

Form 3160-3
(March 2012)

CONFIDENTIAL

JUN 30 2016

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FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. BHL: NMLC061863A / SHL: NMLC061873
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator Devon Energy Production Company, L.P. (6137) ✓		7. If Unit or CA Agreement, Name and No.
3a. Address 333 West Sheridan Avenue Oklahoma City, OK 73102-5010		8. Lease Name and Well No. Cotton Draw Unit 332H (300635) ✓
3b. Phone No. (include area code) 405-552-6558		9. API Well No. 30-025-43732
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface Unit O, 565' FSL & 1405' FEL PP: 435' FSL, 1612' FEL At proposed prod. zone Unit B, 330' FNL & 1760' FEL		10. Field and Pool, or Exploratory WC-025 G-06 S253206M; Bone Spring [97899] ✓
14. Distance in miles and direction from nearest town or post office* Approximately 21.5 miles SE of Malaga, NM		11. Sec., T. R. M. or Blk. and Survey or Area Sec. 7-T25S-R32E
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) See attached map	16. No. of acres in lease SHL: 319.730 Acres BHL: 1882.600 Acres	12. County or Parish Lea
17. Spacing Unit dedicated to this well 160 Acres	13. State NM	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. See attached map	19. Proposed Depth 14,830' MD / 10,135' TVD	20. BLM/BIA Bond No. on file CO-1104
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3431.4' GL	22. Approximate date work will start* 2/3/2017	23. Estimated duration 45 Days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

- 1. Well plat certified by a registered surveyor.
- 2. A Drilling Plan.
- 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).
- 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- 5. Operator certification
- 6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature <i>Linda Good</i>	Name (Printed/Typed) Linda Good	Date Revised 4/29/2016
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Title
Regulatory Compliance Specialist

Approved by (Signature) James A. Amos	Name (Printed/Typed)	Date JUN 22 2016
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Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE
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Application approval does not warrant or cert conduct operations thereon. Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C States any false, fictitious or fraudulent state

(Continued on page 2)

Padded w/CDU 312H/313H/319H/320H/321H/327H/328H/332H

See attached NMOCD
Conditions of Approval

APPROVAL FOR TWO YEARS

to make to any department or agency of the United

*(Instructions on page 2)

Carlsbad Controlled Water Basin

Kz
06/30/16

Approval Subject to General Requirements
& Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Devon Energy, Cotton Draw Unit 332H

1. Geologic Formations

TVD of target	10,135'	Pilot hole depth	N/A
MD at TD:	14,830'	Deepest expected fresh water:	190

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	675	Water	
Top of Salt	1,050	Salt	
Base of Salt	4,195	Salt	
Lamar	4,435	Barren	
Bell Canyon	4,472	Oil/Gas	
Cherry Canyon	5,295	Oil/Gas	
Brushy Canyon	6,705	Oil/Gas	
Lwr Brushy Canyon	8,135	Oil/Gas	
Bone Spring	8,350	Oil/Gas	
Middle Leonard	8,465	Oil/Gas	
Lower Leonard	8,865	Oil/Gas	
Basal Leonard	9,102	Oil/Gas	
1st BSPG Sand	9,410	Oil/Gas	
2nd BSPG Lime	9,625	Oil/Gas	
2nd BSPG Sand	10,035	Oil/Gas	
2nd BSPG Sand Upr	10,135	Target Zone	
2nd BSPG Sand Lwr	10,467	Oil/Gas	
3rd BSPG Lime	10,560	Oil/Gas	
Wolfcamp	11,765	Oil/Gas	

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

Devon Energy, Cotton Draw Unit 332H

2. Casing Program

Hole Size	Casing Interval		Csg Size	Weight	Grade	Conn	Safety Factors		
	From	To					Burst	Collapse	Tension
17 1/2	0	705 785	13 3/8	54.5	J-55	BTC	1.82	3.67	6.80
12 1/4	0	4300 4400	9 5/8	40	J-55	LTC	1.67	1.15	2.11
8 3/4	0	14,830	5 1/2	17	P-110	BTC	1.17	1.35	2.28
BLM Minimum Safety Factor							1.00	1.125	1.6 Dry 1.8 Wet

See COA

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 3 rd 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 2 nd 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?	

See COA

Devon Energy, Cotton Draw Unit 332H

3. Cementing Program

Casing	# Sks	Wt. lb/gal	H ₂ O gal/sk	Yld ft ³ /sack	500# Comp. Strength (hours)	Slurry Description
13-3/8" Surf	760	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
9-5/8" Inter.	900	12.9	9.81	1.85	14	Lead: (65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	430	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
5-1/2" Prod Single Stage	490	9	15.64	3.56	25	Lead: Tuned Light® Cement
	1380	14.5	5.31	1.2	25	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
5-1/2" Prod Two Stage	730	11.9	12.89	2.31	n/a	1 st Stage Lead: (50:50) Class H Cement: Poz (Fly Ash) + 10% BWOC Bentonite + 1 lb/sk of Kol-Seal + 0.3% BWOC HR-601 + 0.5lb/sk D-Air 5000
	1380	14.5	5.31	1.2	25	1 st Stage Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
	DV Tool = 4350ft					
	20	11	14.81	2.55	22	2 nd Stage Lead: Tuned Light® Cement + 0.125 lb/sk Pol-E-Flake
	30	14.8	6.32	1.33	6	2 nd Stage Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake

DV tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
13-3/8" Surface	0'	100%
9-5/8" Intermediate	0'	75%
5-1/2" Production Casing Single Stage Option	4100'	25%
5-1/2" Production Casing Two Stage Option	1 st Stage = 4350' / 2 nd Stage = 4100'	25%

4. Pressure Control Equipment - See COA

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
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BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4"	13-5/8"	3M	Annular	x	50% of working pressure 3M
			Blind Ram		
			Pipe Ram		
			Double Ram	x	
			Other*		
8-3/4"	13-5/8"	3M	Annular	x	50% testing pressure 3M
			Blind Ram		
			Pipe Ram		
			Double Ram	x	
			Other*		
			Annular		
			Blind Ram		
			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?

See COA

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.

SEE
COA

See attached schematic.

5. Mud Program → See COA

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	705' 705' 785'	FW Gel	8.6-8.8	28-34	N/C
705'	4,300' 4400'	Saturated Brine	10.0-10.2	28-34	N/C
4,300'	14,830'	Cut Brine	8.5-9.3	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
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6. Logging and Testing Procedures - See COA

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
	Coring? 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	4901 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

Directional Plan

Other, describe