

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

5. Lease Serial No.
NMNM02862

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 2

7. If Unit or CA/Agreement, Name and/or No.
891000303X

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

8. Well Name and No. **313213**
POKER LAKE UNIT CVX JV BS 033H

2. Name of Operator
BOPCO LP
Contact: KELLY KARDOS
E-Mail: kelly_kardos@xtoenergy.com

9. API Well No.
30-015-42452-00-X1

3a. Address
6401 HOLIDAY HILL RD BLDG 5 SUITE 200
MIDLAND, TX 79707

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

10. Field and Pool or Exploratory Area
WILDCAT

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Sec 23 T24S R30E NENE 0590FNL 1020FEL
32.123201 N Lat, 103.504484 W Lon

11. County or Parish, State
EDDY COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION
☒ Notice of Intent	☐ Acidize
☐ Subsequent Report	☐ Alter Casing
☐ Final Abandonment Notice	☐ Casing Repair
	☐ Change Plans
	☐ Convert to Injection
	☐ Deepen
	☐ Hydraulic Fracturing
	☐ New Construction
	☐ Plug and Abandon
	☐ Plug Back
	☐ Production (Start/Resume)
	☐ Reclamation
	☐ Recomplete
	☐ Temporarily Abandon
	☐ Water Disposal
	☐ Water Shut-Off
	☐ Well Integrity
	☒ Other Change to Original APD

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 recomple horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

BOPCO, L.P., requests approval of the following changes to the original APD...

C102: Name Change, BHL & Target

Old Name: Poker Lake Unit CVX JV BS #33H
New Name: **Poker Lake Unit 23 DTD #108H**

321445

Old BHL: 2310' FNL & 660' FEL, SENE Sec. 26, T24S, R30E
New BHL: 2440' FSL & 330' FEL, NESE Sec. 2, T24S, R30E

Target change for Wildcat Bone Spring to Purple Sage; Wolfcamp (Gas)

GC 5-18-18
Accepted for record - NMOC

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

RECEIVED

MAY 16 2018

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

Electronic Submission #419743 verified by the BLM Well Information System

For BOPCO LP, sent to the Carlsbad

Committed to AFMSS for processing by PRISCILLA PEREZ on 05/11/2018 (18PP1685SE)

Name (Printed/Typed) **KELLY KARDOS**

Title **REGULATORY COORDINATOR**

Signature (Electronic Submission)

Date **05/11/2018**

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By **ZOTA STEVENS**

Title **PETROLEUM ENGINEER**

Date **05/11/2018**

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office **Carlsbad**

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

5-21-2018
Sperry Klein - NSP required

Additional data for EC transaction #419743 that would not fit on the form

32. Additional remarks, continued

Please see attached:

C102

Drilling Program

Directional Drill Plan

Flexhose Variance

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) 748-0720
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
Send one copy to appropriate
District Office

MAY 16 2018

☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION

¹ API Number 30-015-42452	² Pool Code 98220	³ Pool Name Purple Sage; Wolfcamp
⁴ Property Code 321445	⁵ Property Name POKER LAKE UNIT 23 DTD	⁶ Well Number 108H
⁷ OGRID No. 260737	⁸ Operator Name BOPCO, L.P.	⁹ Elevation 3433'

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
A	23	24 S	30 E		590	NORTH	1020	EAST	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
I	2	24 S	30 E		2,440	SOUTH	330	EAST	EDDY

¹² Dedicated Acres 800	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. NSP required
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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.

¹⁶ CORNER COORDINATES TABLE NAD 27 NME A - Y= 453,832.9 N, X= 650,420.8 E B - Y= 453,846.3 N, X= 651,757.7 E C - Y= 451,195.5 N, X= 650,430.6 E D - Y= 451,209.0 N, X= 651,766.5 E E - Y= 448,558.4 N, X= 650,449.7 E F - Y= 448,569.6 N, X= 651,786.7 E G - Y= 445,923.9 N, X= 650,468.6 E H - Y= 445,937.7 N, X= 651,806.5 E I - Y= 443,282.6 N, X= 650,471.3 E J - Y= 443,291.5 N, X= 651,810.0 E K - Y= 440,644.8 N, X= 650,474.0 E L - Y= 440,652.6 N, X= 651,813.2 E M - Y= 439,324.0 N, X= 650,476.1 E N - Y= 439,332.2 N, X= 651,815.2 E LAST TAKE POINT NAD 27 NME Y= 453,515.6 X= 651,428.8 LAT.= 32.245882°N LONG.= 103.843536°W BOTTOM HOLE LOCATION NAD 27 NME Y= 453,645.6 X= 651,428.4 LAT.= 32.246239°N LONG.= 103.843535°W SURFACE LOCATION NAD 27 NME Y= 440,056.6 X= 650,794.1 LAT.= 32.208893°N LONG.= 103.845787°W FIRST TAKE POINT NAD 27 NME Y= 440,980.7 X= 651,482.8 LAT.= 32.211424°N LONG.= 103.843546°W CORNER COORDINATES TABLE NAD 83 NME A - Y= 453,892.0 N, X= 691,604.3 E B - Y= 453,905.4 N, X= 692,941.2 E C - Y= 451,254.5 N, X= 691,614.2 E D - Y= 451,268.0 N, X= 692,950.1 E E - Y= 448,617.4 N, X= 691,633.3 E F - Y= 448,628.6 N, X= 692,970.4 E G - Y= 445,982.8 N, X= 691,652.3 E H - Y= 445,996.6 N, X= 692,990.2 E I - Y= 443,341.5 N, X= 691,655.1 E J - Y= 443,350.4 N, X= 692,993.8 E K - Y= 440,703.6 N, X= 691,657.9 E L - Y= 440,711.4 N, X= 692,997.1 E M - Y= 439,382.8 N, X= 691,660.1 E N - Y= 439,391.0 N, X= 692,999.2 E	SEC. 2 GRID AZ.=36°41'45" HORIZ. DIST.=12,665.4' SEC. 11 GRID AZ.=36°41'45" HORIZ. DIST.=1,152.42' SEC. 14 GRID AZ.=36°41'45" HORIZ. DIST.=1,152.42' SEC. 23	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. <i>Kelly Kardos</i> 5/3/18 Signature Date Kelly Kardos Printed Name kelly_kardos@xtoenergy.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. 05-03-2018 Date of Survey <i>Mark Dillon Harp</i> Signature and Seal of Professional Surveyor MARK DILLON HARP 23786 Certificate Number RR/AI 2017050741
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DRILLING PLAN (SUNDRY): BLM COMPLIANCE
(Supplement to BLM 3160-3)

XTO Energy Inc.
Poker Lake Unit 23 Dog Town Draw #108H
Projected TD: 24384' MD / 11358' TVD
SHL: 590' FNL & 1021' FEL , Section 23, T24S, R30E
BHL: 2440' FSL & 330' FEL , Section 2, T24S, R30E
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	501'	Water
Top of Salt	877'	Water
Base of Salt	3874'	Water
Delaware	4094'	Water
1st Bone Spring Ss	8965'	Water/Oil/Gas
2nd Bone Spring Ss	9701'	Water/Oil/Gas
3rd Bone Spring Lm	10058'	Water/Oil/Gas
3rd Bone Spring Ss	10871'	Water/Oil/Gas
Wolfcamp	11184'	Water/Oil/Gas
Target/Land Curve	11358'	Water/Oil/Gas

*** Hydrocarbons @ Brushy Canyon

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

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 13-3/8 inch casing @ 610' (100' into the Rustler) and circulating cement back to surface. The salt will be isolated by setting 9-5/8 inch casing at 10158'. A DV tool will be set @ 710' (100' below the surface shoe). Cement will be circulated to surface. An 8-3/4 inch curve and 8-1/2 inch lateral hole will be drilled to MD/TD and 5-1/2 inch casing will be set at TD and cemented back at least 500' into the intermediate casing.

3. Casing Design

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
17-1/2"	0' – 610'	13-3/8"	68	STC	J-55	New	1.13	6.99	16.27
12-1/4"	0' – 10158'	9-5/8"	40	LTC	HCL-80	New	1.55	1.37	2.06
8-3/4"	0' – 24384'	5-1/2"	17	BTC	P-110	New	1.12	1.21	1.99

- XTO requests to utilize centralizers only in the curve after the KOP and only a minimum of one every other joint.
- 9-5/8" Collapse analyzed using 50% evacuation based on regional experience.
- 5-1/2" tension calculated using vertical hanging weight plus the lateral weight multiplied by a friction factor of 0.35

WELLHEAD:

Permanent Wellhead – GE RSH Multibowl System

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

B. Tubing Head: 13-5/8" 5M bottom flange x 7-1/16" 10M top flange

- Wellhead will be installed by manufacturer's representatives.
- Manufacturer will monitor welding process to ensure appropriate temperature of seal.
- Manufacturer will witness installation of test plug for initial test.
- Operator will test the 9-5/8" casing per BLM Onshore Order 2

4. Cement Program

Surface Casing: 13-3/8", 68 New J-55, STC casing to be set at +/- 610'

Lead: 230 sxs EconoCem-HLTRRC (mixed at 12.9 ppg, 1.87 ft³/sx, 10.13 gal/sx water)
Tail: 300 sxs Halcem-C + 2% CaCl (mixed at 14.8 ppg, 1.35 ft³/sx, 6.39 gal/sx water)
Tail Compressives: 12-hr = 900 psi 24 hr = 1500 psi

Intermediate Casing: 9-5/8", 40 New HCL-80, LTC casing to be set at +/- 10158'

First Stage

Lead: 2980 sxs Halcem-C + 2% CaCl (mixed at 12.9 ppg, 1.88 ft³/sx, 9.61 gal/sx water)

Tail: 230 sxs Halcem-C + 2% CaCl (mixed at 14.8 ppg, 1.33 ft³/sx, 6.39 gal/sx water)
Compressives: 12-hr = 900 psi 24 hr = 1500 psi

If losses are severe, a DV tool will be set @ 710' (100' below the surface shoe).

Second Stage

Lead: 210 sxs Halcem-C + 2% CaCl (mixed at 12.9 ppg, 1.88 ft³/sx, 9.61 gal/sx water)

Tail: 180 sxs Halcem-C + 2% CaCl (mixed at 14.8 ppg, 1.33 ft³/sx, 6.39 gal/sx water)
Compressives: 12-hr = 900 psi 24 hr = 1500 psi

Production Casing: 5-1/2", 17 New P-110, BTC casing to be set at +/- 24384'

Lead: 140 sxs NeoCem (mixed at 10.5 ppg, 2.69 ft³/sx, 12.26 gal/sx water)

Tail: 2620 sxs VersaCem (mixed at 13.2 ppg, 1.61 ft³/sx, 8.38 gal/sx water)
Compressives: 12-hr = 1375 psi 24 hr = 2285 psi

5. Pressure Control Equipment

The blow out preventer equipment (BOP) for this well consists of a 13-5/8" minimum 5M Hydril and a 13-5/8" minimum 5M Double Ram BOP. MASP should not exceed 3703 psi.

All BOP testing will be done by an independent service company. Annular pressure tests will be limited to 50% of the working pressure. When nipping up on the 13-5/8" 5M bradenhead and flange, the BOP test will be limited to 5000 psi. When nipping up on the 9-5/8", 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.

6. Proposed Mud Circulation System

INTERVAL	Hole Size	Mud Type	MW (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
0' to 610'	17-1/2"	FW/Native	8.4-8.8	35-40	NC
610' to 10158'	12-1/4"	Brine/Gel Sweeps	9.8-10.2	30-32	NC
10158' to 24384'	8-3/4"	FW / Cut Brine / Polymer	10.2 - 10.5	29-32	NC - 20

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

Spud with fresh water/native mud. Drill out from under 13-3/8" surface casing with brine solution. A 9.8ppg-10.2ppg brine mud will be used while drilling through the salt formation. Use fibrous materials as needed to control seepage and lost circulation. Pump viscous sweeps as needed for hole cleaning. Pump speed will be recorded on a daily drilling report after mudding up. A Pason or Totco will be used to detect changes in loss or gain of mud volume. A mud test will be performed every 24 hours to determine: density, viscosity, strength, filtration and pH as necessary. Use available solids controls equipment to help keep mud weight down after mud up. Rig up solids control equipment to operate as a closed loop system.

7. Auxiliary Well Control and Monitoring Equipment

- A. A Kelly cock will be in the drill string at all times.
- B. A full opening drill pipe stabbing valve having appropriate connections will be on the rig floor at all times.
- C. H₂S monitors will be on location when drilling below the 13-3/8" casing.

8. Logging, Coring and Testing Program

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

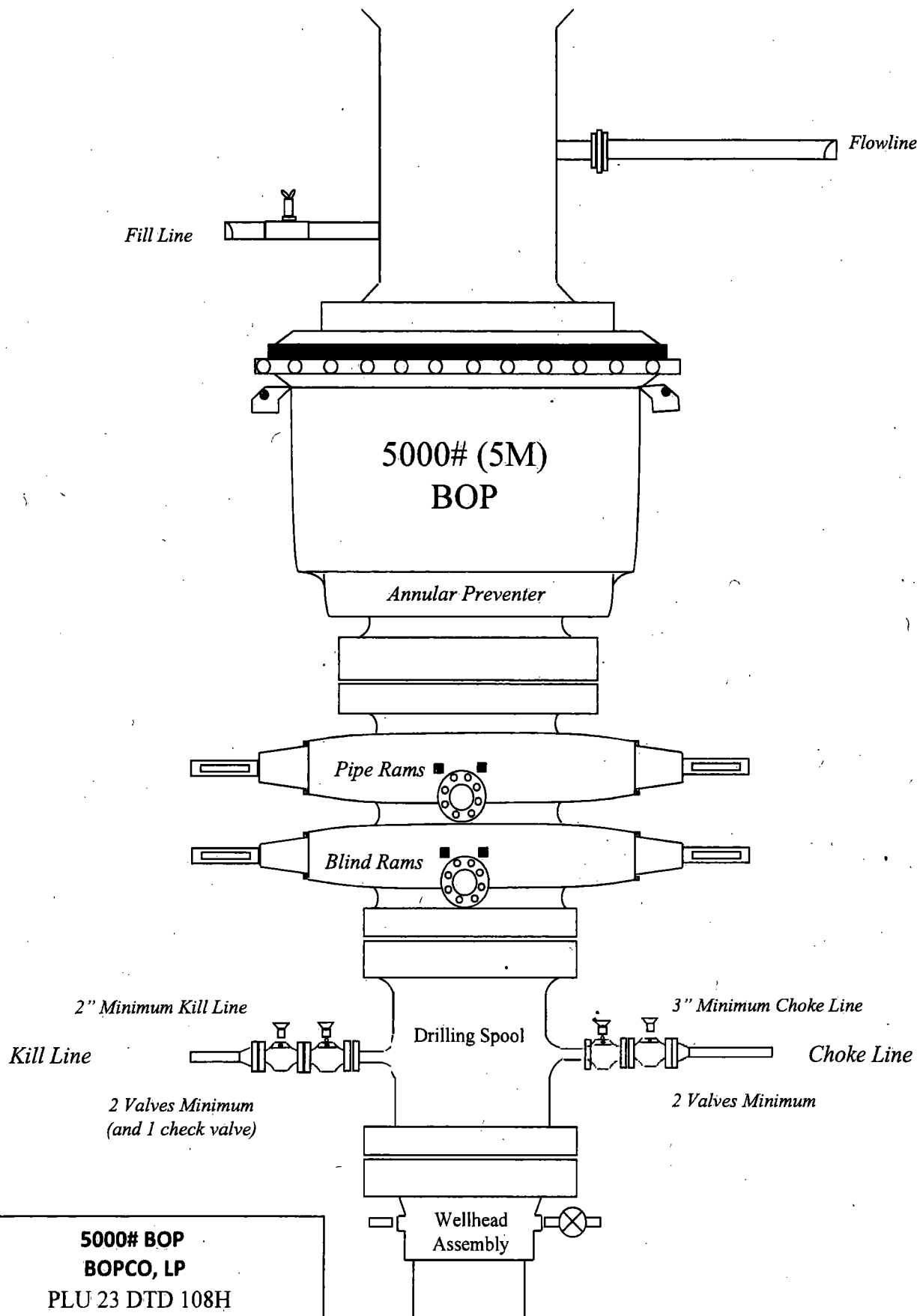
Open hole logging will not be done on this well.

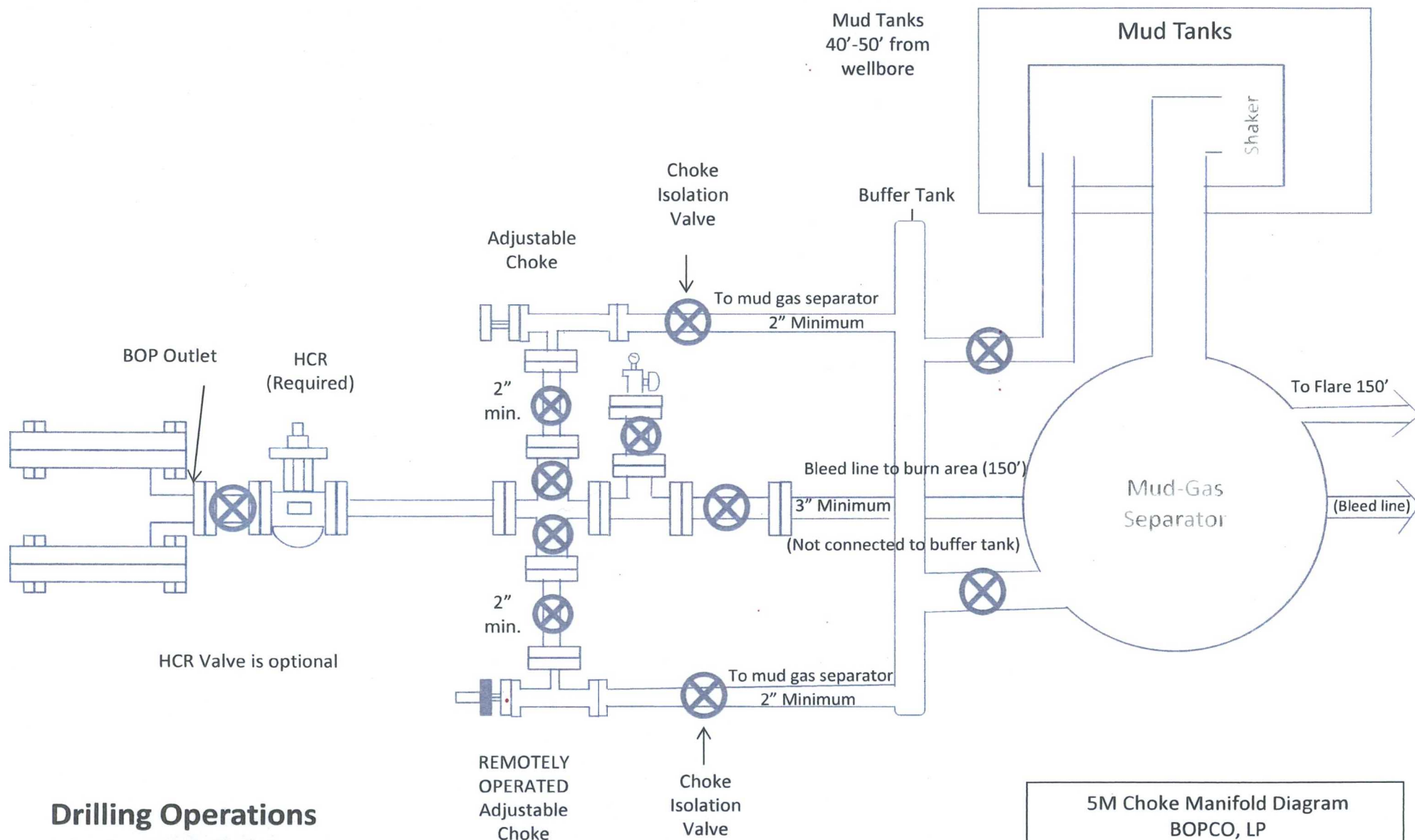
9. Abnormal Pressures and Temperatures / Potential Hazards

None Anticipated. BHT of 155 to 175 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 6201 psi.

10. Anticipated Starting Date and Duration of Operations

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





Drilling Operations **Choke Manifold** **5M Service**

5M Choke Manifold Diagram
 BOPCO, LP
 PLU 23 DTD 108H



Project: Eddy County, NM (NAD-27)
Site: PLU 23 Dog Town Draw
Well: #108H
Wellbore: OH
Design: PERMIT v3

PROJECT DETAILS: Eddy County, NM (NAD-27)
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

WELL DETAILS: #108H

Rig Name:
RKB = 25' @ 3458.00usft
Ground Level: 3433.00
Easting: 650794.10
Latitude: 32.208893
Longitude: -103.845786

DESIGN TARGET DETAILS

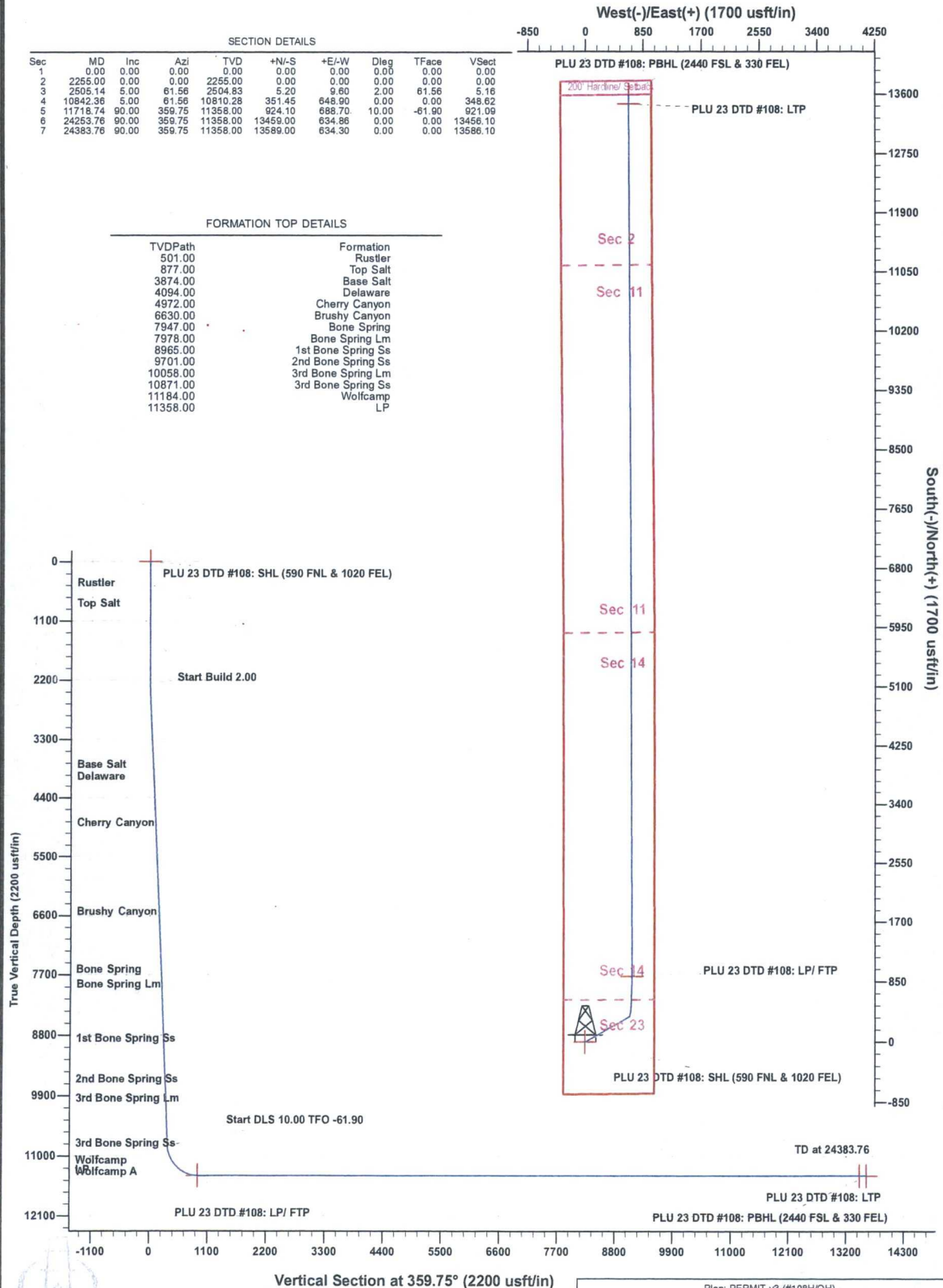
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PLU 23 DTD #108: SHL (590 FNL & 1020 FEL)	0.00	0.00	0.00	440056.60	650794.10	32.208893	-103.845786	Point
PLU 23 DTD #108: LP/FTP	11358.00	924.10	688.70	440980.70	651482.80	32.211424	-103.843546	Point
PLU 23 DTD #108: LTP	11358.00	13459.00	634.70	453515.60	651428.80	32.245882	-103.843536	Point
PLU 23 DTD #108: PBHL (2440 FSL & 330 FEL)	11358.00	13589.00	634.30	453645.60	651428.40	32.246239	-103.843535	Point

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2255.00	0.00	0.00	2255.00	0.00	0.00	0.00	0.00	0.00
3	2505.14	5.00	61.56	2504.83	5.20	9.60	2.00	61.56	5.16
4	10842.36	5.00	61.56	10810.28	351.45	648.90	0.00	0.00	348.62
5	11718.74	90.00	359.75	11358.00	924.10	688.70	10.00	-61.90	921.08
6	24253.76	90.00	359.75	11358.00	13459.00	634.86	0.00	0.00	13456.10
7	24383.76	90.00	359.75	11358.00	13589.00	634.30	0.00	0.00	13586.10

FORMATION TOP DETAILS

TVDPATH	Formation
501.00	Rustler
877.00	Top Salt
3874.00	Base Salt
4094.00	Delaware
4972.00	Cherry Canyon
6630.00	Brushy Canyon
7947.00	Bone Spring
7978.00	Bone Spring Lm
8965.00	1st Bone Spring Ss
9701.00	2nd Bone Spring Ss
10058.00	3rd Bone Spring Lm
10871.00	3rd Bone Spring Ss
11184.00	Wolfcamp
11358.00	LP



Note: All Plan details including boundary lines and offset well data is subject to customers approval.

Plan: PERMIT v3 (#108H/OH)

Created By: Matthew May Date: 7:06, May 04 2018



XTO Energy

Eddy County, NM (NAD-27)

PLU 23 Dog Town Draw

#108H

OH

Plan: PERMIT v3

Standard Planning Report

04 May, 2018



Database: EDM 5000.1 Single User Db
Company: XTO Energy
Project: Eddy County, NM (NAD-27)
Site: PLU 23 Dog Town Draw
Well: #108H
Wellbore: OH
Design: PERMIT v3

Local Co-ordinate Reference: Well #108H
TVD Reference: RKB = 25' @ 3458.00usft
MD Reference: RKB = 25' @ 3458.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project	Eddy County, NM (NAD-27)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	PLU 23 Dog Town Draw				
Site Position:		Northing:	440,055.30 usft	Latitude:	32.208889
From:	Map	Easting:	650,794.20 usft	Longitude:	-103.845786
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.26 °

Well	#108H					
Well Position	+N/-S	1.30 usft	Northing:	440,056.60 usft	Latitude:	32.208893
	+E/-W	-0.10 usft	Easting:	650,794.10 usft	Longitude:	-103.845787
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,433.00 usft	

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/1/2018	6.99	59.99	47,811

Design PERMIT v3

Audit Notes:

Version:	Phase:	PLAN	Tie On Depth:	0.00
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Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	359.75

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,255.00	0.00	0.00	2,255.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,505.14	5.00	61.56	2,504.83	5.20	9.60	2.00	2.00	0.00	61.56	
10,842.36	5.00	61.56	10,810.28	351.45	648.90	0.00	0.00	0.00	0.00	
11,718.74	90.00	359.75	11,358.00	924.10	688.70	10.00	9.70	-7.05	-61.90	PLU 23 DTD #108:
24,253.76	90.00	359.75	11,358.00	13,459.00	634.86	0.00	0.00	0.00	0.00	PLU 23 DTD #108:
24,383.76	90.00	359.75	11,358.00	13,589.00	634.30	0.00	0.00	0.00	0.00	PLU 23 DTD #108:



Database: EDM 5000.1 Single User Db
Company: XTO Energy
Project: Eddy County, NM (NAD-27)
Site: PLU 23 Dog Town Draw
Well: #108H
Wellbore: OH
Design: PERMIT v3

Local Co-ordinate Reference: Well #108H
TVD Reference: RKB = 25' @ 3458.00usft
MD Reference: RKB = 25' @ 3458.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
501.00	0.00	0.00	501.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
877.00	0.00	0.00	877.00	0.00	0.00	0.00	0.00	0.00	0.00
Top Salt									
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,255.00	0.00	0.00	2,255.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.90	61.56	2,300.00	0.17	0.31	0.17	2.00	2.00	0.00
2,400.00	2.90	61.56	2,399.94	1.75	3.23	1.73	2.00	2.00	0.00
2,505.14	5.00	61.56	2,504.83	5.20	9.60	5.16	2.00	2.00	0.00
2,600.00	5.00	61.56	2,599.32	9.14	16.87	9.06	0.00	0.00	0.00
2,700.00	5.00	61.56	2,698.94	13.29	24.54	13.18	0.00	0.00	0.00
2,800.00	5.00	61.56	2,798.56	17.44	32.21	17.30	0.00	0.00	0.00
2,900.00	5.00	61.56	2,898.18	21.60	39.87	21.42	0.00	0.00	0.00
3,000.00	5.00	61.56	2,997.80	25.75	47.54	25.54	0.00	0.00	0.00
3,100.00	5.00	61.56	3,097.42	29.90	55.21	29.66	0.00	0.00	0.00
3,200.00	5.00	61.56	3,197.04	34.06	62.88	33.78	0.00	0.00	0.00
3,300.00	5.00	61.56	3,296.65	38.21	70.55	37.90	0.00	0.00	0.00
3,400.00	5.00	61.56	3,396.27	42.36	78.22	42.02	0.00	0.00	0.00
3,500.00	5.00	61.56	3,495.89	46.52	85.88	46.14	0.00	0.00	0.00
3,600.00	5.00	61.56	3,595.51	50.67	93.55	50.26	0.00	0.00	0.00
3,700.00	5.00	61.56	3,695.13	54.82	101.22	54.38	0.00	0.00	0.00
3,800.00	5.00	61.56	3,794.75	58.97	108.89	58.50	0.00	0.00	0.00
3,879.55	5.00	61.56	3,874.00	62.28	114.99	61.78	0.00	0.00	0.00
Base Salt									
3,900.00	5.00	61.56	3,894.37	63.13	116.56	62.62	0.00	0.00	0.00
4,000.00	5.00	61.56	3,993.99	67.28	124.22	66.74	0.00	0.00	0.00
4,100.00	5.00	61.56	4,093.61	71.43	131.89	70.86	0.00	0.00	0.00
4,100.40	5.00	61.56	4,094.00	71.45	131.92	70.87	0.00	0.00	0.00
Delaware									
4,200.00	5.00	61.56	4,193.23	75.59	139.56	74.98	0.00	0.00	0.00
4,300.00	5.00	61.56	4,292.84	79.74	147.23	79.10	0.00	0.00	0.00
4,400.00	5.00	61.56	4,392.46	83.89	154.90	83.22	0.00	0.00	0.00



Database: EDM 5000.1 Single User Db
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Site: PLU 23 Dog Town Draw
Well: #108H
Wellbore: OH
Design: PERMIT v3

Local Co-ordinate Reference: Well #108H
TVD Reference: RKB = 25' @ 3458.00usft
MD Reference: RKB = 25' @ 3458.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,500.00	5.00	61.56	4,492.08	88.05	162.56	87.34	0.00	0.00	0.00
4,600.00	5.00	61.56	4,591.70	92.20	170.23	91.46	0.00	0.00	0.00
4,700.00	5.00	61.56	4,691.32	96.35	177.90	95.58	0.00	0.00	0.00
4,800.00	5.00	61.56	4,790.94	100.51	185.57	99.70	0.00	0.00	0.00
4,900.00	5.00	61.56	4,890.56	104.66	193.24	103.81	0.00	0.00	0.00
4,981.75	5.00	61.56	4,972.00	108.05	199.51	107.18	0.00	0.00	0.00
Cherry Canyon									
5,000.00	5.00	61.56	4,990.18	108.81	200.90	107.93	0.00	0.00	0.00
5,100.00	5.00	61.56	5,089.80	112.97	208.57	112.05	0.00	0.00	0.00
5,200.00	5.00	61.56	5,189.42	117.12	216.24	116.17	0.00	0.00	0.00
5,300.00	5.00	61.56	5,289.03	121.27	223.91	120.29	0.00	0.00	0.00
5,400.00	5.00	61.56	5,388.65	125.42	231.58	124.41	0.00	0.00	0.00
5,500.00	5.00	61.56	5,488.27	129.58	239.24	128.53	0.00	0.00	0.00
5,600.00	5.00	61.56	5,587.89	133.73	246.91	132.65	0.00	0.00	0.00
5,700.00	5.00	61.56	5,687.51	137.88	254.58	136.77	0.00	0.00	0.00
5,800.00	5.00	61.56	5,787.13	142.04	262.25	140.89	0.00	0.00	0.00
5,900.00	5.00	61.56	5,886.75	146.19	269.92	145.01	0.00	0.00	0.00
6,000.00	5.00	61.56	5,986.37	150.34	277.59	149.13	0.00	0.00	0.00
6,100.00	5.00	61.56	6,085.99	154.50	285.25	153.25	0.00	0.00	0.00
6,200.00	5.00	61.56	6,185.61	158.65	292.92	157.37	0.00	0.00	0.00
6,300.00	5.00	61.56	6,285.23	162.80	300.59	161.49	0.00	0.00	0.00
6,400.00	5.00	61.56	6,384.84	166.96	308.26	165.61	0.00	0.00	0.00
6,500.00	5.00	61.56	6,484.46	171.11	315.93	169.73	0.00	0.00	0.00
6,600.00	5.00	61.56	6,584.08	175.26	323.59	173.85	0.00	0.00	0.00
6,646.09	5.00	61.56	6,630.00	177.18	327.13	175.75	0.00	0.00	0.00
Brushy Canyon									
6,700.00	5.00	61.56	6,683.70	179.42	331.26	177.97	0.00	0.00	0.00
6,800.00	5.00	61.56	6,783.32	183.57	338.93	182.09	0.00	0.00	0.00
6,900.00	5.00	61.56	6,882.94	187.72	346.60	186.21	0.00	0.00	0.00
7,000.00	5.00	61.56	6,982.56	191.87	354.27	190.33	0.00	0.00	0.00
7,100.00	5.00	61.56	7,082.18	196.03	361.93	194.45	0.00	0.00	0.00
7,200.00	5.00	61.56	7,181.80	200.18	369.60	198.57	0.00	0.00	0.00
7,300.00	5.00	61.56	7,281.42	204.33	377.27	202.69	0.00	0.00	0.00
7,400.00	5.00	61.56	7,381.03	208.49	384.94	206.81	0.00	0.00	0.00
7,500.00	5.00	61.56	7,480.65	212.64	392.61	210.93	0.00	0.00	0.00
7,600.00	5.00	61.56	7,580.27	216.79	400.27	215.04	0.00	0.00	0.00
7,700.00	5.00	61.56	7,679.89	220.95	407.94	219.16	0.00	0.00	0.00
7,800.00	5.00	61.56	7,779.51	225.10	415.61	223.28	0.00	0.00	0.00
7,900.00	5.00	61.56	7,879.13	229.25	423.28	227.40	0.00	0.00	0.00
7,968.13	5.00	61.56	7,947.00	232.08	428.50	230.21	0.00	0.00	0.00
Bone Spring									
7,999.25	5.00	61.56	7,978.00	233.37	430.89	231.49	0.00	0.00	0.00
Bone Spring Lm									
8,000.00	5.00	61.56	7,978.75	233.41	430.95	231.52	0.00	0.00	0.00
8,100.00	5.00	61.56	8,078.37	237.56	438.61	235.64	0.00	0.00	0.00
8,200.00	5.00	61.56	8,177.99	241.71	446.28	239.76	0.00	0.00	0.00
8,300.00	5.00	61.56	8,277.61	245.87	453.95	243.88	0.00	0.00	0.00
8,400.00	5.00	61.56	8,377.23	250.02	461.62	248.00	0.00	0.00	0.00
8,500.00	5.00	61.56	8,476.84	254.17	469.29	252.12	0.00	0.00	0.00
8,600.00	5.00	61.56	8,576.46	258.32	476.96	256.24	0.00	0.00	0.00
8,700.00	5.00	61.56	8,676.08	262.48	484.62	260.36	0.00	0.00	0.00
8,800.00	5.00	61.56	8,775.70	266.63	492.29	264.48	0.00	0.00	0.00
8,900.00	5.00	61.56	8,875.32	270.78	499.96	268.60	0.00	0.00	0.00



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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,990.02	5.00	61.56	8,965.00	274.52	506.86	272.31	0.00	0.00	0.00
1st Bone Spring Ss									
9,000.00	5.00	61.56	8,974.94	274.94	507.63	272.72	0.00	0.00	0.00
9,100.00	5.00	61.56	9,074.56	279.09	515.30	276.84	0.00	0.00	0.00
9,200.00	5.00	61.56	9,174.18	283.24	522.96	280.96	0.00	0.00	0.00
9,300.00	5.00	61.56	9,273.80	287.40	530.63	285.08	0.00	0.00	0.00
9,400.00	5.00	61.56	9,373.42	291.55	538.30	289.20	0.00	0.00	0.00
9,500.00	5.00	61.56	9,473.03	295.70	545.97	293.32	0.00	0.00	0.00
9,600.00	5.00	61.56	9,572.65	299.86	553.64	297.44	0.00	0.00	0.00
9,700.00	5.00	61.56	9,672.27	304.01	561.30	301.56	0.00	0.00	0.00
9,728.84	5.00	61.56	9,701.00	305.21	563.52	302.74	0.00	0.00	0.00
2nd Bone Spring Ss									
9,800.00	5.00	61.56	9,771.89	308.16	568.97	305.68	0.00	0.00	0.00
9,900.00	5.00	61.56	9,871.51	312.32	576.64	309.80	0.00	0.00	0.00
10,000.00	5.00	61.56	9,971.13	316.47	584.31	313.92	0.00	0.00	0.00
10,087.20	5.00	61.56	10,058.00	320.09	591.00	317.51	0.00	0.00	0.00
3rd Bone Spring Lm									
10,100.00	5.00	61.56	10,070.75	320.62	591.98	318.04	0.00	0.00	0.00
10,200.00	5.00	61.56	10,170.37	324.77	599.64	322.16	0.00	0.00	0.00
10,300.00	5.00	61.56	10,269.99	328.93	607.31	326.27	0.00	0.00	0.00
10,400.00	5.00	61.56	10,369.61	333.08	614.98	330.39	0.00	0.00	0.00
10,500.00	5.00	61.56	10,469.22	337.23	622.65	334.51	0.00	0.00	0.00
10,600.00	5.00	61.56	10,568.84	341.39	630.32	338.63	0.00	0.00	0.00
10,700.00	5.00	61.56	10,668.46	345.54	637.99	342.75	0.00	0.00	0.00
10,800.00	5.00	61.56	10,768.08	349.69	645.65	346.87	0.00	0.00	0.00
10,842.36	5.00	61.56	10,810.28	351.45	648.90	348.62	0.00	0.00	0.00
10,850.00	5.41	54.38	10,817.89	351.82	649.49	348.98	10.00	5.26	-93.89
10,900.00	9.24	28.07	10,867.49	356.74	653.29	353.88	10.00	7.67	-52.63
10,903.56	9.55	27.04	10,871.00	357.25	653.56	354.40	10.00	8.82	-28.87
3rd Bone Spring Ss									
10,950.00	13.83	18.01	10,916.47	365.97	657.03	363.10	10.00	9.22	-19.44
11,000.00	18.64	12.98	10,964.46	379.45	660.68	376.56	10.00	9.60	-10.07
11,050.00	23.52	9.96	11,011.10	397.07	664.20	394.17	10.00	9.77	-6.03
11,100.00	28.44	7.94	11,056.04	418.70	667.57	415.79	10.00	9.84	-4.04
11,150.00	33.38	6.48	11,098.92	444.18	670.77	441.25	10.00	9.89	-2.93
11,200.00	38.34	5.35	11,139.43	473.31	673.77	470.37	10.00	9.91	-2.25
11,250.00	43.31	4.45	11,177.25	505.87	676.55	502.91	10.00	9.93	-1.81
11,259.34	44.24	4.30	11,184.00	512.31	677.04	509.35	10.00	9.94	-1.61
Wolfcamp									
11,300.00	48.28	3.70	11,212.11	541.61	679.09	538.64	10.00	9.94	-1.48
11,350.00	53.25	3.06	11,243.72	580.26	681.36	577.28	10.00	9.95	-1.28
11,400.00	58.23	2.49	11,271.86	621.52	683.35	618.53	10.00	9.96	-1.13
11,450.00	63.21	1.99	11,296.30	665.09	685.05	662.09	10.00	9.96	-1.01
11,500.00	68.19	1.52	11,316.87	710.62	686.44	707.62	10.00	9.96	-0.93
11,550.00	73.18	1.09	11,333.40	757.78	687.52	754.77	10.00	9.97	-0.86
11,600.00	78.16	0.68	11,345.78	806.20	688.26	803.19	10.00	9.97	-0.82
11,650.00	83.15	0.29	11,353.89	855.52	688.68	852.51	10.00	9.97	-0.79
11,700.00	88.13	359.90	11,357.69	905.36	688.76	902.35	10.00	9.97	-0.77
11,718.74	90.00	359.75	11,358.00	924.10	688.70	921.09	10.00	9.97	-0.77
LP									
11,800.00	90.00	359.75	11,358.00	1,005.36	688.35	1,002.34	0.00	0.00	0.00
11,900.00	90.00	359.75	11,358.00	1,105.36	687.92	1,102.34	0.00	0.00	0.00
12,000.00	90.00	359.75	11,358.00	1,205.35	687.49	1,202.34	0.00	0.00	0.00



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12,100.00	90.00	359.75	11,358.00	1,305.35	687.06	1,302.34	0.00	0.00	0.00
12,200.00	90.00	359.75	11,358.00	1,405.35	686.63	1,402.34	0.00	0.00	0.00
12,300.00	90.00	359.75	11,358.00	1,505.35	686.20	1,502.34	0.00	0.00	0.00
12,400.00	90.00	359.75	11,358.00	1,605.35	685.77	1,602.34	0.00	0.00	0.00
12,500.00	90.00	359.75	11,358.00	1,705.35	685.34	1,702.34	0.00	0.00	0.00
12,600.00	90.00	359.75	11,358.00	1,805.35	684.91	1,802.34	0.00	0.00	0.00
12,700.00	90.00	359.75	11,358.00	1,905.35	684.49	1,902.34	0.00	0.00	0.00
12,800.00	90.00	359.75	11,358.00	2,005.35	684.06	2,002.34	0.00	0.00	0.00
12,900.00	90.00	359.75	11,358.00	2,105.35	683.63	2,102.34	0.00	0.00	0.00
13,000.00	90.00	359.75	11,358.00	2,205.35	683.20	2,202.34	0.00	0.00	0.00
13,100.00	90.00	359.75	11,358.00	2,305.34	682.77	2,302.34	0.00	0.00	0.00
13,200.00	90.00	359.75	11,358.00	2,405.34	682.34	2,402.34	0.00	0.00	0.00
13,300.00	90.00	359.75	11,358.00	2,505.34	681.91	2,502.34	0.00	0.00	0.00
13,400.00	90.00	359.75	11,358.00	2,605.34	681.48	2,602.34	0.00	0.00	0.00
13,500.00	90.00	359.75	11,358.00	2,705.34	681.05	2,702.34	0.00	0.00	0.00
13,600.00	90.00	359.75	11,358.00	2,805.34	680.62	2,802.34	0.00	0.00	0.00
13,700.00	90.00	359.75	11,358.00	2,905.34	680.19	2,902.34	0.00	0.00	0.00
13,800.00	90.00	359.75	11,358.00	3,005.34	679.76	3,002.34	0.00	0.00	0.00
13,900.00	90.00	359.75	11,358.00	3,105.34	679.33	3,102.34	0.00	0.00	0.00
14,000.00	90.00	359.75	11,358.00	3,205.34	678.90	3,202.34	0.00	0.00	0.00
14,100.00	90.00	359.75	11,358.00	3,305.34	678.47	3,302.34	0.00	0.00	0.00
14,200.00	90.00	359.75	11,358.00	3,405.33	678.04	3,402.34	0.00	0.00	0.00
14,300.00	90.00	359.75	11,358.00	3,505.33	677.61	3,502.34	0.00	0.00	0.00
14,400.00	90.00	359.75	11,358.00	3,605.33	677.18	3,602.34	0.00	0.00	0.00
14,500.00	90.00	359.75	11,358.00	3,705.33	676.75	3,702.34	0.00	0.00	0.00
14,600.00	90.00	359.75	11,358.00	3,805.33	676.32	3,802.34	0.00	0.00	0.00
14,700.00	90.00	359.75	11,358.00	3,905.33	675.89	3,902.34	0.00	0.00	0.00
14,800.00	90.00	359.75	11,358.00	4,005.33	675.47	4,002.34	0.00	0.00	0.00
14,900.00	90.00	359.75	11,358.00	4,105.33	675.04	4,102.34	0.00	0.00	0.00
15,000.00	90.00	359.75	11,358.00	4,205.33	674.61	4,202.34	0.00	0.00	0.00
15,100.00	90.00	359.75	11,358.00	4,305.33	674.18	4,302.34	0.00	0.00	0.00
15,200.00	90.00	359.75	11,358.00	4,405.33	673.75	4,402.34	0.00	0.00	0.00
15,300.00	90.00	359.75	11,358.00	4,505.32	673.32	4,502.34	0.00	0.00	0.00
15,400.00	90.00	359.75	11,358.00	4,605.32	672.89	4,602.34	0.00	0.00	0.00
15,500.00	90.00	359.75	11,358.00	4,705.32	672.46	4,702.34	0.00	0.00	0.00
15,600.00	90.00	359.75	11,358.00	4,805.32	672.03	4,802.34	0.00	0.00	0.00
15,700.00	90.00	359.75	11,358.00	4,905.32	671.60	4,902.34	0.00	0.00	0.00
15,800.00	90.00	359.75	11,358.00	5,005.32	671.17	5,002.34	0.00	0.00	0.00
15,900.00	90.00	359.75	11,358.00	5,105.32	670.74	5,102.34	0.00	0.00	0.00
16,000.00	90.00	359.75	11,358.00	5,205.32	670.31	5,202.34	0.00	0.00	0.00
16,100.00	90.00	359.75	11,358.00	5,305.32	669.88	5,302.34	0.00	0.00	0.00
16,200.00	90.00	359.75	11,358.00	5,405.32	669.45	5,402.34	0.00	0.00	0.00
16,300.00	90.00	359.75	11,358.00	5,505.32	669.02	5,502.34	0.00	0.00	0.00
16,400.00	90.00	359.75	11,358.00	5,605.31	668.59	5,602.34	0.00	0.00	0.00
16,500.00	90.00	359.75	11,358.00	5,705.31	668.16	5,702.34	0.00	0.00	0.00
16,600.00	90.00	359.75	11,358.00	5,805.31	667.73	5,802.34	0.00	0.00	0.00
16,700.00	90.00	359.75	11,358.00	5,905.31	667.30	5,902.34	0.00	0.00	0.00
16,800.00	90.00	359.75	11,358.00	6,005.31	666.87	6,002.34	0.00	0.00	0.00
16,900.00	90.00	359.75	11,358.00	6,105.31	666.44	6,102.34	0.00	0.00	0.00
17,000.00	90.00	359.75	11,358.00	6,205.31	666.02	6,202.34	0.00	0.00	0.00
17,100.00	90.00	359.75	11,358.00	6,305.31	665.59	6,302.34	0.00	0.00	0.00
17,200.00	90.00	359.75	11,358.00	6,405.31	665.16	6,402.34	0.00	0.00	0.00
17,300.00	90.00	359.75	11,358.00	6,505.31	664.73	6,502.34	0.00	0.00	0.00
17,400.00	90.00	359.75	11,358.00	6,605.30	664.30	6,602.34	0.00	0.00	0.00



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 Company: XTO Energy
 Project: Eddy County, NM (NAD-27)
 Site: PLU 23 Dog Town Draw
 Well: #108H
 Wellbore: OH
 Design: PERMIT v3

Local Co-ordinate Reference: Well #108H
 TVD Reference: RKB = 25' @ 3458.00usft
 MD Reference: RKB = 25' @ 3458.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
17,500.00	90.00	359.75	11,358.00	6,705.30	663.87	6,702.34	0.00	0.00	0.00
17,600.00	90.00	359.75	11,358.00	6,805.30	663.44	6,802.34	0.00	0.00	0.00
17,700.00	90.00	359.75	11,358.00	6,905.30	663.01	6,902.34	0.00	0.00	0.00
17,800.00	90.00	359.75	11,358.00	7,005.30	662.58	7,002.34	0.00	0.00	0.00
17,900.00	90.00	359.75	11,358.00	7,105.30	662.15	7,102.34	0.00	0.00	0.00
18,000.00	90.00	359.75	11,358.00	7,205.30	661.72	7,202.34	0.00	0.00	0.00
18,100.00	90.00	359.75	11,358.00	7,305.30	661.29	7,302.34	0.00	0.00	0.00
18,200.00	90.00	359.75	11,358.00	7,405.30	660.86	7,402.34	0.00	0.00	0.00
18,300.00	90.00	359.75	11,358.00	7,505.30	660.43	7,502.34	0.00	0.00	0.00
18,400.00	90.00	359.75	11,358.00	7,605.30	660.00	7,602.34	0.00	0.00	0.00
18,500.00	90.00	359.75	11,358.00	7,705.29	659.57	7,702.34	0.00	0.00	0.00
18,600.00	90.00	359.75	11,358.00	7,805.29	659.14	7,802.34	0.00	0.00	0.00
18,700.00	90.00	359.75	11,358.00	7,905.29	658.71	7,902.34	0.00	0.00	0.00
18,800.00	90.00	359.75	11,358.00	8,005.29	658.28	8,002.34	0.00	0.00	0.00
18,900.00	90.00	359.75	11,358.00	8,105.29	657.85	8,102.34	0.00	0.00	0.00
19,000.00	90.00	359.75	11,358.00	8,205.29	657.42	8,202.34	0.00	0.00	0.00
19,100.00	90.00	359.75	11,358.00	8,305.29	657.00	8,302.34	0.00	0.00	0.00
19,200.00	90.00	359.75	11,358.00	8,405.29	656.57	8,402.34	0.00	0.00	0.00
19,300.00	90.00	359.75	11,358.00	8,505.29	656.14	8,502.34	0.00	0.00	0.00
19,400.00	90.00	359.75	11,358.00	8,605.29	655.71	8,602.34	0.00	0.00	0.00
19,500.00	90.00	359.75	11,358.00	8,705.29	655.28	8,702.34	0.00	0.00	0.00
19,600.00	90.00	359.75	11,358.00	8,805.28	654.85	8,802.34	0.00	0.00	0.00
19,700.00	90.00	359.75	11,358.00	8,905.28	654.42	8,902.34	0.00	0.00	0.00
19,800.00	90.00	359.75	11,358.00	9,005.28	653.99	9,002.34	0.00	0.00	0.00
19,900.00	90.00	359.75	11,358.00	9,105.28	653.56	9,102.34	0.00	0.00	0.00
20,000.00	90.00	359.75	11,358.00	9,205.28	653.13	9,202.34	0.00	0.00	0.00
20,100.00	90.00	359.75	11,358.00	9,305.28	652.70	9,302.34	0.00	0.00	0.00
20,200.00	90.00	359.75	11,358.00	9,405.28	652.27	9,402.34	0.00	0.00	0.00
20,300.00	90.00	359.75	11,358.00	9,505.28	651.84	9,502.34	0.00	0.00	0.00
20,400.00	90.00	359.75	11,358.00	9,605.28	651.41	9,602.34	0.00	0.00	0.00
20,500.00	90.00	359.75	11,358.00	9,705.28	650.98	9,702.34	0.00	0.00	0.00
20,600.00	90.00	359.75	11,358.00	9,805.28	650.55	9,802.34	0.00	0.00	0.00
20,700.00	90.00	359.75	11,358.00	9,905.27	650.12	9,902.34	0.00	0.00	0.00
20,800.00	90.00	359.75	11,358.00	10,005.27	649.69	10,002.34	0.00	0.00	0.00
20,900.00	90.00	359.75	11,358.00	10,105.27	649.26	10,102.34	0.00	0.00	0.00
21,000.00	90.00	359.75	11,358.00	10,205.27	648.83	10,202.34	0.00	0.00	0.00
21,100.00	90.00	359.75	11,358.00	10,305.27	648.40	10,302.34	0.00	0.00	0.00
21,200.00	90.00	359.75	11,358.00	10,405.27	647.98	10,402.34	0.00	0.00	0.00
21,300.00	90.00	359.75	11,358.00	10,505.27	647.55	10,502.34	0.00	0.00	0.00
21,400.00	90.00	359.75	11,358.00	10,605.27	647.12	10,602.34	0.00	0.00	0.00
21,500.00	90.00	359.75	11,358.00	10,705.27	646.69	10,702.34	0.00	0.00	0.00
21,600.00	90.00	359.75	11,358.00	10,805.27	646.26	10,802.34	0.00	0.00	0.00
21,700.00	90.00	359.75	11,358.00	10,905.27	645.83	10,902.34	0.00	0.00	0.00
21,800.00	90.00	359.75	11,358.00	11,005.26	645.40	11,002.34	0.00	0.00	0.00
21,900.00	90.00	359.75	11,358.00	11,105.26	644.97	11,102.34	0.00	0.00	0.00
22,000.00	90.00	359.75	11,358.00	11,205.26	644.54	11,202.34	0.00	0.00	0.00
22,100.00	90.00	359.75	11,358.00	11,305.26	644.11	11,302.34	0.00	0.00	0.00
22,200.00	90.00	359.75	11,358.00	11,405.26	643.68	11,402.34	0.00	0.00	0.00
22,300.00	90.00	359.75	11,358.00	11,505.26	643.25	11,502.34	0.00	0.00	0.00
22,400.00	90.00	359.75	11,358.00	11,605.26	642.82	11,602.34	0.00	0.00	0.00
22,500.00	90.00	359.75	11,358.00	11,705.26	642.39	11,702.34	0.00	0.00	0.00
22,600.00	90.00	359.75	11,358.00	11,805.26	641.96	11,802.34	0.00	0.00	0.00
22,700.00	90.00	359.75	11,358.00	11,905.26	641.53	11,902.34	0.00	0.00	0.00
22,800.00	90.00	359.75	11,358.00	12,005.26	641.10	12,002.34	0.00	0.00	0.00



Database: EDM 5000.1 Single User Db
Company: XTO Energy
Project: Eddy County, NM (NAD-27)
Site: PLU 23 Dog Town Draw
Well: #108H
Wellbore: OH
Design: PERMIT v3

Local Co-ordinate Reference: Well #108H
TVD Reference: RKB = 25' @ 3458.00usft
MD Reference: RKB = 25' @ 3458.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
22,900.00	90.00	359.75	11,358.00	12,105.25	640.67	12,102.34	0.00	0.00	0.00
23,000.00	90.00	359.75	11,358.00	12,205.25	640.24	12,202.34	0.00	0.00	0.00
23,100.00	90.00	359.75	11,358.00	12,305.25	639.81	12,302.34	0.00	0.00	0.00
23,200.00	90.00	359.75	11,358.00	12,405.25	639.38	12,402.34	0.00	0.00	0.00
23,300.00	90.00	359.75	11,358.00	12,505.25	638.96	12,502.34	0.00	0.00	0.00
23,400.00	90.00	359.75	11,358.00	12,605.25	638.53	12,602.34	0.00	0.00	0.00
23,500.00	90.00	359.75	11,358.00	12,705.25	638.10	12,702.34	0.00	0.00	0.00
23,600.00	90.00	359.75	11,358.00	12,805.25	637.67	12,802.34	0.00	0.00	0.00
23,700.00	90.00	359.75	11,358.00	12,905.25	637.24	12,902.34	0.00	0.00	0.00
23,800.00	90.00	359.75	11,358.00	13,005.25	636.81	13,002.34	0.00	0.00	0.00
23,900.00	90.00	359.75	11,358.00	13,105.25	636.38	13,102.34	0.00	0.00	0.00
24,000.00	90.00	359.75	11,358.00	13,205.24	635.95	13,202.34	0.00	0.00	0.00
24,100.00	90.00	359.75	11,358.00	13,305.24	635.52	13,302.34	0.00	0.00	0.00
24,200.00	90.00	359.75	11,358.00	13,405.24	635.09	13,402.34	0.00	0.00	0.00
24,253.76	90.00	359.75	11,358.00	13,459.00	634.86	13,456.10	0.00	0.00	0.00
24,300.00	90.00	359.75	11,358.00	13,505.24	634.66	13,502.34	0.00	0.00	0.00
24,383.76	90.00	359.75	11,358.00	13,589.00	634.30	13,586.10	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PLU 23 DTD #108: St	0.00	0.00	0.00	0.00	0.00	440,056.60	650,794.10	32.208893	-103.845787
- plan hits target center									
- Point									
PLU 23 DTD #108: Pt	0.00	0.00	11,358.00	13,589.00	634.30	453,645.60	651,428.40	32.246239	-103.843536
- plan hits target center									
- Point									
PLU 23 DTD #108: LF	0.00	0.00	11,358.00	924.10	688.70	440,980.70	651,482.80	32.211424	-103.843546
- plan hits target center									
- Point									
PLU 23 DTD #108: LT	0.00	0.00	11,358.00	13,459.00	634.70	453,515.60	651,428.80	32.245882	-103.843536
- plan misses target center by 0.16usft at 24253.76usft MD (11358.00 TVD, 13459.00 N, 634.86 E)									
- Point									

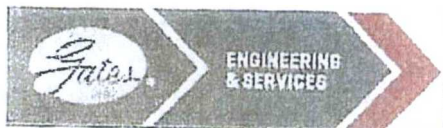


Database: EDM 5000.1 Single User Db
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Project: Eddy County, NM (NAD-27)
Site: PLU 23 Dog Town Draw
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North Reference: Grid
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
501.00	501.00	Rustler			
877.00	877.00	Top Salt			
3,879.55	3,874.00	Base Salt			
4,100.40	4,094.00	Delaware			
4,981.75	4,972.00	Cherry Canyon			
6,646.09	6,630.00	Brushy Canyon			
7,968.13	7,947.00	Bone Spring			
7,999.25	7,978.00	Bone Spring Lm			
8,990.02	8,965.00	1st Bone Spring Ss			
9,728.84	9,701.00	2nd Bone Spring Ss			
10,087.20	10,058.00	3rd Bone Spring Lm			
10,903.56	10,871.00	3rd Bone Spring Ss			
11,259.34	11,184.00	Wolfcamp			
11,718.74	11,358.00	LP			



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

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

GRADE D PRESSURE TEST CERTIFICATE

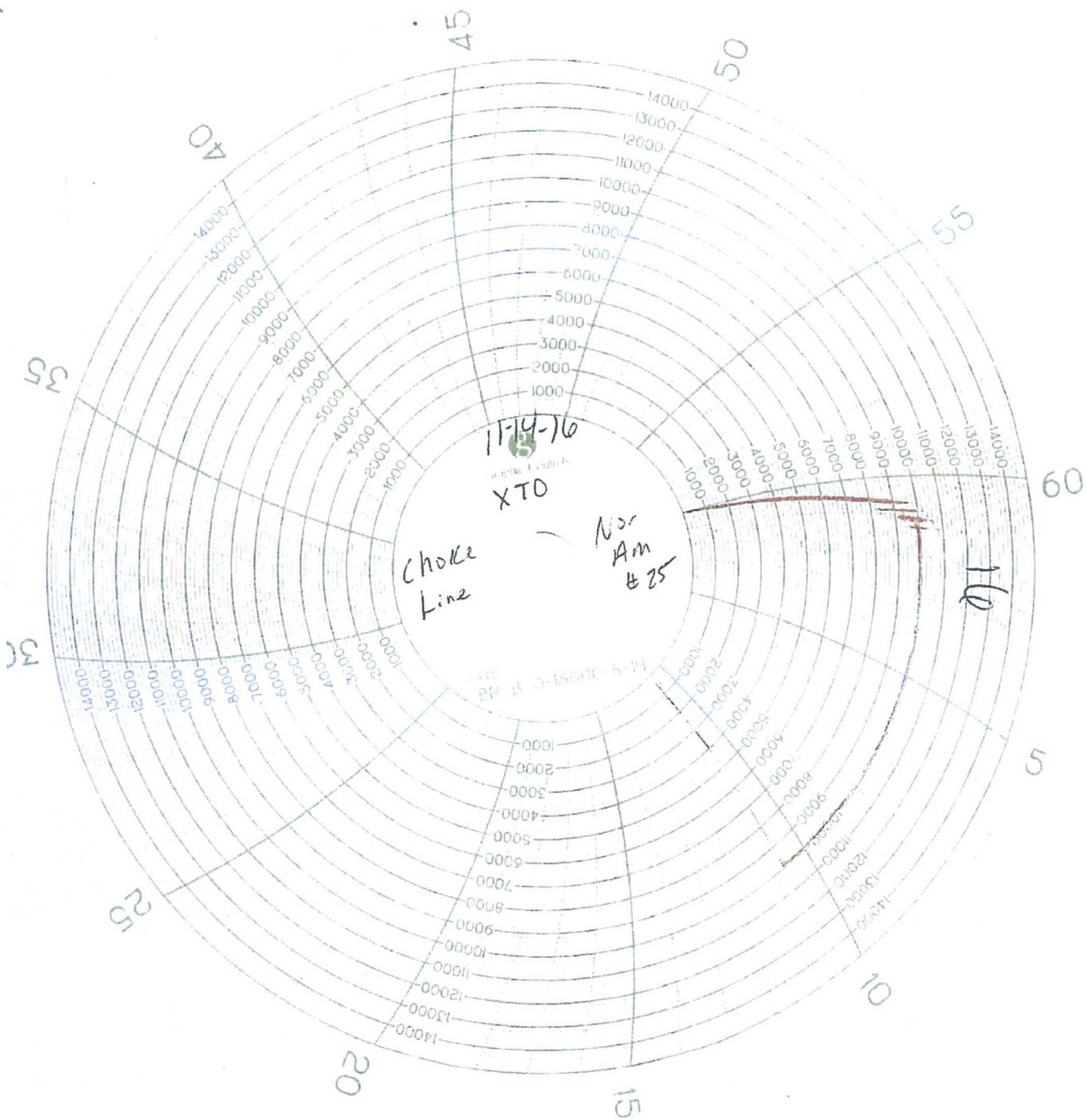
Customer :	AUSTIN DISTRIBUTING	Test Date :	6/8/2014
Customer Ref. :	PENDING	Hose Serial No. :	D-060814-1
Invoice No. :	201709	Created By :	NORMA

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

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

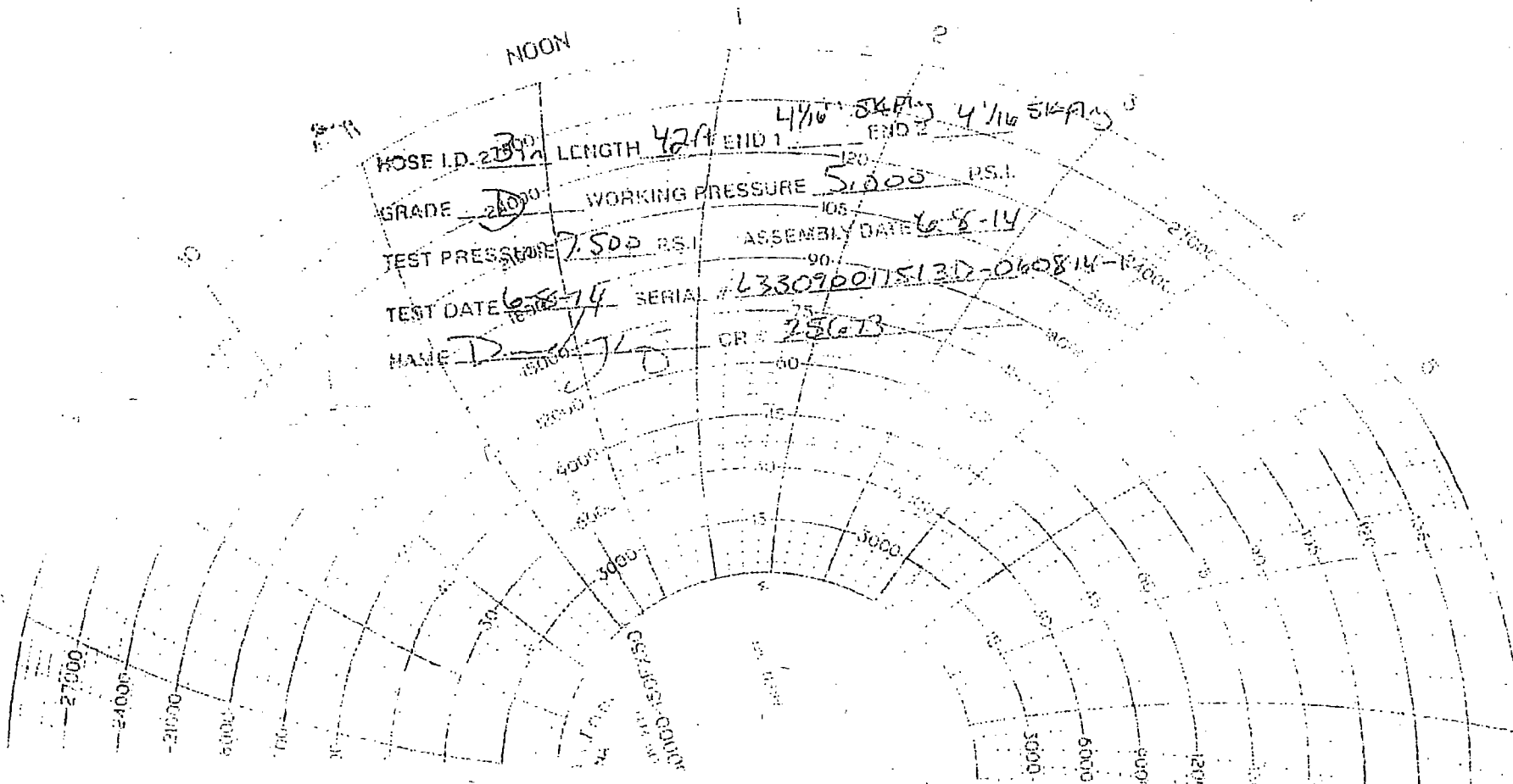
Gates E & S North America, Inc. certifies that the following hose assembly has been tested to the Gates Oilfield Roughneck Agreement/Specification requirements and passed the 15 minute hydrostatic test per API Spec 7K/Q1, Fifth Edition, June 2010, Test pressure 9.6.7 and per Table 9 to 7,500 psi in accordance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

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



NOON

HOSE I.D. 3 1/2 IN. LENGTH 429 END 1 4 1/16 SKAF END 2 4 1/16 SKAF
GRADE D WORKING PRESSURE 5,000 P.S.I.
TEST PRESSURE 7,500 P.S.I. ASSEMBLY DATE 6-8-14
TEST DATE 6-8-14 SERIAL # 633090011513D-060814-R400
NAME D-7L5 OR # 25673



PECOS DISTRICT

DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	BOPCO,LP
LEASE NO.:	NMNM02862
WELL NAME & NO.:	POKER LAKE UNIT 23 DTD 108H
SURFACE HOLE FOOTAGE:	590' FNL & 1020' FEL
BOTTOM HOLE FOOTAGE:	2440' FSL & 330' FEL
LOCATION:	Section 23, T. 24 S., R 30 E., NMPM
COUNTY:	Eddy County, New Mexico

COA

All previous COA still apply expect the following:

H2S	☐ Yes	☒ No	
Potash	☒ None	☐ Secretary	☐ R-111-P
Cave/Karst Potential	☒ Low	☐ Medium	☐ High
Variance	☐ None	☒ Flex Hose	☐ Other
Wellhead	☐ Conventional	☒ Multibowl	☐ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP

OPERATOR SHALL FILLED 1/3RD CASING WITH FLUID WHILE RUNNING INTERMEDIATE AND PRODUCTION CASING TO MAINTAIN COLLASPE SAFETY FACTOR.

- The minimum required fill of cement behind the 5-1/2 inch production casing is:
 - Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification. **Additional cement maybe required.**
Excess calculates to -69%.

A. PRESSURE CONTROL

- 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).
- 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.**

GENERAL REQUIREMENTS

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. 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. 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 Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

A. PRESSURE CONTROL

1. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
 - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

ZS 051118

Medium

13 3/8	surface csg in a	17 1/2	inch hole.	Design Factors			SURFACE		
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight	
"A"	68.00	J 55	ST&C	16.27	6.99	0.64	610	41,480	
"B"							0	0	
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,500			Tail Cmt	does	circ to sfc.	Totals:	610	41,480	
Comparison of Proposed to Minimum Required Cement Volumes									
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
17 1/2	0.6946	530	835	477	75	8.80	3136	5M	1.56

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

9 5/8 Segment	casing inside the #/ft	Grade	13 3/8 Coupling	Joint	Design Factors		INTERMEDIATE		
"A"	40.00	HCL 80	LT&C	2.06	Collapse	Burst	Length	Weight	
"B"	40.00	HCL 80	LT&C	4.12	1.57	0.93	5,079	203,160	
						0.79	0.93	5,079	203,160
w/8.4#/g mud, 30min Sfc Csg Test psig:						Totals:		10,158	406,320
The cement volume(s) are intended to achieve a top of					0	ft from surface or a		610	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	look v	0	3214		10.20	3697	5M	0.81
D V Tool(s):			710				sum of sx	Σ CuFt	Σ%excess
t by stage % :			98	169				3600	6543 104

Class 'H' tail cmt yld > 1.20

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 1.13, 0.57, c, d < 0.70 a Problem!!

ALT. COLLAPSE SF: 0.79*1.5=1.18; ALT BURST IS GOOD.

Tail cmt					Design Factors			PRODUCTION	
5 1/2	casing inside the	9 5/8							
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	Weight	
"A"	17.00	P 110	BUTT	2.83	1.26	1.72	10,842	184,314	
"B"	17.00	P 110	BUTT	7.89	1.12	1.72	13,542	230,214	
w/8.4#/g mud, 30min Sfc Csg Test psig: 2,385							Totals:	24,384	414,528
B	would be:			62.23	1.21	if it were a vertical wellbore.			
No Pilot Hole Planned		MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC	
		24384	11358	11358	10842	90	10	11719	
The cement volume(s) are intended to achieve a top of				9958	ft from surface or a		200	overlap.	
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
8 3/4	0.2526	2760	4595	3651	26	10.50			1.35

Class 'H' tail cmt yld > 1.20

CURVE COLLAPSE SF IS TOO CONSERVATIVE.