

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTSECRETARY'S OFFICE
RECEIVEDFORM APPROVED
OMB No. 1004-0136
Expires July 31, 2010

APPLICATION FOR PERMIT TO DRILL OR REENTER MAY 04 2009

1a. Type of Work. <input type="checkbox"/> DRILL <input type="checkbox"/> REENTER		CONFIDENTIAL BY: <i>[Signature]</i>		5. Lease Serial No. NMNM111960 MAY 21 2009
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement, Name and No		6. If Indian, Allottee or Tribe Name
2. Name of Operator CHESAPEAKE OPERATING, INC. E-Mail: linda.good@chk.com		Contact: LINDA GOOD		8. Lease Name and Well No LOTOS 15 FEDERAL 3
3a. Address OKLAHOMA CITY, OK 73154-0496		3b. Phone No. (include area code) Ph: 405-767-4275		9. API Well No. 30-015-37096
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface NESW 2180FSL 1980FWL At proposed prod. zone NESW 2180FSL 1980FWL		Carlsbad Controlled Water Basin		10. Field and Pool, or Exploratory POKER LAKE Cotton Draw/Bonesprings
14. Distance in miles and direction from nearest town or post office* APPROXIMATELY 31 MILES NW OF 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 drig. unit line, if any)		16. No. of Acres in Lease 800 00		17. Spacing Unit dedicated to this well 40.00
18. Distance from proposed location to nearest well, drilling, completed, applied for, on this lease, ft.		19. Proposed Depth 8600 MD		20. BLM/BIA Bond No. on file NM2634
21. Elevations (Show whether DF, KB, RT, GL, etc.) 3530 GL		22. Approximate date work will start		23. Estimated duration

24. Attachments

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

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification
- 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: 405-767-4275	Date 10/24/2008
Title REGULATORY COMPLIANCE SPEC.		
Approved by (Signature) <i>[Signature]</i>	Name (Printed/Typed) Jesse J. Juven	Date 4/28/09
Title Acting STATE DIRECTOR	Office NM STATE 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)

Electronic Submission #64145 verified by the BLM Well Information System
For CHESAPEAKE OPERATING, INC., sent to the Carlsbad
Committed to AFMSS for processing by TESSA CISNEROS on 10/24/2008 (09TLC0036AE)SEE ATTACHED FOR
CONDITIONS OF APPROVAL

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

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS

Additional Operator Remarks:

CHESAPEAKE OPERATING, INC. RESPECTFULLY REQUESTS PERMISSION TO DRILL A WELL TO 8600? 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 NABORS #311 RIG LAYOUT, EXHIBIT E-1 TO E-2 ARCHEOLOGICAL SURVEY AND EXHIBIT F-1 TO F-3 BOP & CHOKE MANIFOLD.

CHESAPEAKE OPERATING, INC. IS IN THE PROCESS OF OBTAINING AN AGREEMENT WITH THE GRAZING LESSEE.

(CHK PN 622782)

DISTRICT I

1625 N. FRENCH DR., HOBBS, NM 88240

DISTRICT II

1301 W. GRAND AVENUE, ARTESIA, NM 88210

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV

1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

State of New Mexico

Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

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

Form C-102

Revised October 12, 2005

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 300537096	Pool Code 96546	Pool Name Cotton Draw; Bone Spring, S*
Property Code 36960	Property Name LOTOS 15 FEDERAL	Well Number 3
OGRID No. 147179	Operator Name CHESAPEAKE OPERATING, INC.	Elevation 3528'

Surface Location

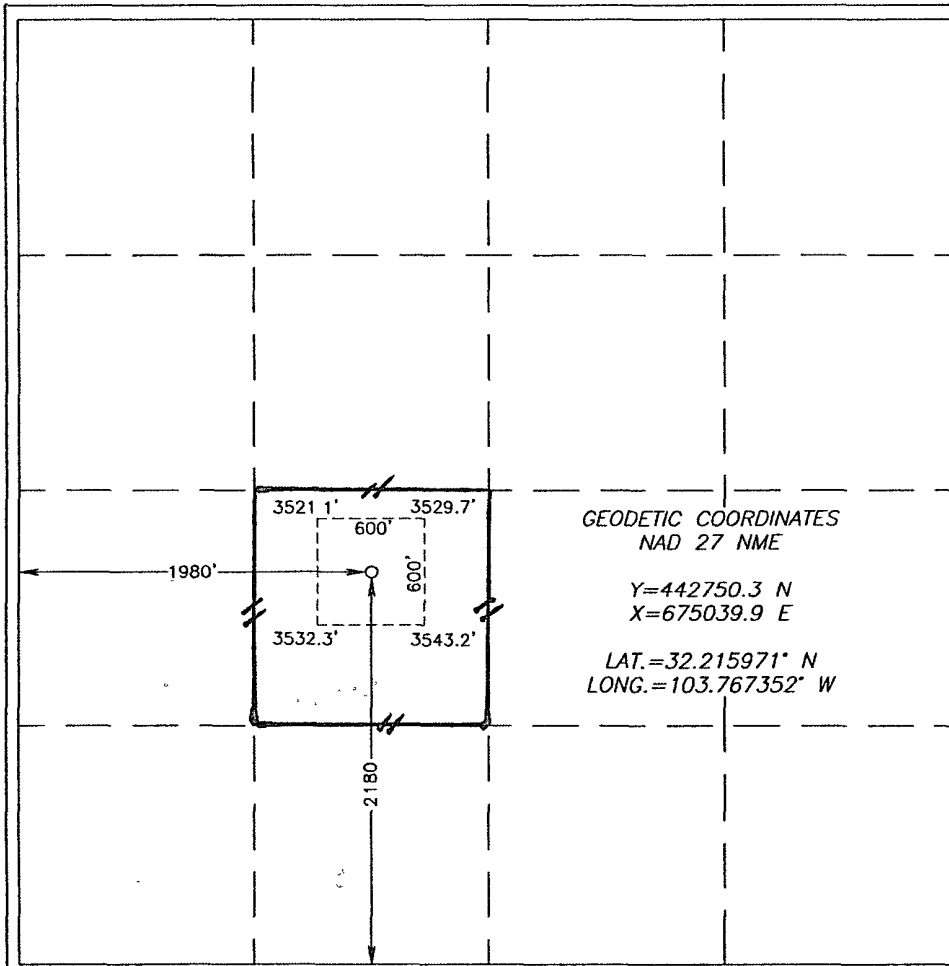
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	15	24-S	31-E		2180	SOUTH	1980	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
40			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



OPERATOR CERTIFICATION

I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Craig Barnard 10/7/08
Signature Date
CRAIG BARNARD
Printed Name

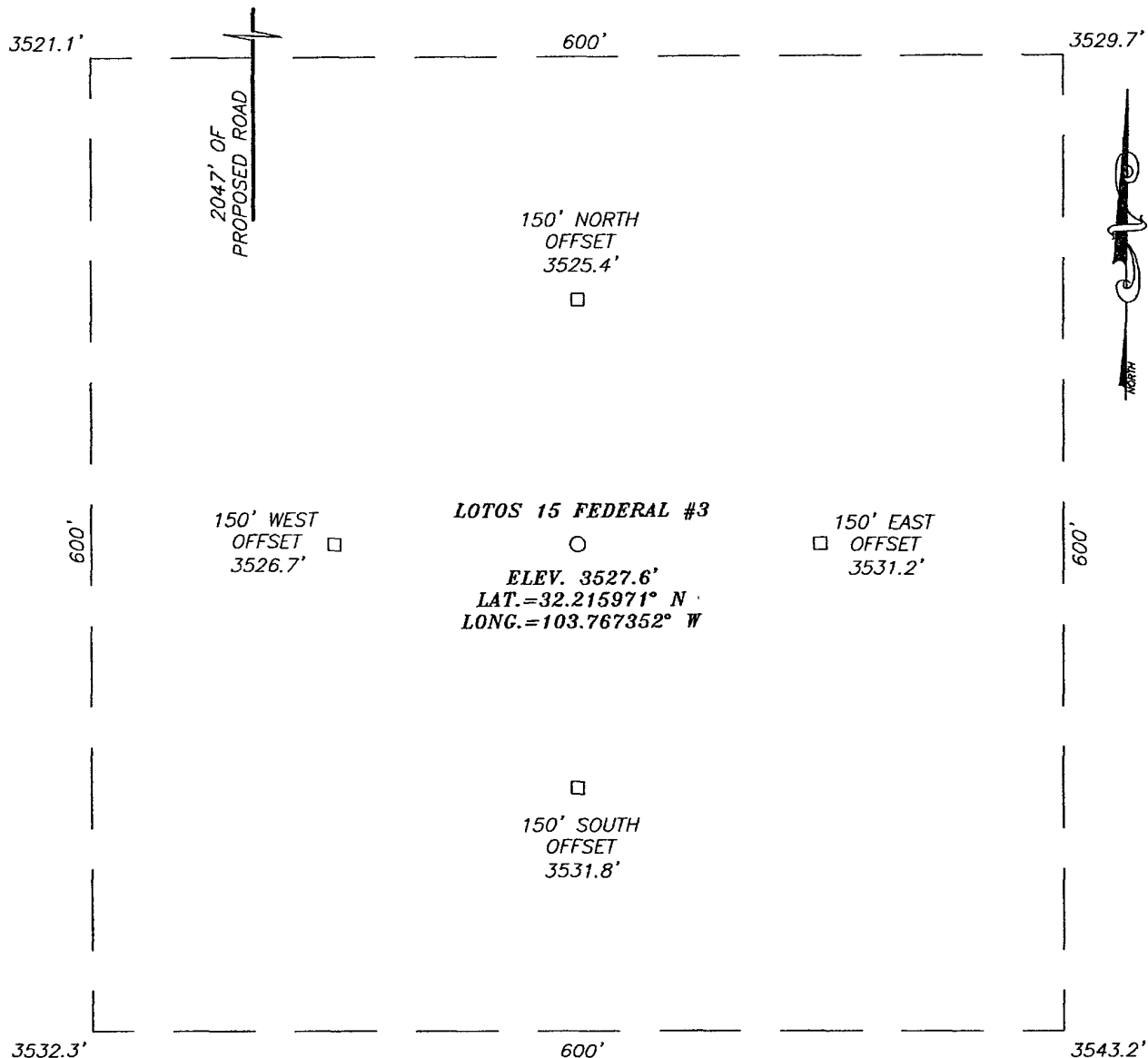
SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

RONALD J. EIDSON
SEPTEMBER 27, 2008
Date Surveyed
Signature & Seal of Professional Surveyor
Ronald J. Eidson 10/06/08
Certificate No. GARY EIDSON 12641
RONALD EIDSON 3239

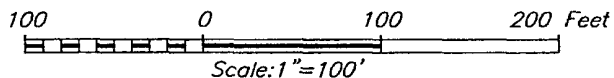
EXHIBIT A-1

SECTION 15, TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.,
 EDDY COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF ST. HWY. #128 AND CO. RD. #787 (TWIN WELLS RANCH RD.), GO SOUTHEAST ON ST. HWY. #128 APPROX. 1.1 MILES. TURN RIGHT AND GO SOUTH APPROX. 2.8 MILES. TURN LEFT AND GO EAST APPROX. 0.33 MILES. TURN RIGHT AT "Y" AND GO SOUTH APPROX. 1.25 MILES. TURN LEFT AT "Y" INTERSECTION AND GO SOUTHEAST APPROX. 0.9 MILES TO THE CHESAPEAKE LOTOS 15 FEDERAL #1 WELL PAD AND PROPOSED ROAD SURVEY. FOLLOW PROPOSED ROAD SOUTH APPROX. 2200 FEET SOUTH TO THIS LOCATION.



CHESAPEAKE OPERATING, INC.

LOTOS 15 FEDERAL #3 WELL
 LOCATED 2180 FEET FROM THE SOUTH LINE
 AND 1980 FEET FROM THE WEST LINE OF SECTION 15,
 TOWNSHIP 24 SOUTH, RANGE 31 EAST, N.M.P.M.,
 EDDY COUNTY, NEW MEXICO.

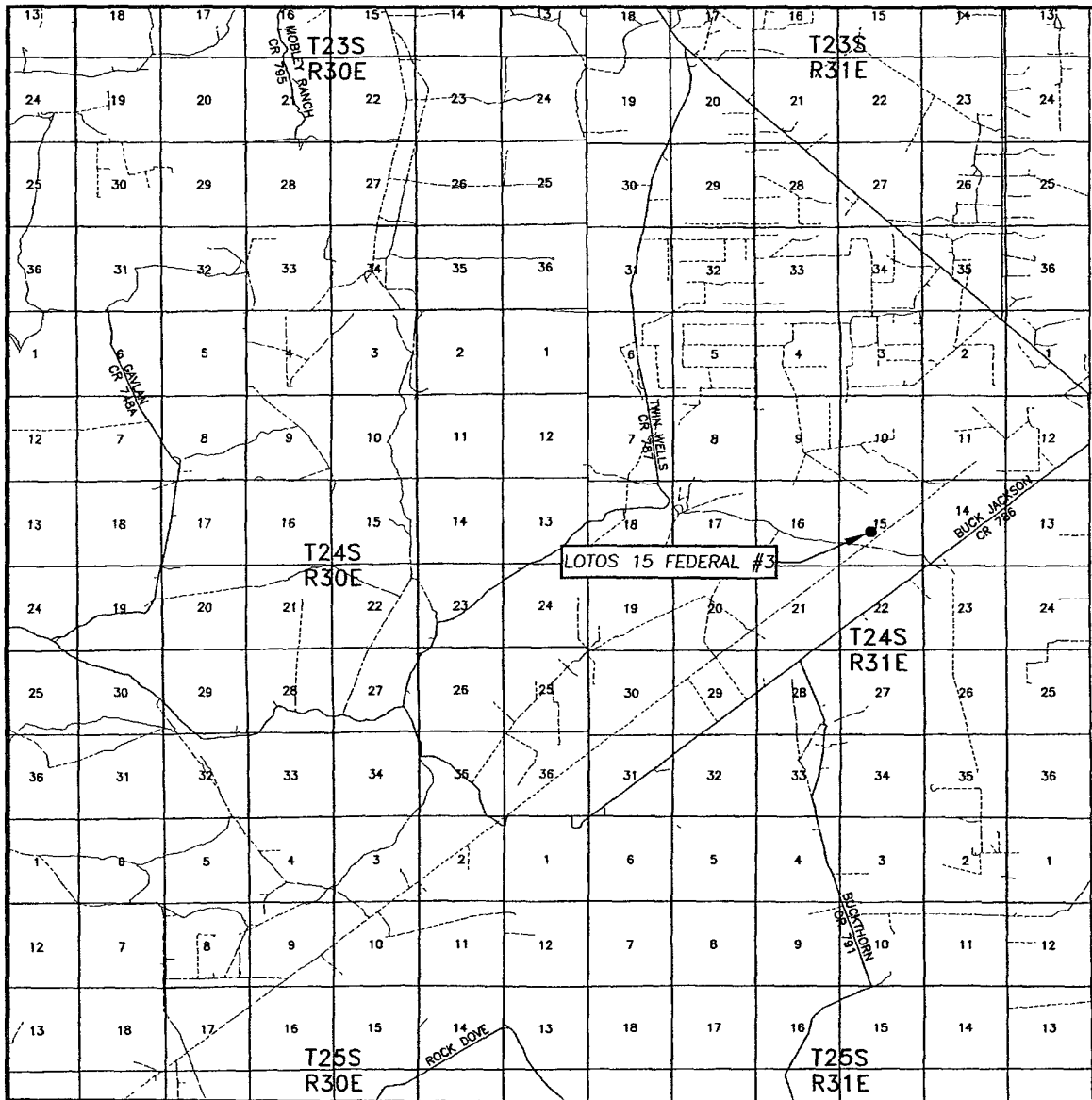


PROVIDING SURVEYING SERVICES
 SINCE 1946
JOHN WEST SURVEYING COMPANY
 412 N DAL PASO
 HOBBS, N.M. 88240
 (505) 393-3117

Survey Date: 9/27/08	Sheet 1 of 1 Sheets
W.O. Number: 08.11.1596	Dr By: LA
Date: 10/2/08	Rev 1:N/A
08111596	Scale: 1"=100'

EXHIBIT A-2

VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 15 TWP. 24-S RGE. 31-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 2180' FSL & 1980' FWL

ELEVATION 3528'

OPERATOR CHESAPEAKE OPERATING, INC.

LEASE LOTOS 15 FEDERAL

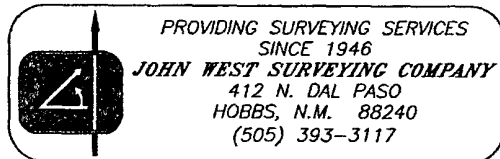
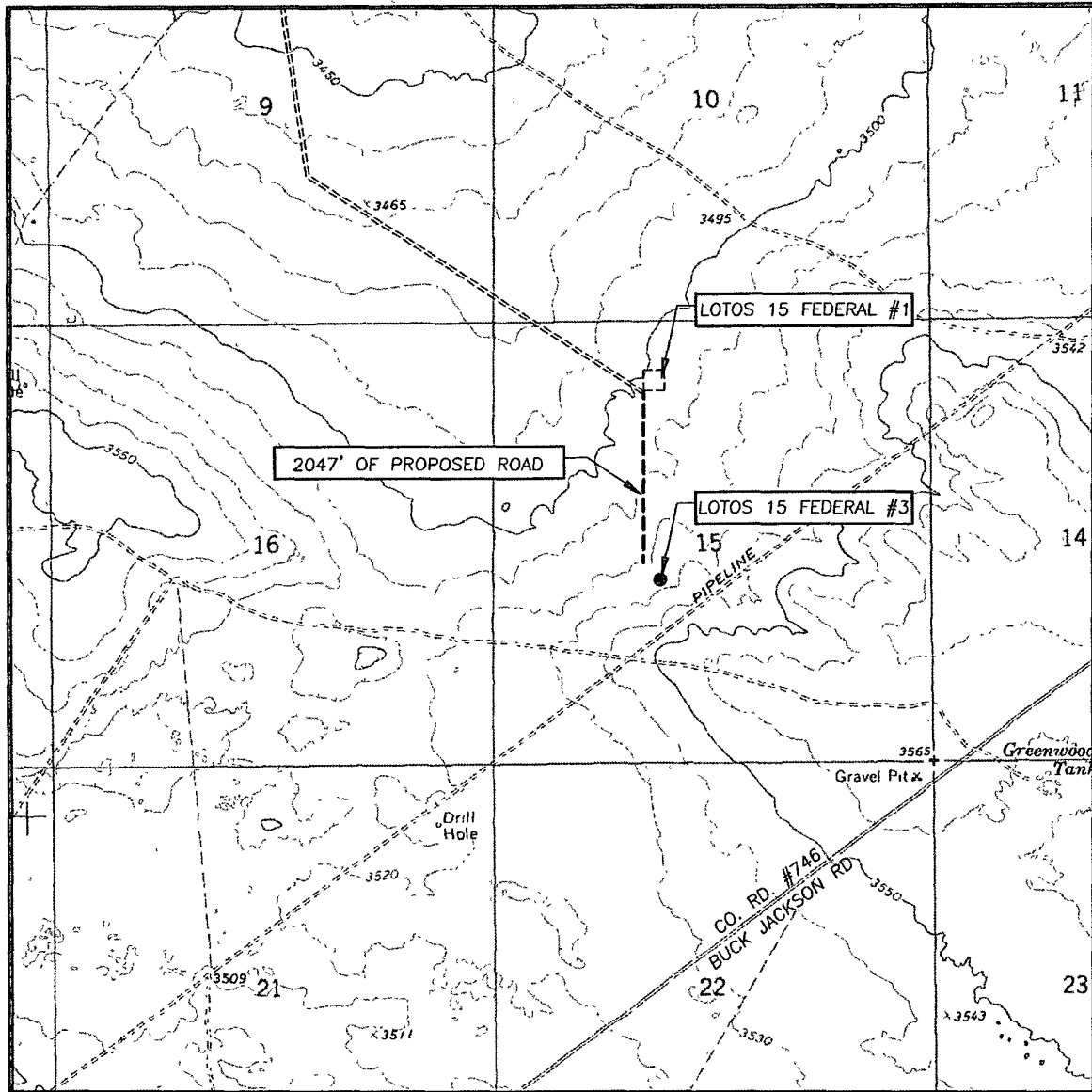


EXHIBIT A-3

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
BIG SINKS, N.M. - 10'

SEC. 15 TWP. 24-S RGE. 31-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 2180' FSL & 1980' FWL

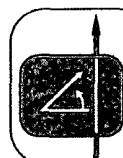
ELEVATION 3528'

OPERATOR CHESAPEAKE OPERATING, INC.

LEASE LOTOS 15 FEDERAL

U.S.G.S. TOPOGRAPHIC MAP

BIG SINKS, N.M.



PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(505) 393-3117

EXHIBIT A-4

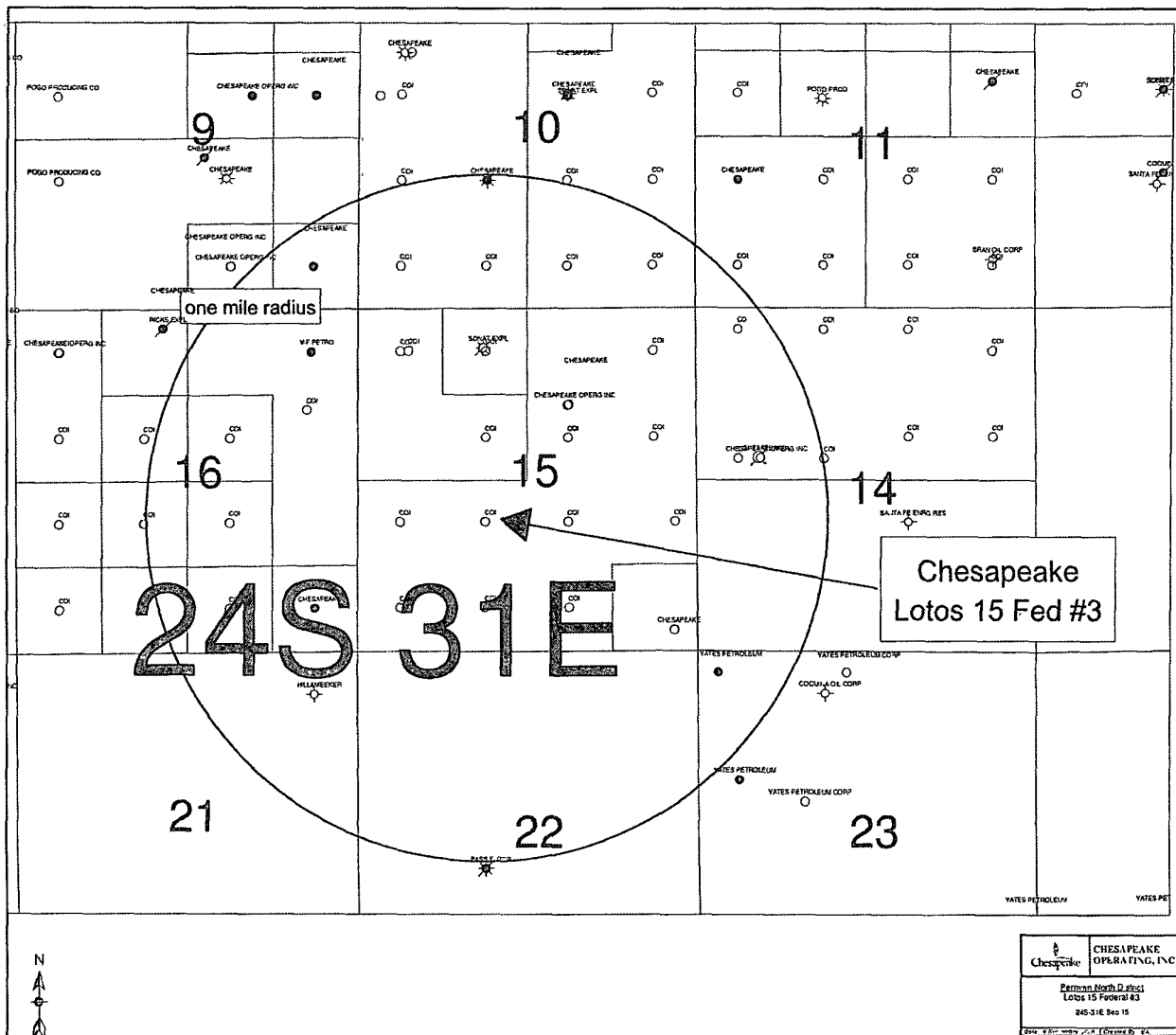


EXHIBIT B

ONSHORE ORDER NO. 1
Chesapeake Operating, Inc.
Lotos 15 Federal 3
1980' FSL & 1980' FWL
Section 15-24S-31E
EDDY County, New Mexico

CONFIDENTIAL – TIGHT HOLE
Lease No. ~~OKNM~~ 111960
NM
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:

Formation	Subsea	Measured Depth
BASE OF SALT	-911'	4,459'
*BELL CANYON FM.	-960'	4,508'
*CHERRY CANYON MKR.	-1,990'	5,538'
*BRUSHY CANYON FM.	-3,130'	6,678'
BONE SPRING FM.	-4,712'	8,260'
*BONE SPRING "AVALON" SAND	-4,850'	8,398'
*Potentially productive zones	Total Depth:	8,600'

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	4508'
Oil/Gas	Cherry Canyon	5538'
Oil/Gas	Brushy Canyon	6678'
Oil/Gas	Bone Spring Avalon sd	8398'

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

2185
ONSHORE ORDER NO. 1
Chesapeake Operating, Inc.
Lotos 15 Federal 3
1980' FSL & 1980' FWL
Section 15-24S-31E
EDDY County, New Mexico
3. BOP EQUIPMENT:

CONFIDENTIAL – TIGHT HOLE
Lease No. ~~OK~~NM 111960
NM
DRILLING PROGRAM

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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.

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

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

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

<u>System Operating Pressures</u>	<u>Precharge Pressure</u>
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.
4. Record time to close or open each element and the remaining accumulator pressure after each operation.

ONSHORE ORDER NO. 1
Chesapeake Operating, Inc.
Lotos 15 Federal 3
4930' FSL & 1980' FWL
Section 15-24S-31E
EDDY County, New Mexico

CONFIDENTIAL – TIGHT HOLE
Lease No. ~~OK~~ NM 111960
NM
DRILLING PROGRAM

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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 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:

<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 – 750'	17-1/2"	13-3/8"	48.0#	H-40	STC	New
Intermediate	Surface – 4,425'	11"	8-5/8"	32.0#	J-55	STC	New
Production	Surface – 8,600'	7-7/8"	5-1/2"	17.0#	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 = 1.45, SFc = 2.11 and SFt = 2.11

8-5/8" Intermediate Casing: SFb = 1.79, SFc = 2.80 and SFt = 3.05

5-1/2" Production Casing: SFb = 1.94, SFc = 1.78 and SFt = 1.88

- d. The cementing program will be as follows:

ONSHORE ORDER NO. 1
Chesapeake Operating, Inc.
Lotos 15 Federal 3
1980' FSL & 1980' FWL
Section 15-24S-31E
EDDY County, New Mexico
5. Cementing Program

CONFIDENTIAL - TIGHT HOLE
Lease No. ~~OKNM~~ 111960
NM
DRILLING PROGRAM

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← see CCA

<u>Interval</u>	<u>Type</u>	<u>Amount</u>	<u>Yield</u>	<u>Top Of Cement</u>	<u>Excess</u>
Surface	Tail: Class C 1% CaCl ₂ (Accelerator)	750 sks	1.34	Surface	100%
Intermediate	Lead: 35/65 Poz/Class C	900 sks	2.0	Surface	100%
	Tail: Class C	200 sks	1.32		100%
Production	Lead: Class H 0.1% HR 601 (Retarder)	420 sks	2.5	3,900'	50%
	Tail: Class H 0.3% Halad 344 (FLC) 0.1% HR 601	220 sks	1.25		

Final cement volumes will be determined by caliper.

6. MUD PROGRAM

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

see conf

<u>Interval</u>	<u>Mud Type</u>	<u>Mud Weight</u>	<u>Viscosity</u>	<u>Fluid Loss</u>
0' - 750'	FW/Gel	8.4 - 9.4	34-38	NC
750' - 4,425'	Native/Brine	10.0	28	NC
4,425' - TD	Cut Brine	8.4 - 8.8	28-38	20-10

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.

ONSHORE ORDER NO. 1
Chesapeake Operating, Inc.
Lotos 15 Federal 3
1980' FSL & 1980' FWL
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EDDY County, New Mexico

CONFIDENTIAL – TIGHT HOLE
Lease No. ~~OKNM~~ 111960
NM
DRILLING PROGRAM

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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

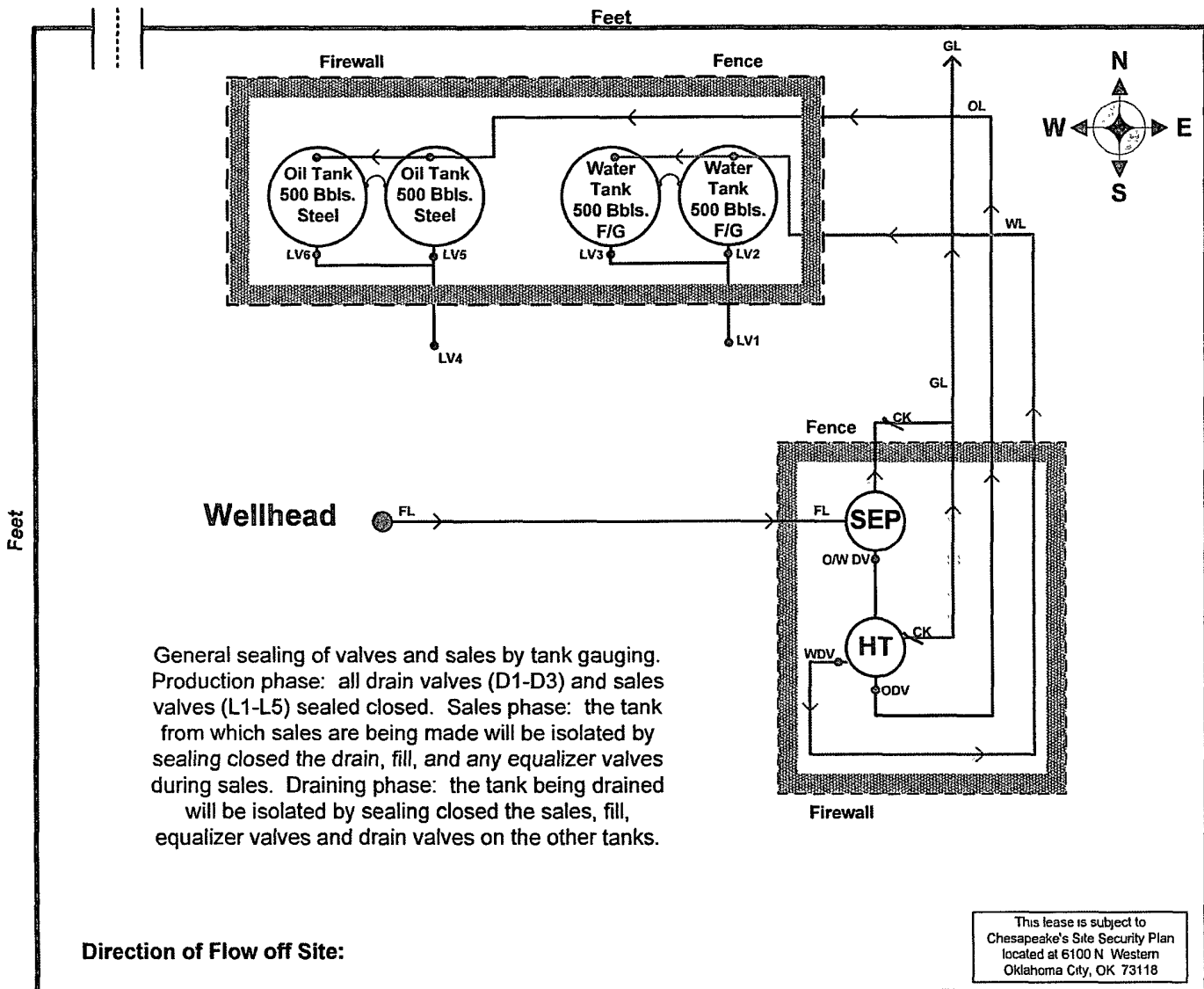
- a. The estimated bottom hole pressure is 3725 psi. No abnormal pressures or temperatures are anticipated.
- b. Hydrogen sulfide gas is not anticipated.

CHESAPEAKE OPERATING, INC.



Lotos 15 Federal #3

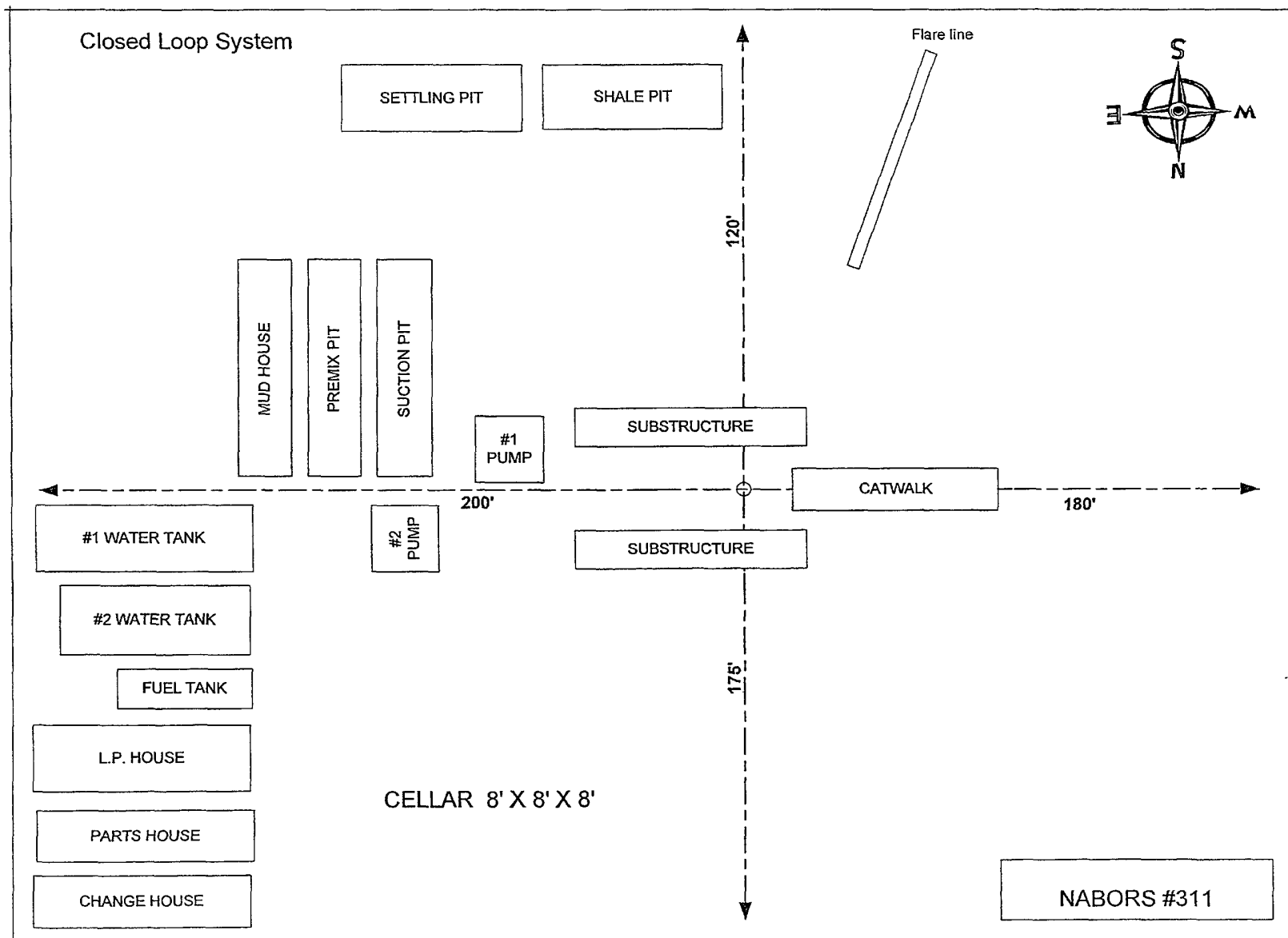
Lat: N 32.215421" – Long: W 103.767352"
S15/T24S/R31E – 1980 FSL & 1980 FWL
Eddy Co., New Mexico



Prepared by: Jackie Reynolds
Date: 10-20-2008

Approved by:
Date:

EXHIBIT C



Prevailing Winds from the North in Winter and from the South in Summer.

Exhibit_D

BLOWOUT PREVENTOR SCHEMATIC

CHESAPEAKE OPERATING INC

WELL : Lotos 15 Federal 3

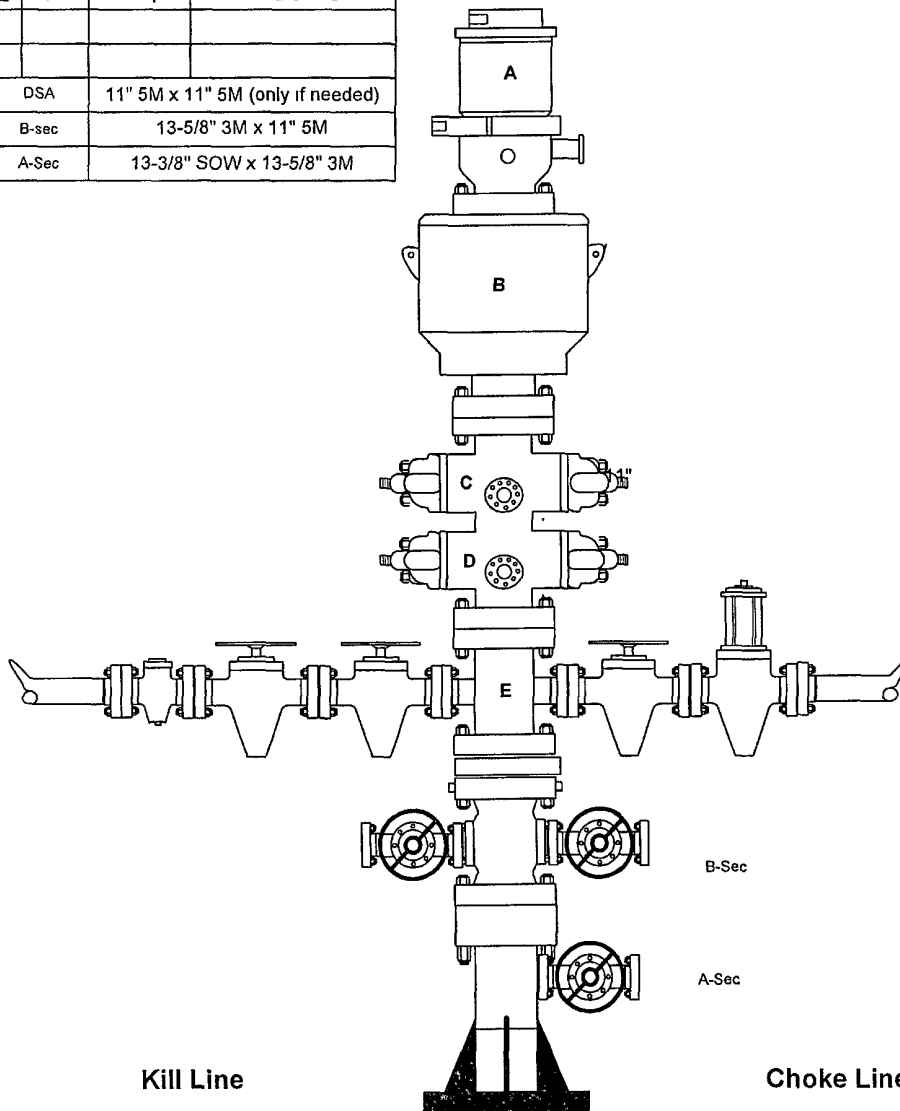
RIG : Nabors 311

COUNTY : Eddy

STATE: New Mexico

OPERATION: Drill out below 8-5/8" Casing (7-7/8" hole size)

	SIZE	PRESSURE	DESCRIPTION
A	11"	500 psi	Rot Head
B	11"	5000 psi	Annular
C	11"	5000 psi	Pipe Rams
D	11"	5000 psi	Blind Rams
E	11"	5000 psi	Mud Cross
DSA	11" 5M x 11" 5M (only if needed)		
B-sec	13-5/8" 3M x 11" 5M		
A-Sec	13-3/8" SOW x 13-5/8" 3M		



SIZE	PRESSURE	DESCRIPTION
2"	5000 psi	Check Valve
2"	5000 psi	Gate Valve
2"	5000 psi	Gate Valve

SIZE	PRESSURE	DESCRIPTION
4"	5000 psi	Gate Valve
4"	5000 psi	HCR Valve

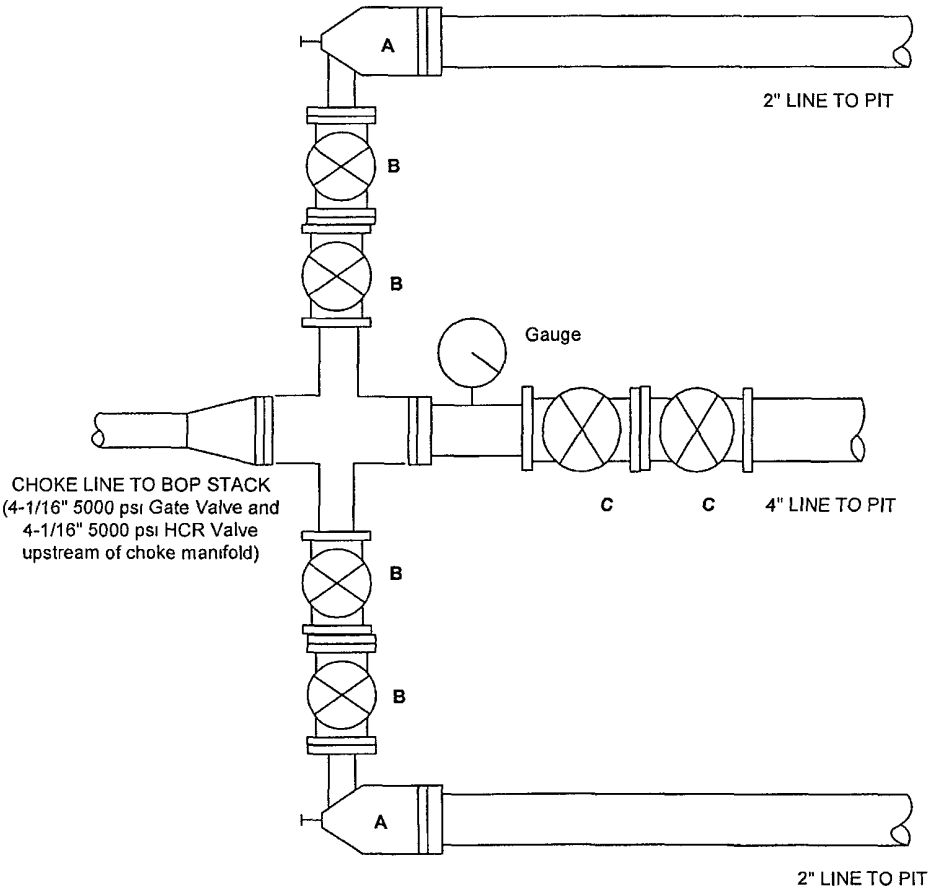
EXHIBIT

FD

CHOKES MANIFOLD SCHEMATIC

CHESAPEAKE OPERATING, INC.

WELL : Lotos 15 Federal 3
RIG : Capstar 32
COUNTY : Eddy **STATE** : New Mexico
OPERATION: Drilling below/beyond 13-3/8" surface casing



	SIZE	PRESSURE	DESCRIPTION
A	2-1/16"	5000 psi	Remotely Operated Choke With Manual Backup
B	2-1/16"	5000 psi	Gate Valve
C	4-1/16"	5000 psi	Gate Valve

2180' ONSHORE ORDER NO. 1
Chesapeake Operating, Inc.
Lotos 15 Federal 3
1980' FSL & 1980' FWL
Section 15-24S-31E
Eddy County, NM

CONFIDENTIAL – TIGHT HOLE

Lease No. NMMNM 111960

SURFACE USE PLAN

Page 1

ONSHORE OIL & GAS ORDER NO. 1
Approval of Operations on Onshore
Federal and Indian Oil and Gas Leases

1. EXISTING ROADS

- a. Existing county and lease roads will be used to enter proposed access road.
- b. Location, access, and vicinity plats attached hereto. See Exhibits A-1 to A-4.

2. PLANNED ACCESS ROADS

- a. The proposed access road 2618' in length and 14' in travel way width with a maximum disturbance area of 30' will be used, and in accordance with guidelines set forth in the BLM Onshore Orders. No turnouts are expected.
- b. In order to level the location, cut and fill will be required. Please see attached Well Location and Acreage Dedication Plat – Exhibits A-1 to A-4.
- c. A locking gate will be installed at the site entrance.
- d. Any fences cut will be repaired. Cattle guards will be installed, if needed.
- e. Surface disturbance and vehicular travel will be limited to the approved location and approved access route. Any additional area needed will be approved in advance.
- f. Driving directions are from the intersection of St. Hwy #128 and Co Rd #787 (Twin Wells Ranch Rd), go Southeast on St Hwy #128 approx. 1.1 miles. Turn right and go South approx. 2.8 miles. Turn left and go East approx. 0.33 miles, Turn right at Y and go South approx. 1.25 miles. Turn left at Y intersection and go Southeast approx. 0.9 miles to the Chesapeake Lotos 15 Federal 1 well pad and proposed road survey. Follow proposed road approx. 2618 feet South to this location.

3. LOCATION OF EXISTING WELLS WITHIN A 1-MILE RADIUS OF THE PROPOSED LOCATION – see Exhibit B.

4. LOCATION OF PRODUCTION FACILITIES

It is anticipated that production facilities will be located on the well pad as product will be sold at the wellhead and/or tank battery. Gas will be routed to DCP Lotos 4 Battery – See Exhibit C.

ONSHORE ORDER NO. 1
Chesapeake Operating, Inc.
Lotos 15 Federal 3
4980' FSL & 1980' FWL
Section 15-24S-31E
Eddy County, NM

CONFIDENTIAL - TIGHT HOLE

Lease No. NMNM 111960

SURFACE USE PLAN

Page 2

5. LOCATION AND TYPE OF WATER SUPPLY

Water will be obtained from a private water source. Chesapeake Operating, Inc. will ensure all proper notifications and filings are made with the state.

6. CONSTRUCTION MATERIALS

No construction materials will be used from Section 15-24S-31E. All material (i.e. shale) will be acquired from private or commo

ve 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.

8. ANCILLARY FACILITIES

None

9. WELLSITE LAYOUT

The proposed site layout plat is attached showing Nabors #311 rig orientation and equipment location. See Exhibit D. Also see Exhibit A for the size of the pad.

10. PLANS FOR RECLAMATION OF THE SURFACE

The location will be restored to as near as original condition as possible. Reclamation of the surface shall be done in strict compliance with the existing New Mexico Oil Conservation Division regulations.

Backfilling leveling, and contouring are planned as soon as the drilling rig and steel tanks are removed. Wastes and spoils materials will be buried immediately after drilling is completed. If production is obtained, the unused area will be restored as soon as possible. The rehabilitation will begin after the drilling rig is removed.

11. SURFACE & MINERAL OWNERSHIP

United States of America
Department of Interior
Bureau of Land Management

GRAZING LESSEE

Richardson Cattle Company
P.O. Box 487
Carlsbad, NM 88221

(Chesapeake Operating, Inc. is in the process of obtaining an agreement with the grazing lessee)

ONSHORE ORDER NO. 1
Chesapeake Operating, Inc.
Lotos 15 Federal 3
1980' FSL & 1980' FWL
Section 15-24S-31E
Eddy County, NM

CONFIDENTIAL – TIGHT HOLE

Lease No. NMNM 111960

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-1 to E-2.

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

Dave Bert
District Manager
P.O. Box 18496
Oklahoma City, OK 73154
(405) 879-6882 (OFFICE)
(405) 761-4699 (Cell)
dave.bert@chk.com

Sr. Drilling Engineer

Todd Nance
P.O. Box 14896
Oklahoma City, OK 73154
(405) 879-9301 (OFFICE)
(405) 810-2795 (FAX)
(405) 919-9148 (MOBILE)
todd.nance@chk.com

Field Representative

Bud Cravey
1616 W. Bender
Hobbs, NM
575-391-1462 (OFFICE)
817-240-8860 (Cell)
817-487-7980 (Black Berry)
greg.coker@chk.com

Asset Manager

Jeff Finnell
P.O. Box 18496
Oklahoma City, OK 73154-0496
405-767-4347 (OFFICE)
405-879-7930 (FAX)
jeff.finnell@chk.com

Regulatory Compliance

Linda Good
Regulatory Compliance Specialist
P.O. Box 18496
Oklahoma City, OK 73154
405 - 767-4275 (OFFICE)
405 - 879-9583 (FAX)
linda.good@chk.com

Sr. Geologist

Lee Wescott
P.O. Box 14896
Oklahoma City, OK 73154
405-767-4572 (OFFICE)
405-810-2660 (FAX)
lee.wescott@chk.com

Land

Craig Barnard
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Oklahoma City, OK 73154
405-879-8401 (Office)
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Justin Zerkle
Associate Landman
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justin.zerkle@chk.com

ONSHORE ORDER NO. 1
Chesapeake Operating, Inc.
Lotos 15 Federal 3
2180' FSL & 1980' FWL
Section 15-24S-31E
Eddy County, NM

CONFIDENTIAL – TIGHT HOLE
Lease No. NMNM 111960

OPERATOR CERTIFICATION

PAGE 1

CERTIFICATION

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and, that the work associated with the operations proposed will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

Executed this 24th day of October, 20 08.

Name: Bill Fowler

Bill Fowler – Regulatory Compliance

Address: P.O. Box 18496, Oklahoma City, OK 73154-0496

Telephone: 405-848-8000

Field Representative: Bud Cravey

Telephone: 575-391-1462

E-mail: bud.cravey@chk.com

NMCRIS INVESTIGATION ABSTRACT FORM (NIAF)

1. NMCRIS Activity No.: 111,675	2a. Lead (Sponsoring) Agency: BLM-CFO	2b. Other Permitting Agency(ies): N/A	3. Lead Agency Report No.:
4. Title of Report: A Cultural Resource Survey for the Lotos 15 Federal No. 3 Well Pad and Access Road Author(s) Justin Rein			5. Type of Report <input checked="" type="checkbox"/> Negative <input type="checkbox"/> Positive
6. Investigation Type <input type="checkbox"/> Research Design <input checked="" type="checkbox"/> Survey/Inventory <input type="checkbox"/> Test Excavation <input type="checkbox"/> Excavation <input type="checkbox"/> Collections/Non-Field Study <input type="checkbox"/> Overview/Lit Review <input type="checkbox"/> Monitoring <input type="checkbox"/> Ethnographic study <input type="checkbox"/> Site specific visit <input type="checkbox"/> Other			
7. Description of Undertaking (what does the project entail?): The proposed undertaking involves a pedestrian cultural resource survey for the proposed Lotos 15 Federal No. 3 well location and associated access road. The proposed well will impact an area no greater than 400 ft by 400 ft, yet a 600 ft by 600 ft block was surveyed. The access road will impact a strip of land 50 ft wide, yet a 100 ft wide corridor was surveyed.		8. Dates of Investigation: September 24, 2008 9. Report Date: September 29, 2008	
10. Performing Agency/Consultant: Boone Archaeological Services, LLC 2030 North Canal Carlsbad, NM 88220 (505) 885-1352 Principal Investigator: Danny Boone Field Supervisor: Justin Rein Field Personnel Names: Justin Rein		11. Performing Agency/Consultant Report No.: BAS-09-08-12 12. Applicable Cultural Resource Permit No(s): BLM Permit # 190-2920-08-K	
13. Client/Customer (project proponent): Chesapeake Operating, Inc. Contact: Linda Good Address: PO Box 18496 Oklahoma City, OK 73154-0496 Phone: (405) 767-4275		14. Client/Customer Project No.: N/A	

15. Land Ownership Status (Must be indicated on project map):

Land Owner	Acres Surveyed	Acres in APE
Bureau of Land Management – Carlsbad Field Office	1.15	6.68
TOTALS	1.15	6.68

16. Records Search(es):

Date(s) of ARMS File Review: September 25, 2008	Name of Reviewer(s): Justin Rein
Date(s) of NR/SR File Review: September 25, 2008	Name of Reviewer(s): Justin Rein
Date(s) of Other Agency File Review: September 24, 2008	Name of Reviewer(s): Justin Rein Agency: BLM-CFO

Two previously recorded sites (LA 86121 and LA 147286) were found within 0.25 miles of the project area. None of these sites will be affected by the current undertaking.

RECEIVED

OCT 06 2008


BY: 

EXHIBIT E-1

17. Survey Data:**a. Source Graphics**☒ NAD 27 ☐ NAD 83☒ USGS 7.5' (1:24,000) topo map ☐ Other topo map, Scale:☒ GPS Unit Accuracy ☐ <1.0m ☒ 1-10m ☐ 10-100m ☐ >100m**b. USGS 7.5' Topographic Map Name****USGS Quad Code**

Big Sinks, New Mexico 1968

32103-B7

c. County(ies): Eddy County**17. Survey Data (continued):****d. Nearest City or Town:** Malaga, New Mexico**e. Legal Description:**

Township (N/S)	Range (E/W)	Section	1/4	1/4	1/4
24 South	31 East	15	NE 1/4	SW 1/4	
		15	W 1/2	SE 1/4	NW 1/4
		15	SW 1/4	NE 1/4	NW 1/4

Projected legal description? Yes ☒, No ☐Unplatted ☐

f. Other Description (e.g. well pad footages, mile markers, plats, land grant name, etc.): The proposed Lotos 15 Federal No. 3 well location is centered 1,980 feet from the south line and 1,980 feet from the west line of Section 15 in Township 24 South, Range 31 East. The proposed access road begins at the southwestern margin of the proposed well and travels 2,618 ft north where it joins an existing caliche-capped lease road at the southwestern margin of a well location.

18. Survey Field Methods:Intensity: ☒ 100% coverage ☐ <100% coverageConfiguration: ☒ block survey units: 600 ft by 600 ft ☒ linear survey units (l x w): 500 ft long by 100 ft wide☐ other survey units (specify):Scope: ☒ non-selective (all sites recorded) ☐ selective/thematic (selected sites recorded)Coverage Method: ☒ systematic pedestrian coverage ☐ other method (describe)

Survey Interval (m): 15 m (50 ft) Crew Size: 1 Fieldwork Dates: May 23, 2007

Survey Person Hours: 3.5 Recording Person Hours: 0 Total Hours: 3.5

Additional Narrative: Much of the current project area is within the limits of previous BLM-CFO block survey NM-97-914b. After consult with Bruce Boeke, Archaeologist with the BLM-CFO (personal conversation, September 24, 2008), it was determined that only the portion of the proposed access road outside of the previous survey required an updated investigation. The entirety of the current block survey and all but approximately 500 ft of the proposed access road are within the previous survey. As such, and in order to protect any cultural resources, a 100 ft wide corridor was surveyed along the remainder of the access road, outside the previous block survey, utilizing a 50 ft wide transect interval on either side of the staked centerline. The survey encompassed a total of 1.15 acres on Federal property under the jurisdiction of the Bureau of Land Management – Carlsbad Field Office (BLM-CFO)

19. Environmental Setting (NRCS soil designation; vegetative community; elevation; etc.): The project area is located roughly 16 miles east of Malaga, New Mexico. Elevation ranges from 3,530 ft to 3,570 ft above mean sea level. Overall, the terrain trends gradually downhill to the south and southeast at a grade of just over one percent. Local soils are of the Kermit-Berino and Simona-Pajarito associations as defined by the Soil Conservation Service of the U.S. Department of Agriculture. The light sandy soils have a high concentration of caliche gravels and have been wind-worked into occasional low coppice dunes up to 1 m high. Local vegetation is typical of Chihuahuan Desert scrub and includes mesquite, various grasses, yucca, snakeweed, and various low forbes.

Meteorological data was obtained for the nearby City of Carlsbad, New Mexico from the Western Regional Climate Center (WRCC) online database. From 1914 to 2004, Carlsbad received an average annual precipitation of 12.65 inches. During the same time, Carlsbad recorded an average high temperature of 78.3 degrees Fahrenheit and an average low temperature of 47.3 degrees Fahrenheit. January was the coldest month averaging 58.5 degrees Fahrenheit, while July was the warmest on average at 95.8 degrees Fahrenheit.

20.a. Percent Ground Visibility: 85%

b. Condition of Survey Area (grazed, bladed, undisturbed, etc.): Due to the vegetative ground cover, surface visibility averaged 85 percent at the time of survey. The northern terminus of the proposed access road joins with an existing well pad and access road disturbance. Additional oil and gas exploration is visible in the surrounding area. The project area is otherwise undeveloped and susceptible to natural aeolian and alluvial processes and openly grazing cattle.

21. CULTURAL RESOURCE FINDINGS ☐ Yes, See Page 3 ☒ No, Discuss Why: The project area is situated across an exposed flat plain. Local site density may be lower than average based on limited availability of resources in the immediate area precluding long term habitation.

22. Required Attachments (check all appropriate boxes):

- ☒ USGS 7.5 Topographic Map with sites, isolates, and survey area clearly drawn
- ☒ Copy of NMCRIS Mapserver Map
- ☐ LA Site Forms - new sites (*with sketch map & topographic map*)
- ☐ LA Site Forms (update) - previously recorded & un-relocated sites (*first 2 pages minimum*)
- ☐ Historic Cultural Property Inventory Forms
- ☐ List and Description of isolates, if applicable
- ☐ List and Description of Collections, if applicable

23. Other Attachments:

☐ Photographs and Log

☒ Other Attachments

(Describe): Plats provided by Chesapeake Operating, Inc.

24. I certify the information provided above is correct and accurate and meets all applicable agency standards.

Principal Investigator/Responsible Archaeologist: Justin Rein

Signature _____ Date _____ Title (if not PI): Crew Chief

25. Reviewing Agency:
Reviewer's Name/Date

Accepted () Rejected ()

Tribal Consultation (if applicable): ☐ Yes ☐ No

26. SHPO
Reviewer's Name/Date:

HPD Log #:

SHPO File Location:

Date sent to ARMS:

CULTURAL RESOURCE FINDINGS

[fill in appropriate section(s)]

1. NMCRIS Activity No.: 111,675	2. Lead (Sponsoring) Agency: BLM - CFO	3. Lead Agency Report No.:
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SURVEY RESULTS:

Sites discovered and registered: 0

Sites discovered and NOT registered: 0

Previously recorded sites revisited (site update form required): 0

Previously recorded sites not relocated (site update form required): 0

TOTAL SITES VISITED: 0

Total isolates recorded: 0 Non-selective isolate recording? ☒

Total structures recorded (new and previously recorded, including acequias): 0

MANAGEMENT SUMMARY: No cultural materials were encountered during the survey. As such, archaeological clearance is recommended for the proposed Lotos 15 Federal No. 3 well pad and associated access road as currently staked. If any cultural materials are encountered during any phase of construction, work at that location should cease and archaeologists with the BLM-CFO should be notified immediately.

IF REPORT IS NEGATIVE YOU ARE DONE AT THIS POINT.

SURVEY LA NUMBER LOG

Sites Discovered:

LA No.	Field/Agency No.	Eligible? (Y/N, applicable criteria)

Previously recorded revisited sites:

LA No.	Field/Agency No.	Eligible? (Y/N, applicable criteria)

MONITORING LA NUMBER LOG (site form required)

Sites Discovered (site form required) :

Previously recorded sites (Site update form required):

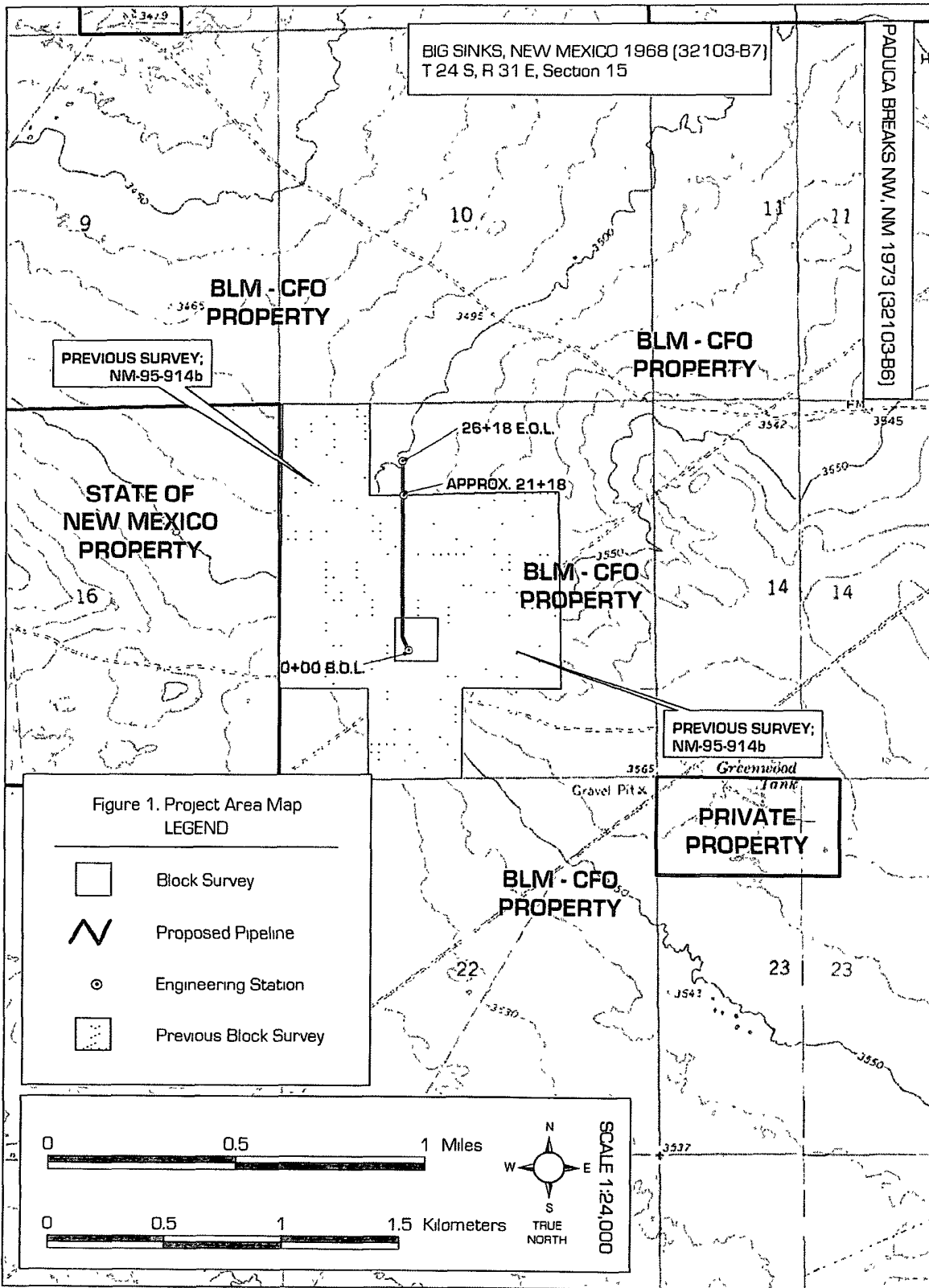
LA No.	Field/Agency No.	LA No.	Field/Agency No.

Areas outside known nearby site boundaries monitored? Yes ☐, No ☐ If no explain why:

TESTING & EXCAVATION LA NUMBER LOG (site form required)

Tested LA number(s)	Excavated LA number(s)

SURVEY FOR THE LOTOS "15" FEDERAL No. 3 WELL PAD AND ACCESS ROAD



BOONE ARCHAEOLOGICAL SERVICES, LLC



ADDENDUM

October 14, 2008

RECEIVED

Chesapeake Operating, Inc.
6100 N Western Avenue
Oklahoma City, OK 73118

OCT 16 2008

Lotos Federal "15" Federal Well No. 3
Re: BAS 09-08-12A

BY: *[Signature]*

Linda Good;

Research of records at the Bureau of Land Management, Carlsbad Field Office revealed that the relocated Drill Hole and 600 by 600 feet pad survey area in Section 15, T 24S, R 31E, NMPM, Eddy County, New Mexico is located within the boundaries a block survey, BLM 95-NM-067-914b. The original Drill Hole was at 1980' FSL, 1980' FWL, it was moved north 200 feet north to 2180' FSL, 1980' FWL in Section 15. Bruce Boeke, archaeologist at the Carlsbad BLM was consulted on this project, no fieldwork is required and archaeological clearance as staked is recommended. A copy of this report will be forwarded to the Carlsbad Bureau of Land Management Archaeologist.

Map Reference: USGS 7.5' Series; Big Sinks, New Mexico (1968) 32103-B7

Respectfully,

[Signature: Danny Boone]

Danny Boone
Boone Archaeological Services, LLC
Principal Investigator / Field Supervisor

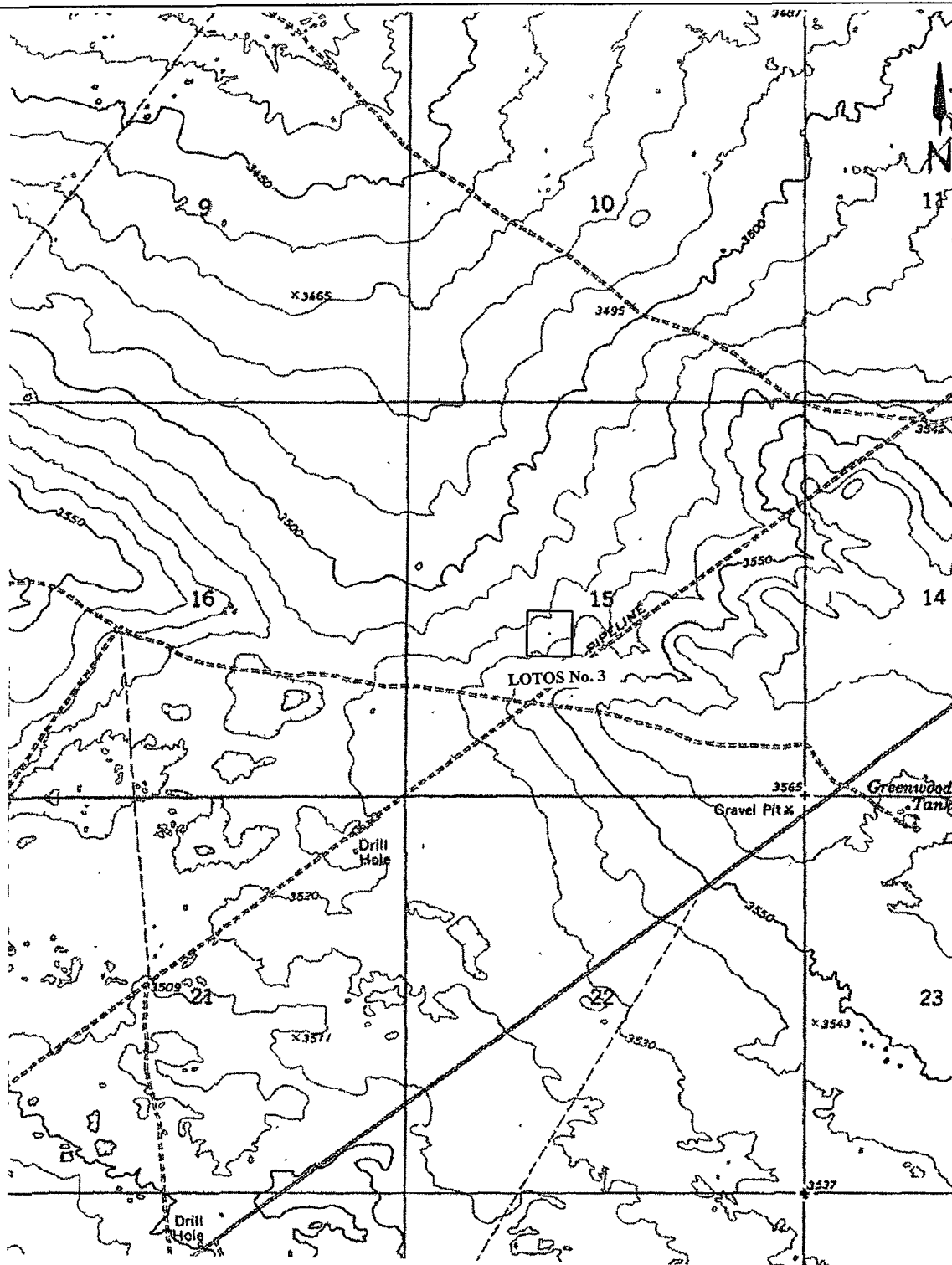
Attachments: Survey plat and project map

2030 North Canal
Carlsbad, NM 88220

505-885-1352 office
505-887-7667 fax

BAS@warpdriveonline.com

EXHIBIT E-2



Location Map

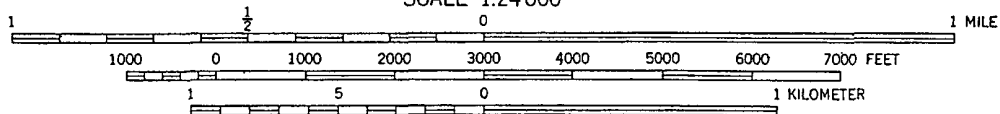
ADDENDUM

BAS 09-08-12A

Lotos "15" Federal well No. 3 in Section 15, T 24S, R 31E, NMPM, Eddy County, New Mexico.

Map Reference: USGS 7.5' Series; Big Sinks, New Mexico (1968) 32103-B7

SCALE 1:24000



PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Chesapeake Operating
LEASE NO.:	NMNM111960
WELL NAME & NO.:	Lotos 15 Federal No 3
SURFACE HOLE FOOTAGE:	2180' FSL & 1980' FWL
BOTTOM HOLE FOOTAGE	Same
LOCATION:	Section 15, T. 24 S., R 31 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ General Provisions
- ☐ Permit Expiration
- ☐ Archaeology, Paleontology, and Historical Sites
- ☐ Noxious Weeds
- ☒ Special Requirements
 - Lesser Prairie Chicken
- ☒ Construction
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☒ Road Section Diagram
- ☒ Drilling
 - Intermediate casing
- ☐ Production (Post Drilling)
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☒ Closed Loop System/Interim Reclamation
- ☐ Final Abandonment/Reclamation

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

Lotus 15 Federal # 3: Closed Loop System V-Door west

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5972 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall stockpile the topsoil of the well pad. The topsoil shall ~~not be used to backfill the reserve pit and will~~ be used for interim and final reclamation. ~~535~~

C. Closed Loop System

Lotus 15 Federal # 3: Closed Loop System V-Door west

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

If the operator elects to surface the access road and/or well pad, mineral materials extracted during construction ~~of the reserve pit~~ may be used for surfacing the well pad and access road and other facilities on the lease. ~~535~~

N/A

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site ~~other than the reserve pit~~. Call the Carlsbad Field Office at (575) 234-5972. ~~535~~

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. ON LEASE ACCESS ROADS

Road Width

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning

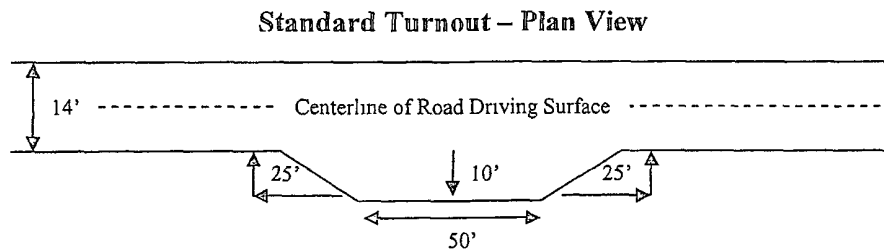
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

Turnouts

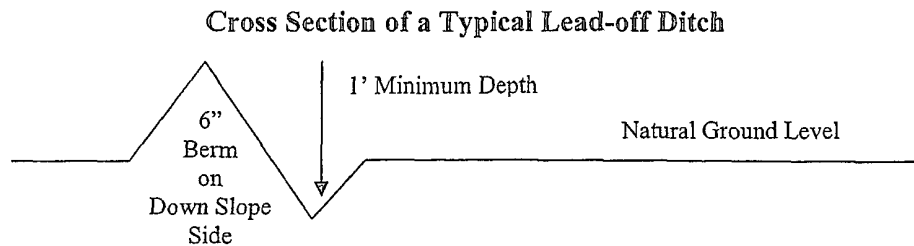
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Culvert Installations

Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

Cattleguards

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

A gate shall be constructed and fastened securely to H-braces.

Fence Requirement

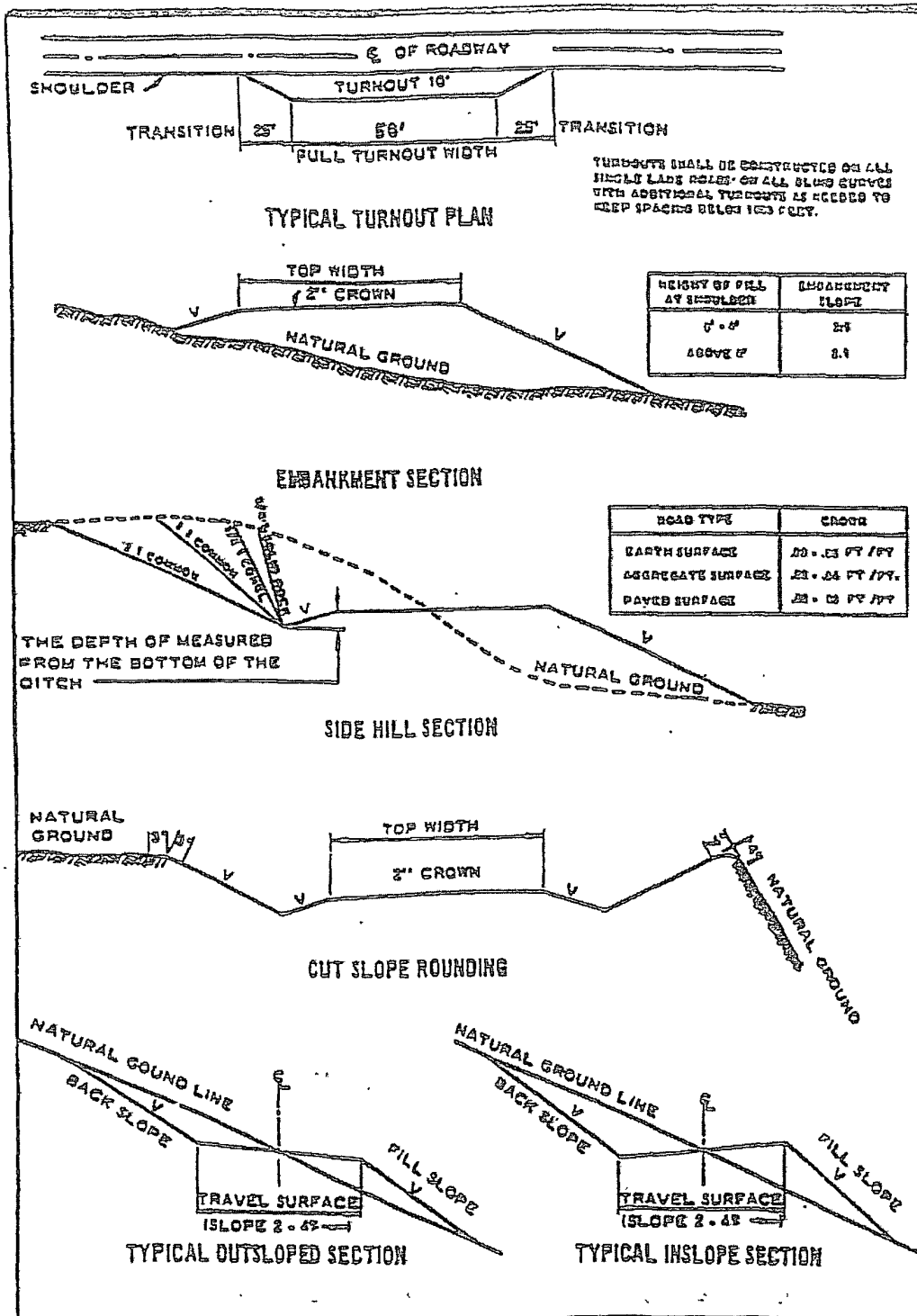
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Figure 1 – Cross Sections and Plans For Typical Road Sections



VII. 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.

Secretary's Potash

Possible lost circulation in the Delaware and Bone Spring formations.

Possible water flows in the Castile, Salado, Delaware and Bone Spring formations.

1. The 13-3/8 inch surface casing shall be set a minimum of 25 feet into the Rustler Anhydrite and above the salt and cemented to the surface. BLM geologist anticipates the Rustler Anhydrite top at approximately 900 feet. Fresh water mud to surface casing setting depth.
 - 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. No lead proposed in APD.
 - 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 action will be done prior to drilling out that string.

NOTE: Intermediate casing to be kept liquid filled while running to meet BLM requirement for collapse.

2. The minimum required fill of cement behind the 8-5/8 inch intermediate casing is:
 - ☒ Cement to surface. If cement does not circulate see B.1.a-d above. Casing to be set in the Lamar Limestone. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to Secretary's Potash. Additional cement may be required as excess cement calculates to less than 10%.
3. The minimum required fill of cement behind the 5-1/2 inch production casing is:
 - ☒ Cement should tie-back at least 500 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 **8-5/8"** intermediate casing shoe shall be **5000 (5M) psi. Operator installing a 5M system and testing as a 3M system.**
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.

D. DRILL STEM TEST

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

WWI 112108

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Containment Structures

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color
Shale Green, Munsell Soil Color Chart # 5Y 4/2

B. PIPELINES

C. ELECTRIC LINES

IX. INTERIM RECLAMATION & RESERVE PIT CLOSURE

A. INTERIM RECLAMATION

If the well is a producer, interim reclamation shall be conducted on the well site in accordance with the orders of the Authorized Officer. The operator shall submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting interim reclamation.

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

The operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Any reductions should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

BLM SERIAL #:
COMPANY REFERENCE:
WELL # & NAME:

Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Sand dropseed (<i>Sporobolus cryptandrus</i>)	1.0
Sand love grass (<i>Eragrostis trichodes</i>)	1.0
Plains bristlegrass (<i>Setaria macrostachya</i>)	2.0

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed
(Insert Seed Mixture Here)

X. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS

Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation and restoration of all disturbed areas.

On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the private surface land owner agreement.