

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

OCD Artesia

FORM APPROVED  
OMB No. 1004-0137  
Expires: March 31, 2007

**SUNDRY NOTICES AND REPORTS ON WELLS**  
**Do not use this form for proposals to drill or to re-enter an  
abandoned well. Use Form 3160-3 (APD) for such proposals.**

5. Lease Serial No. **NM 12897**  
**NMLE-028446-A**  
6. If Indian, Allottee or Tribe Name

**SUBMIT IN TRIPLICATE** – Other instructions on page 2.

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator  
Devon Energy Production Company, L.P.

3a. Address  
20 North Broadway, Oklahoma City, OK 73102

3b. Phone No. (include area code)  
405-228-8973

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
2090' FNL & 680' FEL of Sec 5 T17S R28E

7. If Unit of CA/Agreement, Name and/or No.

8. Well Name and No.  
Mark Twain 5 Federal Com 3H

9. API Well No.  
30-015-37429

10. Field and Pool or Exploratory Area  
Dog Canyon; Wolfcamp

11. Country or Parish, State  
Eddy County, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

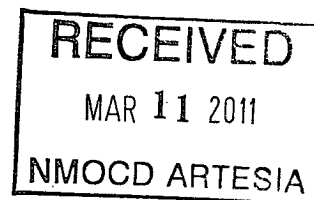
TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other Drilling
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	Procedure Change
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	add Pilot Hole

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleate horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleation in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

Devon Energy request a change from the approved APD drilling program to the attached procedure.

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

Accepted for record  
NMOCD *DB*



14. I hereby certify that the foregoing is true and correct.

Name (Printed/Typed)  
Spence Laird

Title Regulatory Analyst

Signature

*Spence Laird*

Date 02/24/2011

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

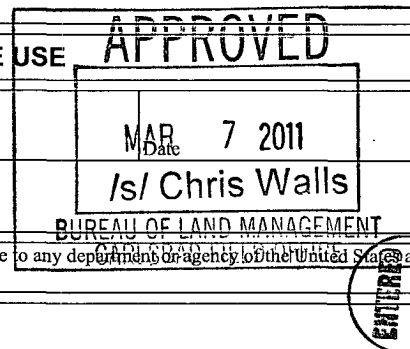
Title

Office

Conditions of approval, if any, are attached. Approval of this notice 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.

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.

(Instructions on page 2)



**Mark Twain 5 Fed Com 3H—Sec 5, T17 R28E Unit H**  
**APD DATA TO BE DRILLED WITH A PILOT HOLE (PH)**

**Casing Program**

<u>Hole Size</u>	<u>Hole Interval</u>	<u>OD Csg</u>	<u>Casing Interval</u>	<u>Weight</u>	<u>Collar</u>	<u>Grade</u>
20"	0'-40'					
17 1/2"	0' - 450'	13 3/8"	0' - 453'	48#	STC	H-40
12 1/4"	450' - 1950'	9 5/8"	0' - 1950'	36#	LTC	K-55
8 3/4"	1950'-6950'	PH				
8 3/4"	1950' - 10900'	5 1/2"	0' - 6000'	17#	LTC	HCP-110
			6000-10900'	17#	BTC	HCP-110

**Mud Program**

<u>Depth</u>	<u>Mud Wt.</u>	<u>Visc</u>	<u>Fluid Loss</u>	<u>Type System</u>
0' - 450'	8.4 - 9.0	32 - 34	NC	FW/Gel
450' - 1950'	9.6-10	28 - 30	NC	Brine
1950' - 10900'	8.8 - 9.3	28-40	NC	FW/Brine

**Design Parameter Factors:**

<u>Casing Size S.F.</u>	<u>Collapse Design S.F.</u>	<u>Burst Design S.F.</u>	<u>Tension Design S.F.</u>
13 3/8"	3.65	9.38	14.21
9 5/8"	1.99	3.47	6.02
5 1/2"	1.66	2.02	2.40

**Cementing Program**

Surface: 140% excess

Intermediate: 100% excess on open hole

Plug: 0% excess (we will have an e-log caliper on this plug & are bringing cement 200 ft higher than KOP & are kicking off with a whip)

Production: 100% excess on openhole.

**13 3/8" Surface**

**Lead:** 235 sacks Class C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 4% woc Bentonite + 81.4% Fresh Water

**Yield: 1.75**

**Tail:** 250 sacks Class C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 56.3% Fresh Water

**Yield: 1.35**

**9 5/8" Intermediate**

**Lead:** 405 sacks (35:65) Poz (Fly Ash):Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 3 lbs/sack LCM-1 + 4% bwoc Bentonite + 0.8% bwoc Sodium Metasilicate + 5% bwoc MPA-5 + 98.2% Fresh Water

**Yield: 1.97**

**Tail:** 250 sacks Class C Cement + 2% bwoc Calcium Chloride + 56.4% Fresh Water

**Yield: 1.34**

**Pilot Hole**

A cement plug will be pumped from 6950'-5900' through tubing with an open hole whipstock located at ~6100ft. The cement will be allowed to set & directional tools will be run kicking off of whip. Plug cement slurry will be:

Plug slurry: 1285 sacks (35:65) Poz (Fly Ash):Class C Cement + 1% bwow Sodium Chloride + 0.4% bwoc FL-52A + 0.125 lbs/sack Cello Flake + 6% bwoc Bentonite+ 103.2% Fresh Water

**5 1/2" Production**

**A DV tool/ECP combo will be set at ~5,900'. Below this DV tool will be an open hole packer system on the 5 1/2" production string. The top production packer will be located at a minimum the legal distance from the lease line. Cement will be pumped through the DV tool around the annulus from ~5,900' to 1500'. The following details the slurry from the DV tool to surface.**

**Lead:** 1285 sacks (35:65) Poz (Fly Ash):Class C Cement + 1% bwow Sodium Chloride 0.4% bwoc FL-52A + 0.125 lbs/sack Cello Flake + 6% bwoc Bentonite + 103.2% FW

**Yield: 1.96**

**TOC for All Strings:**

Surface:	0'
Intermediate:	0'
Production:	1500'

## CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Prod
LEASE NO.:	NM012897
WELL NAME & NO.:	Mark Twain 5 Fed Com 3H
SURFACE HOLE FOOTAGE:	2090' FNL & 680' FEL
BOTTOM HOLE FOOTAGE:	1650' FNL & 330' FWL
LOCATION:	Section 5, T. 17 S., R 28 E., NMPM
COUNTY:	Eddy County, New Mexico

### I. DRILLING

#### A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

☒ **Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,  
(575) 361-2822

1. **Although Hydrogen Sulfide has not been reported in this section, it is always a potential hazard. If Hydrogen Sulfide is encountered, please report measured amounts and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies.**

## **B. CASING**

**Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.**

**Centralizers required on surface casing per Onshore Order 2.III.B.1.f.**

**Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.**

**No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.**

**High cave/karst.**

**Possible lost circulation in the Grayburg and San Andres formations.**

**Possible high pressure in the Wolfcamp formation.**

1. The 13-3/8 inch surface casing shall be set at approximately 450 feet and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:

- ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.  
**Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.**

**If 75% or greater lost circulation occurs while drilling the intermediate casing hole, the cement on the production casing must come to surface.**

**Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.**

3. The minimum required fill of cement behind the 5-1/2 inch production casing is:

- a. First stage to DV/ECP tool, cement shall:

- ☒ Cement not required. Open hole packer system will be installed below DV/ECP tool.

- b. Second stage above DV/ECP tool, cement shall:

- ☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

## **C. PRESSURE CONTROL**

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M) psi**.
  - a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 9-5/8" intermediate casing shoe shall be **5000 (5M) psi. 5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**
4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips or where the float does not hold, the minimum wait time before cut-off is eight hours after bumping the plug or when the cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. BOP/BOPE testing can begin after the above conditions are satisfied.
  - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
  - c. The results of the test shall be reported to the appropriate BLM office.
  - d. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
  - e. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.
  - f. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **Wolfcamp** formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

- g. **Effective November 1, 2008, no variances will be granted on reduced pressure tests on the surface casing and BOP/BOPE. Onshore Order 2 requirements will be in effect.**

#### **D. DRILLING MUD**

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the **Wolfcamp** formation, and shall be used until production casing is run and cemented.

**Proposed mud weight may not be adequate for drilling through Wolfcamp.**

#### **E. DRILL STEM TEST**

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

#### **F. WASTE MATERIAL AND FLUIDS**

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

**CRW 030711**