U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Sundry Print Report

10/20/2023

Well Name: JAMES RANCH UNIT DI 7 SAWTOOTH

Well Location: T23S / R31E / SEC 6 / LOT 4 / 32.340189 / -103.82189

County or Parish/State: EDDY / NM

Well Number: 901H

Type of Well: OIL WELL

Allottee or Tribe Name:

Lease Number: NMNM02887D

Unit or CA Name: JAMES RANCH, JAMES RANCH UNIT

Unit or CA Number: NMNM070965Z, NMNM70965X

US Well Number: 3001550088

Well Status: Approved Application for Permit to Drill

Operator: XTO PERMIAN OPERATING LLC

Notice of Intent

Sundry ID: 2753460

Type of Submission: Notice of Intent

Type of Action: APD Change

Date Sundry Submitted: 09/26/2023

Time Sundry Submitted: 02:36

Date proposed operation will begin: 11/01/2023

Procedure Description: ** Surface hole Change, First and Last Take Point Changes, Bottomhole Location Change, Drilling Plan Change, Casing/Cement Change XTO Permian Operating, LCC. requests permission to make the following changes to the original APD: No Additional Surface Disturbance SHL: fr/210'FNL & 1150'FWL to 155'FNL & 1010'FWL, NMNM02887D FTP: fr/1000'FNL & 330'FWL to 700'FSL & 770'FWL, NMNM02887D PPP #1: 2637' FNL & 770' FWL, NMNM04473 PPP #2: 0' FNL & 770' FWL, NMNM02887D LTP: fr/2440'FNL & 330'FWL to 2531'FNL & 770'FWL, NMNM02887A BHL: fr/2490'FNL & 330'FWL to 2586'FNL & 1870'FWL, Section 18-T23S-R31E NMNM02887A Additionally, XTO Permian Operating, LLC. respectfully requests permission to change from a three-string design to a four-string design. The surface, intermediate and production hole, casing, and cement based on the attached drilling program. Due to the design change in these strings, the wellhead configuration has also changed based on the attached drilling program. Casing/Cement design per the attached drilling program. Attachments: C102 Drilling Program MBS Directional Plan OLCV Spud BOP BTV Cement Variance

NOI Attachments

Procedure Description

JRU_DI7_Sawtooth_901H_Sundry_Attachments_20230926143609.pdf

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Conditions of Approval

Additional

Sec_06_23S_31E_NMP_Sundry_2753460_James_Ranch_Unit_DI_7_Sawtooth_901H_Eng_Worksheet_20231017135453.pdf

Sec_06_23S_31E_NMP_Sundry_2753460_James_Ranch_Unit_DI_7_Sawtooth_901H_COAs_20231017135453.pdf

Operator

I certify that the foregoing is true and correct. 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. Electronic submission of Sundry Notices through this system satisfies regulations requiring a

Operator Electronic Signature: CASSIE EVANS

Signed on: OCT 19, 2023 02:52 PM

Name: XTO PERMIAN OPERATING LLC

Title: Regulatory Analyst

Street Address: 6401 Holiday Hill Road, Bldg 5

City: Midland **State:** TX

Phone: (432) 218-3671

Email address: CASSIE.EVANS@EXXONMOBIL.COM

Field

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone:

Email address:

BLM Point of Contact

BLM POC Name: CHRISTOPHER WALLS

BLM POC Title: Petroleum Engineer

BLM POC Phone: 5752342234

BLM POC Email Address: cwalls@blm.gov

Disposition: Approved

Disposition Date: 10/20/2023

Signature: Chris Walls

Form 3160-5
(June 2019)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2021

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 page 2*

5. Lease Serial No. NMNM02887D

6. If Indian, Allottee or Tribe Name

7. If Unit of CA/Agreement, Name and/or No. JAMES RANCH, JAMES RANCH UNIT/NMNM070965Z,

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

8. Well Name and No. JAMES RANCH UNIT DI 7 SAWTOC

2. Name of Operator XTO PERMIAN OPERATING LLC

9. API Well No. 3001550088

3a. Address 6401 HOLIDAY HILL ROAD BLDG 5, MIDLAND,

3b. Phone No. *(include area code)* (432) 683-2277

10. Field and Pool or Exploratory Area Purple Sage/WOLFCAMP SOUTH

4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)* SEC 6/T23S/R31E/NMP

11. Country or Parish, State EDDY/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
	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Subsequent Report	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☑ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
☐ Final Abandonment Notice	☐ 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 perfonned 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 detennined that the site is ready for final inspection.)

** Surface hole Change, First and Last Take Point Changes, Bottomhole Location Change, Drilling Plan Change, Casing/Cement Change

XTO Permian Operating, LCC. requests permission to make the following changes to the original APD:

No Additional Surface Disturbance

SHL: fr/210FNL & 1150FWL to 155FNL & 1010FWL, NMNM02887D

FTP: fr/1000FNL & 330FWL to 700FSL & 770FWL, NMNM02887D

PPP #1: 2637 FNL & 770 FWL, NMNM04473

Continued on page 3 additional information

14. I hereby certify that the foregoing is true and correct. Name *(Printed/Typed)* CASSIE EVANS / Ph: (432) 218-3671

Title Regulatory Analyst

Signature (Electronic Submission)

Date 10/19/2023

THE SPACE FOR FEDERAL OR STATE OFICE USE

Approved by CHRISTOPHER WALLS / Ph: (575) 234-2234 / Approved

Title Petroleum Engineer

Date 10/20/2023

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)

GENERAL INSTRUCTIONS

This form is designed for submitting proposals to perform certain well operations and reports of such operations when completed as indicated on Federal and Indian lands pursuant to applicable Federal law and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local area or regional procedures and practices, are either shown below, will be issued by or may be obtained from the local Federal office.

SPECIFIC INSTRUCTIONS

Item 4 - Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult the local Federal office for specific instructions.

Item 13: Proposals to abandon a well and subsequent reports of abandonment should include such special information as is required by the local Federal office. In addition, such proposals and reports should include reasons for the abandonment; data on any former or present productive zones or other zones with present significant fluid contents not sealed off by cement or otherwise; depths (top and bottom) and method of placement of cement plugs; mud or other material placed below, between and above plugs; amount, size, method of parting of any casing, liner or tubing pulled and the depth to the top of any tubing left in the hole; method of closing top of well and date well site conditioned for final inspection looking for approval of the abandonment. If the proposal will involve **hydraulic fracturing operations**, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

The privacy Act of 1974 and the regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.
AUTHORITY: 30 U.S.C. 181 et seq., 351 et seq., 25 U.S.C. 396; 43 CFR 3160.
PRINCIPAL PURPOSE: The information is used to: (1) Evaluate, when appropriate, approve applications, and report completion of subsequent well operations, on a Federal or Indian lease; and (2) document for administrative use, information for the management, disposal and use of National Resource lands and resources, such as: (a) evaluating the equipment and procedures to be used during a proposed subsequent well operation and reviewing the completed well operations for compliance with the approved plan; (b) requesting and granting approval to perform those actions covered by 43 CFR 3162.3-2, 3162.3-3, and 3162.3-4; (c) reporting the beginning or resumption of production, as required by 43 CFR 3162.4-1(c)and (d) analyzing future applications to drill or modify operations in light of data obtained and methods used.
ROUTINE USES: Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions in connection with congressional inquiries or to consumer reporting agencies to facilitate collection of debts owed the Government.
EFFECT OF NOT PROVIDING THE INFORMATION: Filing of this notice and report and disclosure of the information is mandatory for those subsequent well operations specified in 43 CFR 3162.3-2, 3162.3-3, 3162.3-4.

The Paperwork Reduction Act of 1995 requires us to inform you that:
The BLM collects this information to evaluate proposed and/or completed subsequent well operations on Federal or Indian oil and gas leases.
Response to this request is mandatory.
The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect ofthis form to U.S. Department ofthe Interior, Bureau ofLand Management (1004-0137), Bureau Information Collection Clearance Officer (WO-630), 1849 C St., N.W., Mail Stop 401 LS, Washington, D.C. 20240

Additional Information

Additional Remarks

PPP #2: 0 FNL & 770 FWL, NMNM02887D

LTP: fr/2440FNL & 330FWL to 2531FNL & 770FWL, NMNM02887A

BHL: fr/2490FNL & 330FWL to 2586FNL & 1870FWL, Section 18-T23S-R31E NMNM02887A

Additionally, XTO Permian Operating, LLC. respectfully requests permission to change from a three-string design to a four-string design. The surface, intermediate and production hole, casing, and cement based on the attached drilling program. Due to the design change in these strings, the wellhead configuration has also changed based on the attached drilling program.
Casing/Cement design per the attached drilling program.

Attachments:
C102
Drilling Program
MBS
Directional Plan
OLCV
Spud
BOP BTV
Cement Variance

Location of Well

0. SHL: LOT 4 / 210 FNL / 1150 FWL / TWSP: 23S / RANGE: 31E / SECTION: 6 / LAT: 32.340189 / LONG: -103.82189 (TVD: 0 feet, MD: 0 feet)
PPP: LOT 4 / 1000 FNL / 330 FWL / TWSP: 23S / RANGE: 31E / SECTION: 6 / LAT: 32.338024 / LONG: -103.824545 (TVD: 11031 feet, MD: 11398 feet)
PPP: LOT 1 / 330 FNL / 330 FWL / TWSP: 23S / RANGE: 31E / SECTION: 7 / LAT: 32.32508 / LONG: -103.82386 (TVD: 11031 feet, MD: 16348 feet)
PPP: LOT 6 / 2310 FSL / 330 FWL / TWSP: 23S / RANGE: 31E / SECTION: 6 / LAT: 32.3319 / LONG: -103.82377 (TVD: 11031 feet, MD: 13708 feet)
BHL: LOT 2 / 2490 FNL / 330 FWL / TWSP: 23S / RANGE: 31E / SECTION: 18 / LAT: 32.304856 / LONG: -103.824561 (TVD: 11031 feet, MD: 23465 feet)

Sec 06-23S-31E-NMP Sundry 2753460 James Ranch Unit DI 7 Sawtooth 901H Eng Worksheet

James Ranch Unit DI 7 Sawtooth 901H

13 3/8	surface csg in a	17 1/2	inch hole.		Design Factors			Surface				
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	54.50	J 55	BTC	28.36	4.38	1.36	552	11	2.27	8.27	30,084
"B"			BTC				0				0
w/8.4#/g mud, 30min Sfc Csg Test psig:	1,500	Tail Cmt	does not	circ to sfc.	Totals:	552					30,084

Comparison of Proposed to Minimum Required Cement Volumes

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
17 1/2	0.6946	480	742	383	93	9.00	1200	2M	1.56

Site plat (pipe racks S or E) as per O.O.1.III.D.4.i. not found.

9 5/8	casing inside the	13 3/8			Design Factors			Int 1				
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	40.00	J 55	BTC	4.27	1.28	2.21	3,784	2	4.13	2.14	151,360
"B"							0				0
w/8.4#/g mud, 30min Sfc Csg Test psig:						Totals:	3,784				151,360
The cement volume(s) are intended to achieve a top of				0	ft from surface or a		552				overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
12 1/4	0.3132	1700	2358	1212	94	10.50	957	2M	0.81

Class 'H' tail cmt yld > 1.20

7 5/8	casing inside the	9 5/8			Design Factors			Int 2				
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	29.70	RY P 110	Flush Joint	4.96	2.99	1.84	3,884	5	3.09	5.59	115,355
"B"	29.70	HCL 80	Flush Joint	∞	3.23	1.34	5,976	4	2.25	6.04	177,487
w/8.4#/g mud, 30min Sfc Csg Test psig:	1,500					Totals:	9,860				292,842
The cement volume(s) are intended to achieve a top of				0	ft from surface or a		3784				overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
8 3/4	0.1005	460	834	1022	-18	9.10	3062	5M	0.56

Tail cmt

5 1/2	casing inside the	7 5/8			Design Factors			Prod 1				
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	23.00	RY P 110	Semi-Premiur	2.80	2.83	1.95	9,760	2	3.27	4.75	224,480
"B"	23.00	RY P 110	Semi-Flush	∞	2.16	2.46	13,813	2	4.13	3.62	317,699
w/8.4#/g mud, 30min Sfc Csg Test psig:	2,070					Totals:	23,573				542,179
The cement volume(s) are intended to achieve a top of				9360	ft from surface or a		500				overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
6 3/4	0.0835	990	1542	1192	29	10.50			0.43

Class 'H' tail cmt yld > 1.20 Capitan Reef est top XXXX.

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	XTO Permian Operating
WELL NAME & NO.:	James Ranch Unit DI 7 Sawtooth 901H
LOCATION:	Sec 06-23S-31E-NMP
COUNTY:	Eddy County, New Mexico

*Changes approved through engineering via **Sundry 2753460** on 10/17/2023. Any previous COAs not addressed within the updated COAs still apply.*

COA

H_2S	○ No	◉ Yes		
Potash / WIPP	○ None	○ Secretary	◉ R-111-P	☐ WIPP
Cave / Karst	○ Low	◉ Medium	○ High	○ Critical
Wellhead	○ Conventional	◉ Multibowl	○ Both	○ Diverter
Cementing	☐ Primary Squeeze	☑ Cont. Squeeze	☑ EchoMeter	☐ DV Tool
Special Req	☑ Break Testing	☐ Water Disposal	☐ COM	☑ Unit
Variance	☑ Flex Hose	☐ Casing Clearance	☐ Pilot Hole	☐ Capitan Reef
Variance	☑ Four-String	☑ Offline Cementing	☐ Fluid-Filled	☐ Open Annulus
☐ **Batch APD / Sundry**				

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **H2S Stream** (per BLM geologist). As a result, the Hydrogen Sulfide area must meet all requirements from 43 CFR 3176, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately 571 feet (a minimum of 70 feet (Eddy County) into the Rustler Anhydrite, above the salt, and below usable fresh water) and cemented to the surface. ***Notes from the BLM geologist regarding this set point dictate:*** *Operator has extensive drilling experience in this area and has encountered lost circulation in BLM's preferred setpoint for the surface casing just below the Magenta Dolomite. BLM accepts the base of the Rustler Formation and Top of the Salt as surface casing setpoint. Operator must set surface casing at this depth and not deeper in the salt. If operator's proposed setpoint is deeper than top of salt, Operator will set surface casing at top of 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 will be a minimum of **24 hours in the Potash Area** 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 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, Capitan Reef, or potash.**

❖ In R111 Potash Areas if cement does not circulate to surface on the first two salt protection casing strings, the cement on the 3rd casing salt string must come to surface.

3. The minimum required fill of cement behind the **7-5/8** inch intermediate casing is:

Operator has proposed to cement in two stages by conventionally cementing the first stage and performing a bradenhead squeeze on the second stage, contingent upon no returns to surface.

a. First stage: Operator will cement with intent to reach the top of the **Brushy Canyon at 6452'**

b. Second stage:
- Operator will perform bradenhead squeeze and top-out. Cement to surface. If cement does not reach surface, the appropriate BLM office shall be notified. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst, Capitan Reef, or potash.**

Operator has proposed to pump down 9-5/8" X 7-5/8" annulus after primary cementing stage. Operator must run Echo-meter to verify Cement Slurry/Fluid top in the annulus OR operator shall run a CBL from TD of the 7-5/8" casing to surface after the second stage BH to verify TOC.

Submit results to the BLM. No displacement fluid/wash out shall be utilized at the top of the cement slurry between second stage BH and top out.

If cement does not reach surface, the next casing string must come to surface.

Operator must use a limited flush fluid volume of 1 bbl following backside cementing procedures.

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

C. 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. Operator has proposed a multi-bowl wellhead assembly. 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.

    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 43 CFR 3172 must be followed.

D. SPECIAL REQUIREMENT (S)

Unit Wells

The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

Commercial Well Determination

A commercial well determination shall be submitted after production has been established for at least six months.

(Note: For a minimum 5M BOPE or less (Utilizing a 10M BOPE system)

BOPE Break Testing Variance

- BOPE Break Testing is ONLY permitted for 5M BOPE or less. **(Annular preventer must be tested to a minimum of 70% of BOPE working pressure and shall be higher than the MASP)**
- BOPE Break Testing is NOT permitted to drilling the production hole section.
- Variance only pertains to the intermediate hole-sections and no deeper than the Bone Springs formation.
- While in transfer between wells, the BOPE shall be secured by the hydraulic carrier or cradle.
- Any well control event while drilling require notification to the BLM Petroleum Engineer **(575-706-2779)** prior to the commencement of any BOPE Break Testing operations.
- A full BOPE test is required prior to drilling the first deep intermediate hole section. If any subsequent hole interval is deeper than the first, a full BOPE test will be required. (200' TVD tolerance between intermediate shoes is allowable).
- The BLM is to be contacted (575-361-2822 Eddy County) 4 hours prior to BOPE tests.
- As a minimum, a full BOPE test shall be performed at 21-day intervals.
- In the event any repairs or replacement of the BOPE is required, the BOPE shall test as per Onshore Oil and Gas Order No. 2.
- If in the event break testing is not utilized, then a full BOPE test would be conducted.

Offline Cementing

Contact the BLM prior to the commencement of any offline cementing procedure.

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)

☒ Eddy County
Email **or** call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, **BLM_NM_CFO_DrillingNotifications@BLM.GOV**
(575) 361-2822

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,
(575) 689-5981

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 2nd 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 **43 CFR part 3170 Subpart 3172** 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 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 intergrity 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 **43 CFR part 3170 Subpart 3172** and **API STD 53 Sec. 5.3**.

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. Whenever any seal subject to test pressure is broken, all the tests in **43 CFR part 3170 Subpart 3172** must be followed.
    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 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 cement), 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 cement plug. The BOPE test can be initiated after bumping the cement plug with the casing valve open. (only applies to single stage cement jobs, prior to the cement setting up.)

    c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to **43 CFR part 3170**

Subpart 3172 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

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

f. 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.

g. 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.

h. 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 **43 CFR part 3170 Subpart 3172**.

C. DRILLING MUD

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

D. 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.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-015-	40295	LOS MEDANOS; BONE SPRING

[4] Property Code	[5] Property Name	[6] Well Number
333473	JRU DI 7 SAWTOOTH	901H

[7] OGRID No.	[8] Operator Name	[9] Elevation
373075	XTO PERMIAN OPERATING, LLC	3,315'

[10] Surface Location

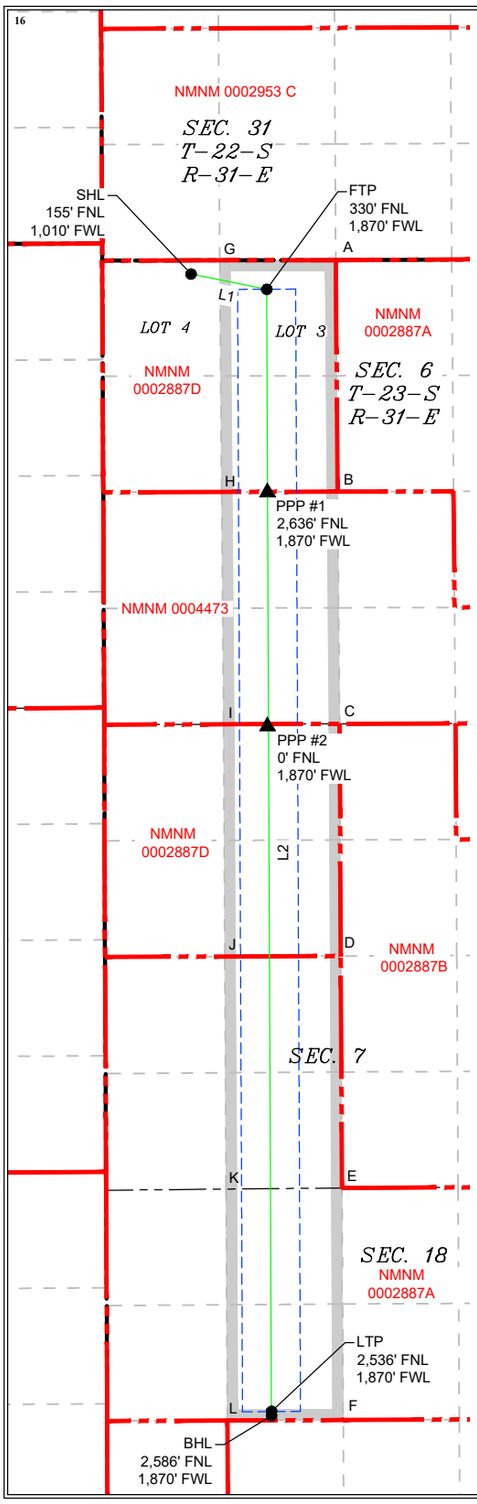
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
4	6	23 S	31 E		155	NORTH	1,010	WEST	EDDY

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	18	23 S	31 E		2,586	NORTH	1,870	WEST	EDDY

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
399.9			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



LINE TABLE		
LINE	AZUMITH	LENGTH
L1	281°22'35"	878.28'
L2	179°45'05"	12,820.87'

LOT ACREAGE TABLE

SECTION 6, T-23-S, R-31-E
LOT 3 = 39.90 ACRES
LOT 4 = 40.45 ACRES

LEGEND

- SECTION LINE
- WELL BORE
- NEW MEXICO MINERAL LEASE
- 330' BUFFER
- ALLOCATION AREA

COORDINATE TABLE

SHL (NAD 83 NME)	FTP (NAD 83 NME)	PPP #1 (NAD 83 NME)
Y = 487,924.5 N	Y = 487,751.3 N	Y = 485,445.1 N
X = 699,151.4 E	X = 700,012.4 E	X = 700,022.4 E
LAT. = 32.340341 °N	LAT. = 32.339854 °N	LAT. = 32.333514 °N
LONG. = 103.822343 °W	LONG. = 103.819558 °W	LONG. = 103.819561 °W
PPP #2 (NAD 83 NME)	**LTP (NAD 83 NME)**	**BHL (NAD 83 NME)**
Y = 482,803.0 N	Y = 474,980.5 N	Y = 474,930.5 N
X = 700,033.9 E	X = 700,067.8 E	X = 700,068.0 E
LAT. = 32.326252 °N	LAT. = 32.304749 °N	LAT. = 32.304612 °N
LONG. = 103.819565 °W	LONG. = 103.819577 °W	LONG. = 103.819577 °W
SHL (NAD 27 NME)	**FTP (NAD 27 NME)**	**PPP #1 (NAD 27 NME)**
Y = 487,864.4 N	Y = 487,691.1 N	Y = 485,385.0 N
X = 657,969.3 E	X = 658,830.3 E	X = 658,840.2 E
LAT. = 32.340218 °N	LAT. = 32.339730 °N	LAT. = 32.333391 °N
LONG. = 103.821852 °W	LONG. = 103.819067 °W	LONG. = 103.819070 °W
PPP #2 (NAD 27 NME)	**LTP (NAD 27 NME)**	**BHL (NAD 27 NME)**
Y = 482,743.0 N	Y = 474,920.7 N	Y = 474,870.7 N
X = 658,851.6 E	X = 658,885.2 E	X = 658,885.5 E
LAT. = 32.326128 °N	LAT. = 32.304626 °N	LAT. = 32.304488 °N
LONG. = 103.819075 °W	LONG. = 103.819087 °W	LONG. = 103.819087 °W

CORNER COORDINATES (NAD 83 NME)		CORNER COORDINATES (NAD 27 NME)	
A - Y = 488,082.7 N	A - X = 700,798.9 E	A - Y = 488,022.6 N	A - X = 659,616.8 E
B - Y = 485,447.3 N	B - X = 700,820.4 E	B - Y = 485,387.2 N	B - X = 659,638.2 E
C - Y = 482,806.0 N	C - X = 700,841.9 E	C - Y = 482,746.0 N	C - X = 659,659.6 E
D - Y = 480,163.7 N	D - X = 700,856.2 E	D - Y = 480,103.7 N	D - X = 659,673.8 E
E - Y = 477,524.9 N	E - X = 700,870.5 E	E - Y = 477,465.0 N	E - X = 659,688.0 E
F - Y = 474,884.2 N	F - X = 700,884.2 E	F - Y = 474,824.3 N	F - X = 659,701.6 E
G - Y = 488,080.3 N	G - X = 699,478.5 E	G - Y = 488,020.1 N	G - X = 658,296.4 E
H - Y = 485,443.7 N	H - X = 699,500.8 E	H - Y = 485,383.5 N	H - X = 658,318.6 E
I - Y = 482,801.1 N	I - X = 699,522.9 E	I - Y = 482,741.1 N	I - X = 658,340.6 E
J - Y = 480,158.2 N	J - X = 699,536.4 E	J - Y = 480,098.2 N	J - X = 658,354.0 E
K - Y = 477,512.1 N	K - X = 699,551.6 E	K - Y = 477,452.2 N	K - X = 658,369.2 E
L - Y = 474,878.3 N	L - X = 699,565.5 E	L - Y = 474,818.4 N	L - X = 658,382.9 E

[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Cassie Evans 9/25/23
Signature Date

Cassie Evans
Printed Name

cassie.evans@exxonmobil.com
E-mail Address

[18] SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

08-02-2023
Date of Survey

Signature and Seal of Professional Surveyor:

MARK DILLON HARP NEW MEXICO 23786 PROFESSIONAL SURVEYOR

MARK DILLON HARP 23786
Certificate Number

RP 618.013002.06-03

P:\618.013 XTO Energy - NM\002 James Ranch Unit\.06 - DI 7 - EDDY\Wells\-03 - 901H\DWG\SAWTOOTH 901H C-102.dwg

Instructions:

1) Enter all data into table below using the plat, geoprog, and directional plan
2) Enter GeoProg data directly into permit -- surface and intermediate casing/cement calculations are based on salt top & bot
3) If there is not a 3rd bone or Wolfcamp X/Y then hide the row from columns A - M
4) Enter Casing Specs on "Casing Design Page" for Burst, Collapse, and Tension

	Field Needs an Input
	Calculated Field
	Pull Down Menu

Input Data			
Well Name	JRU DI 7 Sawtooth 901H		
Well Formation and Lateral	3rd Bone Spring Sand		2.5 Mile L
Date Created	9/25/2023		
	SHL Data		BHL Da
Section	6		18
T	23	S	23
R	31	E	31
Northing	155	N	2586
Easting	1010	W	1870
County	Eddy		

Formations			
Formation	Well Depth (TVD)	Water/Oil/Gas	
Rustler	230'	Water	
Top of Salt	577'	Water	
Base of Salt	3684'	Water	
Delaware	3917'	Water	
Brushy Canyon	6452'	Water/Oil/Gas	
Bone Spring	7745'	Water	
1st Bone Spring Ss	8787'	Water/Oil/Gas	
2nd Bone Spring Ss	9625'	Water/Oil/Gas	
3rd Bone Spring Sh	10187'	Water/Oil/Gas	
3rd Bone Spring Ss	10620'	Water/Oil/Gas	
Target/Land Curve	**10982'**	**Water/Oil/Gas**	Match Directional Plan wh
BHL	**11072'**	**Water/Oil/Gas**	

Hole Sizes	
Hole Section	Hole Size
Surface	17.5

Intermediate 1	12.25
Intermediate 2	8.75
Production Curve	6.75
Production Lateral	6.75

Mud Weights	
Surface	8.5
Intermediate 1	10
Intermediate 2	8.6
Production	10

Casing Points		
Surface	552'	25' above Top Salt
Intermediate 1	3784'	100' below Base of Salt
Intermediate 2	9860'	~200' above KOP, but ensure casing is set in
DV Tool &/or Int 2 XO	3884'	100' below previous casing shoe (if needed)
Production	23573'	Equals BHL

Casing

Hole Section	Name	Size	Weight
Surface	13.375 | 54.5 | J-55 | BTC	13.375	54.5
Intermediate 1	9.625 | 40 | J-55 | BTC	9.625	40
Intermediate 2	7.625 | 29.7 | RY P-110 | Flush Joint	7.625	29.7
Intermediate 2	7.625 | 29.7 | HC L-80 | Flush Joint	7.625	29.7
Production	5.5 | 23 | RY P-110 | Semi-Premium	5.5	23
Production	5.5 | 23 | RY P-110 | Semi-Flush	5.5	23
Production	5.5 | 23 | RY P-110 | Semi-Flush	5.5	23

Directional		
	MD	TVD
KOP	10,344	10,266
Landing Point	11,469	10,982
TD	23,573	10,982

OH Logs		
If Yes, Paste if no, "NO" >	No	Check 8. to see that it reads correctly

Max Frac Pressure	
12000	psi

Temps	
Surf Temp	BHT
85	185

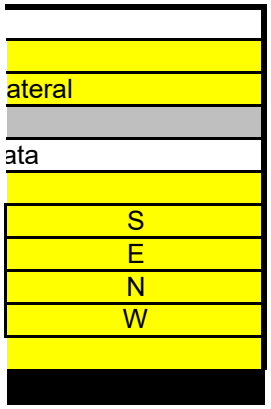
** Calculated off LP TVD

Casing Table

Name	OD	Weight	Grade
20 | 169 | K-55 | BTC	20	169	K-55
18.625 | 87.5 | J-55 | BTC	18 5/8	87.5	J-55
13.375 | 68 | HC L-80 | BTC	13 3/8	68	HC L-80
13.375 | 54.5 | J-55 | BTC	13 3/8	54.5	J-55
9.625 | 40 | J-55 | BTC	9 5/8	40	J-55
9.625 | 40 | HC L-80 | BTC	9 5/8	40	HC L-80
9.625 | 53.5 | HC P-110 | BTC	9 5/8	53.5	HC P-110
9.625 | 40 | HC P-110 | BTC	9 5/8	40	HC P-110
7.625 | 29.7 | RY P-110 | Flush Joint	7 5/8	29.7	RY P-110
7.625 | 29.7 | CY P-110 | Flush Joint	7 5/8	29.7	CY P-110
7.625 | 29.7 | HC L-80 | Flush Joint	7 5/8	29.7	HC L-80
6 | 26 | P-110 | Semi-Flush	6	26	P-110
5.5 | 23 | RY P-110 | Semi-Flush	5 1/2	23	RY P-110
5.5 | 23 | RY P-110 | Semi-Premium	5 1/2	23	RY P-110
5.5 | 20 | RY P-110 | Semi-Flush	5 1/2	20	RY P-110
5.5 | 20 | RY P-110 | Semi-Premium	5 1/2	20	RY P-110

Open hole logging will not be done on this we

tom.



en appropriate

competent rock per geo

Well Plan LP	10,982	-
Geoprog LP	10,982	
Well Plan KOP	10,344	
New KOP	10,344	

Check Hole sizes on Cement Calcs

Grade	Collar
J-55	BTC
J-55	BTC
RY P-110	Flush Joint
HC L-80	Flush Joint
RY P-110	Semi-Premium
RY P-110	Semi-Flush
RY P-110	Semi-Flush

Connection	Tube ID	Collapse	Burst	Tension	
BTC	18.376	2,500	3,380	2,689,000	K-55
BTC	17.755	630	2,250	1,329,000	J-55
BTC	12.415	2,690	5,020	1,545,000	HCL-80
BTC	12.615	1,130	2,740	909,000	J-55
BTC	8.835	2,750	3,950	630,000	J-55
BTC	8.835	4,230	5,750	916,000	HCL-80
BTC	8.835	9,190	10,900	1,718,000	P110 HC
BTC	8.535	4,230	7,910	1,266,000	P110 HC
Flush Joint	6.875	5,350	9,460	558,000	P110 RY -IFJ
Flush Joint	6.875	5,350	9,460	960,000	P110 CY - IFJ
Flush Joint	6.875	5,780	6,880	406,000	HCL-80 - IFJ
Semi-Flush	5.128	13,570	14,010	838,000	P-110 - Talon HTQ
Semi-Flush	4.67	14,540	14,530	707,000	P110 RY - Talon HTQ
Semi-Premium	4.67	14,540	14,520	729,000	P110 RY - Freedom HTQ
Semi-Flush	4.778	11,100	12,640	641,000	P110 RY - Talon HTQ
Semi-Premium	4.778	11,100	12,640	641,000	P110 RY - Freedom HTQ

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

XTO Energy Inc.
JRU DI 7 Sawtooth 901H
Projected TD: 23573.1' MD / 10982' TVD
SHL: 155' FNL & 1010' FWL , Section 6, T23S, R31E
BHL: 2586' FNL & 1870' FWL , Section 18, T23S, R31E
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	230'	Water
Top of Salt	577'	Water
Base of Salt	3684'	Water
Delaware	3917'	Water
Brushy Canyon	6452'	Water/Oil/Gas
Bone Spring	7745'	Water
1st Bone Spring Ss	8787'	Water/Oil/Gas
2nd Bone Spring Ss	9625'	Water/Oil/Gas
3rd Bone Spring Sh	10187'	Water/Oil/Gas
Target/Land Curve	10982'	Water/Oil/Gas

Rows hidd

*** 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 13.375 inch casing @ 552' (25' above the salt) and circulating cement back to surface. The salt will be isolated by setting 9.625 inch casing at 3784' and circulating cement to surface. The second intermediate will isolate from the salt down to the next casing seat by setting 7.625 inch casing at 9860' and cementing to surface. A 6.75 inch curve and 6.75 inch lateral hole will be drilled to 23573.1 MD/TD and 5.5 inch production casing will be set at TD and cemented back up to 2nd intermediate (estimated TOC 9360 feet) per Potash regulations.

3. Casing Design

Hole Size	MD	TVD	OD Csg	Weight	Grade	Collar	New/Used	SF Burst	SF Collapse	SF Tension
17.5	0' – 552'	571'	13.375	54.5	J-55	BTC	New	2.41	4.63	30.22
12.25	0' – 3784'	3688'	9.625	40	J-55	BTC	New	1.76	2.39	4.16
8.75	0' – 3884'	3788'	7.625	29.7	RY P-110	Flush Joint	New	2.87	3.08	1.91
8.75	3884' – 9860'	9502'	7.625	29.7	HC L-80	Flush Joint	New	2.09	3.68	2.29
6.75	0' – 9760'	9409'	5.5	23	RY P-110	Semi-Premium	New	1.21	2.86	2.02
6.75	9760' - 23573.1'	10451'	5.5	23	RY P-110	Semi-Flush	New	1.21	2.55	5.17

· Production casing meets the clearance requiremenets as tapered string crosses over before encountering the intermediate shoe, per Onshore Order 2.3.B.1
· XTO requests the option to utilize a spudder rig (Atlas Copco RD20 or Equivalent) to set and cement surface and intermediate 1 casing per this Sundry
· XTO requests to not utilize centralizers in the curve and lateral
· 9.625 Collapse analyzed using 50% evacuation based on regional experience.
· 7.625 Collapse analyzed using 50% evacuation based on regional experience.
· 5.5 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, whichever is less
· XTO requests the option to use 5" BTC Float equipment for the the production casing

Wellhead:

Permanent Wellhead – Multibowl System
A. Starting Head: 13-5/8" 10M top flange x 13-3/8" bottom
B. Tubing Head: 13-5/8" 10M bottom flange x 7-1/16" 15M 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 7-5/8" casing per BLM Onshore Order 2
· Wellhead Manufacturer representative will not be present for BOP test plug installation

Check casing size her

4. Cement Program

Surface Casing: 13.375, 54.5 New BTC, J-55 casing to be set at +/- 552

Lead: 180 sxs EconoCem-HLTRRC (mixed at 12.9 ppg, 1.87 ft3/sx, 10.13 gal/sx water)
Tail: 300 sxs Class C + 2% CaCl (mixed at 14.8 ppg, 1.35 ft3/sx, 6.39 gal/sx water)
Top of Cement: Surface
Compressives: 12-hr = 250 psi 24 hr = 500 psi

Due to the high probability of not getting cement to surface during conventional top-out jobs in the area, ~10-20 ppb gravel will be added on the backside of the 1" to get cement to surface, if required.

1st Intermediate Casing: 9.625, 40 New BTC, J-55 casing to be set at +/- 3784

Lead: 1570 sxs Class C (mixed at 12.9 ppg, 1.39 ft3/sx, 10.13 gal/sx water)
Tail: 130 sxs Class C + 2% CaCl (mixed at 14.8 ppg, 1.35 ft3/sx, 6.39 gal/sx water)
Top of Cement: Surface
Compressives: 12-hr = 900 psi 24 hr = 1500 psi

2nd Intermediate Casing: 7.625, 29.7 New casing to be set at +/- 9860 DV Tool can be hidder
1st Stage
Optional Lead: 150 sxs Class C (mixed at 10.5 ppg, 2.77 ft3/sx, 15.59 gal/sx water)
TOC: 3584
Tail: 310 sxs Class C (mixed at 14.8 ppg, 1.35 ft3/sx, 6.39 gal/sx water)
TOC: Brushy Canyon @ 6452
Compressives: 12-hr = 900 psi 24 hr = 1150 psi

2nd Stage
Lead: 0 sxs Class C (mixed at 12.9 ppg, 2.16 ft3/sx, 9.61 gal/sx water)
Tail: 400 sxs Class C (mixed at 14.8 ppg, 1.33 ft3/sx, 6.39 gal/sx water)
Top of Cement: 0
Compressives: 12-hr = 900 psi 24 hr = 1150 psi

Bradenhead squeeze

XTO requests to pump a two stage cement job on the 7-5/8" intermediate casing string with the first stage being pumped conventionally with the calculated top of cement at the Brush Canyon (6452') and the second stage performed as a bradenhead squeeze with planned cement from the Brushy Canyon to surface. If cement is not visually confirmed to circulate to surface, the final cement top after the second stage job will be verified by Echo-meter. If necessary, a top out consisting of 1,500 sack of Class C cement + 3% Salt + 1% PreMag-M + 6% Bentonite Gel (2.30 yld, 12.91 ppg) will be executed as a contingency. If cement is still unable to circulate to surface, another Echo-meter run will be performed for cement top verification.

XTO will include the Echo-meter verified fluid top and the volume of displacement fluid above the cement slurry in the annulus in all post-drill sundries on wells utilizing this cement program.

XTO will report to the BLM the volume of fluid (limited to 5 bbls) used to flush intermediate casing valves following backside cementing procedures.

XTO requests to pump an Optional Lead if well conditions dictate in an attempt to bring cement to surface. If cement reaches the desired height, the BLM will be notified and the second stage bradenhead squeeze and subsequent TOC verification will be negated.

XTO requests the option to conduct the bradenhead squeeze and TOC verification offline as per standard approval from BLM when unplanned remediation is needed and batch drilling is approved. In the event the bradenhead is conducted, we will ensure the first stage cement job is cemented properly and the well is static with floats holding and no pressure on the csg annulus as with all other casing strings where batch drilling operations occur before moving off the rig. The TA cap will also be installed per Cactus procedure and pressure inside the casing will be monitored via the valve on the TA cap as per standard batch drilling ops.

Production Casing: 5.5, 23 New Semi-Flush, RY P-110 casing to be set at +/- 23573.1

Lead: 30 sxs NeoCem (mixed at 11.5 ppg, 2.69 ft3/sx, 15.00 gal/sx water) Top of Cement: 9360 feet
Tail: 950 sxs VersaCem (mixed at 13.2 ppg, 1.51 ft3/sx, 8.38 gal/sx water) Top of Cement: 10343.8 feet
Compressives: 12-hr = 1375 psi 24 hr = 2285 psi

XTO requests the option to offline cement and remediate (if needed) surface and intermediate casing strings where batch drilling is approved and if unplanned remediation is needed. XTO will ensure well is static with no pressure on the csg annulus, as with all other casing strings where batch drilling operations occur before moving off the rig. The TA cap will also be installed when applicable per Cactus procedure and pressure inside the casing will be monitored via the valve on the TA cap as per standard batch drilling ops. Offline cement operations will then be conducted after the rig is moved off the current well to the next well in the batch sequence.

5. Pressure Control Equipment

Temporary wellhead/d

Check casing sizes he

Once the permanent WH is installed on the 13.375 casing, the blow out preventer equipment (BOP) will consist of a 13-5/8" minimum 5M Hydril and a 13-5/8" minimum 5M Double Ram BOP. MASP should not exceed 3295 psi. In any instance where 10M BOP is required by BLM, XTO requests a variance to utilize 5M annular with 10M ram preventers (a common BOP configuration, which allows use of 10M rams in unlikely event that pressures exceed 5M).

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 13.375, 5M bradenhead and flange, the BOP test will be limited to 5000 psi. When nippling up on the 7.625, the BOP will be tested to a minimum of 5000 psi. All BOP tests will include a low pressure test as per BLM regulations. The 5M 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.

XTO requests a variance to be able to batch drill this well if necessary. In doing so, XTO will set casing and ensure that the well is cemented properly (unless approval is given for offline cementing) and the well is static. With floats holding, no pressure on the csg annulus, and the installation of a 10K TA cap as per Cactus recommendations, XTO will contact the BLM to skid the rig to drill the remaining wells on the pad. Once surface and both intermediate strings are all completed, XTO will begin drilling the production hole on each of the wells.

A variance is requested to **ONLY** test broken pressure seals on the BOP equipment when moving from wellhead to wellhead which is in compliance with API Standard 53. API standard 53 states, that for pad drilling operation, moving from one wellhead to another within 21 days, pressure testing is required for pressure-containing and pressure-controlling connections when the integrity of a pressure seal is broken. Based on discussions with the BLM on February 27th 2020, we will request permission to **ONLY** retest broken pressure seals if the following conditions are met: 1. After a full BOP test is conducted on the first well on the pad 2. When skidding to drill an intermediate section that does not penetrate into the Wolfcamp.

6. Proposed Mud Circulation System

INTERVAL	Hole Size	Mud Type	MW (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
0' - 552'	17.5	FW/Native	8.5-9	35-40	NC
552' - 3784'	12.25	Brine	10-10.5	30-32	NC
3784' to 9860'	8.75	BDE/OBM or FW/Brine	8.6-9.1	30-32	NC
9860' to 23573.1'	6.75	OBM	10-10.5	50-60	NC - 20

Check properties

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 10.0 ppg -10.5 ppg 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.

Double che

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 13.375 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 175 to 195 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 5711 psi.

10. Anticipated Starting Date and Duration of Operations

Anticipated spud date will be after BLM approval. Move in operations and drilling is expected to take 40 days.

JRU DI 7 Sawtooth 901H **23,573** ft TD 9/25/2023

Field Needs an Input	BLM Min. Burst: 1
Calculated Field	BLM Min. Collapse: 1.125
Collapse Assumptions	BLM Min. Tension (Dry): 1.6
Burst Assumptions	BLM Min. Tension (Buoyed): 1.8

13.375 | 54.5 | J-55 | BTC — 552 MD/TVD — 8.5 ppg mud

collapse = 1130 — Burst = 2740 — Tension = 909000

Collapse
(8.5)(0.052)(552) = 244 psi — 1130/244 = 4.63 SF for collapse

Burst
Max exp. surf pressure 1135 psi — 2740/1135.2 = 2.41 SF for burst — Burst Assumes MASP Equation (10)(0.052)(3784) - (.22)(3784)

Tension
(552)(54.5)= 30084 lb — 909/30.1 = 30.22 SF for tension

9.625 | 40 | J-55 | BTC — 3784 MD/TVD — 10 # mud

Collapse = 2750 — Burst = 3950 — Tension = 630000

Collapse
(10)(0.052)(3784) * = 1151 psi — 2750/1151 = 2.39 SF for collapse — Collapse Assumes 1/2 evacuation & FW internal
*Less internal fluid height — Fluid Top: 1892 MD/TVD

Burst
Max expected surf pressure = 2240 psi — 3950/2240.192 = 1.76 SF for burst — Burst Assumes MASP Equation (8.6)(0.052)(9860) - (.22)(9860)

Tension
(3784)(40)= 151360 lb — 630/151.36 = 4.16 SF for tension

7.625 | 29.7 | RY P-110 | Flush Joint — 0 Top MD/TVD — 8.6 # mud
3884 Bottom MD/TVD

Collapse = 5350 — Burst = 9460 — Tension = 558000

Collapse
(8.6)(0.052)(3884)= 1737 psi — 5350/1737= 3.08 SF for collapse — Collapse Assumes full evacuation

Burst
Max expected surf pressure = 3295 psi — 9460/3294.6= 2.87 SF for burst — Burst Assumes MASP Equation (10)(0.052)(10982) - (.22)(10982)

Tension
(3884*29.7)+(5976*29.7)= 292842 lb — 558/292.842= 1.91 SF for tension

7.625 | 29.7 | HC L-80 | Flush Joint — 3884 Top MD/TVD — 8.6 # mud
9860 TD MD/TVD

Collapse = 5780 — Burst = 6880 — Tension = 406000

Collapse
(8.6)(0.052)(9860) * = 1572 psi — 5780/1572= 3.68 SF for collapse — Collapse Assumes 1/3 evacuation & FW internal
*Less internal fluid height — Fluid Top: 6573 MD/TVD

Burst
Max expected surf pressure = 3295 psi — 6880/3294.6= 2.09 SF for burst — Burst Assumes MASP Equation (10)(0.052)(10982) - (.22)(10982)

Tension
(5976)(29.7)= 177487.2 lb — 406/177.4872= 2.29 SF for tension

5.5 | 23 | RY P-110 | Semi-Premium — 0 Top — 9,760 TD (MD) — 10 # mud
0.35 FF

Collapse = 14540 — Burst= 14520 — Tension= 729000

Collapse
(10)(0.052)(9760) = 5075 psi — 14540/5075= 2.86 SF for collapse

Burst
Max expected surf pressure = 12000 psi *for frac — 14520/12000= 1.21 SF for burst

Tension
#REF! 361222 lb — 729/361.222015= 2.02 SF for tension

5.5 | 23 | RY P-110 | Semi-Flush — 9,760 Top — 23,573 TD (MD) — 10,982 TVD (max) — 10 # mud
0.35 FF — 11,469 LP (MD) — 12104.3 Lat Length

Collapse= 14540 — Burst= 14530 — Tension= 707000

Collapse
(10)(0.052)(10982) = 5711 psi — 14540/5711= 2.55 SF for collapse

Burst
Max expected surf pressure = 12000 psi *for frac — 14530/12000= 1.21 SF for burst

Tension
#REF! 136742 lb — 707/136.742015= 5.17 SF for tension

Surface Cement			1st Intermediate	
Top of Cement:	0 ft, MD		Top of Cement:	0
Casing Shoe:	552 ft, MD		Casing Shoe:	3784
Hole Size:	17.5 in		Hole Size:	12.25
Casing Size:	13.375 in		Casing Size:	9.625
Lead			Lead	
% Excess, OH	100 %		% Excess, OH	100
yield	1.87 ft^3 / sack		yield	1.39
TOC for Lead	0 ft, MD		TOC for Lead	0
Tail			Tail	
% Excess, OH	100 %		% Excess, OH	100
yield	1.35 ft^3 / sack		yield	1.35
TOC for Tail	252 ft, MD		TOC for Tail	3,484
Lead Calcs			*Lead Calcs*	
Annular Volume:	350.12 ft^3 (w/ excess)		Annular Volume:	2182.42
Cement Volume:	187.2 sacks		Cement Volume:	1570.1
Tail Calcs			*Tail Calcs*	
Annular Volume:	416.81 ft^3 (w/ excess)		Annular Volume:	187.92
Cement Volume:	308.7 sacks		Cement Volume:	139.2

Field Needs an Input
Calculated Field

	2nd Intermediate, 2nd Stage			2nd Intermediate,
ft, MD	Top of Cement:	0	ft, MD	Top of Cem
ft, MD	Bottom of Cement:	3,584	ft, MD	Casing Sho
in	Hole Size:	8.75	in	Hole Size:
in	Casing Size:	7.625	in	Casing Size
	Lead			Lead
%	% Excess, OH	100	%	% Excess,
ft^3 / sack	yield	2.16	ft^3 / sack	yield
ft, MD	TOC for Lead	0	ft, MD	TOC for Le
	Tail			Tail
%	% Excess, OH	50	%	% Excess,
ft^3 / sack	yield	1.33	ft^3 / sack	yield
ft, MD	TOC for Tail	0	ft, MD	TOC for Ta
	Lead Calcs			*Lead Calcs*
ft^3 (w/ excess)	Annular Volume:	0.00	ft^3 (w/ excess)	Annular Vo
sacks	Cement Volume:	0.0	sacks	Cement Vo
	Tail Calcs			*Tail Calcs*
ft^3 (w/ excess)	Annular Volume:	540.19	ft^3 (w/ excess)	Annular Vo
sacks	Cement Volume:	406.2	sacks	Cement Vo

1st Stage			Production Cement		
ıent:	3584	ft, MD	Top of Cement:	9360	ft, MD
ɔe:	9860	ft, MD	Casing Shoe:	23,573	ft, MD
			Kick Off Point:	10,344	ft, MD
	8.75	in	Landing Point:	11,469	ft, MD
e:	7.625	in	Hole Size 1:	6.75	in
			Hole Size 2:	6.75	in
			Casing Size 1:	5.5	in
			Casing Size 2:	5.5	in
			XO Depth:	0	ft, MD
			Lead		
OH	50	%	% Excess, OH	30	%
	2.77	ft^3 / sack	yield	2.69	ft^3 / sack
ad	3,584	ft, MD	TOC for Lead	9,360	ft, MD
			Tail		
OH	25	%	% Excess, OH	30	%
	1.35	ft^3 / sack	yield	1.51	ft^3 / sack
il	6,452	ft, MD	TOC for Tail	10,344	ft, MD
			Lead Calcs		
lume:	432.27	ft^3 (w/ excess)	Annular Volume:	106.82	ft^3 (w/ excess)
lume:	156.1	sacks	Cement Volume:	39.7	sacks
			Tail Calcs		
lume:	428.05	ft^3 (w/ excess)	Annular Volume:	1436.41	ft^3 (w/ excess)
lume:	317.1	sacks	Cement Volume:	951.3	sacks

= Calculate

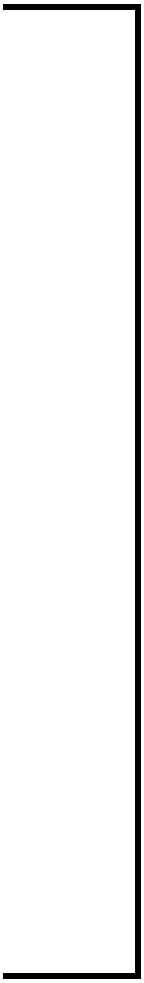
		Field Needs an Input
		Calculated Field

Permanent System

Prod MW =	10	ppg	
Max TVD =	10,982	ft	
			3M system if MASP < 3000
BHP =	5711	psi	5M system if 3000 < MASP < 5000
			10M system if MASP > 5000
MASP =	**3295**	**psi**	
Permit for =	5M		
	5000	psi	

Temporary System (if required)

1st Int MW =	10	ppg	
Max TVD =	3784	ft	
			2M system if MASP < 3000
BHP =	1968	psi	5M system if 2000 < MASP < 5000
MASP =	**1135**	**psi**	
Permit for =	2M		
	2000		



JRU DI 7 Sawtooth 901H

3rd Bone Spring Sand | 2.5 Mile Lateral

County: Eddy County, NM
SHL: SHL: 155' FNL & 1010' FWL , Section 6, T23S, R31E
BHL: BHL: 2586' FNL & 1870' FWL , Section 18, T23S, R31E
Area: Potash mines (~4,500')

TVD	Geology	Casing & Cement	Wellhead	Hole Size	General Notes
120'	***Conductor***		**(Tech Data Sheet)**	17.5"	
230'	Rustler	**13.375 | 54.5 | J-55 | BTC**	**552' MD**	12-1/4"	
577'	Top of Salt				
3,684'	Base of Salt	**9.625 | 40 | J-55 | BTC**	**3784' MD**	8-3/4"	
3,917'	Delaware/Lamar		Composite DV Tool (If Required)		
6,452'	Brushy Canyon Ss.				
7,745'	Bone Spring Lm				
8,787'	1st Bone Spring Ss.	**7.625 | 29.7 | RY P-110 | Flush Joint** **7.625 | 29.7 | HC L-80 | Flush Joint**	**9860' MD**	6-3/4" Curve	
			KOP 10344' MD 10266' TVD		
9,625'	2nd Bone Spring Ss.			6-3/4" Lateral	
		5.5 | 23 | RY P-110 | Semi-Premium **5.5 | 23 | RY P-110 | Semi-Flush**	***LP 11469' MD 10982' TVD***	**23,573' MD**	
10,982'	Landing TVD	**5.5 | 23 | RY P-110 | Semi-Flush**		**10,982' TVD @ BHL**	
10,982'	TVD @ BHL				

Formations
1st Bone Spring
1st Bone Spring Sand
2nd Bone Spring
2nd Bone Spring Shale
2nd Bone Spring Sand
3rd Bone Spring
3rd Bone Spring Shale
3rd Bone Spring Sand
Wolfcamp X
Wolfcamp Y
Wolfcamp X/Y
Wolfcamp A
Wolfcamp B
Wolfcamp B/C
Wolfcamp C
Wolfcamp D/E
Wolfcamp D
Wolfcamp E

Lateral Length
1 Mile Lateral
1.5 Mile Lateral
2 Mile Lateral
2.25 Mile Lateral
2.5 Mile Lateral
3 Mile Lateral
3.5 Mile Lateral
4 Mile Lateral

1st Bone Spring
1st Bone Spring
1st Bone Spring
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Wolfcamp X
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Wolfcamp B/C
Wolfcamp B/C
Wolfcamp B/C
Wolfcamp B/C
Wolfcamp B/C

Wolfcamp B/C
Wolfcamp B/C
Wolfcamp D
Wolfcamp D
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Wolfcamp D
Wolfcamp D
Wolfcamp E
Wolfcamp E
Wolfcamp E
Wolfcamp E
Wolfcamp E
Wolfcamp E
Wolfcamp E
Wolfcamp X/Y
Wolfcamp X/Y
Wolfcamp X/Y
Wolfcamp X/Y
Wolfcamp X/Y
Wolfcamp X/Y
Wolfcamp X/Y
1st Bone Spring
2nd Bone Spring
3rd Bone Spring
3rd Bone Spring Shale
Wolfcamp X
Wolfcamp Y
Wolfcamp A
Wolfcamp B
Wolfcamp D/E
1st Bone Spring Sand
2nd Bone Spring Shale
2nd Bone Spring Sand
3rd Bone Spring Sand
Wolfcamp C
Wolfcamp B/C
Wolfcamp D
Wolfcamp E
Wolfcamp X/Y

Target formation and Lateral Length: 3rd Bone Spring Sand 2.5 Mile Lateral

		Production 1
1 Mile Lateral	1st Bone Spring 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	1st Bone Spring 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	1st Bone Spring 2 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.5 Mile Lateral	1st Bone Spring 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	1st Bone Spring 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	1st Bone Spring 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	1st Bone Spring 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	2nd Bone Spring 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	2nd Bone Spring 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	2nd Bone Spring 2 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.5 Mile Lateral	2nd Bone Spring 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	2nd Bone Spring 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	2nd Bone Spring 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	2nd Bone Spring 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	3rd Bone Spring 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	3rd Bone Spring 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	3rd Bone Spring 2 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.5 Mile Lateral	3rd Bone Spring 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	3rd Bone Spring 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	3rd Bone Spring 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	3rd Bone Spring 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	3rd Bone Spring Shale 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	3rd Bone Spring Shale 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	3rd Bone Spring Shale 2 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.5 Mile Lateral	3rd Bone Spring Shale 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	3rd Bone Spring Shale 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	3rd Bone Spring Shale 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	3rd Bone Spring Shale 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	Wolfcamp X 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	Wolfcamp X 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	Wolfcamp X 2 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.5 Mile Lateral	Wolfcamp X 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	Wolfcamp X 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	Wolfcamp X 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	Wolfcamp X 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	Wolfcamp Y 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	Wolfcamp Y 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	Wolfcamp Y 2 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.5 Mile Lateral	Wolfcamp Y 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	Wolfcamp Y 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	Wolfcamp Y 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	Wolfcamp Y 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	Wolfcamp A 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	Wolfcamp A 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	Wolfcamp A 2 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.5 Mile Lateral	Wolfcamp A 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	Wolfcamp A 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	Wolfcamp A 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush

4 Mile Lateral	Wolfcamp A 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	Wolfcamp B 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	Wolfcamp B 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	Wolfcamp B 2 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.5 Mile Lateral	Wolfcamp B 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	Wolfcamp B 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	Wolfcamp B 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	Wolfcamp B 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	Wolfcamp D/E 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	Wolfcamp D/E 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	Wolfcamp D/E 2 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.5 Mile Lateral	Wolfcamp D/E 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	Wolfcamp D/E 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	Wolfcamp D/E 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	Wolfcamp D/E 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	1st Bone Spring Sand 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	1st Bone Spring Sand 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	1st Bone Spring Sand 2 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.5 Mile Lateral	1st Bone Spring Sand 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	1st Bone Spring Sand 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	1st Bone Spring Sand 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	1st Bone Spring Sand 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	2nd Bone Spring Shale 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	2nd Bone Spring Shale 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	2nd Bone Spring Shale 2 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.5 Mile Lateral	2nd Bone Spring Shale 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	2nd Bone Spring Shale 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	2nd Bone Spring Shale 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	2nd Bone Spring Shale 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	2nd Bone Spring Sand 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	2nd Bone Spring Sand 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	2nd Bone Spring Sand 2 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.5 Mile Lateral	2nd Bone Spring Sand 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	2nd Bone Spring Sand 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	2nd Bone Spring Sand 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	2nd Bone Spring Sand 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	3rd Bone Spring Sand 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	3rd Bone Spring Sand 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	3rd Bone Spring Sand 2 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.5 Mile Lateral	3rd Bone Spring Sand 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	3rd Bone Spring Sand 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	3rd Bone Spring Sand 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	3rd Bone Spring Sand 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	Wolfcamp C 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	Wolfcamp C 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	Wolfcamp C 2 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.5 Mile Lateral	Wolfcamp C 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	Wolfcamp C 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	Wolfcamp C 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	Wolfcamp C 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	Wolfcamp B/C 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	Wolfcamp B/C 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	Wolfcamp B/C 2 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.5 Mile Lateral	Wolfcamp B/C 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	Wolfcamp B/C 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium

3.5 Mile Lateral	Wolfcamp B/C 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	Wolfcamp B/C 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	Wolfcamp D 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	Wolfcamp D 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	Wolfcamp D 2 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.5 Mile Lateral	Wolfcamp D 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	Wolfcamp D 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	Wolfcamp D 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	Wolfcamp D 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	Wolfcamp E 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	Wolfcamp E 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	Wolfcamp E 2 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.5 Mile Lateral	Wolfcamp E 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	Wolfcamp E 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	Wolfcamp E 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	Wolfcamp E 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	Wolfcamp X/Y 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	Wolfcamp X/Y 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	Wolfcamp X/Y 2 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.5 Mile Lateral	Wolfcamp X/Y 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	Wolfcamp X/Y 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	Wolfcamp X/Y 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	Wolfcamp X/Y 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
2.25 Mile Lateral	1st Bone Spring 2.25 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.25 Mile Lateral	2nd Bone Spring 2.25 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.25 Mile Lateral	3rd Bone Spring 2.25 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.25 Mile Lateral	3rd Bone Spring Shale 2.25 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.25 Mile Lateral	Wolfcamp X 2.25 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.25 Mile Lateral	Wolfcamp Y 2.25 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.25 Mile Lateral	Wolfcamp A 2.25 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.25 Mile Lateral	Wolfcamp B 2.25 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.25 Mile Lateral	Wolfcamp D/E 2.25 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.25 Mile Lateral	1st Bone Spring Sand 2.25 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.25 Mile Lateral	2nd Bone Spring Shale 2.25 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.25 Mile Lateral	2nd Bone Spring Sand 2.25 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.25 Mile Lateral	3rd Bone Spring Sand 2.25 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.25 Mile Lateral	Wolfcamp C 2.25 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.25 Mile Lateral	Wolfcamp B/C 2.25 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.25 Mile Lateral	Wolfcamp D 2.25 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.25 Mile Lateral	Wolfcamp E 2.25 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.25 Mile Lateral	Wolfcamp X/Y 2.25 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium

Production 1	Production 2
5.5 | 23 | RY P-110 | Semi-Premium	5.5 | 23 | RY P-110 | Semi-Flush

Production 2	Production 3
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush

6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush

6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
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5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
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5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
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5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush

6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush

6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
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5.5 | 23 | RY P-110 | Semi-Flush
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5.5 | 23 | RY P-110 | Semi-Flush
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5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush

Production 3	Max Frac Pressure
5.5 | 23 | RY P-110 | Semi-Flush	12000

Max Frac Pressure

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Name
20 | 169 | K-55 | BTC
18.625 | 87.5 | J-55 | BTC
13.375 | 68 | HC L-80 | BT
13.375 | 54.5 | J-55 | BTC
9.625 | 40 | J-55 | BTC
9.625 | 40 | HC L-80 | BTC
9.625 | 53.5 | HC P110 | B
9.625 | 40 | HC P110 | BTC
7.625 | 29.7 | P110 RY -IF
7.625 | 29.7 | P110 CY - IF
7.625 | 29.7 | HCL-80 - IFJ
6 | 26 | P-110 - Talon HTQ
5.5 | 23 | P110 RY - Talon
5.5 | 23 | P110 RY - VAM S
5.5 | 23 | P110 RY - Freed
5.5 | 20 | P110 RY - Talon
5.5 | 20 | P110 RY - Freed

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Casing Table			
	OD	Weight	Grade
	20	169	K-55
	18 5/8	87.5	J-55
C	13 3/8	68	HC L-80
	13 3/8	54.5	J-55
	9 5/8	40	J-55
	9 5/8	40	HC L-80
TC	9 5/8	53.5	HC P110
C	9 5/8	40	HC P110
J | Flush Joint	7 5/8	29.7	P110 RY -IFJ
J | Flush Joint	7 5/8	29.7	P110 CY - IFJ
| Flush Joint	7 5/8	29.7	HCL-80 - IFJ
| Semi-Flush	6	26	P-110 - Talon HTC
HTQ | Semi-Flu	5 1/2	23	P110 RY - Talon HT
SPRINT | Semi-F	5 1/2	23	P110 RY - VAM SPR
om HTQ | Semi-	5 1/2	23	P110 RY - Freedom H
HTQ | Semi-Flu	5 1/2	20	P110 RY - Talon HT
om HTQ | Semi-	5 1/2	20	P110 RY - Freedom H

	Connection	Tube ID	Collapse	Burst	Tension
	BTC	18.376	2,500	3,380	2,689,000
	BTC	17.755	630	2,250	1,329,000
	BTC	12.415	2,690	5,020	1,545,000
	BTC	12.615	1,130	2,740	909,000
	BTC	8.835	2,750	3,950	630,000
	BTC	8.835	4,230	5,750	916,000
	BTC	8.835	9,190	10,900	1,718,000
	BTC	8.535	4,230	7,910	1,266,000
	Flush Joint	6.875	5,350	9,460	558,000
	Flush Joint	6.875	5,350	9,460	960,000
	Flush Joint	6.875	5,780	6,880	406,000
Q	Semi-Flush	5.128	13,570	14,010	838,000
TQ	Semi-Flush	4.67	14,540	14,530	707,000
INT	Semi-Flush	4.67	14,550	14,530	671,000
HTQ	Semi-Premium	4.67	14,540	14,520	729,000
TQ	Semi-Flush	4.778	11,100	12,640	641,000
HTQ	Semi-Premium	4.778	11,100	12,640	641,000

Well Plan Report - 901H

Measured Depth:	23573.10 ft
TVD RKB:	10982.00 ft
Location	
Cartographic Reference System:	New Mexico East - NAD 27
Northing:	487864.40 ft
Easting:	657969.30 ft
RKB:	3347.00 ft
Ground Level:	3315.00 ft
North Reference:	Grid
Convergence Angle:	0.27 Deg
Site:	JRU DI7

Plan Sections 901H

Measured Depth (ft)	Inclination (Deg)	Azimuth (Deg)	TVD RKB (ft)	Y Offset (ft)	X Offset (ft)	Build Rate (Deg/100ft)	Turn Rate (Deg/100ft)	Dogleg Rate (Deg/100ft)
0	0	0	0	0	0	0	0	0
1200	0	0	1200	0	0	0	0	0
1726.61	10.53	101.38	1723.65	-9.52	47.32	2	0	2
6003.37	10.53	101.38	5928.35	-163.78	813.68	0	0	0
6529.97	0	0	6452	-173.3	861	-2	0	2
10343.77	0	0	10265.8	-173.3	861	0	0	0
11468.77	90	179.75	10982	-889.49	864.08	8	15.98	8
23523.1	90	179.75	10982	-12943.7	915.89	0	0	0
23573.1	90	179.75	10982	-12993.7	916.11	0	0	0

Position Uncertainty	901H

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD RKB (ft)	Highside Error (ft)	Bias (ft)	Lateral Error (ft)	Bias (ft)	Vertical Error (ft)
0	0	0	0	0	0	0	0	0
100	0	0	100	0.358	0	0.179	0	2.3
200	0	0	200	0.717	0	0.538	0	2.309
300	0	0	300	1.075	0	0.896	0	2.325
400	0	0	400	1.434	0	1.255	0	2.347
500	0	0	500	1.792	0	1.613	0	2.374
600	0	0	600	2.151	0	1.972	0	2.406
700	0	0	700	2.509	0	2.33	0	2.443
800	0	0	800	2.868	0	2.689	0	2.485
900	0	0	900	3.226	0	3.047	0	2.53
1000	0	0	1000	3.585	0	3.405	0	2.58
1100	0	0	1100	3.943	0	3.764	0	2.633
1200	0	0	1200	4.302	0	4.122	0	2.69
1300	2	101.38	1299.98	4.475	0	4.643	0	2.749
1400	4	101.38	1399.838	4.808	0	4.985	0	2.809
1500	6	101.38	1499.452	5.138	0	5.331	0	2.87
1600	8	101.38	1598.702	5.464	0	5.68	0	2.931
1700	10	101.38	1697.465	5.788	0	6.035	0	2.994

1726.609	10.532	101.38	1723.648	5.873	0	6.13	0	3.008
1800	10.532	101.38	1795.803	6.131	0	6.393	0	3.062
1900	10.532	101.38	1894.118	6.484	0	6.756	0	3.141
2000	10.532	101.38	1992.433	6.841	0	7.121	0	3.222
2100	10.532	101.38	2090.749	7.2	0	7.489	0	3.307
2200	10.532	101.38	2189.064	7.561	0	7.859	0	3.394
2300	10.532	101.38	2287.379	7.924	0	8.23	0	3.483
2400	10.532	101.38	2385.694	8.289	0	8.603	0	3.575
2500	10.532	101.38	2484.01	8.655	0	8.978	0	3.669
2600	10.532	101.38	2582.325	9.023	0	9.354	0	3.765
2700	10.532	101.38	2680.64	9.391	0	9.731	0	3.863
2800	10.532	101.38	2778.955	9.761	0	10.108	0	3.962
2900	10.532	101.38	2877.271	10.131	0	10.487	0	4.064
3000	10.532	101.38	2975.586	10.502	0	10.866	0	4.167
3100	10.532	101.38	3073.901	10.874	0	11.247	0	4.273
3200	10.532	101.38	3172.216	11.247	0	11.627	0	4.379
3300	10.532	101.38	3270.531	11.62	0	12.008	0	4.488
3400	10.532	101.38	3368.847	11.993	0	12.39	0	4.598
3500	10.532	101.38	3467.162	12.367	0	12.772	0	4.709
3600	10.532	101.38	3565.477	12.742	0	13.155	0	4.822
3700	10.532	101.38	3663.792	13.117	0	13.538	0	4.937

3800	10.532	101.38	3762.108	13.492	0	13.921	0	5.053
3900	10.532	101.38	3860.423	13.868	0	14.305	0	5.171
4000	10.532	101.38	3958.738	14.243	0	14.689	0	5.29
4100	10.532	101.38	4057.053	14.62	0	15.073	0	5.411
4200	10.532	101.38	4155.369	14.996	0	15.458	0	5.534
4300	10.532	101.38	4253.684	15.373	0	15.843	0	5.658
4400	10.532	101.38	4351.999	15.749	0	16.228	0	5.783
4500	10.532	101.38	4450.314	16.126	0	16.613	0	5.911
4600	10.532	101.38	4548.63	16.504	0	16.998	0	6.039
4700	10.532	101.38	4646.945	16.881	0	17.384	0	6.17
4800	10.532	101.38	4745.26	17.259	0	17.77	0	6.302
4900	10.532	101.38	4843.575	17.636	0	18.156	0	6.436
5000	10.532	101.38	4941.891	18.014	0	18.542	0	6.572
5100	10.532	101.38	5040.206	18.392	0	18.928	0	6.709
5200	10.532	101.38	5138.521	18.771	0	19.314	0	6.848
5300	10.532	101.38	5236.836	19.149	0	19.7	0	6.989
5400	10.532	101.38	5335.152	19.527	0	20.087	0	7.131
5500	10.532	101.38	5433.467	19.906	0	20.474	0	7.276
5600	10.532	101.38	5531.782	20.284	0	20.86	0	7.422
5700	10.532	101.38	5630.097	20.663	0	21.247	0	7.57
5800	10.532	101.38	5728.413	21.042	0	21.634	0	7.721

5900	10.532	101.38	5826.728	21.421	0	22.021	0	7.873
6003.366	10.532	101.38	5928.352	21.813	0	22.421	0	8.032
6100	8.599	101.38	6023.638	22.191	0	22.791	0	8.182
6200	6.599	101.38	6122.755	22.553	0	23.165	0	8.336
6300	4.6	101.38	6222.272	22.883	0	23.529	0	8.487
6400	2.6	101.38	6322.07	23.181	0	23.883	0	8.635
6500	0.6	101.38	6422.026	23.446	0	24.229	0	8.78
6529.974	0	0	6452	24.247	0	23.603	0	8.823
6600	0	0	6522.026	24.479	0	23.832	0	8.923
6700	0	0	6622.026	24.81	0	24.16	0	9.069
6800	0	0	6722.026	25.143	0	24.489	0	9.217
6900	0	0	6822.026	25.476	0	24.818	0	9.368
7000	0	0	6922.026	25.81	0	25.149	0	9.521
7100	0	0	7022.026	26.145	0	25.48	0	9.677
7200	0	0	7122.026	26.48	0	25.812	0	9.836
7300	0	0	7222.026	26.816	0	26.144	0	9.998
7400	0	0	7322.026	27.153	0	26.478	0	10.163
7500	0	0	7422.026	27.49	0	26.812	0	10.33
7600	0	0	7522.026	27.827	0	27.146	0	10.5
7700	0	0	7622.026	28.165	0	27.481	0	10.673
7800	0	0	7722.026	28.504	0	27.817	0	10.849

7900	0	0	7822.026	28.843	0	28.154	0	11.028
8000	0	0	7922.026	29.183	0	28.49	0	11.21
8100	0	0	8022.026	29.523	0	28.828	0	11.394
8200	0	0	8122.026	29.863	0	29.166	0	11.582
8300	0	0	8222.026	30.204	0	29.504	0	11.772
8400	0	0	8322.026	30.545	0	29.843	0	11.966
8500	0	0	8422.026	30.887	0	30.182	0	12.162
8600	0	0	8522.026	31.229	0	30.522	0	12.361
8700	0	0	8622.026	31.571	0	30.862	0	12.564
8800	0	0	8722.026	31.914	0	31.203	0	12.769
8900	0	0	8822.026	32.257	0	31.544	0	12.977
9000	0	0	8922.026	32.6	0	31.885	0	13.189
9100	0	0	9022.026	32.944	0	32.227	0	13.403
9200	0	0	9122.026	33.288	0	32.569	0	13.62
9300	0	0	9222.026	33.632	0	32.911	0	13.841
9400	0	0	9322.026	33.977	0	33.254	0	14.064
9500	0	0	9422.026	34.322	0	33.597	0	14.29
9600	0	0	9522.026	34.667	0	33.941	0	14.52
9700	0	0	9622.026	35.012	0	34.284	0	14.752
9800	0	0	9722.026	35.358	0	34.628	0	14.988
9900	0	0	9822.026	35.704	0	34.973	0	15.227

10000	0	0	9922.026	36.05	0	35.317	0	15.468
10100	0	0	10022.026	36.397	0	35.662	0	15.713
10200	0	0	10122.026	36.743	0	36.007	0	15.961
10300	0	0	10222.026	37.09	0	36.353	0	16.212
10343.774	0	0	10265.8	37.242	0	36.504	0	16.323
10400	4.498	179.754	10321.968	37.37	0	36.696	0	16.466
10500	12.498	179.754	10420.79	37.132	0	37.025	0	16.718
10600	20.498	179.754	10516.595	36.319	0	37.346	0	16.964
10700	28.498	179.754	10607.518	34.962	0	37.658	0	17.199
10800	36.498	179.754	10691.791	33.113	0	37.955	0	17.422
10900	44.498	179.754	10767.772	30.852	0	38.238	0	17.634
11000	52.498	179.754	10833.983	28.293	0	38.503	0	17.838
11100	60.498	179.754	10889.135	25.594	0	38.751	0	18.038
11200	68.498	179.754	10932.154	22.977	0	38.978	0	18.242
11300	76.498	179.754	10962.204	20.739	0	39.185	0	18.453
11400	84.498	179.754	10978.699	19.246	0	39.37	0	18.675
11468.774	90	179.754	10981.997	18.833	0	39.48	0	18.833
11500	90	179.754	10981.997	18.908	0	39.528	0	18.908
11600	90	179.754	10981.997	19.166	0	39.697	0	19.166
11700	90	179.754	10981.997	19.453	0	39.885	0	19.453
11800	90	179.754	10981.997	19.766	0	40.092	0	19.766

11900	90	179.754	10981.997	20.106	0	40.317	0	20.106
12000	90	179.754	10981.997	20.47	0	40.559	0	20.47
12100	90	179.754	10981.997	20.857	0	40.819	0	20.857
12200	90	179.754	10981.997	21.266	0	41.097	0	21.266
12300	90	179.754	10981.997	21.695	0	41.391	0	21.695
12400	90	179.754	10981.997	22.145	0	41.702	0	22.145
12500	90	179.754	10981.997	22.612	0	42.029	0	22.612
12600	90	179.754	10981.998	23.097	0	42.371	0	23.097
12700	90	179.754	10981.998	23.598	0	42.73	0	23.598
12800	90	179.754	10981.998	24.114	0	43.103	0	24.114
12900	90	179.754	10981.998	24.644	0	43.491	0	24.644
13000	90	179.754	10981.998	25.187	0	43.893	0	25.187
13100	90	179.754	10981.998	25.743	0	44.309	0	25.743
13200	90	179.754	10981.998	26.311	0	44.738	0	26.311
13300	90	179.754	10981.998	26.889	0	45.18	0	26.889
13400	90	179.754	10981.998	27.478	0	45.636	0	27.478
13500	90	179.754	10981.998	28.076	0	46.103	0	28.076
13600	90	179.754	10981.998	28.684	0	46.583	0	28.684
13700	90	179.754	10981.998	29.299	0	47.074	0	29.299
13800	90	179.754	10981.998	29.923	0	47.576	0	29.923
13900	90	179.754	10981.998	30.554	0	48.089	0	30.554

14000	90	179.754	10981.998	31.192	0	48.613	0	31.192
14100	90	179.754	10981.998	31.837	0	49.147	0	31.837
14200	90	179.754	10981.998	32.488	0	49.691	0	32.488
14300	90	179.754	10981.998	33.144	0	50.244	0	33.144
14400	90	179.754	10981.998	33.806	0	50.807	0	33.806
14500	90	179.754	10981.998	34.474	0	51.378	0	34.474
14600	90	179.754	10981.998	35.146	0	51.958	0	35.146
14700	90	179.754	10981.998	35.822	0	52.547	0	35.822
14800	90	179.754	10981.998	36.503	0	53.144	0	36.503
14900	90	179.754	10981.998	37.189	0	53.748	0	37.189
15000	90	179.754	10981.998	37.878	0	54.36	0	37.878
15100	90	179.754	10981.998	38.57	0	54.979	0	38.57
15200	90	179.754	10981.998	39.266	0	55.606	0	39.266
15300	90	179.754	10981.998	39.966	0	56.239	0	39.966
15400	90	179.754	10981.998	40.668	0	56.879	0	40.668
15500	90	179.754	10981.998	41.374	0	57.525	0	41.374
15600	90	179.754	10981.998	42.082	0	58.177	0	42.082
15700	90	179.754	10981.998	42.793	0	58.835	0	42.793
15800	90	179.754	10981.998	43.506	0	59.499	0	43.506
15900	90	179.754	10981.998	44.222	0	60.169	0	44.222
16000	90	179.754	10981.998	44.94	0	60.844	0	44.94

16100	90	179.754	10981.998	45.661	0	61.524	0	45.661
16200	90	179.754	10981.998	46.383	0	62.209	0	46.383
16300	90	179.754	10981.998	47.108	0	62.899	0	47.108
16400	90	179.754	10981.998	47.834	0	63.594	0	47.834
16500	90	179.754	10981.998	48.562	0	64.293	0	48.562
16600	90	179.754	10981.998	49.292	0	64.997	0	49.292
16700	90	179.754	10981.998	50.024	0	65.705	0	50.024
16800	90	179.754	10981.998	50.757	0	66.417	0	50.757
16900	90	179.754	10981.998	51.492	0	67.133	0	51.492
17000	90	179.754	10981.999	52.228	0	67.853	0	52.228
17100	90	179.754	10981.999	52.965	0	68.577	0	52.965
17200	90	179.754	10981.999	53.704	0	69.304	0	53.704
17300	90	179.754	10981.999	54.444	0	70.035	0	54.444
17400	90	179.754	10981.999	55.186	0	70.769	0	55.186
17500	90	179.754	10981.999	55.928	0	71.507	0	55.928
17600	90	179.754	10981.999	56.672	0	72.248	0	56.672
17700	90	179.754	10981.999	57.417	0	72.992	0	57.417
17800	90	179.754	10981.999	58.163	0	73.739	0	58.163
17900	90	179.754	10981.999	58.91	0	74.488	0	58.91
18000	90	179.754	10981.999	59.657	0	75.241	0	59.657
18100	90	179.754	10981.999	60.406	0	75.997	0	60.406

18200	90	179.754	10981.999	61.156	0	76.755	0	61.156
18300	90	179.754	10981.999	61.906	0	77.515	0	61.906
18400	90	179.754	10981.999	62.658	0	78.279	0	62.658
18500	90	179.754	10981.999	63.41	0	79.044	0	63.41
18600	90	179.754	10981.999	64.163	0	79.812	0	64.163
18700	90	179.754	10981.999	64.917	0	80.583	0	64.917
18800	90	179.754	10981.999	65.671	0	81.355	0	65.671
18900	90	179.754	10981.999	66.426	0	82.13	0	66.426
19000	90	179.754	10981.999	67.182	0	82.907	0	67.182
19100	90	179.754	10981.999	67.939	0	83.686	0	67.939
19200	90	179.754	10981.999	68.696	0	84.467	0	68.696
19300	90	179.754	10981.999	69.454	0	85.25	0	69.454
19400	90	179.754	10981.999	70.212	0	86.034	0	70.212
19500	90	179.754	10981.999	70.971	0	86.821	0	70.971
19600	90	179.754	10981.999	71.73	0	87.61	0	71.73
19700	90	179.754	10981.999	72.49	0	88.4	0	72.49
19800	90	179.754	10981.999	73.251	0	89.192	0	73.251
19900	90	179.754	10981.999	74.012	0	89.985	0	74.012
20000	90	179.754	10981.999	74.774	0	90.78	0	74.774
20100	90	179.754	10981.999	75.536	0	91.577	0	75.536
20200	90	179.754	10981.999	76.298	0	92.375	0	76.298

20300	90	179.754	10981.999	77.061	0	93.175	0	77.061
20400	90	179.754	10981.999	77.824	0	93.976	0	77.824
20500	90	179.754	10981.999	78.588	0	94.778	0	78.588
20600	90	179.754	10981.999	79.352	0	95.582	0	79.352
20700	90	179.754	10981.999	80.117	0	96.388	0	80.117
20800	90	179.754	10981.999	80.882	0	97.194	0	80.882
20900	90	179.754	10981.999	81.647	0	98.002	0	81.647
21000	90	179.754	10981.999	82.413	0	98.811	0	82.413
21100	90	179.754	10981.999	83.179	0	99.621	0	83.179
21200	90	179.754	10981.999	83.946	0	100.433	0	83.946
21300	90	179.754	10981.999	84.712	0	101.246	0	84.712
21400	90	179.754	10982	85.479	0	102.059	0	85.479
21500	90	179.754	10982	86.247	0	102.874	0	86.247
21600	90	179.754	10982	87.014	0	103.69	0	87.014
21700	90	179.754	10982	87.782	0	104.507	0	87.782
21800	90	179.754	10982	88.551	0	105.325	0	88.551
21900	90	179.754	10982	89.319	0	106.144	0	89.319
22000	90	179.754	10982	90.088	0	106.964	0	90.088
22100	90	179.754	10982	90.857	0	107.785	0	90.857
22200	90	179.754	10982	91.627	0	108.607	0	91.627
22300	90	179.754	10982	92.396	0	109.43	0	92.396

22400	90	179.754	10982	93.166	0	110.254	0	93.166
22500	90	179.754	10982	93.937	0	111.079	0	93.937
22600	90	179.754	10982	94.707	0	111.904	0	94.707
22700	90	179.754	10982	95.478	0	112.73	0	95.478
22800	90	179.754	10982	96.248	0	113.557	0	96.248
22900	90	179.754	10982	97.02	0	114.385	0	97.02
23000	90	179.754	10982	97.791	0	115.214	0	97.791
23100	90	179.754	10982	98.562	0	116.043	0	98.562
23200	90	179.754	10982	99.334	0	116.874	0	99.334
23300	90	179.754	10982	100.106	0	117.705	0	100.106
23400	90	179.754	10982	100.878	0	118.536	0	100.878
23500	90	179.754	10982	101.651	0	119.369	0	101.651
23523.095	90	179.754	10982	101.829	0	119.561	0	101.829
23573.096	90	179.754	10982	102.215	0	119.977	0	102.215

Plan Targets 901H

Target Name	Measured Depth (ft)	Grid Northing (ft)	Grid Easting (ft)	TVD MSL (ft)	Target Shape
901H_LTP	23523.09	474920.7	658885.2	7635	LOCATION
901H_BHL	23573.1	474870.7	658885.5	7635	LOCATION
901H_PP2	15700.72	482743	658851.6	7635	LOCATION
901H_PP1	13058.7	485385	658840.2	7635	LOCATION
901H_FTP	11196.75	487691.1	658830.3	7635	LOCATION
901H_SHL	0	487864.4	657969.3	-3347	RECTANGLE

901H_LTP

901H_BHL

Bias (ft)	Magnitude of Bias (ft)	Semi-major Error (ft)	Semi-minor Error (ft)	Semi-minor Azimuth (°)	Tool Used
0	0	0	0	0	XOM_R2OWSG MWD+IFR1+MS
0	0	0.358	0.179	90	XOM_R2OWSG MWD+IFR1+MS
0	0	0.717	0.538	90	XOM_R2OWSG MWD+IFR1+MS
0	0	1.075	0.896	90	XOM_R2OWSG MWD+IFR1+MS
0	0	1.434	1.255	90	XOM_R2OWSG MWD+IFR1+MS
0	0	1.792	1.613	90	XOM_R2OWSG MWD+IFR1+MS
0	0	2.151	1.972	90	XOM_R2OWSG MWD+IFR1+MS
0	0	2.509	2.33	90	XOM_R2OWSG MWD+IFR1+MS
0	0	2.868	2.689	90	XOM_R2OWSG MWD+IFR1+MS
0	0	3.226	3.047	90	XOM_R2OWSG MWD+IFR1+MS
0	0	3.585	3.405	90	XOM_R2OWSG MWD+IFR1+MS
0	0	3.943	3.764	90	XOM_R2OWSG MWD+IFR1+MS
0	0	4.302	4.122	90	XOM_R2OWSG MWD+IFR1+MS
0	0	4.65	4.47	90.044	XOM_R2OWSG MWD+IFR1+MS
0	0	4.992	4.811	90.113	XOM_R2OWSG MWD+IFR1+MS
0	0	5.337	5.154	90.266	XOM_R2OWSG MWD+IFR1+MS
0	0	5.687	5.5	90.585	XOM_R2OWSG MWD+IFR1+MS
0	0	6.041	5.848	91.126	XOM_R2OWSG MWD+IFR1+MS

0	0	6.136	5.943	91.199	XOM_R2OWSG MWD+IFR1+MS
0	0	6.399	6.197	91.91	XOM_R2OWSG MWD+IFR1+MS
0	0	6.76	6.545	92.924	XOM_R2OWSG MWD+IFR1+MS
0	0	7.125	6.895	93.901	XOM_R2OWSG MWD+IFR1+MS
0	0	7.492	7.249	94.835	XOM_R2OWSG MWD+IFR1+MS
0	0	7.861	7.604	95.725	XOM_R2OWSG MWD+IFR1+MS
0	0	8.232	7.962	96.57	XOM_R2OWSG MWD+IFR1+MS
0	0	8.605	8.321	97.369	XOM_R2OWSG MWD+IFR1+MS
0	0	8.979	8.681	98.126	XOM_R2OWSG MWD+IFR1+MS
0	0	9.354	9.042	98.841	XOM_R2OWSG MWD+IFR1+MS
0	0	9.731	9.405	99.516	XOM_R2OWSG MWD+IFR1+MS
0	0	10.109	9.768	100.153	XOM_R2OWSG MWD+IFR1+MS
0	0	10.487	10.133	100.755	XOM_R2OWSG MWD+IFR1+MS
0	0	10.866	10.497	101.323	XOM_R2OWSG MWD+IFR1+MS
0	0	11.247	10.863	101.861	XOM_R2OWSG MWD+IFR1+MS
0	0	11.627	11.229	102.369	XOM_R2OWSG MWD+IFR1+MS
0	0	12.009	11.596	102.849	XOM_R2OWSG MWD+IFR1+MS
0	0	12.391	11.963	103.305	XOM_R2OWSG MWD+IFR1+MS
0	0	12.773	12.331	103.736	XOM_R2OWSG MWD+IFR1+MS
0	0	13.156	12.699	104.145	XOM_R2OWSG MWD+IFR1+MS
0	0	13.54	13.067	104.534	XOM_R2OWSG MWD+IFR1+MS

0	0	13.923	13.436	104.903	XOM_R2OWSG MWD+IFR1+MS
0	0	14.307	13.805	105.254	XOM_R2OWSG MWD+IFR1+MS
0	0	14.692	14.174	105.589	XOM_R2OWSG MWD+IFR1+MS
0	0	15.077	14.544	105.907	XOM_R2OWSG MWD+IFR1+MS
0	0	15.462	14.914	106.211	XOM_R2OWSG MWD+IFR1+MS
0	0	15.847	15.284	106.501	XOM_R2OWSG MWD+IFR1+MS
0	0	16.233	15.654	106.778	XOM_R2OWSG MWD+IFR1+MS
0	0	16.619	16.024	107.043	XOM_R2OWSG MWD+IFR1+MS
0	0	17.005	16.395	107.297	XOM_R2OWSG MWD+IFR1+MS
0	0	17.391	16.766	107.54	XOM_R2OWSG MWD+IFR1+MS
0	0	17.777	17.137	107.773	XOM_R2OWSG MWD+IFR1+MS
0	0	18.164	17.508	107.997	XOM_R2OWSG MWD+IFR1+MS
0	0	18.551	17.879	108.212	XOM_R2OWSG MWD+IFR1+MS
0	0	18.938	18.251	108.418	XOM_R2OWSG MWD+IFR1+MS
0	0	19.325	18.622	108.616	XOM_R2OWSG MWD+IFR1+MS
0	0	19.712	18.994	108.808	XOM_R2OWSG MWD+IFR1+MS
0	0	20.1	19.366	108.992	XOM_R2OWSG MWD+IFR1+MS
0	0	20.487	19.738	109.169	XOM_R2OWSG MWD+IFR1+MS
0	0	20.875	20.11	109.34	XOM_R2OWSG MWD+IFR1+MS
0	0	21.263	20.482	109.506	XOM_R2OWSG MWD+IFR1+MS
0	0	21.65	20.854	109.665	XOM_R2OWSG MWD+IFR1+MS

0	0	22.038	21.226	109.82	XOM_R2OWSG MWD+IFR1+MS
0	0	22.439	21.611	109.974	XOM_R2OWSG MWD+IFR1+MS
0	0	22.81	21.969	110.111	XOM_R2OWSG MWD+IFR1+MS
0	0	23.184	22.334	110.249	XOM_R2OWSG MWD+IFR1+MS
0	0	23.549	22.693	110.384	XOM_R2OWSG MWD+IFR1+MS
0	0	23.905	23.047	110.509	XOM_R2OWSG MWD+IFR1+MS
0	0	24.25	23.394	110.618	XOM_R2OWSG MWD+IFR1+MS
0	0	24.351	23.495	110.594	XOM_R2OWSG MWD+IFR1+MS
0	0	24.581	23.726	110.415	XOM_R2OWSG MWD+IFR1+MS
0	0	24.91	24.057	110.164	XOM_R2OWSG MWD+IFR1+MS
0	0	25.241	24.388	109.92	XOM_R2OWSG MWD+IFR1+MS
0	0	25.572	24.72	109.681	XOM_R2OWSG MWD+IFR1+MS
0	0	25.903	25.053	109.447	XOM_R2OWSG MWD+IFR1+MS
0	0	26.236	25.386	109.219	XOM_R2OWSG MWD+IFR1+MS
0	0	26.569	25.721	108.997	XOM_R2OWSG MWD+IFR1+MS
0	0	26.903	26.055	108.78	XOM_R2OWSG MWD+IFR1+MS
0	0	27.237	26.391	108.567	XOM_R2OWSG MWD+IFR1+MS
0	0	27.573	26.727	108.36	XOM_R2OWSG MWD+IFR1+MS
0	0	27.908	27.063	108.157	XOM_R2OWSG MWD+IFR1+MS
0	0	28.245	27.4	107.959	XOM_R2OWSG MWD+IFR1+MS
0	0	28.582	27.738	107.765	XOM_R2OWSG MWD+IFR1+MS

0	0	28.919	28.076	107.575	XOM_R2OWSG MWD+IFR1+MS
0	0	29.257	28.414	107.39	XOM_R2OWSG MWD+IFR1+MS
0	0	29.595	28.753	107.209	XOM_R2OWSG MWD+IFR1+MS
0	0	29.934	29.093	107.031	XOM_R2OWSG MWD+IFR1+MS
0	0	30.274	29.432	106.858	XOM_R2OWSG MWD+IFR1+MS
0	0	30.614	29.773	106.688	XOM_R2OWSG MWD+IFR1+MS
0	0	30.954	30.113	106.522	XOM_R2OWSG MWD+IFR1+MS
0	0	31.294	30.455	106.359	XOM_R2OWSG MWD+IFR1+MS
0	0	31.636	30.796	106.2	XOM_R2OWSG MWD+IFR1+MS
0	0	31.977	31.138	106.044	XOM_R2OWSG MWD+IFR1+MS
0	0	32.319	31.48	105.891	XOM_R2OWSG MWD+IFR1+MS
0	0	32.661	31.823	105.741	XOM_R2OWSG MWD+IFR1+MS
0	0	33.004	32.166	105.595	XOM_R2OWSG MWD+IFR1+MS
0	0	33.347	32.509	105.451	XOM_R2OWSG MWD+IFR1+MS
0	0	33.69	32.852	105.31	XOM_R2OWSG MWD+IFR1+MS
0	0	34.034	33.196	105.173	XOM_R2OWSG MWD+IFR1+MS
0	0	34.377	33.54	105.037	XOM_R2OWSG MWD+IFR1+MS
0	0	34.722	33.885	104.905	XOM_R2OWSG MWD+IFR1+MS
0	0	35.066	34.229	104.775	XOM_R2OWSG MWD+IFR1+MS
0	0	35.411	34.574	104.647	XOM_R2OWSG MWD+IFR1+MS
0	0	35.756	34.92	104.522	XOM_R2OWSG MWD+IFR1+MS

0	0	36.101	35.265	104.399	XOM_R2OWSG MWD+IFR1+MS
0	0	36.447	35.611	104.279	XOM_R2OWSG MWD+IFR1+MS
0	0	36.793	35.957	104.161	XOM_R2OWSG MWD+IFR1+MS
0	0	37.139	36.303	104.045	XOM_R2OWSG MWD+IFR1+MS
0	0	37.29	36.455	103.995	XOM_R2OWSG MWD+IFR1+MS
0	0	37.479	36.645	103.966	XOM_R2OWSG MWD+IFR1+MS
0	0	37.802	36.974	103.988	XOM_R2OWSG MWD+IFR1+MS
0	0	38.115	37.295	104.112	XOM_R2OWSG MWD+IFR1+MS
0	0	38.408	37.605	104.538	XOM_R2OWSG MWD+IFR1+MS
0	0	38.674	37.898	105.496	XOM_R2OWSG MWD+IFR1+MS
0	0	38.91	38.17	107.283	XOM_R2OWSG MWD+IFR1+MS
0	0	39.114	38.417	110.274	XOM_R2OWSG MWD+IFR1+MS
0	0	39.292	38.631	114.847	XOM_R2OWSG MWD+IFR1+MS
0	0	39.452	38.802	121.052	XOM_R2OWSG MWD+IFR1+MS
0	0	39.605	38.921	128.076	XOM_R2OWSG MWD+IFR1+MS
0	0	39.76	38.984	134.42	XOM_R2OWSG MWD+IFR1+MS
0	0	39.866	38.999	-42.231	XOM_R2OWSG MWD+IFR1+MS
0	0	39.914	39	-40.963	XOM_R2OWSG MWD+IFR1+MS
0	0	40.084	39.006	-37.229	XOM_R2OWSG MWD+IFR1+MS
0	0	40.273	39.012	-34.122	XOM_R2OWSG MWD+IFR1+MS
0	0	40.48	39.019	-31.502	XOM_R2OWSG MWD+IFR1+MS

0	0	40.705	39.026	-29.264	XOM_R2OWSG MWD+IFR1+MS
0	0	40.949	39.033	-27.329	XOM_R2OWSG MWD+IFR1+MS
0	0	41.209	39.041	-25.64	XOM_R2OWSG MWD+IFR1+MS
0	0	41.487	39.05	-24.151	XOM_R2OWSG MWD+IFR1+MS
0	0	41.781	39.06	-22.829	XOM_R2OWSG MWD+IFR1+MS
0	0	42.091	39.071	-21.647	XOM_R2OWSG MWD+IFR1+MS
0	0	42.417	39.083	-20.582	XOM_R2OWSG MWD+IFR1+MS
0	0	42.759	39.095	-19.619	XOM_R2OWSG MWD+IFR1+MS
0	0	43.116	39.108	-18.743	XOM_R2OWSG MWD+IFR1+MS
0	0	43.488	39.122	-17.943	XOM_R2OWSG MWD+IFR1+MS
0	0	43.874	39.137	-17.209	XOM_R2OWSG MWD+IFR1+MS
0	0	44.274	39.152	-16.534	XOM_R2OWSG MWD+IFR1+MS
0	0	44.688	39.169	-15.91	XOM_R2OWSG MWD+IFR1+MS
0	0	45.115	39.186	-15.332	XOM_R2OWSG MWD+IFR1+MS
0	0	45.555	39.203	-14.795	XOM_R2OWSG MWD+IFR1+MS
0	0	46.007	39.222	-14.295	XOM_R2OWSG MWD+IFR1+MS
0	0	46.472	39.241	-13.828	XOM_R2OWSG MWD+IFR1+MS
0	0	46.949	39.261	-13.391	XOM_R2OWSG MWD+IFR1+MS
0	0	47.437	39.282	-12.981	XOM_R2OWSG MWD+IFR1+MS
0	0	47.937	39.303	-12.595	XOM_R2OWSG MWD+IFR1+MS
0	0	48.447	39.325	-12.233	XOM_R2OWSG MWD+IFR1+MS

0	0	48.968	39.348	-11.89	XOM_R2OWSG MWD+IFR1+MS
0	0	49.499	39.372	-11.567	XOM_R2OWSG MWD+IFR1+MS
0	0	50.039	39.396	-11.261	XOM_R2OWSG MWD+IFR1+MS
0	0	50.589	39.421	-10.971	XOM_R2OWSG MWD+IFR1+MS
0	0	51.149	39.447	-10.696	XOM_R2OWSG MWD+IFR1+MS
0	0	51.717	39.473	-10.435	XOM_R2OWSG MWD+IFR1+MS
0	0	52.294	39.5	-10.186	XOM_R2OWSG MWD+IFR1+MS
0	0	52.879	39.527	-9.949	XOM_R2OWSG MWD+IFR1+MS
0	0	53.473	39.556	-9.723	XOM_R2OWSG MWD+IFR1+MS
0	0	54.074	39.585	-9.508	XOM_R2OWSG MWD+IFR1+MS
0	0	54.683	39.614	-9.302	XOM_R2OWSG MWD+IFR1+MS
0	0	55.299	39.645	-9.105	XOM_R2OWSG MWD+IFR1+MS
0	0	55.922	39.676	-8.916	XOM_R2OWSG MWD+IFR1+MS
0	0	56.552	39.707	-8.735	XOM_R2OWSG MWD+IFR1+MS
0	0	57.189	39.74	-8.561	XOM_R2OWSG MWD+IFR1+MS
0	0	57.832	39.772	-8.395	XOM_R2OWSG MWD+IFR1+MS
0	0	58.481	39.806	-8.234	XOM_R2OWSG MWD+IFR1+MS
0	0	59.136	39.84	-8.08	XOM_R2OWSG MWD+IFR1+MS
0	0	59.797	39.875	-7.932	XOM_R2OWSG MWD+IFR1+MS
0	0	60.463	39.911	-7.79	XOM_R2OWSG MWD+IFR1+MS
0	0	61.135	39.947	-7.652	XOM_R2OWSG MWD+IFR1+MS

0	0	61.813	39.983	-7.519	XOM_R2OWSG MWD+IFR1+MS
0	0	62.495	40.021	-7.391	XOM_R2OWSG MWD+IFR1+MS
0	0	63.182	40.059	-7.268	XOM_R2OWSG MWD+IFR1+MS
0	0	63.874	40.097	-7.149	XOM_R2OWSG MWD+IFR1+MS
0	0	64.57	40.137	-7.033	XOM_R2OWSG MWD+IFR1+MS
0	0	65.271	40.177	-6.922	XOM_R2OWSG MWD+IFR1+MS
0	0	65.976	40.217	-6.814	XOM_R2OWSG MWD+IFR1+MS
0	0	66.686	40.258	-6.709	XOM_R2OWSG MWD+IFR1+MS
0	0	67.399	40.3	-6.608	XOM_R2OWSG MWD+IFR1+MS
0	0	68.117	40.342	-6.51	XOM_R2OWSG MWD+IFR1+MS
0	0	68.838	40.385	-6.414	XOM_R2OWSG MWD+IFR1+MS
0	0	69.563	40.429	-6.322	XOM_R2OWSG MWD+IFR1+MS
0	0	70.291	40.473	-6.232	XOM_R2OWSG MWD+IFR1+MS
0	0	71.023	40.518	-6.145	XOM_R2OWSG MWD+IFR1+MS
0	0	71.758	40.563	-6.061	XOM_R2OWSG MWD+IFR1+MS
0	0	72.496	40.609	-5.979	XOM_R2OWSG MWD+IFR1+MS
0	0	73.238	40.656	-5.899	XOM_R2OWSG MWD+IFR1+MS
0	0	73.982	40.703	-5.821	XOM_R2OWSG MWD+IFR1+MS
0	0	74.73	40.751	-5.745	XOM_R2OWSG MWD+IFR1+MS
0	0	75.48	40.799	-5.672	XOM_R2OWSG MWD+IFR1+MS
0	0	76.233	40.848	-5.6	XOM_R2OWSG MWD+IFR1+MS

0	0	76.989	40.897	-5.53	XOM_R2OWSG MWD+IFR1+MS
0	0	77.748	40.947	-5.462	XOM_R2OWSG MWD+IFR1+MS
0	0	78.509	40.998	-5.396	XOM_R2OWSG MWD+IFR1+MS
0	0	79.273	41.049	-5.332	XOM_R2OWSG MWD+IFR1+MS
0	0	80.038	41.101	-5.269	XOM_R2OWSG MWD+IFR1+MS
0	0	80.807	41.154	-5.207	XOM_R2OWSG MWD+IFR1+MS
0	0	81.577	41.207	-5.147	XOM_R2OWSG MWD+IFR1+MS
0	0	82.35	41.26	-5.089	XOM_R2OWSG MWD+IFR1+MS
0	0	83.125	41.314	-5.031	XOM_R2OWSG MWD+IFR1+MS
0	0	83.902	41.369	-4.976	XOM_R2OWSG MWD+IFR1+MS
0	0	84.681	41.424	-4.921	XOM_R2OWSG MWD+IFR1+MS
0	0	85.462	41.48	-4.868	XOM_R2OWSG MWD+IFR1+MS
0	0	86.245	41.536	-4.816	XOM_R2OWSG MWD+IFR1+MS
0	0	87.03	41.593	-4.765	XOM_R2OWSG MWD+IFR1+MS
0	0	87.816	41.651	-4.715	XOM_R2OWSG MWD+IFR1+MS
0	0	88.605	41.709	-4.666	XOM_R2OWSG MWD+IFR1+MS
0	0	89.395	41.767	-4.618	XOM_R2OWSG MWD+IFR1+MS
0	0	90.187	41.826	-4.572	XOM_R2OWSG MWD+IFR1+MS
0	0	90.98	41.886	-4.526	XOM_R2OWSG MWD+IFR1+MS
0	0	91.775	41.946	-4.481	XOM_R2OWSG MWD+IFR1+MS
0	0	92.572	42.007	-4.437	XOM_R2OWSG MWD+IFR1+MS

0	0	93.37	42.068	-4.395	XOM_R2OWSG MWD+IFR1+MS
0	0	94.169	42.13	-4.352	XOM_R2OWSG MWD+IFR1+MS
0	0	94.97	42.192	-4.311	XOM_R2OWSG MWD+IFR1+MS
0	0	95.772	42.255	-4.271	XOM_R2OWSG MWD+IFR1+MS
0	0	96.576	42.318	-4.231	XOM_R2OWSG MWD+IFR1+MS
0	0	97.381	42.382	-4.192	XOM_R2OWSG MWD+IFR1+MS
0	0	98.188	42.447	-4.154	XOM_R2OWSG MWD+IFR1+MS
0	0	98.995	42.512	-4.117	XOM_R2OWSG MWD+IFR1+MS
0	0	99.804	42.577	-4.08	XOM_R2OWSG MWD+IFR1+MS
0	0	100.614	42.643	-4.044	XOM_R2OWSG MWD+IFR1+MS
0	0	101.425	42.709	-4.009	XOM_R2OWSG MWD+IFR1+MS
0	0	102.238	42.776	-3.975	XOM_R2OWSG MWD+IFR1+MS
0	0	103.051	42.844	-3.941	XOM_R2OWSG MWD+IFR1+MS
0	0	103.866	42.912	-3.907	XOM_R2OWSG MWD+IFR1+MS
0	0	104.682	42.98	-3.874	XOM_R2OWSG MWD+IFR1+MS
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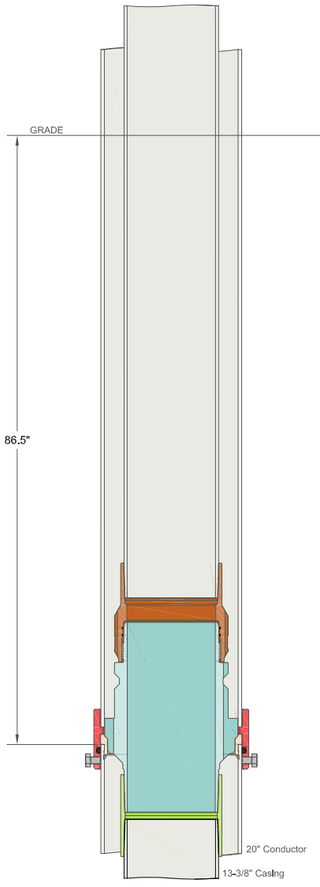
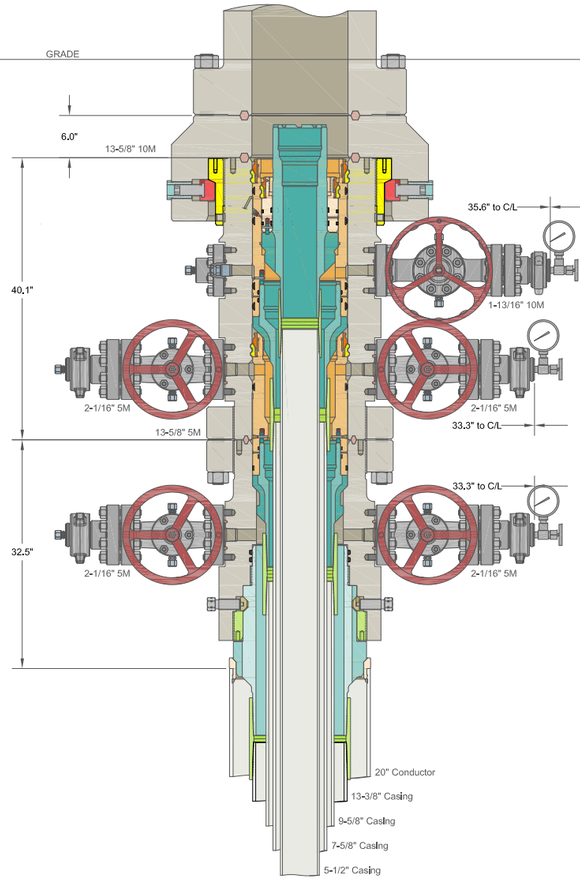
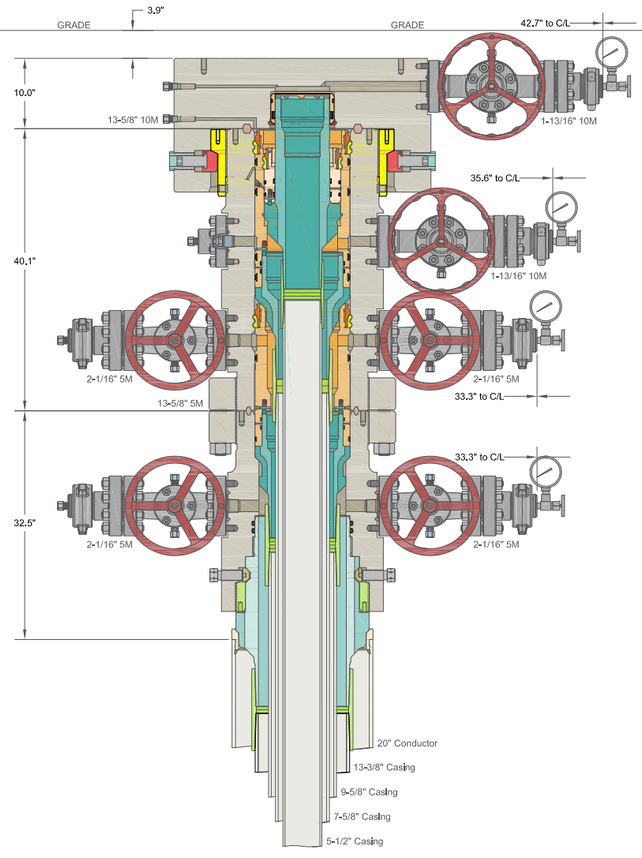
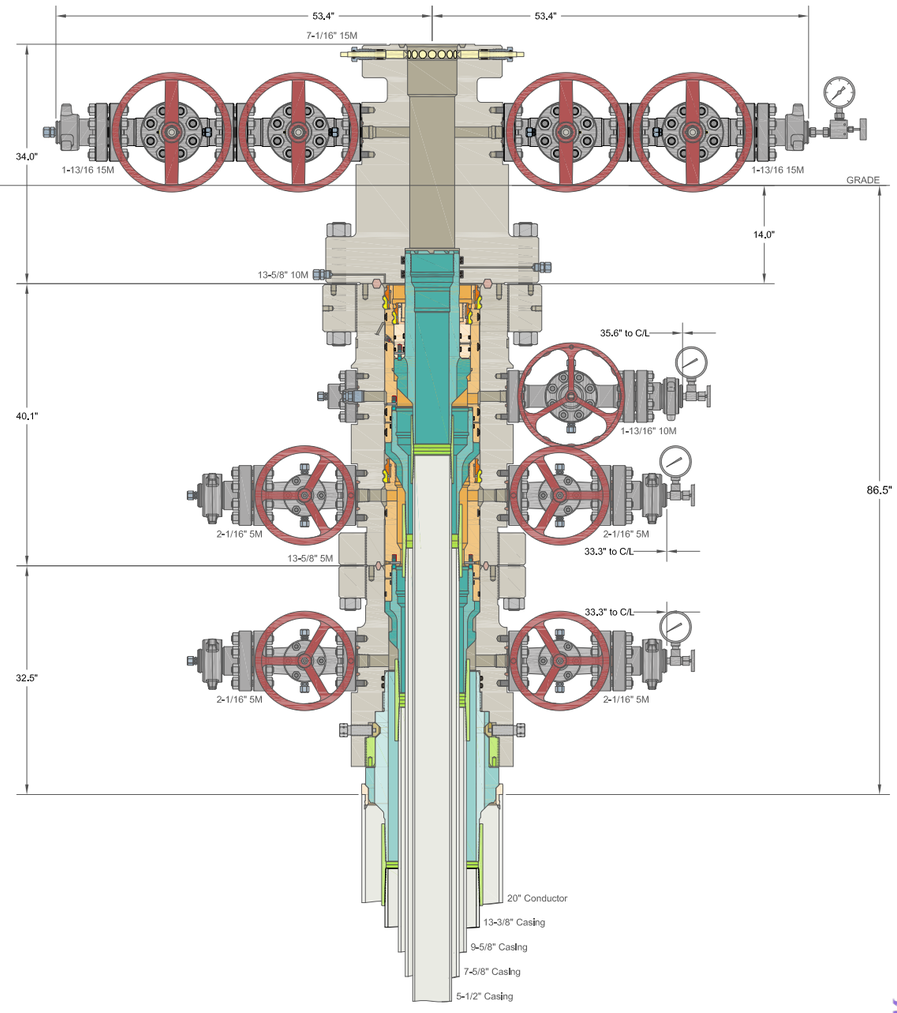
0	0	106.316	43.119	-3.81	XOM_R2OWSG MWD+IFR1+MS
0	0	107.135	43.189	-3.779	XOM_R2OWSG MWD+IFR1+MS
0	0	107.955	43.259	-3.749	XOM_R2OWSG MWD+IFR1+MS
0	0	108.775	43.33	-3.719	XOM_R2OWSG MWD+IFR1+MS
0	0	109.597	43.402	-3.689	XOM_R2OWSG MWD+IFR1+MS

0	0	110.419	43.474	-3.66	XOM_R2OWSG MWD+IFR1+MS
0	0	111.243	43.546	-3.632	XOM_R2OWSG MWD+IFR1+MS
0	0	112.067	43.619	-3.604	XOM_R2OWSG MWD+IFR1+MS
0	0	112.892	43.692	-3.576	XOM_R2OWSG MWD+IFR1+MS
0	0	113.718	43.766	-3.549	XOM_R2OWSG MWD+IFR1+MS
0	0	114.545	43.84	-3.522	XOM_R2OWSG MWD+IFR1+MS
0	0	115.373	43.915	-3.496	XOM_R2OWSG MWD+IFR1+MS
0	0	116.201	43.99	-3.47	XOM_R2OWSG MWD+IFR1+MS
0	0	117.03	44.066	-3.444	XOM_R2OWSG MWD+IFR1+MS
0	0	117.86	44.142	-3.419	XOM_R2OWSG MWD+IFR1+MS
0	0	118.691	44.219	-3.395	XOM_R2OWSG MWD+IFR1+MS
0	0	119.522	44.296	-3.37	XOM_R2OWSG MWD+IFR1+MS
0	0	119.714	44.314	-3.365	XOM_R2OWSG MWD+IFR1+MS
0	0	120.129	44.353	-3.353	XOM_R2OWSG MWD+IFR1+MS









ALL DIMENSIONS APPROXIMATE

CACTUS WELLHEAD LLC

(20") x 13-3/8" x 9-5/8" x 7-5/8" x 5-1/2" MBU-4T-CFL-R-DBLO
With 13-5/8" 10M x 7-1/16" 15M CTH-DBLHPS-SB Tubing Head
And Drilling & Skid Configurations

XTO ENERGY INC
DELAWARE BASIN

DRAWN	VJK	31MAR22
APPRV		

DRAWING NO. SDT-3301

Cement Variance Request

XTO requests to pump a two stage cement job on the 7-5/8” intermediate casing string with the first stage being pumped conventionally with the calculated top of cement at the Brushy Canyon (6452') and the second stage performed as a bradenhead squeeze with planned cement from the Brushy Canyon to surface. If cement is not visually confirmed to circulate to surface, the final cement top after the second stage job will be verified by Echo-meter. If necessary, a top out consisting of 1,500 sack of Class C cement + 3% Salt + 1% PreMag-M + 6% Bentonite Gel (2.30 yld, 12.91 ppg) will be executed as a contingency. If cement is still unable to circulate to surface, another Echo-meter run will be performed for cement top verification.

XTO will include the Echo-meter verified fluid top and the volume of displacement fluid above the cement slurry in the annulus in all post-drill sundries on wells utilizing this cement program.

XTO will report to the BLM the volume of fluid (limited to 5 bbls) used to flush intermediate casing valves following backside cementing procedures.

XTO requests to pump an Optional Lead if well conditions dictate in an attempt to bring cement to surface on the first stage. If cement is brought to surface, the BLM will be notified and the second stage bradenhead squeeze and subsequent TOC verification will be negated.

In the event cement is not circulated to surface on the first stage, whether intentionally or unintentionally, XTO requests the option to conduct the bradenhead squeeze and TOC verification offline as per standard approval from BLM when unplanned remediation is needed and batch drilling is approved. In the event the bradenhead is conducted, we will ensure first stage cement job is cemented properly and the well is static with floats holding and no pressure on the csg annulus as with all other casing strings where batch drilling operations occur before moving off the rig. The TA cap will also be installed per GE procedure and pressure inside the casing will be monitored via the valve on the TA cap as per standard batch drilling ops.

Subject: Request for a Variance Allowing break Testing of the Blowout Preventer Equipment (BOPE)

XTO Energy requests a variance to ONLY test broken pressure seals on the BOPE and function test BOP when skidding a drilling rig between multiple wells on a pad.

Background

Onshore Oil and Gas Order (OOGO) No. 2, Drilling Operations, Sections III.A.2.i.iv.B states that the BOP test must be performed whenever any seal subject to test pressure is broken. The current interpretation of the Bureau of Land Management (BLM) requires a complete BOP test and not just a test of the affected component. OOGO No. 2, Section I.D.2 states, "Some situation may exist either on a well-by-well basis or field-wide basis whereby it is commonly accepted practice to vary a particular minimum standard(s) established in this order. This situation can be resolved by requesting a variance…". XTO Energy feels the break testing the BOPE is such a situation. Therefore, as per OOGO No. 2, Section IV., XTO Energy submits this request for the variance.

Supporting Documentation

OOGO No. 2 became effective on December 19, 1988 and has remained the standard for regulating BLM onshore drilling operations for over 30 years. During this time there have been significant changes in drilling technology. BLM continues to use the variance request process to allow for the use of modern technology and acceptable engineering practices that have arisen since OOGO No. 2 was originally released. The XTO Energy drilling rig fleet has many modern upgrades that allow the intact BOP stack to be moved between well slots on a multi-well pad, as well as, wellhead designs that incorporate quick connects facilitating release of the BOP from the wellhead without breaking any BOP stack components apart. These technologies have been used extensively offshore, and other regulators, API, and many operators around the world have endorsed break testing as safe and reliable.

Figure 1: Winch System attached to BOP Stack

Figure 2: BOP Winch System

American Petroleum Institute (API) standards, specification and recommended practices are considered the industry standard and are consistently utilized and referenced by the industry. OOGO No. 2 recognizes API recommended Practices (RP) 53 in its original development. API Standard 53, *Well Control Equipment Systems for Drilling Wells* (Fifth Edition, December 2018, Annex C, Table C.4) recognizes break testing as an acceptable practice. Specifically, API Standard 53, Section 5.3.7.1 states "A pressure test of the pressure containing component shall be performed following the disconnection or repair, limited to the affected component." See Table C.4 below for reference.

Table C.4—Initial Pressure Testing, Surface BOP Stacks

Component to be Pressure Tested	Pressure Test—Low Pressure[ac] psig (MPa)	Pressure Test—High Pressure[ac]	
		Change Out of Component, Elastomer, or Ring Gasket	No Change Out of Component, Elastomer, or Ring Gasket
Annular preventer[b]	250 to 350 (1.72 to 2.41)	RWP of annular preventer	MASP or 70% annular RWP, whichever is lower.
Fixed pipe, variable bore, blind, and BSR preventers[bd]	250 to 350 (1.72 to 2.41)	RWP of ram preventer or wellhead system, whichever is lower	ITP
Choke and kill line and BOP side outlet valves below ram preventers (both sides)	250 to 350 (1.72 to 2.41)	RWP of side outlet valve or wellhead system, whichever is lower	ITP
Choke manifold—upstream of chokes[e]	250 to 350 (1.72 to 2.41)	RWP of ram preventers or wellhead system, whichever is lower	ITP
Choke manifold—downstream of chokes[e]	250 to 350 (1.72 to 2.41)	RWP of valve(s), line(s), or MASP for the well program, whichever is lower	
Kelly, kelly valves, drill pipe safety valves, IBOPs	250 to 350 (1.72 to 2.41)	MASP for the well program	

[a] Pressure test evaluation periods shall be a minimum of five minutes.
No visible leaks.
The pressure shall remain stable during the evaluation period. The pressure shall not decrease below the intended test pressure.

[b] Annular(s) and VBR(s) shall be pressure tested on the largest and smallest OD drill pipe to be used in well program.

[c] For pad drilling operations, moving from one wellhead to another within the 21 days, pressure testing is required for pressure-containing and pressure-controlling connections when the integrity of a pressure seal is broken.

[d] For surface offshore operations, the ram BOPs shall be pressure tested with the ram locks engaged and the closing and locking pressure vented during the initial test. For land operations, the ram BOPs shall be pressure tested with the ram locks engaged and the closing and locking pressure vented at commissioning and annually.

[e] Adjustable chokes are not required to be full sealing devices. Pressure testing against a closed choke is not required.

The Bureau of Safety and Environmental Enforcement (BSEE), Department of Interior, has also utilized the API standards, specification and best practices in the development of its offshore oil and gas regulations and incorporates them by reference within its regulations.

Break testing has been approved by the BLM in the past with other operators based on the detailed information provided in this document.

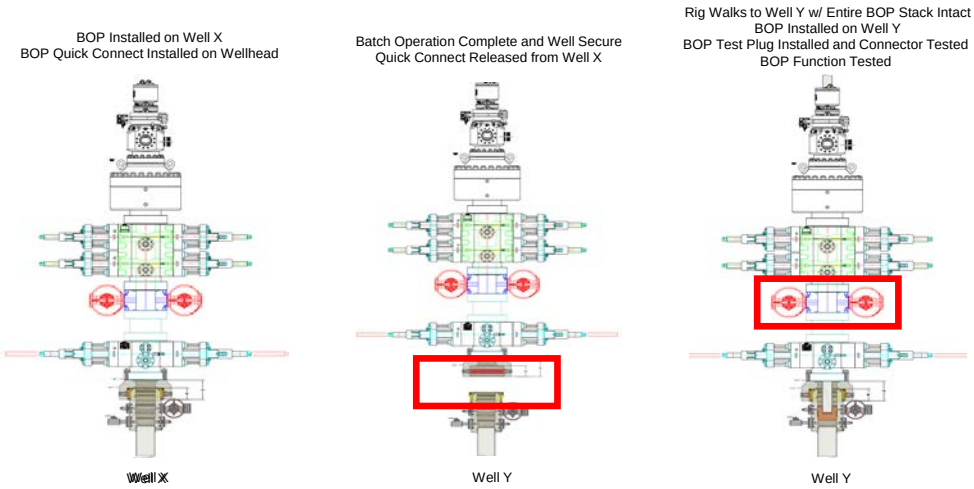
XTO Energy feels break testing and our current procedures meet the intent of OOGO No. 2 and often exceed it. There has been no evidence that break testing results in more components failing than seen on full BOP tests. XTO Energy's internal standards requires complete BOPE tests more often than that of OOGO No. 2 (Every 21 days). In addition to function testing the annular, pipe rams and blind rams after each BOP nipple up, XTO Energy performs a choke drill with the rig crew prior to drilling out every casing shoe. This is additional training for the rig crew that exceeds the requirements of the OOGO No.2.

Procedures

1. XTO Energy will use this document for our break testing plan for New Mexico Delaware basin. The summary below will be referenced in the APD or Sundry Notice and receive approval prior to implementing this variance.
2. XTO Energy will perform BOP break testing on multi-wells pads where multiple intermediate sections can be drilled and cased within the 21-day BOP test window.
    a. A full BOP test will be conducted on the first well on the pad.
    b. The first intermediate hole section drilled on the pad will be the deepest. All of the remaining hole sections will be the same depth or shallower.
        i. Our Lower WC targets set the intermediate casing shoe no deeper than the Wolfcamp B.
        ii. Our Upper WC targets set the intermediate casing shoe shallower than the Wolfcamp B.
    c. A Full BOP test will be required if the intermediate hole section being drilled has a MASP over 5M.
    d. A full BOP test will be required prior to drilling any production hole.
3. After performing a complete BOP test on the first well, the intermediate hole section will be drilled and cased, two breaks would be made on the BOP equipment.
    a. Between the HCV valve and choke line connection
    b. Between the BOP quick connect and the wellhead
4. The BOP is then lifted and removed from the wellhead by a hydraulic system.
5. After skidding to the next well, the BOP is moved to the wellhead by the same hydraulic system and installed.
6. The connections mentioned in 3a and 3b will then be reconnected.
7. Install test plug into the wellhead using test joint or drill pipe.
8. A shell test is performed against the upper pipe rams testing the two breaks.
9. The shell test will consist of a 250 psi low test and a high test to the value submitted in the APD or Sundry (e.g. 5,000 psi or 10,000psi).
10. Function test will be performed on the following components: lower pipe rams, blind rams, and annular.

11. For a multi-well pad the same two breaks on the BOP would be made and on the next wells and steps 4 through 10 would be repeated.
12. A second break test would only be done if the intermediate hole section being drilled could not be completed within the 21 day BOP test window.

Note: Picture below highlights BOP components that will be tested during batch operations



Summary

A variance is requested to **ONLY** test broken pressure seals on the BOP equipment when moving from wellhead to wellhead which is in compliance with API Standard 53. API Standard 53 states, that for pad drilling operation, moving from one wellhead to another within 21 days, pressure testing is required for pressure-containing and pressure-controlling connections when the integrity of a pressure seal is broken.

The BOP will be secured by a hydraulic carrier or cradle. The BLM will be contacted if a Well Control event occurs prior to the commencement of a BOPE Break Testing operation.

Based on discussions with the BLM on February 27th 2020 and the supporting documentation submitted to the BLM, we will request permission to ONLY retest broken pressure seals if the following conditions are met:

1. After a full BOP test is conducted on the first well on the pad.

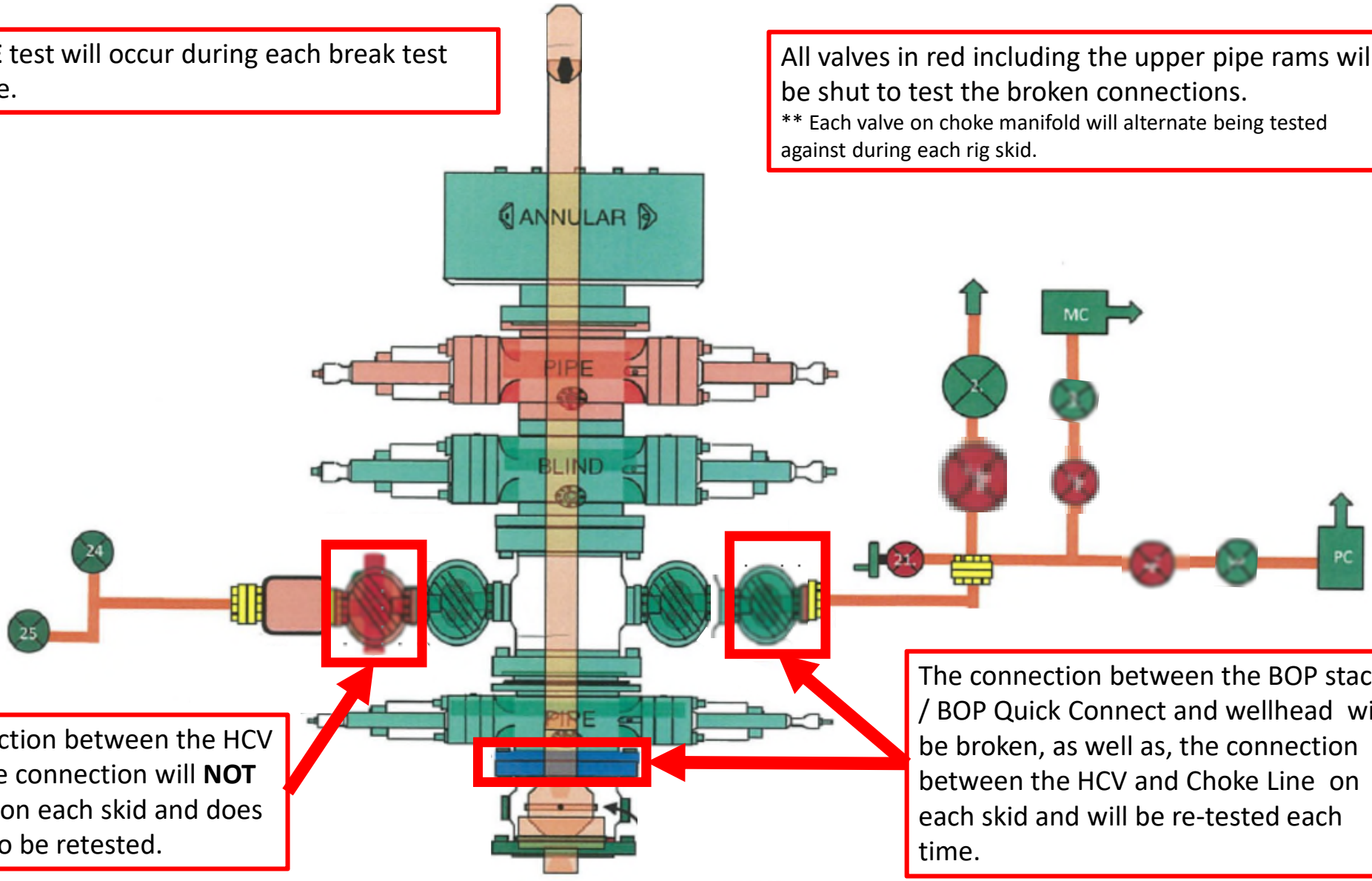
2. The first intermediate hole section drilled on the pad will be the deepest. All of the remaining hole sections will be the same depth or shallower.

3. Full BOP test will be required if the intermediate hole section being drilled has a MASP over 5M.

4. Full BOP test will be required prior to drilling the production hole.

Only **ONE** test will occur during each break test procedure.

All valves in red including the upper pipe rams will be shut to test the broken connections.
** Each valve on choke manifold will alternate being tested against during each rig skid.



The connection between the HCV and kill line connection will **NOT** be broken on each skid and does not need to be retested.

The connection between the BOP stack / BOP Quick Connect and wellhead will be broken, as well as, the connection between the HCV and Choke Line on each skid and will be re-tested each time.

XTO Permian Operating, LLC Offline Cementing Variance Request

XTO requests the option to cement the surface and intermediate casing strings offline as a prudent batch drilling efficiency of acreage development.

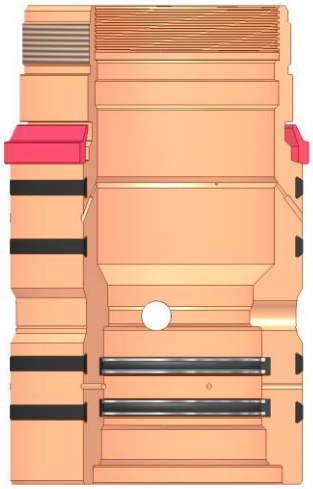
1. Cement Program

No changes to the cement program will take place for offline cementing.

2. Offline Cementing Procedure

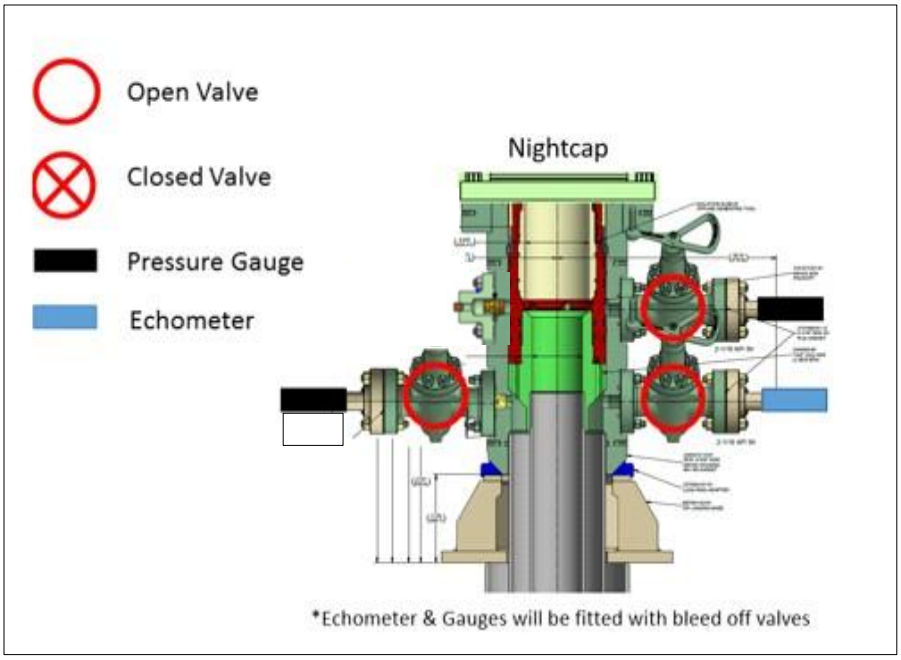
The operational sequence will be as follows. If a well control event occurs, the BLM will be contacted for approval prior to conducting offline cementing operations.

1. Run casing as per normal operations. While running casing, conduct negative pressure test and confirm integrity of the float equipment (float collar and shoe)
2. Land casing with mandrel
3. Fill pipe with kill weight fluid, do not circulate through floats and confirm well is static
4. Set annular packoff shown below and pressure test to confirm integrity of the seal. Pressure ratings of wellhead components and valves is 5,000 psi.
5. After confirmation of both annular barriers and internal barriers, nipple down BOP and install cap flange.
    a. If any barrier fails to test, the BOP stack will not be nippled down until after the cement job is completed with cement 500ft above the highest formation capable of flow with kill weight mud above or after it has achieved 50-psi compressive strength if kill weight fluid cannot be verified.



Annular packoff with both external and internal seals

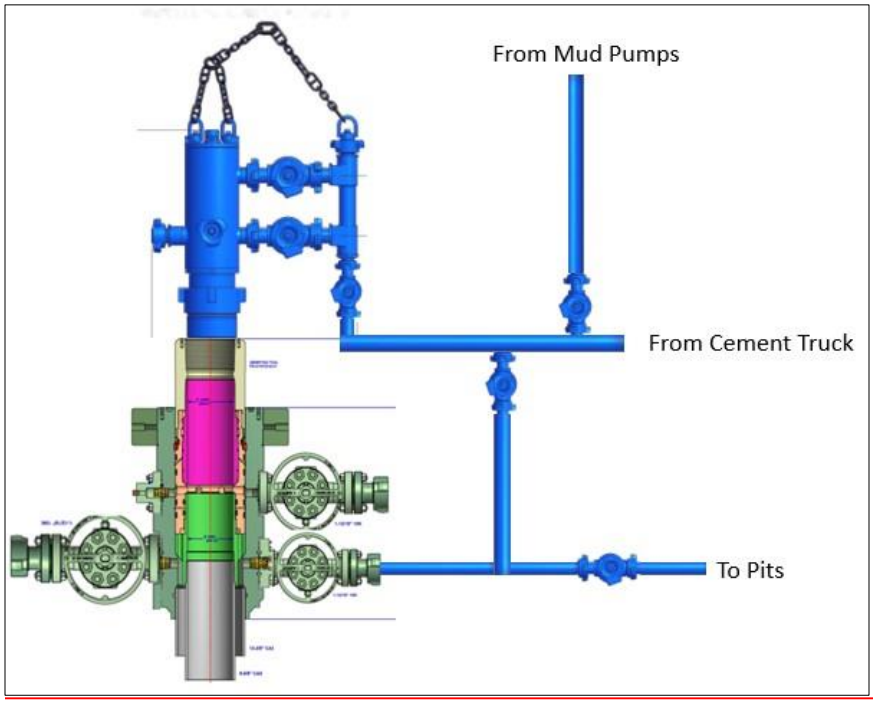
XTO Permian Operating, LLC Offline Cementing Variance Request



Wellhead diagram during skidding operations

6. Skid rig to next well on pad.
7. Confirm well is static before removing cap flange, flange will not be removed and offline cementing operations will not commence until well is under control. If well is not static, casing outlet valves will provide access to both the casing ID and annulus. Rig or third party pump truck will kill well prior to cementing or nippling up for further remediation.
    a. Well Control Plan
        i. The Drillers Method will be the primary well control method to regain control of the wellbore prior to cementing, if wellbore conditions do not permit the drillers method other methods of well control may be used
        ii. Rig pumps or a 3rd party pump will be tied into the upper casing valve to pump down the casing ID
        iii. A high pressure return line will be rigged up to lower casing valve and run to choke manifold to control annular pressure
        iv. Once influx is circulated out of the hole, kill weight mud will be circulated
        v. Well will be confirmed static
        vi. Once confirmed static, cap flange will be removed to allow for offline cementing operations to commence
8. Install offline cement tool
9. Rig up cement equipment

XTO Permian Operating, LLC Offline Cementing Variance Request



Wellhead diagram during offline cementing operations

10. Circulate bottoms up with cement truck
    a. If gas is present on bottoms up, well will be shut in and returns rerouted through gas buster to handle entrained gas
    b. Max anticipated time before circulating with cement truck is 6 hrs
11. Perform cement job taking returns from the annulus wellhead valve
12. Confirm well is static and floats are holding after cement job
13. Remove cement equipment, offline cement tools and install night cap with pressure gauge for monitoring.

XTO respectfully requests approval to utilize a spudder rig to pre-set surface casing.

Description of Operations:

1. Spudder rig will move in to drill the surface hole and pre-set surface casing on the well.
    a. After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).
    b. The spudder rig will utilize fresh water-based mud to drill the surface hole to TD. Solids control will be handled entirely on a closed loop basis. No earth pits will be used.
2. The wellhead will be installed and tested as soon as the surface casing is cut off and WOC time has been reached.
3. A blind flange at the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with needle valves installed on two wing valves.
    a. A means for intervention will be maintained while the drilling rig is not over the well.
4. Spudder rig operations are expected to take 2-3 days per well on the pad.
5. The BLM will be contacted and notified 24 hours prior to commencing spudder rig operations.
6. Drilling Operations will begin with a larger rig and a BOP stack equal to or greater than the pressure rating that was permitted will be nippled up and tested on the wellhead before drilling operations resume on each well.
    a. The larger rig will move back onto the location within 180 days from the point at which the wells are secured and the spudder rig is moved off location.
    b. The BLM will be notified 24 hours before the larger rig moves back on the pre-set locations
7. XTO will have supervision on the rig to ensure compliance with all BLM and NMOCD regulations and to oversee operations.
8. Once the rig is removed, XTO will secure the wellhead area by placing a guard rail around the cellar area.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 281507

CONDITIONS

Operator: XTO PERMIAN OPERATING LLC. 6401 HOLIDAY HILL ROAD MIDLAND, TX 79707	OGRID: 373075
	Action Number: 281507
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
dmcclure	A CBL must be run for any string of casing for which cement did not circulate. This includes casing strings for which a “bradenhead squeeze” was performed.	11/22/2023
dmcclure	The entirety of the surface casing must have competent cement.	11/22/2023