Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs

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.
NMNM~~02965A~~ 121490

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.
RATTLESNAKE 28 FED COM 703H ✓

2. Name of Operator ✓
EOG RESOURCES INCORPORATED
Contact: STAN WAGNER
E-Mail: stan_wagner@eogresources.com

9. API Well No.
30-025-42875-00-X1 ✓

3a. Address
MIDLAND, TX 79702

3b. Phone No. (include area code)
Ph: 432-686-3689

HOBBS OCD

10. Field and Pool, or Exploratory
WC-025 G09 S263327G

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 28 T26S R33E NWNE 730FNL 2070FEL ✓

APR 18 2016

RECEIVED

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.)

EOG Resources requests an amendment to our approved APD for this well to reflect a change in casing design.

New casing design details attached.

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

Electronic Submission #336075 verified by the BLM Well Information System
For EOG RESOURCES INCORPORATED, sent to the Hobbs
Committed to AFMSS for processing by KENNETH RENNICK on 04/13/2016 (16KGR0049SE)

Name *(Printed/Typed)* STAN WAGNER — Title REGULATORY ANALYST

Signature (Electronic Submission) — Date 04/08/2016

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By Kenneth Rennick — Title Petroleum Engineer — Date 4/13/2016

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 Carlsbad Field 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 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 ****

MAY 06 2016

Rennick, Kenneth <krennick@blm.gov>

Relevant for Rattlesnake 26 Fed Com 703H

Sundry NOI - Casing Change - Thor 21 Fed Com 703H & 704H

Steve Munsell <Steve_Munsell@eogresources.com> Wed, Mar 30, 2016 at 9:27 AM
To: "Rennick, Kenneth" <krennick@blm.gov>, Stan Wagner <Stan_Wagner@eogresources.com>
Cc: Bruce Coit <Bruce_Coit@eogresources.com>

Kenneth,

We will resubmit and change the anticipated mud weight range to 10.0 to 11.5 ppg. Normally we drill these laterals with mud weights ranging from 9.5 to 11.5 ppg. Almost always we get it done with 10.5 ppg or less.

So the 11.5 ppg maximum anticipated MW keeps us below the 5000 psi shut in surface pressure scenario.

I'm very comfortable with this. All of our rigs are equipped with 10,000 psi BOPs and chokes. The only piece of equipment that is not rated for 10,000 psi is the annular BOP.

Also we have all rigs equipped with two sets of pipe rams and one set of blinds (single BOP, mud cross, dual BOP, annular).

Thanks for your help.

>>>Munsell

From: Rennick, Kenneth [mailto:krennick@blm.gov]
Sent: Wednesday, March 30, 2016 9:59 AM
To: Stan Wagner <Stan_Wagner@eogresources.com>
Cc: Bruce Coit <Bruce_Coit@eogresources.com>; Steve Munsell <Steve_Munsell@eogresources.com>
Subject: Re: Sundry NOI - Casing Change - Thor 21 Fed Com 703H & 704H

** External email. Use caution.**

Hello Gentlemen,

[Quoted text hidden]
[Quoted text hidden]

Rattlesnake 28 Fed Com 703H
30-025-42875
EOG Resources, Inc
Surface Location: Sec. 28, T. 26S, R. 33E
Conditions of Approval

See below for the changes in the Conditions of Approval for the Drilling Section.

DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ **Lea County**
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,
(575) 393-3612

1. A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Delaware** formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**

2. **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. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

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 is 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. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).

The initial wellhead installed on the well will remain on the well with spools used as needed.

Wait on cement (WOC) for Water Basin:
After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. 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. Have well specific cement details onsite prior to pumping the cement for each casing string.

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

Risks:
Medium Cave/ Karst Occurrence
Possibility of Water Flows in the Castile and in the Salado
Possibility of Lost Circulation in the Rustler, in the Red Beds and in the Delaware
Abnormal pressures may be encountered upon penetrating the 3rd Bone Spring Sandstones and all subsequent formations.

1. The **10 3/4** inch surface casing shall be set at approximately **890** feet **(in a competent bed below the Magenta Dolomite, which is a Member of the Rustler, and if salt is encountered, set casing at least 25 feet 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 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.

    Formation below the 10 3/4 inch 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.

2. The minimum required fill of cement behind the **7 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 cement does not circulate to surface on the intermediate casing, the cement on the production casing must come to surface.

    Formation below the 7 5/8 inch 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.

Variance is granted for centralizers in the production interval per the drilling program.

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

   ☒ Cement should tie-back at least **500** feet into previous casing string. Operator shall provide method of verification. **Additional cement may be required since excess was calculated to be 13%.**

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 53.

2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface 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, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

    b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.

    c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

    d. The results of the test shall be reported to the appropriate BLM office.

    e. 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.**

    f. 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. This test shall be performed prior to the test at full stack pressure.

    g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **3rd Bone Springs** 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.

D. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the **3rd Bone Springs** and **Wolfcamp** formation, and shall be used until production casing is run and cemented.

Proposed mud weight may not be adequate for drilling through 3rd Bone Springs and 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.

KGR 04132016

EOG RESOURCES, INC.
RATTLESNAKE 28 FED COM NO. 703H

1. GEOLOGIC NAME OF SURFACE FORMATION:

Permian

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	790'
Top of Salt	1,140'
Base of Salt / Top Anhydrite	4,690'
Base Anhydrite	4,928'
Lamar	4,928'
Bell Canyon	4,953'
Cherry Canyon	6,050'
Brushy Canyon	7,580'
Bone Spring Lime	9,120'
1st Bone Spring Sand	10,060'
2nd Bone Spring Lime	10,490'
2nd Bone Spring Sand	10,675'
3rd Bone Spring Carb	11,000'
3rd Bone Spring Sand	11,750'
Wolfcamp	12,173'
TD	12,400'

3. ESTIMATED DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS:

Upper Permian Sands	0- 400'	Fresh Water
Cherry Canyon	6,050'	Oil
Brushy Canyon	7,580'	Oil
1st Bone Spring Sand	10,060'	Oil
2nd Bone Spring Lime	10,490'	Oil
2nd Bone Spring Sand	11,675'	Oil
3rd Bone Spring Carb	11,000'	Oil
3rd Bone Spring Sand	11,750'	Oil
Wolfcamp	12,173'	Oil

No other Formations are expected to give up oil, gas or fresh water in measurable quantities. Surface fresh water sands will be protected by setting 10.75" casing at 890' and circulating cement back to surface.

4. CASING PROGRAM - NEW

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF_{min} Collapse	DF_{min} Burst	DF_{min} Tension
14.75"	0 – 890'	10.75"	40.5#	J55	STC	1.125	1.25	1.60
9.875"	0-8,000'	7.625"	29.7#	HCP-110	LTC	1.125	1.25	1.60
8.75"	8,000' – 10,700'	7.625"	29.7#	HCP-110	Ultra FJ	1.125	1.25	1.60
6.75"	0'-19,726'	5.5"	23#	HCP-110	ULT SFII	1.125	1.25	1.60

SEE COA

Variance is requested to wave the centralizer requirements for the 7-5/8" FJ casing in the 8-3/4" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 8-3/4" hole interval to maximize cement bond and zonal isolation. Centralizers will be placed in the 9-7/8" hole interval at least one every third joint.

Variance is also requested to wave any centralizer requirements for the 5-1/2" FJ casing in the 6-3/4" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 6-3/4" hole interval to maximize cement bond and zonal isolation.

Cementing Program:

Depth	No. Sacks	Wt. ppg	Yld Ft^3/ft	Mix Water Gal/sk	Slurry Description
10-3/4" 890	325	13.5	1.73	9.13	Class C + 4.0% Bentonite + 0.6% CD-32 + 0.5% $CaCl_2$ + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	200	14.8	1.34	6.34	Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate
7-5/8" 10,700'	750	9.0	2.50	9.06	Class C + 0.6% ASM-3 + 0.15% CDF-4P + 0.6% LTR + 0.5% SCA-6 + 0.13 pps LCL-11 + 0.13 pps LDP-c-0215
	500	12.5	1.71	9.06	Class C + 0.6% LTR + 0.5% SCA-6 + 0.6% ASM-3 + 0.15% CDF-4P + 0.13% LCL-11 + 0.13% LCF-7
	250	15.6	1.19	5.20	Class H + 0.2% ASM-3 + 0.3% SCA-6 + 0.65% LTR + 0.3% SPC-2
5-1/2" 19,726'	725	14.1	1.26	5.80	Class H + 0.1% C-20 + 0.05% CSA-1000 + 0.20% C-49 + 0.40% C-17

LOW CEMENT SEE COA

Note: Cement volumes based on bit size plus at least 25% excess in the open hole plus 10% excess in the cased-hole overlap section.

5. MINIMUM SPECIFICATIONS FOR PRESSURE CONTROL:

SEE COA

Variance is requested to use a co-flex line between the BOP and choke manifold (instead of using a 4" OD steel line).

The minimum blowout preventer equipment (BOPE) shown in Exhibit #1 will consist of a single ram, mud cross and double ram-type (10,000 psi WP) preventer and an annular preventer (5000-psi WP). Both units will be hydraulically operated and the ram-type will be equipped with blind rams on bottom and drill pipe rams on top. All BOPE will be tested in accordance with Onshore Oil & Gas order No. 2.

Before drilling out of the surface casing, the ram-type BOP and accessory equipment will be tested to 5000/ 250 psig and the annular preventer to 5000/ 250 psig. The surface casing will be tested to 1500 psi for 30 minutes.

Before drilling out of the intermediate casing, the ram-type BOP and accessory equipment will be tested to 5000/ 250 psig and the annular preventer to 5000/ 250 psig. The intermediate casing will be tested to 2000 psi for 30 minutes.

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.

A hydraulically operated choke will be installed prior to drilling out of the intermediate casing shoe.

6. TYPES AND CHARACTERISTICS OF THE PROPOSED MUD SYSTEM:

During this procedure we plan to use a Closed-Loop System and haul contents to the required disposal.

The applicable depths and properties of the drilling fluid systems are as follows.

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 890'	Fresh - Gel	8.6-8.8	28-34	N/c
890' – 10,700'	Brine	8.8-10.0	28-34	N/c
10,700' – 19,726' Lateral	Oil Base	10.0-11.5	58-68	3 - 6

An electronic pit volume totalizer (PVT) will be utilized on the circulating system, to monitor pit volume, flow rate, pump pressure and stroke rate.

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the wellsite at all times.

7. AUXILIARY WELL CONTROL AND MONITORING EQUIPMENT:

(A) A kelly cock will be kept in the drill string at all times.

(B) A full opening drill pipe-stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.

(C) H_2S monitoring and detection equipment will be utilized from surface casing point to TD.

8. LOGGING, TESTING AND CORING PROGRAM:

SEE COA

Open-hole logs are not planned for this well.

GR–CCL Will be run in cased hole during completions phase of operations.

9. ABNORMAL CONDITIONS, PRESSURES, TEMPERATURES AND POTENTIAL HAZARDS:

SEE COA

The estimated bottom-hole temperature (BHT) at TD is 182 degrees F with an estimated maximum bottom-hole pressure (BHP) at TD of 7415 psig. No hydrogen sulfide or other hazardous gases or fluids have been encountered, reported or are known to exist at this depth in this area. Severe loss circulation is expected from 7,300' to Intermediate casing point.

10. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS:

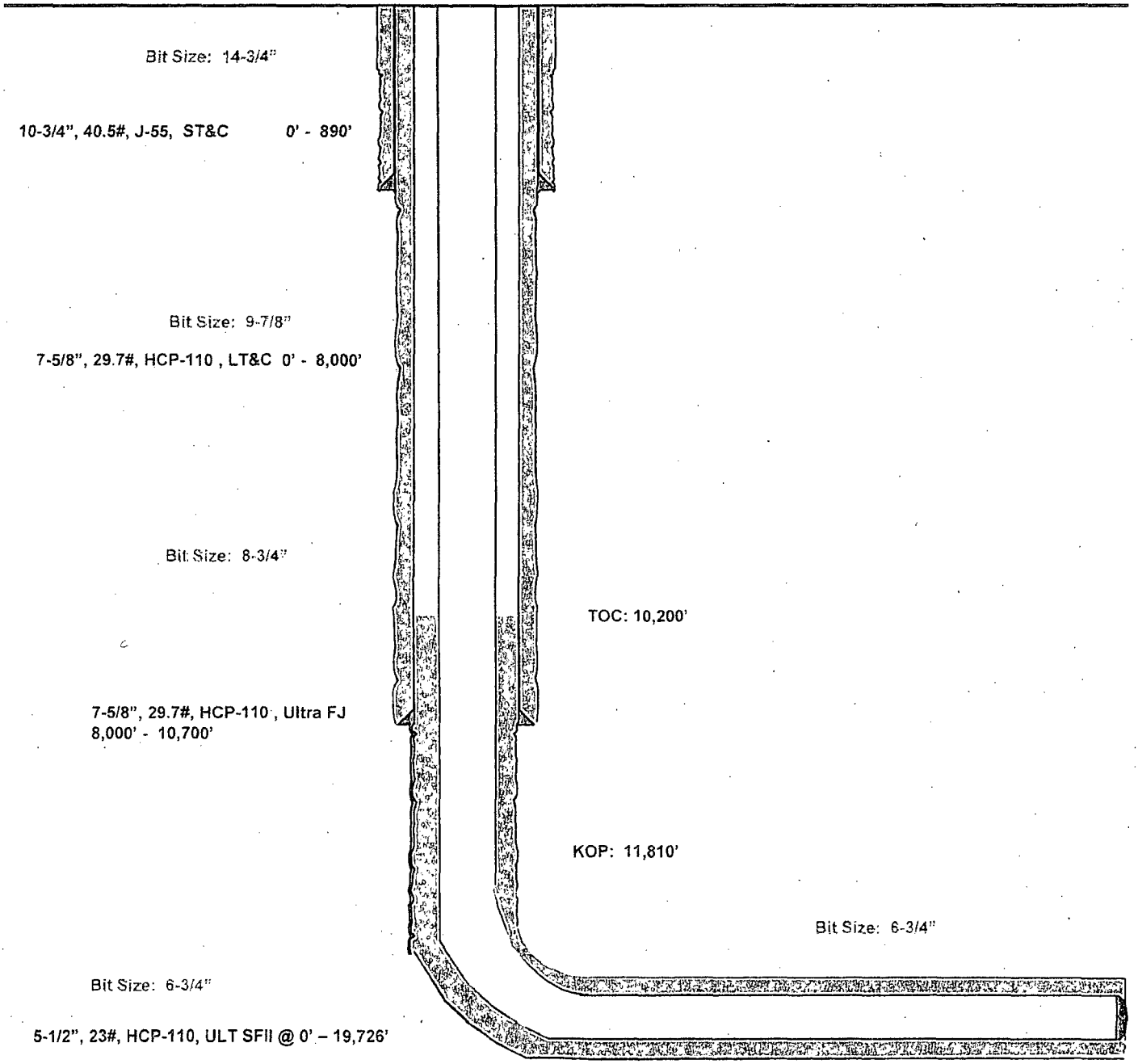
The drilling operation should be finished in approximately one month. If the well is productive, an additional 60-90 days will be required for completion and testing before a decision is made to install permanent facilities.

Rattlesnake 28 Fed Com #703H

730' FNL
2070' FEL
Section 28
T-26-S, R-33-E

Lea County, New Mexico
Proposed Wellbore
Revised 4/7/16
API: 30-025-42875

KB: 3,276'
GL: 3,246'



Lateral: 19,726' MD, 12,400' TVD
Upper Most Perf:
330' FNL & 1766' FEL Sec. 28
Lower Most Perf:
330' FSL & 1766' FEL Sec. 33
BH Location: 230' FSL & 1766' FEL
Section 33
T-26-S, R-33-E

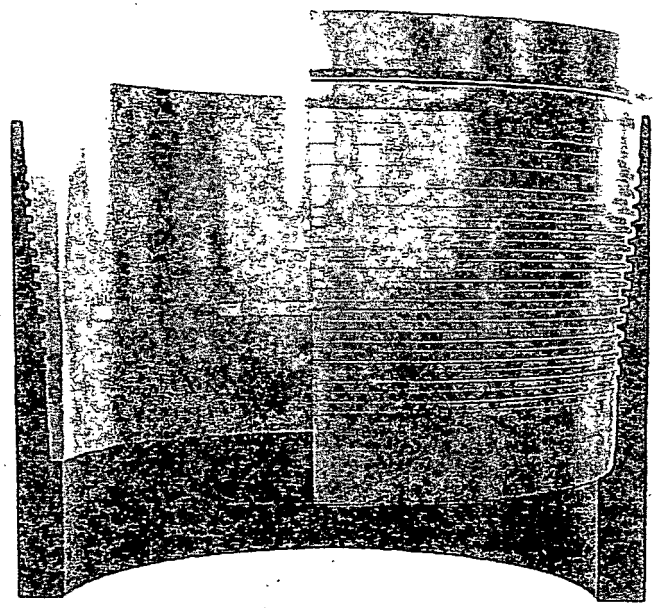
PERFORMANCE DATA

TMK UP ULTRA™ FJ **7.625 in** **29.70 lbs/ft** **P110 HC - EVRAZ**
Technical Data Sheet

Tubular Parameters					
Size	7.625	in	Minimum Yield	110,000	psi
Nominal Weight	29.70	lbs/ft	Minimum Tensile	125,000	psi
Grade	10 HC - EVRAZ		Yield Load	939,000	lbs
PE Weight	29.04	lbs/ft	Tensile Load	1,067,000	lbs
Wall Thickness	0.375	in	Min. Internal Yield Pressure	9,420	psi
Nominal ID	6.875	in	Collapse Pressure	7,610	psi
Drift Diameter	6.750	in			
Nom. Pipe Body Area	8.541	in²			

Connection Parameters		
Connection OD	7.625	in
Connection ID	6.881	in
Make-Up Loss	4.022	in
Critical Section Area	5.316	in²
Tension Efficiency	62.2	%
Compression Efficiency	62.2	%
Yield Load In Tension	584,000	lbs
Min. Internal Yield Pressure	9,470	psi
Collapse Pressure	7,610	psi
Uniaxial Bending	41	°/ 100 ft

Make-Up Torques		
Min. Make-Up Torque	17,700	ft-lbs
Opt. Make-Up Torque	19,700	ft-lbs
Max. Make-Up Torque	21,700	ft-lbs
Yield Torque	31,500	ft-lbs



PREMIUM CONNECTIONS PERFORMANCE DATA

Size 5.500 **NomWt** 23.0 **Grade** P-110 HC

TMK UP ULTRA™ SFII

5.500in 23.0lbs/ft P-110 HC

Technical Data Sheet

Tubular Parameters

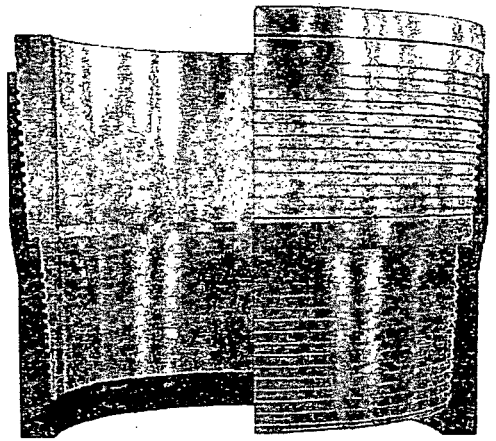
Size	5.500	in	Minimum Yield	110,000	psi
Nominal Weight	23.0	lbs/ft	Minimum Tensile	125,000	psi
Grade	P-110 HC		Yield Load	729,000	lbs
PE Weight	22.54	lbs/ft	Tensile Load	828,000	lbs
Wall Thickness	0.415	in	Min. Internal Yield Pressure	14,500	psi
Nominal ID	4.670	in	Collapse Pressure	15,110	psi
Drift Diameter	4.545	in			
Nom. Pipe Body Area	6.630	in²			

Connection Parameters

Connection OD	5.726	in
Connection ID	4.626	in
Make - Up Loss	5.653	in
Critical Section Area	5.817	in²
Efficiency - Tension	85%	%
Efficiency - Compression	73%	%
Yield Load In Tension	621,000	lbs
Min. Internal Yield Pressure	14,500	psi
Collapse Pressure	15,110	psi
Uniaxial Bending	78	°/ 100 ft

Make-Up Torques

Min. Make-Up Torque	15,500	ft-lbs
Optimum Make-Up Torque	16,300	ft-lbs
Max. Make-Up Torque	18,700	ft-lbs
Yield Torque	24,800	ft-lbs



TMK