

16-776

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Form 3160-3
(June 2015)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

1a. Type of work: <input type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. SWD-1558 NM 68084
1b. Type of Well: <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement, Name and No.
2. Name of Operator Mesquite SWD, Inc. (161968)		8. Lease Name and Well No. Station SWD #1 (317126)
3a. Address P.O. Box 1479 Carlsbad, NM 88221	3b. Phone No. (include area code) 575-706-1840	9. API Well No. 30-025- 43473 (97869)
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 2625' FNL & 2315' FWL At proposed prod. zone		10. Field and Pool, or Exploratory SWD Siluro-Devonian DEVONIAN-SILURIAN
14. Distance in miles and direction from nearest town or post office* 31.7 miles NW of Jal, NM		11. Sec., T. R. M. or Blk. and Survey or Area Sec. 7, T24S-R32E
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 2315'	16. No of acres in lease N/A	12. County or Parish Lea Co.
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1993'	19. Proposed Depth Approx 17,975'	13. State NM
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3559' GL	22. Approximate date work will start* ASAP	17. Spacing Unit dedicated to this well N/A
24. Attachments SWD-1558		20. BLM/BIA Bond No. in file NMB000612
23. Estimated duration 90 days		

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

- | | |
|--|---|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification. |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be requested by the BLM. |

25. Signature <i>Kay Havenor</i>	Name (Printed/Typed) Kay Havenor	Date 5/13/2016
Title Geologist		
Approved by (Signature) <i>/s/Cody Layton</i>	Name (Printed/Typed)	Date NOV 11 2016
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

APPROVAL FOR TWO YEARS

Carlsbad Controlled Water Basin

Approval Subject to General Requirements
& Special Stipulations AttachedKZ 11/23/16
SEE ATTACHED FOR
CONDITIONS OF APPROVAL

In response to questions asked under Section II B of Bulletin NTL-6, the following information is provided for your consideration.

1. **Location-** Surface: 2625' FNL & 2315' FWL
2. **Elevation-** 3559' GL
3. **Geologic Name of Surface Formation-** Quaternary Alluvial Deposits
4. **Drilling Tools and Associated Equipment-** Top drive diesel electric drilling rig, using fluid as circulating medium for solids removal.
5. **Proposed Drilling Depth-** Approximately 17,975'

6. Estimated Formation Tops:	Rustler-	850'
	i. Salado-	1180'
	ii. T/main Salt-	2385'
	iii. B/salt-	4435'
	iv. Lamar-	4590'
	v. Bone Springs-	7765'
	vi. Wolfcamp-	11,018'
	vii. Strawn-	13,340'
	viii. Morrow-	14,065'
	ix. Miss Ls-	15,850'
	x. Siluro-Dev-	16,470'
	xi. Montoya-	17,964'

7. **Possible Oil/Gas Bearing Formations-** Bone Springs, and Wolfcamp. The Devonian, Silurian and older formations are not prospective for O/G in the greater area.

- a. OSE Reported Groundwater Depth in 2-mile radius- 380' (1 well in NW/NW/NE Sec 5, T24S-R32E)

8. **Casing Program:**

Surface- 26" hole set 850' of 20" 94# J-55, LONGRND

Burst-4.89, Collapse-4.2, Tension-5.2, Triaxle-6.72

Intermediate (1)- 17 1/2" hole set 4,400' of 13 3/8" 68# HCN-80, BTC

Burst-1.9, Collapse-1.87, Tension-1.83, Triaxle-2.31

Intermediate (2)- 12 1/4" hole set 11,650' of 9 5/8" 53.5# P110, BTC.

Burst-1.95, Collapse-1.18, Tension-2.06, Triaxle-1.39

1st DV Tool approx 7500', 2nd DV Tool approx 4500' or 100' below shoe.

Liner- 8 1/2" hole set 5,055' of 7 5/8" 42.8# P110 UFJ setting depth approx.: Top-11,415', Shoe-16,470'

Burst-3.08, Collapse-1.23, Tension-2.13, Triaxle-1.31

Open Hole- 6 1/8" 16,470'-17,975'

***All casing new API, exceeds safety factors.**

9. Cementing Program

i. Surface : Circulate to surface

Lead- 1330 sxs C+4% PF20 + 1% PF1 +.125pps PF29 + .4pps PF45.

Density- 13.5 Yield- 1.73 H₂O-9.116

Tail : 200sxs C+2% PF1. Density-14.8 Yield-1.34 H₂O-6.3

Volumes calculated at 100% excess over OH volume

ii. Intermediate(1): Circulate to surface

Lead- 2470sxs, 35/65 Poz/C+5%(BWOW) PF44+6% PF44+PF20+.2%

PF13+3pps PF42+.4pps PF45+.125pps PF29

Density-12.9 Yield-1.91 H₂O-9.92

Tail- 200sxs C+.296pps PF13

Density-14.8 Yield-1.32 H₂O-6.3

Volumes calculated at 50% excess over OH volume, and 0% excess in cased hole

iii. Intermediate(2): Circulate to surface

1st stage:

Lead-600sxs 50/50 Poz/H+5%(BWOW) PF44+10% PF20+.4%

PF13+3pps PF42+.4pps PF45

Density-11.9 Yield-2.47 H₂O-13.844

Tail-400sxs H+.4% PF13+3pps PF42+.4pps PF45

Density-15.6 Yield-1.19 H₂O-5.224

2nd stage:

Lead- 575sxs C+.2% PF13

Density-12.6 Yield-2.06 H₂O-10.978

Tail-175sxs C+.2% PF13

Density-14.8 Yield-1.32 H₂O-6.3

3rd stage:

Lead-630sxs 35/65 Poz(BWOW) PF44+6% PF20+.2% PF13+3pps

PF42+.4pps PF45+.125pps PF29

Density-12.6 Yield-2.06 H₂O-10.978

Tail-175sxs C+.2% PF13

Density-14.8 Yield-1.32 H₂O-6.3

Volumes calculated on 50% excess over OH volume, and 0% excess in cased hole.

iv. Liner: TOC at liner top approx. 16,470'

Slurry: 505sxs 50/50 Poz/H+3%(PWOW) PF44+2% PF20+.7%

PF606+.2% PF65+.1% PF153+.1% PF813+.4pps PF45

Density-14.2 Yield-1.33 H₂O-6.006

Volumes calculated at 50% excess over OH volume, and 0% excess in cased hole.

Dutool
@ 7500'
84630'
See CoA

10. Proposed Mud Circulation Program:

- iv. Drilling and returned circulation will be from and to a closed loop system w/surface tanks. No earthen mud of reserve pits will be constructed or used for this well. Drilling fluids and cuttings will be trucked to R360, a certified disposal facility upon completion of new drill operations. Cement cutting will be removed and trucked to a R360 a certified disposal facility.
- v. Mud monitoring will be done through visual inspection, as well as PVT's (Pit Volume Transmitters) which will communicate with the onsite rig monitoring software, and be displayed on computer screens on the rig floor as well as the Consultants trailer.

General Geological Data (estimations)

Top/Base	Formation	General Lithology	Notes
0-850	Quaternary-Rustler	Shale, Sand, Clay	Typical Quat-Perm
850-1180	Rustler	Redbeds	Seepage
1180-2385	Upper Salado	Salt & Anhydrite	Seepage
2385-4435	Salado	Salt	Seepage
4435-4590	Castile	Salt & Anhydrite	Seepage
4590-7765	Delaware MT Group	Sand, Shale, Carbonate	Seepage
7765-11018	Bone Springs Family	Sand, Shale, Carbonates	Possible pressure in base
11018-13340	Wolfcamp	Ls, Shale, Sand	Mud- Possible kicks
13340-14065	Strawn	Limestone, Shale	Possible gas kicks
14065-15850	Morrow-Barnett	Ls, Shale, Sand	Possible gas kicks
15850-16120	Mississippian	Limestone	Slow Drilling
16120-16470	Woodford	Shale, Lime	Sloughing
16470-17975	Siluro-Devonian	Limestone, Dolomite	Slow Drilling

Proposed Mud Program

See COA

Depth	Mud Type	Weight	Vis	Fil	pH	CL(ppm)	Sol%
0-850	SPUD MUD	8.4-9.7	32-38	N/C	10.0	1-6K	3.8%
850-4400	BRINE	10	28	N/C	10.0	168K	.75-1.0
4400-11,000	CB	9.3-9.4	28	N/C	10.0	120-130K	.5-.75
11,000-11,650	CB/BR	9.4-9.7	28-29	N/C-30cc	10.0	130-160K	.75-1.5
11,650-13,400	BR/POLY	10.0-11.0	38-45	10cc	10.0	186K	3-5
13,400-16,470	BR/POLY	11.0-13.0	40-50	8-6cc	10.0	186-195K	4-7
16,470-19,975	FRESH	8.3-8.4	28	N/C	10.0	3-6K	5-.75

11. Pressure Control Equipment:

Exhibit "A-1". A 10M system will be installed according to Onshore Order #2 consisting of an Annular Preventer, BOP with two rams and a blind ram. BOP will be equipped with 2 side outlets (choke side shall be a minimum 3" line, and kill side will be a minimum 2" line). Kill line will be installed with (2) valves and a check valve (2" min) of proper pressure rating for the system. Remote kill line (2' min) will be installed and ran to the outer edge of the substructure and be unobstructed. A manual and hydraulic valve (3" min) will be installed on the choke line, 3 chokes will be used with one being remotely controlled. Fill up line will be installed above the uppermost preventer. Pressure gauge of proper pressure rating will be installed on choke manifold. Upper and lower kelly cocks will be utilized with handles readily available in plain sight. A float sub will be available at all times. All connections subject to well pressure will be flanged, welded, or clamped.


BOP and BOPE shall be installed, used, maintained, and tested in a manner necessary to assure well control and shall be in place and operational prior to drilling the surface casing shoe, unless otherwise stated by APD. The Annular shall be functionally operated at least weekly, and, pipe and blind rams shall be activated each trip.

- The surface (20") BOP/BOPE pressure test will be made to hold 250 psi low, and 3000 psi high,
- The first intermediate (13 3/8") BOP/BOPE pressure tests will be made to hold 250 psi low, and 5000 psi high, before drilling out the 1st intermediate shoe.
- The second intermediate (9 5/8") BOP/BOPE pressure tests will be made to hold 250 psi low, and 10,000 psi high, before drilling out the 2nd intermediate shoe.

12. Testing, Logging and Coring Program:

- A. Mud logging program: 2 man unit from base of B/Salt approximately 4435' to TD
- B. Electric log program: GR/Density/Neutron/caliper TD to surface.
Resistivity Induction log TD to top Delaware Mountain Group .
- C. No DSTs or cores are planned at this time.

13. Potential Hazards:

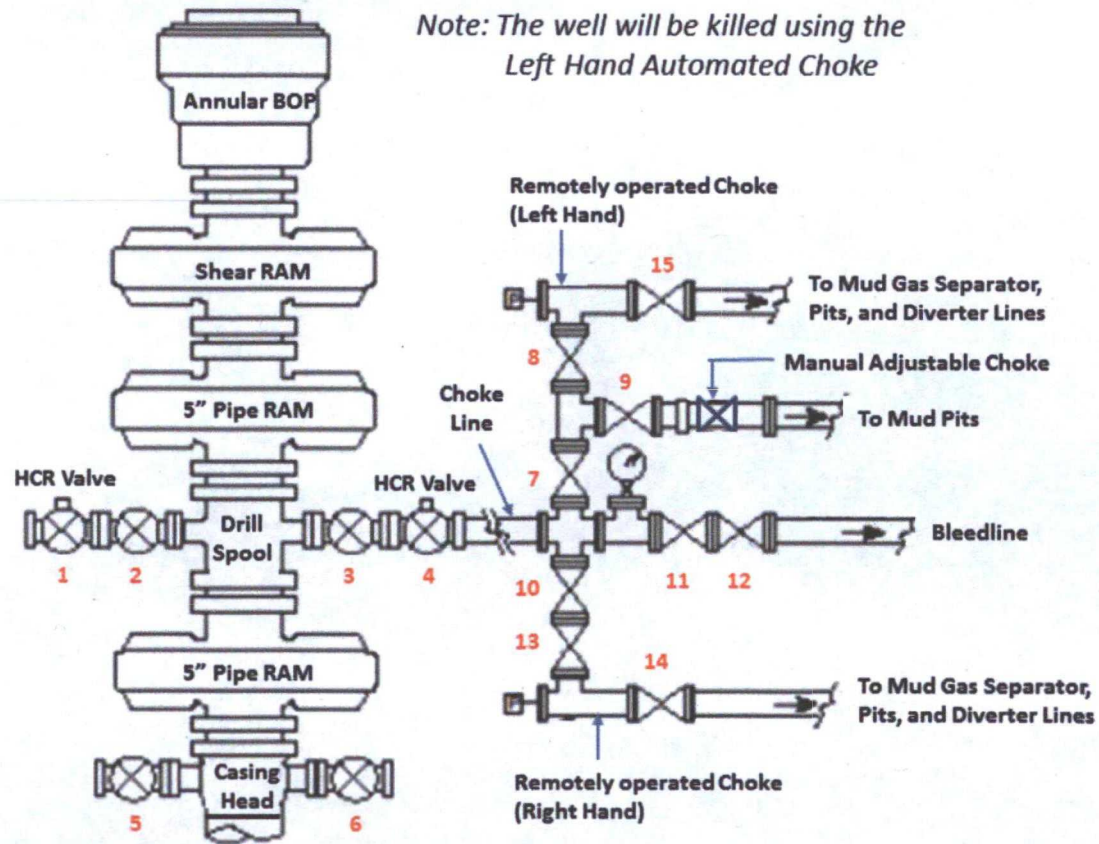
 No abnormal pressures or temperatures are expected. In accordance with Onshore Order 6, Mesquite does not anticipate that there will be enough H₂S from the surface through the Siluro-Devonian formations to meet the BLM's minimum requirements for the submission of an "H₂S Drilling Operation Plan" for the drilling and completion of this well. Mesquite will have an H₂S Safety package on the well, attached is an "H₂S Drilling Operations Plan." Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely. All personnel will be familiar with all aspects of safe operation of equipment being used.

Estimated BHP: 4800 Estimated BHT: 195°

14. Construction and Drilling:

Road and location repair/construction will begin after BLM approval of APD. Anticipated spud date as soon as approved and rig becomes available. Drilling expected to take 40 days. Casing and completion will require approximately 10 days.

10M BOP/BOPE/Choke Diagram



Note: The well will be killed using the Left Hand Automated Choke

P = Positive Closing Choke

Application to Drill
Station SWD #1
Mesquite SWD, Inc
Unit F, Sec. 7, T24S-R32E
Lea Co. NM

Depths and formations of expected fresh water

There is no known fresh, potable water within a 2-mile radius. Records from the New Mexico Office of the State Engineer on November 29, 2014 shows no known water wells within the 2-mile radius of the proposed Mesquite SWD disposal well.



New Mexico Office of the State Engineer
Wells with Well Log Information

Basin/County Search:

Basin: J2

UTM NAD83 Radius Search (in meters):

Easting (X): 666380

Northing (Y): 3865200

Radius: 3200

No wells found.

This data is furnished by the NMCS/ESD and is accepted by the recipient with the expressed understanding that the CS/ESD make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.
11/29/14 8:25 AM Page 1 of 1 WELLS WITH WELL LOG INFORMATION

The surface geology of the greater area, including the 2-mile radius as shown in Item V above, is Quaternary eolian and piedmont deposits of Holocene to middle Pleistocene age. These are underlain by the Permian Rustler Formation and evaporites. Based upon surface geology and available shallow data the depth to potential potable water, if present, is estimated to be less than 150'.