

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT**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**FORM APPROVED  
OMB NO 1004 0137  
Expires January 31, 2018**SUBMIT IN TRIPLICATE - Other instructions on page 2**

1 Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other	5 Lease Serial No NMLC064894A
2 Name of Operator BOPCO LP	6 If Indian, Allottee or Tribe Name
Contact KELLY KARDOS E-Mail kelly_kardos@xtoenergy.com	7 If Unit or CA/Agreement, Name and/or No 891000303X
3a Address 6401 HOLIDAY HILL RD BLDG 5 SUITE 200 MIDLAND, TX 79707	8 Well Name and No POKER LAKE UNIT 464H
3b Phone No (include area code) Ph 432-620-4374	9 API Well No 30-015-43623-00-X1
4 Location of Well (Footage Sec T R M or Survey Description) Sec 17 T25S R30E SESE 550FSL 715FEL	10 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
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize <input type="checkbox"/> Deepen <input type="checkbox"/> Production (Start/Resume) <input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Reclamation <input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair <input type="checkbox"/> New Construction <input type="checkbox"/> Recomplete <input checked="" type="checkbox"/> Other
	<input type="checkbox"/> Change Plans <input type="checkbox"/> Plug and Abandon <input type="checkbox"/> Temporarily Abandon Change to Original A
	<input type="checkbox"/> Convert to Injection <input type="checkbox"/> Plug Back <input type="checkbox"/> Water Disposal PD

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

BOPCO, LP requests permission to revise casing/cement design per the attached drilling program

**Carlsbad Field Office**  
**OCD Artesia**BC 4-10-18  
Accepted for record - NMOCD**NM OIL CONSERVATION**  
ARTESIA DISTRICT

APR 09 2018

**SEE ATTACHED FOR**  
**CONDITIONS OF APPROVAL**

14 I hereby certify that the foregoing is true and correct	
Electronic Submission #409286 verified by the BLM Well Information System For BOPCO LP, sent to the Carlsbad Committed to AFMSS for processing by PRISCILLA PEREZ on 03/26/2018 (18PP1401SE)	
Name (Printed/Typed) KELLY KARDOS	Title REGULATORY COORDINATOR
Signature (Electronic Submission)	Date 03/26/2018

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

Approved By <u>ZOTA STEVENS</u>	Title <u>PETROLEUM ENGINEER</u>	Date <u>04/04/2018</u>
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 <u>Carlsbad</u>

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

(Instructions on page 2)

**\*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\***

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

XTO Energy Inc  
Poker Lake Unit 464H  
Projected TD 22997' MD / 11979' TVD  
SHL 550' FSL & 715' FEL Section 17 T25S R30E  
BHL 200' FSL & 2310' FWL Section 29 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	890	Water
Top of Salt	1186'	Water
Base of Salt	3602'	Water
Delaware	3781	Water
Bone Spring	7582'	Water/Oil/Gas
Lower Avalon Lm	8310	Water/Oil/Gas
1st Bone Spring Ss	8533'	Water/Oil/Gas
2nd Bone Spring Ss	9405	Water/Oil/Gas
3rd Bone Spring Ss	10521	Water/Oil/Gas
Wolfcamp	10915	Water/Oil/Gas
Target/Land Curve	11979	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 @ 940' (50' into the Rustler) and circulating cement back to surface The salt will be isolated by setting 9-5/8 inch casing at 8350' with a DV tool set @ 990' and cement will be circulated 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 - 940' <i>1000</i>	13-3/8	48#	STC	H-40	New	4 02	1 79	7 14
12-1/4	0 - 8350'	9-5/8	40#	LTC	HCL-80	New	1 84	1 61	2 78
8 3/4"	0 - 12350	7"	32#	LTC	P-110	New	1 31	1 80	2 50
6"	11484' - 22997'	4-1/2	13 5#	BTC	P-110	New	1 12	1 50	1 95

- 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
- 5-1/2" tension calculated using vertical hanging weight plus the lateral weight multiplied by a friction factor of 0.35

**WELLHEAD**

**Permanent Wellhead - GE RSH Multibowl System**

A Starting Head (RSH) 13-3/8" SOW bottom x 13-5/8" 10M top flange

B Tubing Head 13-5/8" 10M bottom flange x 7-1/16" 15M top flange

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

#### 4 Cement Program

Surface Casing 13-3/8" 48# New H-40 STC casing to be set at +/- <sup>1000</sup>940'

Lead 470 sxs EconoCem-HLTRRC (mixed at 12.9 ppg 1.87 ft<sup>3</sup>/sx 10.13 gal/sx water)  
Tail 300 sxs Halcem-C + 2% CaCl (mixed at 14.8 ppg 1.35 ft<sup>3</sup>/sx 6.39 gal/sx water)  
Compressives 12-hr = 900 psi 24 hr = 1500 psi

Intermediate Casing 9-5/8" 40# New HCL-80 LTC casing to be set at +/- 8350'

##### First Stage

Lead 2280 sxs Halcem-C + 2% CaCl (mixed at 12.9 ppg 1.88 ft<sup>3</sup>/sx 9.61 gal/sx water)  
Tail 230 sxs Halcem-C + 2% CaCl (mixed at 14.8 ppg 1.33 ft<sup>3</sup>/sx 6.39 gal/sx water)  
Compressives 12-hr = 900 psi 24 hr = 1500 psi

If losses are severe a DV tool will be set @ 990' (50' below the surface shoe)

##### Second Stage

Lead 190 sxs Halcem-C + 2% CaCl (mixed at 12.9 ppg 1.88 ft<sup>3</sup>/sx 9.61 gal/sx water)  
Compressives 12-hr = 900 psi 24 hr = 1500 psi

2nd Intermediate Casing 7" 32# New P-110 LTC casing to be set at +/- 12350'

Lead 380 sxs Halcem-C + 2% CaCl (mixed at 12.9 ppg 1.88 ft<sup>3</sup>/sx 9.61 gal/sx water)  
Tail 60 sxs Halcem-C + 2% CaCl (mixed at 14.8 ppg 1.33 ft<sup>3</sup>/sx 6.39 gal/sx water)  
Compressives 12-hr = 900 psi 24 hr = 1500 psi

Production Casing 4-1/2", 13.5# New P-110, BTC casing to be set at +/- 22997'

Tail 970 sxs VersaCem (mixed at 13.2 ppg 1.33 ft<sup>3</sup>/sx 8.38 gal/sx water)  
Compressives 12-hr = 1375 psi 24 hr = 2285 psi

#### 5 Pressure Control Equipment

The blow out preventer equipment (BOP) for this well consists of a 13-5/8" minimum 10M Double Ram BOP. A variance is requested to allow use of a 5M Hydril. MASP should not exceed 5151 psi.

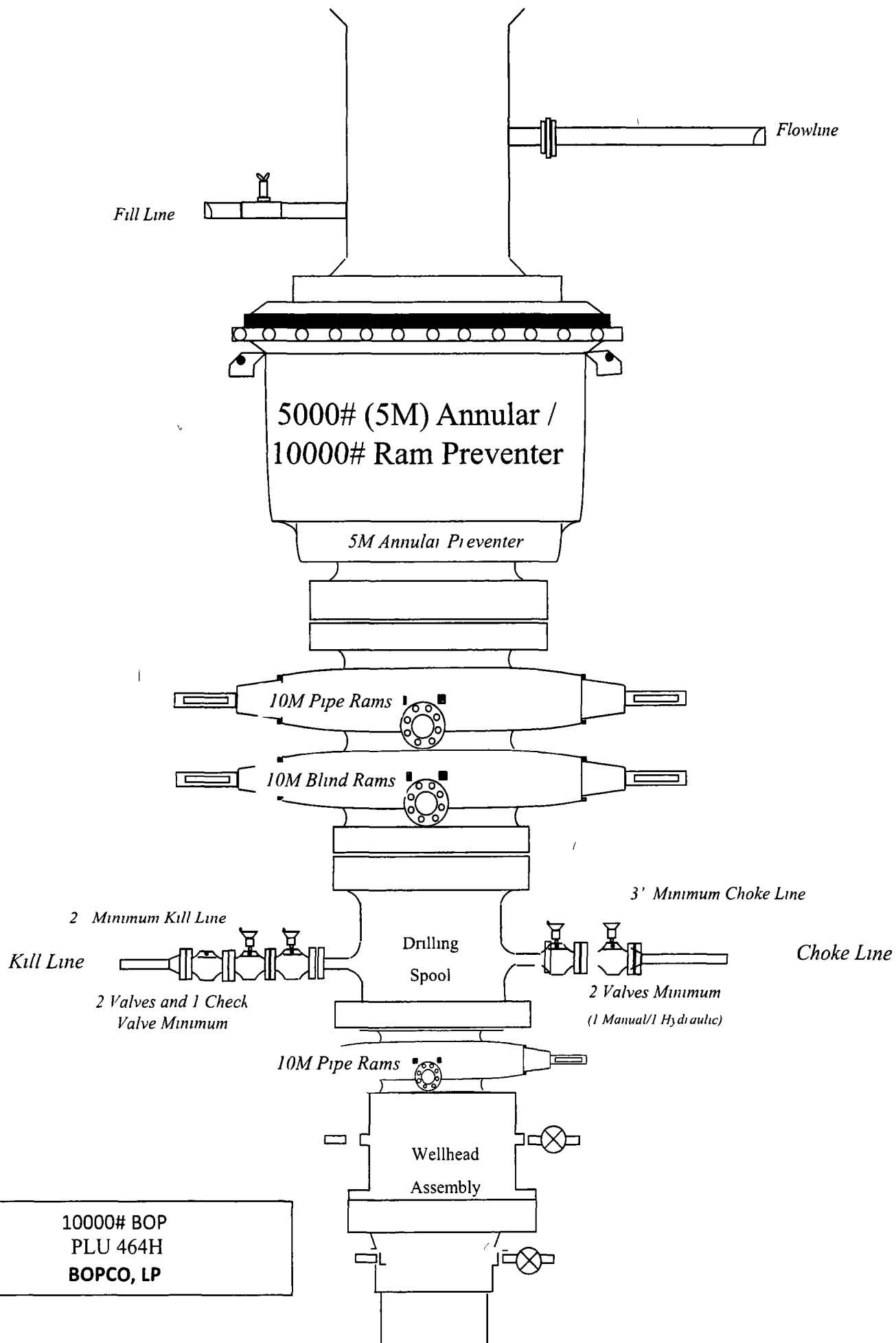
All BOP testing will be done by an independent service company. Annular pressure tests will be limited to 50% of the working pressure. When nipping up on the 13-5/8" 10M bradenhead and flange the BOP test will be limited to 10000 psi. When nipping up on the 9-5/8" the BOP will be tested to a minimum of 10000 psi. 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.

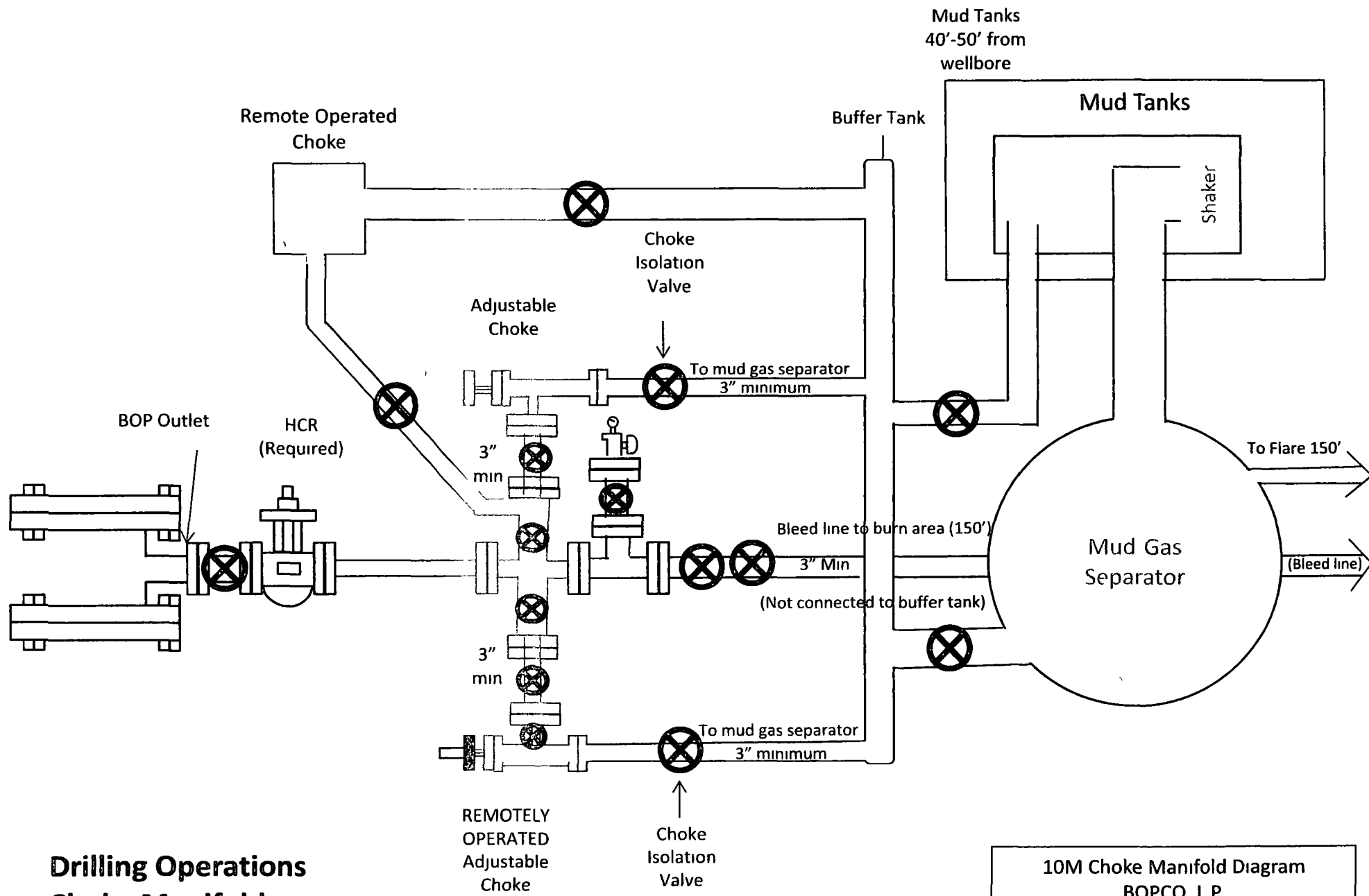
A variance is requested to allow use of a flex hose as the choke line from the BOP to the Choke Manifold. If this hose is used, a copy of the manufacturer's certification and pressure test chart will be kept on the rig. Attached is an example of a certification and pressure test chart. The manufacturer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

## 6 Proposed Mud Circulation System

INTERVAL	Hole Size	Mud Type	MW (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
0 to 940' <i>1000</i>	17-1/2	FW/Native	8 4-8 8	35 40	NC
940 to 8350	12 1/4	Brine/Gel Sweeps	9 8 10 2	30 32	NC
8350 to 12350'	8-3/4"	FW / Cut Brine	8 6 9 5	29 32	NC 20
12350 to 22997	6'	FW / Cut Brine / Polymer	12 2-12 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.





**Drilling Operations  
Choke Manifold  
10M Service**

**10M Choke Manifold Diagram**  
BOPCO, L P  
BEU 29 Federal SWD #1



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

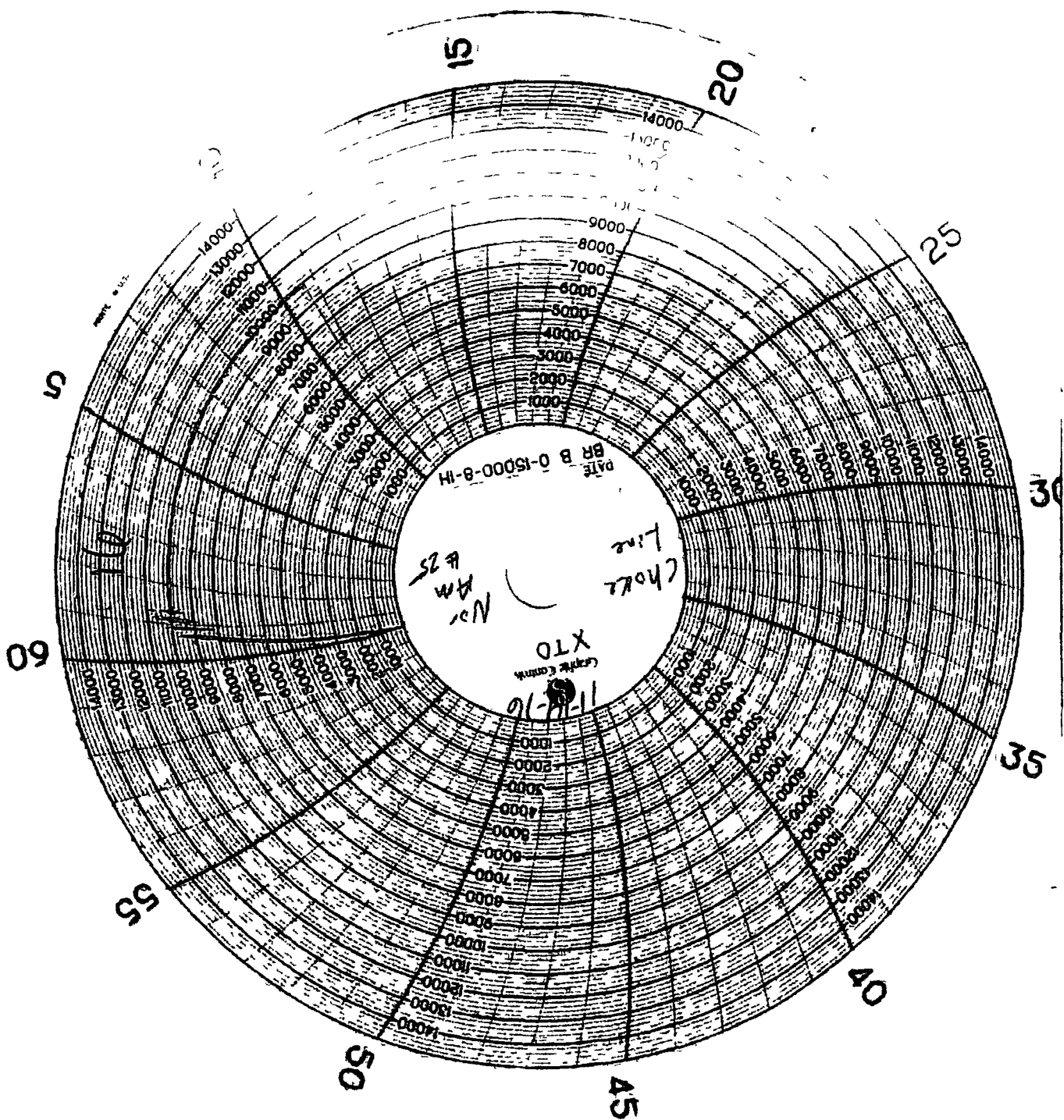
PHONE: 361-887-9807  
FAX: 361-887-0812  
EMAIL: crpe@s@gates.com  
WEB: www.gates.com

### GRADE D PRESSURE TEST CERTIFICATE

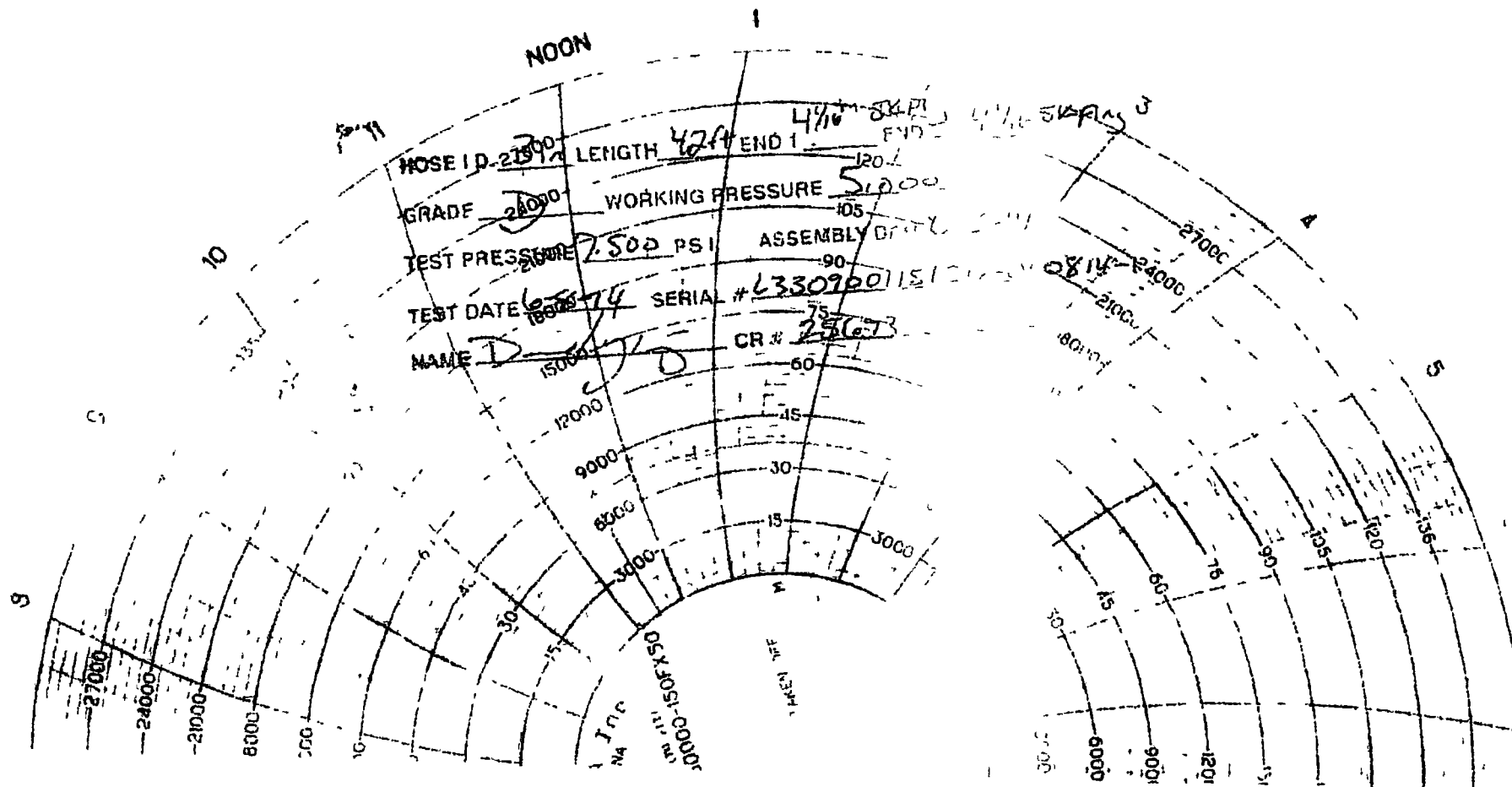
Customer	AUSTIN DISTRIBUTING	Test Date	6/8/2014
Product	PERDING	Test Location	Dallas, TX
Part No.	70 704	Customer	MORTON
Product Description	FD3 042 0R41/16 SKFLGE/E LE		
End Fitting 1	4 1/16 in SK FLG	End Fitting 2	4 1/16 in SK FLG
Gates Part No	4774-6001	Assembly Code	L33090011513D-060814-1
Working 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	







# PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME	BOPCO, L.P
LEASE NO	NMLC-064894A
WELL NAME & NO :	Poker Lake Unit 464H
SURFACE HOLE FOOTAGE	0550' FSL & 0715' FEL
BOTTOM HOLE FOOTAGE	0200' FSL & 2310' FWL Sec 29, T 25 S , R 30 E
LOCATION	Section 17, T 25 S , R 30 E , NMPM
COUNTY	Eddy County, New Mexico

All previous COAs still apply except for the following

## A CASING

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

Centralizers required on surface casing per Onshore Order 2 III B 1 f

### 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

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer

Possibility of water flows in the Salado and Delaware  
Possibility of lost circulation in the Red beds, Rustler, and Delaware  
Abnormal pressure might be encountered upon entering third Bone Spring and subsequent formations

- 1 The 13-3/8 inch surface casing shall be set at approximately 1000 feet (in a competent bed below the Magenta Dolomite, which is a Member of the Rustler,

**and if salt is encountered, set casing at least 25 feet 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 is to include the lead cement slurry**
- 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

**Intermediate casing must be kept 1/3rd fluid filled to meet BLM minimum collapse requirement**

- 2 The minimum required fill of cement behind the 9-5/8 inch 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 to surface If cement does not circulate, contact the appropriate BLM office **Additional cement maybe required Excess calculates to -4%**
- 3 The minimum required fill of cement behind the 7 inch production casing is
  - a ☒ Cement should tie-back at least 200 feet into previous casing string Operator shall provide method of verification **Additional cement maybe required Excess calculates to 24%**

**Formation below the 7" shoe to be tested according to Onshore Order 2 III B 1 i Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole Report results to BLM office**

- 4 The minimum required fill of cement behind the 4 1/2 inch production liner is  
☒ Cement should tie-back at least 100 feet into previous casing Operator shall provide method of verification
- 5 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

## **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 53
- 2 Variance approved to use flex line from BOP to choke manifold 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** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs)
- 3 Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M) psi**
- 4 Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 9 5/8 inch intermediate casing shoe shall be **5000 (5M) psi 5M/10M 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**
- 5 Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 7 inch production casing shoe shall be **10,000 (10M) psi**

**Variance approved to use a 5M annular The annular must be tested to full working pressure (5000 psi)**

**5M/10M 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**

- 6 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 The tests shall be done by an independent service company utilizing a test plug.
  - c 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.
  - d The results of the test shall be reported to the appropriate BLM office.
  - 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 if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
  - 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.

**Proposed mud weight may not be adequate for drilling through Wolfcamp.**

**D DRILL STEM TEST**

If drill stem tests are performed, Onshore Order 2 III D shall be followed

**E 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.

**ZS 040218**

**SEE ATTACHED DRILLING REQUIREMENTS**

## **SIMULATED BLOWOUT CONTROL DRILLS**

All drills will be initiated by activating alarm devices (air horn) Use one long blast on the air horn for ACTUAL and SIMULATED Blowout Control Drills This operation will be performed by the Drilling Foreman or Tool Pusher at least one time per week for each of the following conditions, with each crew

Drill # 1 Bottom Drilling

Drill # 2 Tripping Drill Pipe

In each of these drills, the initial reaction time to shutting in the well shall be timed as well as the total time for the crew to complete its entire pit drill assignment The times must be recorded on the IADC Driller's Log as "Blowout Control Drill"

Drill No		
Reaction Time to Shut-In	minutes,	seconds
Total Time to Complete Assignment	minutes,	seconds

### **I. Drill Overviews**

#### **A Drill No 1- Bottom Drilling**

- 1 Sound the alarm immediately
- 2 Stop the rotary and hoist kelly joint above the rotary table
- 3 Stop the circulatory pump
- 4 Close the drill pipe rams
- 5 Record casing and drill pipe shut-in pressures and pit volume increases

#### **B Drill No 2 – Tripping Drill Pipe**

- 1 Sound the alarm immediately
- 2 Position the upper tool joint just above the rotary table and set the slips

- 3 Install a full opening valve or inside blowout preventor tool in order to close the drill pipe
- 4 Close the drill pipe rams
- 5 Record the shut-in annular pressure

## **II. Crew Assignments**

### **A. Drill No. 1 – Bottom Drilling**

#### **1 Driller**

- a) Stop the rotary and hoist kelly joint above the rotary table
- b) Stop the circulatory pump
- c) Check flow
- d) If flowing, sound the alarm immediately
- e) Record the shut-in drill pipe pressure
- f) Determine the mud weight increase needed or other courses of action

#### **2 Derrickman**

- a) Open choke line valve at BOP
- b) Signal Floor Man # 1 at accumulator that choke line is open
- c) Close choke and upstream valve after pipe rams have been closed
- d) Read the shut-in annular pressure and report readings to Driller

#### **3 Floor Man # 1**

- a) Close the pipe rams after receiving the signal from the Derrickman
- b) Report to Driller for further instructions



**4 Floor Man # 2**

- a) Notify the Tool Pusher and Operator Representative of the H<sub>2</sub>S alarms
- b) Check for open fires and, if safe to do so, extinguish them
- c) Stop all welding operations
- d) Turn-off all non-explosion proof lights and instruments
- e) Report to Driller for further instructions

**5 Tool Pusher**

- a) Report to the rig floor
- b) Have a meeting with all crews
- c) Compile and summarize all information
- d) Calculate the proper kill weight
- e) Ensure that proper well procedures are put into action

**6 Operator Representative**

- a) Notify the Drilling Superintendent
- b) Determine if an emergency exists and if so, activate the contingency plan

**B Drill No. 2 – Tripping Pipe**

**1 Driller**

- a) Sound the alarm immediately when mud volume increase has been detected
- b) Position the upper tool joint just above the rotary table and set slips
- c) Install a full opening valve or inside blowout preventor tool to close the drill pipe
- d) Check flow

e) Record all data reported by the crew

f) Determine the course of action

**2 Derrickman**

a) Come down out of derrick

b) Notify Tool Pusher and Operator Representative

c) Check for open fires and, if safe to do so, extinguish them

d) Stop all welding operations

e) Report to Driller for further instructions

**3 Floor Man # 1**

a) Pick up full opening valve or inside blowout preventor tool and stab into tool joint above rotary table (with Floor Man # 2)

b) Tighten valve with back-up tongs

c) Close pipe rams after signal from Floor Man # 2

d) Read accumulator pressure and check for possible high pressure fluid leaks in valves or piping

e) Report to Driller for further instructions

**4 Floor Man # 2**

a) Pick-up full opening valve or inside blowout preventor tool and stab into tool joint above rotary table (with Floor Man # 1)

b) Position back-up tongs on drill pipe

c) Open choke line valve at BOP

d) Signal Floor Man # 1 at accumulator that choke line is open

e) Close choke and upstream valve after pipe rams have been closed

f) Check for leaks on BOP stack and choke manifold

- g) Read annular pressure
- h) Report readings to the Driller

**5 Tool Pusher**

- a) Report to the rig floor
- b) Have a meeting with all of the crews
- c) Compile and summarize all information
- d) See that proper well kill procedures are put into action.

**6 Operator Representative**

- a) Notify Drilling Superintendent
- b) Determine if an emergency exists, and if so, activate the contingency plan

R111P High

13 3/8	surface csg in a	17 1/2	inch hole	Design Factors		SURFACE			
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight	
"A"	48 00	H 40	ST&C	6 71	1 68	0 39	1,000	48,000	
"B"							0	0	
w/8 4#/g mud, 30min Sfc Csg Test psig 775				Tail Cmt	does not	circ to sfc	Totals	1,000	48,000
<b>Comparison of Proposed to Minimum Required Cement Volumes</b>									
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	770	1284	749	71	8 80	2587	3M	1 56

Burst Frac Gradient(s) for Segment(s) A B = , b 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	2 51	0 96	1 36	8,350	334,000	
"B"							0	0	
w/8 4#/g mud 30min Sfc Csg Test psig							Totals	8,350	334,000
The cement volume(s) are intended to achieve a top of					0	ft from surface or a		1000	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
12 1/4	0 3132	look	0	2697		10 20	2345	3M	0 81
D V Tool(s)			990				sum of sx	Σ CuFt	Σ%excess
t by stage %		98	4				2700	4950	84

Class 'C' tail cmt yld > 1.35

ALT COLLAPSE SF 96\*1.5=1.44

7	casing inside the	9 5/8	Design Factors				PRODUCTION		
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight	
"A"	32 00	P 110	LT&C	3 36	2 57	1 6	12,350	395,200	
"B"							0	0	
w/8 4#/g mud 30min Sfc Csg Test psig 1,887							Totals	12,350 395,200	
A would be				3 27	2 55	if it were a vertical wellbore			
No Pilot Hole Planned		MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC	
		12350	8575	8575	11484	61	-1	0	
The cement volume(s) are intended to achieve a top of				8150	ft from surface or a		200	overlap	
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole Cplg
8 3/4	0 1503	440	794	642	24	9 50	5144	10M	0 55
Class 'H' tail cmt yld > 1 20				MASP is within 10% of 5000psig, need exrta equip?					

Class 'H' tail cmt yld > 1.20

MAASP is within 10% of 5000psig, need extra equip?

Tail cmt			Design Factors						LINER	
4 1/2	Liner w/top @	11484	-							
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	Weight		
"A"	13 50	P 110	BUTT	114 45	1 38	1 6	11 513	155,426		
"B"							0	0		
w/8 4#/g mud 30min Sfc Csg Test psig 2,636							Totals	11,513	155,426	
A Segment Design Factors would be				2 85	1 37	if it were a vertical wellbore				
No Pilot Hole Planned		MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC		
		22997	11981	11981	11484	90	-1	90		
The cement volume(s) are intended to achieve a top of					11484	ft from surface or a		866	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	
6	0 0859	970	1290	928	39	12 50			0 50	
Class 'H' tail cmt yld > 1 20			Capitan Reef est top XXXX			MASP is within 10% of 5000psig, need exrta equip?				

Class 'H' tail cmt yld > 1.20

Capitan Reef est top XXXX

MAASP is within 10% of 5000psig, need extra equip?