

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No 1004-0136
Expires July 31, 2010

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: ☒ DRILL ☐ REENTER		CONFIDENTIAL		5. Lease Serial No. NMNM02860
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone				6. If Indian, Allottee or Tribe Name
2. Name of Operator CHESAPEAKE AGENT FOR BOPCO		Contact LINDA GOOD Email: linda.good@chk.com	7. If Unit or CA Agreement, Name and No. NMNM071016X	8. Lease Name and Well No. PLU PIERCE CANYON 20 24 30 USA 1H
3a. Address P.O. BOX 18496 OKLAHOMA CITY, OK 73154-0496		3b. Phone No (include area code) Ph: 405-935-4275	9. API Well No 30-015-39692	10. Field and Pool, or Exploratory WILDCAT; BONE SPRING
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface NWNE 75FNL 1725FEL At proposed prod zone SWSE 350FSL 1980FEL			11. Sec., T., R., M., or Blk. and Survey or Area Sec 20 T24S R30E Mer NMP	
14. Distance in miles and direction from nearest town or post office* APPROX. 17.7 MILES FROM LOVING, NM.			12. County or Parish EDDY	13. State NM
15. Distance from proposed location to nearest property or lease line, ft (Also to nearest drg. unit line, if any) APPROX. 1725' FEL OF SECTION 16 (STATE		16. No. of Acres in Lease 20.70	17. Spacing Unit dedicated to this well 160.00	
18. Distance from proposed location to nearest well, drilling, completed, applied for, on this lease, ft. APPROX. 5000'		19. Proposed Depth 12511 MD 7806 TVD	20. BLM/BIA Bond No on file ESB000159	
21. Elevations (Show whether DF, KB, RT, GL, etc) 3272 GL		22. Approximate date work will start 05/15/2012	23. Estimated duration 45 DAYS	

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

- | | |
|---|---|
| 1. Well plat certified by a registered surveyor | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above) |
| 2. A Drilling Plan | 5. Operator certification |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the authorized officer |

25. Signature (Electronic Submission)	Name (Printed/Typed) LINDA GOOD Ph: 405-935-4275	RECEIVED NOV 23 2011	Date 09/09/2011
Title SR. REGULATORY COMPLIANCE SPEC			
Approved by (Signature) /s/ Don Peterson	Name (Printed/Typed) /s/ Don Peterson	NM OCD ARTESIA	Date NOV 21 2011
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE		

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

APPROVAL FOR TWO YEARS

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.

Additional Operator Remarks (see next page)

CARLSBAD CONTROLLED Electronic Submission #117180 verified by the BLM Well Information System
CHESAPEAKE AGENT FOR BOPCO, sent to the Carlsbad

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

**APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED**

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

Additional Operator Remarks:

NO PILOT HOLE.

Chesapeake Operating, Inc. respectfully requests permission to drill a well to 12,511' to test the Bone Spring formation. If productive, casing will be run and the well completed. If dry, the well will be plugged and abandoned as per BLM and New Mexico Oil Conservation Division requirements.

Please find the Surface Use Plan and Drilling Plan as required by Onshore Order No. 1.

Attached are the Exhibit A-1 to A-4 Survey plats, Exhibit B 1 mile radius plat, Exhibit C Production facility, Exhibit D Generic Rig layout, Exhibit E-1 to E-3 Frac Pond Plats, Exhibit F-1 to F-2 BOP & Choke Manifold and Exhibit G Directional Drill Plan.

Archeological Survey will be delivered to the BLM when completed.

Chesapeake Operating, Inc. has an agreement with the grazing lessee.

Please be advised that Chesapeake Operating, Inc. is the Designated Agent for BOPCO, the Operator of this unit. Chesapeake Operating, Inc. agrees to be responsible under the terms and conditions of the lease for the operations conducted upon the lease lands.

(CHK PN 640123)

ONSHORE ORDER NO. 1

Chesapeake Operating, Inc. Agent for BOPCO

PLU Pierce Canyon 20-24-30 USA 1H

SHL: 75' FNL 1725' FEL, Section 20, Township 24S, Range 30 E

BHL: 350' FSL 1980' FEL, Section 20 Township 24S, Range 30 E

Eddy, NM

CONFIDENTIAL -- TIGHT HOLE

Lease Contract No. NMNM02860

DRILLING PLAN

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Oil
ONSHORE OIL & GAS ORDER NO. 12
Approval of Operations on Onshore
Federal and Indian Oil and Gas Leases

All lease and/or unit operations are to be conducted in such a manner that full compliance is made with the applicable laws, regulations (CFR 43, Part 3160) and the approved Application for Permit to Drill. The operator is considered fully responsible for the actions of his subcontractors. A copy of the approved APD must be on location during construction, drilling and completion operations.

Approval of this application 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.

1. FORMATION TOPS

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA	KBTVD	MD
Rustler	2,472	824	824
Salt	1,780	1,516	1,516
Base of Salt	-317	3,541	3,541
Lamar	-408	3,704	3,704
Bell Canyon	-445	3,741	3,741
Cherry Canyon	-1,285	4,581	4,581
Brushy Canyon	-2,525	5,821	5,821
First Bone Spring Lime	-4,172	7,468	7,468
Lateral TD	-4,509	7805	12,511

2. ESTIMATED DEPTH OF WATER, OIL, GAS & OTHER MINERAL BEARING FORMATIONS

The estimated depths at which the top and bottom of the anticipated water, oil, gas, or other mineral bearing formations are expected to be encountered are as follows:

Substance	Formation	Depth
Water	Rustler	824-875
Oil/Gas	Bone Spring	7,468

All shows of fresh water and minerals will be reported and protected.

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3. BOP EQUIPMENT

Will have a 5000 psi rig stack (see proposed schematic) for drill out below surface casing, but this system will be tested to 3000 psi working pressure and 3000 psi working pressure for the annular preventer; therefore, no shoe tests will be conducted.

Chesapeake Operating Inc.'s minimum specifications for pressure control equipment are as follows:

I. BOP, Annular, Choke Manifold Pressure Test - See Exhibit F-1 and F-2

A. Equipment

1. The equipment to be tested includes all of the following that is installed on the well:
 - (a) Ram-type and annular preventers
 - (b) Choke manifolds and valves
 - (c) Kill lines and valves
 - (d) Upper and lower kelly cock valves, inside BOP's and safety valves

B. Frequency

1. All tests shall be performed with clear water
 - (a) when installed
 - (b) before drilling out each casing string
 - (c) at any time that there is a repair requiring a pressure seal to be broken in the assembly
 - (d) at least once every 30 days while drilling

C. Frequency

1. In some drilling operations, the pressures to be used for low and high pressure testing of preventers and casing may be different from those given below due to governmental regulations or approved local practices.
2. If an individual component does not test at the low pressure, do not, test to the high pressure and then drop back down to the low pressure.
3. All valves located downstream of a valve being tested must be placed in the open position.
4. All equipment will be tested with an initial "low pressure" test at 250 psi.
5. The subsequent "high pressure" test will be conducted at the rated working pressure of the equipment for all equipment except the annular preventer unless otherwise stated (see above).
6. The "high pressure" test for the annular preventer will be conducted at 70% of the rated working pressure unless otherwise stated (see above).
7. A record of all pressures will be made on a pressure-recording chart.

II. Accumulator Performance Test

A. Scope

1. The purpose of this test is to check the capabilities of the Bop control systems and to detect deficiencies in the hydraulic oil volume and recharge time.

B. Test Frequency

1. The accumulator is to be tested each time the BO's are tested, or any time a major repair is performed.

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C. Minimum Requirements

1. The accumulator should be of sufficient volume to supply 1.5 times the volume to close and hold all BOP equipment in sequence, without recharging and the pump turned off, and have remaining pressures of 200 psi above the precharge pressure.
2. Minimum precharge pressures for the various accumulator systems per manufacturers recommended specifications are as follows:

System Operating Pressure	Precharge Pressure
1500 psi	750 psi
2000 psi	1000 psi
3000 psi	1000 psi

3. Closing times for the annular preventer should be less than 20 seconds and for the ram-type preventers less than 10 seconds.
4. System recharge time should not exceed 10 minutes.

D. Test Procedure

1. Shut accumulator pumps off and record accumulator pressure.
2. In sequence, close the annular and one set of properly sized pipe rams, and open the HCR valve
3. Record time to close or open each element and the remaining accumulator pressure after each operation.
4. Record the remaining accumulator pressure at the end of the test sequence. Per the previous requirement, this pressure should not be less than the following pressures:

System Operating Pressure	Remaining Pressure After Test
1500 psi	950 psi
2000 psi	1200 psi
3000 psi	1200 psi

5. Turn the accumulator pumps on and record the recharge time. This time should not exceed 10 minutes.
6. Open annular and ram-type preventers. Close HCR valve.
7. Place all 4-way control valves in full open or full closed position. Do not leave in neutral position.

3. CASING PROGRAM

- a. The proposed casing program will be as follows:

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	925'	17-1/2"	13-3/8"	48 #	H-40	STC	New
Intermediate	0' - 3650'	3725'	11"	8-5/8"	32 #	J-55	LTC	New
Production	0'	12,511'	7-7/8"	5-1/2"	20 #	L-80	LTC	New

- b. Casing design subject to revision based on geologic conditions encountered.

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c. Casing Safety Factors

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension
Surface	1.35	1.83	2.34
Intermediate	1.55	1.57	2.07
Production	1.23	2.51	1.77

Min SF is the smallest of a group of safety factors that include the following considerations:

Min SF is the smallest of a group of safety factors that include the following considerations:

	Surf	Int	Prod
Burst Design			
Pressure Test- Surface, Int, Prod Csg P external: Water P internal: Test psi + next section heaviest mud in csg	X	X	X
Displace to Gas- Surf Csg P external: Water P internal: Dry Gas from Next Csg Point	X		
Frac at Shoe, Gas to Surf- Int Csg P external: Water P internal: Dry Gas, 15 ppg Frac Gradient		X	
Stimulation (Frac) Pressures- Prod Csg P external: Water P internal: Max inj pressure w/ heaviest injected fluid			X
Tubing leak- Prod Csg P external: Water P internal: Leak just below surf, 8.7 ppg packer fluid			X
Collapse Design			
Full Evacuation P external: Water gradient in cement, mud above TOC P internal: none	X	X	X
Cementing- Surf, Int, Prod Csg P external: Wet cement P internal: water	X	X	X
Tension Design			
100k lb overpull	X	X	X

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5. CEMENTING PROGRAM

Slurry	Type	Top	Btm	Wt	Yld	%Exc	Sx
Surface	<u>11</u>			(ppg)	(sx/cu ft)	Open Hole	
Single Slurry	C + 3 8% Gel	0'	925'	13.5	1.73	150	916
Shallow Int							
Lead	TXI +5% Salt	0'	3,225'	12	1.8	150	1050
Tail	50C/50Poz +5% Salt	3,225'	3,725'	14.2	1.37	150	243
Production							
Slurry 1 Lead	35/65Poz H +8% Gel	4,500'	7,400'	12.4	2.09	75	421
Slurry 1 Tail	50H/50Poz	7,400'	12,511'	14.5	1.24	75	1259
Slurry 2 Lead	35/65Poz H +8% Gel	3,225'	4,250'	12.4	2.19	200	165
Slurry 2 Tail	50H/50Poz	4,250'	4,500'	14.8	1.33	200	98

1. Final cement volumes will be determined by caliper.
2. Surface casing shall have at least one centralizer installed on each of the bottom three joints starting with the shoe joint.
3. The production casing will be cemented in two stages with the DV tool place at: 4,500'
4. Production casing will have one centralizer on every other joint from TD to KOP (horizontal type) and from KOP to intermediate casing (bowspring type).

Pilot Hole Plugging Plan:

There will be no pilot hole for this well.

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6. MUD PROGRAM

From Depth	To	Type	Weight	F. Vis	FL
0'	925'	Spud Mud	8.4 - 8.7	32 - 34	NC - NC
925'	3,725'	Brine	9.8 - 10.1	28 - 29	NC - NC
3,725'	7,366'	Cut Brine	8.4 - 9	28 - 30	NC - NC
7,366'	8,121'	Cut Brine	8.4 - 9	28 - 30	NC - NC
8,121'	12,511'	Cut Brine	8.4 - 9	28 - 30	NC - NC

A closed system will be utilized consisting of above ground steel tanks. All wastes accumulated during drilling operations will be contained in a portable trash cage and removed from location and deposited

All fluids and cuttings will be disposed of in accordance with New Mexico Oil Conservation Division rules and regulations.

A mud test shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.

7. TESTING, LOGGING, AND CORING

See COA

The anticipated type and amount of testing, logging, and coring are as follows:

- Drill stem tests are not planned.
- The logging program will be as follows:

TYPE	Logs	Interval	Timing	Vendor
Mudlog	Mudlog	Int Csg to TD	Drill out Int Csg	Suttles
OH	Triple Combo (Dual Induction)	Curve to Int Csg	After Curve	TBD
LWD	GR/Neutron	Int Csg to Surface	While Drilling	TBD
LWD	MWD/Gamma	Curve/Lateral	While Drilling	TBD

- Core samples are not planned.
- A Directional Survey will be run.

8. ABNORMAL PRESSURES AND HYDROGEN SULFIDE

- No abnormal pressures or temperatures are expected. Estimated BHP is: 3467 psi
- Hydrogen sulfide gas is not anticipated.

Permian District

Poker Lake

PLU Pierce Canyon 20-24-30 USA 1H

Well #1

Wellbore #1

Plan: Design #1

Standard Planning Report

30 August, 2011

Chesapeake Operating

Planning Report

Database:	Drilling Database	Local Co-ordinate Reference:	Well Well #1
Company:	Permian District	TVD Reference:	RKB @ 3297.0usft (Original Well Elev)
Project:	Poker Lake	MD Reference:	RKB @ 3297.0usft (Original Well Elev)
Site:	PLU Pierce Canyon 20-24-30 USA 1H	North Reference:	Grid
Well:	Well #1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore.#1		
Design:	Design #1		

Project	Poker Lake, Eddy County, NM		
Map System:	US State Plane 1983	System Datum:	Ground Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	PLU Pierce Canyon 20-24-30 USA 1H		
Site Position:	Northing:	440,480.80 usft	Latitude: 32.2102175507
From: Map	Easting:	675,216.06 usft	Longitude: -103.9004615988
Position Uncertainty:	0.0 usft	Slot Radius: 13,200 in	Grid Convergence: 0.2307539 °

Well	Well #1		
Well Position	+N/-S	0.0 usft	Northing: 440,480.80 usft
	+E/-W	0.0 usft	Easting: 675,216.06 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	Ground Level: 3,272.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF200510	8/30/2011	7.6983839
			Dip Angle (°)
			60.1355746
			Field Strength (nT)
			48,566

Design	Design #1		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction (°)
			182.90

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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.0000000	
7,366.3	0.00	0.00	7,366.3	0.0	0.0	0.00	0.00	0.00	0.0000000	
8,120.5	90.50	182.90	7,843.8	-481.0	-24.4	12.00	12.00	0.00	82.9016232	
12,511.1	90.50	182.90	7,805.5	-4,865.8	-246.6	0.00	0.00	0.00	0.0000000	BHL #1

Chesapeake Operating

Planning Report

Database:	Drilling Database	Local Co-ordinate Reference:	Well Well #1
Company:	Permian District	TVD Reference:	RKB @ 3297.0usft (Original Well Elev)
Project:	Poker Lake	MD Reference:	RKB @ 3297.0usft (Original Well Elev)
Site:	PLU Pierre Canyon 20-24-30 USA 1H	North Reference:	Grid
Well:	Well #1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00

Chesapeake Operating

Planning Report

Database:	Drilling Database	Local Co-ordinate Reference:	Well Well #1
Company:	Permian District	TVD Reference:	RKB @ 3297.0usft (Original Well Elev)
Project:	Poker Lake	MD Reference:	RKB @ 3297.0usft (Original Well Elev)
Site:	PLU Pierce Canyon 20-24-30 USA 1H	North Reference:	Grid
Well:	Well #1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Bulld Rate (°/100usft)	Turn Rate (°/100usft)
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00
7,366.3	0.00	0.00	7,366.3	0.0	0.0	0.0	0.00	0.00	0.00
7,400.0	4.04	182.90	7,400.0	-1.2	-0.1	1.2	12.00	12.00	0.00
7,500.0	16.04	182.90	7,498.3	-18.6	-0.9	18.6	12.00	12.00	0.00
7,600.0	28.04	182.90	7,590.8	-56.0	-2.8	56.0	12.00	12.00	0.00
7,700.0	40.04	182.90	7,673.5	-111.8	-5.7	111.9	12.00	12.00	0.00
7,800.0	52.04	182.90	7,742.8	-183.5	-9.3	183.8	12.00	12.00	0.00
7,900.0	64.04	182.90	7,795.6	-268.1	-13.6	268.4	12.00	12.00	0.00
8,000.0	76.04	182.90	7,829.7	-361.8	-18.3	362.3	12.00	12.00	0.00
8,100.0	88.04	182.90	7,843.5	-460.5	-23.3	461.1	12.00	12.00	0.00
8,120.5	90.50	182.90	7,843.8	-481.0	-24.4	481.6	12.00	12.00	0.00
8,200.0	90.50	182.90	7,843.1	-560.4	-28.4	561.1	0.00	0.00	0.00
8,300.0	90.50	182.90	7,842.2	-660.3	-33.5	661.1	0.00	0.00	0.00
8,400.0	90.50	182.90	7,841.4	-760.1	-38.5	761.1	0.00	0.00	0.00
8,500.0	90.50	182.90	7,840.5	-860.0	-43.6	861.1	0.00	0.00	0.00
8,600.0	90.50	182.90	7,839.6	-959.9	-48.7	961.1	0.00	0.00	0.00
8,700.0	90.50	182.90	7,838.7	-1,059.7	-53.7	1,061.1	0.00	0.00	0.00
8,800.0	90.50	182.90	7,837.9	-1,159.6	-58.8	1,161.1	0.00	0.00	0.00
8,900.0	90.50	182.90	7,837.0	-1,259.5	-63.8	1,261.1	0.00	0.00	0.00
9,000.0	90.50	182.90	7,836.1	-1,359.3	-68.9	1,361.1	0.00	0.00	0.00
9,100.0	90.50	182.90	7,835.2	-1,459.2	-74.0	1,461.1	0.00	0.00	0.00
9,200.0	90.50	182.90	7,834.4	-1,559.1	-79.0	1,561.1	0.00	0.00	0.00
9,300.0	90.50	182.90	7,833.5	-1,658.9	-84.1	1,661.1	0.00	0.00	0.00
9,400.0	90.50	182.90	7,832.6	-1,758.8	-89.1	1,761.1	0.00	0.00	0.00
9,500.0	90.50	182.90	7,831.8	-1,858.7	-94.2	1,861.1	0.00	0.00	0.00
9,600.0	90.50	182.90	7,830.9	-1,958.5	-99.3	1,961.1	0.00	0.00	0.00
9,700.0	90.50	182.90	7,830.0	-2,058.4	-104.3	2,061.1	0.00	0.00	0.00
9,800.0	90.50	182.90	7,829.1	-2,158.3	-109.4	2,161.1	0.00	0.00	0.00
9,900.0	90.50	182.90	7,828.3	-2,258.2	-114.5	2,261.0	0.00	0.00	0.00
10,000.0	90.50	182.90	7,827.4	-2,358.0	-119.5	2,361.0	0.00	0.00	0.00
10,100.0	90.50	182.90	7,826.5	-2,457.9	-124.6	2,461.0	0.00	0.00	0.00
10,200.0	90.50	182.90	7,825.6	-2,557.8	-129.6	2,561.0	0.00	0.00	0.00
10,300.0	90.50	182.90	7,824.8	-2,657.6	-134.7	2,661.0	0.00	0.00	0.00
10,400.0	90.50	182.90	7,823.9	-2,757.5	-139.8	2,761.0	0.00	0.00	0.00
10,500.0	90.50	182.90	7,823.0	-2,857.4	-144.8	2,861.0	0.00	0.00	0.00

Chesapeake Operating Planning Report

Database:	Drilling Database	Local Co-ordinate Reference:	Well Well #1
Company:	Permian District	TVD Reference:	RKB @ 3297.0usft (Original Well Elev)
Project:	Poker Lake	MD Reference:	RKB @ 3297.0usft (Original Well Elev)
Site:	PLU Pierce Canyon 20-24-30 USA 1H	North Reference:	Grid
Well:	Well #1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

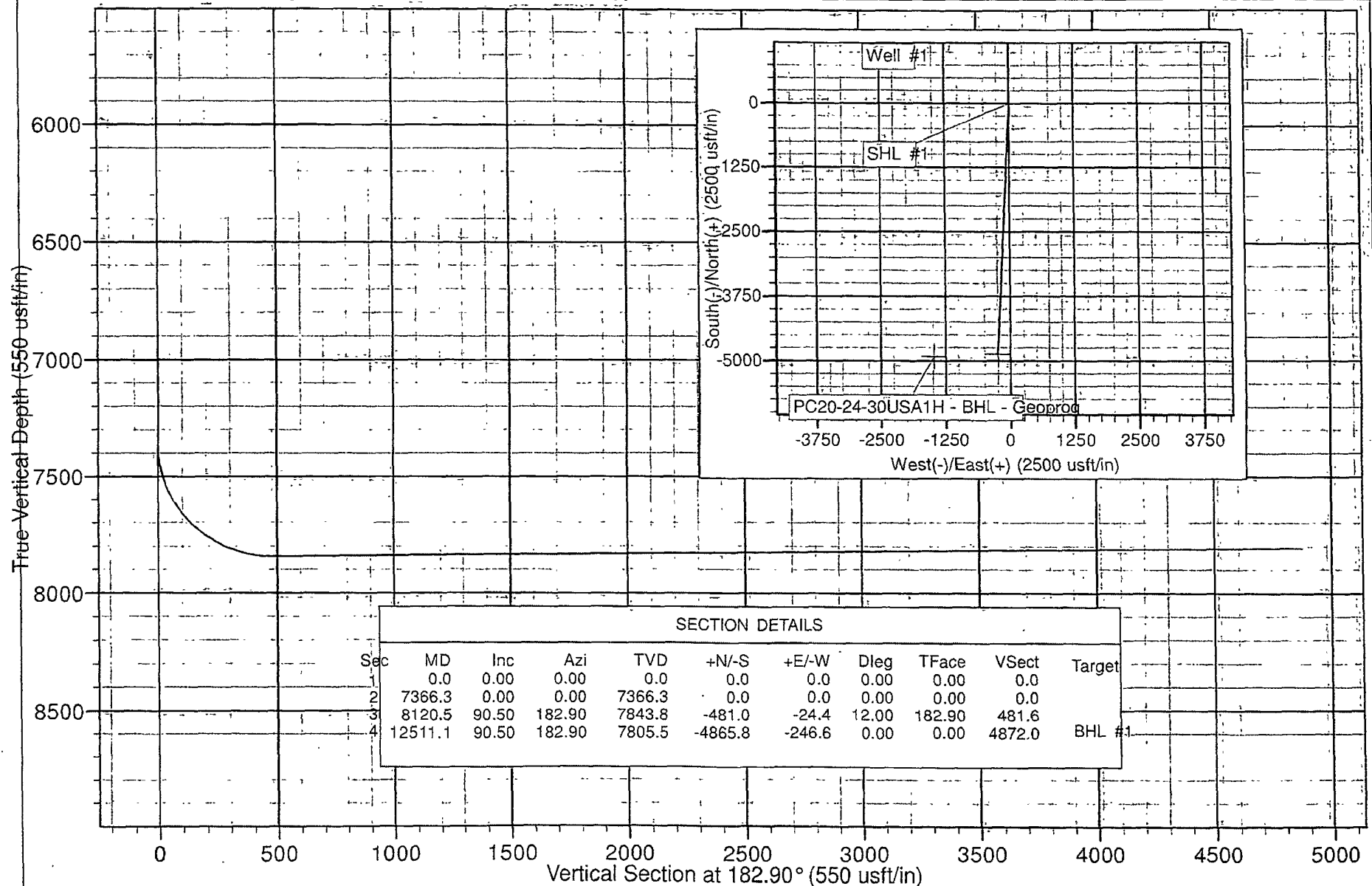
Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
10,600.0	90.50	182.90	7,822.2	-2,957.2	-149.9	2,961.0	0.00	0.00	0.00	
10,700.0	90.50	182.90	7,821.3	-3,057.1	-155.0	3,061.0	0.00	0.00	0.00	
10,800.0	90.50	182.90	7,820.4	-3,157.0	-160.0	3,161.0	0.00	0.00	0.00	
10,900.0	90.50	182.90	7,819.5	-3,256.8	-165.1	3,261.0	0.00	0.00	0.00	
11,000.0	90.50	182.90	7,818.7	-3,356.7	-170.1	3,361.0	0.00	0.00	0.00	
11,100.0	90.50	182.90	7,817.8	-3,456.6	-175.2	3,461.0	0.00	0.00	0.00	
11,200.0	90.50	182.90	7,816.9	-3,556.4	-180.3	3,561.0	0.00	0.00	0.00	
11,300.0	90.50	182.90	7,816.0	-3,656.3	-185.3	3,661.0	0.00	0.00	0.00	
11,400.0	90.50	182.90	7,815.2	-3,756.2	-190.4	3,761.0	0.00	0.00	0.00	
11,500.0	90.50	182.90	7,814.3	-3,856.0	-195.4	3,861.0	0.00	0.00	0.00	
11,600.0	90.50	182.90	7,813.4	-3,955.9	-200.5	3,961.0	0.00	0.00	0.00	
11,700.0	90.50	182.90	7,812.6	-4,055.8	-205.6	4,061.0	0.00	0.00	0.00	
11,800.0	90.50	182.90	7,811.7	-4,155.6	-210.6	4,161.0	0.00	0.00	0.00	
11,900.0	90.50	182.90	7,810.8	-4,255.5	-215.7	4,261.0	0.00	0.00	0.00	
12,000.0	90.50	182.90	7,809.9	-4,355.4	-220.8	4,361.0	0.00	0.00	0.00	
12,100.0	90.50	182.90	7,809.1	-4,455.2	-225.8	4,461.0	0.00	0.00	0.00	
12,200.0	90.50	182.90	7,808.2	-4,555.1	-230.9	4,561.0	0.00	0.00	0.00	
12,300.0	90.50	182.90	7,807.3	-4,655.0	-235.9	4,661.0	0.00	0.00	0.00	
12,400.0	90.50	182.90	7,806.4	-4,754.8	-241.0	4,761.0	0.00	0.00	0.00	
12,500.0	90.50	182.90	7,805.6	-4,854.7	-246.1	4,861.0	0.00	0.00	0.00	
12,511.1	90.50	182.90	7,805.5	-4,865.8	-246.6	4,872.0	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Eastings (usft)	Latitude	Longitude	
BHL #1 - hit/miss target - Shape	0.00	0.00	7,805.5	-4,865.8	-246.6	435,615.00	674,969.44	32.1968449850	-103.9013222269	
- plan hits target center										
- Point										
SHL #1 - plan misses target center by 200.8usft at 7740.7usft MD (7703.5 TVD, -139.2 N, -7.1 E) - Point	0.00	0.00	7,848.0	0.0	0.0	440,480.80	675,216.06	32.2102175507	-103.9004615988	

Project: Poker Lake
 Site: PLU Pierce Canyon 20-24-30 USA 1H
 Well: Well #1
 Wellbore: Wellbore #1
 Design: Design #1

PROJECT DETAILS: Poker Lake

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone

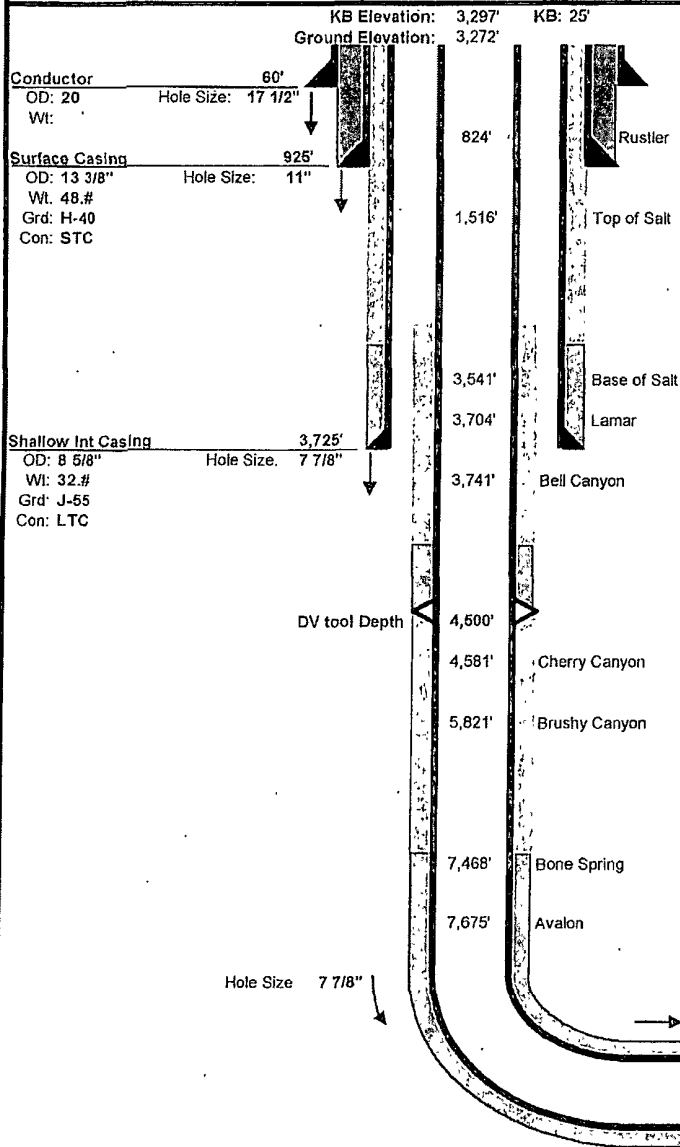




Drilling Engineer: Chris Gray
Superintendent: Cecil Luttrill
Geologist: Carl Standley

Well Name: PLU Pierce Canyon 20-24-30 USA 1H
Target: Upper Avalon
County, State: Eddy, NM
Surface Location: 75' FNL 1725' FEL, Section 20, Township 24S, Range 30 E
BH Location: 350' FSL 1980' FEL, Section 20 Township 24S, Range 30 E
SHL Latitude: 32.210218 SHL North: 440481
SHL Longitude: -103.900482 SHL East: 675216
BHL Latitude: 32.1958444 BHL North: 435615
BHL Longitude: -103.9013222 BHL East: 674969
Coordinates: NAD 83 Coordinates: NMSPCE

Drilling Rig: Patterson 62
Directional-Surface: Ryan
Directional-Curve: TBD
Directional-Lateral: TBD
Drilling Mud: TBD
Cement: TBD
Wellhead: Sunbelt
Property Number: 640123
AFE Number: 157213



Wellhead Equipment	
A Section	13-3/8" x 11" 5K SOW
B Section	11" 5K X 11" 5K
C Section	11" 5K X 7-1/16" 10K
D Section	N/A
Required BOP Stack	11" 5K: Double, Annular, Rot Head, W/Orbit Valve

Mud				
Depth	Type	Weight	F. Vis	FL
0' - 925'	Spud Mud	8.4 - 8.7	32 - 34	NC - NC
925' - 3,725'	Brine	9.8 - 10.1	28 - 29	NC - NC
3,725' - 7,366'	Cut Brine	8.4 - 9	28 - 30	NC - NC
7,366' - 8,121'	Cut Brine	8.4 - 9	28 - 30	NC - NC
8,121' - 12,511'	Cut Brine	8.4 - 9	28 - 30	NC - NC

Cement							
Slurry	Top	Btm	Wt	Yld	%Exc	Bbl	Sx
Surface							
Single Slurry	0'	925'	13.5	1.73	150	282	916
Shallow Int							
Lead	0'	3,225'	12.0	1.8	150	337	1050
Tail	3,225'	3,725'	14.2	1.37	150	59	243
Production							
1st Lead	4,500'	7,400'	12.4	2.09	75	157	421
1st Tail	7,400'	12,511'	14.5	1.24	75	278	1259
2nd Lead	3,225'	4,250'	12.4	2.19	200	64	165
2nd Tail	4,250'	4,500'	14.8	1.33	200	23	98

Type	Logs	Interval	Vendor
Mudlog	Mudlog	Int Csg to TD	Suttles
OH	Triple Combo (Dual Induction)	Curve to Int Csg	TBD
LWD	GR/Neutron	Int Csg to Surface	TBD
LWD	MWD/Gamma	Curve/Lateral	TBD

Directional Plan						
Target Line:	7848' @ 0' VS w/0.5 deg up dip					
Target Window:	10' Below & 20' Above					
	MD	INC	AZM	TVD	VS	DLS
KOP	7,366'	0.00	0.00	7,366'	0'	0.00
EOB	8,121'	90.50	182.90	7,843'	481'	12.00
TD	12,511'	90.50	182.90	7,805'	4,872'	0.00
Hardlines:	Lateral- 330' from all lease lines.					
	Vertical- Actual Lease Lines					
Notes:	Please note SHL and BHL distance from lease lines					

Chesapeake Minimum BOPE Requirements

Wellname: PLU Pierce Canyon 20-24-30 USA 1H

Operation: Intermediate and Production Hole Sections

BLOWOUT PREVENTER SCHEMATIC CHESAPEAKE OPERATING INC

WELL : Permian District

FIELD : Avalon

RIG :

COUNTY :

OPERATION : Intermediate and Production Hole Sections

STATE :

REVISION : : / /

Component Descriptions

	Size	Pressure	Description
A	13 5/8"	LP	Rotating Head w/ Orbit Valve
B	13 5/8"	5,000 psi	Annular
C	13 5/8"	5,000 psi	Pipe Ram
D	13 5/8"	5,000 psi	Blind Ram
E	13 5/8"	5,000 psi	Alud Cross
F	13 5/8"	5,000 psi	Drilling Spool (as req'd)
G			
DSA (Int)	13 5/8" 3M x 13 5/8" 5M		
DSA (Prod)	11" 5M x 13 5/8" 5M		
B Sec	13 5/8" 3M x 11" 5M with 5M Gate Valves		
A Sec	13 5/8" 5OW x 13 5/8" 3M w/ 3M Gate Valve		

Exception	Reference

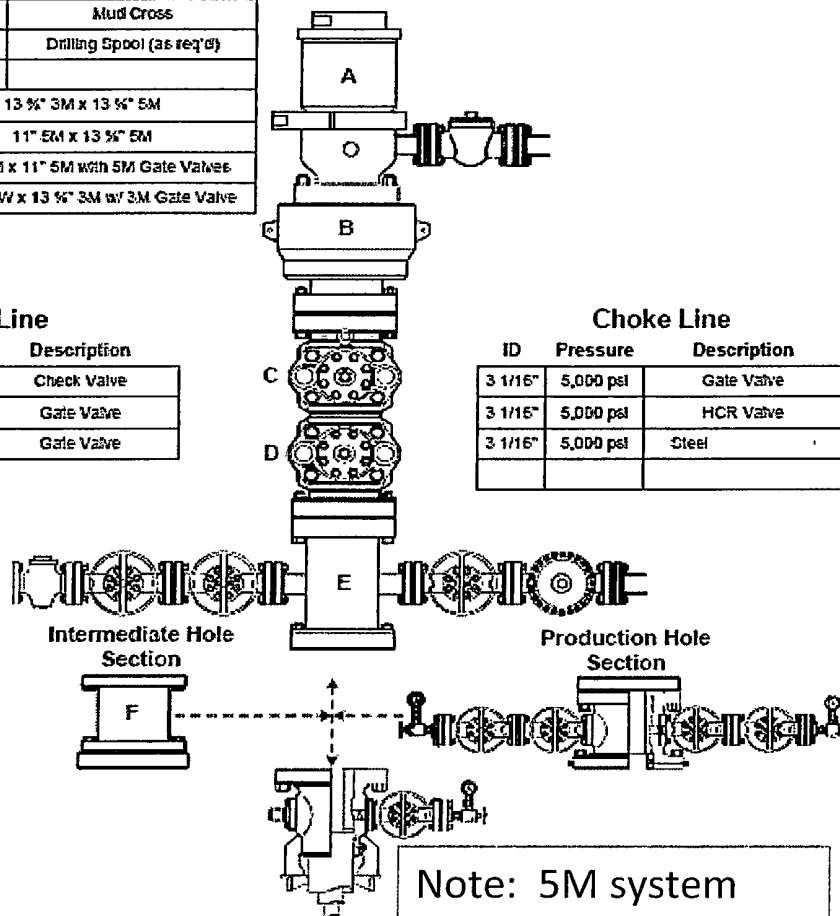
Trip Tank Required: Yes ☒ No ☐

Kill Line

ID	Pressure	Description
2 1/16"	5,000 psi	Check Valve
2 1/16"	5,000 psi	Gate Valve
2 1/16"	5,000 psi	Gate Valve

Choke Line

ID	Pressure	Description
3 1/16"	5,000 psi	Gate Valve
3 1/16"	5,000 psi	HCR Valve
3 1/16"	5,000 psi	Steel



Testing Requirements

Item	Pressure	Frequency
Rotating Head	250 psi	Once prior to DO shde
Annular	250 / 3,500 psi	Every 21 Days
Rams	250 / 5,000 psi	Every 21 Days
Choke Manifold	250 / 5,000 psi	Every 21 Days

- Function test on trips
- H₂S service trim required

Note: 5M system
used as 3M system

Approved by

Date

NAME	
DATE	
TIME	

Revised EXHIBIT F-1

Chesapeake Minimum BOPE Requirements

Wellname: PLU Pierce Canyon 20-24-30 USA 1H

Operation: Intermediate and Production Hole Sections

CHOKE MANIFOLD SCHEMATIC CHESAPEAKE OPERATING INC

WELL : Permian District
FIELD : Avalon
RIG :
COUNTY :
OPERATION :

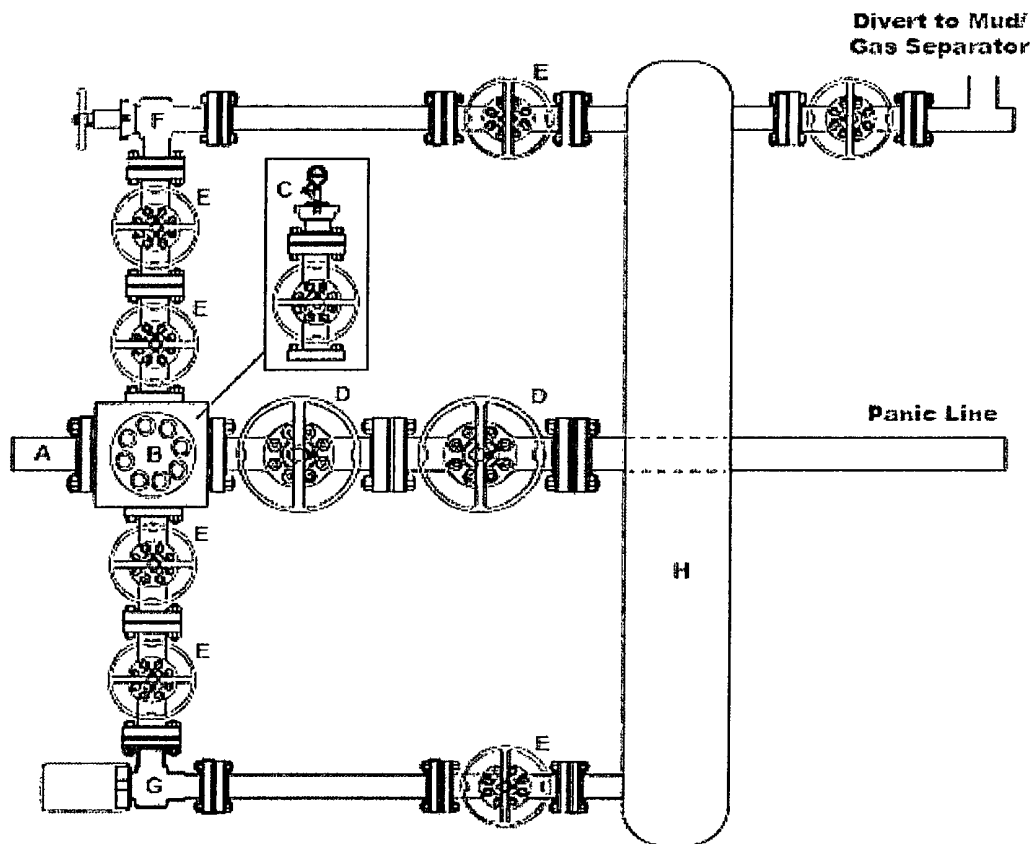
STATE :
REVISION : : / /

Component Descriptions

	Size	Pressure	Description
A	3 1/16"	5,000 psi	Steel
B	3 1/16" x 2 1/16"	5,000 psi	Block T
C	2 1/16"	5,000 psi	Top Valve
D	3 1/16"	5,000 psi	Gate Valve
E	2 1/16"	5,000 psi	Gate Valve
F	2 1/16"	5,000 psi	Manual Choke
G	2 1/16"	5,000 psi	Hydraulic Choke
H	5" minimum		Buffer Chamber

Component	Reference

Note: 5M system
used as 3M system



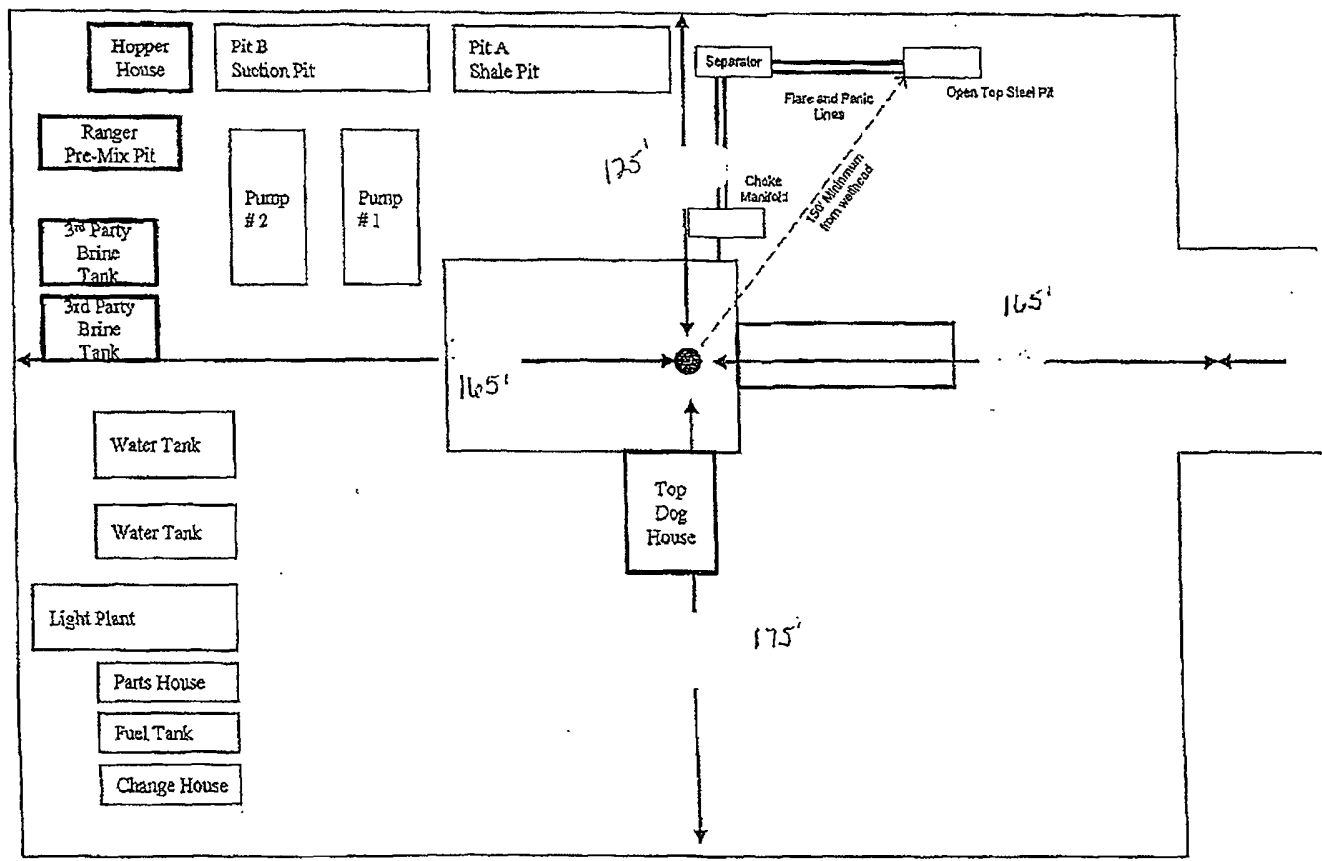
Approved by

Date

ECM	
VP	
WEL	

Revised EXHIBIT F-2

EXHIBIT D



CHESAPEAKE OPERATING, INC.



PLU Pierce Canyon 20-24-30 USA 1H
NWNE Section 20 - T24S - R30E
75 FNL & 1725 FWL of Section
Lat.: 32.196736- Long.: -103.905324
Eddy County, New Mexico

Drawing not to scale

All equipment shown here will
 be on location but subject to
 changes in positioning.

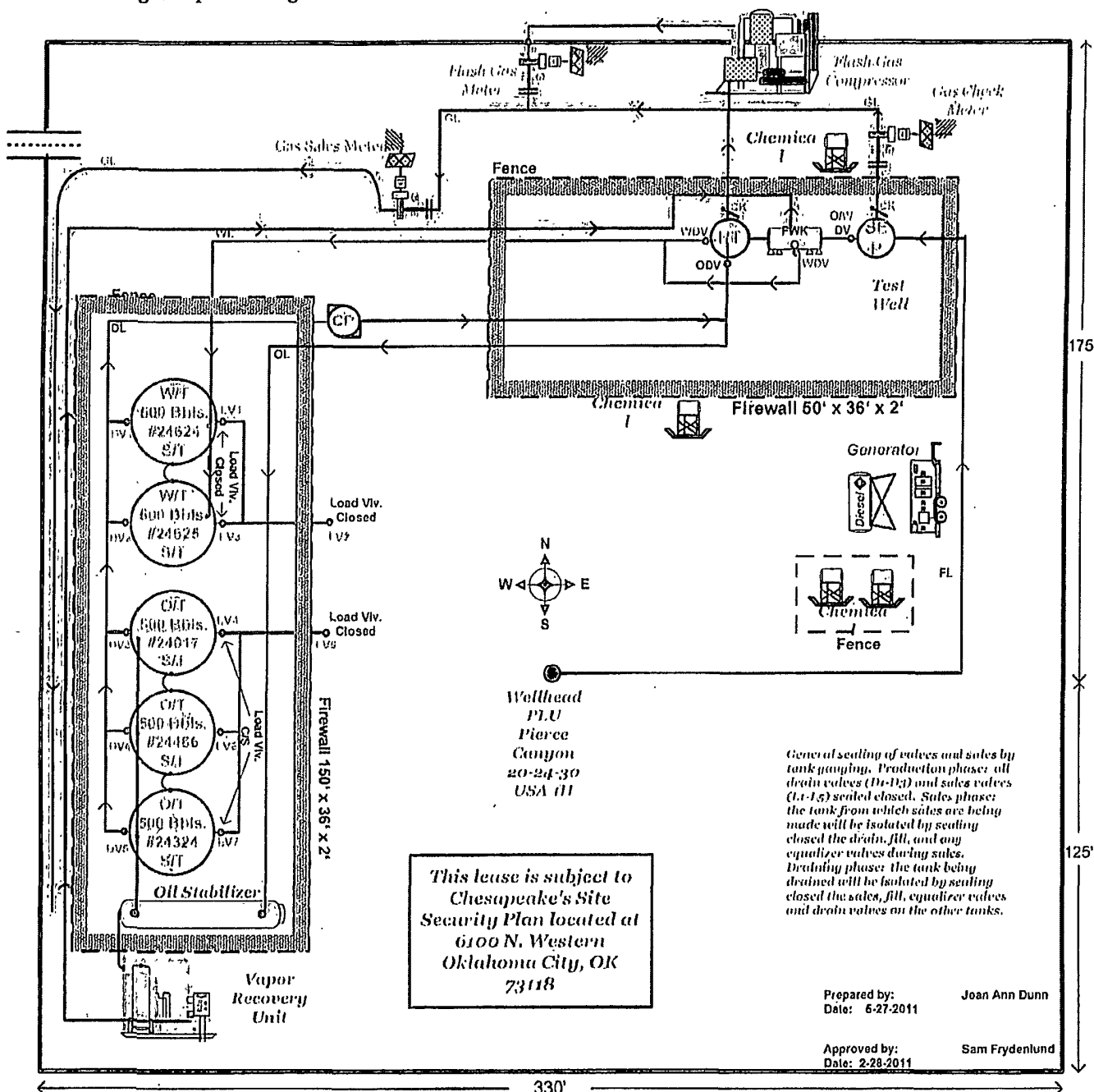


EXHIBIT C

DISTRICT I --- CHECKLIST FOR INTENTS TO DRILL

[38938]

Operator Chesapeake OGRID # 147179
Well Name & # PLD PIERCE CANYON 1-H Surface Type (F) (S) (P) (F)
Location: UL 13 Sect 10 Township 24S, RNG 32 e, Sub-surface Type (F) (S) (P) (F)

A. Date C101 rec'd 11 / 23 / 2011 C101 reviewed 11 / 28 / 2011

B. 1. Check mark, Information is OK on Forms:

OGRID ☒, BONDING ☒, PROP CODE ☒, WELL # ☒, SIGNATURE 15

2. Inactive Well list as of: 11 / 28 / 2011 # wells 748, # Inactive wells 15

a. District Grant APD but see number of inactive wells:

No letter required ☒; Sent Letter to Operator , to Santa Fe

3. Additional Bonding as of: 11 / 28 / 2011

a. District Denial because operator needs addition bonding:

No Letter required ☒; Sent Letter to Operator , To Santa Fe

b. District Denial because of Inactive well list and Financial Assurance:

No Letter required ☒; Sent Letter to Operator , To Santa Fe

C. C102 YES ☒, NO ☐ Signature WINDCAT: BOB SPRING Code 96403

1. Pool WINDCAT: BOB SPRING Code 96403

a. Dedicated acreage , What Units

b. SUR. Location Standard : Non-Standard Location

c. Well shares acres: Yes , No , # of wells plus this well #

2. 2nd. Operator in same acreage, Yes , No

Agreement Letter , Disagreement letter

3. Intent to Directional Drill Yes ☒, No

a. Dedicated acreage 1612, What Units

b. Bottomhole Location Standard ☒, Non-Standard Bottomhole

4. Downhole Commingle: Yes , No ☒

a. Pool #2 , Code , Acres

Pool #3 , Code , Acres

Pool #4 , Code , Acres

5. POTASH Area Yes , No ☒

D. Blowout Preventer Yes ☒, No

E. H2S Yes ☒, No

F. C144 Pit Registration Yes ☒, No

G. Does APD require Santa Fe Approval:

1. Non-Standard Location: Yes , No ☒, NSL #

2. Non-Standard Proration: Yes , No ☒, NSP #

3. Simultaneous Dedication: Yes , No ☒, SD #

Number of wells Plus #

4. Injection order Yes , No ☒; PMX # or WFX #

5. SWD order Yes , NO ☒; SWD #

6. DHC from SF ; DHC-HOB ; Holding

7. OCD Approval Date 11 / 28 / 2011

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8. Reviewers

New property code (11/28/2011)