

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENTFORM 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.  
NMNM15302

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 ☐ Other8. Well Name and No.  
CORRAL CANYON 10-15 FED COM 12H2. Name of Operator  
XTO ENERGY INCORPORATEDContact: KELLY KARDOS  
E-Mail: kelly\_kardos@xtoenergy.com9. API Well No.  
30-015-45429-00-X13a. Address  
6401 HOLIDAY HILL ROAD BLDG 5  
MIDLAND, TX 797073b. Phone No. (include area code)  
Ph: 432-620-437410. Field and Pool or Exploratory Area  
WILLOW LAKE-BONE SPRING, SE

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

Sec 10 T25S R29E NENE 315FNL 330FEL  
32.151100 N Lat, 103.964806 W Lon**Accepted For Record**  
**NMOCD**  
*1-16-19*

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                                |   |  |   |
|--|---|---|--|---|
| <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 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 checked="" type="checkbox"/> Other |
|  | <input type="checkbox"/> Change Plans         | <input type="checkbox"/> Plug and Abandon     | <input type="checkbox"/> Temporarily Abandon       | Change to Original A                      |
|  | <input type="checkbox"/> Convert to Injection | <input type="checkbox"/> Plug Back            | <input type="checkbox"/> Water Disposal            | PD  |

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 recompleat 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.

**RECEIVED**

XTO Energy Inc. requests permission to make the following changes to the approved APD:

JAN 10 2019

1. Add 'Com' to well name - *effective 12-14-2018*
2. Change BHL from 200'FNL & 330'FEL in Sec. 34, T24S, R29E to 50'FSL & 660'FEL in Sec. 15, T25S, R29E.
3. Lease number will change from NMNM136870 to NMNM015302
4. Change formation from Purple Sage Wolfcamp (Gas) to Willow Lake, Bone Spring SE (Oil)

DISTRICT II-ARTESIA O.C.D.

Attachments:

1. C102
2. GCP
3. Drilling Program & Directional Drill Plan

**Carlsbad Field Office**  
OCD Artesia*Old property number - 323015; new property number 324859*

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

**Electronic Submission #447348 verified by the BLM Well Information System  
For XTO ENERGY INCORPORATED, sent to the Carlsbad  
Committed to AFMSS for processing by PRISCILLA PEREZ on 12/13/2018 (19PP0612SE)**

Name (Printed/Typed) KELLY KARDOS

Title REGULATORY COORDINATOR

Signature (Electronic Submission)

Date 12/12/2018

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

Approved By LONG VO

Title PETROLEUM ENGINEER

Date 12/14/2018

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

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 \*\***

**Additional data for EC transaction #447348 that would not fit on the form**

**32. Additional remarks, continued**

4. CK/BOP/FH
5. Permitted vs Sundry Sheet

# PECOS DISTRICT

## DRILLING CONDITIONS OF APPROVAL

|                              |  |
|------------------------------|--|
| <b>OPERATOR'S NAME:</b>      | <b>XTO ENERGY INC</b>                  |
| <b>LEASE NO.:</b>            | <b>NMNM15302</b>                       |
| <b>WELL NAME &amp; NO.:</b>  | <b>CORRAL CANYON 10-15 Fed COM 12H</b> |
| <b>SURFACE HOLE FOOTAGE:</b> | <b>315'/N &amp; 330'/E</b>             |
| <b>BOTTOM HOLE FOOTAGE:</b>  | <b>50'/S &amp; 660'/E</b>              |
| <b>LOCATION:</b>             | <b>SECTION 10, T25S, R29E, NMPM</b>    |
| <b>COUNTY:</b>               | <b>EDDY, NEW MEXICO</b>                |

COA

|                      |  |  |                               |
|----------------------|--|--|-------------------------------|
| H2S                  | <input type="radio"/> Yes              | <input checked="" type="radio"/> No        |                               |
| Potash               | <input checked="" type="radio"/> None  | <input type="radio"/> Secretary            | <input type="radio"/> R-111-P |
| Cave/Karst Potential | <input type="radio"/> Low              | <input checked="" type="radio"/> Medium    | <input type="radio"/> High    |
| Variance             | <input type="radio"/> None             | <input checked="" type="radio"/> Flex Hose | <input type="radio"/> Other   |
| Wellhead             | <input type="radio"/> Conventional     | <input checked="" type="radio"/> Multibowl | <input type="radio"/> Both    |
| Other                | <input type="checkbox"/> 4 String Area | <input type="checkbox"/> Capitan Reef      | <input type="checkbox"/> WIPP |

**All Previous COAs still apply.**

### A. CASING

1. The 13-3/8 inch surface casing shall be set at approximately **860** 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 9-5/8 inch intermediate casing shall be set at approximately **3100** 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 cave/karst or potash.

❖ In Medium 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 inch production casing is:

- Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

## **B. PRESSURE CONTROL**

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 9-5/8 intermediate casing shoe shall be **3000 (3M)** psi.

**LV12142018**

## GENERAL 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)

☒ Chaves and Roosevelt Counties  
Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.  
During office hours call (575) 627-0272.  
After office hours call (575)

☒ Eddy County  
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,  
(575) 361-2822

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

1. 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.
  - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
  - b. When the operator proposes to set surface casing with Spudder Rig
    - Notify the BLM when moving in and removing the Spudder Rig.
    - Notify the BLM when moving in the 2<sup>nd</sup> Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
    - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. 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 are located, this does not include the dog house or stairway area.
3. The record of the drilling rate along with the GR/N well log (one log per well pad is acceptable) 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.

#### A. CASING

1. 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.
2. Wait on cement (WOC) for Potash Areas: 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 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. 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. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. 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.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. 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.

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

## B. 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 RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. 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.
3. 5M or higher 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. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
  - 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. 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.
  - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
5. 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. 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, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
- c. The tests shall be done by an independent service company utilizing a test plug. The results of the test shall be reported to the appropriate BLM office.
- d. 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.
- 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. 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 Wolfcamp 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.

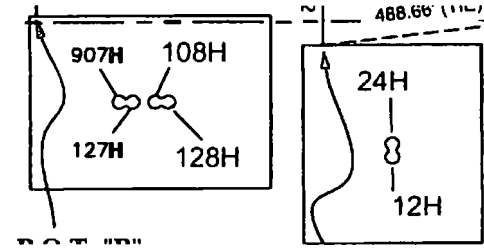
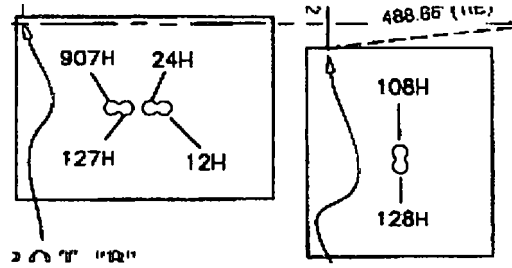


# PERMITTED PLAN

| Current Well Name           | Formation  | Permitted SHL                   | Permitted BHL                   |
|-----------------------------|------------|---------------------------------|---------------------------------|
| CORRAL CANYON 3-34 FED 907H | BONESPRING | A -10-25S-29E 185 FNL & 944 FEL | A -34-24S-29E 200 FNL & 952 FEL |
| CORRAL CANYON 3-34 FED 127H | WOLFCAMP   | A -10-25S-29E 185 FNL & 914 FEL | A -34-24S-29E 200 FNL & 952 FEL |
| CORRAL CANYON 3-34 FED 108H | WOLFCAMP   | A -10-25S-29E 285 FNL & 330 FEL | A -34-24S-29E 200 FNL & 330 FEL |
| CORRAL CANYON FEDERAL 24H   | BONESPRING | A -10-25S-29E 185 FNL & 885 FEL | A -34-24S-29E 200 FNL & 660 FEL |
| CORRAL CANYON FEDERAL 12H   | BONESPRING | A -10-25S-29E 185 FNL & 835 FEL | P -15-25S-29E 200 FSL & 660 FEL |
| CORRAL CANYON 3-34 FED 128H | WOLFCAMP   | A -10-25S-29E 315 FNL & 330 FEL | A -34-24S-29E 200 FNL & 330 FEL |

# SUNDRY CHANGES

| Well Name Change            | Formation  | Updated SHL                     | Updated BHL                     |
|-----------------------------|------------|---------------------------------|---------------------------------|
| CORRAL CANYON 3-34 FED 907H | BONESPRING | A -10-25S-29E 185 FNL & 944 FEL | L1 -3-25S-29E 50 FNL & 961 FEL  |
| CORRAL CANYON 3-34 FED 127H | WOLFCAMP   | A -10-25S-29E 185 FNL & 914 FEL | L1 -3-25S-29E 200 FNL & 961 FEL |
| CORRAL CANYON FEDERAL 24H   | BONESPRING | A -10-25S-29E 285 FNL & 330 FEL | L1 -3-25S-29E 50 FNL & 660 FEL  |
| CORRAL CANYON 3-34 FED 108H | WOLFCAMP   | A -10-25S-29E 185 FNL & 884 FEL | L1 -3-25S-29E 200 FNL & 330 FEL |
| CORRAL CANYON 3-34 FED 128H | WOLFCAMP   | A -10-25S-29E 185 FNL & 854 FEL | L1 -3-25S-29E 200 FNL & 330 FEL |
| CORRAL CANYON 10-15 FED 12H | BONESPRING | A -10-25S-29E 315 FNL & 330 FEL | P -15-25S-29E 50 FSL & 660 FEL  |



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

XTO Energy Inc.  
Corral Canyon Fed 12H  
Projected TD: 19764' MD / 8893' TVD  
SHL: 315' FNL & 330' FEL , Section 10, T25S, R29E  
BHL: 50' FNL & 660' FEL , Section 15, T25S, R29E  
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            | 560'             | Water         |
| Top of Salt        | 817'             | Water         |
| Base of Salt       | 2951'            | Water         |
| Delaware           | 3145'            | Water         |
| Bone Spring        | 6878'            | Water/Oil/Gas |
| 1st Bone Spring Ss | 7818'            | Water/Oil/Gas |
| 2nd Bone Spring Ss | 8680'            | Water/Oil/Gas |
| Target/Land Curve  | 8893'            | 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 13-3/8 inch casing @ 790' (27' above the salt) and circulating cement back to surface. The salt will be isolated by setting 9-5/8 inch casing at 3010' and circulating cement to surface. An 8-3/4 inch curve and lateral hole will be drilled to MD/TD and 5-1/2 inch casing will be set at TD and cemented back up to the 9-5/8 inch casing shoe.

**3. Casing Design** ✓ *see COK*

| Hole Size | Depth                                  | OD Csg  | Weight | Collar | Grade | New/Used | SF Burst | SF Collapse | SF Tension |
|-----------|--|---------|--------|--------|-------|----------|----------|-------------|------------|
| 17-1/2"   | 0' - <del>790'</del> <sup>810'</sup>   | 13-3/8" | 48     | STC    | H-40  | New      | 1.88     | 2.13        | 8.49       |
| 12-1/4"   | 0' - <del>3010'</del> <sup>5100'</sup> | 9-5/8"  | 36     | LTC    | J-55  | New      | 1.47     | 2.17        | 4.18       |
| 8-3/4"    | 0' - 19764'                            | 5-1/2"  | 17     | BTC    | P-110 | New      | 1.12     | 1.72        | 2.48       |

- XTO requests to utilize centralizers only in the curve after the KOP and only a minimum of one every other joint.
- 9-5/8" 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

**WELLHEAD:**

Permanent Wellhead – GE RSH Multibowl System ✓

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

B. Tubing Head: 13-5/8" 5M bottom flange x 7-1/16" 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 9-5/8" casing per BLM Onshore Order 2
- Wellhead Manufacturer representative will not be present for BOP test plug installation

#### 4. Cement Program ✓

*Surface Casing: 13-3/8", 48 New H-40, STC casing to be set at +/- 790'*

Lead: 360 sxs EconoCem-HLTRRC (mixed at 12.9 ppg, 1.87 ft<sup>3</sup>/sx, 10.13 gal/sx water)

Tail: 300 sxs Halcem-C + 2% CaCl (mixed at 14.8 ppg, 1.35 ft<sup>3</sup>/sx, 6.39 gal/sx water)

Compressives: 12-hr = 900 psi 24 hr = 1500 psi

*Intermediate Casing: 9-5/8", 36 New J-55, LTC casing to be set at +/- 3010'*

Lead: 830 sxs Halcem-C + 2% CaCl (mixed at 12.9 ppg, 1.88 ft<sup>3</sup>/sx, 9.61 gal/sx water)

Tail: 230 sxs Halcem-C + 2% CaCl (mixed at 14.8 ppg, 1.33 ft<sup>3</sup>/sx, 6.39 gal/sx water)

Compressives: 12-hr = 900 psi 24 hr = 1500 psi

*Production Casing: 5-1/2", 17 New P-110, BTC casing to be set at +/- 19764'*

Lead: 640 sxs NeoCem (mixed at 10.5 ppg, 2.69 ft<sup>3</sup>/sx, 12.26 gal/sx water)

Tail: 2440 sxs VersaCem (mixed at 13.2 ppg, 1.61 ft<sup>3</sup>/sx, 8.38 gal/sx water)

Compressives: 12-hr = 1375 psi 24 hr = 2285 psi

#### 5. Pressure Control Equipment ✓

The blow out preventer equipment (BOP) for this well consists of a 13-5/8" minimum 3M Hydriil and a 13-5/8" minimum 3M Double Ram BOP. MASP should not exceed 2390 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 nipping up on the 13-5/8" 3M bradenhead and flange, the BOP test will be limited to 3000 psi. When nipping up on the 9-5/8", the BOP will be tested to a minimum of 3000 psi. 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' to 790'      | 17-1/2"   | FW/Native                | 8.4-8.8   | 35-40              | NC              |
| 790' to 3010'   | 12-1/4"   | Brine/Gel Sweeps         | 9.8-10.2  | 30-32              | NC              |
| 3010' to 19764' | 8-3/4"    | FW / Cut Brine / Polymer | 9.1 - 9.4 | 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 13-3/8" surface casing with brine solution. A 9.8ppg-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.

## **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 13-3/8" casing.

## **8. Logging, Coring and Testing Program**

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

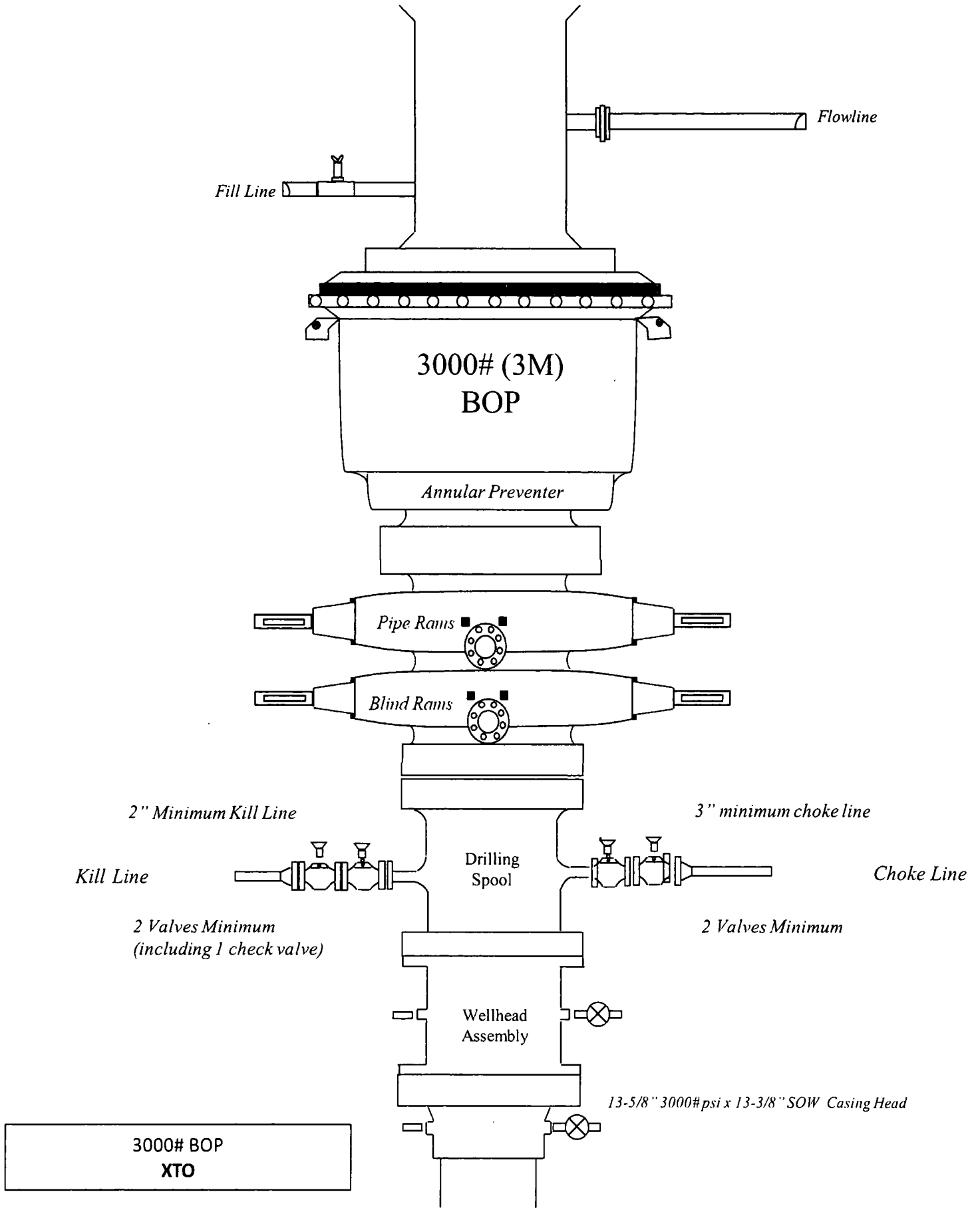
Open hole logging will not be done on this well.

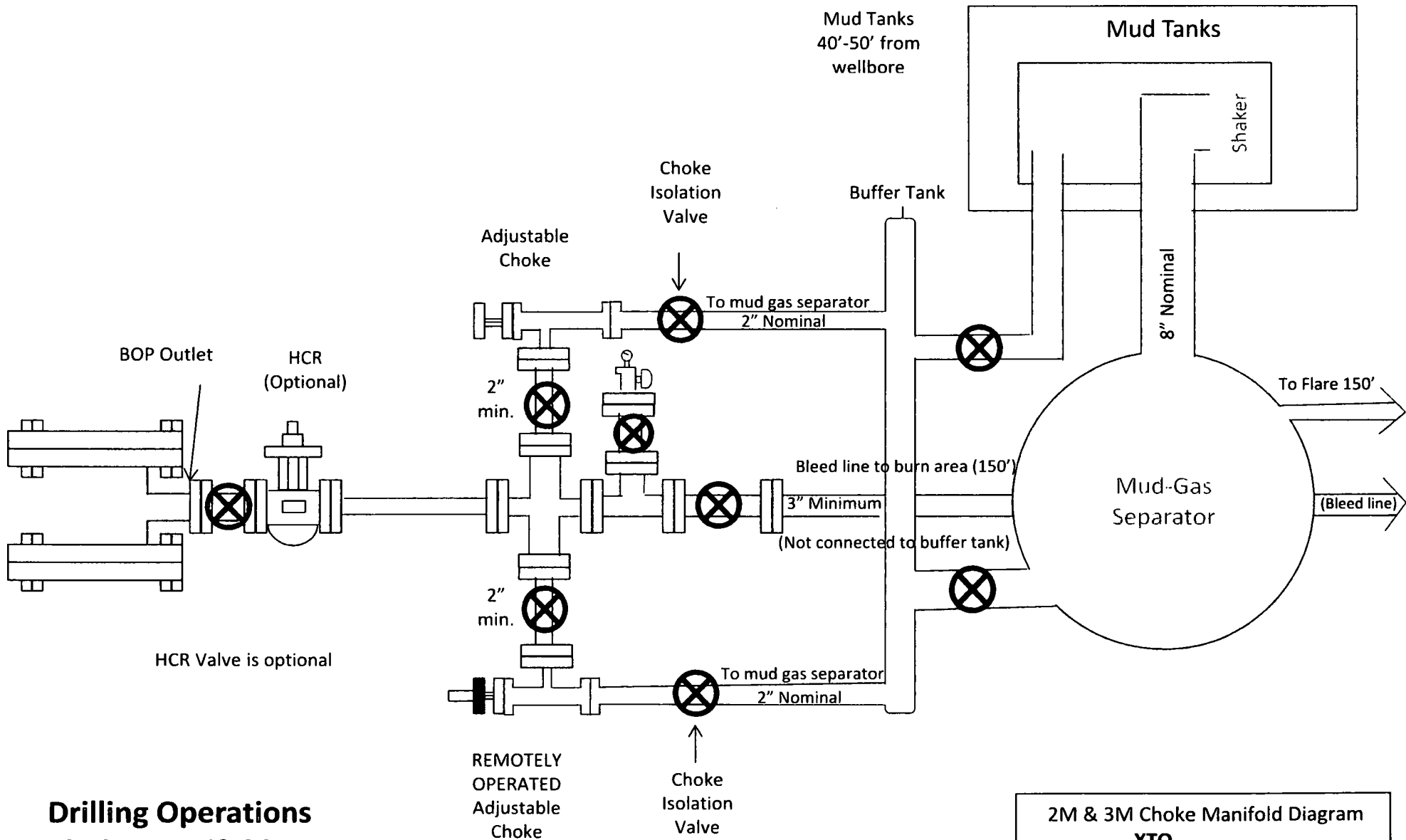
## **9. Abnormal Pressures and Temperatures / Potential Hazards**

None Anticipated. BHT of 140 to 160 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 4347 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.





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

2M & 3M Choke Manifold Diagram  
XTO