

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APR 28 2009

FORM APPROVED
OMB NO. 1004-0135
Expires July 31, 2010

JAM

SUNDRY NOTICES AND REPORTS ON WELLS

OCD Artesia

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

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

1 Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		5 Lease Serial No. NMNM02862
2 Name of Operator CHESAPEAKE OPERATING, INC. Contact: LINDA GOOD E-Mail: linda.good@chk.com		6 If Indian, Allottee or Tribe Name
3a. Address OKLAHOMA CITY, OK 73154-0496	3b. Phone No. (include area code) Ph: 405.935.4275	7 If Unit or CA/Agreement, Name and/or No. NMNM71016X
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 28 T24S R30E SESE 350FSL 850FEL		8. Well Name and No. PLU PIERCE CANYON 28 FEDERAL 1
		9 API Well No. 30-015-36830-00-X1
		10 Field and Pool, or Exploratory WILDCAT
		11. County or Parish, and State EDDY COUNTY, NM

12. CHECK 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"/> Fracture Treat	<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
	<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 shall 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 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

REVISED SUNDRY NOTICE:

PLEASE FIND THE ATTACHED REVISED DRILLING PLAN AND PROPOSED WELL SCHEMATIC.

(CHK PN 624840)

SEE ATTACHED FOR
CONDITIONS OF APPROVALSEE ATTACHED FOR
CONDITIONS OF APPROVAL

14 I hereby certify that the foregoing is true and correct	
Electronic Submission #68676 verified by the BLM Well Information System For CHESAPEAKE OPERATING, INC., sent to the Carlsbad Committed to AFMSS for processing by CHERYLE RYAN on 04/03/2009 (09CMR0292SE)	
Name (Printed/Typed) LINDA GOOD	Title SR. REGULATORY COMPLIANCE SPEC
Signature (Electronic Submission)	Date 04/03/2009

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By WESLEY INGRAM	Title PETROLEUM ENGINEER	Date 04/23/2009
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.		Office Carlsbad

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

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

ONSHORE ORDER NO. 1
 Chesapeake Operating, Inc.
 PLU Pierce Canyon 28 Federal 1H
 SL: 350' FSL & 350' FEL
 BL: 350' FNL & 350' FEL
 Section 28-24S-30E
 Eddy County, New Mexico

CONFIDENTIAL – TIGHT HOLE
 Lease Contract No. NMNM 02862

REVISED DRILLING PLAN

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ONSHORE OIL & GAS ORDER NO. 1
 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	Subsea KBTVD	KBTVD
BASE OF SALT	-500'	3,818'
BELL CANYON	-530'	3,848'
CHERRY CANYON MARKER	-1,620'	4,938'
BRUSHY CANYON	-2,749'	6,067'
LOWER BRUSHY CANYON	-4,047'	7,365'
BONE SPRING	-4,330'	7,648'
1 ST BONE SPRING SAND	-5,252'	8,570'
2 ND BONE SPRING CARBONATE	-5,624'	8,942'
2 ND BONE SPRING SAND	-6,058'	9,376'
3 RD BONE SPRING CARBONATE	-6,438'	9,756'
3 RD BONE SPRING SAND	-7,167'	10,485'
WOLFCAMP	-7,625'	10,943'
PILOT HOLE	TD	11,100'

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
Oil/Gas	Bell Canyon	3,848'
Oil/Gas	Cherry Canyon	4,938'
Oil/Gas	Brushy Canyon	6,067'
Oil/Gas	Bone Spring	7,648'

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

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REVISED DRILLING PLAN

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3. BOP EQUIPMENT:

Will have a 2000 psi simplified rental stack (see proposed schematic) for drill out below surface casing; this system will be tested to 2000 psi working pressure.

Will have a 5000 psi rig stack (see proposed schematic) for drill out below intermediate casing; this system will be tested to 3000 psi working pressure. ← 5000

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-3.

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, and
 - (d) Upper and lower kelly cock valves, inside BOP's and safety valves.

B. Test Frequency

1. All tests should 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, and
 - (d) at least once every 30 days while drilling.

C. Test Pressure

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.
6. The "high pressure" test for the annular preventer will be conducted at 70% of
7. the rated working pressure.
8. A record of all pressures will be made on a pressure-recording chart.

D. Test Duration

REVISED DRILLING PLAN

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1. In each case, the individual components should be monitored for leaks for 10 minutes, with no observable pressure decline, once the test pressure as been applied.

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 BOP's are tested, or any time a major repair is performed.

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:

3.

System Operating Pressures

Precharge Pressure

1500 PSI

750 PSI

2000 PSI

1,000 PSI

3000 PSI

1,000 PSI

3. Closing times for the Hydril 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.

REVISED DRILLING PLAN

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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:

<u>System Pressure</u>	<u>Remaining Pressure At Conclusion of</u> <u>Test</u>
1,500 PSI	950 PSI
2,000 PSI	1,200 PSI
3,000 PSI	1,200 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.**

4. CASING PROGRAM

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

see COH

<u>Purpose</u>	<u>Interval</u>	<u>Hole Size</u>	<u>Casing Size</u>	<u>Weight</u>	<u>Grade</u>	<u>Thread</u>	<u>Condition</u>
Surface	Surface – 400'	17-1/2"	13-3/8"	48.0#	H-40	STC	New
Intermediate	Surface – 3,820'	12-1/4"	9-5/8"	40.0#	J-55	LTC	New
Production	Surface – 12,335'	8-3/4" (3800'-8235)/ 8-1/2" 8235'-TD)	5-1/2"	20.0#	L-80	LTC	New

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

- c. Casing Safety Factors:

13-3/8" Surface Casing: SFb = 1.6, SFc = 3.9 and SFt = 6

9-5/8" Intermediate Casing: SFb = 2.3, SFc = 3.4 and SFt = 3.1

5-1/2" Production Casing: SFb = 1.8, SFc = 2.0 and SFt = 3.4

- d. The cementing program will be as follows:

5. Cementing Program

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Interval	Type	Amount	Yield	Top Of Cement	Excess
Surface	Tail: Class C 1% CaCl ₂ (Accelerator)	450 sks <i>see COA</i>	1.34	Surface	100%
Intermediate	Lead: 35/65 Poz/Class C	1000 sks	2.0	Surface	100%
	Tail: Class C	325 sks	1.34		100%
Production	Class H 0.5% Halad344 (Fluid Loss Control) 0.4% CFR-3 (Dispersant) 1 lbm/sk Salt 0.3% HR-7 (Retarder) 0.25 lbm D-AIR 3000 (Defoamer)	1800 sks	1.60	3,300'	40%

Final cement volumes will be determined by caliper.

Pilot Hole Plugging Plan:

see COA The pilot hole will be plugged back using a plug of at least 210' from +10,760' to 10,970' (125 sx, Class H 14.8 ppg, 1.35 yld + KCL + Retarder) covering the top of Wolfcamp and base of Bone Spring. Second plug will be the same from +8,900' to 9,110'. A third 500' balanced plug will be placed from +7,285' to 7,785' (305 sx, 40% Excess, Class H 17.5 ppg, 0.96 yld + 0.75% CFR-3 + 3% KCL + 0.2% HR-800).

6. MUD PROGRAM

a. The proposed circulating mediums to be used in drilling are as follows:

Interval	Mud Type	Mud Weight	Viscosity	Fluid Loss
0' – 400'	FW/Gel	8.4 – 9.0	28-32	NC
400' – 3,820'	Native/Brine	9.9 – 10.1	28-30	NC
3,820' - TD	FW/LSND	8.8 – 9.5	34-45	20-10

see COA 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 in an approved sanitary landfill.

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

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

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- a. Drill stem tests are not planned.
- b. The logging program will consist of Natural GR, Density-Neutron, PE & Dual Laterolog from TD to surface casing; Neutron-GR surface casing to surface.
- c. Cores samples are not planned.

8. ABNORMAL PRESSURES AND HYDROGEN SULFIDE

- a. The estimated bottom hole pressure is 4807 psi. No abnormal pressures or temperatures are anticipated.
- b. Hydrogen sulfide gas is not anticipated.

Proposed Well Schematic (drilling)

HOLE SIZE	TVD	FORMATION TOPS	LOGGING PROGRAM	CASING & CEMENT	MUD WT
17-1/2"				13-3/8" Surface Casing: Tail: ~450 sx Class C + additives 14.8 ppg, ~1.34 yield TOC @ surface (100% OH excess)	Surface to 400' 8.4 - 8.9 ppg Vis 28-32 FL N/C Fresh water
12-1/4"	400'			13 3/8" 48# H-40 ST&C Surface Casing	
				9-5/8" Intermediate Casing: Lead: ~1000 sx 35.65 Poz. C + additives 12.4 ppg, 2.03 yield Tail: ~325 sx Class C + additives 14.8 ppg, 1.34 yield TOC @ surface Top Tail at ~3000' (100% OH excess; actual will be fluid caliper + 35%)	400' - 3,800' 9.9 - 10.0 ppg Vis 28 - 30 FL N/C Native / Brine
	3,300'			TOC - 5-1/2" casing	
	3,820'			9-5/8" 40# J-55 LT&C Intermediate Casing	
	3,818'			Base of Salt	
	3,848'			Bell Canyon	
				Mud Logging 3,800' - TD	
	4,938'			Cherry Canyon Marker	
				Logs Tnple Combo from 10,600' - 3,800' GR-Neutron 10,600' - Surface GR (LWD) thru curve and lateral	
	6,067'			Brushy Canyon	
	7,365'			Lower Brushy Canon	
8-3/4"					
8-1/2" thru lateral					
	7,648'			Bone Spring	
				KOP @ 7,485' (12.0 deg/100')	
				5-1/2" Production Casing: ~1800 sx Class H + additives 13.2 ppg, 1.57 yield TOC @ 2,900' 40% OH Excess	3,800' - 11,100' TVD 8.8 - 9.5 ppg Vis 34-45 FL 20-10 pH 9.5-10.0 FW/LSDND
				Land @ ~6,235' MD/7,963' TVD	
				Target Line: 7,963' TVD @ 0VS Incl. -90.0 Az. 0 deg	
				5-1/2" 20.0# L-80 LTC	
				End-of-Lateral: ~12,335' MD ~7,963' TVD	
7-7/8"					
	8,570'			1 st Bone Spring Sand	
	8,942'			2 nd Bone Spring Carbonate	
	9,376'			2 nd Bone Spring Sand	
	9,756'			3 rd Bone Spring Carbonate	
	10,485'			3 rd Bone Spring Sand	
	10,943'			Wolfcamp	
				Plugs: See drlg prog	
				~4,100' Lateral ~4,576.6'	
				Vertical Section	
Pilot Hole TD	11,100' MD/TVD				

DATE: 9/29/08

DATE: _____

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Chesapeake Operating
LEASE NO.:	NMNM02862
WELL NAME & NO.:	PLU Pierce Canyon 28 Federal No 1H
SURFACE HOLE FOOTAGE:	350' FSL & 850' FEL
BOTTOM HOLE FOOTAGE:	350' FNL & 850' FEL
LOCATION:	Section 28, T. 24 S., R 30 E., NMPM
COUNTY:	Eddy County, New Mexico

I. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

☒ **Eddy County**

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

1. **Although Hydrogen Sulfide has not been reported in this section, it is always a potential hazard. If Hydrogen Sulfide is encountered, please report measured amounts and formations to the BLM.**
2. 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.
3. 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.

B. CASING

Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

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

Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. 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.

Medium cave/karst.

Possible lost circulation in the Delaware and Bone Spring formations.

Possible high pressure gas burst in the Wolfcamp formation – applies to pilot hole.

1. The **13-3/8 inch** surface casing shall be set **at approximately 840-900 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt)** and cemented to the surface. **Fresh water mud to be used to setting depth. Due to additional length, additional cement will be required.**
 - 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 a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.
 - 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.

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.
Casing to be set in the Lamar Limestone or the Fletcher Anhydrite at approximately 3400 feet. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst concerns.

If 75% or greater lost circulation occurs while drilling the intermediate casing hole, the cement on the production casing must come to surface.

Pilot hole plugs to be tagged and tags recorded on subsequent sundry. Bottom plug to be tagged a minimum of 50' above the top of the Wolfcamp formation.

Centralizers required on horizontal leg, must be type for horizontal service and minimum of one every other joint.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:

- ☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

4. 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.

C. 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. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M) psi**.
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8"** intermediate casing shoe shall be **5000 (5M) psi. 5M system will be tested as 3M.**

4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. The tests shall be done by an independent service company.
 - b. The results of the test shall be reported to the appropriate BLM office.
 - c. 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.
 - d. 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.
 - e. 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. **Statement applies to pilot hole.**

D. 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. **Applies to pilot hole until Wolfcamp plug is set.**

E. DRILL STEM TEST

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

WWI 042309