

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.*5. Lease Serial No.
NMNM02862

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 27. If Unit or CA/Agreement, Name and/or No.
NMNM71016X

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other8. Well Name and No.
POKER LAKE UNIT 486H2. Name of Operator
BOPCO LPContact: KELLY KARDOS
E-Mail: KELLY_KARDOS@XTOENERGY.COM9. API Well No.
30-015-436393a. Address
6401 HOLIDAY HILL RD, BLDG 5
MIDLAND, TX 797073b. Phone No. (include area code)
Ph: 432-620-437410. Field and Pool or Exploratory Area
PURPLE SAGE; WOLFCAMP

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

Sec 26 T24S R30E Mer NMP SWSW 150FSL 950FWL

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

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompletable 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 recompletable 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, LP requests approval of the following changes to the original APD:

C102
Drilling Program
BOP/Choke Design Variance
Directional Drill Plan
Flex Hose Variance**NM OIL CONSERVATION**
ARTESIA DISTRICT

JUN 27 2018

Please see attached.....

RECEIVED

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

Electronic Submission #406751 verified by the BLM Well Information System
For BOPCO LP, sent to the Carlsbad

Name (Printed/Typed) KELLY KARDOS

Title REGULATORY COORDINATOR

Signature (Electronic Submission)

Date 03/06/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By

Title

Date

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

Office

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

(Instructions on page 2)

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

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

XTO Energy Inc.
Poker Lake Unit 486H
Projected TD: 23234' MD / 12088' TVD
SHL: 150' FSL & 950' FWL , Section 26, T24S, R30E
BHL: 330' FSL & 200' FWL , Section 28, 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	1333'	Water
Top of Salt	1608'	Water
Base of Salt	3911'	Water
Delaware	3976'	Water
Bone Spring	7707'	Water/Oil/Gas
1st Bone Spring Ss	8656'	Water/Oil/Gas
2nd Bone Spring Ss	9446'	Water/Oil/Gas
3rd Bone Spring Ss	10614'	Water/Oil/Gas
Wolfcamp	11005'	Water/Oil/Gas
Wolfcamp A	11146'	Water/Oil/Gas
Wolfcamp E	12028'	Water/Oil/Gas
Target/Land Curve	12088'	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 18-5/8 inch casing @ 1580' (28' above the salt) and circulating cement back to surface. The salt will be isolated by setting 13-3/8 inch casing at 3930' and circulating cement to surface. 9-5/8 inch intermediate casing will be set at 11450'. An 8-3/4 inch curve and 8-1/2 inch lateral hole will be drilled to TD, where 5-1/2 inch casing will be set and cemented back up to the 9-5/8 inch casing shoe.

3. Casing Design

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
24"	0' – 1580'	18-5/8"	87.5	STC	J-55	New	1.84	1.14	5.45
17-1/2"	0' – 3930'	13-3/8"	68	STC	J-55	New	1.08	1.58	2.53
12-1/4"	0' – 11450'	9-5/8"	40	LTC	HCL-80	New	1.11	1.30	1.83
8-3/4" x 8-1/2"	0' – 23234'	5-1/2"	20	BTC	P-110	New	1.33	1.41	1.98

- ~~XTO requests to utilize centralizers only in the curve after the KOP and only a minimum of one every other joint.~~
- 18-5/8" Collapse analyzed using 75% evacuation. Casing to be filled while running.
- 13-3/8" & 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:

Temporary Wellhead

- 18-5/8" SOW bottom x 21-1/4" 2M top flange.

Permanent Wellhead – GE RSH Multibowl System

- A. Starting Head: 13-5/8" 10M top flange x 13-3/8" SOW bottom
- B. Tubing Head: 13-5/8" 10M bottom flange x 7" 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 9-5/8" casing per BLM Onshore Order 2
- Wellhead manufacturer representative will not be present for BOP test plug installation

4. Cement Program

Surface Casing: 18-5/8", 87.5 New J-55, STC casing to be set at +/- 1580'

Lead: 2690 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)

1st Intermediate Casing: 13-3/8", 68 New J-55, STC casing to be set at +/- 3930'

Lead: 2690 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)

2nd Intermediate Casing: 9-5/8", 40 New HCL-80, LTC casing to be set at +/- 11450'

ECP/DV Tool to be set at 4030'

1st Stage

Lead: 2300 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)

2nd Stage

Lead: 1170 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)

Production Casing: 5-1/2", 20 New P-110, BTC casing to be set at +/- 23234'

Tail: 2280 sxs VersaCem (mixed at 13.2 ppg, 1.61 ft³/sx, 8.38 gal/sx water)

5. Pressure Control Equipment

The blow out preventer equipment (BOP) on surface casing/temp. wellhead will consist of a 21-1/4" minimum 2M Hydril. MASP should not exceed 1220 psi.

Once the permanent WM is installed on the 13-3/8 casing, the blow out preventer equipment (BOP) will consist of a 13-5/8" minimum 5M Hydril and a 13-5/8" minimum 10M 3-Ram BOP. MASP should not exceed 5198 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).

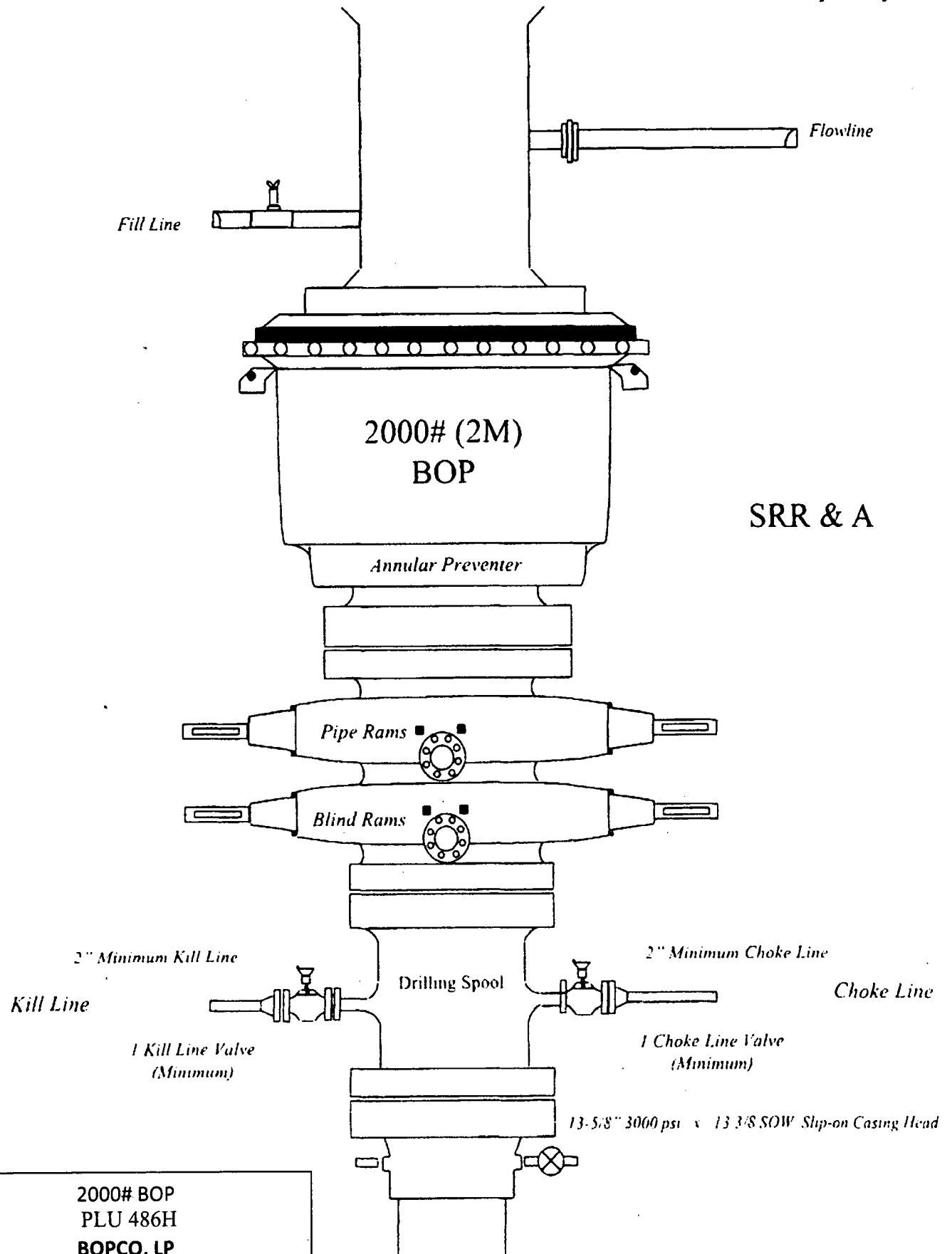
All BOP testing will be done by an independent service company. Annular pressure tests will be limited to 50% of the working pressure. When nipping up on the 13-5/8" 10M bradenhead and flange, the BOP test will be limited to 10M psi. Since a multibowl system will be used, subsequent BOP pressure tests will be performed as necessary based on required testing schedule (i.e., at least every 30 days). All BOP tests will include a low pressure test as per BLM regulations. The 10M BOP diagrams are attached. Blind rams will be functioned tested each trip, pipe rams will be functioned tested each day.

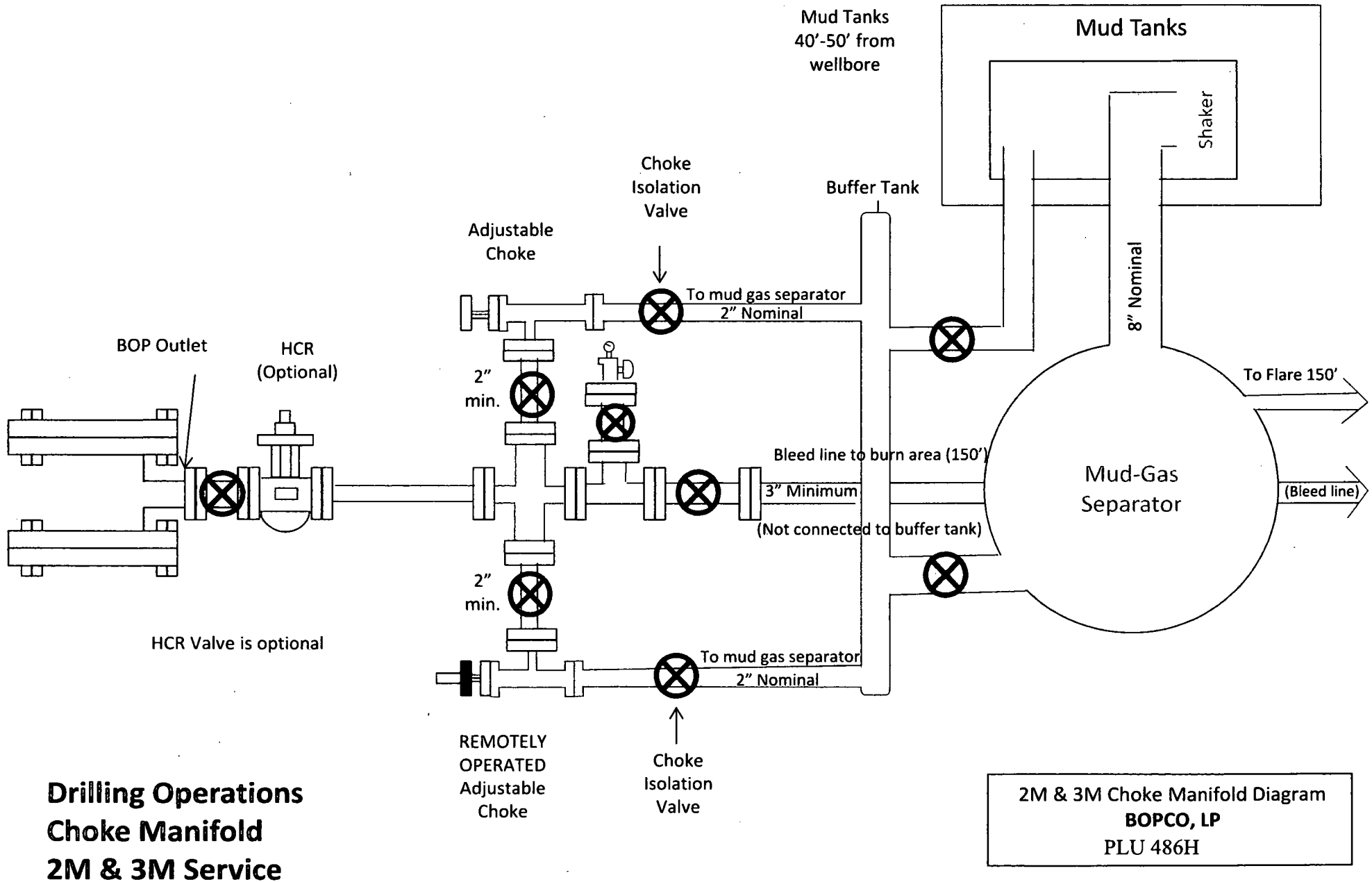
A variance is requested to allow use of a flex hose as the choke line from the BOP to the Choke Manifold. If this hose is used, a copy of the manufacturer's certification and pressure test chart will be kept on the rig. Attached is an example of a certification and pressure test chart. The manufacturer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

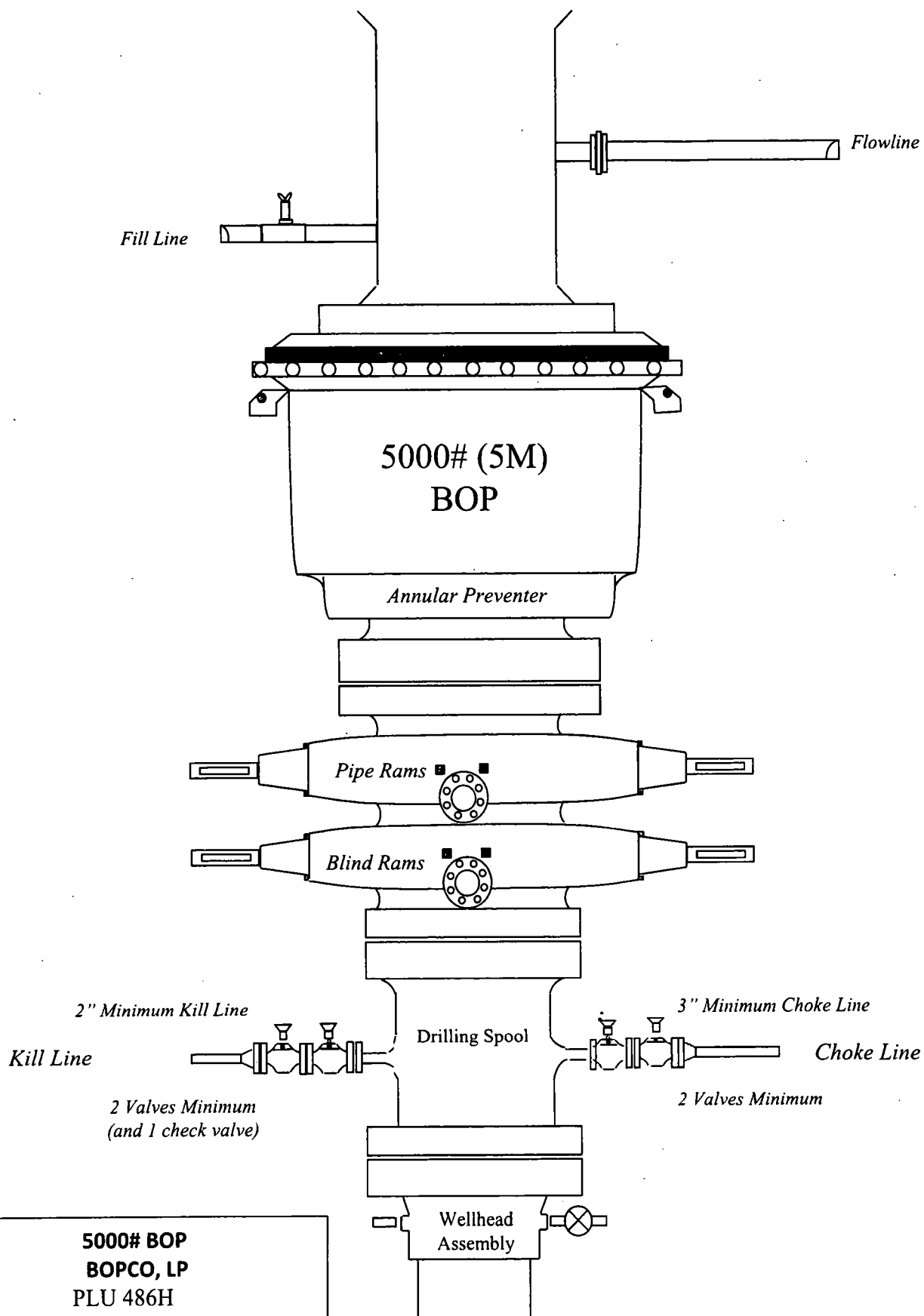
6. Proposed Mud Circulation System

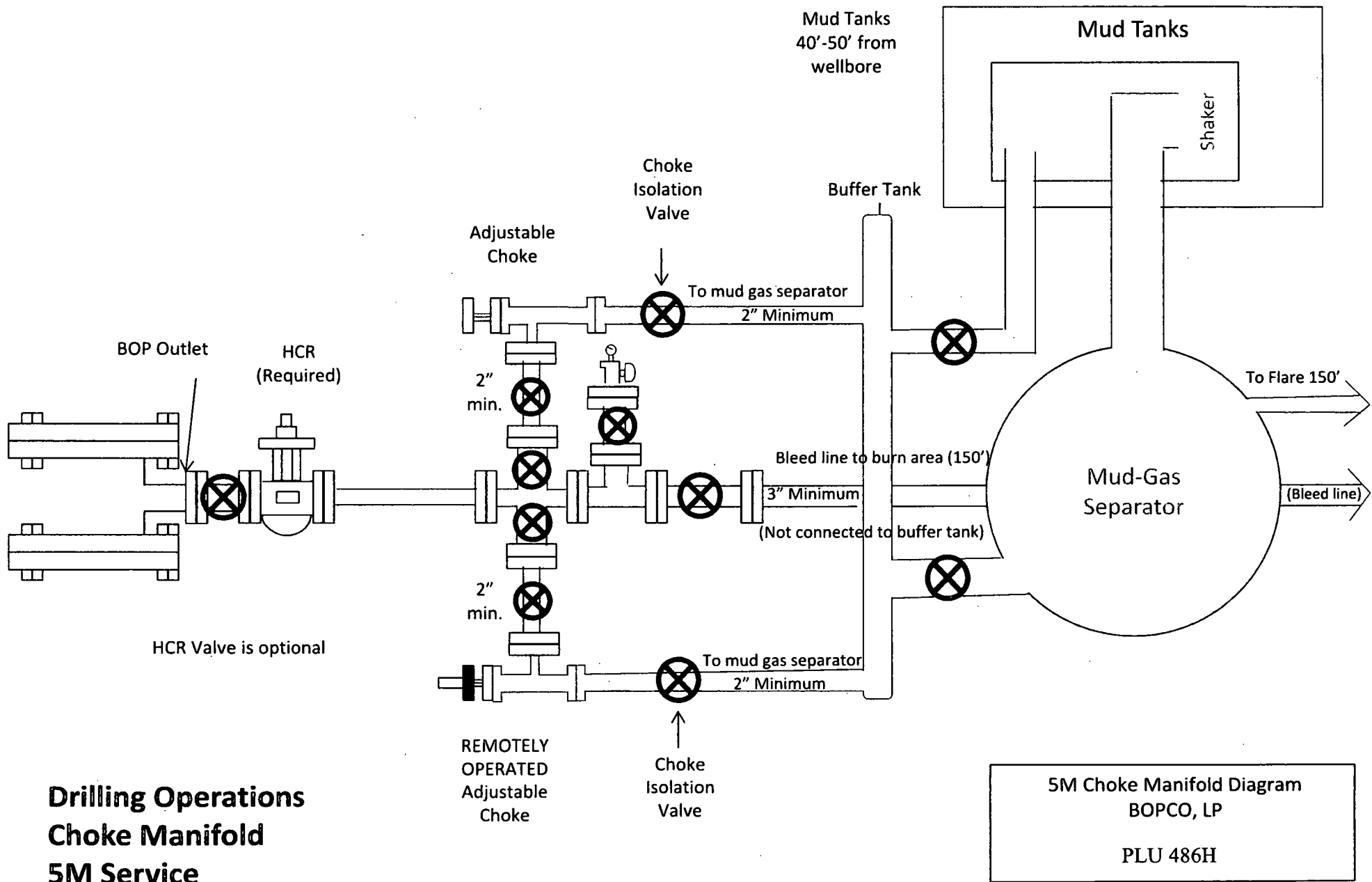
INTERVAL	Hole Size	Mud Type	MW (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
0' - 1580'	24"	FW/Native	8.4-8.8	35-40	NC
1580' - 3930'	17-1/2"	Brine	9.8-10.2	30-32	NC
3930' to 11450'	12-1/4"	FW/Cut Brine	8.7-10.0	30-32	NC
11450' to 23234'	8-3/4" x 8-1/2"	FW / Cut Brine / Polymer	12.2 - 12.5	29-32	NC - 20

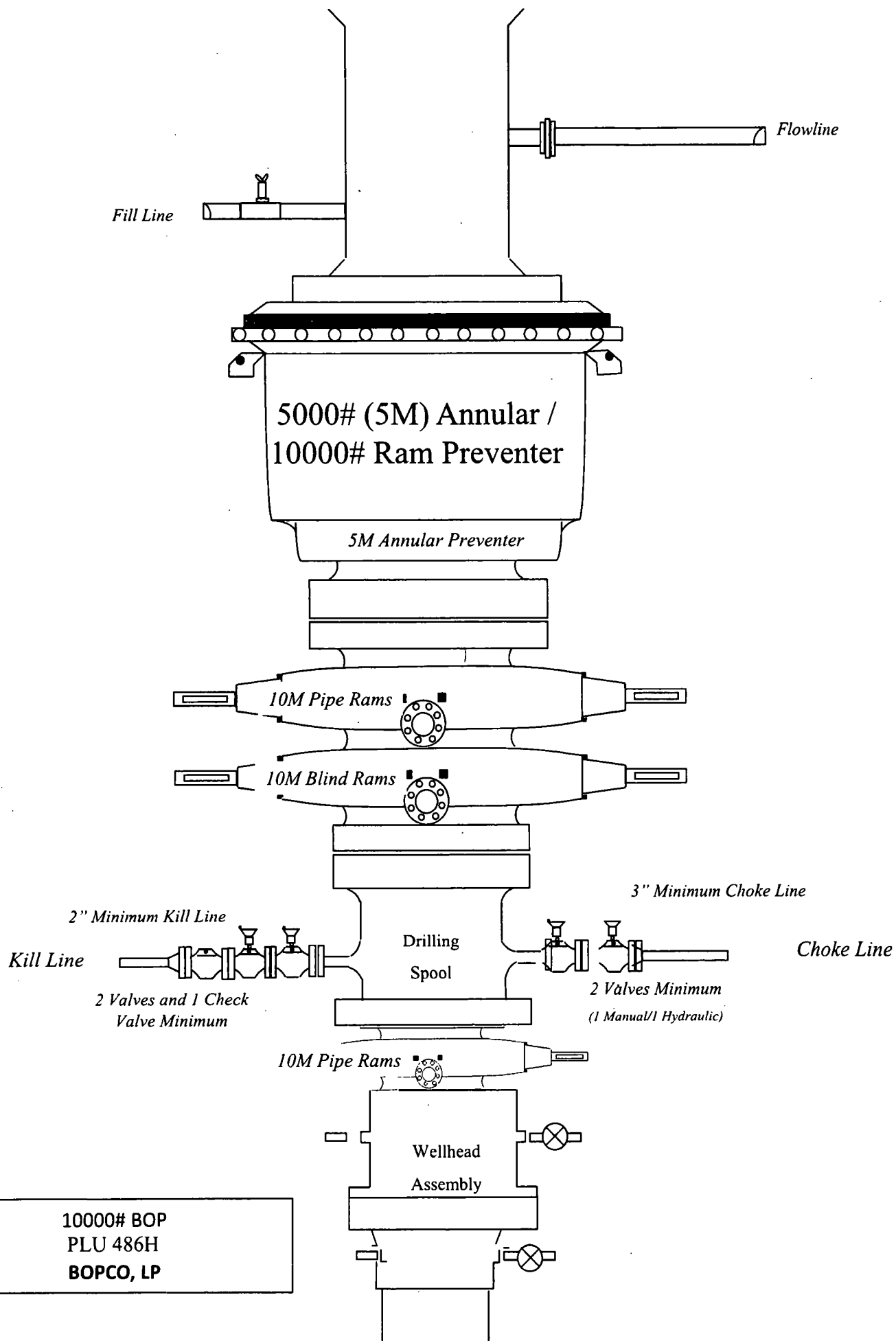
The necessary mud products for weight addition and fluid loss control will be on location at all times. brine mud will be used while drilling through the salt formation. Use fibrous materials as needed to control seepage and lost circulation. Pump viscous sweeps as needed for hole cleaning. Pump speed 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.

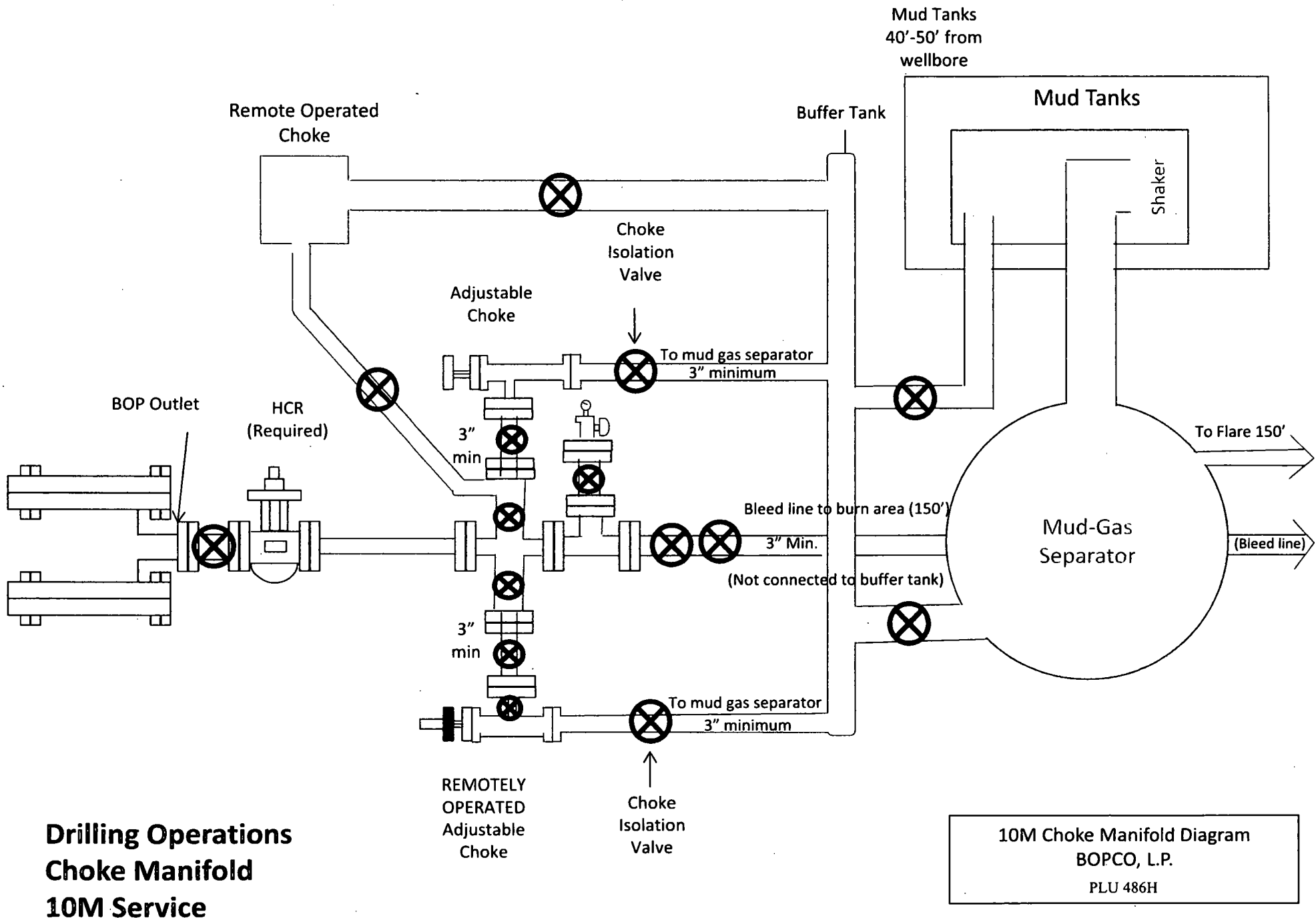














NM OIL CONSERVATION
ARTESIA DISTRICT

JUN 27 2018

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XTO Energy

Eddy County, NM (NAD-27)

Poker Lake Unit

#486H

OH

Plan: PERMIT

Standard Planning Report

24 January, 2018



Project: Eddy County, NM (NAD-27)
Site: Poker Lake Unit
Well: #486H
Wellbore: OH
Design: PERMIT

WELL DETAILS: #486H

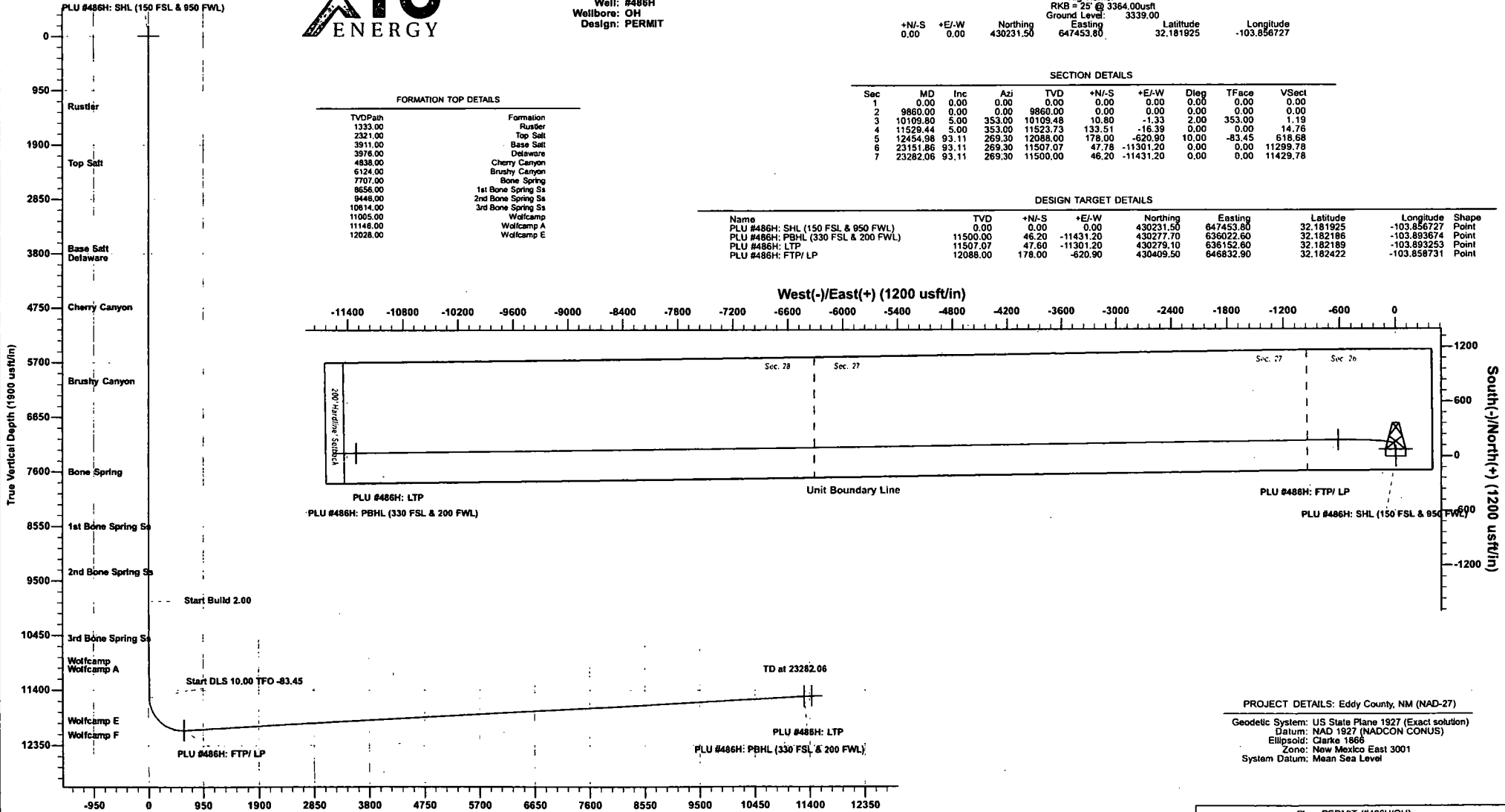
Rig Name:
RKB = 25' @ 3364.00usft
Ground Level: 3339.00
Easting 647453.80
Northing 430231.50
Latitude 32.181925
Longitude -103.856727

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Diep	TFace	VSect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	9860.00	0.00	0.00	9860.00	0.00	0.00	0.00	0.00	0.00
3	10109.80	5.00	353.00	10109.48	10.80	-1.33	2.00	353.00	1.19
4	11528.44	5.00	353.00	11523.73	133.51	-16.39	0.00	0.00	14.76
5	12454.98	93.11	269.30	12088.00	178.00	-620.90	10.00	-83.45	618.68
6	23151.86	93.11	269.30	11507.07	47.78	-11301.20	0.00	0.00	11299.78
7	23282.06	93.11	269.30	11500.00	46.20	-11431.20	0.00	0.00	11429.78

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PLU #486H: SHL (150 FSL & 950 FWL)	0.00	0.00	0.00	430231.50	647453.80	32.181925	-103.856727	Point
PLU #486H: PBHL (330 FSL & 200 FWL)	11500.00	46.20	-11431.20	430277.70	636022.60	32.182186	-103.893874	Point
PLU #486H: LTP	11507.07	47.60	-11301.20	430279.10	636152.80	32.182189	-103.893253	Point
PLU #486H: FTP/ LP	12088.00	178.00	-620.90	430409.50	646832.90	32.182422	-103.858731	Point



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

Vertical Section at 269.30° (1900 usft/in)

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

Plan: PERMIT (#486H/OH)

Created By: Matthew May Date: 11:11, January 24 2018



Database: EDM 5000.1 Single User Db
Company: XTO Energy
Project: Eddy County, NM (NAD-27)
Site: Poker Lake Unit
Well: #486H
Wellbore: OH
Design: PERMIT

Local Co-ordinate Reference: Well #486H
TVD Reference: RKB = 25' @ 3364.00usft
MD Reference: RKB = 25' @ 3364.00usft
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	Poker Lake Unit			
Site Position:		Northing:	400,116.80 usft	Latitude: 32.099164
From:	Map	Easting:	645,607.50 usft	Longitude: -103.863119
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.25 °

Well	#486H			
Well Position	+N/-S	30,114.70 usft	Northing:	430,231.50 usft
	+E/-W	1,846.30 usft	Easting:	647,453.80 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level: 3,339.00 usft

Wellbore	OH			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)
	IGRF2015	1/24/2018	7.02	59.97
				Field Strength (nT) 47,821

Design	PERMIT			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	269.30

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	
9,860.00	0.00	0.00	9,860.00	0.00	0.00	0.00	0.00	0.00	0.00	
10,109.80	5.00	353.00	10,109.48	10.80	-1.33	2.00	2.00	0.00	353.00	
11,529.44	5.00	353.00	11,523.73	133.51	-16.39	0.00	0.00	0.00	0.00	
12,454.98	93.11	269.30	12,088.00	178.00	-620.90	10.00	9.52	-9.04	-83.45	PLU #486H: FTP/ L
23,151.86	93.11	269.30	11,507.07	47.78	-11,301.20	0.00	0.00	0.00	0.00	PLU #486H: LTP
23,282.06	93.11	269.30	11,500.00	46.20	-11,431.20	0.00	0.00	0.00	0.00	PLU #486H: PBHL



Database: EDM 5000.1 Single User Db
Company: XTO Energy
Project: Eddy County, NM (NAD-27)
Site: Poker Lake Unit
Well: #486H
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Local Co-ordinate Reference: Well #486H
TVD Reference: RKB = 25' @ 3364.00usft
MD Reference: RKB = 25' @ 3364.00usft
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
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
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
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00



Database: EDM 5000.1 Single User Db
 Company: XTO Energy
 Project: Eddy County, NM (NAD-27)
 Site: Poker Lake Unit
 Well: #486H
 Wellbore: OH
 Design: PERMIT

Local Co-ordinate Reference: Well #486H
 TVD Reference: RKB = 25' @ 3364.00usft
 MD Reference: RKB = 25' @ 3364.00usft
 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)
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00
7,800.00	0.00	0.00	7,800.00	0.00	0.00	0.00	0.00	0.00	0.00
7,900.00	0.00	0.00	7,900.00	0.00	0.00	0.00	0.00	0.00	0.00
8,000.00	0.00	0.00	8,000.00	0.00	0.00	0.00	0.00	0.00	0.00
8,100.00	0.00	0.00	8,100.00	0.00	0.00	0.00	0.00	0.00	0.00
8,200.00	0.00	0.00	8,200.00	0.00	0.00	0.00	0.00	0.00	0.00
8,300.00	0.00	0.00	8,300.00	0.00	0.00	0.00	0.00	0.00	0.00
8,400.00	0.00	0.00	8,400.00	0.00	0.00	0.00	0.00	0.00	0.00
8,500.00	0.00	0.00	8,500.00	0.00	0.00	0.00	0.00	0.00	0.00
8,600.00	0.00	0.00	8,600.00	0.00	0.00	0.00	0.00	0.00	0.00
8,700.00	0.00	0.00	8,700.00	0.00	0.00	0.00	0.00	0.00	0.00
8,800.00	0.00	0.00	8,800.00	0.00	0.00	0.00	0.00	0.00	0.00
8,900.00	0.00	0.00	8,900.00	0.00	0.00	0.00	0.00	0.00	0.00
9,000.00	0.00	0.00	9,000.00	0.00	0.00	0.00	0.00	0.00	0.00
9,100.00	0.00	0.00	9,100.00	0.00	0.00	0.00	0.00	0.00	0.00
9,200.00	0.00	0.00	9,200.00	0.00	0.00	0.00	0.00	0.00	0.00
9,300.00	0.00	0.00	9,300.00	0.00	0.00	0.00	0.00	0.00	0.00
9,400.00	0.00	0.00	9,400.00	0.00	0.00	0.00	0.00	0.00	0.00
9,500.00	0.00	0.00	9,500.00	0.00	0.00	0.00	0.00	0.00	0.00
9,600.00	0.00	0.00	9,600.00	0.00	0.00	0.00	0.00	0.00	0.00
9,700.00	0.00	0.00	9,700.00	0.00	0.00	0.00	0.00	0.00	0.00
9,800.00	0.00	0.00	9,800.00	0.00	0.00	0.00	0.00	0.00	0.00
9,860.00	0.00	0.00	9,860.00	0.00	0.00	0.00	0.00	0.00	0.00
9,900.00	0.80	353.00	9,900.00	0.28	-0.03	0.03	2.00	2.00	0.00
10,000.00	2.80	353.00	9,999.94	3.39	-0.42	0.38	2.00	2.00	0.00
10,109.80	5.00	353.00	10,109.48	10.80	-1.33	1.19	2.00	2.00	0.00
10,200.00	5.00	353.00	10,199.34	18.60	-2.28	2.06	0.00	0.00	0.00
10,300.00	5.00	353.00	10,298.96	27.24	-3.34	3.01	0.00	0.00	0.00
10,400.00	5.00	353.00	10,398.58	35.89	-4.40	3.97	0.00	0.00	0.00
10,500.00	5.00	353.00	10,498.20	44.53	-5.47	4.92	0.00	0.00	0.00
10,600.00	5.00	353.00	10,597.82	53.17	-6.53	5.88	0.00	0.00	0.00



Database: EDM 5000.1 Single User Db
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Project: Eddy County, NM (NAD-27)
Site: Poker Lake Unit
Well: #486H
Wellbore: OH
Design: PERMIT

Local Co-ordinate Reference: Well #486H
TVD Reference: RKB = 25' @ 3364.00usft
MD Reference: RKB = 25' @ 3364.00usft
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)
10,700.00	5.00	353.00	10,697.44	61.82	-7.59	6.83	0.00	0.00	0.00
10,800.00	5.00	353.00	10,797.06	70.46	-8.65	7.79	0.00	0.00	0.00
10,900.00	5.00	353.00	10,896.68	79.10	-9.71	8.74	0.00	0.00	0.00
11,000.00	5.00	353.00	10,996.30	87.75	-10.77	9.70	0.00	0.00	0.00
11,100.00	5.00	353.00	11,095.92	96.39	-11.83	10.65	0.00	0.00	0.00
11,200.00	5.00	353.00	11,195.54	105.04	-12.89	11.61	0.00	0.00	0.00
11,300.00	5.00	353.00	11,295.16	113.68	-13.95	12.56	0.00	0.00	0.00
11,400.00	5.00	353.00	11,394.78	122.32	-15.01	13.52	0.00	0.00	0.00
11,500.00	5.00	353.00	11,494.40	130.97	-16.08	14.47	0.00	0.00	0.00
11,529.44	5.00	353.00	11,523.73	133.51	-16.39	14.76	0.00	0.00	0.00
11,550.00	5.61	331.63	11,544.20	135.28	-16.98	15.32	10.00	3.01	-103.92
11,600.00	9.09	302.44	11,593.80	139.56	-21.47	19.77	10.00	6.96	-58.39
11,650.00	13.55	290.69	11,642.82	143.75	-30.29	28.54	10.00	8.92	-23.50
11,700.00	18.29	284.80	11,690.89	147.83	-43.37	41.56	10.00	9.48	-11.77
11,750.00	23.14	281.30	11,737.65	151.76	-60.60	58.74	10.00	9.69	-7.01
11,800.00	28.03	278.96	11,782.73	155.51	-81.85	79.95	10.00	9.80	-4.68
11,850.00	32.96	277.27	11,825.80	159.07	-106.97	105.02	10.00	9.85	-3.38
11,900.00	37.91	275.98	11,866.53	162.39	-135.75	133.76	10.00	9.89	-2.59
11,950.00	42.86	274.94	11,904.61	165.46	-167.99	165.96	10.00	9.91	-2.07
12,000.00	47.82	274.08	11,939.74	168.24	-203.44	201.37	10.00	9.93	-1.71
12,050.00	52.79	273.35	11,971.66	170.73	-241.82	239.71	10.00	9.94	-1.46
12,100.00	57.76	272.71	12,000.14	172.89	-282.84	280.71	10.00	9.94	-1.28
12,150.00	62.74	272.14	12,024.94	174.72	-326.20	324.04	10.00	9.95	-1.15
12,200.00	67.72	271.61	12,045.88	176.20	-371.56	369.38	10.00	9.95	-1.05
12,250.00	72.69	271.12	12,062.81	177.32	-418.58	416.38	10.00	9.96	-0.98
12,300.00	77.67	270.66	12,075.59	178.07	-466.89	464.68	10.00	9.96	-0.93
12,350.00	82.66	270.21	12,084.13	178.45	-516.14	513.92	10.00	9.96	-0.89
12,400.00	87.64	269.78	12,088.36	178.44	-565.95	563.73	10.00	9.96	-0.87
12,454.98	93.11	269.30	12,088.00	178.00	-620.90	618.68	10.00	9.96	-0.87
12,500.00	93.11	269.30	12,085.56	177.45	-665.85	663.64	0.00	0.00	0.00
12,600.00	93.11	269.30	12,080.12	176.23	-765.70	763.49	0.00	0.00	0.00
12,700.00	93.11	269.30	12,074.69	175.02	-865.54	863.34	0.00	0.00	0.00
12,800.00	93.11	269.30	12,069.26	173.80	-965.39	963.19	0.00	0.00	0.00
12,900.00	93.11	269.30	12,063.83	172.58	-1,065.23	1,063.05	0.00	0.00	0.00
13,000.00	93.11	269.30	12,058.40	171.37	-1,165.08	1,162.90	0.00	0.00	0.00
13,100.00	93.11	269.30	12,052.97	170.15	-1,264.92	1,262.75	0.00	0.00	0.00
13,200.00	93.11	269.30	12,047.54	168.93	-1,364.77	1,362.60	0.00	0.00	0.00
13,300.00	93.11	269.30	12,042.11	167.71	-1,464.61	1,462.46	0.00	0.00	0.00
13,400.00	93.11	269.30	12,036.68	166.50	-1,564.46	1,562.31	0.00	0.00	0.00
13,500.00	93.11	269.30	12,031.25	165.28	-1,664.30	1,662.16	0.00	0.00	0.00
13,600.00	93.11	269.30	12,025.82	164.06	-1,764.15	1,762.01	0.00	0.00	0.00
13,700.00	93.11	269.30	12,020.39	162.84	-1,863.99	1,861.87	0.00	0.00	0.00
13,800.00	93.11	269.30	12,014.95	161.63	-1,963.84	1,961.72	0.00	0.00	0.00
13,900.00	93.11	269.30	12,009.52	160.41	-2,063.68	2,061.57	0.00	0.00	0.00
14,000.00	93.11	269.30	12,004.09	159.19	-2,163.53	2,161.42	0.00	0.00	0.00
14,100.00	93.11	269.30	11,998.66	157.97	-2,263.37	2,261.27	0.00	0.00	0.00
14,200.00	93.11	269.30	11,993.23	156.76	-2,363.22	2,361.13	0.00	0.00	0.00
14,300.00	93.11	269.30	11,987.80	155.54	-2,463.06	2,460.98	0.00	0.00	0.00
14,400.00	93.11	269.30	11,982.37	154.32	-2,562.91	2,560.83	0.00	0.00	0.00
14,500.00	93.11	269.30	11,976.94	153.11	-2,662.75	2,660.68	0.00	0.00	0.00
14,600.00	93.11	269.30	11,971.51	151.89	-2,762.60	2,760.54	0.00	0.00	0.00
14,700.00	93.11	269.30	11,966.08	150.67	-2,862.44	2,860.39	0.00	0.00	0.00
14,800.00	93.11	269.30	11,960.65	149.45	-2,962.29	2,960.24	0.00	0.00	0.00
14,900.00	93.11	269.30	11,955.22	148.24	-3,062.13	3,060.09	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)
15,000.00	93.11	269.30	11,949.78	147.02	-3,161.98	3,159.95	0.00	0.00	0.00
15,100.00	93.11	269.30	11,944.35	145.80	-3,261.82	3,259.80	0.00	0.00	0.00
15,200.00	93.11	269.30	11,938.92	144.58	-3,361.67	3,359.65	0.00	0.00	0.00
15,300.00	93.11	269.30	11,933.49	143.37	-3,461.51	3,459.50	0.00	0.00	0.00
15,400.00	93.11	269.30	11,928.06	142.15	-3,561.36	3,559.36	0.00	0.00	0.00
15,500.00	93.11	269.30	11,922.63	140.93	-3,661.20	3,659.21	0.00	0.00	0.00
15,600.00	93.11	269.30	11,917.20	139.72	-3,761.05	3,759.06	0.00	0.00	0.00
15,700.00	93.11	269.30	11,911.77	138.50	-3,860.89	3,858.91	0.00	0.00	0.00
15,800.00	93.11	269.30	11,906.34	137.28	-3,960.74	3,958.77	0.00	0.00	0.00
15,900.00	93.11	269.30	11,900.91	136.06	-4,060.58	4,058.62	0.00	0.00	0.00
16,000.00	93.11	269.30	11,895.48	134.85	-4,160.43	4,158.47	0.00	0.00	0.00
16,100.00	93.11	269.30	11,890.05	133.63	-4,260.27	4,258.32	0.00	0.00	0.00
16,200.00	93.11	269.30	11,884.61	132.41	-4,360.12	4,358.18	0.00	0.00	0.00
16,300.00	93.11	269.30	11,879.18	131.19	-4,459.96	4,458.03	0.00	0.00	0.00
16,400.00	93.11	269.30	11,873.75	129.98	-4,559.81	4,557.88	0.00	0.00	0.00
16,500.00	93.11	269.30	11,868.32	128.76	-4,659.65	4,657.73	0.00	0.00	0.00
16,600.00	93.11	269.30	11,862.89	127.54	-4,759.50	4,757.59	0.00	0.00	0.00
16,700.00	93.11	269.30	11,857.46	126.32	-4,859.34	4,857.44	0.00	0.00	0.00
16,800.00	93.11	269.30	11,852.03	125.11	-4,959.19	4,957.29	0.00	0.00	0.00
16,900.00	93.11	269.30	11,846.60	123.89	-5,059.03	5,057.14	0.00	0.00	0.00
17,000.00	93.11	269.30	11,841.17	122.67	-5,158.88	5,157.00	0.00	0.00	0.00
17,100.00	93.11	269.30	11,835.74	121.46	-5,258.72	5,256.85	0.00	0.00	0.00
17,200.00	93.11	269.30	11,830.31	120.24	-5,358.57	5,356.70	0.00	0.00	0.00
17,300.00	93.11	269.30	11,824.88	119.02	-5,458.41	5,456.55	0.00	0.00	0.00
17,400.00	93.11	269.30	11,819.44	117.80	-5,558.26	5,556.40	0.00	0.00	0.00
17,500.00	93.11	269.30	11,814.01	116.59	-5,658.10	5,656.26	0.00	0.00	0.00
17,600.00	93.11	269.30	11,808.58	115.37	-5,757.95	5,756.11	0.00	0.00	0.00
17,700.00	93.11	269.30	11,803.15	114.15	-5,857.79	5,855.96	0.00	0.00	0.00
17,800.00	93.11	269.30	11,797.72	112.93	-5,957.64	5,955.81	0.00	0.00	0.00
17,900.00	93.11	269.30	11,792.29	111.72	-6,057.48	6,055.67	0.00	0.00	0.00
18,000.00	93.11	269.30	11,786.86	110.50	-6,157.33	6,155.52	0.00	0.00	0.00
18,100.00	93.11	269.30	11,781.43	109.28	-6,257.17	6,255.37	0.00	0.00	0.00
18,200.00	93.11	269.30	11,776.00	108.06	-6,357.02	6,355.22	0.00	0.00	0.00
18,300.00	93.11	269.30	11,770.57	106.85	-6,456.86	6,455.08	0.00	0.00	0.00
18,400.00	93.11	269.30	11,765.14	105.63	-6,556.71	6,554.93	0.00	0.00	0.00
18,500.00	93.11	269.30	11,759.71	104.41	-6,656.55	6,654.78	0.00	0.00	0.00
18,600.00	93.11	269.30	11,754.27	103.20	-6,756.40	6,754.63	0.00	0.00	0.00
18,700.00	93.11	269.30	11,748.84	101.98	-6,856.24	6,854.49	0.00	0.00	0.00
18,800.00	93.11	269.30	11,743.41	100.76	-6,956.09	6,954.34	0.00	0.00	0.00
18,900.00	93.11	269.30	11,737.98	99.54	-7,055.93	7,054.19	0.00	0.00	0.00
19,000.00	93.11	269.30	11,732.55	98.33	-7,155.78	7,154.04	0.00	0.00	0.00
19,100.00	93.11	269.30	11,727.12	97.11	-7,255.62	7,253.90	0.00	0.00	0.00
19,200.00	93.11	269.30	11,721.69	95.89	-7,355.47	7,353.75	0.00	0.00	0.00
19,300.00	93.11	269.30	11,716.26	94.67	-7,455.31	7,453.60	0.00	0.00	0.00
19,400.00	93.11	269.30	11,710.83	93.46	-7,555.16	7,553.45	0.00	0.00	0.00
19,500.00	93.11	269.30	11,705.40	92.24	-7,655.00	7,653.31	0.00	0.00	0.00
19,600.00	93.11	269.30	11,699.97	91.02	-7,754.85	7,753.16	0.00	0.00	0.00
19,700.00	93.11	269.30	11,694.54	89.81	-7,854.69	7,853.01	0.00	0.00	0.00
19,800.00	93.11	269.30	11,689.10	88.59	-7,954.54	7,952.86	0.00	0.00	0.00
19,900.00	93.11	269.30	11,683.67	87.37	-8,054.38	8,052.72	0.00	0.00	0.00
20,000.00	93.11	269.30	11,678.24	86.15	-8,154.23	8,152.57	0.00	0.00	0.00
20,100.00	93.11	269.30	11,672.81	84.94	-8,254.07	8,252.42	0.00	0.00	0.00
20,200.00	93.11	269.30	11,667.38	83.72	-8,353.92	8,352.27	0.00	0.00	0.00
20,300.00	93.11	269.30	11,661.95	82.50	-8,453.76	8,452.13	0.00	0.00	0.00



Database: EDM 5000.1 Single User Db
Company: XTO Energy
Project: Eddy County, NM (NAD-27)
Site: Poker Lake Unit
Well: #486H
Wellbore: OH
Design: PERMIT

Local Co-ordinate Reference: Well #486H
TVD Reference: RKB = 25' @ 3364.00usft
MD Reference: RKB = 25' @ 3364.00usft
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)
20,400.00	93.11	269.30	11,656.52	81.28	-8,553.61	8,551.98	0.00	0.00	0.00
20,500.00	93.11	269.30	11,651.09	80.07	-8,653.45	8,651.83	0.00	0.00	0.00
20,600.00	93.11	269.30	11,645.66	78.85	-8,753.30	8,751.68	0.00	0.00	0.00
20,700.00	93.11	269.30	11,640.23	77.63	-8,853.14	8,851.53	0.00	0.00	0.00
20,800.00	93.11	269.30	11,634.80	76.41	-8,952.99	8,951.39	0.00	0.00	0.00
20,900.00	93.11	269.30	11,629.37	75.20	-9,052.83	9,051.24	0.00	0.00	0.00
21,000.00	93.11	269.30	11,623.93	73.98	-9,152.68	9,151.09	0.00	0.00	0.00
21,100.00	93.11	269.30	11,618.50	72.76	-9,252.52	9,250.94	0.00	0.00	0.00
21,200.00	93.11	269.30	11,613.07	71.55	-9,352.37	9,350.80	0.00	0.00	0.00
21,300.00	93.11	269.30	11,607.64	70.33	-9,452.21	9,450.65	0.00	0.00	0.00
21,400.00	93.11	269.30	11,602.21	69.11	-9,552.06	9,550.50	0.00	0.00	0.00
21,500.00	93.11	269.30	11,596.78	67.89	-9,651.90	9,650.35	0.00	0.00	0.00
21,600.00	93.11	269.30	11,591.35	66.68	-9,751.75	9,750.21	0.00	0.00	0.00
21,700.00	93.11	269.30	11,585.92	65.46	-9,851.59	9,850.06	0.00	0.00	0.00
21,800.00	93.11	269.30	11,580.49	64.24	-9,951.44	9,949.91	0.00	0.00	0.00
21,900.00	93.11	269.30	11,575.06	63.02	-10,051.28	10,049.76	0.00	0.00	0.00
22,000.00	93.11	269.30	11,569.63	61.81	-10,151.13	10,149.62	0.00	0.00	0.00
22,100.00	93.11	269.30	11,564.20	60.59	-10,250.97	10,249.47	0.00	0.00	0.00
22,200.00	93.11	269.30	11,558.76	59.37	-10,350.82	10,349.32	0.00	0.00	0.00
22,300.00	93.11	269.30	11,553.33	58.15	-10,450.66	10,449.17	0.00	0.00	0.00
22,400.00	93.11	269.30	11,547.90	56.94	-10,550.51	10,549.03	0.00	0.00	0.00
22,500.00	93.11	269.30	11,542.47	55.72	-10,650.35	10,648.88	0.00	0.00	0.00
22,600.00	93.11	269.30	11,537.04	54.50	-10,750.20	10,748.73	0.00	0.00	0.00
22,700.00	93.11	269.30	11,531.61	53.29	-10,850.04	10,848.58	0.00	0.00	0.00
22,800.00	93.11	269.30	11,526.18	52.07	-10,949.89	10,948.44	0.00	0.00	0.00
22,900.00	93.11	269.30	11,520.75	50.85	-11,049.73	11,048.29	0.00	0.00	0.00
23,000.00	93.11	269.30	11,515.32	49.63	-11,149.58	11,148.14	0.00	0.00	0.00
23,100.00	93.11	269.30	11,509.89	48.42	-11,249.42	11,247.99	0.00	0.00	0.00
23,151.86	93.11	269.30	11,507.07	47.78	-11,301.20	11,299.78	0.00	0.00	0.00
23,200.00	93.11	269.30	11,504.46	47.20	-11,349.27	11,347.85	0.00	0.00	0.00
23,282.06	93.11	269.30	11,500.00	46.20	-11,431.20	11,429.78	0.00	0.00	0.00

Design Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PLU #486H: SHL (15' - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	430,231.50	647,453.80	32.181926	-103.856727
PLU #486H: PBHL (3' - plan hits target center - Point	0.00	0.00	11,500.00	46.20	-11,431.20	430,277.70	636,022.60	32.182186	-103.893674
PLU #486H: LTP - plan misses target center by 0.18usft at 23151.86usft MD (11507.07 TVD, 47.78 N, -11301.20 E) - Point	0.00	0.00	11,507.07	47.60	-11,301.20	430,279.10	636,152.60	32.182189	-103.893254
PLU #486H: FTP/ LP - plan hits target center - Point	0.00	0.00	12,088.00	178.00	-620.90	430,409.50	646,832.90	32.182422	-103.858731

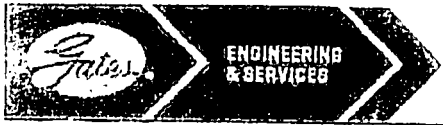


Database: EDM 5000.1 Single User Db
Company: XTO Energy
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Site: Poker Lake Unit
Well: #486H
Wellbore: OH
Design: PERMIT

Local Co-ordinate Reference: Well #486H
TVD Reference: RKB = 25' @ 3364.00usft
MD Reference: RKB = 25' @ 3364.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,333.00	1,333.00	Rustler			
2,321.00	2,321.00	Top Salt			
3,911.00	3,911.00	Base Salt			
3,976.00	3,976.00	Delaware			
4,838.00	4,838.00	Cherry Canyon			
6,124.00	6,124.00	Brushy Canyon			
7,707.00	7,707.00	Bone Spring			
8,656.00	8,656.00	1st Bone Spring Ss			
9,446.00	9,446.00	2nd Bone Spring Ss			
10,616.24	10,614.00	3rd Bone Spring Ss			
11,008.73	11,005.00	Wolfcamp			
11,150.27	11,146.00	Wolfcamp A			
12,156.76	12,028.00	Wolfcamp E			



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

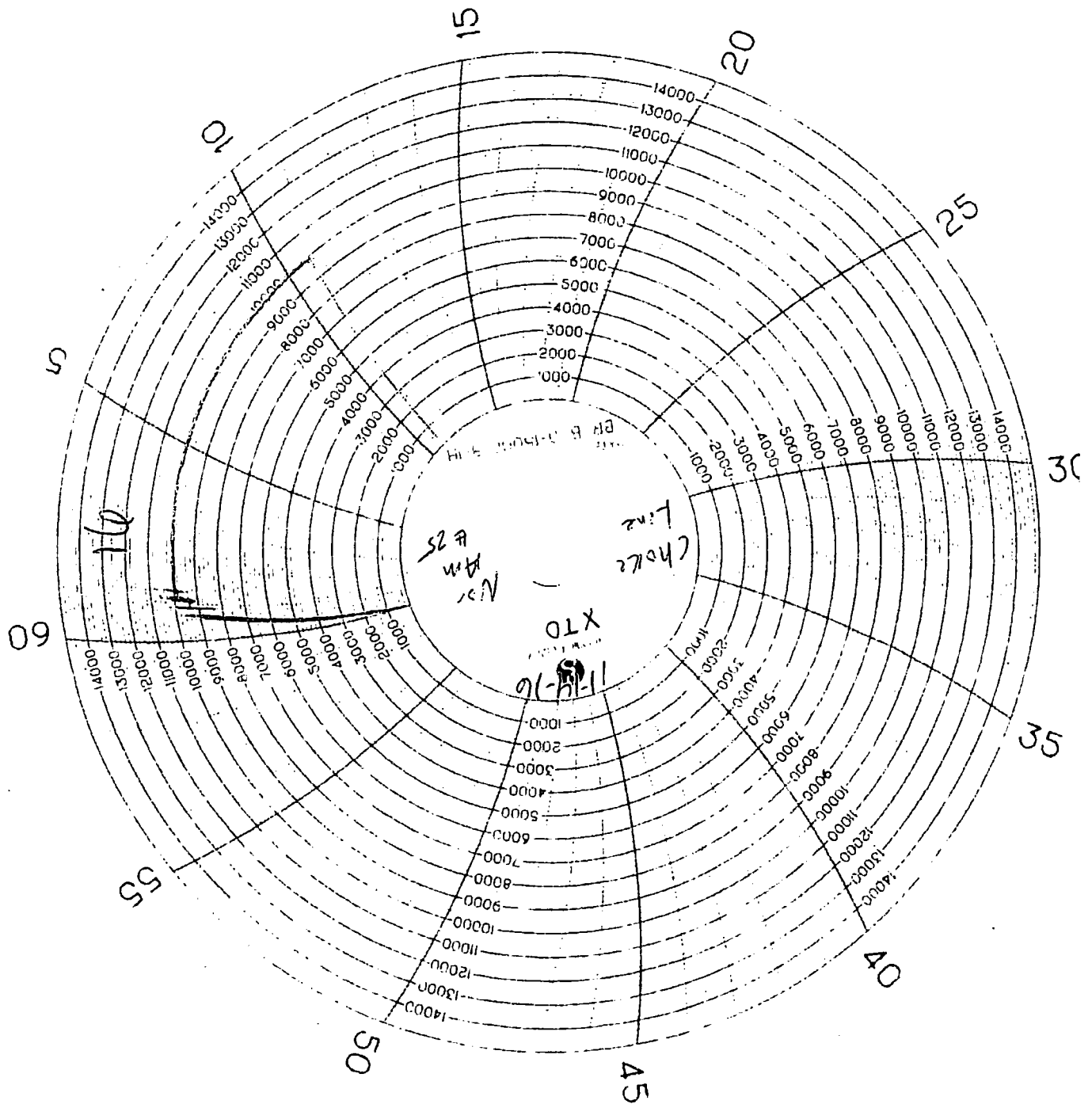
PHONE: 361-887-9807
FAX: 361-887-0812
EMAIL: crpe&s@gates.com
WEB: www.gates.com

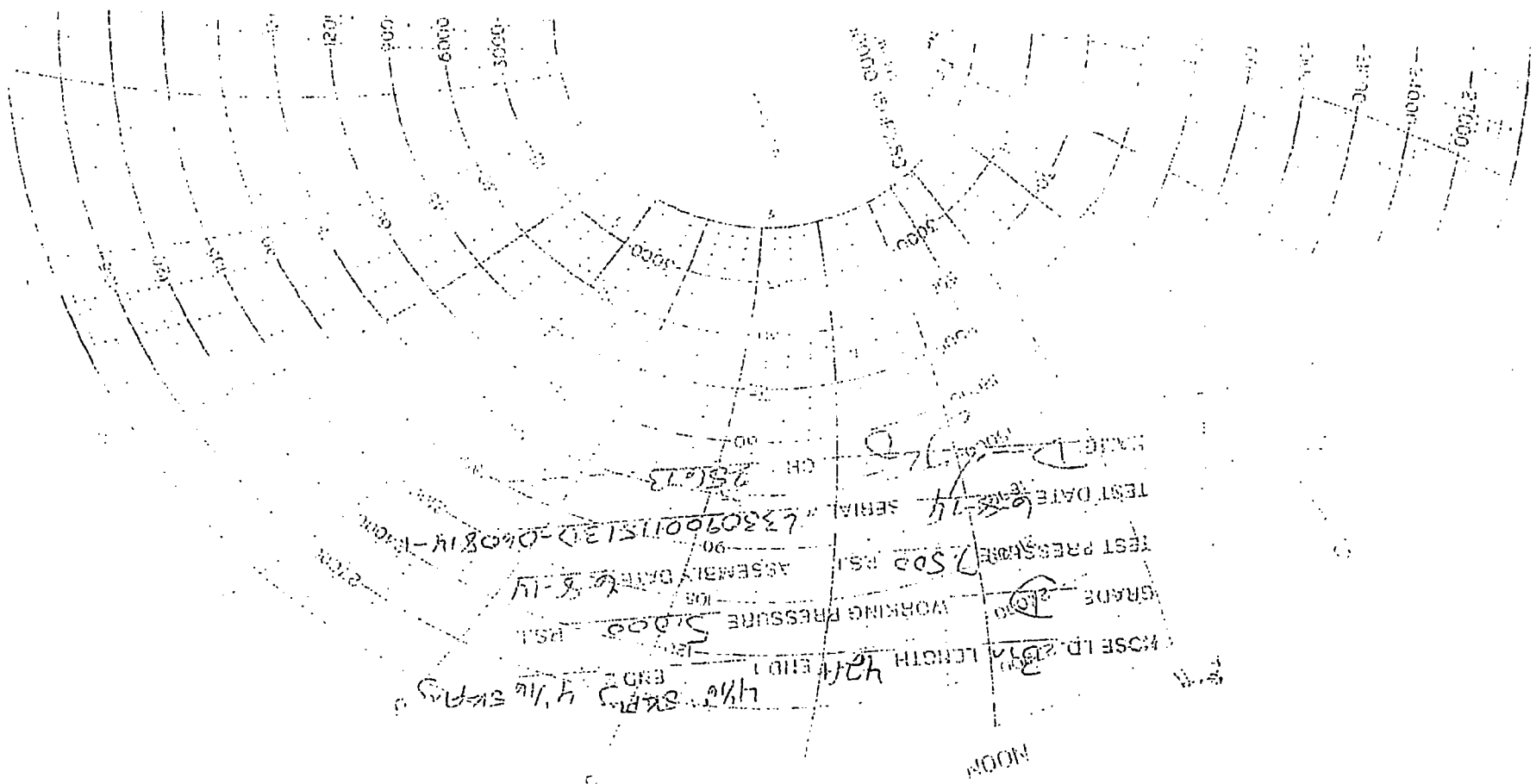
GRADE D PRESSURE TEST CERTIFICATE

Customer :	AUSTIN DISTRIBUTING	Test Date:	6/8/2014
Customer Ref. :	PENDING	Hose Serial No.:	D-060814-1
Invoice No. :	201709	Created By:	NORI-1A
Product Description:	FD3.042.0R41/16.5KFLGE/E LE		
End Fitting 1 :	4 1/16 in.5K FLG	End Fitting 2 :	4 1/16 in.5K FLG
Gates Part No. :	4774-6001	Assembly Code :	L33090011513D-060814-1
Working Pressure :	5,000 PSI	Test Pressure :	7,500 PSI

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

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





NOON

42 ft END 1
END 2 4 1/2 SWAYS

NOSE L.D. 2.571

GRADE 2.000

WORKING PRESSURE 5.000

TEST PRESSURE 7.500

TEST DATE 6-2-74

SERIAL 633090015130-040814-1400

ASSEMBLY DATE 6-14-74

CH 28673

JUN 27 2018

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

RECEIVED

OPERATOR'S NAME:	BOPCO LP
LEASE NO.:	NMNM71016X
WELL NAME & NO.:	POKER LAKE UNIT 486H
SURFACE HOLE FOOTAGE:	150' FSL & 950' FWL
BOTTOM HOLE FOOTAGE:	330' FSL & 200' FWL
LOCATION:	Section 26, T. 24 S., R 30 E., NMPM
COUNTY:	Eddy County, New Mexico

COA

All previous COAs 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

A. Hydrogen Sulfide

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

Operator shall filled 75% of casing with fluid while running 1st intermediate casing to maintain collapse safety factor.

1. The 18 5/8 inch surface casing shall be set at approximately feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of 8 hours or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
- d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Operator shall filled 50% of casing with fluid while running 1st intermediate casing to maintain collapse safety factor.

- 2. The minimum required fill of cement behind the 13-3/8 inch 1st 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 or potash.

Operator shall filled 50% of casing with fluid while running 2nd intermediate casing to maintain collapse safety factor

- 3. The minimum required fill of cement behind the 9-5/8 inch 2nd intermediate casing is:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

- a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.
 - b. Second stage above DV tool: Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.
- 4. The minimum required fill of cement behind the 5-1/2 inch production casing is:
 - Cement should tie-back 200' into the previous casing. Operator shall provide method of verification. **Additional cement maybe required. Excess calculates to 21%.**

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. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.
- 3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 13-3/8 intermediate casing shoe shall be **5000 (5M)** psi.

GENERAL REQUIREMENTS

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

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

☒ Chaves and Roosevelt Counties

Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.

During office hours call (575) 627-0272.

After office hours call (575).

☒ Eddy County

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

☒ Lea County

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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig
 - Notify the BLM when moving in and removing the Spudder Rig.
 - Notify the BLM when moving in the 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.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log (one log per well pad is acceptable) run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
 - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

- a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
- b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
- c. The tests shall be done by an independent service company utilizing a test plug. The results of the test shall be reported to the appropriate BLM office.
- d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes. This test shall be performed prior to the test at full stack pressure.
- g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

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.

Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

ZS 062518

Medium Cave Karst: two casing strings, both to circulate cement to surface.

18 5/8	surface csg in a	24	inch hole.	Design Factors			SURFACE		
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight	
"A"	87.50	J 55	ST&C	5.94	0.95	1.08	1,450	126,875	
"B"							0	0	
w/8.4#/g mud, 30min Sfc Csg Test psig: 942			Tail Cmt	does not	circ to sfc.	Totals:	1,450	126,875	
<u>Comparison of Proposed to Minimum Required Cement Volumes</u>									
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
24	1.2496	2990	5435	1967	176	8.80	1218	2M	12.00
ALT. COLLAPSE SF: 0.95*1.5=1.43									

Proposed				Design Factors				INTERMEDIATE	
13 3/8	casing inside the	18 5/8							
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight	
"A"	68.00	J 55	ST&C	2.53	0.94	0.58	3,930	267,240	
"B"							0	0	
w/8.4#/g mud, 30min Sfc Csg Test psig:							Totals:	3,930	267,240
The cement volume(s) are intended to achieve a top of				300	ft from surface or a		1150	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
17 1/2	0.6946	3400	6344	2615	143	10.20	3428	5M	1.56
Class 'C' tail cmt yld > 1.35									
COLLAPSE SF: 0.94*1.5= 1.41; ALT. BRUST SF IS GOOD									

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 0.88, b, c, d All > 0.70, OK.

9 5/8	casing inside the	13 3/8	Design Factors				INTERMEDIATE	
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight
"A"	40.00	HCL 80	LT&C	1.83	0.71	0.77	11,450	458,000
"B"							0	0
w/8.4#/g mud, 30min Sfc Csg Test psig: -969							Totals:	11,450 458,000
A	would be:			1.83	0.71	if it were a vertical wellbore.		
No Pilot Hole Planned			MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°
			11450	11445	11445	9860	5	0
The cement volume(s) are intended to achieve a top of					3730	ft from surface or a		200
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE
12 1/4	0.3132	look	0	2441		10.00	4941	5M
Setting Depths for D V Tool(s):				4030			sum of sx	Σ CuFt
% excess cmt by stage:				230	2446		3700	6830
Class 'H' tail cmt yld > 1.20 .MASP is within 10% of 5000psig, need exrta equip?								
							Σ %excess	180

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 0.5, b, c, d < 0.70 a Problem!! ALT. COLLAPSE SF: 0.71*2= 1.42; ALT. BRUST SF IS GOOD. CURVE COLLAPSE SF IS TOO CONSERVATIVE

Tail cmt				<u>Design Factors</u>			<u>PRODUCTION</u>	
5 1/2	casing inside the	9 5/8						
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	Weight
"A"	20.00	P 110	BUTT	2.79	1.73	1.69	9,860	197,200
"B"	20.00	P 110	BUTT	11.11	1.44	1.69	13,374	267,480
w/8.4#/g mud, 30min Sfc Csg Test psig: 2,169							Totals:	23,234 464,680
B egment Design Factors would be:				19.55	1.48	if it were a vertical wellbore.		
01647			MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°
			23234	11507	11500	9860	93	4
The cement volume(s) are intended to achieve a top of				11250	ft from surface or a		200	overlap.
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE
8 3/4	0.2526	2280	3671	3034	21	12.50		1.35
Class 'H' tail cmt yld > 1.20						MASP is within 10% of 5000psig, need exrta equip?		