Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs

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

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.

HOBBS OCD

NOV 29 2017

SUBMIT IN TRIPLICATE - Other instructions on page 2

RECEIVED

5. Lease Serial No.
NMNM0392082A

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.
HALLERTAU 5 FEDERAL 11H

2. Name of Operator
CIMAREX ENERGY COMPANY OF CO
Contact: ARICKA EASTERLING
E-Mail: aeasterling@cimarex.com

9. API Well No.
30-025-43886-00-X1

3a. Address
202 S CHEYENNE AVE. SUITE 1000
TULSA, OK 74103

3b. Phone No. (include area code)
Ph: 918.560.7060

10. Field and Pool or Exploratory Area
WILDCAT;WOLFCAMP

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 5 T26S R32E SWSW 490FSL 398FWL
32.066250 N Lat, 103.704544 W Lon

11. County 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			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ 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 must 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 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.

Cimarex Energy Co. respectfully request changes to the APD:

Proposed:
On the 7 5/8" 29.7# HCL80 casing
Add DV Tool with possible annular casing packer as needed
These changes will help to ensure cement is raised to surface.

OCD Hobbs

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Set DV tool at 1275' with possible annular casing packer below
Stage 1 Lead 750 sxs Class C Density = 10.5 ppg yield = 3.5 cuft/sk TOC at DV tool
Stage 1 Tail 210 sxs Class H Density = 14.5 ppg yield = 1.24 cuft/sk
Stage 2 155 sxs Class C Density = 13.5 ppg yield = 1.8 cuft/sk TOC surface

OCD Hobbs

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

Electronic Submission #388525 verified by the BLM Well Information System
For CIMAREX ENERGY COMPANY OF CO, sent to the Hobbs
Committed to AFMSS for processing by ZOTA STEVENS on 09/22/2017 (17ZS0035SE)

Name *(Printed/Typed)* ARICKA EASTERLING — Title REGULATORY ANALYST

Signature (Electronic Submission) — Date 09/14/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By ZOTA STEVENS — Title PETROLEUM ENGINEER — Date 11/19/2017

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.

(Instructions on page 2)

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

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Cimarex Energy Co
LEASE NO.:	NM0392082A
WELL NAME & NO.:	Hallertau 5 Federal – 11H
SURFACE HOLE FOOTAGE:	490'/S & 398'/W
BOTTOM HOLE FOOTAGE	330'/N & 820'/W
LOCATION:	Sec. 5, T. 26 S, R. 32 E
COUNTY:	Lea County

COA

All pervious COAs still apply expect the following:

H2S	○ Yes	◉ No	
Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	○ Low	○ Medium	◉ High
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	○ Conventional	◉ Multibowl	○ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP

A. Hydrogen Sulfide

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

1. The **10-3/4** inch surface casing shall be set at approximately **1069** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) 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 will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

    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 **7-5/8** inch intermediate casing is: Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

    a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

    b. Second stage above DV tool:Cement to surface. If cement does not circulate, contact the appropriate BLM office.**Additional cement maybe required. Excess calculates to -5%.**

    ❖ In High Cave/Karst Areas if cement does not circulate to surface on the first two casing strings , the cement on the 3rd casing string must come to surface.

3. The minimum required fill of cement behind the **5-1/2 x 5** inch production casing is:
    - Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

ZS 111917

10 3/4	surface csg in a		14 3/4	inch hole.		Design Factors		SURFACE	
Segment	#/ft	Grade		Coupling	Body	Collapse	Burst	Length	Weight
"A"	40.50	J 55		BUTT	14.53	3.23	0.54	1,069	43,295
"B"								0	0
w/8.4#/g mud, 30min Sfc Csg Test psig:	1,500			Tail Cmt	does not	circ to sfc.		Totals:	1,069	43,295

Comparison of Proposed to Minimum Required Cement Volumes

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
14 3/4	0.5563	526	863	620	39	8.80	3233	5M	1.50

Burst Frac Gradient(s) for Segment(s) A, B = , b All > 0.70, OK.

7 5/8	casing inside the		10 3/4	A Buoyant		Design Factors		INTERMEDIATE	
Segment	#/ft	Grade		Coupling	Joint	Collapse	Burst	Length	Weight
"A"	29.70	L 80		LT&C	1.84	0.85	0.89	11,368	337,615
"B"	29.70	L 80		LT&C	78.05	0.83	0.89	625	18,548
w/8.4#/g mud, 30min Sfc Csg Test psig:							Totals:	11,992	356,162
B s would be:					30.52	0.82	if it were a vertical wellbore.		

No Pilot Hole Planned	MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
	11992	11820	11820	11368	90	-1	0

The cement volume(s) are intended to achieve a top of 0 ft from surface or a 1069 overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
9 7/8	0.2148	look ↘	0	2607		9.50	5111	10M	0.69
D V Tool(s):			1275				sum of sx	Σ CuFt	Σ%excess
t by stage % :		25	-5				1115	3164	21

Class 'C' tail cmt yld > 1.35

MASP is within 10% of 5000psig, need

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 0.61, 0.58, c, d

<0.70 a Problem!!

Collapse SF for 1/3 full =1.64 Collapse SF okay

5 1/2	casing inside the		7 5/8			Design Factors		PRODUCTION	
Segment	#/ft	Grade		Coupling	Joint	Collapse	Burst	Length	Weight
"A"	20.00	HCL 80		LT&C	1.85	1.44	1.19	11,368	227,360
"B"	18.00	P 110		BUTT	10.80	1.66	1.76	4,964	89,352
w/8.4#/g mud, 30min Sfc Csg Test psig:	1,472						Totals:	16,332	316,712
B would be:					60.03	1.74	if it were a vertical wellbore.		

No Pilot Hole Planned	MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
	16332	11905	11905	11368	90	7	12641.82

The cement volume(s) are intended to achieve a top of 4155 ft from surface or a 7837 overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
6 3/4	0.0835	330	1478	1094	35	12.50			0.35

Class 'H' tail cmt yld > 1.20