Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NMOCD
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
AUG 22 2019
RECEIVED

5. Lease Serial No.
NMNM87274

6. If Indian, Allottee or Tribe Name

***SUBMIT IN TRIPLICATE - Other instructions on page 2***

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

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

8. Well Name and No.
SEVERUS 31-5 FEDERAL COM 11H

2. Name of Operator
XTO ENERGY INC
Contact: KELLY KARDOS
E-Mail: kelly_kardos@xtoenergy.com

9. API Well No.
30-025-46223

3a. Address
6401 HOLIDAY HILL RD BLDG 5
MIDLAND, TX 79707

3b. Phone No. (include area code)
Ph: 432-620-4374

10. Field and Pool or Exploratory Area
WILDCAT BONE SPRING

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 30 T20S R34E Mer NMP SESW 337FSL 1750FWL

11. County or Parish, State
Lea ~~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 A PD |
| | ☐ 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.

XTO Energy Inc., requests permission to revise the casing from a 3-string design to a 4-string design per the attached procedure....

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

14. I hereby certify that the foregoing is true and correct.
**Electronic Submission #474005 verified by the BLM Well Information System**
**For XTO ENERGY INC, sent to the Hobbs**
**Committed to AFMSS for processing by PRISCILLA PEREZ on 07/29/2019 ()**

Name *(Printed/Typed)* KELLY KARDOS | Title REGULATORY COORDINATOR

Signature (Electronic Submission) | Date 07/18/2019

APPROVED

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved By | Title | AUG 6 2019 | 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 BUREAU OF LAND MANAGEMENT
ROSWELL 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.

(Instructions on page 2)

**** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ****

DRILLING PLAN: BLM COMPLIANCE
(Supplement to BLM 3160-3)

XTO Energy Inc.
Severus 31-5 Fed Com 11H
Projected TD: 18270' MD / 10580' TVD
SHL: 337' FSL & 1750' FWL , Section 30, T20S, R34E
BHL: 2401.3' FNL & 330' FWL , Section 5, T21S, R33E
Eddy County, NM

**1. Geologic Name of Surface Formation**

A. Quaternary

**2. Estimated Tops of Geological Markers & Depths of Anticipated Fresh Water, Oil or Gas:**

| Formation | Well Depth (TVD) | Water/Oil/Gas |
|---|---|---|
| Rustler | 1529' | Water |
| Top of Salt | 1871' | Water |
| Base of Salt | 3139' | Water |
| Capitan Reef | 3793' | Water |
| Delaware | 5657' | Water |
| Bone Spring | 8661' | Water/Oil/Gas |
| 1st Bone Spring Ss | 9656' | Water/Oil/Gas |
| 2nd Bone Spring Ss | 10481' | Water/Oil/Gas |
| Target/Land Curve | 10580' | Water/Oil/Gas |

*** Hydrocarbons @ Brushy Canyon

*** Groundwater depth 40' (per NM State Engineers Office).

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 16 inch casing @ 1640' (231' above the salt) and circulating cement back to surface. The salt will be isolated by setting 11-3/4 inch casing at 3160' and circulating cement to surface. 8-5/8 inch intermediate casing will be set at 5757'. A 7-7/8 inch curve and lateral hole will be drilled to TD, where 5-1/2 inch casing will be set and cemented back up to the 8-5/8 inch casing shoe.

**3. Casing Design**

3280' see COAs

| Hole Size | Depth | OD Csg | Weight | Collar | Grade | New/Used | SF Burst | SF Collapse | SF Tension |
|---|---|---|---|---|---|---|---|---|---|
| 20" | 0' - 1640' | 16" | 75 | STC | J-55 | New | 2.77 | 1.86 | 5.77 |
| 14-3/4" | 0' - ~~3160'~~ | 11-3/4" | 47 | STC | J-55 | New | 1.91 | 2.08 | 4.30 |
| 10-5/8" | 0' - 5757' | 8-5/8" | 32 | STC | J-55 | New | 1.41 | 1.55 | 2.02 |
| 7-7/8" | 0' - 18270' | 5-1/2" | 17 | LTC | P-110 | New | 1.33 | 2.17 | 2.39 |

- XTO requests to utilize centralizers only in the curve above the KOP and only a minimum of one every other joint.
- 16" Collapse analyzed using 75% evacuation. Casing to be filled while running.
- 11-3/4" & 8-5/8" Collapse analyzed using 50% evacuation based on regional experience.
- 5-1/2" tension calculated using vertical hanging weight plus the lateral weight multiplied by a friction factor of 0.35
- Test on 2M Annular & Casing will be limited to 70% burst of the casing or 1500 psi, whichver is less

**WELLHEAD:**

*Temporary Wellhead*

- 16" SOW bottom x 16-3/4" 3M top flange.

*Permanent Wellhead – GE RSH Multibowl System*

A. Starting Head: 13-5/8" 5M top flange x 11-3/4" SOW bottom

B. Tubing Head: 13-5/8" 5M bottom flange x 7" 10M top flange

- Wellhead will be installed by manufacturer's representatives.
- Manufacturer will monitor welding process to ensure appropriate temperature of seal.
- Operator will test the 8-5/8" casing per BLM Onshore Order 2
- Wellhead manufacturer representative will not be present for BOP test plug installation

## 4. Cement Program

*Surface Casing: 16", 75 New J-55, STC casing to be set at +/- 1640'*

Lead: 1310 sxs Class C + Salt (mixed at 12.8 ppg, 1.88 ft3/sx, 11.45 gal/sx water)
Tail: 190 sxs Class C (mixed at 14.8 ppg, 1.33 ft3/sx, 6.39 gal/sx water)
Compressives: 12-hr = 1000 psi 24 hr = 2000 psi

*1st Intermediate Casing: 11-3/4", 47 New J-55, STC casing to be set at +/- 3160'*

Lead: 1310 sxs Class C + Poz + Fluid Loss FL-25 + Retarder R-3 + Salt + Bentonite (mixed at 12.8 ppg, 1.88 ft3/sx, 9.93 gal/sx water)
Tail: 190 sxs Class C + Retarder R-3 (mixed at 14.8 ppg, 1.33 ft3/sx, 6.30 gal/sx water)
Compressives: 12-hr = 1000 psi 24 hr = 2000 psi

*2nd Intermediate Casing: 8-5/8", 32 New J-55, STC casing to be set at +/- 5757'* (minimum of 50' below previous shoe)
*ECP/DV Tool to be set at ~~3200'~~* 3330' see COAS
*1st Stage*

Lead 1: 680 sxs Class C + Glass Beads + integraSeal + Bonding Agent BA-90 + Foam Preventer FP-6L + Sodium Metasilicate A-2 + Anti Settling ASA-301 + Retarder R-21 + Extender LW-5E (mixed at 9.5 ppg, 3.8 ft3/sx, 18.7 gal/sx water)

Lead 2: 310 sxs Class C + Poz + IntegraSeal Cello + IntegraSeal Kol + Salt + Sodium Metasilicate A-2 + Retarder R-21 + Fluid Loss FL-52 + Bentonite (mixed at 11.5 ppg, 2.68 ft3/sx, 15.46 gal/sx water)

Tail: 150 sxs Class C + Foam Preventer FP-6L + Retarder R-21 + Fluid Loss FL-52 (mixed at 14.8 ppg, 1.33 ft3/sx, 6.39 gal/sx water)
Compressives: 12-hr = 1000 psi 24 hr = 2000 psi

*2nd Stage*

Lead: 610 sxs Class C + Poz + IntegraSeal Cello + IntegraSeal Kol + Salt + Retarder R-3 + Sodium Metasilicate A-2 + Fluid Loss FL-52 + Bentonite (mixed at 12.8 ppg, 1.88 ft3/sx, 9.61 gal/sx water)

Tail: 150 sxs Class C + Fluid Loss FL-52 (mixed at 14.8 ppg, 1.33 ft3/sx, 6.39 gal/sx water)
Compressives: 12-hr = 1000 psi 24 hr = 2000 psi

*Production Casing: 5-1/2", 17 New P-110, LTC casing to be set at +/- 18270'*

Lead 1: 10 sxs Class C + Glass Beads + IntegraSeal Kol + Bonding Agent BA-90 + Foam Preventer FP-6L + Sodium Metasilicate A-2 + Anti Settling ASA-301 + Retarder R-21 + Bentonite (mixed at 9.5 ppg, 3.8 ft3/sx, 18.7 gal/sx water)

Lead 2: 350 sxs Class C + Poz + IntegraSeal Cello + IntegraSeal Kol + Foam Preventer FP-6L + Salt + Sodium Metasilicate A-2 + Bentonite (mixed at 11.5 ppg, 2.72 ft3/sx, 15.9 gal/sx water)

Tail: 1220 sxs Class C + IntegraSeal Kol + Foam Preventer FP-6L + Salt + Fluid Loss FL-52 + Dispersant CS-32 + Retarder R-21 + Bonding Agent BA-90 (mixed at 13.2 ppg, 1.61 ft3/sx, 9.36 gal/sx water)

Compressives: 12-hr = 9 psi 24 hr = 1800 psi

## 5. Pressure Control Equipment

The blow out preventer equipment (BOP) on surface casing/temp. wellhead will consist of a 20" minimum 2M Hydril. MASP should not exceed 948 psi.

Once the permanent WH is installed on the 11-3/4" casing, the blow out preventer equipment (BOP) will consist of a 13-5/8" minimum 5M Hydril and a 13-5/8"" minimum 3M 2-Ram BOP. MASP should not exceed 2789 psi.

All BOP testing will be done by an independent service company. Annular pressure tests will be limited to 50% of the working pressure. When nippling up on the 13-5/8" 3M bradenhead and flange, the BOP test will be limited to 3000 psi. Since a multibowl system will be used, subsequent BOP pressure tests will be performed as necessary based on required testing schedule (i.e., at least every 30 days). All BOP tests will include a low pressure test as per BLM regulations. The 3M BOP diagrams are attached. Blind rams will be functioned tested each trip, pipe rams will be functioned tested each day.

A variance is requested to allow use of a flex hose as the choke line from the BOP to the Choke Manifold. If this hose is used, a copy of the manufacturer's certification and pressure test chart will be kept on the rig. Attached is an example of a certification and pressure test chart. The manufacturer does not require anchors.

**6. Proposed Mud Circulation System**

| INTERVAL | Hole Size | Mud Type | MW (ppg) | Viscosity (sec/qt) | Fluid Loss (cc) |
|---|---|---|---|---|---|
| 0' - 1640' | 20" | FW/Native | 8.3-9.5 | 35-50 | NC |
| 1640' - 3160' | 14-3/4" | Brine | 9.5-10.2 | 30-35 | NC |
| 3160' to 5757' | 10-5/8" | FW | 8.3-9.8 | 30-32 | NC |
| 5757' to 18270' | 7-7/8" | FW / Cut Brine / Polymer | 8.2-9.3 | 29-32 | NC - 20 |

The necessary mud products for weight addition and fluid loss control will be on location at all times.

Spud with fresh water/native mud. Drill out from under 16" surface casing with brine solution. A 9.5ppg-10.2ppg brine mud will be used while drilling through the salt formation. Use fibrous materials as needed to control seepage and lost circulation. Pump viscous sweeps as needed for hole cleaning. Pump speed will be recorded on a daily drilling report after mudding up. A Pason or Totco will be used to detect changes in loss or gain of mud volume. A mud test will be performed every 24 hours to determine: density, viscosity, strength, filtration and pH as necessary. Use available solids controls equipment to help keep mud weight down after mud up. Rig up solids control equipment to operate as a closed loop system.

For Production hole, XTO requests the option of using OBM if hole conditions dictate
OBM properties: 8.2-9.2#, 28-45 Viscosity, and API fluid loss <22

## 7. Auxiliary Well Control and Monitoring Equipment

A. A Kelly cock will be in the drill string at all times.
B. A full opening drill pipe stabbing valve having appropriate connections will be on the rig floor at all times.
C. H2S monitors will be on location when drilling below the 11-3/4" casing.

## 8. Logging, Coring and Testing Program

Mud Logger: Mud Logging Unit (2 man) below 1st intermediate casing.

Open hole logging will not be done on this well.

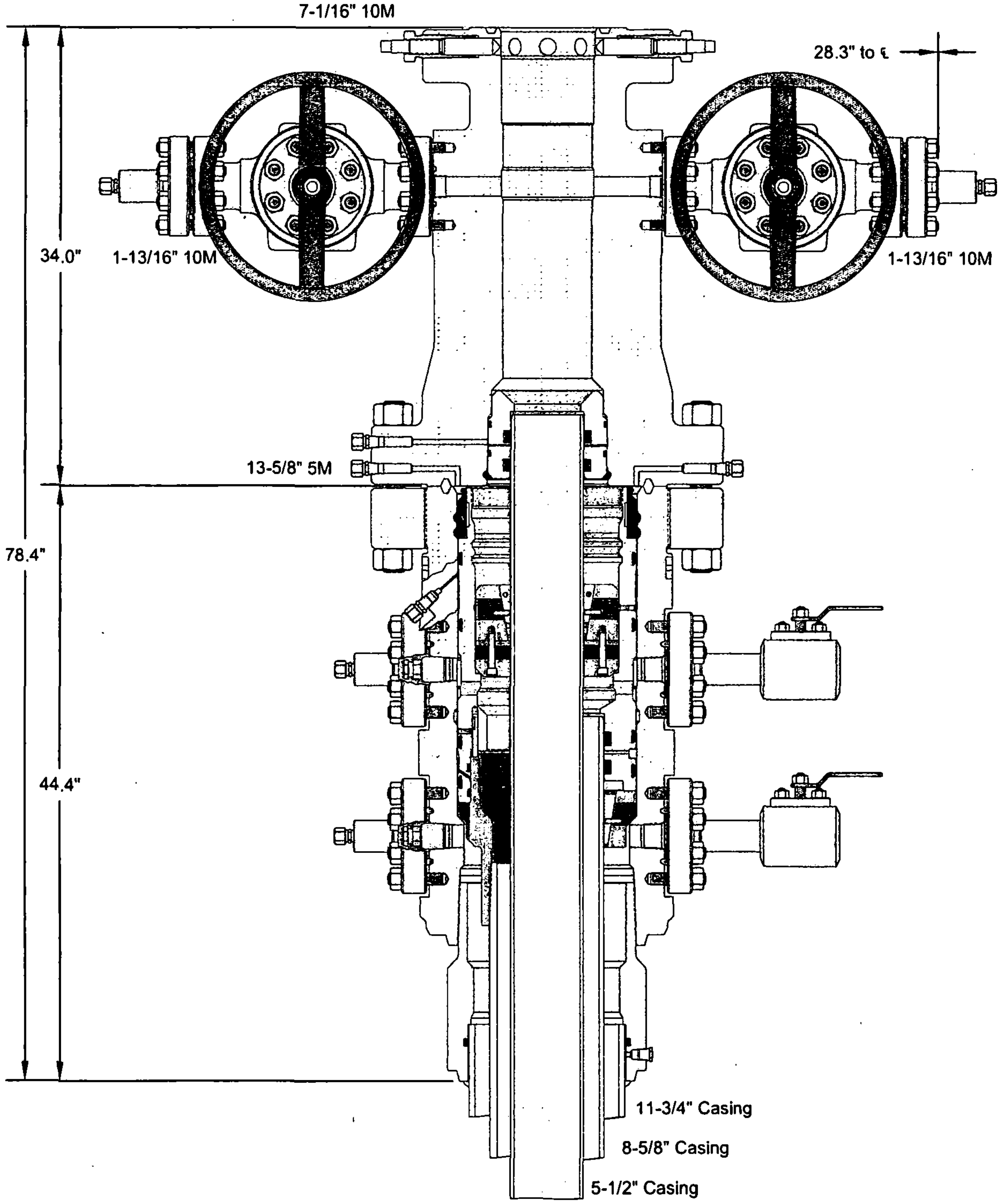
## 9. Abnormal Pressures and Temperatures / Potential Hazards

None Anticipated. BHT of 145 to 165 F is anticipated. No H2S is expected but monitors will be in place to detect any H2S occurrences. Should these circumstances be encountered the operator and drilling contractor are prepared to take all necessary steps to ensure safety of all personnel and environment. Lost circulation could occur but is not expected to be a serious problem in this area and hole seepage will be compensated for by additions of small amounts of LCM in the drilling fluid. The maximum anticipated bottom hole pressure for this well is 5116 psi.

## 10. Anticipated Starting Date and Duration of Operations

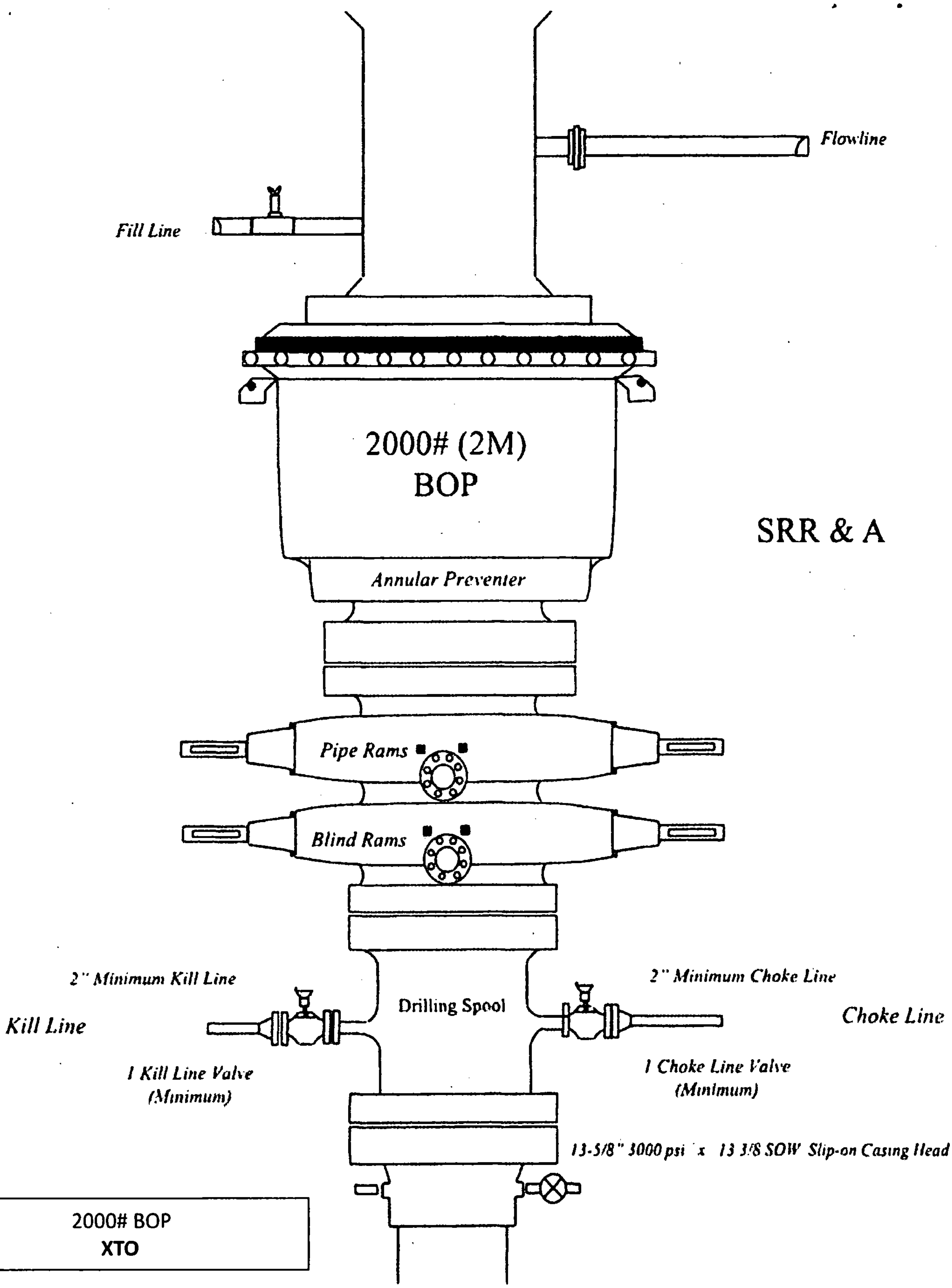
Road and location construction will begin after Santa Fe and BLM have approved the APD. Anticipated spud date will be as soon after Santa Fe and BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 40 days. If production casing is run, an additional 30 days will be needed to complete well and construct surface facilities and/or lay flow lines in order to place well on production.

GE Oil & Gas

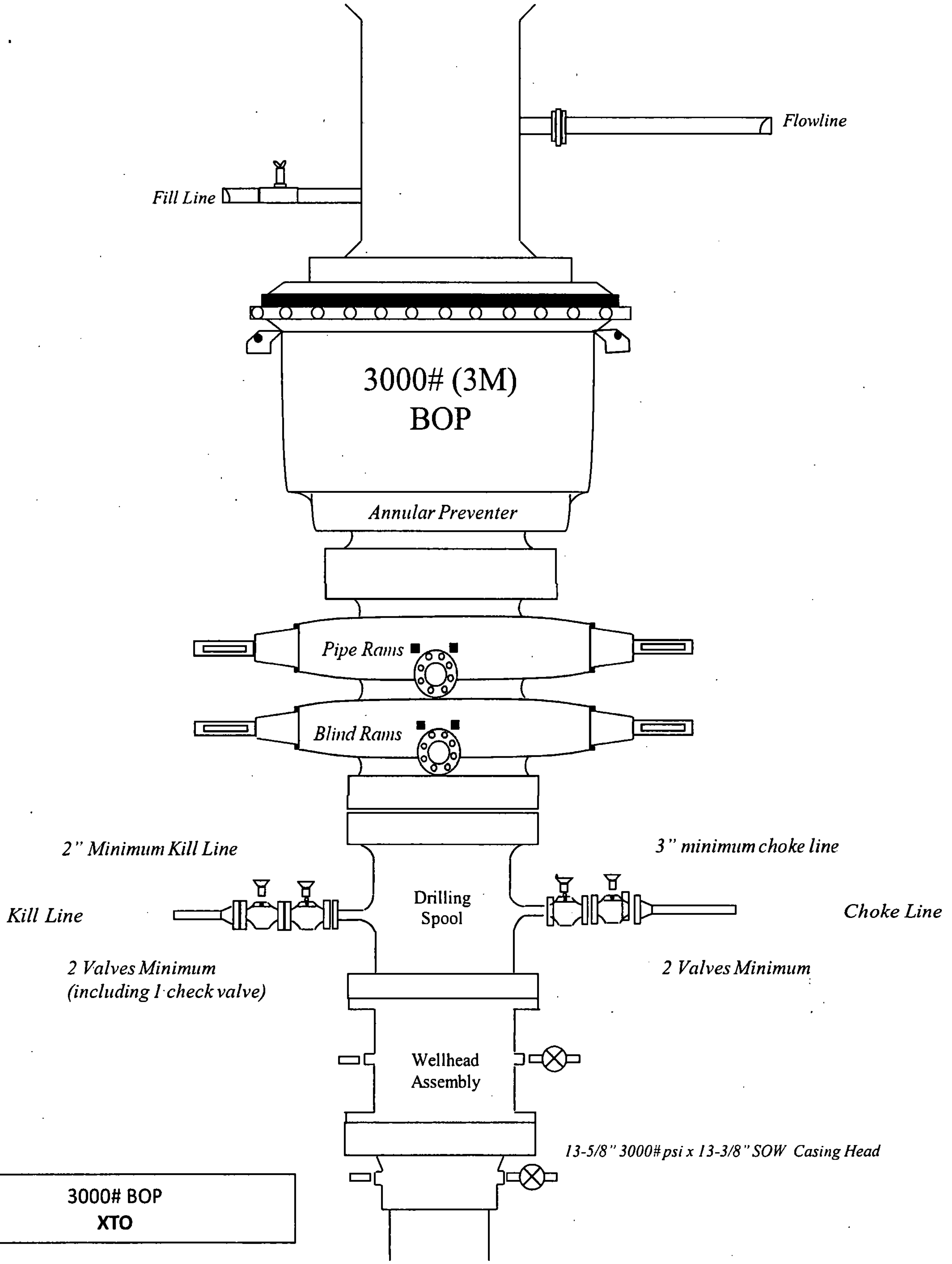



ALL DIMENSIONS ARE APPROXIMATE

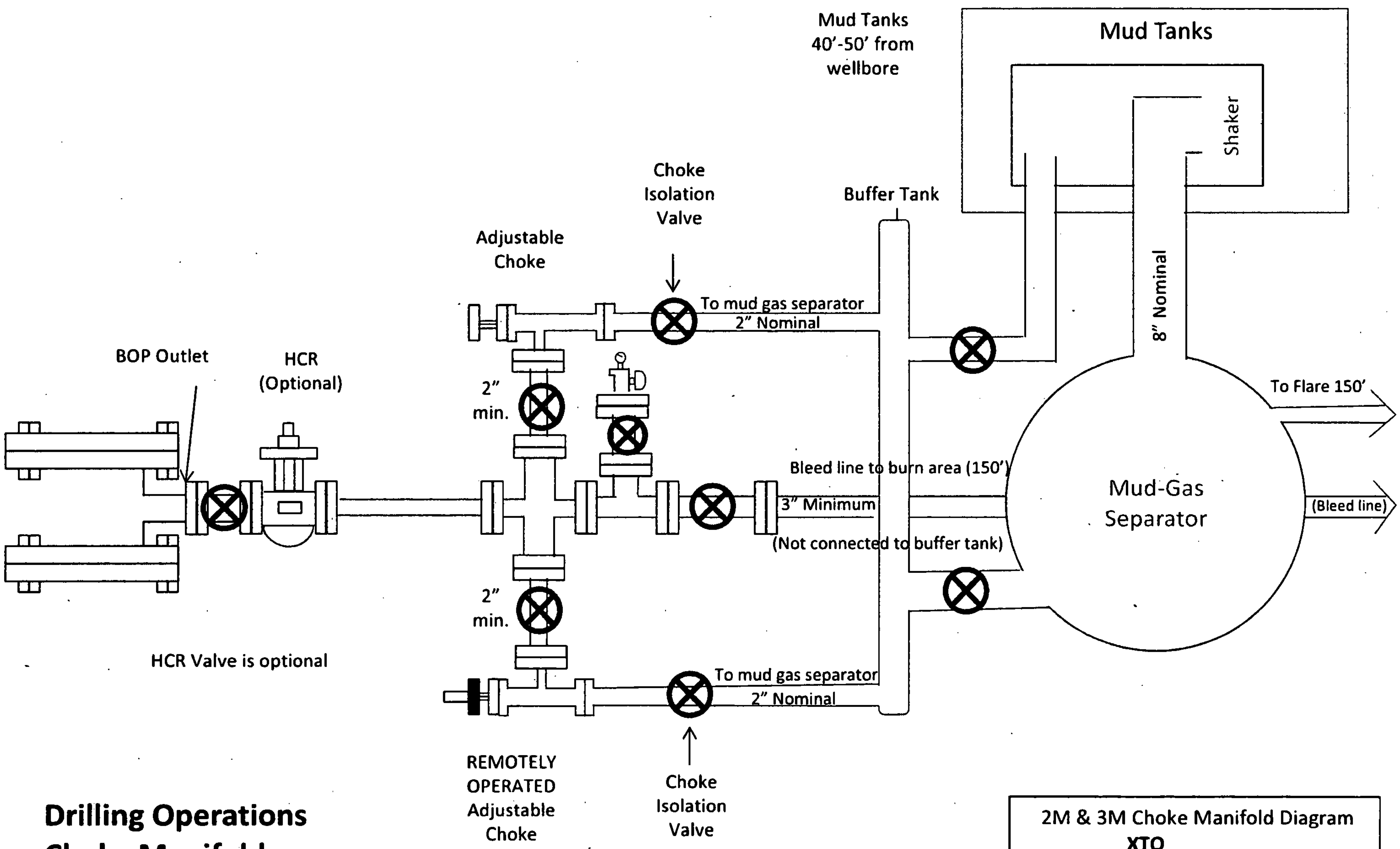
| | | |
|---|---|---|
|  | XTO ENERGY, INC. | |
| 11-3/4" x 8-5/8" x 5-1/2" 10M RSH-2 Wellhead Assembly, With T-EBS-F Tubing Head | DRAWN VJK | 31OCT16 |
| | APPRV KN | 31OCT16 |
| | FOR REFERENCE ONLY DRAWING NO. | 10012358 |


Flowline
Fill Line
2000# (2M)
BOP
SRR & A
Annular Preventer
Pipe Rams
Blind Rams
2" Minimum Kill Line
Kill Line
Drilling Spool
2" Minimum Choke Line
Choke Line
1 Kill Line Valve
(Minimum)
1 Choke Line Valve
(Minimum)
13-5/8" 3000 psi x 13 3/8 SOW Slip-on Casing Head

2000# BOP
**XTO**


Flowline
Fill Line
3000# (3M)
BOP
Annular Preventer
Pipe Rams
Blind Rams
2" Minimum Kill Line
3" minimum choke line
Kill Line
Drilling
Spool
Choke Line
2 Valves Minimum
(including 1 check valve)
2 Valves Minimum
Wellhead
Assembly
13-5/8" 3000#psi x 13-3/8" SOW Casing Head

3000# BOP
**XTO**




**Drilling Operations**
**Choke Manifold**
**2M & 3M Service**

2M & 3M Choke Manifold Diagram
**XTO**

ENGINEERING & SERVICES

GATES E & S NORTH AMERICA, INC
DU-TEX
134 44TH STREET
CORPUS CHRISTI, TEXAS 78405

PHONE: 361-887-9807
FAX: 361-887-0812
EMAIL: crpe&s@gates.com
WEB: www.gates.com

# GRADE D PRESSURE TEST CERTIFICATE

| | | | |
|---|---|---|---|
| Customer : | AUSTIN DISTRIBUTING | Test Date: | 6/8/2014 |
| Customer Ref. : | PENDING | Hose Serial No.: | D-060814-1 |
| Invoice No. : | 201709 | Created By: | NORMA |

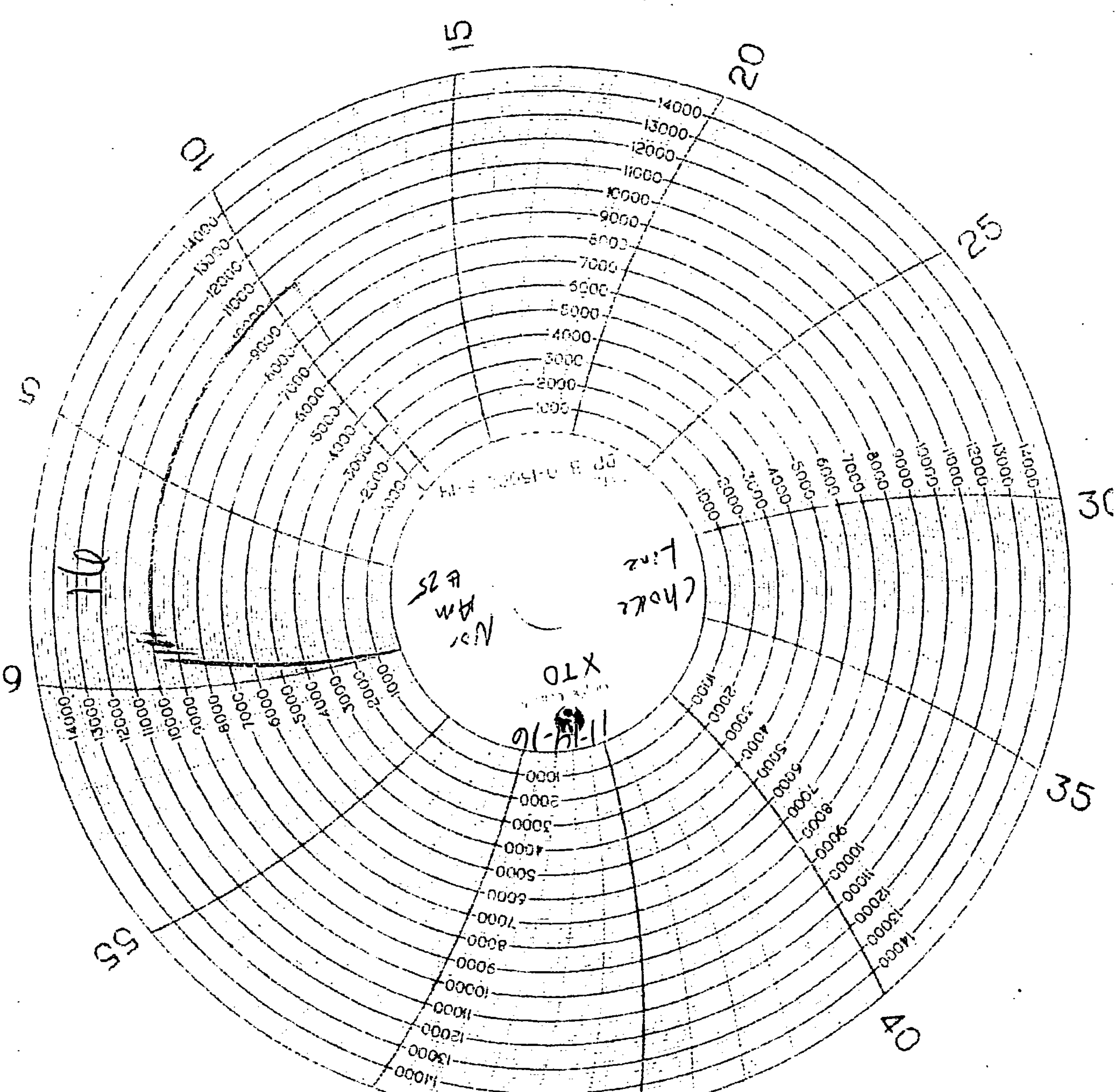
| | |
|---|---|
| Product Description: | FD3.042.0R41/16.5KFLGE/E LE |

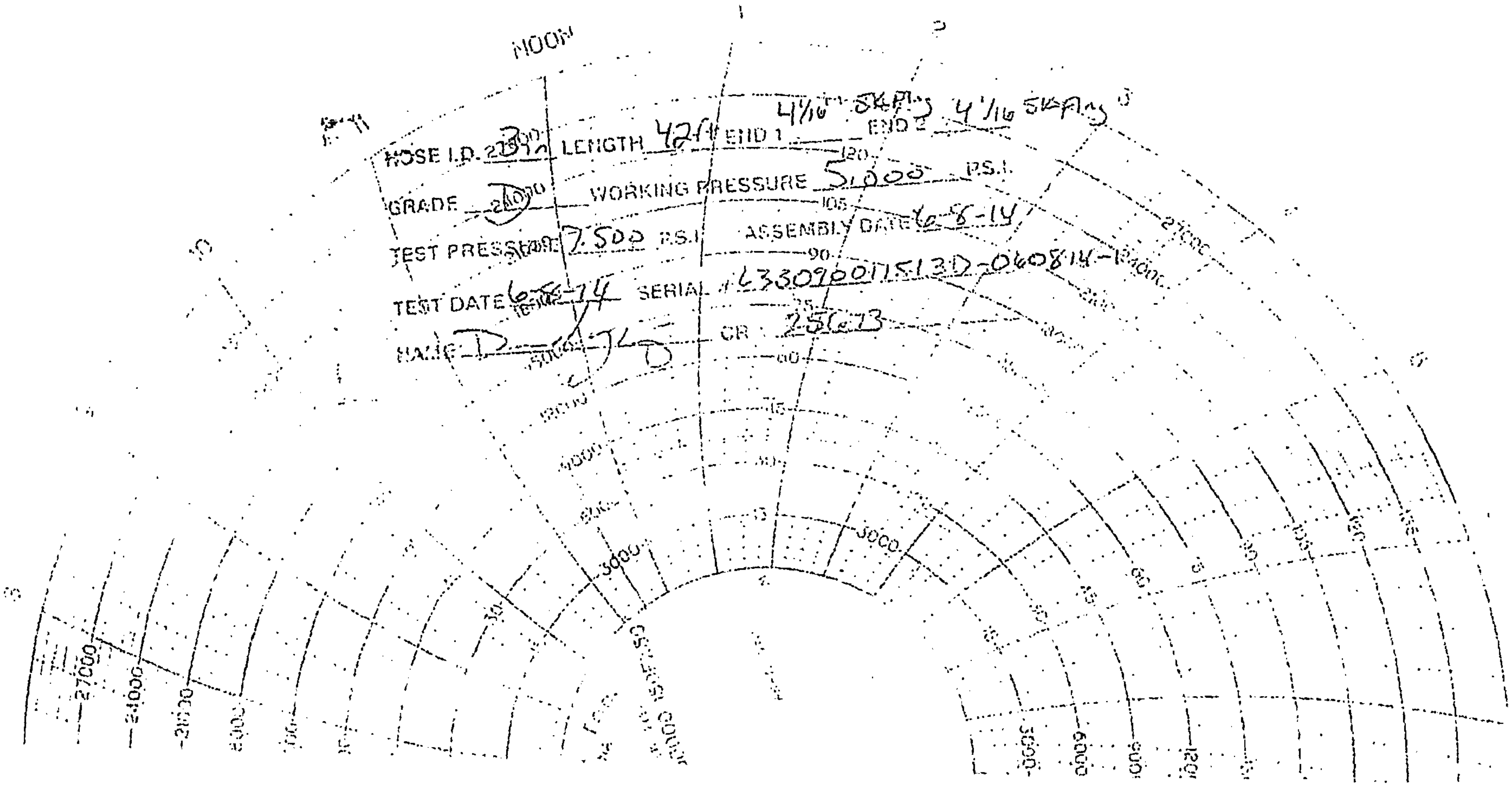
| | | | |
|---|---|---|---|
| End Fitting 1 : | 4 1/16 in.5K FLG | End Fitting 2 : | 4 1/16 in.5K FLG |
| Gates Part No. : | 4774-6001 | Assembly Code : | L33090011513D-060814-1 |
| Working Pressure : | 5,000 PSI | Test Pressure : | 7,500 PSI |

Gates E & S North America, Inc. certifies that the following hose assembly has been tested to the Gates Oilfield Roughneck Agreement/Specification requirements and passed the 15 minute hydrostatic test per API Spec 7K/Q1, Fifth Edition, June 2010, Test pressure 9.6.7 and per Table 9 to 7,500 psi in accordance with this product number. Hose burst pressure 9.6.7.2 exceeds the minimum of 2.5 times the working pressure per Table 9.

| | | | |
|---|---|---|---|
| Quality: | QUALITY | Technical Supervisor : | PRODUCTION |
| Date : | 6/8/2014 | Date : | 6/8/2014 |
| Signature : | | Signature : | |

Form PTC - 01 Rev.0 2


Choke Line
XTO


NOON
HOSE I.D. 3" LENGTH 42ft END 1 4 1/16" 5K Fig END 2 4 1/16 5K Fig
GRADE D WORKING PRESSURE 5,000 P.S.I.
TEST PRESSURE 7,500 P.S.I. ASSEMBLY DATE 6-8-14
TEST DATE 6-8-14 SERIAL # 63309001751 3D-060814-1
NAME CR 25673
27000
24000
3000
6000
9000
12000

# PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

| | |
|---|---|
| **OPERATOR'S NAME:** | **XTO Energy, Inc.** |
| **LEASE NO.:** | **NMNM-087274** |
| **WELL NAME & NO.:** | **Severus 31-5 Federal Com 11H** |
| **SURFACE HOLE FOOTAGE:** | **0337' FSL & 1750' FWL** |
| **BOTTOM HOLE FOOTAGE** | **2401' FNL & 0330' FWL Sec. 05, T. 21 S., R 33 E.** |
| **LOCATION:** | **Section 30, T. 20 S., R 34 E., NMPM** |
| **COUNTY:** | **Lea County, New Mexico** |

**Communitization Agreement**

- The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.

- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.

- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

## 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. **Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe.** A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Yates** 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. 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 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.**

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

**<u>Wait on cement (WOC) for Potash Areas:</u>**
**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 for all cement blends, 2) until cement has been in place at least <u>24 hours</u>. WOC time will be recorded in the driller's log.**

**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.**

**R-111-P Potash**
**Capitan Reef**
**Possibility of water flows in the Artesia Group, Salado, and Capitan Reef.**
**Possibility of lost circulation in the Rustler, Red Beds, Artesia Group, Capitan Reef, and Delaware.**

1. The **16** inch surface casing shall be set at approximately **1640** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**

   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.

**11-3/4" 1st Intermediate casing shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.**

2. The minimum required fill of cement behind the **11-3/4** inch 1st intermediate casing, which shall be set at approximately **3280** feet, 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 Potash.**

**Formation below the 11-3/4" 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.**

**8-5/8" 2nd Intermediate casing shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.**

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

**Operator has proposed DV tool at depth of 3330', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.**

a. First stage to DV tool:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.

b. Second stage above DV tool:

☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to Potash and Capitan Reef.**

**Formation below the 8-5/8" 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 and the mud weight for the bottom of the hole. Report results to BLM office.**

**Centralizers required through the curve and a minimum of one every other joint.**

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

☒ Cement should tie-back at least **50 feet above the Capitan Reef** (Top of Capitan Reef estimated at 3697'). Operator shall provide method of verification. **Excess calculates to 14% - Additional cement may be required.**

5. 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.

6. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

## 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 **2000 (2M)** psi.

4. **Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the 11-3/4" 1st intermediate casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 11-3/4" 1st intermediate casing shoe shall be 3000 (3M) psi.**
    a. **Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.**
    b. **If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.**
    c. **Manufacturer representative shall install the test plug for the initial BOP test.**
    d. **Operator shall perform the 8-5/8" intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.**
    e. **If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.**

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

   a. In potash areas, 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. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.

   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.

## D. DRILL STEM TEST

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

## E. 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.

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