Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs
HOBBS OCD
AUG 0 8 2016
RECEIVED

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

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.

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

5. Lease Serial No.
NMNM116166

6. If Indian, Allottee or Tribe Name

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

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
EK 29 BS2 FEDERAL COM 3H

2. Name of Operator
MCELVAIN OIL & GAS PROP INC
Contact: TONY G COOPER
E-Mail: tony.cooper@mcelvain.com

9. API Well No.
30-025-42699-00-X1

3a. Address
1050 17TH STREET SUITE 1800
DENVER, CO 80265-1801

3b. Phone No. (include area code)
Ph: 303-893-0933 Ext: 331

10. Field and Pool, or Exploratory
E K

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 29 T18S R34E SESW 305FSL 2155FWL

11. County or Parish, and State
LEA COUNTY, NM

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

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change to Original APD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

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 recomplete 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 shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

McElvain was informed by it's casing supplier that 5-1/2? HCP-110 casing will not be available for the EK 29 BS2 Federal Com #3H or EK 29 BS2 Federal Com #4H wells. We be receiving a slightly less stout version of that casing, the CY or ?Control Yield? version.

The collapse rating will drop 1,080 psi from 8,580 psi on the HCP-110 to 7,500 psi on the P-110 CY. A 1.125 collapse SF will still be achieved with the CY version of pipe. Attached is the spec sheet for the 5 ?? 17 PPF P-110 CY BPN casing and the SF calculations.

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

Electronic Submission #344508 verified by the BLM Well Information System
For MCELVAIN OIL & GAS PROP INC, sent to the Hobbs
Committed to AFMSS for processing by PRISCILLA PEREZ on 07/18/2016 (16PP0910SE)

Name *(Printed/Typed)* CHRIS CAPLIS — Title VP DRILLING AND COMPLETION

Signature (Electronic Submission) — Date 07/13/2016

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By CHARLES NIMMER — Title PETROLEUM ENGINEER — Date 08/04/2016

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.

Office Hobbs

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.

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

PERFORMANCE DATA

TMK UP™ BPN **5.500 in** **17.00 lbs/ft** **P-110 CY**

Technical Data Sheet

Tubular Parameters

Size	5.500	in	Minimum Yield	110,000	psi
Nominal Weight	17.00	lbs/ft	Minimum Tensile	125,000	psi
Grade	P-110 CY		Yield Load	546,000	lbs
PE Weight	16.89	lbs/ft	Tensile Load	620,000	lbs
Wall Thickness	0.304	in	Min. Internal Yield Pressure	10,600	psi
Nominal ID	4.892	in	Collapse Pressure	7,500	psi
Drift Diameter	4.767	in			
Nom. Pipe Body Area	4.962	in²			

Connection Parameters

Connection OD	6.050	in
Connection ID	4.892	in
Make-Up Loss	4.125	in
Critical Section Area	4.962	in²
Tension Efficiency	100.0	%
Compression Efficiency	100.0	%
Yield Load In Tension	546,000	lbs
Min. Internal Yield Pressure	10,600	psi
Collapse Pressure	7,500	psi
Uniaxial Bending	92	°/ 100 ft

Make-Up Torques

Min. Make-Up Torque	5,100	ft-lbs
Opt. Make-Up Torque	11,900	ft-lbs
Max. Make-Up Torque	15,300	ft-lbs
Yield Torque	17,000	ft-lbs

Printed on: May-21-2015

TMK IPSCO

1. Casing Safety Factor Calculations

The casing design for the subject well is detailed below. Several assumptions were made for the design and those assumptions need to be verified before this casing design can be considered final.

Design assumptions are as follows:

- For the surface casing, the design is based on a setting depth of 1,788' MD/TVD in 9.0 ppg fluid and a FG of 0.7 psi/ft per BLM Onshore Order #2.
- For the intermediate casing, the design is based on a setting depth of 4,900' MD/TVD in a 10.0 ppg fluid (saturated brine) and a FG of 0.74 psi/ft per Hubbert & Willis' graphical determination of FG's.
- For the production casing, the design is based on a setting depth of 14,885' MD/9,877' TVD in a 9.0 ppg fluid (cut brine) and a MASP of 9,500 psi.
- Any casing setting depths shallower than these depths are acceptable and will yield greater safety factors than presented in this section.
- The casing weights and grades listed below are the minimum design criteria. Higher weight and grade of casing can be used as long as the properties meet or exceed the values for burst, collapse and tension.

SURFACE

13-3/8" 54.5# J-55 STC	Collapse	Burst	Tension (based on STC joint strength)	Make-Up Torque (ft-lbs)	
100%	1,130 psi	2,730 psi	514,000 lbs	Minimum	
70%	791 psi	1,911 psi	359,800 lbs	Optimum Maximum	5,140

Design Factors:

Burst: (FG*0.052*1,788')-(0.10 psi/ft*1,788')

(13.5*0.052*1,788')-(0.10 psi/ft*1,788') (gas gradient to surface)

1,255 psi, MASP

2,730/1,255 = 2.17

Collapse: (MW*0.052*1,788')-(MW*0.052*1,788'*(1-% evac))

(9.0*0.052*1,788')-(9.0*0.052*1,788'*0) (100% evacuated)

837 psi – 0 psi = 837 psi

1,130/837 = 1.35

Tension: (Wt, lbs/ft*1,788') (wt in air)

(54.5 lbs/ft*1,788')

97,446 lbs

514,000/97,446 = 5.27

INTERMEDIATE

9-5/8" 40# L-80 BTC	Collapse	Burst	Tension (based on yield strength)	Make-Up Torque (ft-lb)	
100%	3,090 psi	5,750 psi	916,000 lbs	Minimum Optimum Maximum	See pg. 13
70%	2,163 psi	4,025 psi	641,200 lbs		

Design Factors:

Burst: (FG*0.052*4,900')-(0.10 psi/ft*4,900')

(14.2*0.052*4,900')-(0.10 psi/ft*4,900') (gas gradient to surface)

3,128 psi, MASP

5,750/3,128 = 1.84

Collapse: (MW*0.052*4,900')-(MW*0.052*4,900'*(1-% evac))

(10.0*0.052*4,900')-(10.0*0.052*4,900'*0) (100% evacuated)

2,548 psi – 0 psi = 2,548 psi

3,090/2,548 = 1.21

Tension: (Wt, lbs/ft*4,900') (wt in air)

(40 lbs/ft*4,900')

196,000 lbs

916,000/196,000 = 4.67

PRODUCTION

5-1/2" 17# P-110 CY BPN	Collapse	Burst	Tension (based on yield strength)	Make-Up Torque (ft-lb)	
100%	7,500 psi	10,640 psi	546,000 lbs	Optimum Maximum	10,000 11,000
70%	5,250 psi	7,448 psi	382,200 lbs		

Design Factors:

Un-cemented Burst Case:

(FG*0.052*Max. TVD')-(0.10 psi/ft*Max TVD')

(17.3*0.052*10,008')-(0.10 psi/ft*10,008') (gas gradient to surface)

9,003 psi – 1,000.8 psi = 8,002.2 psi

10,640/8,002.2 = 1.33

Injection Down Casing Burst Case:

MASP during stimulation = 9,500 psi (10,640 psi * 90% = 9,576 psi)

Therefore, 10,640 psi/9,500 psi = 1.12

Collapse: (MW*0.052*Max TVD')-(MW*0.052*Max TVD'*(1-% evac))

(9.4*0.052*10,008')-(9.4*0.052*10,008'*0) (100% evacuated)

4,892 psi – 0 psi = 4,892 psi

7,500/4,892 = 1.53

Tension: (Wt, lbs/ft*Max TVD') (wt in air)

(17 lbs/ft*10,008')

170,136 lbs

546,000/170,136 = 3.20

Thermal Effects

It is assumed the casing will be run into the well when the ambient temperature is high since operations are planned to start in July. Therefore, an ambient temperature of 80° F will be used for the initial temperature of the casing. Once the casing is in the well and cemented in place, assuming a TOC around 4,000', the top 4,000' of casing will gradually warm to 120° F thereby decreasing the amount of tension in the casing at surface. When completion operations commence in September, the stimulation fluid will be ~70° F, thus, cooling the casing down to 70° F increasing the tension on the casing at surface. Therefore, the pipe is heated from 80 deg F to 120 deg F, then cooled to 70 deg F, for a net decrease in the pipe temperature of 10 deg F.

Fa = +58.8w(dT)

+58.8*17*10

+9,996 lbs F, or 9,996 lbs increased tension in the pipe then when it was landed

Pressure Effects

For the stimulation case, the maximum allowable treating pressure is 9,500 psi. At the surface, the pressure is initially 0 psi, thus, the delta P is 9,500 psi.

dFa = $+0.471(d^2)(dP)$

$+0.471*(4.892^2)*(9,500)$

+107,082 lbs F, or 107,082 lbs increased tension in the pipe then when it was landed.

Net Results of Thermal and Pressure Effects

Netting the effects calculated above, the effect of temperature and pressure during stimulation operations is an additional 117,078 lbs F that will be added to the top joint of tension in the casing.

After drawing a free-body diagram and calculating the Resultant Force @ 4,000' (estimated TOC), due to cementation, the Resultant Force is +18,641 lbs F of real tension.

Therefore,

Total tension during stimulation (Fa or axial force) = 18,641 lbs + 117,078 lbs = 135,719 lbs F

Stimulation Tensile Safety Factor = 546,000/135,719 = 4.02