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

HOBBS OCD

NOV 29 2016

RECEIVED

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
Devon Energy Production Co., L.P. 333 West Sheridan Ave., Oklahoma City, OK 73102 Devon Energy Production Company, Lp.	6137
	3. API Number 30-025-43475

4. Property Code	5. Property Name	6. Well No
317100	Big Cat 16 State VDW	1.

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
L	16	23S	32E		2110	S	200	W	Lea

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
L	16	23S	32E	L	2110	S	200	W	Lea

9. Pool Information

Pool Name	Pool Code
98210 Stratagraphic	98210

Additional Well Information

11. Work Type	12. Well Type	13. Cable/Rotary	14. Lease Type	15. Ground Level Elevation
M (Monitor)			State	3683
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
N	13200	Wolfcamp		12/15/2016

Depth to Ground water	Distance from nearest fresh water well	Distance to nearest surface water

☐ **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	26	20	94	1225	1924	0
Intl	17.5	13.375	68	4700	2413	0
Int 2	12.25	9.625	40	11700	1418	3700
Prod	8.75	5.5	17	13200	326	11500

Casing/Cement Program: Additional Comments

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Annular	3000	3000	
Annular	3000	3000	
Double Ram	3000	30000	

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: Chance Bland

Title: Regulatory Compliance Specialist

E-mail Address: chance.bland@dvn.com

OIL CONSERVATION DIVISION

Approved By:

Title: Petroleum Engineer

Approved Date: 11/29/16 Expiration Date: 11/29/18

Date:	Phone: 405-228-8593	Conditions of Approval Attached
11/08/2016		

Devon Energy, Big Cat 16 State VDW 1

1. Geologic Formations

TVD of target	13,200'	Pilot hole depth	13,200'
MD at TD:	13,200'	Deepest expected fresh water:	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
RUSTLER	1,188		
SALADO	1,551		
BASE OF SALT	4,575		
DELAWARE	4,800		
BELL CANYON	4,834		
CHERRY CANYON	5,723		
BRUSHY CANYON	6,971		
1ST BONE SPRING LIMESTONE	8,692		
LEONARD A	8,818		
LEONARD B	9,220		
LEONARD C	9,646		
1ST BONE SPRING SANDSTONE	9,832		
2ND BONE SPRING LIMESTONE	10,110		
2ND BONE SPRING SANDSTONE	10,432		
3RD BONE SPRING LIMESTONE	10,959		
3RD BONE SPRING SANDSTONE	11,685		
WOLFCAMP X	12,150		
WOLFCAMP A	12,285		
WOLFCAMP B	13,125		

*H2S, water flows, loss of circulation, abnormal pressures, etc.

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
26"	0	1,225'	20"	94	J-55	BTC	1.15	2.17	4.43
17-1/2"	0	4,700'	13-3/8"	68	J-55	BTC	1.37	4.06	2.42
12-1/4"	0	11,700'	9-5/8"	40	P-110 EC	BTC	2.03	1.31	2.35
8-3/4"	0	13,200'	5.5"	17	P-110	BTC	3.26	1.18	3.79
				BLM Minimum Safety Factor			1.125	1.00	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	H_2O gal/sk	Yld ft3/ sack	500# Comp. Strength (hours)	Slurry Description
20"	1924	14.8	6.37	1.33	7	Tail: Class C Cement
13-3/8" Int 1	1708	12.8	10.681	1.99	21.5	Lead: (65:35) Class C Cement: Poz (Fly Ash): 8% BWOB Bentonite + 8% BWOW Salt + 0.2 gal/sk Anti-Foam + 0.2% BWOB Dispersant + 0.4% BWOB Retarder
	705	14.8	6.352	1.33	5	Tail: Class C Cement: 0.2% BWOB Retarder
9-5/8" Inter II	639	9.07	12.292	2.99	17.5	Lead: LiteFILL Blend Cement: 0.5% Retarder + 0.05 gal/sk Anit-Foam
	779	13.5	7.459	1.55	5	Tail: (50:50) Class H Cement: Poz (Fly Ash): 0.4% BWOB Retarder + 0.02 gal/sk Anti-Foam + 0.2% BWOB FLAC + 10% BWOB Extender + 2% BWOB Expanding Agent
5-1/2" Prod	N/A	N/A	N/A	N/A	N/A	N/A
	326	13.5	7.459	1.55	5	Tail: (50:50) Class H Cement: Poz (Fly Ash): 0.4% BWOB Retarder + 0.02 gal/sk Anti-Foam + 0.4% BWOB FLAC + 10% BWOB Extender + 2% BWOB Expanding Agent

Casing String	TOC	% Excess
20" Surface	0'	25%
13-3/8" Intermediate 1	0'	25%
9-5/8" Intermediate 2	3,700	25%
5-1/2" Production Casing	11,500'	15%

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type		Tested to:
17-1/2"	21-1/4"	2M	Annular	x	50% of working pressure
			Blind Ram		2M
			Pipe Ram		
			Double Ram		
			Other*		
12-1/4"	13-5/8"	3M	Annular	x	50% of working pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	x	
			Other*		
8-3/4"	13-5/8"	3M	Annular		50% testing pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram		
			Other*		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

Y	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.

	Y	Are anchors required by manufacturer?
Y	A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. Devon proposes using a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 3000 (3M) psi. • Wellhead will be installed by wellhead representatives. • If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal. • Wellhead representative will install the test plug for the initial BOP test. • Wellhead company will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 3M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time. • If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted. • Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating. • Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2. After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 3,000 psi high pressure test. The 3,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2. After running the 9-5/8' intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 3M will already be installed on the wellhead. The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 3,000 psi WP. Devon's proposed wellhead manufactures will be FMC Technologies, Cactus Wellhead, or Cameron.		

	Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line). The line will be kept as straight as possible with minimal turns.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	1,225	FW Gel	8.6-8.8	28-34	N/C
1,225'	4,700'	Saturated Brine	10.0-10.2	28-34	N/C
4,700'	13,200'	Cut Brine	8.5-9.8	28-34	N/C
11,700	13,200'	Cut Brine	9.5-10.5	28-34	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring

6. Logging and Testing Procedures

Logging, Coring and Testing.	
x	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain

Additional logs planned		Interval
	Resistivity	Int. shoe to KOP
	Density	Int. shoe to KOP
X	CBL	Production casing
X	Mud log	Intermediate shoe to TD
	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	7001 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H2S is present
Y	H2S Plan attached

8. Other facets of operation

Is this a walking operation? No.
Will be pre-setting casing? No.

Attachments
_x_ Directional Plan
___ Other, describe