

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Carlsbad Field Office
OCD ArtesiaFORM 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.
NMNM120898

6. If Indian, Allottee or Tribe Name

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

SUBMIT IN TRIPLICATE - Other instructions on page 28. Well Name and No.
POKER LAKE UNIT 18 BRUSHY DRAW 1049. API Well No.
30-015-4489210. Field and Pool or Exploratory Area
PURPLE SAGE; WOLFCAMP GAS

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	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

XTO Permian Operating, LLC requests permission to make the following changes to the approved APD:

- 321273
1. Change name fr/Poker Lake Unit 18 Brushy Draw 104H to Poker Lake Unit 18 BD 104H. - 322451
2. Change SHL fr/2310'FNL & 2150'FWL to 2310'FNL & 1365'FWL. SHL permitted on eastern most pad in slot 2 on Pad C (west to east). Revised SHL will put the well in slot 4 on Pad B. No surface disturbance will occur with this change. (See attached permitted vs proposed sheet).
3. Drilling Program
4. Directional Plan

Attachments:
C102 & Supplement
GCP

RECEIVED

NOV 28 2018

DISTRICT II-ARTESIA O.C.D.

DOI .BLM.-NM.-PO 20-2018-0280-8A

Same as is Apply
no new surface disturbance

OK Paul Ballard 11-14-2018

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

Electronic Submission #443078 verified by the BLM Well Information System
For XTO PERMIAN OPERATING, LLC, sent to the Carlsbad
Committed to AFMSS for processing by PRISCILLA PEREZ on 11/08/2018 ()

Name (Printed/Typed) KELLY KARDOS

Title REGULATORY COORDINATOR

Signature (Electronic Submission)

Date 11/08/2018

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.

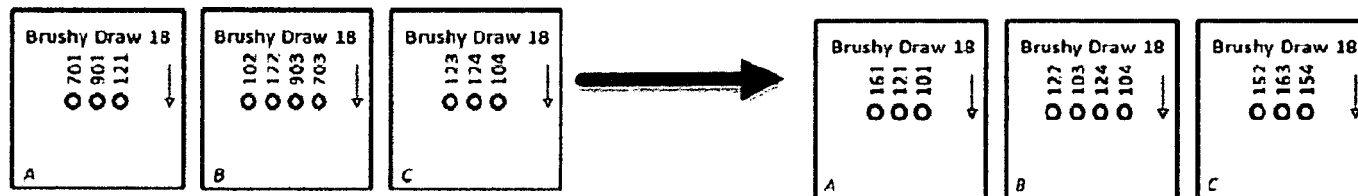
(Instructions on page 2)

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

PERMITTED PLAN

SUNDRY CHANGES

API Number	Current Pad & Slot	Current Well Name	Permitted SHL	Proposed Pad & Slot	Well Name Change	Updated SHL	ULSTR
3001544897	A-1	POKER LAKE UNIT 18 BRUSHY DRAW No. 701H	E-18-25S-30E (2310 FNL & 510 FWL)	A-1	Poker Lake Unit 18 BD 161H	2310'FNL & 510'FWL	2-18-25S-30E
3001544899	A-2	POKER LAKE UNIT 18 BRUSHY DRAW No. 901H	E-18-25S-30E (2310 FNL & 540 FWL)	A-3	Poker Lake Unit 18 BD 101H	2310'FNL & 570'FWL	2-18-25S-30E
3001544893	A-3	POKER LAKE UNIT 18 BRUSHY DRAW No. 121H	E-18-25S-30E (2310 FNL & 570 FWL)	A-2	Poker Lake Unit 18 BD 121H	2310'FNL & 540'FWL	2-18-25S-30E
3001544891	B-1	POKER LAKE UNIT 18 BRUSHY DRAW No. 102H	E-18-25S-30E (2310 FNL & 1275 FWL)	B-2	Poker Lake Unit 18 BD 103H	2310'FNL & 1305'FWL	2-18-25S-30E
3001544894	B-2	POKER LAKE UNIT 18 BRUSHY DRAW No. 122H	E-18-25S-30E (2310 FNL & 1305 FWL)	B-1	Poker Lake Unit 18 BD 122H	2310'FNL & 1275'FWL	2-18-25S-30E
3001544900	B-3	POKER LAKE UNIT 18 BRUSHY DRAW No. 903H	E-18-25S-30E (2310 FNL & 1335 FWL)	C-2	Poker Lake Unit 18 BD 163H	2310'FNL & 2120'FWL	F-18-25S-30E
3001544898	B-4	POKER LAKE UNIT 18 BRUSHY DRAW No. 703H	F-18-25S-30E (2310 FNL & 1365 FWL)	C-1	Poker Lake Unit 18 BD 152H	2310'FNL & 2090'FWL	F-18-25S-30E
3001544895	C-1	POKER LAKE UNIT 18 BRUSHY DRAW No. 123H	F-18-25S-30E (2310 FNL & 2090 FWL)	C-3	Poker Lake Unit 18 BD 154H	2310'FNL & 2150'FWL	F-18-25S-30E
3001544896	C-2	POKER LAKE UNIT 18 BRUSHY DRAW No. 124H	F-18-25S-30E (2310 FNL & 2120 FWL)	B-3	Poker Lake Unit 18 BD 124H	2310'FNL & 1335'FWL	2-18-25S-30E
3001544892	C-3	POKER LAKE UNIT 18 BRUSHY DRAW No. 104H	F-18-25S-30E (2310 FNL & 2150 FWL)	B-4	Poker Lake Unit 18 BD 104H	2310'FNL & 1365'FWL	F-18-25S-30E



SECTION 18

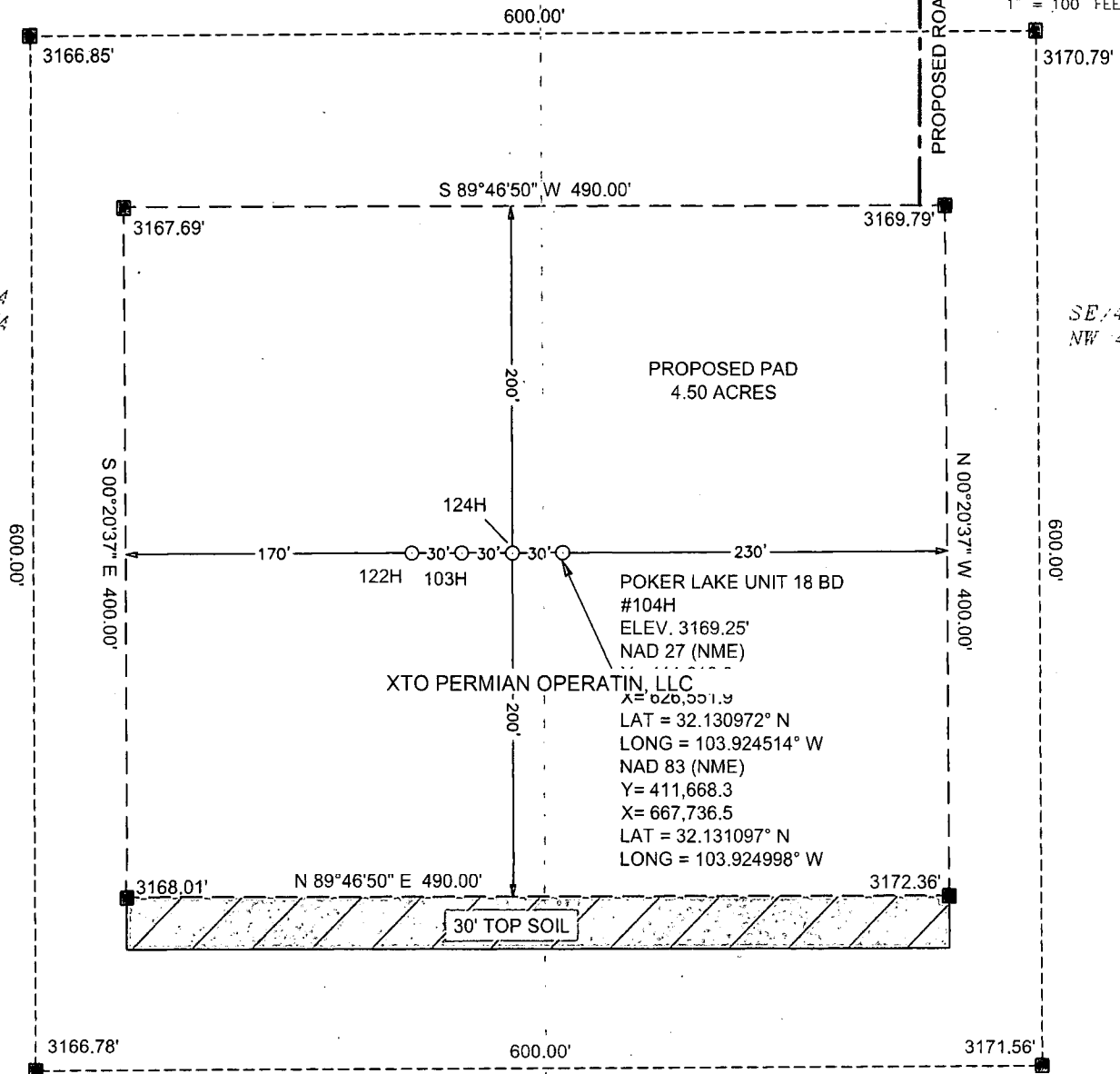
TOWNSHIP 25 SOUTH, RANGE 30 EAST
NEW MEXICO PRIME MERIDIAN



0 50' 100'
1" = 100 FEET

SW 1/4
NW 1/4

SE 1/4
NW 1/4



NOTE:

- 1). SEE "TOPOGRAPHICAL AND ACCESS ROAD MAP" FOR PROPOSED ROAD LOCATION

DIRECTIONS TO THIS LOCATION:

FROM THE INTERSECTION OF HWY 285 AND LONGHORN RD. GO NORTHEAST ON LONGHORN ROAD (PAVED). ROAD BEND SOUTHEAST AND BACK TO NORTHEAST APPROX. 4.3 MILES. TURN LEFT AND GO NORTHEAST ON PIPELINE ROAD #1 (GRAVEL) APPROX. 7.0 MILES. THEN TURN LEFT ON LEASE ROAD (GRAVEL) FOR APPROX. 1 MILE. TURN LEFT ON LEASE ROAD (GRAVEL) FOR APPROX. 0.5 MILES AND ARRIVE AT PROPOSED ROAD AND LOCATION IS TO THE SOUTHWEST.

LEGEND

- PROPOSED PAD
- PROPOSED ACCESS ROAD

XTO PERMIAN OPERATING, LLC

WELL SITE PLAN

POKER LAKE UNIT 18 BD #104H LOCATED
2,310 FEET FROM THE NORTH LINE AND 1,365
FEET FROM THE WEST LINE OF SECTION 18,
TOWNSHIP 25 SOUTH, RANGE 30 EAST,
N.M.P.M. EDDY COUNTY, NEW MEXICO

DATE:	7-13-2018	PROJECT NO:	2017050630
DRAWN BY:	JAR/AI/RS	SCALE:	1" = 100'
CHECKED BY:	DH	SHEET:	1 OF 1
FIELD CREW:	NGM/JLD	REVISION:	2



550 Bailey Ave., 205 - Fort Worth, TX 76107
Ph: 817.349.9800 - Fax: 979.732.5271
TBPE Firm 17957 | TBPLS Firm 10193887
www.fscinc.net

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DRILLING PLAN: BLM COMPLIANCE

(Supplement to BLM 3160-3)

XTO Energy Inc.

PLU 18 Brushy Draw 104H

Projected TD: 18485' MD / 10654' TVD

SHL: 2310' FNL & 1365' FWL, Section 18, T25S, R30E

BHL: 200' FSL & 2310' FWL, Section 19, T25S, R30E

Eddy County, NM

1. Geologic Name of Surface Formation

A. Permian

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

Formation	Well Depth (TVD)	Water/Oil/Gas
Rustler	721'	Water
Top of Salt	1036'	Water
Base of Salt	3308'	Water
Delaware	3491'	Water
Bone Spring	7219'	Water/Oil/Gas
1st Bone Spring Ss	8243'	Water/Oil/Gas
2nd Bone Spring Ss	9048'	Water/Oil/Gas
3rd Bone Spring Ss	10141'	Water/Oil/Gas
Wolfcamp	10542'	Water/Oil/Gas
Target/Land Curve	10654'	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 @ 840' (196' above the salt) and circulating cement back to surface. The salt will be isolated by setting 9-5/8 inch casing at 3340' and circulating cement to surface. An 8-3/4 inch vertical and curve hole will be drilled and 7 inch casing run and cemented 500' into the 9-5/8 inch casing. A 6 inch curve and lateral hole will be drilled to MD/TD and 4-1/2 inch liner will be set at TD and cemented back 250' into the 7 inch casing shoe.

3. Casing Design

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
17-1/2"	0' - 840'	13-3/8"	54.5	BTC	J-55	New	2.63	2.94	21.16
12-1/4"	0' - 3340'	9-5/8"	40	BTC	J-55	New	1.41	2.45	5.24
8-3/4"	0' - 10800'	7"	32	BTC	P-110	New	1.31	2.10	2.86
6"	10060' - 18485'	4-1/2"	13.5	BTC	P-110	New	1.31	2.63	2.29

- XTO requests to utilize centralizers only in the curve after the KOP and only a minimum of one every other joint.
- 9-5/8" & 4-1/2" Collapse analyzed using 50% evacuation based on regional experience.
- 4-1/2" tension calculated using vertical hanging weight plus the lateral weight multiplied by a friction factor of 0.35

WELLHEAD:

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

B. Tubing Head: 13-5/8" 5M bottom flange x 7-1/16" 15M top flange

- Wellhead will be installed by manufacturer's representatives.
- Manufacturer will monitor welding process to ensure appropriate temperature of seal.
- Operator will test the 9-5/8" casing to per Onshore Order 2.
- Wellhead manufacturer representative will not be present for BOP test plug installation

4. Cement Program

Surface Casing: 13-3/8", 54.5 New J-55, BTC casing to be set at +/- 840'

Lead: 400 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)

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

Intermediate Casing: 9-5/8", 40 New J-55, BTC casing to be set at +/- 3340'

Lead: 940 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

2nd Intermediate Casing: 7", 32 New P-110, BTC casing to be set at +/- 10800'

Lead: 980 sxs Halcem-C + 2% CaCl (mixed at 12.9 ppg, 1.88 ft³/sx, 9.61 gal/sx water)

Tail: 60 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: 4-1/2", 13.5 New P-110, BTC casing to be set at +/- 18485'

Tail: 710 sxs VersaCem (mixed at 13.2 ppg, 1.33 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 4027 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 the 9-5/8" and 7" casing is set, the packoff seals 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 840'	17-1/2"	FW/Native	8.4-8.8	35-40	NC
840' to 3340'	12-1/4"	Brine/Gel Sweeps	9.8-10.2	30-32	NC
3340' to 10800'	8-3/4"	FW / Cut Brine	8.6-9.5	29-32	NC - 20
10800' to 18485'	6-1/8"	FW / Cut Brine / Polymer	11.2-11.5	32-50	20-Aug

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.

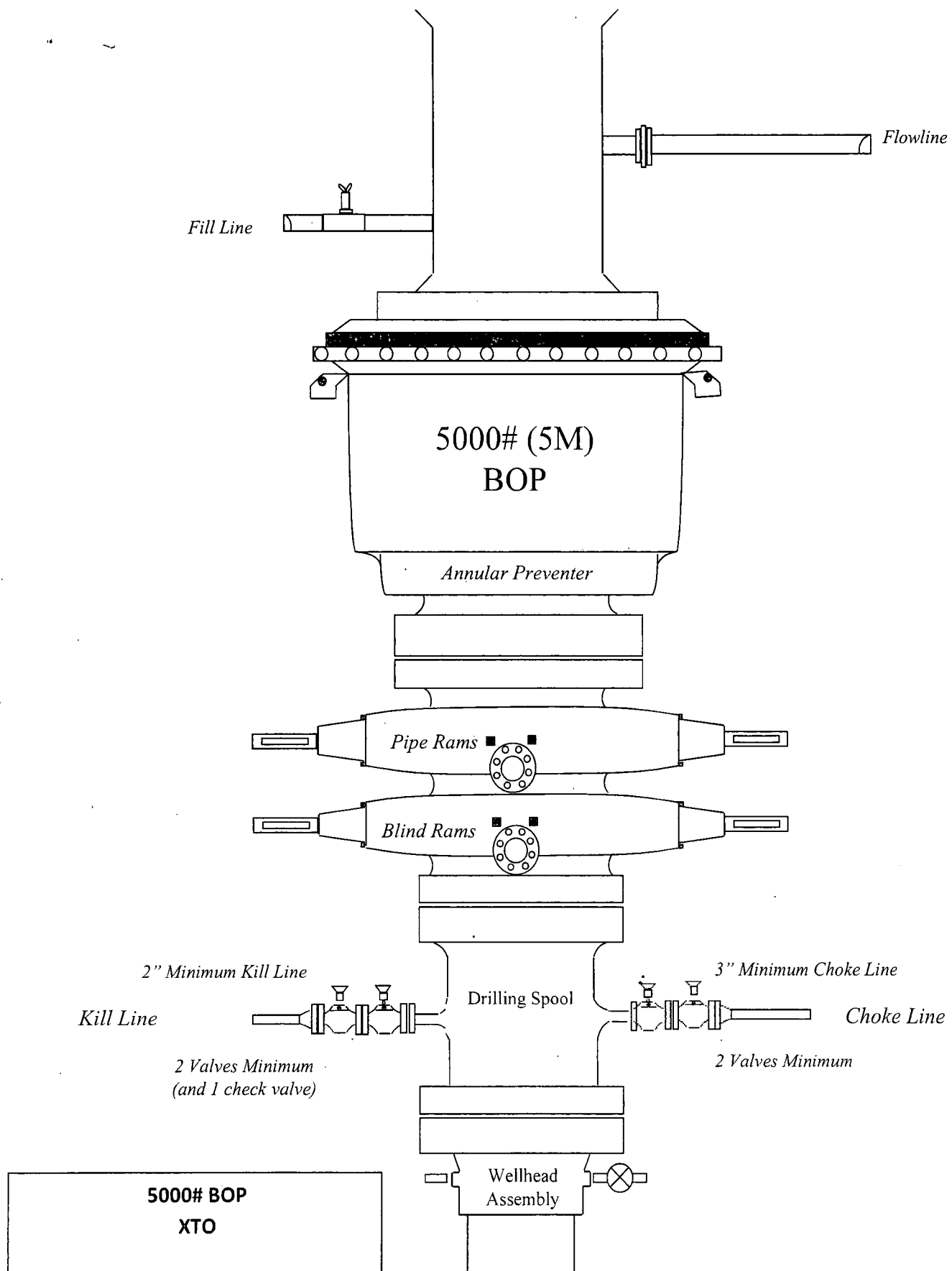
Open hole logging will not be done on this well.

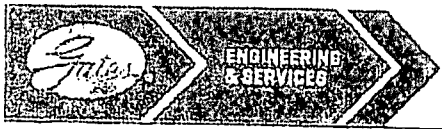
9. Abnormal Pressures and Temperatures / Potential Hazards

None Anticipated. BHT of 145 to 165 F is anticipated. No H2S is expected but monitors will be in place to detect any H2S occurrences. Should these circumstances be encountered the operator and drilling contractor are prepared to take all necessary steps to ensure safety of all personnel and environment. Lost circulation could occur but is not expected to be a serious problem in this area and hole seepage will be compensated for by additions of small amounts of LCM in the drilling fluid. The maximum anticipated bottom hole pressure for this well is 6371 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.





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

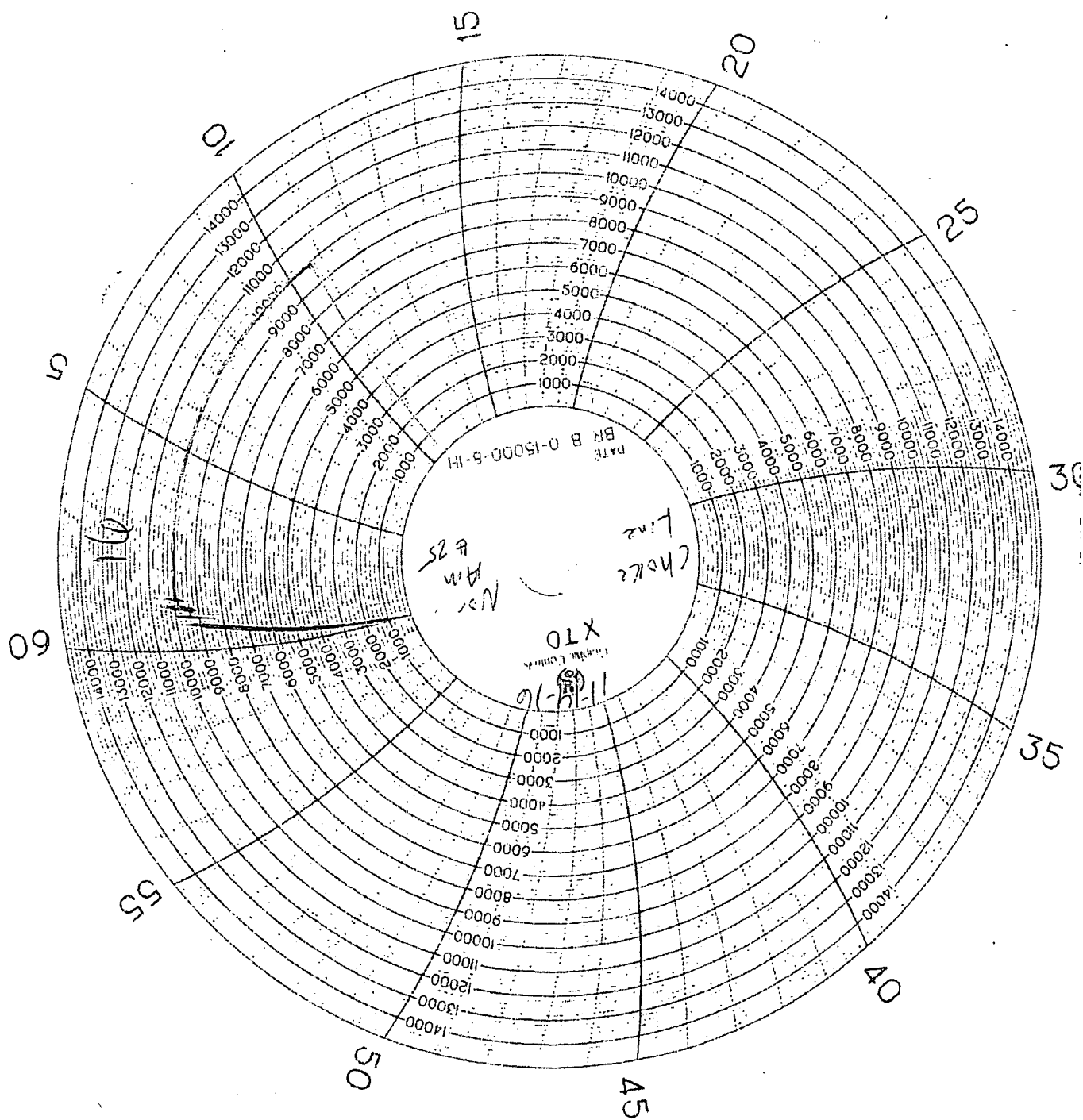
PHONE: 361-887-9807
FAX: 361-887-0812
EMAIL: crpe&s@gates.com
WEB: www.gates.com

GRADE D PRESSURE TEST CERTIFICATE

Customer :	AUSTIN DISTRIBUTING	Test Date:	6/8/2014
Customer Ref. :	PENDING	Hose Serial No.:	D-060814-1
Invoice No. :	201709	Created By:	NORMA
Product Description:	FD3.0-2.0R41/16.5KFLGE/E LE		
End Fitting 1 :	4 1/16 in. SK FLG	End Fitting 2 :	4 1/16 in. SK FLG
Gates Part No. :	4774-6001	Assembly Code :	L33090011513D-060814-1
Working Pressure :	5,000 PSI	Test Pressure :	7,500 PSI

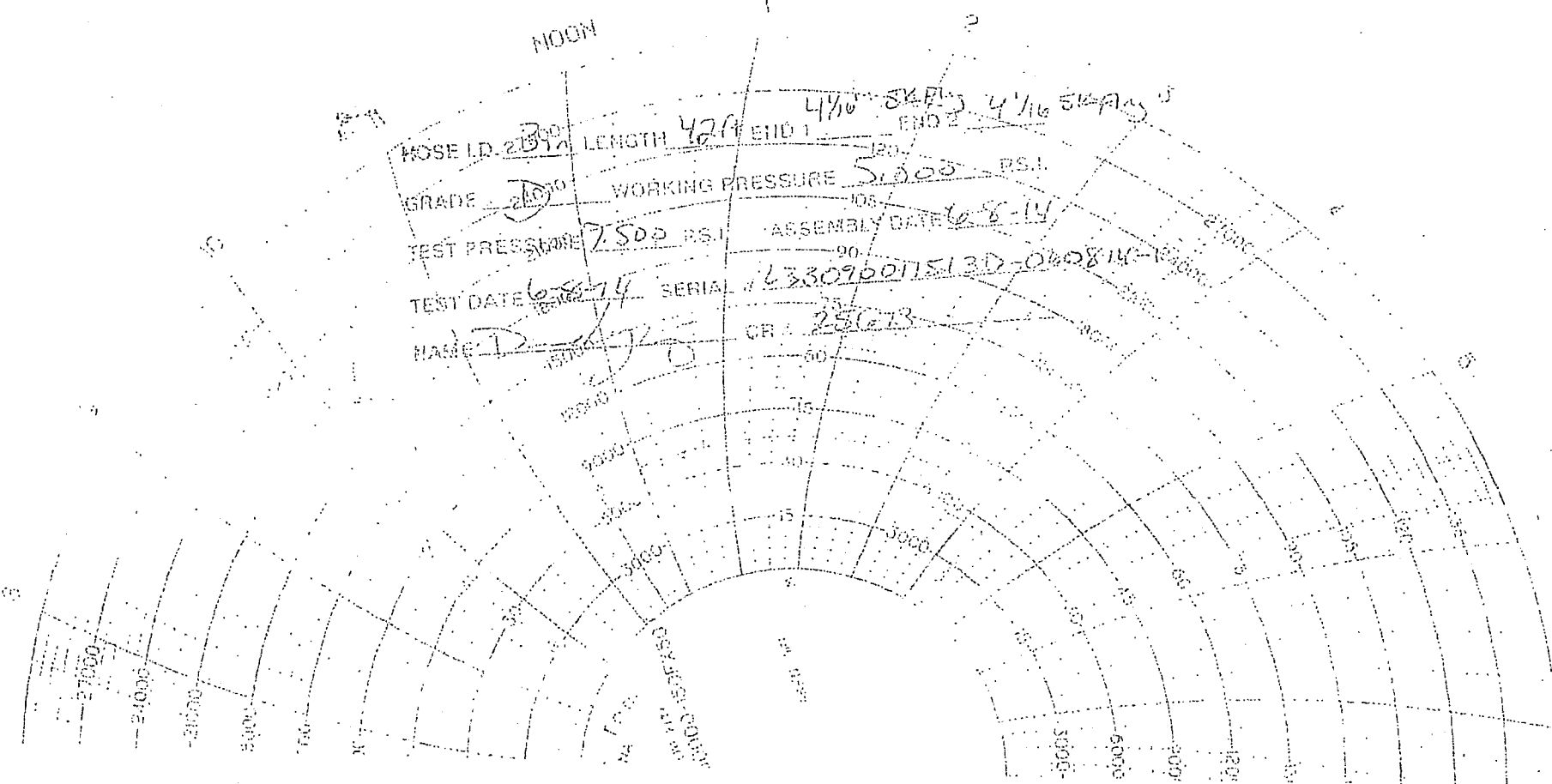
Gates E & S North America, Inc. certifies that the following hose assembly has been tested to the Gates Oilfield Roughneck Agreement/Specification requirements and passed the 15 minute hydrostatic test per API Spec 7K/Q1, Fifth Edition, June 2010, Test pressure 9.6.7 and per Table 9 to 7,500 psi in accordance 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:	



MOON

HOSE I.D. 2 1/2" LENGTH 42 ft END 1 4 1/2" S&P END 2 4 1/2" S&P
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 6380960115130-060814-15
NAME D-275 GRA 25673



Poker Lake Unit 18 BD 104H Rev0 JAM 19Sep18 Proposal Geodetic Report

(Non-Def Plan)

Report Date: September 19, 2018 - 02:18 PM
 Client: XTO Energy
 Field: NM Eddy County (NAD 27)
 Structure / Slot: XTO Poker Lake Unit 18 BD 104H / New Slot
 Well: Poker Lake Unit 18 BD 104H
 Borehole: Poker Lake Unit 18 BD 104H
 UWI / API#: Unknown / Unknown
 Survey Name: Poker Lake Unit 18 BD 104H Rev0 JAM 19Sep18
 Survey Date: September 19, 2018
 Tort / AHD / DDI / ERD Ratio: 118.675 ° / 8952.492 ft / 6.266 / 0.840
 Coordinate Reference System: NAD27 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 7' 51.50038", W 103° 55' 28.24944"
 Location Grid N/E Y/X: N 411610.000 ftUS, E 626551.900 ftUS
 CRS Grid Convergence Angle: 0.2174 °
 Grid Scale Factor: 0.99992743
 Version / Patch: 2.10.740.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 173.014 ° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB
 TVD Reference Elevation: 3192.000 ft above MSL
 Seabed / Ground Elevation: 3169.000 ft above MSL
 Magnetic Declination: 6.895 °
 Total Gravity Field Strength: 998.4420mgn (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 47933.374 nT
 Magnetic Dip Angle: 59.851 °
 Declination Date: September 19, 2018
 Magnetic Declination Model: HDGM 2018
 North Reference: Grid North
 Grid Convergence Used: 0.2174 °
 Total Corr Mag North->Grid: 6.6774 °
 North: 6.6774 °
 Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL	0.00	0.00	173.01	0.00	0.00	0.00	0.00	N/A	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	100.00	0.00	97.29	100.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	200.00	0.00	97.29	200.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	300.00	0.00	97.29	300.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	400.00	0.00	97.29	400.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	500.00	0.00	97.29	500.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	600.00	0.00	97.29	600.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	700.00	0.00	97.29	700.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	721.00	0.00	97.29	721.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	800.00	0.00	97.29	800.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
Rustler	900.00	0.00	97.29	900.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	1000.00	0.00	97.29	1000.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	1036.00	0.00	97.29	1036.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	1100.00	0.00	97.29	1100.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	1200.00	0.00	97.29	1200.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	1300.00	0.00	97.29	1300.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	1400.00	0.00	97.29	1400.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	1500.00	0.00	97.29	1500.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	1600.00	0.00	97.29	1600.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	1700.00	0.00	97.29	1700.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
Salado	1800.00	0.00	97.29	1800.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	1900.00	0.00	97.29	1900.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	2000.00	0.00	97.29	2000.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	2100.00	0.00	97.29	2100.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	2200.00	0.00	97.29	2200.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	2300.00	0.00	97.29	2300.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	2400.00	0.00	97.29	2400.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	2500.00	0.00	97.29	2500.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	2600.00	0.00	97.29	2600.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	2700.00	0.00	97.29	2700.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
Base of Salt Build 1"/100'	2800.00	0.00	97.29	2800.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	2900.00	0.00	97.29	2900.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	3000.00	0.00	97.29	3000.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	3100.00	0.00	97.29	3100.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	3200.00	0.00	97.29	3200.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	3300.00	0.00	97.29	3300.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	3308.00	0.00	97.29	3308.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	3310.00	0.00	97.29	3310.00	0.00	0.00	0.00	0.00	411610.00	626551.90	N 32 7 51.50	W 103 55 28.25
	3400.00	0.90	97.29	3400.00	0.17	-0.09	0.70	1.00	411609.91	626552.60	N 32 7 51.50	W 103 55 28.24
	Delaware (BellCanyon)	3491.03	1.81	97.29	3491.00	0.71	-0.36	2.84	1.00	411609.64	626554.74	N 32 7 51.50
Cherry Canyon	3500.00	1.90	97.29	3499.97	0.78	-0.40	3.12	1.00	411609.60	626555.02	N 32 7 51.50	W 103 55 28.21
	3600.00	2.90	97.29	3599.88	1.81	-0.93	7.28	1.00	411609.07	626559.18	N 32 7 51.49	W 103 55 28.16
	3700.00	3.90	97.29	3699.70	3.27	-1.68	13.16	1.00	411608.32	626565.06	N 32 7 51.48	W 103 55 28.10
	3800.00	4.90	97.29	3799.40	5.16	-2.66	20.77	1.00	411607.34	626572.67	N 32 7 51.47	W 103 55 28.01
	3900.00	5.90	97.29	3898.96	7.49	-3.85	30.11	1.00	411606.15	626582.00	N 32 7 51.46	W 103 55 27.90
	4000.00	6.90	97.29	3998.33	10.24	-5.27	41.16	1.00	411604.73	626593.06	N 32 7 51.45	W 103 55 27.77
	4100.00	7.90	97.29	4097.50	13.41	-6.90	53.94	1.00	411603.10	626605.83	N 32 7 51.43	W 103 55 27.62
	4200.00	8.90	97.29	4196.43	17.01	-8.76	68.43	1.00	411601.24	626620.32	N 32 7 51.41	W 103 55 27.45
	4300.00	9.90	97.29	4295.08	21.04	-10.83	84.63	1.00	411599.17	626636.52	N 32 7 51.39	W 103 55 27.27
	4378.18	10.68	97.29	4372.00	24.49	-12.60	98.48	1.00	411597.40	626650.37	N 32 7 51.37	W 103 55 27.10
Hold Tangent	4400.00	10.90	97.29	4393.44	25.50	-13.12	102.53	1.00	411596.88	626654.43	N 32 7 51.37	W 103 55 27.06
	4500.00	11.90	97.29	4491.46	30.37	-15.63	122.14	1.00	411594.37	626674.03	N 32 7 51.34	W 103 55 26.83
	4600.00	12.90	97.29	4589.13	35.67	-18.36	143.44	1.00	411591.65	626695.33	N 32 7 51.31	W 103 55 26.58
	4700.00	13.90	97.29	4686.41	41.38	-21.30	166.42	1.00	411588.70	626718.31	N 32 7 51.28	W 103 55 26.32
	4743.55	14.34	97.29	4728.64	44.00	-22.65	176.96	1.00	411587.36	626728.85	N 32 7 51.27	W 103 55 26.19
	4800.00	14.34	97.29	4783.33	47.45	-24.42	190.83	0.00	411585.58	626742.71	N 32 7 51.25	W 103 55 26.03
	4900.00	14.34	97.29	4880.22	53.56	-27.56	215.39	0.00	411582.44	626767.27	N 32 7 51.22	W 103 55 25.75
	5000.00	14.34	97.29	4977.10	59.66	-30.71	239.94	0.00	411579.30	626791.83	N 32 7 51.19	W 103 55 25.46
	5100.00	14.34	97.29	5073.99	65.77	-33.85	264.50	0.00	411576.15	626816.38	N 32 7 51.16	W 103 55 25.18
	5200.00	14.34	97.29	5170.88	71.88	-36.99	289.06	0.00	411573.01	626840.94	N 32 7 51.12	W 103 55 24.89
Brushy Canyon	5300.00	14.34	97.29	5267.76	77.98	-40.13	313.62	0.00	411569.87	626865.50	N 32 7 51.09	W 103 55 24.60
	5400.00	14.34	97.29	5364.65	84.09	-43.28	338.18	0.00	411566.73	626890.06	N 32 7 51.06	W 103 55 24.32
	5500.00	14.34	97.29	5461.54	90.20	-46.42	362.74	0.00	411563.58	626914.62	N 32 7 51.03	W 103 55 24.03
	5600.00	14.34	97.29	5558.42	96.31	-49.56	387.30	0.00	411560.44	626939.17	N 32 7 51.00	W 103 55 23.75
	5700.00	14.34	97.29	5655.31	102.41	-52.71	411.86	0.00	411557.30	626963.73	N 32 7 50.96	W 103 55 23.46
	5800.00	14.34	97.29	5752.19	108.52	-55.85	436.42	0.00	411554.15	626988.29	N 32 7 50.93	W 103 55 23.18
	5900.00	14.34	97.29	5849.08	114.63	-58.99	460.98	0.00	411551.01	627012.85	N 32 7 50.90	W 103 55 22.89
	6000.00	14.34	97.29	5945.97	120.73	-62.14	485.54	0.00	411547.87	627037.41	N 32 7 50.87	W 103 55 22.61
	6061.96	14.34	97.29	6006.00	124.52	-64.08	500.76	0.00	411545.92	627052.62	N 32 7 50.85	W 103 55 22.43
	6100.00	14.34	97.29	6042.85	126.84	-66.28	510.10	0.00	411544.73	627061.96	N 32 7 50.84	W 103 55 22.32

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100R)	Northing (RUS)	Easting (RUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	6700.00	14.34	97.29	6824.17	163.48	-84.14	657.46	0.00	411525.87	627209.31	N 32° 7' 50.64"	W 103° 55' 20.61"
	6800.00	14.34	97.29	6721.06	169.59	-87.28	682.02	0.00	411522.73	627233.87	N 32° 7' 50.81"	W 103° 55' 20.32"
	6900.00	14.34	97.29	6817.94	175.69	-90.42	706.58	0.00	411519.58	627258.43	N 32° 7' 50.58"	W 103° 55' 20.04"
	7000.00	14.34	97.29	6914.83	181.80	-93.56	731.14	0.00	411516.44	627282.98	N 32° 7' 50.55"	W 103° 55' 19.75"
	7100.00	14.34	97.29	7011.72	187.91	-96.71	755.70	0.00	411513.30	627307.54	N 32° 7' 50.51"	W 103° 55' 19.47"
	7152.38	14.34	97.29	7062.46	191.11	-98.35	768.56	0.00	411511.65	627320.40	N 32° 7' 50.50"	W 103° 55' 19.32"
	7200.00	13.86	97.29	7108.65	193.97	-99.83	780.07	1.00	411510.18	627331.91	N 32° 7' 50.48"	W 103° 55' 19.18"
	7300.00	12.86	97.29	7205.94	199.67	-102.76	802.99	1.00	411507.25	627354.83	N 32° 7' 50.45"	W 103° 55' 18.92"
Bone Spring	7313.39	12.73	97.29	7219.00	200.40	-103.14	805.93	1.00	411506.87	627357.77	N 32° 7' 50.45"	W 103° 55' 18.88"
Bone Spring												
Lime	7326.71	12.59	97.29	7232.00	201.12	-103.51	808.82	1.00	411506.50	627360.66	N 32° 7' 50.45"	W 103° 55' 18.85"
	7400.00	11.86	97.29	7303.62	204.95	-105.48	824.22	1.00	411504.53	627376.05	N 32° 7' 50.43"	W 103° 55' 18.67"
	7500.00	10.86	97.29	7401.66	209.80	-107.98	843.75	1.00	411502.03	627395.59	N 32° 7' 50.40"	W 103° 55' 18.44"
	7600.00	9.86	97.29	7500.03	214.24	-110.26	861.59	1.00	411499.75	627413.42	N 32° 7' 50.38"	W 103° 55' 18.24"
	7700.00	8.86	97.29	7598.70	218.25	-112.32	877.72	1.00	411497.69	627429.55	N 32° 7' 50.36"	W 103° 55' 18.05"
	7800.00	7.86	97.29	7697.64	221.84	-114.17	892.14	1.00	411495.84	627443.97	N 32° 7' 50.34"	W 103° 55' 17.88"
	7900.00	6.86	97.29	7796.81	225.00	-115.79	904.84	1.00	411494.21	627456.68	N 32° 7' 50.32"	W 103° 55' 17.73"
	8000.00	5.86	97.29	7896.20	227.73	-117.20	915.83	1.00	411492.81	627467.66	N 32° 7' 50.31"	W 103° 55' 17.60"
	8100.00	4.86	97.29	7995.76	230.03	-118.39	925.10	1.00	411491.62	627476.93	N 32° 7' 50.29"	W 103° 55' 17.50"
	8200.00	3.86	97.29	8095.47	231.91	-119.35	932.63	1.00	411490.66	627484.47	N 32° 7' 50.28"	W 103° 55' 17.41"
	8300.00	2.86	97.29	8195.29	233.35	-120.09	938.45	1.00	411489.91	627490.28	N 32° 7' 50.28"	W 103° 55' 17.34"
1st Bone Spring												
Sand	8347.76	2.38	97.29	8243.00	233.89	-120.37	940.61	1.00	411489.64	627492.44	N 32° 7' 50.27"	W 103° 55' 17.32"
	8400.00	1.86	97.29	8295.21	234.37	-120.62	942.53	1.00	411489.39	627494.36	N 32° 7' 50.27"	W 103° 55' 17.29"
	8500.00	0.86	97.29	8395.18	234.95	-120.92	944.88	1.00	411489.09	627496.71	N 32° 7' 50.27"	W 103° 55' 17.27"
Hold Vertical												
	8585.93	0.00	97.29	8481.10	235.11	-121.00	945.52	1.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
	8600.00	0.00	97.29	8495.17	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
	8700.00	0.00	97.29	8595.17	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
2nd Bone Spring												
Lime	8726.83	0.00	97.29	8622.00	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
	8800.00	0.00	97.29	8695.17	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
	8900.00	0.00	97.29	8795.17	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
	9000.00	0.00	97.29	8895.17	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
	9100.00	0.00	97.29	8995.17	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
2nd Bone Spring												
Sand	9152.83	0.00	97.29	9048.00	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
	9200.00	0.00	97.29	9095.17	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
	9300.00	0.00	97.29	9195.17	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
	9400.00	0.00	97.29	9295.17	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
3rd Bone Spring												
Lime	9418.83	0.00	97.29	9314.00	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
	9500.00	0.00	97.29	9395.17	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
	9600.00	0.00	97.29	9495.17	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
	9700.00	0.00	97.29	9595.17	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
Harkey Sand												
	9792.83	0.00	97.29	9688.00	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
	9800.00	0.00	97.29	9695.17	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
	9900.00	0.00	97.29	9795.17	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
	10000.00	0.00	97.29	9895.17	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
Lower 3rd Bone												
Spring Lime	10039.83	0.00	97.29	9935.00	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
	10100.00	0.00	97.29	9995.17	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
Lower 3rd Bone												
Spring Shale	10105.83	0.00	97.29	10001.00	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
Build 10"/100'												
	10185.93	0.00	97.29	10081.10	235.11	-121.00	945.52	0.00	411489.01	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
	10200.00	1.41	179.65	10095.17	235.28	-121.17	945.52	10.00	411488.84	627497.35	N 32° 7' 50.27"	W 103° 55' 17.26"
3rd Bone Spring												
Sand	10245.93	0.00	179.65	10141.00	238.23	-124.14	945.54	10.00	411485.87	627497.37	N 32° 7' 50.24"	W 103° 55' 17.26"
	10300.00	11.41	179.65	10194.42	246.35	-132.32	945.59	10.00	411477.69	627497.42	N 32° 7' 50.16"	W 103° 55' 17.26"
	10400.00	21.41	179.65	10290.23	274.38	-160.53	945.77	10.00	411449.48	627497.60	N 32° 7' 49.88"	W 103° 55' 17.26"
	10500.00	31.41	179.65	10379.68	318.50	-204.95	946.04	10.00	411405.06	627497.87	N 32° 7' 49.44"	W 103° 55' 17.26"
	10600.00	41.41	179.65	10460.05	377.39	-264.24	946.41	10.00	411345.78	627498.24	N 32° 7' 48.85"	W 103° 55' 17.26"
3rd Bone Spring												
Red Hills Sand	10623.01	43.71	179.65	10477.00	392.85	-279.80	946.51	10.00	411330.22	627498.34	N 32° 7' 48.70"	W 103° 55' 17.26"
	10700.00	51.41	179.65	10528.91	449.25	-336.57	946.86	10.00	411273.45	627498.69	N 32° 7' 48.13"	W 103° 55' 17.25"
Wolfcamp												
Wolfcamp X	10721.49	53.56	179.65	10542.00	466.18	-353.62	946.96	10.00	411256.40	627498.79	N 32° 7' 47.97"	W 103° 55' 17.25"
Sand												
	10758.49	57.26	179.65	10563.00	496.43	-384.08	947.15	10.00	411225.95	627498.98	N 32° 7' 47.66"	W 103° 55' 17.25"
	10800.00	61.41	179.65	10584.16	531.89	-419.77	947.37	10.00	411190.26	627499.20	N 32° 7' 47.31"	W 103° 55' 17.25"
	10900.00	71.41	179.65	10624.12	622.81	-511.30	947.94	10.00	411098.74	627499.77	N 32° 7' 46.41"	W 103° 55' 17.25"
Wolfcamp Y												
Sand	10902.77	71.69	179.65	10625.00	625.42	-513.93	947.96	10.00	411096.11	627499.79	N 32° 7' 46.38"	W 103° 55' 17.25"
	11000.00	81.42	179.65	10647.58	719.24	-608.38	948.54	10.00	411001.67	627500.37	N 32° 7' 45.44"	W 103° 55' 17.25"
Landing Point /												
FTP	11085.80	90.00	179.65	10654.00	804.14	-693.85	949.07	10.00	410916.20	627500.90	N 32° 7' 44.60"	W 103° 55' 17.24"
	11100.00	90.00	179.65	10654.00	818.25	-708.05	949.16	0.00	410902.00	627500.99	N 32° 7' 44.46"	W 103° 55' 17.24"
	11200.00	90.00	179.65	10654.01	917.58	-808.05	949.78	0.00	410802.01	627501.61	N 32° 7' 43.47"	W 103° 55' 17.24"
	11300.00	90.00	179.65	10654.01	1016.91	-908.05	950.40	0.00	410702.02	627502.23	N 32° 7' 42.48"	W 103° 55' 17.24"
	11400.00	90.00	179.65	10654.02	1116.24	-1008.05	951.02	0.00	410602.03	627502.85	N 32° 7' 41.49"	W 103° 55' 17.24"
	11500.00	90.00	179.65	10654.03	1215.57	-1108.05	951.64	0.00	410502.04	627503.47	N 32° 7' 40.50"	W 103° 55' 17.23"
	11600.00	90.00	179.65	10654.03	1314.90	-1208.04	952.26	0.00	410402.05	627504.09	N 32° 7' 39.51"	W 103° 55' 17.23"
	11700.00	90.00	179.65	10654.04	1414.23	-1308.04	952.88	0.00	410302.05	627504.7		

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (RUS)	Easting (TUS)	Latitude (NS ° ' ")	Longitude (EW ° ' ")
	14200.00	90.00	179.65	10654.12	3897.51	-3807.99	968.36	0.00	407802.29	627520.19	N 32 7 13.78	W 103 55 17.16
	14300.00	90.00	179.65	10654.12	3996.84	-3907.99	968.98	0.00	407702.30	627520.81	N 32 7 12.79	W 103 55 17.16
	14400.00	90.00	179.65	10654.12	4096.17	-4007.99	969.60	0.00	407602.31	627521.43	N 32 7 11.80	W 103 55 17.15
	14500.00	90.00	179.65	10654.12	4195.50	-4107.99	970.22	0.00	407502.32	627522.05	N 32 7 10.81	W 103 55 17.15
	14600.00	90.00	179.65	10654.12	4294.83	-4207.99	970.84	0.00	407402.33	627522.67	N 32 7 9.82	W 103 55 17.15
	14700.00	90.00	179.65	10654.12	4394.16	-4307.99	971.46	0.00	407302.34	627523.29	N 32 7 8.83	W 103 55 17.14
	14800.00	90.00	179.65	10654.12	4493.49	-4407.98	972.08	0.00	407202.35	627523.91	N 32 7 7.84	W 103 55 17.14
	14900.00	90.00	179.65	10654.12	4592.82	-4507.98	972.70	0.00	407102.35	627524.53	N 32 7 6.85	W 103 55 17.14
	15000.00	90.00	179.65	10654.12	4692.15	-4607.98	973.32	0.00	407002.36	627525.15	N 32 7 5.87	W 103 55 17.14
	15100.00	90.00	179.65	10654.12	4791.49	-4707.98	973.94	0.00	406902.37	627525.76	N 32 7 4.88	W 103 55 17.13
	15200.00	90.00	179.65	10654.12	4890.82	-4807.98	974.56	0.00	406802.38	627526.38	N 32 7 3.89	W 103 55 17.13
	15300.00	90.00	179.65	10654.12	4990.15	-4907.97	975.18	0.00	406702.39	627527.00	N 32 7 2.90	W 103 55 17.13
	15400.00	90.00	179.65	10654.12	5089.48	-5007.97	975.80	0.00	406602.40	627527.62	N 32 7 1.91	W 103 55 17.13
	15500.00	90.00	179.65	10654.12	5188.81	-5107.97	976.42	0.00	406502.41	627528.24	N 32 7 0.92	W 103 55 17.12
	15600.00	90.00	179.65	10654.12	5288.14	-5207.97	977.03	0.00	406402.42	627528.86	N 32 6 59.93	W 103 55 17.12
	15700.00	90.00	179.65	10654.11	5387.47	-5307.97	977.65	0.00	406302.43	627529.48	N 32 6 58.94	W 103 55 17.12
	15800.00	90.00	179.65	10654.11	5486.80	-5407.96	978.27	0.00	406202.44	627530.10	N 32 6 57.95	W 103 55 17.11
	15900.00	90.00	179.65	10654.11	5586.13	-5507.96	978.89	0.00	406102.45	627530.72	N 32 6 56.96	W 103 55 17.11
	16000.00	90.00	179.65	10654.11	5685.46	-5607.96	979.51	0.00	406002.46	627531.34	N 32 6 55.97	W 103 55 17.11
	16100.00	90.00	179.65	10654.11	5784.79	-5707.96	980.13	0.00	405902.47	627531.96	N 32 6 54.98	W 103 55 17.11
	16200.00	90.00	179.65	10654.10	5884.13	-5807.96	980.75	0.00	405802.48	627532.58	N 32 6 53.99	W 103 55 17.10
	16300.00	90.00	179.65	10654.10	5983.46	-5907.95	981.37	0.00	405702.49	627533.20	N 32 6 53.00	W 103 55 17.10
	16400.00	90.00	179.65	10654.10	6082.79	-6007.95	981.99	0.00	405602.50	627533.82	N 32 6 52.01	W 103 55 17.10
	16500.00	90.00	179.65	10654.10	6182.12	-6107.95	982.61	0.00	405502.50	627534.44	N 32 6 51.02	W 103 55 17.09
	16600.00	90.00	179.65	10654.09	6281.45	-6207.95	983.23	0.00	405402.51	627535.06	N 32 6 50.03	W 103 55 17.09
	16700.00	90.00	179.65	10654.09	6380.78	-6307.95	983.85	0.00	405302.52	627535.68	N 32 6 49.04	W 103 55 17.09
	16800.00	90.00	179.65	10654.09	6480.11	-6407.95	984.47	0.00	405202.53	627536.29	N 32 6 48.05	W 103 55 17.09
	16900.00	90.00	179.65	10654.08	6579.44	-6507.94	985.09	0.00	405102.54	627536.91	N 32 6 47.06	W 103 55 17.08
	17000.00	90.00	179.65	10654.08	6678.77	-6607.94	985.71	0.00	405002.55	627537.53	N 32 6 46.07	W 103 55 17.08
	17100.00	90.00	179.65	10654.07	6778.10	-6707.94	986.33	0.00	404902.56	627538.15	N 32 6 45.08	W 103 55 17.08
	17200.00	90.00	179.65	10654.07	6877.43	-6807.94	986.95	0.00	404802.57	627538.77	N 32 6 44.09	W 103 55 17.08
	17300.00	90.00	179.65	10654.07	6976.77	-6907.94	987.57	0.00	404702.58	627539.39	N 32 6 43.11	W 103 55 17.07
	17400.00	90.00	179.65	10654.06	7076.10	-7007.93	988.18	0.00	404602.59	627540.01	N 32 6 42.12	W 103 55 17.07
	17500.00	90.00	179.65	10654.06	7175.43	-7107.93	988.80	0.00	404502.60	627540.63	N 32 6 41.13	W 103 55 17.07
	17600.00	90.00	179.65	10654.05	7274.76	-7207.93	989.42	0.00	404402.61	627541.25	N 32 6 40.14	W 103 55 17.06
	17700.00	90.00	179.65	10654.05	7374.09	-7307.93	990.04	0.00	404302.62	627541.87	N 32 6 39.15	W 103 55 17.06
	17800.00	90.00	179.65	10654.04	7473.42	-7407.93	990.66	0.00	404202.63	627542.49	N 32 6 38.16	W 103 55 17.06
	17900.00	90.00	179.65	10654.04	7572.75	-7507.92	991.28	0.00	404102.64	627543.11	N 32 6 37.17	W 103 55 17.06
	18000.00	90.00	179.65	10654.03	7672.08	-7607.92	991.90	0.00	404002.65	627543.73	N 32 6 36.18	W 103 55 17.05
	18100.00	90.00	179.65	10654.03	7771.41	-7707.92	992.52	0.00	403902.65	627544.35	N 32 6 35.19	W 103 55 17.05
	18200.00	90.00	179.65	10654.02	7870.74	-7807.92	993.14	0.00	403802.66	627544.97	N 32 6 34.20	W 103 55 17.05
	18300.00	90.00	179.65	10654.01	7970.08	-7907.92	993.76	0.00	403702.67	627545.59	N 32 6 33.21	W 103 55 17.05
	18400.00	90.00	179.65	10654.01	8069.41	-8007.91	994.38	0.00	403602.68	627546.21	N 32 6 32.22	W 103 55 17.04
	18500.00	90.00	179.65	10654.00	8168.74	-8107.91	995.00	0.00	403502.69	627546.82	N 32 6 31.23	W 103 55 17.04
Landing Point XTO Poker Lake Unit 18 BD 104H - BHL	18512.19	90.00	179.65	10654.00	8180.85	-8120.11	995.07	0.00	403490.50	627546.90	N 32 6 31.11	W 103 55 17.04

Survey Type: Non-Def Plan

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	23.000	1/100.000	30.000	30.000		NAL_MWD_1.0_DEG-Depth Only	Poker Lake Unit 18 BD 104H / Poker Lake Unit 18 BD 104H Rev0 JAM 19Sep18
	1	23.000	18512.193	1/100.000	30.000	30.000		NAL_MWD_1.0_DEG	Poker Lake Unit 18 BD 104H / Poker Lake Unit 18 BD 104H Rev0

PECOS DISTRICT

DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	XTO PERMIAN OPERATING LLC
LEASE NO.:	NMNM120898
WELL NAME & NO.:	POKER LAKE UNIT 18 BD 104H
SURFACE HOLE FOOTAGE:	2310'/N & 1365'/W
BOTTOM HOLE FOOTAGE:	200'/S & 2310'/W
LOCATION:	Sec. 18., T25S., R.30E., NMP
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

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Delaware** formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **820** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength,

whichever is greater.

- d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing 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.
3. The minimum required fill of cement behind the **7** inch production casing is:
 - 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 **4-1/2** inch production liner is:
 - Cement should tie-back 100' into the previous casing. Operator shall provide method of verification.

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 **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 111318

Medium

13 3/8		surface csg in a		17 1/2		inch hole.		Design Factors		SURFACE	
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	Weight			
"A"	54.50	J 55	BUTT	19.09	3.01	1.54	820	44,690			
"B"							0	0			
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,500				Tail Cmt	does not	circ to sfc.	Totals:	820	44,690		
Comparison of Proposed to Minimum Required Cement Volumes											
Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist	Hole-Cplg	
17 1/2	0.6946	700	1153	624	85	8.80	1035	2M	1.56		

9 5/8 casing inside the 13 3/8			Design Factors				INTERMEDIATE		
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	Weight	
"A"	40.00	J 55	BUTT	4.72	1.45	0.76	3,340	133,600	
"B"							0	0	
w/8.4#/g mud, 30min Sfc Csg Test psig:							Totals:	3,340	133,600
The cement volume(s) are intended to achieve a top of				0	ft from surface or a		820	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	1170	2073	1105	88	10.20	2895	3M	0.81
Burst Frac Gradient(s) for Segment(s): A, B, C, D = 1.18, b, c, d All > 0.70, OK.									

7	casing inside the	9 5/8	Design Factors				PRODUCTION		
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	Weight	
"A"	32.00	P 110	BUTT	3.03	2.14	2.21	10,186	325,952	
"B"	32.00	P 110	BUTT	242.33	2.08	2.21	614	19,648	
w/8.4#/g mud, 30min Sfc Csg Test psig: 2,241						Totals:	10,800	345,600	
B	would be:			80.47	2.06	if it were a vertical wellbore.			
No Pilot Hole Planned		MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC	
		10800	10584	10584	10186	61	-1	0	
The cement volume(s) are intended to achieve a top of				3140	ft from surface or a		200	overlap.	
Hole Size	Annular Volume	1 Stage Cmt/Sx	1 Stage CuFt Cmt	Min CuFt	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
8 3/4	0.1503	1040	1922	1162	65	9.50	2914	3M	0.55
Class 'H' tail cmt yld > 1.20									

Tail cmt									
4 1/2		Liner w/top @	10060	Design Factors			LINER		
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	Weight	
"A"	13.50	P 110	BUTT	2.89	1.83	2.36	1,026	13,851	
"B"	13.50	P 110	BUTT	3.25	2.03	2.36	7,399	99,887	
w/8.4#/g mud, 30min Sfc Csg Test psig: 2,344							Totals:	8,425	113,738
A Segment Design Factors would be:				3.89	2.03	if it were a vertical wellbore.			
No Pilot Hole Planned			MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
			18485	10654	10654	10186	90	10	11086
The cement volume(s) are intended to achieve a top of					10060	ft from surface or a		740	overlap.
Hole Size	Annular Volume	1 Stage Cmt/Sx	1 Stage CuFt Cmt	Min CuFt	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
6	0.0859	710	944	673	40	9.50			0.50
Class 'H' tail cmt yld > 1.20									