

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Carlsbad Field Office
OCD Artesia

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.

5. Lease Serial No.
NMNM22080

6. If Indian, Agency or Tribe Name

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

SUBMIT IN TRIPLICATE - Other instructions on page 2

8. Well Name and No.
TOMB RAIDER 1-12 FED 61H

9. API Well No.
30-015-43592-00-X1

10. Field and Pool or Exploratory Area
LIVINGSTON RIDGE

11. County or Parish, State
EDDY COUNTY, NM

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

DEVON ENERGY PRODUCTION COMPANY

Contact: CHANCE BLAND

Email: chance.bland@devn.com

3a. Address

6488 SEVEN RIVERS HIGHWAY
ARTESIA, NM 88211

3b. Phone No. (include area code)

Ph: 405-228-8593

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 1 T23S R31E Lot 4 200FNL 1310FWL

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 checked="" type="checkbox"/> Alter Casing	<input type="checkbox"/> Hydraulic Fracturing	<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 type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> 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.

Devon Respectfully requests to set the intermediate casing string at 6,000' in order to cover up the flow zones located in the Cherry Canyon.

NM OIL CONSERVATION
ARTESIA DISTRICT

MAY 22 2017

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

RECEIVED

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

**Electronic Submission #376672 verified by the BLM Well Information System
For DEVON ENERGY PRODUCTION COMPANY, sent to the Carlsbad
Committed to AFMSS for processing by TEUNGKU KRUENG on 05/18/2017 (17TMK0020SE)**

Name (Printed/Typed) CHANCE BLAND

Title REG PROF

Signature (Electronic Submission)

Date 05/18/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

APPROVED

PETROLEUM ENGINEER

MAY 18 2017

Approved By **Teungku Muchlis Krueng**

Title

Date

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

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 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 ****

RUP 6-27-11

Devon Energy, Tomb Raider 1-12 Fed 61H

1. Geologic Formations

TVD of target	10,200'	Pilot hole depth	N/A
MD at TD:	20,203'	Deepest expected fresh water:	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone?	Hazards*
Rustler	667		
Salado	1048		
Base of Salt	4205		
Delaware	4455		
Bell Canyon	4513		
Cherry Canyon	5383		
Brushy Canyon	6618		
1BSLM	8378		
LNRD A	8428		
LNRD B	8923		
LNRD C	9233		
1BSSS	9355		
2BSLM	9660		
2BSSS	9976		
2BSSS UPR	10075		
2BSSS_Mid	10238		
2BSSS_LWR	10336		

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

Devon Energy, Tomb Raider 1-12 Fed 61H

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn .	SF Collapse	SF Burst	SF Tension
	From	To							
12.25"	0	4,500'	9.625"	40	J-55	BTC	1.15	1.77	4.10
	4,500	6,000'	9.625"	40	HCK-55	BTC	1.18	1.32	3.75
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

2. Cementing Program

Casing	# Sks	Wt. lb/gal	H ₂ O gal/sk	Yld ft ³ /sack	500# Comp. Strength (hours)	Slurry Description
9-5/8" Inter.	1810	12.9	9.81	1.87	14	Lead: (65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	250	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake

Casing String	TOC	% Excess
9-5/8" Intermediate	0'	50%

4. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
790'	6,000'	Cut/Saturated Brine	9.4 -10.2	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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Devon Energy, Tomb Raider 1-12 Fed 61H

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
x	Coring? If yes, explain
	We plan to conduct whole cores through the Leonard Formation (~8,600' to ~9,333')

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	

All previous COA still apply except the following:

Continued:

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 a.1.a, c-d from the previous COA.

Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

The casing to be at least 1/3 full at all times to mitigate collapse.

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

Option #2 to be removed.

TMAK 05182017

Secretary Potash Section: 3 csgs, 2 circ cement, production cement overlap intermediate 500'.
Prairie-Chicken section.

In a Lesser

13 3/8 Segment	surface csg in a #/ft	Grade	17 1/2 Coupling	inch hole. Joint	Design Factors		SURFACE	
"A"					Collapse	Burst	Length	Weight
"A"	48.00	H 40	ST&C	8.49	2.13	0.54	790	37,920
"B"							0	0
w/8.4#/g mud, 30min Sfc Csg Test psig: 866				Tail Cmt	does	circ to sfc.	Totals:	790 37,920

Comparison of Proposed to Minimum Required Cement Volumes

Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
17 1/2	0.6946	550	732	603	21	8.80	1859	2M	1.56

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

9 5/8	casing inside the		13 3/8	Design Factors				INTERMEDIATE	
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	Weight	
"A"	40.00	J 55	BUTT	2.62	1.62	0.8	4,500	180,000	
"B"	40.00	HCK 55	BUTT	10.50	1.33	0.8	1,500	60,000	
w/8.4#/g mud, 30min Sfc Csg Test psig:						Totals:	6,000	240,000	
The cement volume(s) are intended to achieve a top of				0	ft from surface or a		790	overlap.	
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
12 1/4	0.3132	2060	3717	1948	91	10.20	2674	3M	0.81

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 0.88, 0.66, c, d
<0.70 a Problem!! Mitigate collapse, need 1/3 full

5 1/2 Segment	casing inside the #/ft	Grade	9 5/8	Coupling	Body	Design Factors		PRODUCTION	
						Collapse	Burst	Length	Weight
"A"	17.00		P 110	BUTT	3.16	1.61	2.17	9,597	163,149
"B"	17.00		P 110	BUTT	7.97	1.39	2.17	10,359	176,103
w/8.4#/g mud, 30min Sfc Csg Test psig: 2,111							Totals:	19,956	339,252
B	would be:				56.84	1 52	if it were a vertical wellbore.		
No Pilot Hole Planned			MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
			19956	10162	10162	9597	90	10	10495.91
The cement volume(s) are intended to achieve a top of					3900	ft from surface or a		2100	overlap.
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
8 3/4	0.2526	2830	4493	4079	10	9.30			1.35
Setting Depths for D V Tool(s):			5000				sum of sx	Σ CuFt	Σ%excess
% excess cmt by stage:		-1	-6				2880	4081	0