N.M. Oil Cons. DIV-Dist. 2 DEPARTMENT OF THE INTERIOR CARDING OF THE INTERIOR Form approved. CONFIDENTIAL - TIGHT HOLE BUREAU OF LAND MANAGEMENT Artesia, NIVI 882 APPLICATION FOR PERMIT TO DRILL OR DEEPEN 6.IF INDIAN, ALLOTTEE OR TRIBE NAME DRILL DEEPEN la TYPE OF WORK: 7.UNIT AGREEMENT NAME b. TYPE OF WELL: SINGLE ZONE OIL WELL 8.FARM OR LEASE NAME, WELL NO. NAME OF OPERATOR H & K 18 FEDERAL CHESAPEAKE OPERATING, INC. Linda Good 405-767-4275 9.API WELL NO. ADDRESS AND TELEPHONE NO. 30-015 P.O. BOX 18496 OKLAHOMA CITY. OK 73154-0496 10.FIELD AND POOL, OR WILDCAT 4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)* <u>UND. INDIAN DRAW: DELAWARE</u> per 50 dated 9/21/05 33720 11.SEC., T., R., M., OR BLOCK AND SURVEY OR ARE At surface: 928 FSL 835 FWL SWSW 18-22S-28E 14.DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE* 12. COUNTY OR PARISH 13. STATE **RECEIVED EDDY COUNTY** APPROX. 9 MILES SE OF CARLSBAD, NM. NM 15.DISTANCE FROM PROPOSED 16.NO. OF ACRES IN LEASE 17.NO. OF ACRES ASSIGNED SEP 2 8 2005 LOCATION TO NEAREST TO THIS WELL PROPERTY OR LEASE LINE, FT 1082.63 (Also to nearest drlg. unit line if any) 060-AH+EDIM 18.DISTANCE FROM PROPOSED LOCATION* 19.PROPOSED DEPTH 20.ROTARY OR CABLE TOOLS* TO NEAREST WELL, DRILLING, COMPLETED, 4500 ROTARY OR APPLIED FOR, ON THIS LEASE, FT. 21.ELEVATIONS (Show whether DF, RT, GR, etc.) 22. APPROX. DATE WORK WILL START* CARLSBAD CONTROLLED WATER BASIN 3079 GR 23. PROPOSED CASING AND CEMENTING PROGRAM GRADE, SIZE OF CASING SIZE OF HOLE QUANTITY OF CEMENT WEIGHT PER FOOT +/-+/-# +/-Chesapeake Operating, Inc. proposes to drill a well to 4500' to test the Delaware 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. Please be advised that Chesapeake Operating, Inc. is considered to be the Operator of the above mentioned well. Chesapeake Operating, Inc. agrees to be responsible under the terms and conditions of the lease for the operations conducted upon the lease APPROVAL SUBJECT TO GENERAL REQUIREMENTS Chesapeake Operating, Inc. has an agreement with the Grazing lessee. AND SPECIAL STIPULATIONS BLM Nationwide Bond #NM2634. ATTACHED IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any. TITLE Sr. Vice President Exploration *(This space for Federal or State office use) PERMIT NO. __ APPROVAL DATE _____ Application approval 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 CONDITIONS OF APPROVAL, IF ANY: **ACTING** FIELD MANAGER APPROVED BY /s/ Joe G. Lara See Instructions On Reverse Side

Title 18 U.S.C. Section 1001, makes 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

State of New Mexico

DISTRICT I 1625 N. PRENCH DR., HOBES, NM 86240

DISTRICT II

3078.8

LOT 11 34.44 AC 3078.2

36.10 AC

Energy, Minerals and Natural Resources Department

Form C-102

Revised JUNE 10, 2003

Submit to Appropriate District Office State Lease - 4 Copies Fee Lease - 3 Copies

1301 W. GRAND AVENUE, ARTESIA, NM 88210 DISTRICT III 1000 Rio Brazos Rd., Aztec, NM 87410

OIL CONSERVATION DIVISION 1220 SOUTH ST. FRANCIS DR. Santa Fe, New Mexico 87505

	R., SANTA PB,		T	Pool Code			Pool Name		
API Number			330		Unde	signated I	ndian Drau	v: Delaw	are
Property C	Code			U	Property Nam & K 18 FE	ne J		Well Num	ber
OGDID N				п	Operator Nam			Elevatio	
OGRID NO	٦	1		CHESAP	EAKE OPER			3079	
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		L	Bottom	Hole Lo	eation If Diffe	erent From Sur	face		
L or lot No.	Section	Township	Range	Lot ldn	Feet from the	North/South line	Feet from the	East/West line	County
edicated Acres	s Joint o	or Infill C	onsolidation	Code Or	der No.				
4021	44								
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		OR A	NON-STAN	DARD UN	IT HAS BEEN	APPROVED BY	THE DIVISION		
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34.43 AC			5.30 AC	 			SURVEYO	OR CERTIFICAT	TON
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05.11/1035

Certificate No. CARY. EIRSON

3160-5 april 2004)

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

FORM APPROVED OM B No. 1004-0137 Expires: March 31, 2007

5.	Lease Serial No.
	NMNM415688A
6.	If Indian, Allottee or Tribe Name

SUNDRY NOTICES AND REPORTS ON WELLS	NMNM415688A				
Do not use this form for proposals to drill or to re-enter abandoned well. Use Form 3160-3 (APD) for such proposes	6. If Indian, Allottee or Tribe Name				
SUBMIT IN TRIPLICATE- Other instructions on reverse	side. 7. If Unit or CA/Agreement, Name and/or No.				
1. Type of Well Gas Well Other	8. Well Name and No.				
2. Name of Operator CHESAPEAKE OPERATING, INC. ATTN: LINDA GOOD	H & K 18 FEDERAL 1 9. API Well No.				
3a Address P.O. BOX 18496, OKLAHOMA CITY, OK 73154-0496 3b. Phone No. (include are 405-767-4275					
4. Location of Well (Footage, Sec., T., R., M., or Survey Description)	UND. INDIAN DRAW; DELAWARE				
928 FSL 835 FWL SWSW 18-22S-28E	11. County or Parish, State EDDY COUNTY, NM				
12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE	OF NOTICE, REPORT, OR OTHER DATA				
TYPE OF SUBMISSION TYPE O	OF ACTION				
Acidize	Production (Start/Resume) Reclamation Recomplete Water Shut-Off Well Integrity CHANGE TO				
Final Abandonment Notice Change Plans Plug and Abandon Final Abandon Plug Back	Temporarily Abandon ORIGINAL APD Water Disposal				
If the proposal is to deepen directionally or recomplete 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 recompletion 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.) CHESAPEAKE PLANS TO LAY 634 FT OF 3 INCH 188 WALL FUSION BONDED PIPELINE. THE PIT SIZE WILL BE 110' LONG X 20' WIDE X 10' DEEP. BLM NATIONWIDE BOND #NM2634. (CHK PN 819662)					
14. I hereby certify that the foregoing is true and correct Name (Printed/Typed) LINDA GOOD Title PER	MITTING AGENT				
Signature Linda Good Date 9/9/05					
THIS SPACE FOR FEDERAL OR STA	TE OFFICE USE				
Approved by /s/ Joe G. Lara ACTING Fifthe Conditions of approval, if any, are attached. Approval of this notice does not warrant or	LD MANAGER Date SEP 2 6 2005				
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. CARLSBAD FIELD 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.

ONSHORE ORDER NO. 1 Chesapeake Operating, Inc. H & K 18 Federal 1 1221 FSL 800 FWL SWSW of Section 18-22S-28E Eddy County, NM **CONFIDENTIAL - TIGHT HOLE**

Lease No. NMNM415688A

SURFACE USE PLAN
Page 3

12. ADDITIONAL INFORMATION

A Class III cultural resource inventory report was prepared by Boone Archaeological Services, Carlsbad, New Mexico for the proposed location. A copy of the report has been sent to the BLM office under separate cover and is also attached for reference. See Exhibit E.

Chesapeake Operating, Inc. agrees to be responsible under the terms and conditions of the lease for the operations conducted upon the lease lands.

13. OPERATOR'S REPRESENTATIVES

Drilling and Completion Operations

Rob Jones
District Manager
P.O. Box 18496
Oklahoma City, OK 73154
(405) 810-2694 (OFFICE)
(405) 879-9573 (FAX)
riones@chkenergy.com

Cecil Gutierrez
Sr. Landman
P.O. Box 11050
Midland, TX 79705
432-687-2992 (OFFICE)
432-687-3675 (FAX)
cqutierrez@chkenergy.com

Regulatory Compliance

Linda Good Regulatory Compliance Analyst P.O. Box 18496 Oklahoma City, OK 73154 (405) 767-4275 (OFFICE) (405) 879-9583 (FAX) lgood@chkenergy.com

Drilling Engineer

David DeLaO P.O. Box 14896 Oklahoma City, OK 73154 (405) 767-4339 (OFFICE) (405) 879-9573 (FAX) (405) 990-8182 (MOBILE) ddelao@chkenergy.com

Assett Manager

Andrew McCalmont
P.O. Box 18496
Oklahoma City, OK 73154-0496
405-879-7852 (OFFICE)
405-879-7930 (FAX)
amccalmont@chkenergy.com

CONFIDENTIAL – TIGHT HOLE Lease Contract No. NMNM415688A

DRILLING PROGRAM

Page 1

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:

Subsea	Depth
846	2250
802	2293
-19	3114
-1217	4312
	4500'
	846 802 -19

2. <u>ESTIMATED DEPTH OF WATER, OIL, GAS & OTHER MINERAL BEARING FORMATIONS</u>

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:

<u>Substance</u>	<u>Formation</u>	<u>Depth</u>
Oil/Gas	CHERRY CANYON	3114

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

3. <u>BOP EQUIPMENT</u>: 3,000# System

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

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

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,

CONFIDENTIAL – TIGHT HOLE Lease Contract No. NMNM415688A

DRILLING PROGRAM

Page 2

(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

- 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 the rated working pressure.
- 7. A record of all pressures will be made on a pressure-recording chart.

D. Test Duration

In each case, the individual components should be monitored for leaks for <u>5</u> 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

CONFIDENTIAL – TIGHT HOLE Lease Contract No. NMNM415688A

DRILLING PROGRAM

Page 3

<u>pump turned off</u>, and have remaining pressures of <u>200 PSI above the precharge</u> 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 ramtype 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 <u>should not be less</u> than the following pressures:

System Pressure	Remaining Pressure At Conclusion of
	Test
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 <u>full open</u> or <u>full closed</u> position. <u>Do not leave in neutral position</u>.

CONFIDENTIAL – TIGHT HOLE Lease Contract No. NMNM415688A

DRILLING PROGRAM

Page 4

4. CASING AND CEMENTING PROGRAM

a. The proposed casing program will be as follows:

	<u>Purpose</u>	<u>Interval</u>	Hole Size	Casing Size	Weight	<u>Grade</u>	Thread	Condition	
	Surface	0-450	12.25	8.625	24	J55	STC	NewWIT	NIECO
Ī	Intermediate	450-4500	7.875	5.5	15.5	J55	LTC	New	IAESS

- b. Casing design subject to revision based on geologic conditions encountered.
- c. The cementing program will be as follows:

Interval	Type	Amount	Yield	<u>Washout</u>	Excess
0-450	Class C + additives	260	1.5	40	100
450-4500	Class C + additives	545	1.8	20	50

5. MUD PROGRAM

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

<u>Interval</u>	Mud Type	Mud Weight	<u>Viscosity</u>	Fluid Loss
0-450	Fresh water	8.4-9.0	27-40	NC
450-4500	Cut brine	9.7	32-36	10-12

An in-ground, lined pit will be utilized during the drilling of this well. 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.

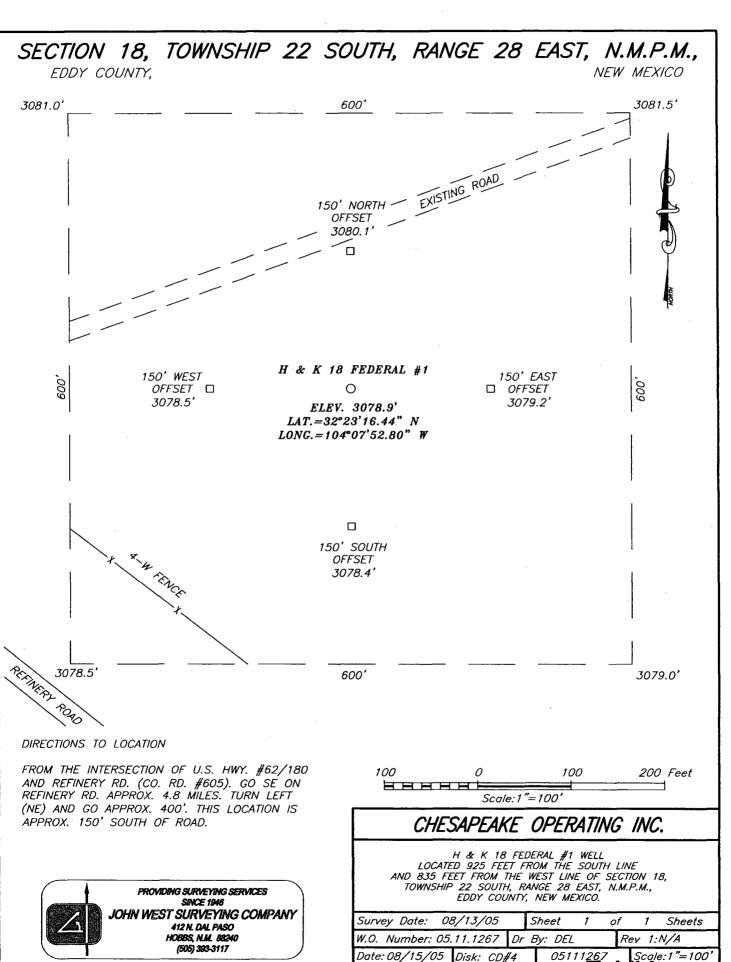
6. TESTING, LOGGING AND CORING

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

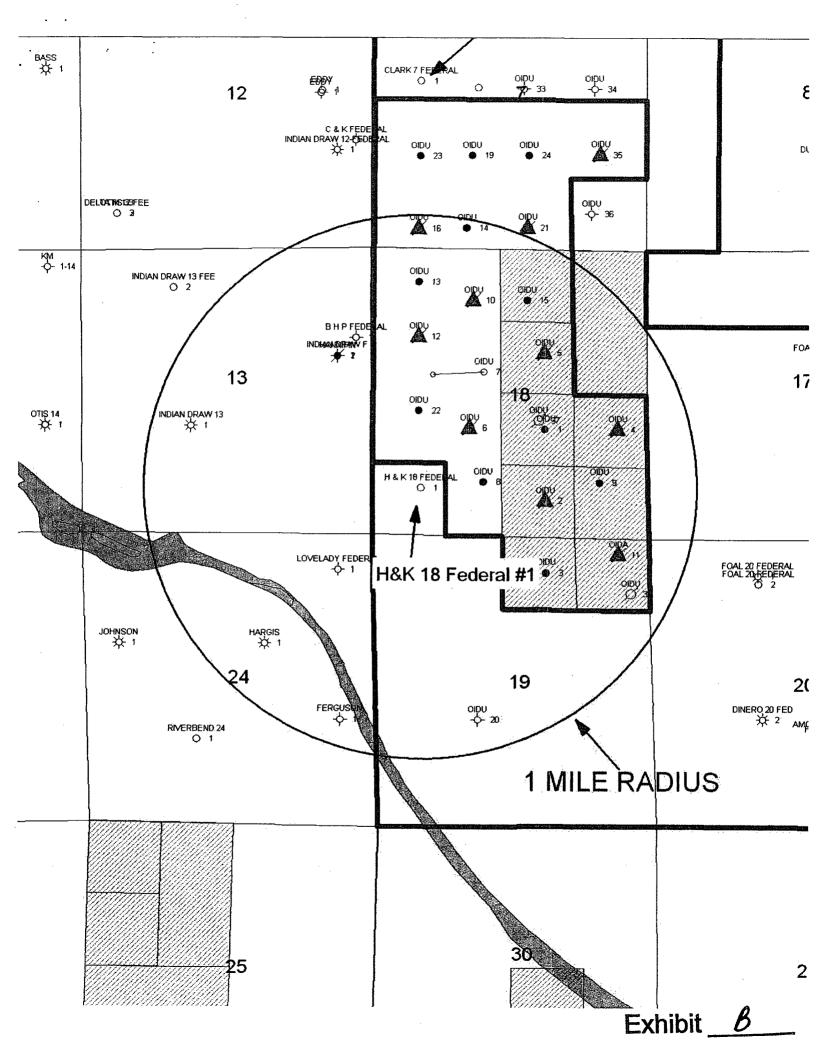
- a. Drill stem tests are not planned.
- b. The logging program will consist of Natural GR, Density-Neutron, PE & Dual Laterolog from TD to surface casing; Neutron-GR surface casing to surface.
- c. Cores samples are not planned.

7. ABNORMAL PRESSURES AND HYDROGEN SULFIDE

- a. The estimated bottom hole pressure is 2300 PSI. No abnormal pressures or temperatures are anticipated.
- b. Hydrogen sulfide gas is not anticipated.



xhibit 4-2



BLOWOUT PREVENTOR SCHEMATIC

CHESAPEAKE OPERATING INC

WELL

: H&K 18 Federal 1

RIG

COUNTY : Eddy

STATE: New Mexico

OPERATION: Drill out below 8-5/8" Casing

	SIZE	PRESSURE	DESCRIPTION			
Α	13-5/8"	500#	Rot Head]		
В	13-5/8"	3,000#	Annular			
С	13-5/8"	3,000#	Pipe Rams	1		
D	13-5/8"	3,000#	Blind Rams	1		
E	13-5/8"	3,000#	Mud Cross	1		
				1		
		,,] _		
	Spool	13-5/8	3" 3M x 13-5/8" 3M			
	A-Sec	8-5/8"	SOW x 13-5/8" 3M	1 (0)—1	A	
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		Kill	Line			
		2/111	LINE			Choke Line

SIZE	PRESSURE	DESCRIPTION

2"	3,000#	Check Valve
2"	3,000#	Gate Valve
2"	3,000#	Gate Valve

SIZE	PRESSURE	DESCRIPTION
4"	3,000#	Gate Valve
4"	3,000#	HCR Valve

CONDITIONS OF APPROVAL - DRILLING

Operator's Name:

Chesapeake Operating, Inc.

Well Name & No.

H & K 18 Federal #1

Location:

925 928' FSL, 835' FWL, Section 18, T. 22 S., R. 28 E., Eddy County, New Mexico

Lease:

NM-0415688A

per SN dated 9/21/25

I. DRILLING OPERATIONS REQUIREMENTS:

- 1. The Bureau of Land Management (BLM) is to be notified at the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (505) 361-2822 for wells in Eddy County in sufficient time for a representative to witness:
 - A. Well spud
 - B. Cementing casing: 8-5/8 inch 5-1/2 inch
 - C. BOP tests
- 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.
- 4. Submit a Sundry Notice (Form 3160-5, one original and five copies) for each casing string, describing the casing and cementing operations. Include pertinent information such as: spud date, hole size, casing (size, weight, grade and thread type), cement (type, quantity and top), water zones and problems or hazards encountered. The Sundry shall be submitted within 15 days of completion of each casing string. The reports may be combined into the same Sundry if they fall within the same 15-day time frame.
- 5. The API No. assigned to the well by NMOCD shall be included on the subsequent report of setting the first casing string.

II. CASING:

- 1. The 8-5/8 inch surface casing shall be set at approximately 450 feet and cement circulated to the surface. If cement does not circulate to the surface the appropriate BLM office shall be notified and a temperature survey or cement bond log shall be run to verify the top of the cement. Remedial cementing shall be completed prior to drilling out that string.
- 2. The minimum required fill of cement behind the 5-1/2 inch production casing is to reach at least 500 feet above the top of the uppermost hydrocarbon productive interval.

III. PRESSURE CONTROL:

- 1. All BOP systems and related equipment shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2. The BOP and related equipment shall be installed and operational before drilling below the 8-5/8 inch casing shoe and shall be tested as described in Onshore Order No. 2. Any equipment failing to test satisfactorily shall be repaired or replaced.
- 2. Minimum working pressure of the blowout preventer and related equipment (BOPE) shall be 2000 psi.
- 3. The appropriate BLM office shall be notified in sufficient time for a representative to witness the tests.
- The tests shall be done by an independent service company.
- The results of the test shall be reported to the appropriate BLM office.
- Testing fluid must be water or an appropriate clear liquid suitable for sub-freezing temperatures. Use of drilling mud for testing is not permitted since it can mask small leaks.
- Testing must be done in a safe workman-like manner. Hard line connections shall be required.