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 and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-101
Revised July 18, 2013

☐ AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address	2. OGRID Number
3Bear Field Services, LLC 500 Don Gaspar Avenue; Santa Fe, New Mexico 87505	372603
	3. API Number 30-025-47424

4. Property Code	5. Property Name	6. Well No.
328887	LOMBARD STATE SWD	1

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
12	6	21-S	33-E		3,882	NORTH	259	WEST	LEA

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
12	6	21-S	33-E		3,882	NORTH	259	WEST	LEA

9. Pool Information

Pool Name	Pool Code
SWD; DEVONIAN-SILURIAN	97869

Additional Well Information

11. Work Type	12. Well Type	13. Cable/Rotary	14. Lease Type	15. Ground Level Elevation
N	S	R	S	3,767′
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
NO	17,000′	FUSSELMAN		09-15-2020

Depth to Ground water	Distance from nearest fresh water well	Distance to nearest surface water
Approx. 170′	2,746′	

☒ **We will be using a closed-loop system in lieu of lined pits**

SWD-2378

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surface	26″	20″	94#	1,600′	3,352	Surface
1st Int.	17.5″	13.375″	68#	5,650′	4,238	Surface
2nd Int.	12.25″	9.625″	47#	11,530′	2,785	Surface
Prod. Liner	8.75″	7.625″	39#	15,535′	330	11,330′

Casing/Cement Program: Additional Comments

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Annular	5,000	4,500	
Double Ram	10,000	9,500	

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:	OIL CONSERVATION DIVISION
Printed name: Alberto A. Gutiérrez, R.G.	Approved By:
Title: Consultant to 3Bear Field Services, LLC	Title:
E-mail Address: aag@geolex.com	Approved Date: / Expiration Date:
Date: June 17, 2020 Phone: (505) 842-8000	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
30-025-47424	97869	SWD;DEVONIAN-SILURIAN

[4] Property Code	[5] Property Name	[6] Well Number
328887	LOMBARD STATE SWD ~~XXXXXXX~~	1

[7] OGRID No.	[8] Operator Name	[9] Elevation
372603	3BEAR FIELD SERVICES, LLC	3,767'

[10] Surface Location

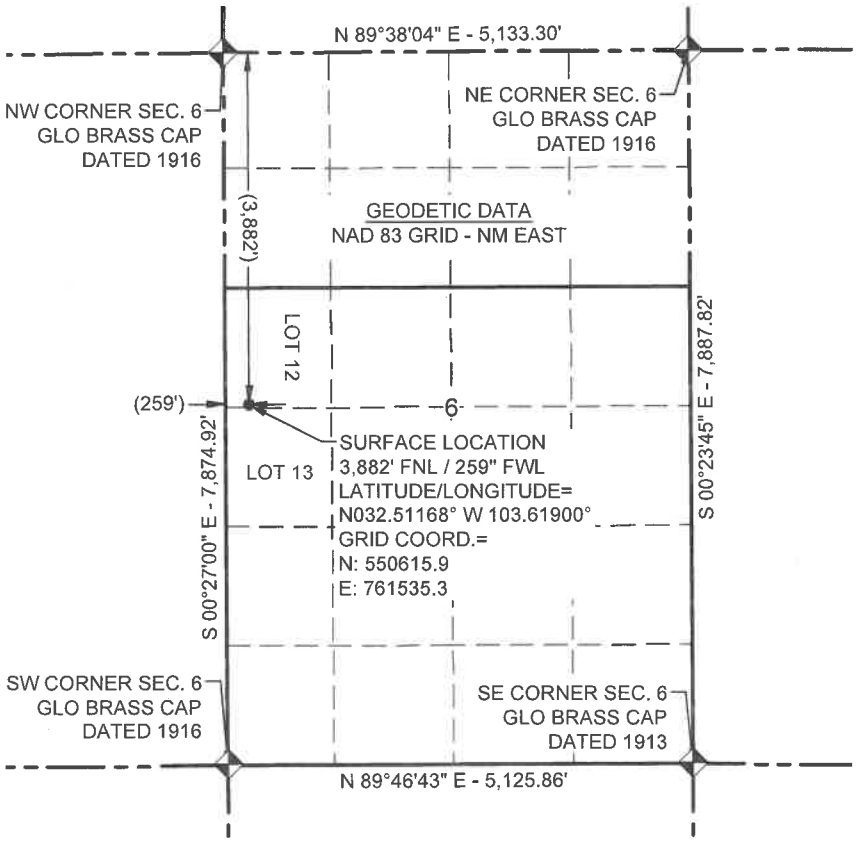
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
W 1/2	6	21S	33E		3,882'	NORTH	259'	WEST	LEA

[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.
			SWD-2378

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 — Date: 6/17/2020

A. A. Gutierrez
Printed Name

aag@geolex.com
E-mail Address

[18] SURVEYOR CERTIFICATION

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

SURFACE LOCATION ONLY

01/11/20
Date of Survey

Signature and Seal of Professional Surveyor:

JOSHUA A. MCGINN
NEW MEXICO
24516
PROFESSIONAL SURVEYOR

24516
Certificate Number

GEOLEX®
INCORPORATED

Alberto A. Gutiérrez, C.P.G.

June 17, 2020 VIA ELECTRONIC MAIL

Paul Kautz
NMOCD – District 1
1625 North French Drive
Hobbs, New Mexico 88240

RE: C-101 AND C-102 SUBMITTAL FOR 3BEAR FIELD SERVICES LOMBARD SWD #1; APPROVED ADMINISTRATIVE ORDER SWD-2378

Dear Mr. Kautz,

Included as an attachment in this correspondence, you will find a complete Form C-101 Application for Permit to Drill and corresponding Form C-102 Well Location and Acreage Dedication Plat filed on behalf of 3Bear Field Services, LLC (3Bear) for the proposed Lombard SWD #1 saltwater disposal well to be located in Section 6, Township 21 South, Range 33 East in Lea County, New Mexico.

3Bear has filed with the Oil Conservation Division a C-108 Application for Authorization to Inject, which was approved on May 7, 2020 via Administrative Order SWD-2378.

If you have any questions concerning this application, you may contact Alberto A. Gutiérrez, R.G. or David White, M.S. at Geolex, Inc.®; 500 Marquette Avenue NW, Suite 1350; Albuquerque, New Mexico.

Sincerely,
Geolex, Inc.®

Alberto A. Gutiérrez, R.G.
President, Geolex, Inc.®
Consultant to 3Bear Field Services, LLC

Enclosure:
Attachment A — Complete Form C-101 application and Form C-102
Attachment B — Lombard SWD #1 Well Schematic
Attachment C — Example Drilling Program

P:\18-025 (3 Bear AGIs)\Reports - Lombard SWD 1\Reports\C-101\Resources\Kautz.ltr.docx

ATTACHMENT A

NMOCD FORMS C-101 & C-102

3Bear Field Services
Lombard SWD #1

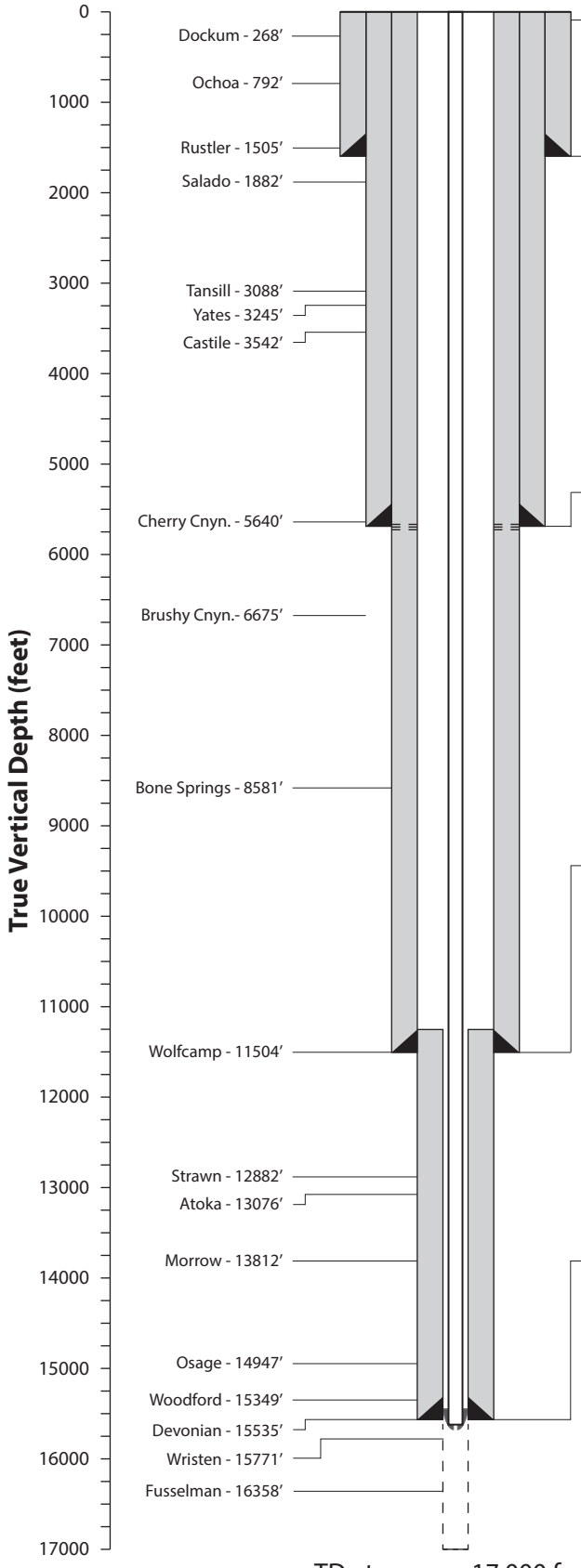
ATTACHMENT B

LOMBARD SWD #1 – WELL DIAGRAM

GEOLEX INCORPORATED

FIGURE 3
LOMBARD SWD #1
PRELIMINARY WELL SCHEMATIC

3Bear Energy



30" CONDUCTOR PIPE to 75'

SURFACE CASING 26" OH

ISOLATES AND PROTECTS WATER RESOURCES

20", 94.0 #/ft., J55, BTC from 0' to 1,600'

Lead	Tail
876 sks - EconoCem HLC	2476 sks - HalCem C
12.9 ppg, 1.892 ft3/sk	14.8 ppg, 1.343 ft3/sk

FIRST INTERMEDIATE CASING 17.5" OH

13-3/8", 68 #/ft., J55 BTC from 0' to 5,650'

Lead	Tail
2886 sks - EconoCem HLC	1352 sks - HalCem C
12.9 ppg, 1.892 ft3/sk	14.8 ppg, 1.35 ft3/sk

SECOND INTERMEDIATE CASING 12.25" OH

9-5/8", 47 #/ft., HCL-80 BTC from 0' to11,530'

Stage 1 Lead	Stage 1 Tail
840 sks - NeoCem	250 sks - NeoCem
11 ppg, 2.731 ft3/sk	13.2 ppg, 1.439 ft3/sk
Stage 2 Lead	**Stage 2 Tail**
1349 sks - NeoCem	346 sks - HalCem C
11 ppg, 2.806 ft3/sk	14.8 ppg, 1.35 ft3/sk

DV TOOL @ 5,650' - *PROVIDES CEMENT STRING INTEGRITY*

PRODUCTION LINER 8.75" OH

7-5/8", 39 #/ft., HCL-80, BTC from 11,330' to 15,535'

Lead	Tail
255 sks - NeoCem	75 sks - VersaCem
11 ppg, 2.733 ft3/sk	14.5 ppg, 1.223 ft3/sk

TUBING AND EQUIPMENT

5-1/2" injection tubing from approx. 0' to 15,535'
Permanent injection packer set at approx. 15,535'

6-1/8" OPEN-HOLE INTERVAL 15,535' to 17,000'

All depths are approximate and subject to change based on drilling and geology encountered

ATTACHMENT C

LOMBARD SWD #1
EXAMPLE DRILLING PROGRAM

EXAMPLE PRELIMINARY DRILLING PROGRAM
LOMBARD SWD #1

Location: Section 6
Township 21 South, Range 33 East
Lea County, New Mexico

Directions: From Eunice, New Mexico, drive west on Highway NM-176 W (Avenue O) and continue to follow markers for NM-176 W for 30 miles. Turn left (south) on lease road and continue for 0.6 miles. Continue following lease road (left split) south for an additional 0.6 miles. Turn left (northeast) at first lease road and continue for approximately 1,000 feet to reach site access road on left (north). Signage indicating direction to 3Bear operations will be posted at worksite access road and at relevant lease road intersections.

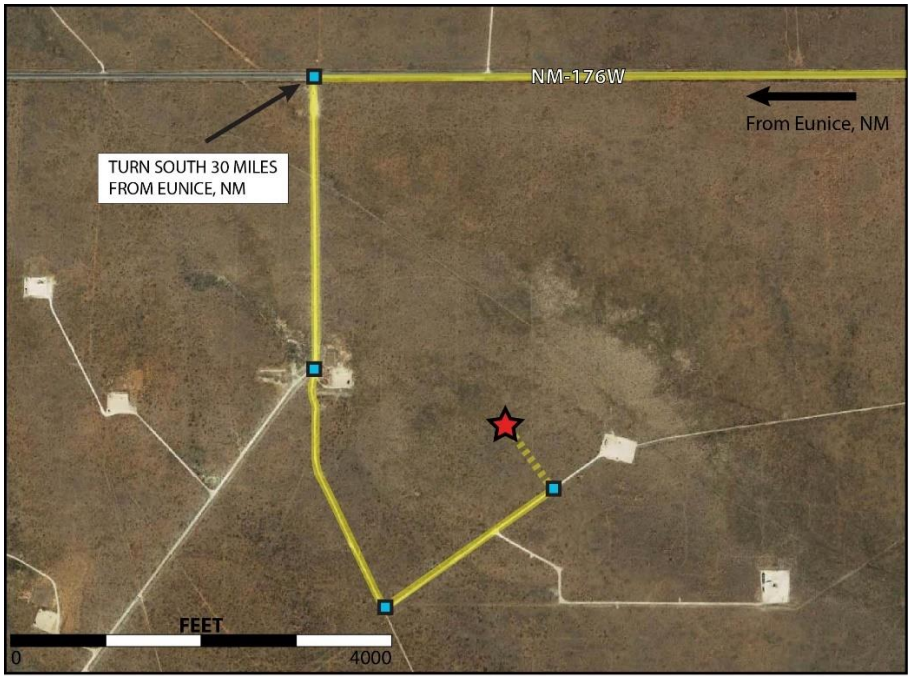


Figure 1. Anticipated access route for drilling & completion of Lombard SWD #1

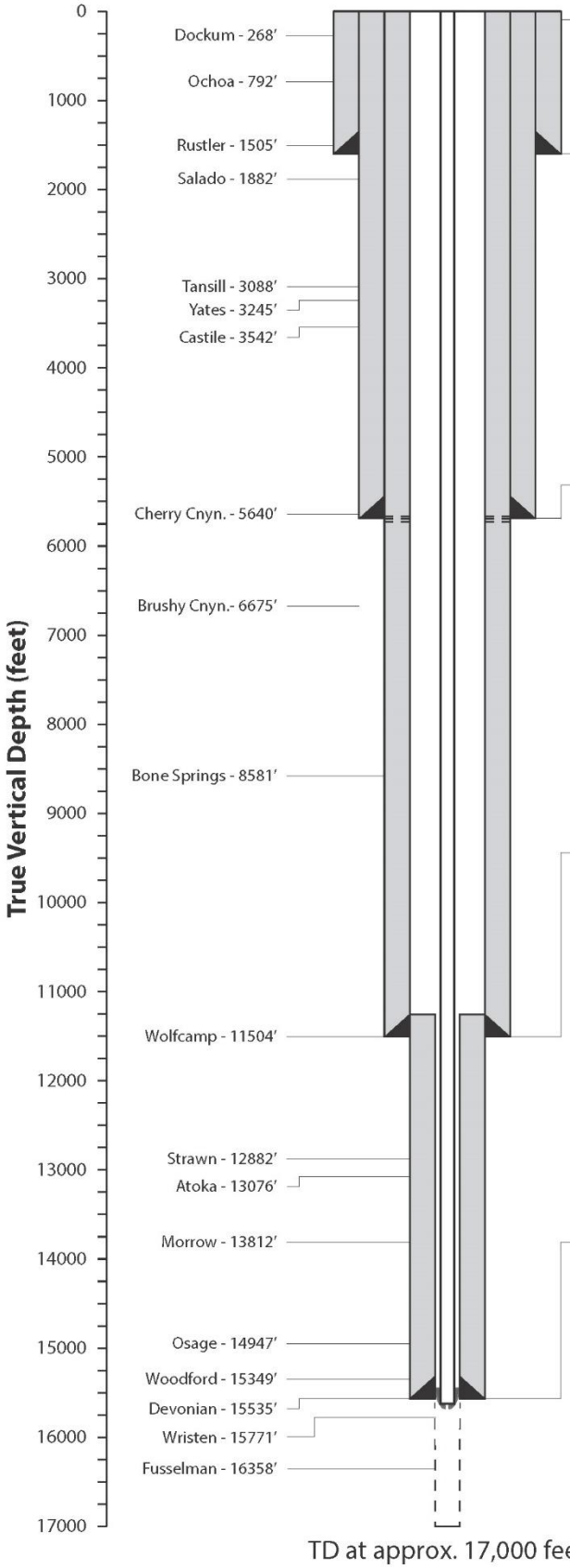
WELL SUMMARY DATA

County:	Lea	**Field**	SWD; DEV-SIL
API:	TBD	**NMOCC Order No.**	TBD
AFE Number:	TBD	**Drilling Rig:**	TBD
Elevation:	3767’	**KB Elevation:**	-
NAD83 Coordinates:	32.511680 -103.61900	**Location:**	3882 FNL, 259 FWL S6-T21S-R33E

GEOLEX INCORPORATED

FIGURE 3
LOMBARD SWD #1
PRELIMINARY WELL SCHEMATIC

3Bear Energy



30" CONDUCTOR PIPE to 75'

SURFACE CASING — 26" OH

ISOLATES AND PROTECTS WATER RESOURCES

20", 94.0 #/ft., J55, BTC from 0' to 1,600'

Lead	Tail
876 sks - EconoCem HLC	2476 sks - HalCem C
12.9 ppg, 1.892 ft3/sk	14.8 ppg, 1.343 ft3/sk

FIRST INTERMEDIATE CASING — 17.5" OH

13-3/8", 68 #/ft., J55 BTC from 0' to 5,650'

Lead	Tail
2886 sks - EconoCem HLC	1352 sks - HalCem C
12.9 ppg, 1.892 ft3/sk	14.8 ppg, 1.35 ft3/sk

SECOND INTERMEDIATE CASING — 12.25" OH

9-5/8", 47 #/ft., HCL-80 BTC from 0' to11,530'

Stage 1 Lead	Stage 1 Tail
840 sks - NeoCem	250 sks - NeoCem
11 ppg, 2.731 ft3/sk	13.2 ppg, 1.439 ft3/sk

Stage 2 Lead	Stage 2 Tail
1349 sks - NeoCem	346 sks - HalCem C
11 ppg, 2.806 ft3/sk	14.8 ppg, 1.35 ft3/sk

DV TOOL @ 5,650' - *PROVIDES CEMENT STRING INTEGRITY*

PRODUCTION LINER — 8.75" OH

7-5/8", 39 #/ft., HCL-80, BTC from 11,330' to 15,535'

Lead	Tail
255 sks - NeoCem	75 sks - VersaCem
11 ppg, 2.733 ft3/sk	14.5 ppg, 1.223 ft3/sk

TUBING AND EQUIPMENT

5-1/2" injection tubing from approx. 0' to 15,535'
Permanent injection packer set at approx. 15,535'

6-1/8" OPEN-HOLE INTERVAL 15,535' to 17,000'

All depths are approximate and subject to change based on drilling and geology encountered

CASING SUMMARY

Hole Section	Hole Size	Casing	Depth	Depth Criteria
Surface	26”	20”, 94#, J55, BTC	0’ – 1,600’	Competent strata in Rustler Form.
1st Intermediate	17.5”	13-3/8”, 68#, J55, BTC	0’ – 5,650’	Competent strata in DMG
2nd Intermediate	12.25”	9-5/8”, 47#, HCL-80, BTC	0’ – 11,530’	-
Production Liner	8.75”	7-5/8”, 39#, HCL-80, BTC	11,330’ – 15,535’	-

CEMENT PROGRAM

String	Lead/Tail	Type	Yield (ft^3/sk)	# Sacks	Estimated TOC
Surface	Lead	EconoCem HLC (or equivalent)	1.892	3,352	Surface
	Tail	Halcem C	1.343		
1st Intermediate	Lead	Econocem HLC	1.892	4,238	Surface
	Tail	HalCem C	1.350		
2nd Intermediate (Stage 1)	Lead	NeoCem	2.731	1,090	5,650’
	Tail	NeoCem	1.439		
2nd Intermediate (Stage 2)	Lead	NeoCem	2.806	1,695	Surface
	Tail	HalCem C	1.350		
Production Liner	Lead	NeoCem	2.733	330	11,330’
	Tail	VersaCem	1.223		

***NOTE:** DV tool at approx. 5,650 feet

PRE SPUD

Notify regulatory agency (NMOCD – Hobbs District) 24 hours prior to spud. Document notification on IADC and morning report

1. Level and grade the location with caliche or comparable material, as required
2. Install a corrugated steel cellar around well site
3. Auger a 36-inch hole to approximately 75 feet and set 30-inch beveled conductor pipe
4. Cement conductor pipe to the surface using Redi-mix cement
5. Install a 4-inch outlet for draining the conductor pipe after cementing the surface casing
6. Drill a mouse hole per drilling contractor. Ensure rat hole contractor is using correct layout.
7. Prior to moving rig, drive to location and note any road hazards and/or power lines
8. Move in and rig up drilling rig and associated equipment
    a. Move in and rig up a closed-loop system for handling drill cuttings and drilling fluid
    b. Make sure all drill pipe has been inspected with paperwork in hand before spud and all pipe on location is counted prior to spud. Keep an up-to-date and correct account (OD, ID, length) of all tubulars on location at all times, including 3rd-party equipment.
    c. Perform a pre-spud rig inspection prior to accepting the rig on daywork.

26" SURFACE INTERVAL: 0' – 1,600'

Objective: Drill a 26" hole to approximately 1,600' and set 20" casing to protect usable water intervals and to isolate potentially problematic intervals of flowing sand. Casing string will be cemented to surface and cement must be circulated to surface.

Notes: Notify NMOCD – Hobbs District Office 24 hours prior to running and cementing surface casing string.

Procedure:

1. Weld a flange to the 30-inch conductor pipe and install at least a 3K annular blowout preventer (BOP)
2. Install a riser pipe with bell nipple and flowline to the BOP
3. Mix a spud mud for the surface hole
4. Make up a bottom-hole assembly (BHA) with a 26" PDC bit (or equivalent)
5. Drill ahead to 1,600' (top of Rustler Formation) taking deviation surveys at approximately 250' intervals and maintaining deviation below 2°
6. Monitor cellar to ensure ground is not washing out
7. Vary RPM, differential psi, and WOB to optimize ROP. Ream each stand 2-3 times on surface hole.
8. Monitor pickup, slack off, torque, returns, and standpipe pressure to evaluate hole cleaning
9. Sweep the hole with paper/MF-55 sweeps and drop a soap stick every connection.
10. Circulate and condition mud for running casing
11. Sweep the hole with a high-viscosity, fresh gel sweep at surface casing TD and spot a high-viscosity sweep at TD
12. Run fluid caliper
13. TOOH to run surface casing
14. Move in and rig up casing crew and run centralized 20", 94.0 #/ft, J55, BTC surface casing to approximately 1,600'. Run two bow spring centralizers on the float joint (1 in center of joint on a stop ring and 1 on collar) and one centralizer per every third joint at the collars back to surface
15. Dimensional data and minimum performance properties of the surface casing are presented on page 7.
16. Move in and rig up cementing equipment. Cement the surface casing as follows:

a. Pump a freshwater spacer followed by a tuned spacer designed for the rheology of the drilling fluid and lead cement.

b. Pump 876 sks ECONOCEM with additives (yield = 1.892 ft^3/sk) followed by 2,476 sks HALCEM C with additives (yield = 1.343 ft^3/sk) according to the current cement program

c. Drop wiper plug and displace with drilling fluid according to the cementing program

d. Bump wiper plug and pressurize over final circulating pressure

e. Monitor pressure for five (5) minutes and bleed off to cement unit to ensure floats are holding

f. Wait on cement at least eight (8) hours. Actual cement volumes will be based on calipered hole volume, plus 25% excess)

17. Rig up logging operations to run cement bond log to verify integrity of 1st intermediate casing cementing operations

18. After waiting at least 8 hours for cement to set, release the 20" surface casing and lift the stack to make a rough cut on the 20" surface casing. Nipple down the bell nipple, flow line, and BOP. If necessary, perform a top out operation between the 30" and 20" casings using a 1" pipe to place up to 200 sks of standard cement. Cut the 30" conductor and make a final cut on the 20" casing. Weld a temporary flange to the 20" casing. Re-install a 10k double ram BOP. Nipple up the bell nipple with flow line and riser pipe to the top of the BOP and test. Pressure test and function test the BOP.

Casing and Cementing – 20” Section

CASING						
Hole Size	**Wt./ft.**	**Grade**	**Connection**	**Top Set**	**Bottom Set**	**Length**
26”	94.0	J-55	BTC	0'	1,600’	1,600’

CASING DETAILS			
ID:	19.124 inches	**Internal Yield Pressure:**	2,110 psi
Drift:	18.936 inches	**Pipe Body Strength:**	1,480,000 lbs/ft
Coupling OD:	21.000 inches	**Joint Strength:**	907,000 lbs/ft
Collapse:	520 psi	**Capacity:**	0.3553 bbl/ft

Float Equipment & Accessories				
Item	**Model**	**Depth**	**Qty**	**Remarks**
Float Collar	HOWCO	1,560’	1	
Shoe	HOWCO	1,600’	1	
Casing				
Centralizers	HOWCO		-	2 on float joint, and 1 every 3rd joint to surface
Stop ring		1,559’	1	

Cement	
Spacer:	20 bbl gel spacer with red dye
Type:	EconoCem HLC & Halcem C (3,352 sks total)

17.5" FIRST INTERMEDIATE INTERVAL: 0' – 5,650'

Objective: Drill a 17.5" hole to 5,660' and set 13.375" intermediate casing. Open-hole geophysical logs will be run prior to casing from TD to base of surface casing. Commence mudlogging of interval below the surface casing.

Notes: Notify NMOCD – Hobbs District Office 24 hours prior to running and cementing 1st intermediate casing string.

Procedure:

1. RU mud loggers
2. Make up17.5" PDC drill bit and trip in the hole to the float collar. Drill out the float collar and approximately 30' of cement in the shoe track joint.
3. Trip in hole with 17.5" bit and BHA which includes a straight-hole motor. Pressure test the 20" surface casing to 1,000 psi for at least 30 minutes and record the test on a chart recorder. Drill the remainder of the shoe track cement and float shoe. Drill 10 feet of formation and perform a Formation Integrity Test (FIT) to 100 psi for 30 minutes.
4. Continue drilling a 17.5" hole to approximately 5,650', maintaining a low fluid loss mud system as per attached mud program.
5. Move in and rig up geophysical logging crew and run triple combo tool, and sonic from 5,650' to surface casing.
6. Move in and rig up casing crew and run centralized 13.375", 68 #/ft. casing to 5,650'
7. Run two bow spring centralizers on the float joint (1 in center of joint on a stop ring and 1 on collar) and one centralizer per every third joint at the collars back to surface. The float joint will consist of a float shoe, one joint of casing, and a float collar. Circulate and condition the mud for cementing.
8. Dimensional data and minimum performance properties of the production casing are presented on page 9.
9. Cement the 13.375" casing back to the surface according to the cement plan outlined on page 3 and page 10
10. Allow a minimum of 8 hours to wait on cement. After waiting on cement, ND BOP and cut off 13.375" casing.
11. Rig up logging operations to run cement bond log to verify integrity of 1st intermediate casing cementing operations

Casing and Cementing – 13.375" Casing Section

CASING						
Hole Size	**Wt./ft.**	**Grade**	**Connection**	**Top Set**	**Bottom Set**	**Length**
17.5	68.0	J-55	BTC	0'	5,650'	5,650'

CASING DETAILS			
ID:	12.415 inches	**Internal Yield Pressure:**	3,450 psi
Drift:	12.259 inches	**Pipe Body Strength:**	1,069,000 lbs.
Coupling OD:	14.375 inches	**Joint Strength:**	675,000 lbs
Collapse:	1,950 psi	**Capacity:**	0.1497 bbl/ft

Float Equipment & Accessories				
Item	**Model**	**Depth**	**Qty**	**Remarks**
Float Collar	HOWCO	5,610'	1	
Float Shoe	HOWCO	5,650'	1	
Casing				
Centralizers	HOWCO		-	2 on float joint and 1 every 3rd joint to surface
Stop ring	HOWCO	5,649'	1	

Cement	
Spacer:	20 bbls gel spacer with red dye
Type:	Lead: EconoCem HLC – 2,886 sks Tail: HalCem C – 1,352 sks

12.25" SECOND INTERMEDIATE INTERVAL: 0' – 11,530'

Objective: Drill a 12.25" hole to approximately 11,530' and set and cement 9.625" casing. Mudlogging operations will continue in this interval and, prior to completion of cementing operations, open-hole geophysical logs will be measured for the interval underlying the 1st intermediate string (5,650' to 11,530')

Notes: Notify NMOCD – Hobbs District Office 24 hours prior to running and cementing 2nd intermediate casing string.

Procedure:

1. Make up 12.25" PCD drill bit and trip in the hole to the float collar. Drill out the float collar and approximately 30' of cement in the shoe track joint.

2. Pressure test the 13.375" 1st intermediate casing to 1,000 psi for at least 30 minutes and record the test on a chart recorder. Drill the remainder of the shoe track cement and float shoe. Drill 10 feet of formation and perform a Formation Integrity Test (FIT to 100 psi for 30 minutes.

3. Continue drilling a 12.25" hole to approximately 11,530', maintaining a low fluid loss mud system as per planned mud program (TBD).

4. Move in and rig up geophysical logging crew and run triple combo tool from TD to base of 1st intermediate casing.

5. Move in and rig up casing crew and run centralized 9.625", 40 #/ft casing to 11,530'

6. Run two bow spring centralizers on the float joint (1 in center of joint on a stop ring and 1 on collar) and one centralizer per every third joint at the collars back to surface. The float joint will consist of a float shoe, one joint of casing, and a float collar. A DV tool will be positioned in the casing string at approximately 5,650'. Circulate and conditions the mud for cementing.

7. Dimensional data and minimum performance properties of the production casing are presented on page 12.

8. Cement the 9.625" casing back to surface in the following two (2) stages:

    a. Stage 1: Establish circulation and condition the mud for optimum cementing conditions. Pump a freshwater spacer followed by a 20 bbls gel spacer w/ red dye designed for the rheology of the drilling fluid and lead cement. Pump NeoCem and flush with 2% KCl water according to the final cementing plan.

    b. Stage 2: Drop stage collar opening plug and wait for it to reach stage collar. Pressure casing to open stage collar. Establish circulation through the stage collar and continue circulating for four (4) hours. Pump a gel spacer with red dye followed by NeoCem cement. Drop stage collar wiper/closing plug and displace with 2% KCl water. Bump wiper/closing plug and close stage collar with required pressure over final circulating pressure. Release pressure and assure that stage collar is holding.

9. Wait on cement at least eight (8) hours (cement volumes are based on bit size plus 100% excess for open-hole section. Actual cement volumes will be based on calipered hole volume, plus 25% excess)

10. Rig up logging operations to run cement bond log to verify integrity of 1st intermediate casing cementing operations

Casing and Cementing – 9.625" Casing Section

CASING						
Hole Size	**Wt./ft.**	**Grade**	**Connection**	**Top Set**	**Bottom Set**	**Length**
12.25"	47.0	HCL-80	BTC	0'	11,530'	11,530'

CASING DETAILS			
ID:	8.681 inches	**Internal Yield Pressure:**	6,870 psi
Drift:	8.525 inches	**Pipe Body Strength:**	1,086,000 lbs.
Coupling OD:	TBD	**Joint Strength:**	1,027,000 lbs
Collapse:	7,100 psi	**Capacity:**	0.0732 bbl/ft

Float Equipment & Accessories				
Item	**Model**	**Depth**	**Qty**	**Remarks**
Float Collar	HOWCO	11,490'	1	
Float Shoe	HOWCO	11,530'	1	
Casing				
Centralizers	HOWCO		-	2 on float joint and 1 every 3rd joint to surface
Stop ring	HOWCO	11,529'	1	
DVT		5,650'	1	

Cement	
Spacer:	20 bbls gel spacer with red dye
Type:	Stage 1 Lead: NeoCem (11.0 ppg) – 840 sks Stage 1 Tail: NeoCem (13.2 ppg) – 250 sks Stage 2 Lead: NeoCem (11.0 ppg) – 1,349 sks Stage 2 Tail: HalCem C (14.8 ppg) – 346 sks

8.75" PRODUCTION LINER INTERVAL: 11,530' – 15,535'

Objective: Drill at 8.75" hole to approximately 15,535' and set and cement 7.625" production liner which will extend and overlap the 2nd intermediate casing string to 11,330'. Mudlogging operations will continue in this interval and, prior to completion of cementing operations, open-hole geophysical logs will be collected for the interval underlying the 2nd intermediate casing string.

Notes: Notify the NMOCD – Hobbs District Office 24 hours prior to running and cementing the production liner.

Procedure:

1. Make up a 8.75" PDC drill bit and trip in the hole to the float collar. Drill out the float collar and approximately 30' of cement in the shoe track joint.

2. Pressure test the 9.625" 2nd intermediate casing to 1,000 psi for at least 30 minutes and record the test on a chart recorder. Drill the remainder of the shoe track cement and float shoe. Drill 10 feet of formation and perform a Formation Integrity Test (FIT) to 100 psi for 30 minutes.

3. Continue drilling a 8.75" hole to approximately 15,535', maintaining a low fluid loss mud system as per planned mud program (TBD)

4. Move in and rig up geophysical logging crew and run triple combo tool from 15,535' to base of 2nd intermediate casing interval. Rig down logging personnel.

5. Collected geophysical logs will be evaluated to identify sampling points in which collection of cap rock sidewall cores will be completed

6. Move in and rig up sidewall coring personnel and collect sidewall cores in accordance with results of geophysical log evaluation

7. Move in and rig up casing crew and run centralized 7.625", 39 #/ft casing to 15,535' and liner hanger on drill pipe. Space out to position liner hanger approximately 200' inside 9.625" casing.

8. Run two bow spring centralizers on the float joint (1 in center of joint on a stop ring and 1 on collar) and one centralizer per every third joint at the collars back to 11,330'. The float joint will consist of a float shoe, one joint of casing, and a float collar. Circulate and condition the mud for cementing.

9. Dimensional data and minimum performance properties of the production liner are presented on page 15

10. Move in and rig up cementing equipment. Cement the 7.625" production liner as follows:

    a. Lead Cement: NeoCem (11.0 ppg) – 255 sks
    b. Tail Cement: VersaCem (14.5ppg) – 75 sks

11. Set liner hanger and POOH with drill pipe

12. Wait on cement at least eight (8) hours (cement volumes are based on bit size plus 100% excess for open-hole section. Actual cement volumes will be based on calipered hole volume, plus 25% excess)

13. Rig up logging operations to run cement bond log to verify integrity of 1st intermediate casing cementing operations

Casing and Cementing – 7.625" Casing Section

CASING						
Hole Size	**Wt./ft.**	**Grade**	**Connection**	**Top Set**	**Bottom Set**	**Length**
8.75"	39.0	HCL-80	BTC	11,330'	15,535'	4,205'

CASING DETAILS			
ID:	6.625 inches	**Internal Yield Pressure:**	9,180 psi
Drift:	6.500 inches	**Pipe Body Strength:**	895,000 lbs.
Coupling OD:	TBD	**Joint Strength:**	-
Collapse:	10,060 psi	**Capacity:**	0.0426 bbl/ft

Float Equipment & Accessories				
Item	**Model**	**Depth**	**Qty**	**Remarks**
Float Collar	HOWCO	15,495'	1	
Float Shoe	HOWCO	15,535'	1	
Casing				
Centralizers	HOWCO		-	2 on float joint and 1 every 3rd joint to surface
Stop ring	HOWCO	15,534'	1	

Cement	
Spacer:	20 bbls gel spacer with red dye
Type:	Lead: NeoCem (11.0 ppg) – 255 sks Tail: VersaCem (14.5 ppg) – 75 sks

OPEN-HOLE SECTION FROM 15,535' TO 17,000'

Objective: Drill a 6.125" open-hole interval from 15,535' to 17,000'. Mudlogging operations will continue in this interval and open-hole geophysical logs will be collected.

Notes: Potential for lost circulation may be present in upper intervals of the injection zone and at various additional points within the zone.

Procedure:

1. Make up a 6.125" PDC drill bit and trip in the hole to the float collar. Drill out the float collar and approximately 30' of cement in the shoe track joint.

2. Pressure test the 7.625" production liner to 1,000 psi for at least 30 minutes and record the test on a chart recorder. Drill the remainder of the shoe track cement and float shoe. Drill 10 feet of formation and perform a Formation Integrity Test (FIT) to 100 psi for 30 minutes.

3. Continue drilling a 6.125" hold to approximately 17,000', maintaining a low fluid loss mud system as per planned mud program (TBD)

4. Move in and rig up geophysical logging crew and run planned geophysical logging suite from TD to base of production liner interval (triple-combo, sonic, FMI)

5. Rig down logging crew

6. WO evaluation of geophysical logs to identify sidewall coring points

7. Move in and rig up sidewall coring personnel and collect core samples per results of geophysical log evaluation.

8. Rig down sidewall coring operations

9. Rig down and release drilling rig and all associated equipment

Geophysical Logging and Coring Plans

Casing String	Log Interval	Open-hole Logs	Closed-hole Logs	Sidewall Coring
Surface	0' – 2,080'	1. Fluid Caliper	1. Cement Bond Log	-
1st Intermediate	0' – 5,650'	1. Start Mudlogging 2. Triple Combo Tool 3. Sonic Density	1. Cement Bond Log	-
2nd Intermediate	0' – 11,530'	1. Mudlogging 2. Triple Combo Tool 3. Sonic Density	1. Cement Bond Log	-
Production Liner	11,330' - 15,535'	1. Mudlog 2. Triple Combo Tool 3. Sonic Density	1. Cement Bond Log	1. Cap Rock
Open-hole interval	15,535' – 17,000'	1. Mudlog 2. Triple Combo Tool 3. Sonic Density 4. Formation MicroImager	-	1. Various points within injection reservoir to identify greatest porosity/permeabilty

NMOCD CONDITIONS OF APPROVAL

API #	Operator	Well name & Number
30-025-47424	3BEARS	Lombard State SWD # 001

Applicable conditions of approval marked with XXXXXX

Administrative Orders Required

XXXXXXXX	Review administrative order SWD-2378 and comply with any additional conditions of approval in administrative order.

Completion & Injection

XXXXXXX	Will require a deviational survey with Form C-105
XXXXXXX	Must notify Hobbs OCD office prior to conducting MIT (575) 393-6161
XXXXXXX	Must conduct & pass MIT prior to any injection

Logs

XXXXXXX	In addition to submitting mudlogs and geophysical logs to the prior to commencing disposal, the operator shall submit these logs to the OCD District geologist and Santa Fe Engineering Bureau.