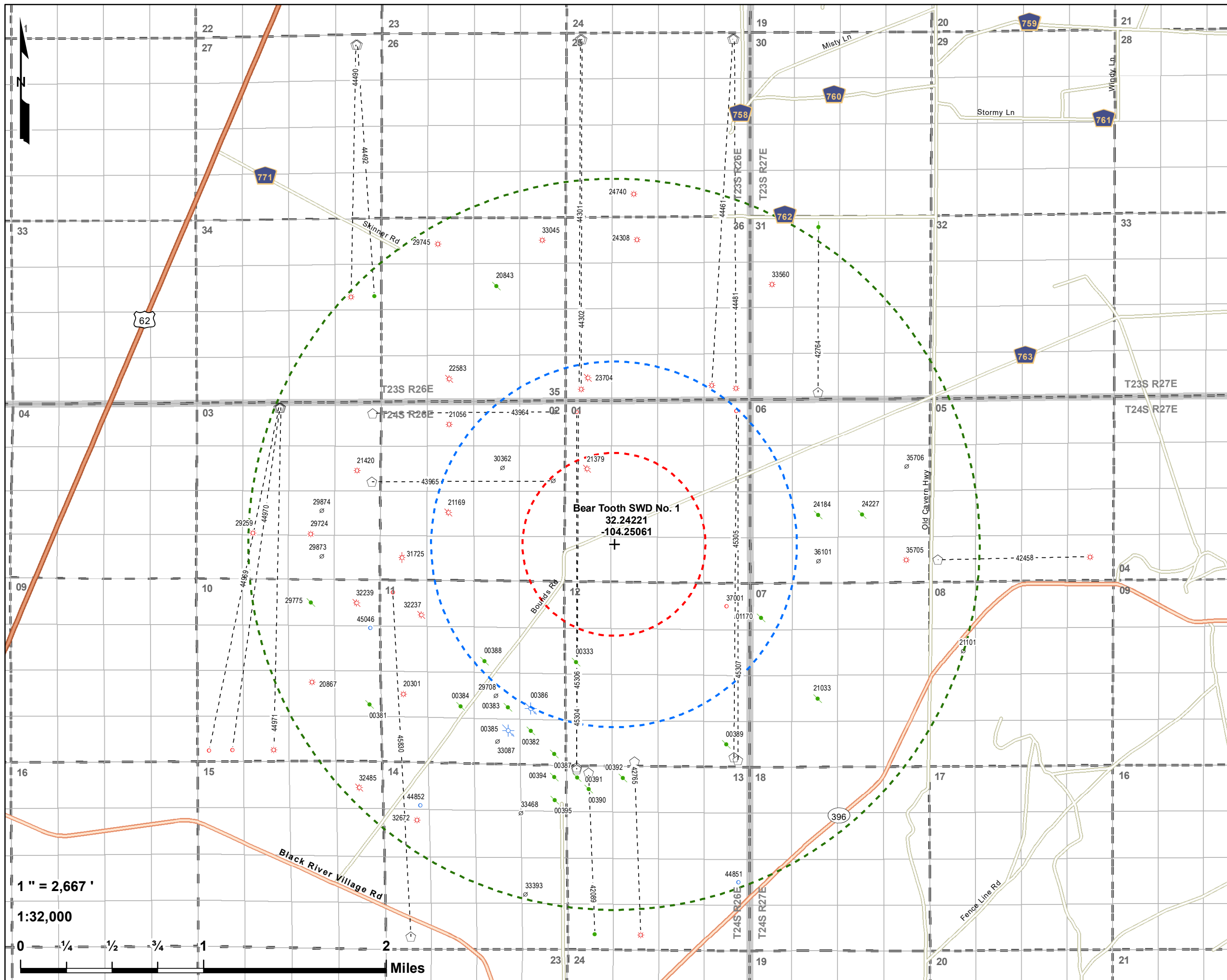


Application

Part *II*



Bear Tooth SWD No. 1
2 Mile Area of Review
 3Bear Field Services LLC
 Eddy County, NM

PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)

Drawn by: SJL

Date: 6/21/2019









Approved by: CBW

LONQUIST & CO. LLC










**PETROLEUM
ENGINEERS**

ENERGY
ADVISORS






AUSTIN • HOUSTON CALGARY • WICHITA
DENVER • COLLEGE STATION BATON ROUGE • EDMONTON

-  Bear Tooth SWD No. 1
 -  1/2 Mile Radius
 -  1 Mile Radius
 -  2 Mile Radius
 -  QQ-Section (NM-PLSS 2nd Div.)
 -  Section (NM-PLSS 1st Div.)
 -  Township/Range (NM-PLSS)
 -  Laterals

API (30-015-...) SHL Status - Type (Count)

 -  Horizontal Surface Location (20)
 -  Active - Gas (13)
 -  Permitted - Gas (1)
 -  Permitted - Salt Water Disposal (3)
 -  Expired TA - Gas (1)
 -  Plugged (Site Released) - Oil (19)
 -  Plugged (Site Released) - Gas (7)
 -  Plugged (Site Released) - Salt Water Disposal (2)
 -  Canceled Location (10)

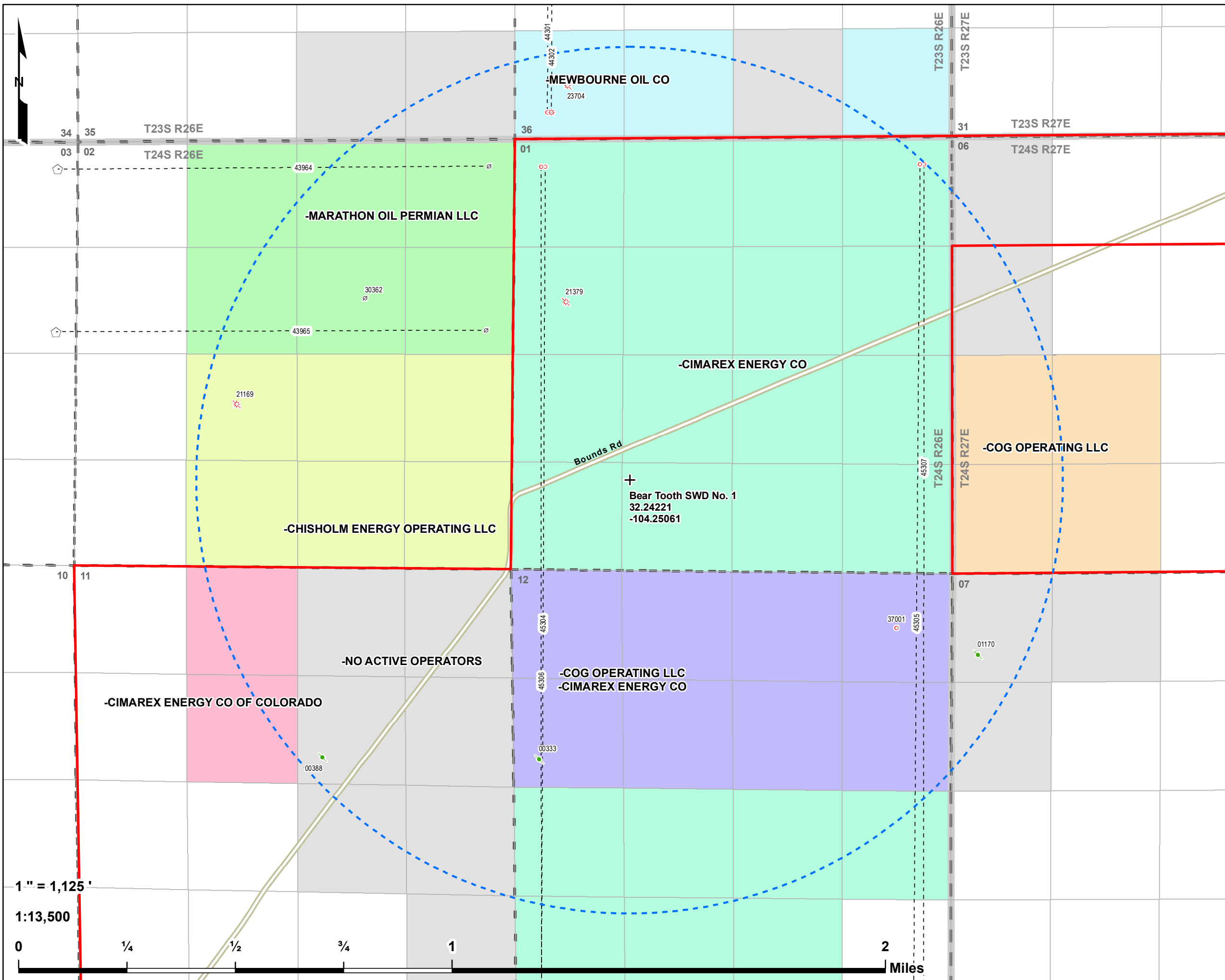
API (30-015-...) BHL Status - Type (Count)

 -  Active - Oil (2)
 -  Active - Gas (7)
 -  Permitted - Gas (8)
 -  Approved TA - Oil (1)
 -  Canceled Location (2)



Bear Tooth SWD No. 1
1 Mile Area of Review List

API (30-015-...)	WELL NAME	WELL TYPE	STATUS	OPERATOR	TVD (FT.)	LATITUDE (NAD83 DD)	LONGITUDE (NAD83 DD)	SPUD DATE	FIELD
00333	FEDERAL-WRIGHT #001	O	P	R. A. T. WRIGHT	2121	32.23286060	-104.25418850	3/27/1954	BLACK RIVER
00388	FEDERAL "D" #001	O	P	JOSEPH I. O'NEILL, JR.	2014	32.23293300	-104.26272580	2/1/1958	BLACK RIVER
01170	CONLON #001	O	P	MARTIN YATES, JR.	2370	32.23634720	-104.23689270	12/30/1937	WILDCAT
21169	STATE L-4325 COM #001	G	P	SILVER PINES ENERGY CORPORATION	11940	32.24475480	-104.26609040	4/30/1974	[72155] BLACK RIVER, ATOKA, NORTH (GAS)
21379	O'NEILL FEDERAL #001	G	P	COQUINA OIL CORP	12100	32.24818420	-104.25312040	10/10/1974	[91072] EDDY UNDESIGNATED, STRAWN (GAS)
23704	STATE V 249 #001	G	P	HAMON OPERATING CO	12020	32.25544360	-104.25305180	7/22/1981	[89902] EDDY UNDESIGNATED, ATOKA (GAS)
30362	OXY JUNCTION STATE #001	G	C	OXY USA INC	0	32.24831000	-104.26102000	-	[73960] CARLSBAD, MORROW, SOUTH (GAS)
37001	RETHINK FEDERAL COM #001	G	N	COG OPERATING LLC	0	32.23726650	-104.24009700	-	[73960] CARLSBAD, MORROW, SOUTH (GAS)
43964	CAMPANA 3 2 STATE X #001C	G	C	MARATHON OIL PERMIAN LLC	0	32.25264151	-104.27313499	-	[72240] BLACK RIVER, WOLFCAMP (GAS)(ABOLISHE; [98220] PURPLE SAGE, WOLFCAMP (GAS)
43965	CAMPANA 3 2 STATE B2 #002C	G	C	MARATHON OIL PERMIAN LLC	0	32.24719808	-104.27319819	-	[98220] PURPLE SAGE, WOLFCAMP (GAS)
44301	GHOSTRIDER 25/36 W2DM FEDERAL COM #001H	G	N	MEWBOURNE OIL CO	0	32.28229826	-104.25371430	-	[98220] PURPLE SAGE, WOLFCAMP (GAS)
44302	GHOSTRIDER 25/36 W0DM FEDERAL COM #002H	G	A	MEWBOURNE OIL CO	8788	32.28229851	-104.25355256	7/30/2017	[98220] PURPLE SAGE, WOLFCAMP (GAS)
45304	RIVERBOAT 12/1 W0MD FEDERAL COM #001H	G	N	CIMAREX ENERGY CO.	0	32.22450060	-104.25410110	-	[98220] PURPLE SAGE, WOLFCAMP (GAS)
45305	RIVERBOAT 12/1 W0PA FEDERAL COM #001H	G	N	CIMAREX ENERGY CO.	0	32.22528210	-104.23942900	-	[98220] PURPLE SAGE, WOLFCAMP (GAS)
45306	RIVERBOAT 12/1 W2MD FEDERAL COM #001H	G	N	CIMAREX ENERGY CO.	0	32.22436320	-104.25409980	-	[98220] PURPLE SAGE, WOLFCAMP (GAS)
45307	RIVERBOAT 12/1 W2PA FEDERAL COM #001H	G	N	CIMAREX ENERGY CO.	0	32.22508640	-104.23904330	-	[98220] PURPLE SAGE, WOLFCAMP (GAS)



Bear Tooth SWD No. 1
1 Mile Offset Operators
 3Bear Field Services LLC
 Eddy County, NM

PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)

Drawn by: SJL

Date: 6/24/2019	
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
Approved by: CBW

LONQUIST & CO. LLC






**PETROLEUM
ENGINEERS**

ENERGY
ADVISORS




AUSTIN • HOUSTON CALGARY • WICHITA
DENVER • COLLEGE STATION BATON ROUGE • EDMONTON









-  Bear Tooth SWD No. 1
 -  1 Mile Radius
 -  QQ-Section (NM-PLSS 2nd Div.)
 -  Section (NM-PLSS 1st Div.)
 -  Township/Range (NM-PLSS)
 -  Surface Owner (NM-BLM)
 -  Laterals

API (30-015-...) SHL Status - Type (Count)

 -  Horizontal Surface Location (8)
 -  Permitted - Gas (1)
 -  Plugged (Site Released) - Oil (3)
 -  Plugged (Site Released) - Gas (3)
 -  Canceled Location (1)

API (30-015-...) BHL Status - Type (Count)

 -  Active - Gas (1)
 -  Permitted - Gas (5)
 -  Canceled Location (2)

- ### Operators
- | | |
|---|--|
|  | -CHISHOLM ENERGY OPERATING LLC |
|  | -CIMAREX ENERGY CO |
|  | -CIMAREX ENERGY CO OF COLORADO |
|  | -COG OPERATING LLC |
|  | -COG OPERATING LLC; -CIMAREX ENERGY CO |
|  | -MARATHON OIL PERMIAN LLC |
|  | -MEWBOURNE OIL CO |
|  | -NO ACTIVE OPERATORS |
- *Well Data Source: NM-OCD/DrillingInfo (2019)



Bear Tooth SWD No. 1
1 Mile Offset Operators and Lessees List

S/T/R	QQ UNIT LETTER(S)	OPERATOR	MINERAL LESSEE	MINERAL OWNER	SURFACE OWNER	ADDRESS 1	ADDRESS 2
35/23S/26E	O,P	-	XTO HOLDINGS LLC	-	-	LAND DEPT. LOC. 115, 22777 SPRINGWOODS VILLAGE PKWY	SPRING, TX 77389
36/23S/26E	M,N,P	MEWBOURNE OIL CO	-	-	-	PO BOX 5270	HOBBS, NM 88241
	O	-	FAULCONER 1996 LIMITED PARTNERSHIP LLP	-	-	PO BOX 7995	TYLER, TX 75711
6/24S/27E	K,L,M,N	COG OPERATING LLC	-	-	-	600 W ILLINOIS AVE	MIDLAND, TX 79701
	E	-	CONCHO OIL & GAS LLC/COG OPERATING LLC	-	-	ONE CONCHO CENTER, 600 W ILLINOIS AVENUE	MIDLAND, TX 79701
	D	-	-	BUREAU OF LAND MANAGEMENT	-	301 DINOSAUR TRAIL	SANTA FE, NM 87508
1/24S/26E	Entire Section	CIMAREX ENERGY CO	-	-	-	600 N. MARIENFELD STREET SUITE 600	MIDLAND, TX 79701
2/24S/26E	A,B,C,F,G,H	MARATHON OIL PERMIAN LLC	-	-	-	5555 SAN FELIPE ST	HOUSTON, TX 77056
	I,J,K,N,O,P	CHISHOLM ENERGY OPERATING LLC	-	-	-	801 CHERRY STREET	FORT WORTH, TX 76102
11/24S/26E	C,F	CIMAREX ENERGY CO OF COLORADO	-	-	-	600 N. MARIENFELD STREET SUITE 600	MIDLAND, TX 79701
	A,B,G,H	-	O'NEILL PROPERTIES LTD	-	-	410 W OHIO	MIDLAND, TX 79701
			<u>Operating Rights on BLM Lease NMLC - 0 064200:</u>				
			C & K 1975 EXPLORATION LTD	-	-	16825 NORTHCHASE DR	HOUSTON, TX 77060
			EAGLE OIL & GAS CO	-	-	8111 PRESTON RD #900	DALLAS, TX 75225
			MAGNUM HUNTER PRODUCTION INC	-	-	202 S CHEYENNE AVE STE 1000	TULSA, OK 74103
			JMA RESOURCES INC	-	-	5400 NW GRAND #305	OKLAHOMA CITY, OK 73112
			KERR-MCGEE OG ONSHORE LP	-	-	1999 BROADWAY #3700	DENVER, CO 80202
			CHISHOLM ENERGY AGENT INC	-	-	801 CHERRY ST STE 1200 UNIT 20	FORT WORTH, TX 76102
			EAU ROUGE LLC	-	-	PO BOX 823085	DALLAS, TX 75382
			CHISHOLM ENERGY OPERATING LLC	-	-	801 CHERRY ST STE 1200	FORT WORTH, TX 76102
			BLACKWATER NATURAL GAS	-	-	69 DELAWARE AVE #200A	BUFFALO, NY 14202
			FASKEN ACQUISITION 95-1 LTD	-	-	6101 HOLIDAY HILL RD	MIDLAND, TX 79707
			BLACK HILLS GAS RESOURCES INC	-	-	1515 WYNKOOP ST STE 500	DENVER, CO 80202
			MARATHON OIL PERMIAN LLC	-	-	5555 SAN FELIPE ST	HOUSTON, TX 77056
			J M HUBER CORP	-	-	1900 W LOOP S #1600	HOUSTON, TX 77027
	I,J,P	-	ONEILL PROP LTD	-	-	410 W OHIO	MIDLAND, TX 79701
			<u>Operating Rights on BLM Lease NMLC - 0 065421:</u>				
			BLACK STONE ENERGY CO LLC	-	-	1001 FANNIN ST STE 2020	HOUSTON, TX 77002
			BLACK HILLS GAS RESOURCES INC	-	-	1515 WYNKOOP ST STE 500	DENVER, CO 80202
			FASKEN ACQUISITION 95-1 LTD	-	-	6101 HOLIDAY HILL RD	MIDLAND, TX 79707
			MAGNUM HUNTER PRODUCTION INC	-	-	202 S CHEYENNE AVE STE 1000	TULSA, OK 74103
			MARATHON OIL PERMIAN LLC	-	-	5555 SAN FELIPE ST	HOUSTON, TX 77056
			CRAVEY JOHN R	-	-	20 WINDING WAY	PECOS, TX 79772
12/24S/26E	A,B,C,D,E,F,G,H	COG OPERATING LLC	-	-	-	600 W ILLINOIS AVE	MIDLAND, TX 79701
		CIMAREX ENERGY CO	-	-	-	600 N. MARIENFELD STREET SUITE 600	MIDLAND, TX 79701
	I,J,K,L,M,N,O	CIMAREX ENERGY CO	-	-	-	600 N. MARIENFELD STREET SUITE 600	MIDLAND, TX 79701
7/24S/27E	C,D,E	-	DEVON ENERGY PROD CO LP	-	-	333 W SHERIDAN AVE	OKLAHOMA CITY, OK 73112
			<u>Operating Rights on BLM Lease NMNM - 112268:</u>				
			MARSHALL AND WINSTON INC	-	-	PO BOX 50880	MIDLAND, TX 79710
			OGX PRODUCTION LTD	-	-	PO BOX 2064	MIDLAND, TX 79702
			MARATHON OIL PERMIAN LLC	-	-	5555 SAN FELIPE ST	HOUSTON, TX 77056
			TRINITY RIVER ENERGY LLC	-	-	777 MAIN ST STE 3600	FORT WORTH, TX 76102
			TRINITY RIVER ENERGY LEASE ASSETS INC	-	-	777 MAIN ST STE 900	FORT WORTH, TX 76102
			COG PRODUCTION LLC	-	-	600 W ILLINOIS AVE	MIDLAND, TX 79701
Surface Location	-	-	-	-	BUREAU OF LAND MANAGEMENT	301 DINOSAUR TRAIL	SANTA FE, NM 87508

Bear Tooth SWD No. 1 Produced Water Samples																		
Well Name	API	Section	Township	Range	Unit	County	Formation	ph	tds_mgl	sodium_mgl	calcium_mgl	iron_mgl	magnesium_mgl	manganese_mgl	chloride_mgl	bicarbonate_mgl	sulfate_mgl	co2_mgl
CRAWFORD #001	3001501121	9	24S	27E	K	EDDY	DELAWARE		95055						58570	95	187	
ST HAMILTON #001	3001501126	15	24S	27E	M	EDDY	DELAWARE		301812						189600	192	2040	
DOC HOLLIDAY 32 STATE COM #001	3001541145	32	24S	27E	D	EDDY	BONE SPRING 2ND SAND	6.7	193316.3	59944.7	8287.7	63.6	1065.9	1.03	120600	170.8	17	350
PREACHER 19 FEDERAL #003H	3001541887	19	24S	27E	O	EDDY	BONE SPRING 2ND SAND	6.5	193786.1	67996.2	3049.5	50	455.6	0	119000	130	34	300
PREACHER 19 FEDERAL #003H	3001541887	19	24S	27E	O	EDDY	BONE SPRING 2ND SAND	7	177819.6	60298.5	5557.4	49.5	721.3	0	108940.6	366	0	470
JOSEY WALES 16 STATE COM #003H	3001541090	16	24S	27E	O	EDDY	BONE SPRING 2ND SAND	6.47	179419.7	56191	7263	34	907	0.8	112857	146.4	573	350
DOC HOLLIDAY 32 STATE COM #001	3001541145	32	24S	27E	D	EDDY	BONE SPRING 2ND SAND	6.3	205799.3	64141.4	9202.6	68.4	1164.7	1.1	128748.7	122	17	430
PREACHER 19 FEDERAL #003H	3001541887	19	24S	27E	O	EDDY	BONE SPRING 2ND SAND	5.8	203717.6	70834.8	3255.7	51	483.4	0	125604.7	144	34	360
JOSEY WALES 16 STATE COM #003H	3001541090	16	24S	27E	O	EDDY	BONE SPRING 2ND SAND	7.6	176588.8	56605.8	7257.2	41.9	919.6	0	109722	146	0	430
DOC HOLLIDAY 32 STATE COM #001	3001541145	32	24S	27E	D	EDDY	BONE SPRING 2ND SAND	7.3	197760.1	61580.1	8480.7	68.7	1113.9	1.11	123849.8	146	0	430
DOC HOLLIDAY 32 STATE COM #001	3001541145	32	24S	27E	D	EDDY	BONE SPRING 2ND SAND	7.3	127681.6	43933.7	2003.8	31.4	394.2	0	77098	195.2	0	50
PREACHER 19 FEDERAL #003H	3001541887	19	24S	27E	O	EDDY	BONE SPRING 2ND SAND	7.4	312558	120501	1427.3	43.3	362.7	0	186000	201.4	3947	180
PREACHER 19 FEDERAL #003H	3001541887	19	24S	27E	O	EDDY	BONE SPRING 2ND SAND	7.4	312550	120501	1427.3	43.3	362.7	0	186000	201.4	0	180
JOSEY WALES 16 STATE COM #003H	3001541090	16	24S	27E	O	EDDY	BONE SPRING 2ND SAND	6.5	179141.4	59469	7527.1	41	943.9	0	109122.7	73.2	0	250
DOC HOLLIDAY 32 STATE COM #001	3001541145	32	24S	27E	D	EDDY	BONE SPRING 2ND SAND	7	203230.2	65823.6	9280.1	59.4	1154	1.17	124268.5	48.8	0	300
HABANERO 17 FEDERAL COM #001H	3001536108	17	24S	27E	A	EDDY	WOLFCAMP	6.5	108205	35110.8	4480.2	28.5	627.9	0.61	65927.2	146	0	300
WHITE CITY PENN GAS COM UNIT 1 #001	3001500408	29	24S	26E	A	EDDY	WOLFCAMP	7		6000	990	0	130		10000	645	1320	
SERRANO 29 FEDERAL #001H	3001537763	29	24S	27E	H	EDDY	WOLFCAMP	6.9	102136.2	30415.1	5311.5	40.2	643.7	1.47	62812.7	183	0	350
SERRANO 29 FEDERAL #001H	3001537763	29	24S	27E	H	EDDY	WOLFCAMP	6.5	100994.9	28702.1	5341.9	46.2	619.5	1.46	63450.1	268	0	350
LEE J FED #001	3001505973	18	24S	26E	J	EDDY	WOLFCAMP	8.1							9100		7300	
BRADLEY FEDERAL #006	3001500386	11	24S	26E	I	EDDY	SAN ANDRES	8.5	10492						5070	618	413	
BRADLEY #007	3001500385	11	24S	26E	O	EDDY	SAN ANDRES	8.8	6811						2948	429	887	
FED D #002	3001500389	12	24S	26E	P	EDDY	ATOKA		60623									
R.S. STATE #001	3001501132	27	24S	27E	N	EDDY	PENNSYLVANIAN		48387						26570	1505	2263	
O'NEILL FEDERAL #001	3001520301	11	24S	26E	L	EDDY	MORROW	5.7	123887	49189.7	2808	351			81000	368.28	81	

CARLSBAD CURRENT-ARGUS

AFFIDAVIT OF PUBLICATION

Ad No.
0001275814

LONQUIST FIELD SERVICE
1001 MCKINNEY ST., SUITE 1650
HOUSTON TX 77002

I, a legal clerk of the **Carlsbad Current-Argus**,
a newspaper published daily at the City of
Carlsbad, in said county of Eddy, state of New
Mexico and of general paid circulation in said
county; that the same is a duly qualified
newspaper under the laws of the State wherein
legal notices and advertisements may be
published; that the printed notice attached
hereto was published in the regular and entire
edition of said newspaper and not in supplement
thereof on the date as follows, to wit:

01/31/19



Legal Clerk

Subscribed and sworn before me this
31st of January 2019.



State of WI, County of Brown
NOTARY PUBLIC

9-19-21

My Commission Expires

Legal Notice

3Bear Field Services, LLC, 415 W. Wall St., Suite 1212, Midland, Texas 79701, is filling Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division for administrative approval for its salt water disposal well Bear Tooth SWD No. 1. The proposed well will be located 1,104' FSL & 1,439' FWL in Section 1, Township 24S, Range 26E in Eddy County, New Mexico. Disposal water will be sourced from area production, and will be injected into the Siluro-Devonian and Montoya formations (determined by offset log analysis) through an open hole completion between a maximum applied for top of 12,690 feet to a maximum depth of 13,625 feet. The maximum surface injection pressure will not exceed 2,538 psi with a maximum rate of 25,000 BWPD. Interested parties opposing the action must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Drive, Santa Fe, New Mexico 87505, within 15 days. Additional information can be obtained from the applicant's agent, Lonquist & Co., LLC, at (512) 600-1774.

January 31, 2019



District I

1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II

811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

District III

1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV

1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico

Form C-101
Revised July 18, 2013

Energy Minerals and Natural Resources**Oil Conservation Division**
☐ AMENDED REPORT
1220 South St. Francis Dr.**Santa Fe, NM 87505****APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE**

¹ Operator Name and Address 3BEAR FIELD SERVICE, LLC 415 W. WALL ST., STE 1212 MIDLAND, TEXAS 79701		² OGRID Number 372603
		³ API Number 30-025-TBD
⁴ Property Code	⁵ Property Name BEAR TOOTH SWD	⁶ Well No. 1

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
N	1	24S	26E		1,104	S	1,439	W	EDDY

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
-	-	-	-		-	-	-	-	-

9. Pool Information

Pool Name SWD; Devonian-Silurian	Pool Code 97869
-------------------------------------	--------------------

Additional Well Information

¹¹ Work Type N	¹² Well Type SWD	¹³ Cable/Rotary R	¹⁴ Lease Type Private	¹⁵ Ground Level Elevation 3,286'
¹⁶ Multiple N	¹⁷ Proposed Depth 13,785'	¹⁸ Formation Devonian-Silurian	¹⁹ Contractor TBD	²⁰ Spud Date ASAP
Depth to Ground water 172'	Distance to nearest fresh water well > 1 Mile		Distance to nearest surface water > 1 mile	

☒ We will be using a closed-loop system in lieu of lined pits
21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surface	17-1/2"	13-3/8"	54.5 lb/ft	450'	470	Surface
Intermediate	12-1/4"	9-5/8"	43.5 lb/ft	8,680'	1,995	Surface
Production Liner	8-3/4"	7-5/8"	39 lb/ft	8,400'-12,850'	350	8,400'
Tubing	6-1/8"	5-1/2"	20 lb/ft	12,800'		

Casing/Cement Program: Additional Comments


See attached schematic.

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Hydraulic/Blinds, Pipe	8,000 psi	10,000 psi	TBD - Schaffer/Cameron

²³ I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

I further certify that I have complied with 19.15.14.9 (A) NMAC ☐ and/or 19.15.14.9 (B) NMAC ☒, if applicable.

Signature: 

Printed name: Steve Pattee

Title: Consulting Engineer

E-mail Address: steve@lonquist.com

Date: July 11, 2019

Phone: 512-600-1774

OIL CONSERVATION DIVISION

Approved By:

Title:

Approved Date:

Expiration Date:

Conditions of Approval Attached

DETERMINATION AND NOTICE OF AFFECTED PARTIES – NEW MEXICO

If an operator or mineral lessee has legal acreage or leases within one mile of the proposed salt water disposal well, their contact information is collected for notification purposes. Legal acreage of offset operators is gathered from the New Mexico Oil Conservation District's Permitting website. Minerals leased from the federal government are determined by referencing the Bureau of Land Management's Land and Mineral System Reports database. Minerals leased from the state government are determined by referencing the New Mexico State Land Office's Data Access database. Contact information for the affected parties is then extracted from the reports that were filed with the appropriate regulatory agency. Should any private minerals that are not public information fall within the one-mile radius, a title search was performed to discover the current lessee of those minerals or identifying the mineral owner of the acreage.

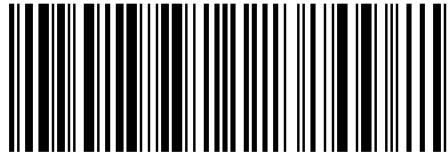
Notices were sent for the Bear Tooth SWD No. 1 application by mailing them a copy of Form C-108 on 7/11/2019. The individual tracking numbers are attached in the following pages of this application. Receipt of each application will be monitored and presented to the Oil Conservation Division upon request.



Tyler Moehlman
Petroleum Engineer

Project: 3Bear Field Services, LLC
Bear Tooth SWD No. 1

Susan Brouse
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



9314 8699 0430 0061 0796 98

RETURN RECEIPT (ELECTRONIC)

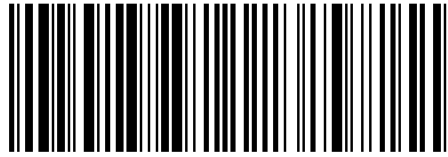


Total Postage: \$6.55

OIL CONSERVATION DIVISION
DISTRICT II
811 S 1ST ST
ARTESIA, NM 88210-2834

Reference Number: 1829-Bear Tooth SWD #1

Susan Brouse
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



9314 8699 0430 0061 0797 04

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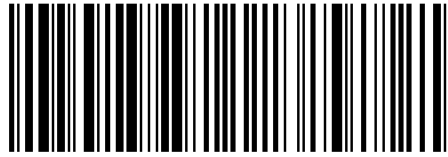


Total Postage: \$6.55

OIL CONSERVATION DIVISION
District IV
1220 S. ST FRANCIS DR
SANTA FE, NM 87505

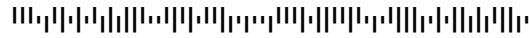
Reference Number: 1829-Bear Tooth SWD #1

Susan Brouse
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



9314 8699 0430 0061 0797 11

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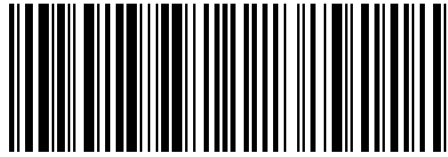


Total Postage: \$6.55

BUREAU OF LAND MGMT
301 DINOSAUR TRL
SANTA FE, NM 87508-1560

Reference Number: 1829-Bear Tooth SWD #1

Susan Brouse
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



9314 8699 0430 0061 0797 28

RETURN RECEIPT (ELECTRONIC)

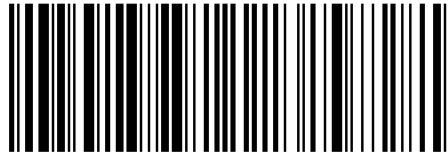


Total Postage: \$6.55

NEW MEXICO STATE LAND OFFICE
310 OLD SANTA FE TRL
SANTA FE, NM 87501-2708

Reference Number: 1829-Bear Tooth SWD #1

Susan Brouse
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



9314 8699 0430 0061 0797 35

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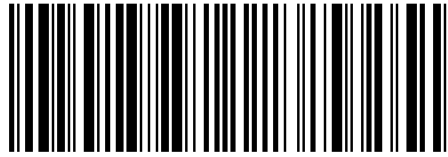


Total Postage: \$6.55

MEWBOURNE OIL CO
PO BOX 5270
HOBBS, NM 88241-5270

Reference Number: 1829-Bear Tooth SWD #1

Susan Brouse
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



9314 8699 0430 0061 0797 42

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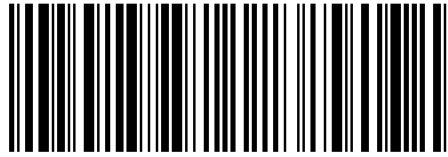


Total Postage: \$6.55

MARATHON OIL PERMIAN LLC
5555 SAN FELIPE ST
HOUSTON, TX 77056

Reference Number: 1829-Bear Tooth SWD #1

Susan Brouse
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



9314 8699 0430 0061 0797 59

RETURN RECEIPT (ELECTRONIC)

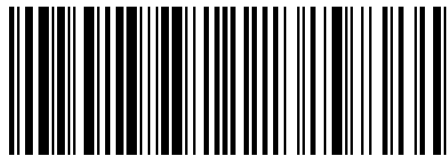


Total Postage: \$6.55

CIMAREX ENERGY CO
CIMAREX ENERGY CO OF COLORADO
600 N MARIENFELD ST STE 600
MIDLAND, TX 79701-4405

Reference Number: 1829-Bear Tooth SWD #1

Susan Brouse
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



9314 8699 0430 0061 0797 66

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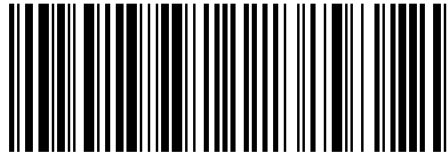


Total Postage: \$6.55

CHISHOLM ENERGY OPERATING LLC
801 CHERRY STREET
FT WORTH , TX 76102

Reference Number: 1829-Bear Tooth SWD #1

Susan Brouse
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



9314 8699 0430 0061 0797 73

RETURN RECEIPT (ELECTRONIC)

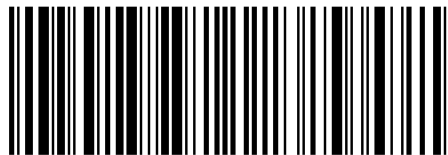


Total Postage: \$6.55

COG OPERATING LLC
600 W ILLINOIS AVE
MIDLAND, TX 79701-4882

Reference Number: 1829-Bear Tooth SWD #1

Susan Brouse
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



9314 8699 0430 0061 0797 80

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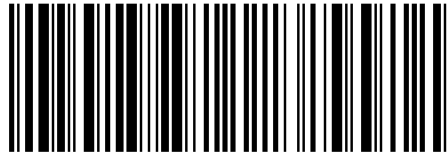


Total Postage: \$6.55

XTO HOLDINGS LLC
LAND DEPT LOC 115
22777 SPRINGWOODS VILLAGE PKWY
SPRING, TX 77389-1425

Reference Number: 1829-Bear Tooth SWD #1

Susan Brouse
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



9314 8699 0430 0061 0797 97

RETURN RECEIPT (ELECTRONIC)

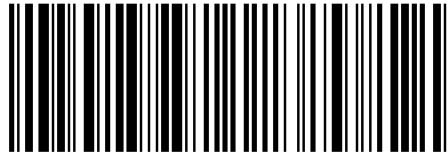


Total Postage: \$6.55

CONCHO OIL & GAS LLC
COG OPERATING LLC
600 W ILLINOIS AVE
MIDLAND, TX 79701-4882

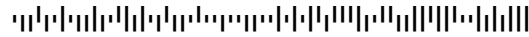
Reference Number: 1829-Bear Tooth SWD #1

Susan Brouse
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



9314 8699 0430 0061 0798 03

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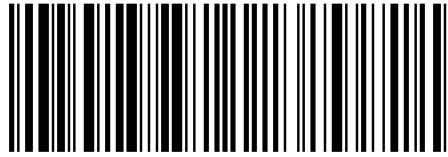


Total Postage: \$6.55

FAULCONER 1996 LP
PO BOX 7995
TYLER, TX 75711-7995

Reference Number: 1829-Bear Tooth SWD #1

Susan Brouse
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



9314 8699 0430 0061 0798 10

RETURN RECEIPT (ELECTRONIC)

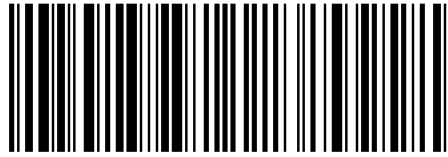


Total Postage: \$6.55

O'NEILL PROPERTIES LTD
410 W OHIO AVE
MIDLAND, TX 79701-4331

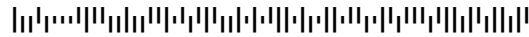
Reference Number: 1829-Bear Tooth SWD #1

Susan Brouse
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



9314 8699 0430 0061 0798 27

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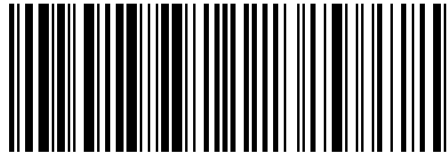


Total Postage: \$6.55

DEVON ENERGY PROD CO LP
333 W SHERIDAN AVE
OKLAHOMA CITY, OK 73102-5010

Reference Number: 1829-Bear Tooth SWD #1

Susan Brouse
Lonquist & CO LLC
1001 McKinney Street
Ste 1650
Houston, TX 77002



9314 8699 0430 0061 0798 34

RETURN RECEIPT (ELECTRONIC)




Total Postage: \$6.55

ONEIL PROP LTD
410 W OHIO AVE
MIDLAND, TX 79701-4331

Reference Number: 1829-Bear Tooth SWD #1

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: _____ Secondary Recovery _____ Pressure Maintenance _____ ☒ Disposal _____ Storage
Application qualifies for administrative approval? _____ ☒ Yes _____ No
- II. OPERATOR: 3Bear Field Services, LLC
ADDRESS: 415 W. Wall St., Suite 1212
CONTACT PARTY: Mike Solomon PHONE: 303-862-3962
- III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection.
Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? _____ Yes _____ ☒ No
If yes, give the Division order number authorizing the project: _____
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
 2. Whether the system is open or closed;
 3. Proposed average and maximum injection pressure;
 4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
 5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- *VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- *X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).
- *XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- NAME: Steve Pattee TITLE: Consulting Engineer – Agent for 3Bear Field Service
SIGNATURE:  DATE: 7/11/2019
E-MAIL ADDRESS: steve@lonquist.com
- * If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

III. WELL DATA

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

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

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

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

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

XIV. PROOF OF NOTICE

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

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

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

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

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

INJECTION WELL DATA SHEET

OPERATOR: 3Bear Field Services, LLC

WELL NAME & NUMBER: Bear Tooth SWD No. 1

WELL LOCATION: 1,104' FSL & 1,439' FWL
FOOTAGE LOCATION

N
UNIT LETTER

1 SECTION 24S TOWNSHIP

26E
RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 17.500"
Cemented with 470 sacks.
Top of Cement: surface

Casing Size: 13.375"
or ft³
Method Determined: circulation

Intermediate Casing

Hole Size: 12.250"
Cemented with 1,995 sacks.
Top of Cement: surface

Casing Size: 9.625"
or ft³
Method Determined: circulation

Production Liner

Hole Size: 8.750"
Cemented with 350 sacks.
Top of Cement: 8,400'
Total Depth: 13,785'

Casing Size: 7.625"
or ft³
Method Determined: calculation

Injection Interval

12,850 feet to 13,785 feet
(Open Hole)

INJECTION WELL DATA SHEET

Tubing Size: 5.5", 20 lb/ft, HCL-80, BTC from 0' - 12,800

Lining Material: Duoline

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

Packer Setting Depth: 12,800'

Other Type of Tubing/Casing Seal (if applicable): _____

Additional Data

1. Is this a new well drilled for injection? X Yes No

If no, for what purpose was the well originally drilled?

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

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

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used.

No, new drill.

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:

Delaware: 2,192'

Bone Spring: 5,486'

Wolfcamp: 8,661'

Strawn: 10,661'

Morrow: 11,363'

District I

1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II

811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

District III

1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV

1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico

Form C-101
Revised July 18, 2013

Energy Minerals and Natural Resources**Oil Conservation Division**
☐ AMENDED REPORT
1220 South St. Francis Dr.**Santa Fe, NM 87505****APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE**

¹ Operator Name and Address 3BEAR FIELD SERVICE, LLC 415 W. WALL ST., STE 1212 MIDLAND, TEXAS 79701		² OGRID Number 372603
		³ API Number 30-025-TBD
⁴ Property Code	⁵ Property Name BEAR TOOTH SWD	⁶ Well No. 1

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
N	1	24S	26E		1,104	S	1,439	W	EDDY

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
-	-	-	-		-	-	-	-	-

9. Pool Information

Pool Name SWD; Devonian-Silurian	Pool Code 97869
-------------------------------------	--------------------

Additional Well Information

¹¹ Work Type N	¹² Well Type SWD	¹³ Cable/Rotary R	¹⁴ Lease Type Private	¹⁵ Ground Level Elevation 3,286'
¹⁶ Multiple N	¹⁷ Proposed Depth 13,785'	¹⁸ Formation Devonian-Silurian	¹⁹ Contractor TBD	²⁰ Spud Date ASAP
Depth to Ground water 172'	Distance to nearest fresh water well > 1 Mile		Distance to nearest surface water > 1 mile	

☒ We will be using a closed-loop system in lieu of lined pits
21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surface	17-1/2"	13-3/8"	54.5 lb/ft	450'	470	Surface
Intermediate	12-1/4"	9-5/8"	43.5 lb/ft	8,680'	1,995	Surface
Production Liner	8-3/4"	7-5/8"	39 lb/ft	8,400'-12,850'	350	8,400'
Tubing	6-1/8"	5-1/2"	20 lb/ft	12,800'		

Casing/Cement Program: Additional Comments


See attached schematic.

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Hydraulic/Blinds, Pipe	8,000 psi	10,000 psi	TBD - Schaffer/Cameron

²³ I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

I further certify that I have complied with 19.15.14.9 (A) NMAC ☐ and/or 19.15.14.9 (B) NMAC ☒, if applicable.

Signature: 

Printed name: Steve Pattee

Title: Consulting Engineer

E-mail Address: steve@lonquist.com

Date: July 11, 2019

Phone: 512-600-1774

OIL CONSERVATION DIVISION

Approved By:

Title:

Approved Date:

Expiration Date:

Conditions of Approval Attached

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number	² Pool Code	³ Pool Name
⁴ Property Code	⁵ Property Name BEAR TOOTH SWD	⁶ Well Number
⁷ OGRID No.	⁸ Operator Name 3BEAR FIELD SERVICES, LLC	⁹ Elevation 3286'

¹⁰ Surface Location

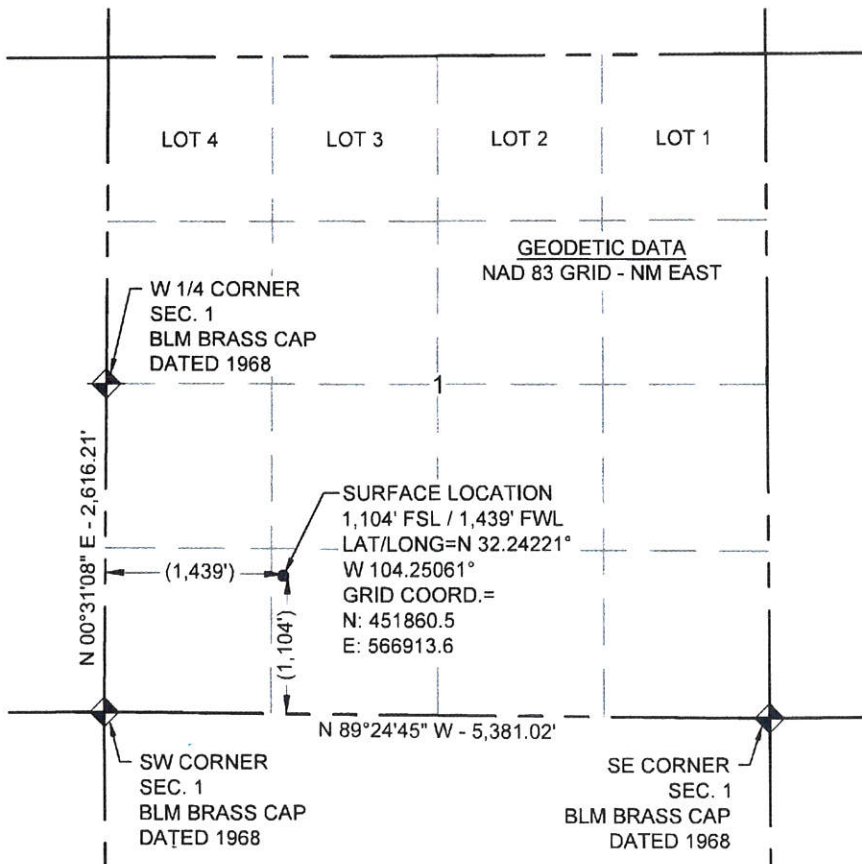
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
SW 1/4	1	24S	26E		1,104	SOUTH	1,439	WEST	EDDY

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
-------------------------------	-------------------------------	----------------------------------	-------------------------

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



¹⁷ OPERATOR CERTIFICATION

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

Signature *[Signature]* Date 07-11-19

Printed Name Stephen Pattee

E-mail Address steve@longquist.com

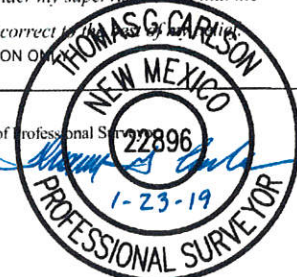
¹⁸ SURVEYOR CERTIFICATION

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

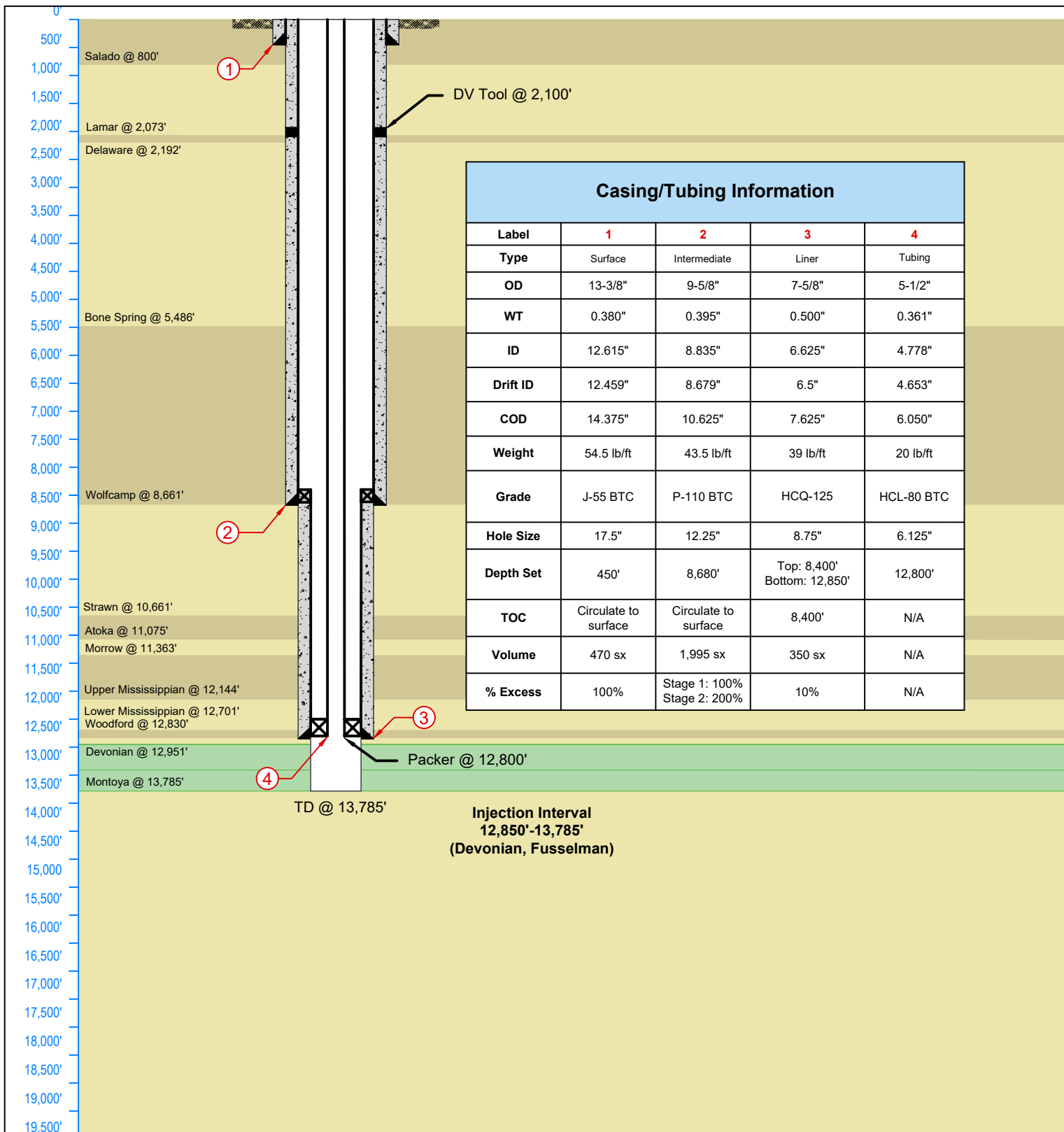
SURFACE LOCATION ON 1/21/19

Date of Survey

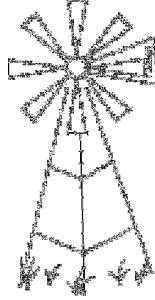
Signature and Seal of Professional Surveyor *[Signature]*



22896
Certificate Number



LONGQUIST & CO. LLC PETROLEUM ENGINEERS ENERGY ADVISORS <small>AUSTIN • HOUSTON CALGARY • WICHITA</small> <small>DENVER • COLLEGE STATION BATON ROUGE • EDMONTON</small> Texas License F-9147 12912 Hill Country Blvd. Ste F-200 Austin, Texas 78738 Tel: 512.732.9812 Fax: 512.732.9816	3 Bear Field Services, LLC		Bear Tooth SWD No. 1	
	Country: USA		State/Province: New Mexico	County/Parish: Eddy
	Location:		Site: 1,104' FSL & 1,439' FWL	Survey: S1-T24S-R26E
	API No: N/A		Field: Devonian-Silurian	Well Type/Status: SWD
	NMOCD District No: 2		Project No: 1829	Date: 07/10/2019
	Drawn: TFM		Reviewed:	Approved:
	Rev No: 1		Notes:	



ZEIGLER GEOLOGIC CONSULTING, LLC

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For: 3Bear Energy, LLC
415 W. Wall St., Suite 1212
Midland, TX 79701

January 28, 2019

Re: Bear Tooth SWD #1, Eddy County, New Mexico

With regards to the Bear Tooth SWD #1 well, located in unit letter N, section 01, T24S, R26E (NM Prime Meridian) in Eddy County, the nearest documented basement-penetrating fault is located approximately 0.5 miles east of the well's location. Available geologic and engineering data has been examined and suggest no evidence of faults in immediate proximity to the well, nor hydrological connection between the proposed injection zone and any freshwater aquifers utilized for domestic, municipal or livestock water resources.

Sincerely,

A handwritten signature in blue ink that reads "Kate Zeigler". The signature is cursive and fluid.

Kate Zeigler, Ph.D., CPG (AIPG #11803)
Geologist



3Bear Field Services, LLC

Bear Tooth SWD No. 1

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1.

Well information	
Lease Name	Bear Tooth SWD
Well No.	1
Location	S-1 T-24S R-26E
Footage Location	1,104' FSL & 1,439' FWL

2.

a. Wellbore Description

Type	Surface	Intermediate	Liner
OD	13.375"	9.625"	7.625"
WT	0.380"	0.395"	0.500"
ID	12.615"	8.835"	6.625"
Drift ID	12.459"	8.679"	6.500"
COD	14.375"	10.625"	7.625"
Weight	54.5 lb/ft	43.5 lb/ft	39 lb/ft
Grade	J-55 BTC	P-110 BTC	HCQ-125
Hole Size	17-1/2"	12.25"	8.75"
Depth Set	450'	8,680'	8,400' – 12,850'

b. Cementing Program

Casing String	Surface	Production	Liner
Lead Cement		Class C	Class H
Lead Cement Volume		Stage 1: 945 sks Stage 2: 540 sks	90 sks
Lead Cement Density		Stage 1: 11.5 ppg Stage 2: 11.5 ppg	12.7 ppg
Tail Cement	Class C	Class C	Class H
Tail Cement Volume	470 sks	Stage 1: 510 sks	260 sks
Tail Cement Density	14.8 ppg	Stage 1: 14.8 ppg	14.5 ppg
Cement Excess	100%	Stage 1: 100% Stage: 200%	10%
Total Sacks	470 sks	1,995 sks	350 sks
TOC	Surface	Surface	8,400'
Method	Circulate to Surface	Circulate to Surface	Circulate to Surface

3. Tubing Description

Tubing Information	
OD	5.5"
WT	0.361"
ID	4.778"
Drift ID	4.653"
COD	6.050"
Weight	20 lb/ft
Grade	HCL-80 BTC
Depth Set	0-12,800'

Tubing will be lined with Duoline.

4. Packer Description

7-5/8" x 5-1/2" Permanent Packer with High Temp Elastomer and Full Inconel 925 trim

B. Completion Information

1. Injection Formation: Devonian, Fusselman

2. Gross Injection Interval: 12,850' – 13,785'

Completion Type: Open Hole

3. Drilled for injection.
4. See the attached wellbore schematic.
5. Oil and Gas Bearing Zones within area of well:

Formation	Depth
Delaware	2,192'
Bone Spring	5,486'
Wolfcamp	8,661'
Strawn	10,661'
Morrow	11,363'

VI. Area of Review

No wells within the area of review penetrate the proposed injection zone.

VII. Proposed Operation Data

1. Proposed Daily Rate of Fluids to be Injection:

Average Volume: 20,000 BPD

Maximum Volume: 25,000 BPD

2. Closed System

3. Anticipated Injection Pressure:

Average Injection Pressure: 1,928 PSI (surface pressure)

Maximum Injection Pressure: 2,570 PSI (surface pressure)

4. The injection fluid is to be locally produced water. It is expected that the source water will predominantly be from the Bone Spring and Artesia formations. Attached are produced water sample analyses taken from the closest wells that feature samples from the Artesia, Bone Spring, Delaware, Grayburn/San Andreas, Morrow, Pennsylvanian, and Strawn formations.
5. The disposal interval is non-productive. No water samples are available from the surrounding area.

VIII. Geological Data

Devonian Formation Lithology:

The Devonian formation is a dolomitic ramp carbonate that occurs below the Woodford shale and above the Fusselman formation. Strata found in the Devonian formation include two major groups, the Wristen Buildups and the Thirtyone Deepwater Chert, with the Wristen being more abundant. The Wristen Groups is composed of mixed limestone and dolomites with mudstone to grainstone and boundstone textures. Porosity in the Wristen group is a result of both primary and secondary development. Present are moldic, vugular, karstic (including collapse breccia) features that allow for higher porosities and permeabilities. The Thirtyone Formation contains two end-member reservoir facies, skeletal packstones/grainstones and spiculitic chert, with most of the porosity and permeability found in the coarsely crystalline cherty dolomite. These particular characteristics allow for this formation to be a tremendous Salt Water Disposal horizon.

Fusselman Formation Lithology:

The Silurian/Ordovician Fusselman Formation is stratigraphically below the Wristen Group and is above and separated from the Montoya Formation by the Sylvan Shale. The Sylvan Shale is the lower confining layer for the proposed well. Fusselman facies include a laminated skeletal wackestone in the upper part and a buildup complex in the lower part composed of ooid and bryozoan grainstones. These grainstones can also be potentially prolific zones for disposal.

A. Injection Zone: Devonian-Silurian Formation

Formation	Depth
Salado	800'
Lamar	2,073'
Delaware	2,192'
Bone Spring	5,486'
Wolfcamp	8,661'
Strawn	10,661'
Atoka	11,075'
Morrow	11,363'
Upper Mississippian	12,144'
Lower Mississippian	12,701'
Woodford	12,830'
Devonian	12,951'
Montoya	13,785'

B. Underground Sources of Drinking Water

No water wells exist within a one-mile radius of the proposed well. The water wells in the region are within the Carlsbad Basin of New Mexico. The Rustler is known to exist in this general area and may also be another USDW and will be protected by setting surface casing at 450'.

IX. Proposed Stimulation Program

No stimulation program planned.

X. Logging and Test Data on the Well

There are no logs or test data on the well. During the process of drilling and completion resistivity, gamma ray, and density logs will be run.

XI. Chemical Analysis of Fresh Water Wells

Because no water wells exist within a one-mile radius of the proposed well, chemical analysis of fresh water wells was not required at this time.