L-06-10

OCT 2006
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CONFIDENTIAL

Form 3160-3
(April 2004)

FORM APPROVED
OMB No. 1004-0137
Expires March 31, 2007

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMLC 029392B

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone

8. Lease Name and Well No. UNIT.
Greenwood Pre-Grayburg 24 300060

2. Name of Operator
147179 **CHESAPEAKE OPERATING, INC.** **ATTN: LINDA GOOD**

9. API Well No.
30-015-35176

3a. Address **P.O. BOX 18496, OKLAHOMA CITY, OK 73154-0496**

3b. Phone No. *(include area code)* **405-767-4275**

10. Field and Pool, or Exploratory
Shugart; Bone Spring

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface **1980 FNL 1980 FEL SWNE**
At proposed prod. zone **SAME** G

11. Sec., T. R. M. or Blk. and Survey or Area
27-18S-31E

14. Distance in miles and direction from nearest town or post office*
Approximately 8 miles SSE of Loco Hills, New Mexico

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 **1880.00**

17. Spacing Unit dedicated to this well **40**

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.

19. Proposed Depth **10,000**

20. BLM/BIA Bond No. on file **NM2634**

21. Elevations (Show whether DF, KDB, RT, GL, etc.) **GR 3630' KB 3648' Est.**

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:

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

25. Signature

Name *(Printed/Typed)* **Henry Hood**

Date 9/1/06

Title **Sr. Vice President - Land & Legal & General Counsel**

Approved by *(Signature)* /s/ Don Peterson

Name *(Printed/Typed)*

Date OCT - 4 2006

ACTING FIELD MANAGER

Office CARLSBAD FIELD OFFICE

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 thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR 1 YEAR

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

(Instructions on page 2)

If earthen pits are used in association with the drilling of this well, an OCD pit permit must be obtained prior to pit construction.

Witness Surface & Intermediate Casing

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

CAPITAN CONTROLLED WATER BASIN

Chesapeake Operating Inc.
Greenwood Pre-Grayburg #24
1980 FNL 1980 FEL, SWNE
of Section 27-18S-31E
Eddy County, NM

Confidential – Tight Hole
Lease No. NMLC 0293592B

#24 Attachment to Application for Permit to Drill or Re-enter

Chesapeake Operating, Inc. respectfully requests permission to drill a well to 10,000' to test the Wolfcamp 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. A general rig plat is attached as Exhibit D. A final rig plat will be submitted prior to spud. Exhibit_E Archeological Survey to follow.

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

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 lands.

State of New Mexico

Energy, Minerals and Natural Resources Department

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

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	Pool Code	Pool Name
	56400	Shugart; Bone Spring

Property Code	Property Name	Well Number
	GREENWOOD PRE-GRAYBURG	24

OGRID No.	Operator Name	Elevation
147179	CHESAPEAKE OPERATING, INC.	3636'

Surface Location

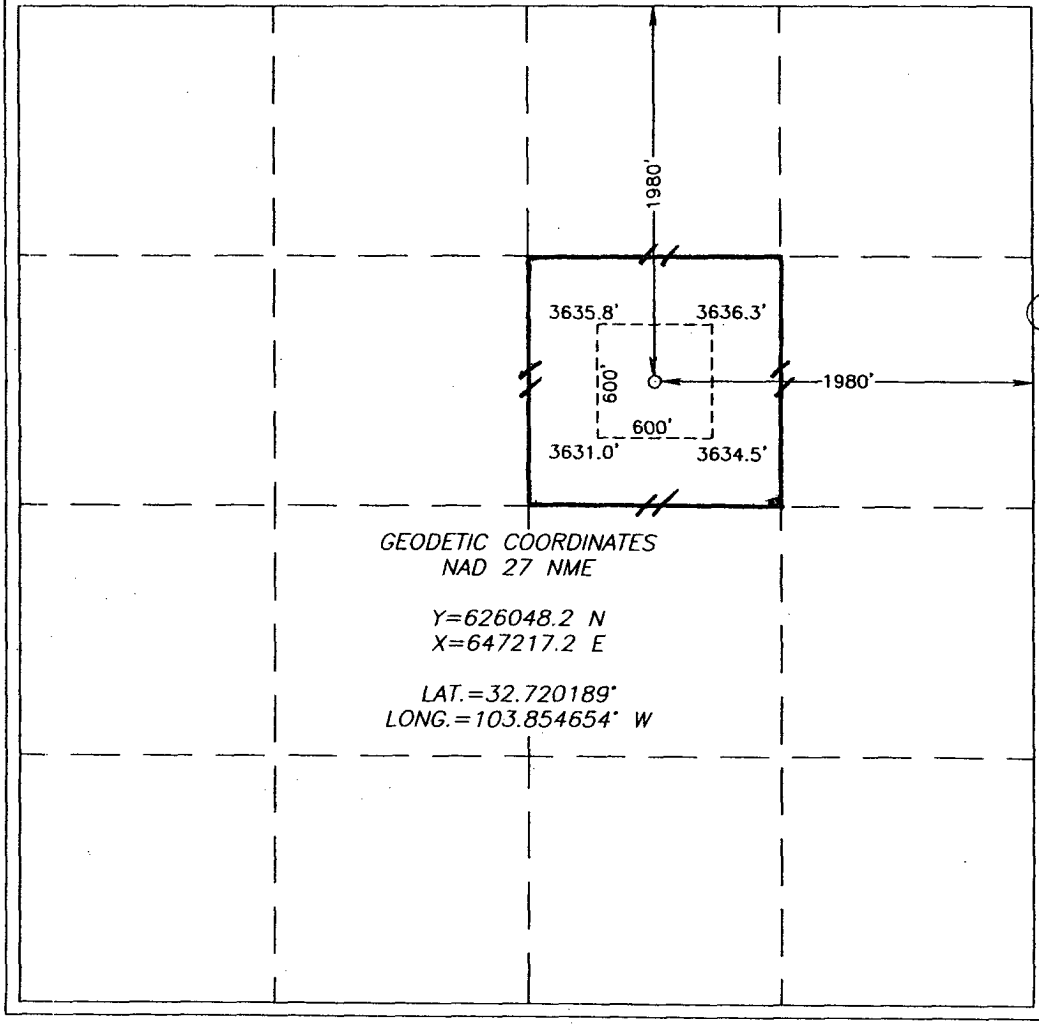
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
G	27	18-S	31-E		1980	NORTH	1980	EAST	EDDY

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



GEODETIC COORDINATES
NAD 27 NME

Y=626048.2 N
X=647217.2 E

LAT.=32.720189°
LONG.=103.854654° W

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.

Lynda F. Townsend 8-31-06
Signature Date

Lynda F. Townsend
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.

AUGUST 16, 2006
Date Surveyed MR

Signature & Seal of Professional Surveyor

STATE OF NEW MEXICO
GARY L. EIDSON
12641
RONALD J. EIDSON
3239
REGISTERED PROFESSIONAL SURVEYOR

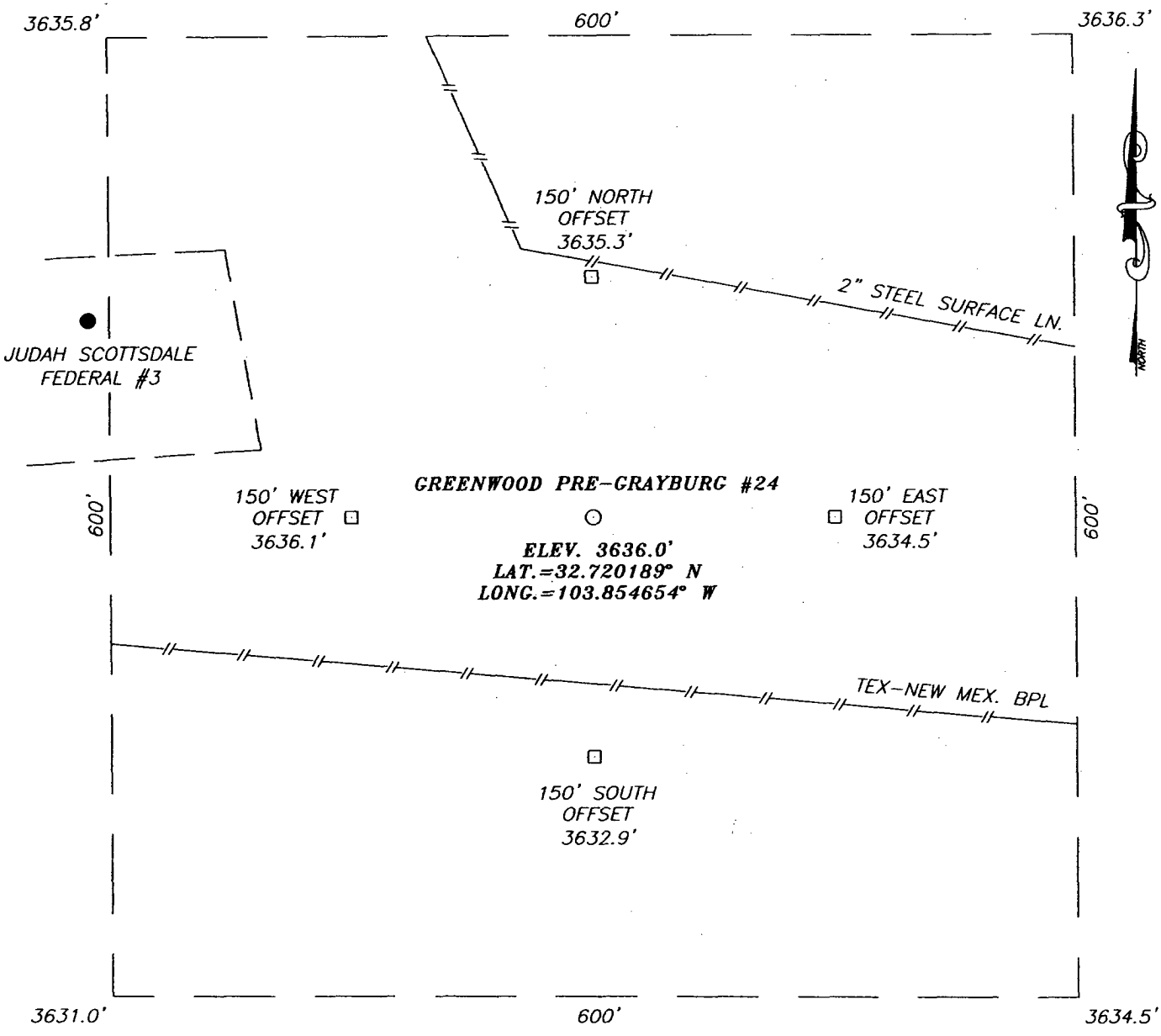
Gary L. Eidson 8/28/06
12641
06.11.1332

Certificate No. GARY EIDSON 12641
RONALD J. EIDSON 3239

Revised
EXHIBIT A-1

SECTION 27, TOWNSHIP 18 SOUTH, RANGE 31 EAST, N.M.P.M.,

EDDY COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF CO. RD. #222 (SHUGART RD.) AND CO. RD. #249 (WESTALL RD.), GO SOUTHEAST ON CO. RD. #249 APPROX. 2.5 MILES. TURN RIGHT AND GO SOUTH APPROX. 0.5 MILES. TURN RIGHT AND GO WEST APPROX. 0.8 MILES. TURN LEFT AND GO SOUTH APPROX. 0.2 MILES. TURN LEFT AND GO EAST APPROX. 0.2 MILES TO THIS LOCATION.

100 0 100 200 Feet

Scale: 1"=100'

PROVIDING SURVEYING SERVICES SINCE 1946

JOHN WEST SURVEYING COMPANY

412 N. DAL PASO

HOBBS, N.M. 88240

(505) 393-3117

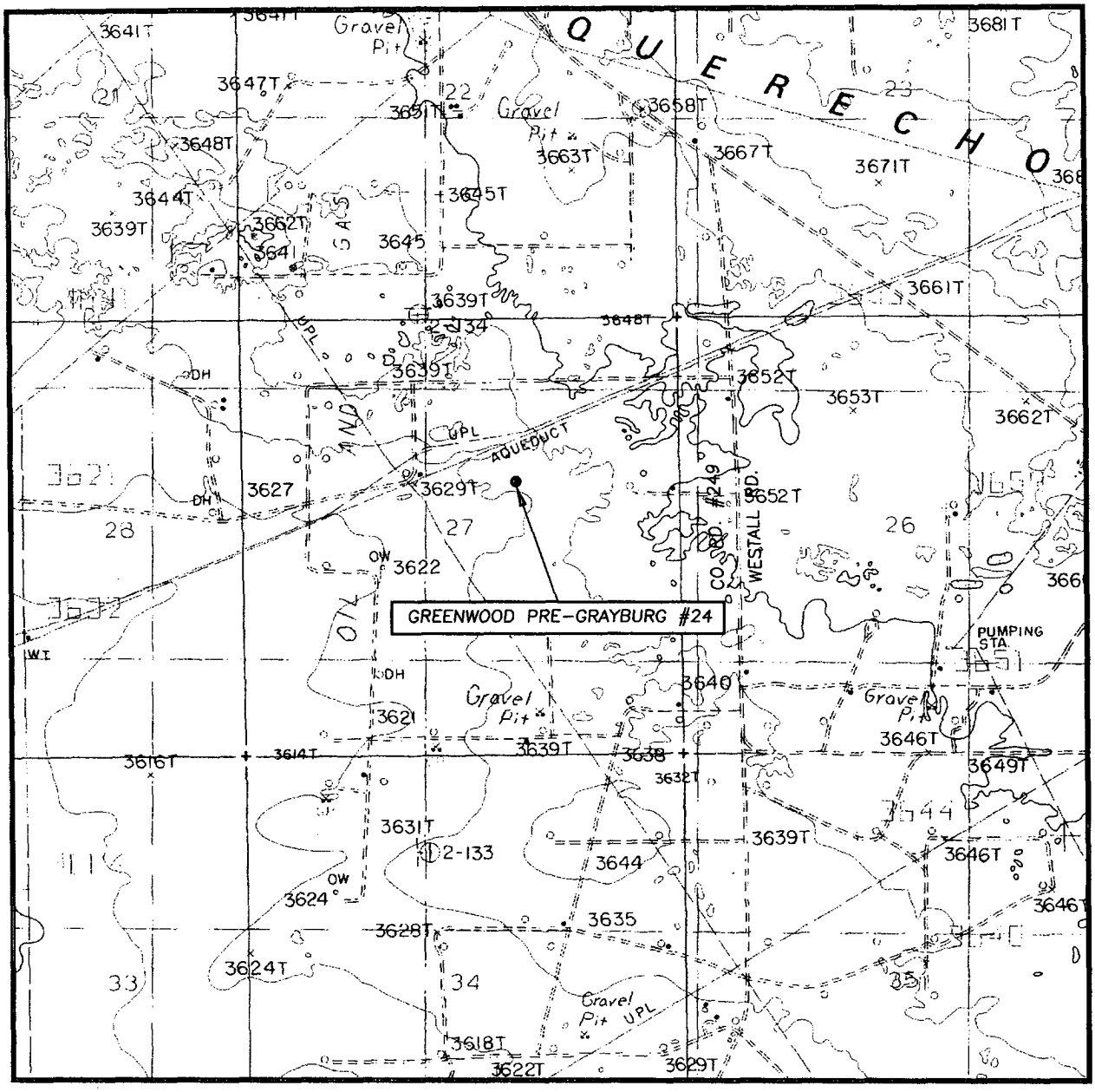
CHESAPEAKE OPERATING, INC.

GREENWOOD PRE-GRAYBURG #24
LOCATED 1980 FEET FROM THE NORTH LINE
AND 1980 FEET FROM THE EAST LINE OF SECTION 27,
TOWNSHIP 18 SOUTH, RANGE 31 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.

Survey Date: 08/16/06	Sheet 1 of 1 Sheets		
W.O. Number: 06.11.1332	Dr By: M.R.	Rev 1:N/A	
Date: 08/23/06	Disk: CD#6	06111332	Scale: 1"=100'

Revised EXHIBIT A-2

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
GREENWOOD LAKE, N.M. – 10'

SEC. 27 TWP. 18-S RGE. 31-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 1980' FNL & 1980' FEL

ELEVATION 3636'

OPERATOR MARBOB ENERGY CORPORATION

LEASE GREENWOOD PRE-GRAYBURG

U.S.G.S. TOPOGRAPHIC MAP
GREENWOOD LAKE, N.M.

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

Revised
EXHIBIT A-4

The gas from the Chesapeake Pre-grayburg #24 will be sold at the Chesapeake Greenwood Pre-grayburg #14 Battery (located in unit letter I of Sec. 27-18-31 Eddy Co. NM.) Chesapeake plans to lay the flow line from the PGU #24 to the PGU #16 located 1980's & 1980'E of sec. 27-18-31 Eddy Co. NM. The gas will then be sold thru the existing gas line to Duke Energy at the Chesapeake Pregrayburg 14 battery at meter sta. 718406. The Chesapeake Pre-grayburg #24 is located approx. 8 SSE of Loco Hills New Mexico.
The Greenwood Pre-grayburg #24 will be a off location on lease Custody transfer to Duke Ms# 718406.

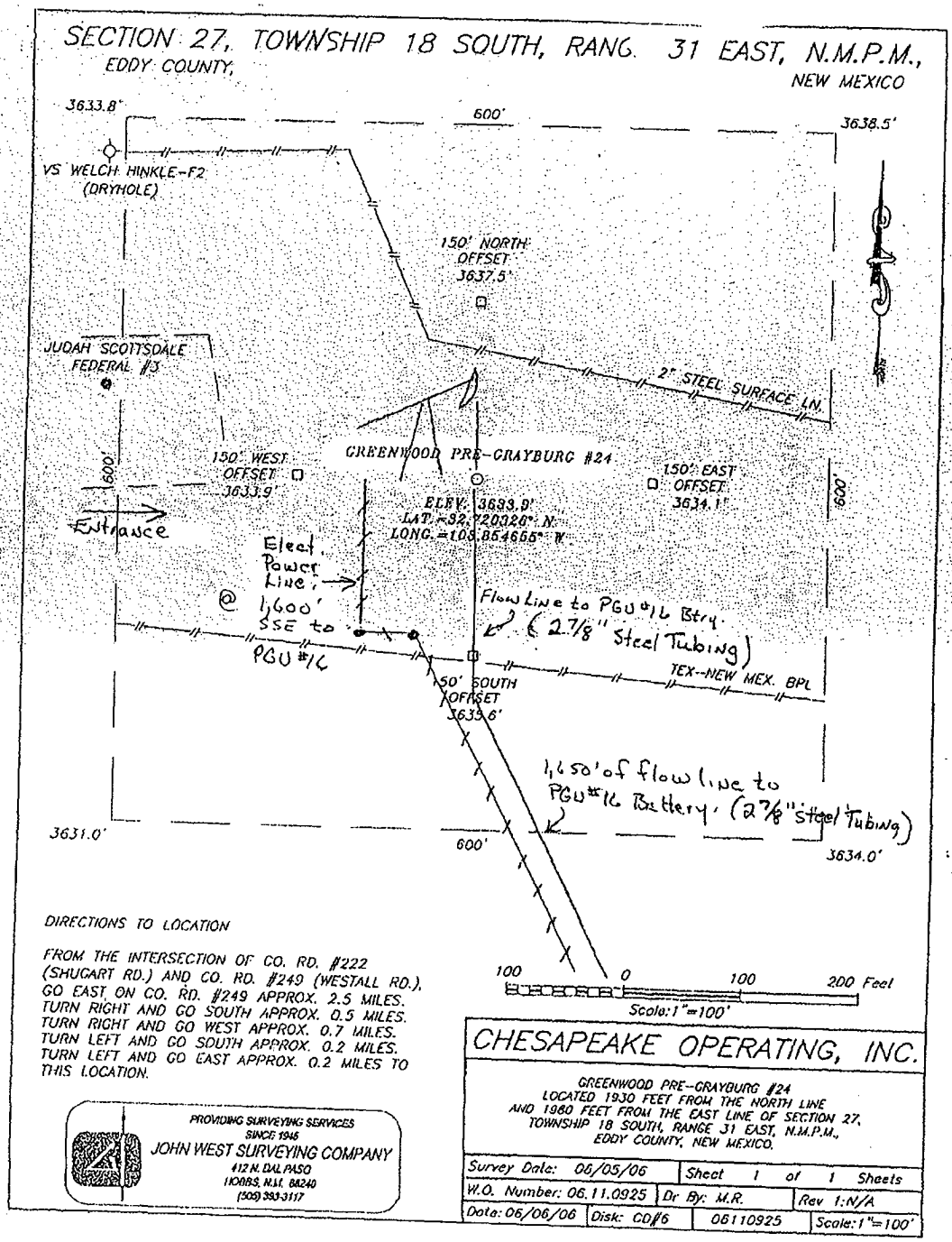


EXHIBIT C-2

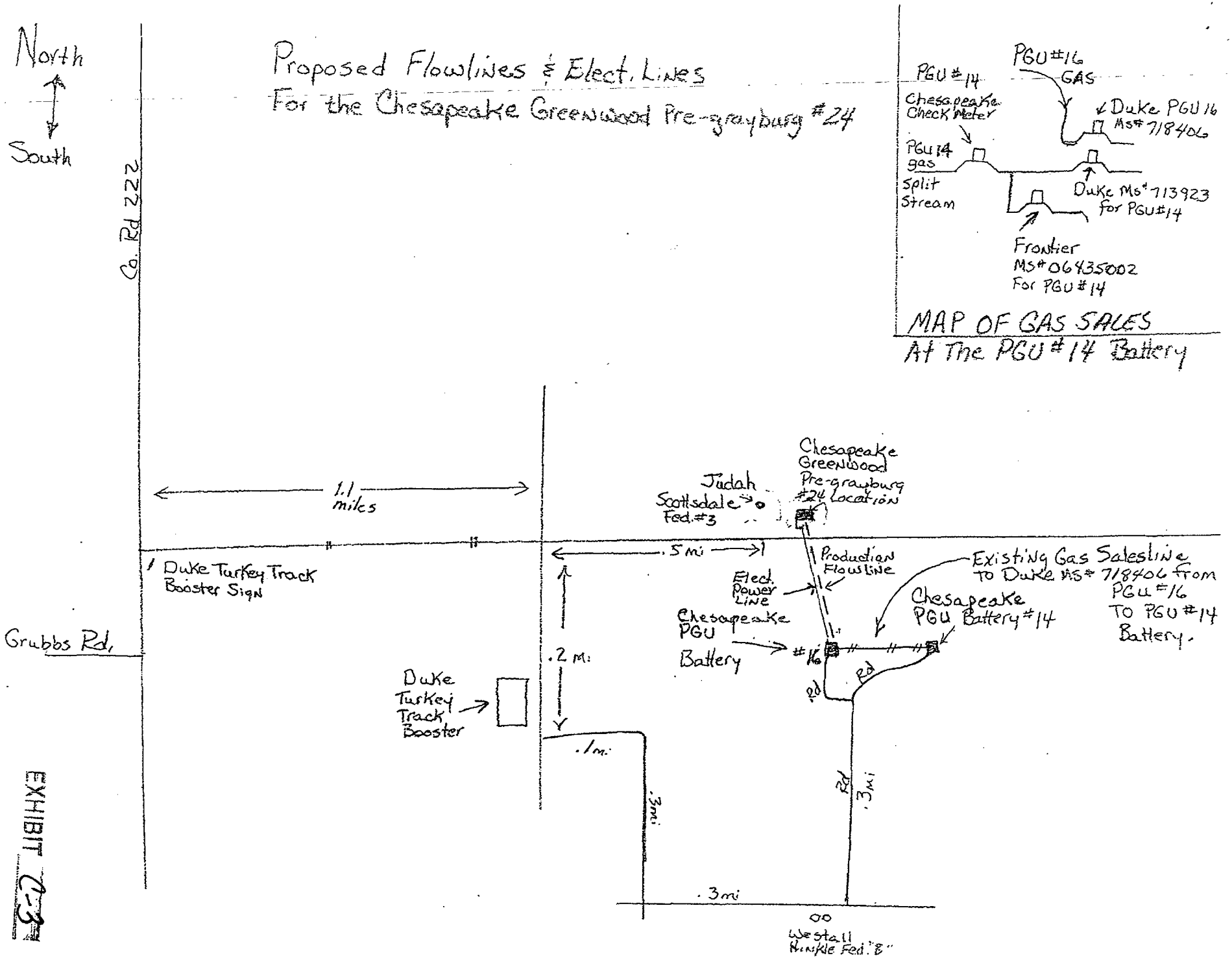

North
South
Proposed Flowlines & Elect. Lines
For the Chesapeake Greenwood Pre-grayburg #24
Co. Rd 222
1.1 miles
Judah Scottsdale Fed. #3
Chesapeake Greenwood Pre-grayburg #24 Location
.5 mi
Production Flowline
Elect. Power Line
Existing Gas Salesline to Duke MS# 718406 from PGU #16 to PGU #14 Battery.
Chesapeake PGU Battery #14
Chesapeake PGU Battery #16
Duke Turkey Track Booster Sign
Grubbs Rd.
.2 mi
Duke Turkey Track Booster
.1 mi
.3 mi
.3 mi
.3 mi
Rd
Westall Hinkle Fed. "B"
PGU #14
Chesapeake Check Meter
PGU #16 GAS
Duke PGU 16 MS# 718406
PGU 14 gas
Split Stream
Duke MS# 713923 for PGU #14
Frontier MS# 06435002 For PGU #14
MAP OF GAS SALES
At The PGU #14 Battery

EXHIBIT C-3

BLOWOUT PREVENTOR SCHEMATIC

CHESAPEAKE OPERATING INC

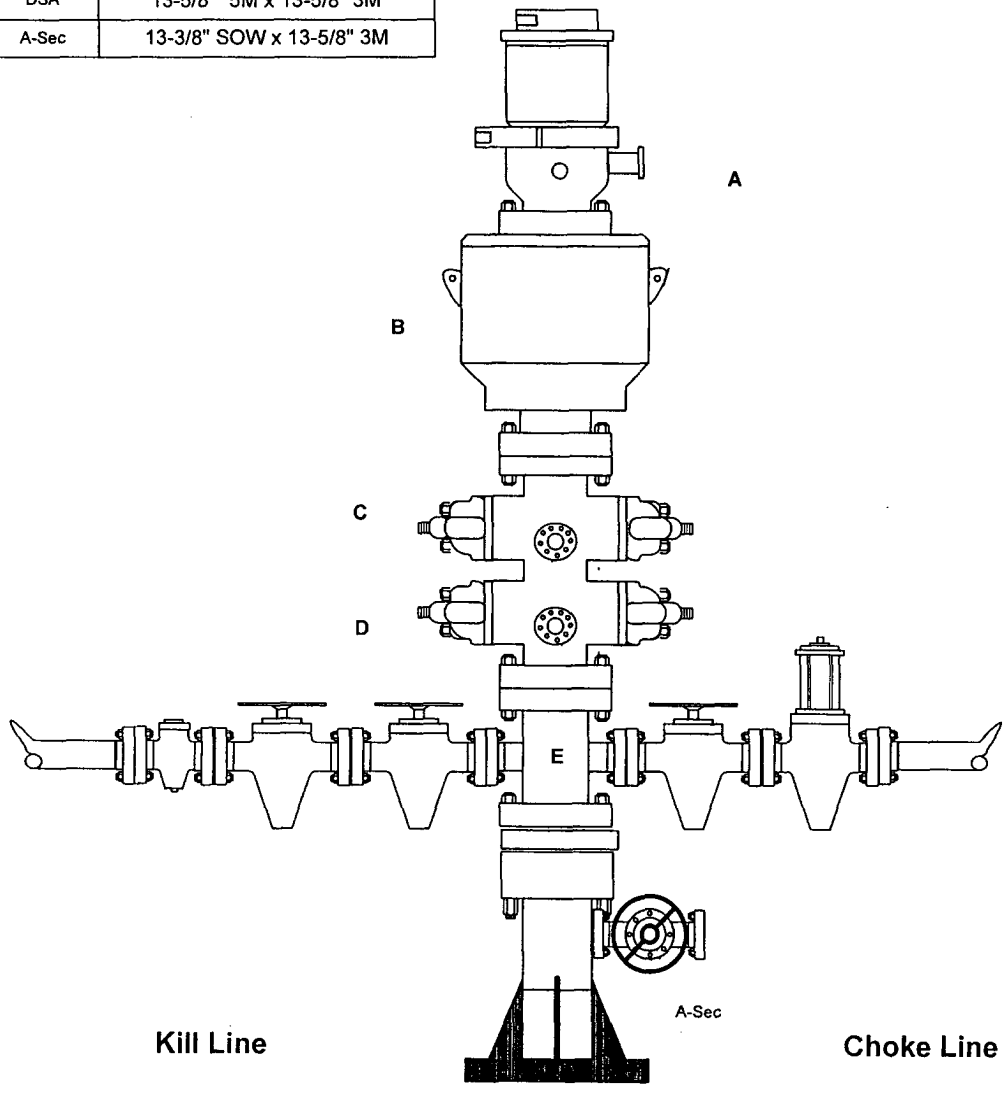
WELL : Greenwood Pre-Grayburg 24

RIG

COUNTY : Eddy **STATE:** New Mexico

OPERATION: Drill out below 13-3/8" Casing

	SIZE	PRESSURE	DESCRIPTION
A	13-5/8"	500#	Rot Head
B	13-5/8"	5,000#	Annular
C	13-5/8"	5,000#	Pipe Rams
D	13-5/8"	5,000#	Blind Rams
E	13-5/8"	5,000#	Mud Cross
DSA		13-5/8"" 5M x 13-5/8" 3M	
A-Sec		13-3/8" SOW x 13-5/8" 3M	



Kill Line

SIZE	PRESSURE	DESCRIPTION
2"	5,000#	Check Valve
2"	5,000#	Gate Valve
2"	5,000#	Gate Valve

Choke Line

SIZE	PRESSURE	DESCRIPTION
4"	5,000#	Gate Valve
4"	5,000#	HCR Valve

EXHIBIT F-1

BLOWOUT PREVENTOR SCHEMATIC

CHESAPEAKE OPERATING INC

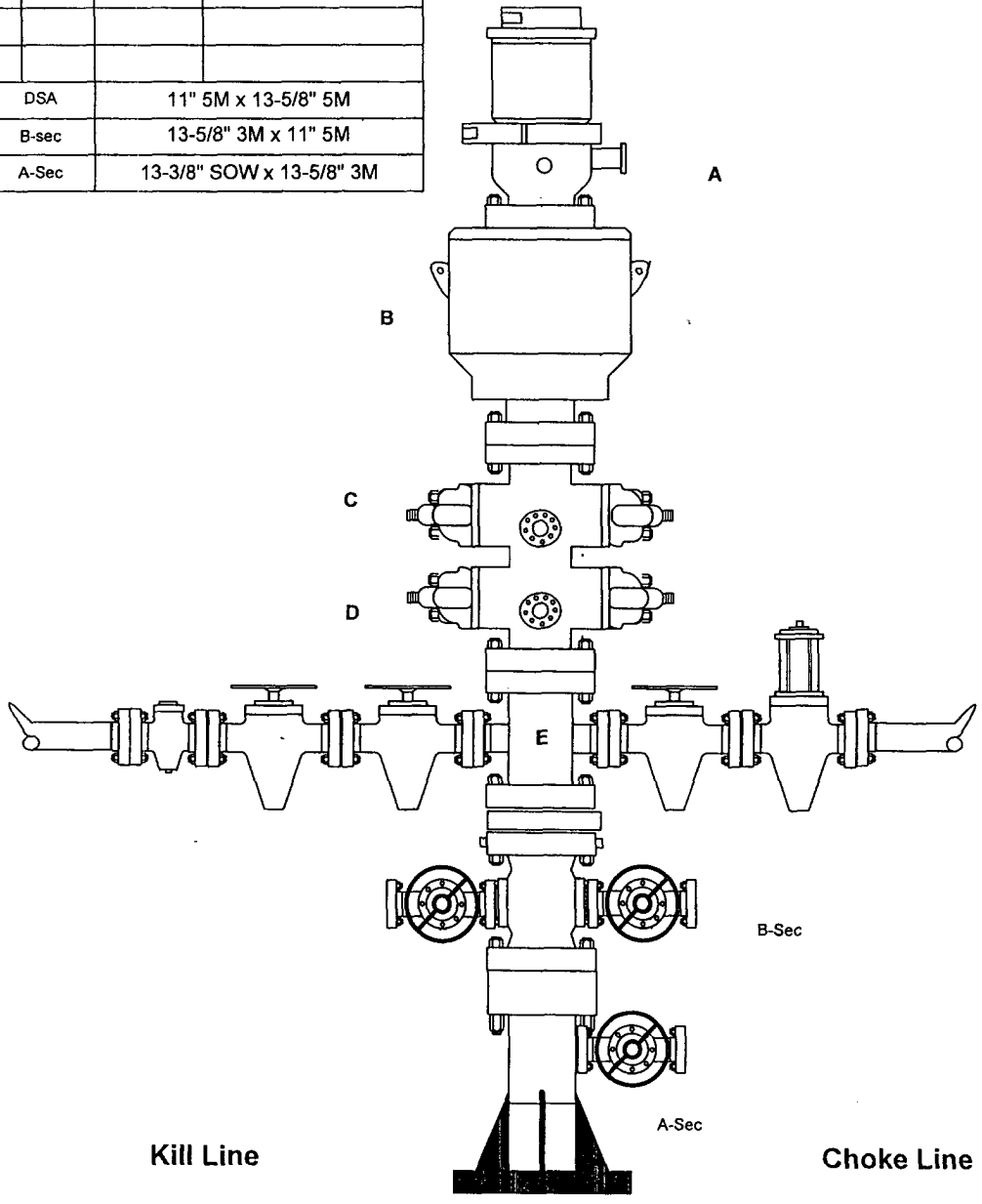
WELL : Greenwood Pre-Grayburg 24

RIG

COUNTY : Eddy STATE: New Mexico

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

	SIZE	PRESSURE	DESCRIPTION
A	13-5/8"	500#	Rot Head
B	13-5/8"	5,000#	Annular
C	13-5/8"	5,000#	Pipe Rams
D	13-5/8"	5,000#	Blind Rams
E	13-5/8"	5,000#	Mud Cross
DSA		11" 5M x 13-5/8" 5M	
B-sec		13-5/8" 3M x 11" 5M	
A-Sec		13-3/8" SOW x 13-5/8" 3M	



Kill Line

SIZE	PRESSURE	DESCRIPTION
2"	5,000#	Check Valve
2"	5,000#	Gate Valve
2"	5,000#	Gate Valve

Choke Line

SIZE	PRESSURE	DESCRIPTION
4"	5,000#	Gate Valve
4"	5,000#	HCR Valve

EXHIBIT E-2

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. An existing access road 100' 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 Co. Rd #222 (Shugart Rd) and Co. Rd #249 (Westall Rd), go East on Co. Rd #249 approx 2.5 miles. Turn Right and go South approx. 0.5 miles. Turn right and go West approx. 0.7 miles. Turn left and go South approx. 0.2 miles. Turn left and go East approx. 0.2 miles 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

The gas will be sold at the Chesapeake Greenwood PG #14 battery, located in Sec 27-18S-31E. Chesapeake plans to lay 1650' of 2 7/8" steel tubing from the Greenwood Pre-GB Unit #24 to Greenwood PG Unit #16, located @ 1980 FSL & 1980 FEL of Sec 27-18S-31E. The gas will then be sold thru the existing gas line to Duke Energy at the Greenwood Pre-GB #14 at meter sta. #718406. The Greenwood Pre-BG #24 will be a off location on lease Custody transfer to Duke Ms #718406 – See Exhibits C-1 to C-3.

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 27-18S-31E. All material (i.e. shale) will be acquired from private or commercial sources.

7. METHODS FOR HANDLING WASTE DISPOSAL

In-ground, burrito pits 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.

8. ANCILLARY FACILITIES

None

9. WELLSITE LAYOUT

The proposed site layout plat is attached showing 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 Oklahoma Corporation Commission 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. has an agreement with the grazing lessee)

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
Jarvis Hensley
District Manager – Northern Permian
P.O. Box 18496
Oklahoma City, OK 73154
(405) 879-7863 (OFFICE)
(405) 879-9529 (FAX)
jhensley@chkenergy.com

Sr. Drilling Engineer
Randy Patterson
P.O. Box 14896
Oklahoma City, OK 73154
(405) 767-4056 (OFFICE)
(405) 767-4225 (FAX)
(405) 388-9002 (MOBILE)
rpatterson@chkenergy.com

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

Asset Manager
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Oklahoma City, OK 73154-0496
405-879-7852 (OFFICE)
405-879-7930 (FAX)
amccalmont@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

14. CERTIFICATION

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which presently exist; that the statements made in this surface use plan are, to the best of my knowledge, true and correct; and, that the work associated with the operations proposed will be performed by operator (including contractors and subcontractors) submitting the APD, in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

By: _____

Date: 9/1/06

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	Depth
Rustler	3005	643
**Yates	1445	2203
**Queen	325	3323
**Grayburg/Premier	-305	3953
Capitan	-580	4228
*Brushy Canyon	-1060	4708
*Bone Spring	-2615	6263
*Wolfcamp	-5985	9633
TD		**10,000**
*Potentially productive zone (CHK)		
**Potentially Productive Zone (Owned by Others		

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	**Yates**	**2450-2600**
Oil	**Queen**	**3530-3600**
Oil	**Grayburg/Premier**	**3953-3970**
Oil	**Delaware**	**5770-6200**
Oil	**Bone Spring**	**7800-7830**
Oil	**Wolfcamp**	**9770-9780**

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

3. BOP EQUIPMENT: 5,000# 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 and F-2.

A. Equipment
1. The equipment to be tested includes all of the following that is installed on the well:
(a) Ram-type and annular preventers,
(b) Choke manifolds and valves,
(c) Kill lines and valves, 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 **5 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.

4. Record the remaining accumulator pressure at the end of the test sequence. Per the previous requirement, this pressure **should not be less** than the following pressures:

System 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 **full open** or **full closed** position. **Do not leave in neutral position**.

4. CASING AND CEMENTING PROGRAM

a. The proposed casing program will be as follows:

Purpose	Interval	Hole Size	Casing Size	Weight	Grade	Thread	Condition
Surface	0-520'	17 1/2"	13 3/8	48#	H-40	STC	NEW
Intermediate	0-3000'	11 "	8 5/8	32#	J55	LTC	NEW
Production	0-10000'	7 7/8 "	5 1/2	17#	L-80	LTC	NEW

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

Interval	Type	Amount	Yield	Washout	Excess
0-520	Premium plus (lead) Class C (tail)	200 sks 340 sks	1.98 1.34	40 40	100 100
520-3000	Interfill C (lead) Premium Plus (tail)	470 180	2.45 1.34	20 20	75 50
3000-9000	Interfill H (lead) Premium plus (tail)	480 340	2.45 1.31	10 10	25 25

5. MUD PROGRAM

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

Interval	Mud Type	Mud Weight	Viscosity	Fluid Loss
0-520	FW	8.6-9.0	32-36	NC
520-3000	FW/Brine	9.9-10	28-29	NC
3000-10000	FW/Brine	8.4-9.0	28-29	20-30

In-ground, burrito pits 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 4330#. No abnormal pressures or temperatures are anticipated.
b. Hydrogen sulfide gas is not anticipated.

SPECIAL DRILLING STIPULATIONS

THE FOLLOWING DATA IS REQUIRED ON THE WELL SIGN

Operator's Name: Chesapeake Operating, Inc. Well Name & #: Greenwood Pre-Grayburg #24
Location 1980 F N L & 1980 F E L; Sec. 27, T. 18 S., R. 31 E.
Lease #: LC-029392B County: Eddy State: New Mexico

The Special stipulations check marked below are applicable to the above described well and approval of this application to drill is conditioned upon compliance with such stipulations in addition to the General Requirements. The permittee should be familiar with the General Requirements, a copy of which is available from a Bureau of Land Management office. EACH PERMITTEE HAS THE RIGHT OF ADMINISTRATIVE APPEAL TO THESE STIPULATIONS PURSUANT TO TITLE 43 CFR 3165.3 AND 3165.4.

This permit is valid for a period of one year from the date of approval or until lease expiration or termination whichever is shorter.

I. SPECIAL ENVIRONMENT REQUIREMENTS

(X) Lesser Prairie Chicken (stips attached)
( ) San Simon Swale (stips attached)
( ) Flood plain (stips attached)
( ) Other

II. ON LEASE - SURFACE REQUIREMENTS PRIOR TO DRILLING

(X) The BLM will monitor construction of this drill site. Notify the (X) Carlsbad Field Office at (505) 234-5972 ( ) Hobbs Office (505) 393-3612, at least 3 working days prior to commencing construction.

(X) Roads and the drill pad for this well must be surfaced with 6 inches of compacted caliche upon completion of well and it is determined to be a producer.

( ) All topsoil and vegetation encountered during the construction of the drill site area will be stockpiled and made available for resurfacing of the disturbed area after completion of the drilling operation. Topsoil on the subject location is approximately _____inches in depth. Approximately _____cubic yards of topsoil material will be stockpiled for reclamation.

(X) Other. Reserve pits will be North, and the v-door will be to the East.

III. WELL COMPLETION REQUIREMENTS

( ) A Communitization Agreement covering the acreage dedicated to the well must be filed for approval with the BLM. The effective date of the agreement must be prior to any sales.

(x) Surface Restoration: If the well is a producer, the reserve pit(s) will be backfilled when dry, and cut-and-fill slopes will be reduced to a slope of 3:1 or less. All areas of the pad not necessary for production must be re-contoured to resemble the original contours of the surrounding terrain, and topsoil must be re-distributed and re-seeded with a drill equipped with a depth indicator (set at depth of ½ inch) with the following seed mixture, in pounds of Pure Live Seed (PLS), per acre. If broadcasting, the seeding rate must be doubled.

( ) A. Seed Mixture 1 (Loamy Sites)
Side Oats Grama (*Bouteloua curtipendula*) 5.0
Sand Dropseed (*Sporobolus cryptandrus*) 1.0
Plains lovegrass (*Eragrostis intermedia*) 0.5

(X) B. Seed Mixture 2 (Sandy Sites)
Sand Dropseed (*Sporobolus crptandrus)* 1.0
Sand Lovegrass (*Eragostis trichodes*) 1.0
Plains Bristlegrass (*Setaria magrostachya*) 2.0

( ) C. Seed Mixture 3 (Shallow Sites)
Side oats Grama (*Bouteloua curtipendula)* 5.0
Green Spangletop (*Leptochloa dubia*) 2.0
Plains Bristlegrass (*Setaria magrostachya*) 1.0

( ) D. Seed Mixture 4 (Gypsum Sites)
Alkali Sacaton (*Sporobolus airoides*) 1.0
Four-Wing Saltbush (*Atriplex canescens*) 5.0

( ) OTHER SEE ATTACHED SEED MIXTURE

Seeding should be done either late in the fall (September 15 - November 15, before freeze up, or early as possible the following spring to take advantage of available ground moisture.

( ) Other

RESERVE PIT CONSTRUCTION STANDARDS

The reserve pit shall be constructed entirely in cut material and lined with 6-mil plastic.
Mineral material extracted from within the boundary of the APD during construction of the well pad and reserve pits and be used for the construction of this well pad and its immediate access road only, as long as that portion of the access road it is use on remains on-lease. Removal of any additional material from this location for construction or improvement of other well pads and other access or lease roads must first be purchased from BLM.

Reclamation: Reclamation of this type of deep pit will consist of pushing the pit walls into the pit when sufficiently dry to support track equipment. The pit liner is NOT TO BE RUPTURED to facilitate drying; a ten month period after completion of the well is allowed for drying of the pit contents.
The pit area must be contoured to the natural terrain with all contaminated drilling mud buried with at least 3 feet of clean soil. The reclaimed area will then be seeded as specified in this permit.

OPTIONAL PIT CONSTRUCTION STANDARDS

The reserve pit may be constructed in predominantly fill material if:

(1) Lined as specified above and

(2) A temporary or emergency pit may be constructed immediately adjacent to the reserve pit as long as the pit remains within the APD boundary. Mineral material removed from this pit may be used for the construction of this well pad only and its immediate access road, as long as that portion of the access road the material is used on remains on-lease. Removal of any material from the APD boundary for use on other well locations or roads must first be purchased from BLM.

Reclamation of the reserve pit consists of bulldozing all reserve pit contents and contaminants into the borrow pit and covering with a minimum of 3 feet of clean soil material. The entire area must be re-contoured, all trash removed, and reseeded as specified in this permit.

CULTURAL

Whether or not an archaeological survey has been completed and notwithstanding that operations are being conducted as approved, the lessee/operator/grantee shall notify the BLM immediately if previously unidentified cultural resources are observed during surface disturbing operations. From the time of the observation, the lessee/operator/grantee shall avoid operations that will result in disturbance to these cultural resources until directed to process by BLM.

TRASH PIT STIPS

All trash, junk, and other waste material shall be contained in trash cages or bins to prevent scattering and will be removed and deposited in an approved sanitary landfill. Burial on site is not permitted.

CONDITIONS OF APPROVAL - DRILLING

Well Name & No. 24-Greenwood Pre-Grayburg
Operator's Name: Chesapeake Operating Inc.
Location: 1980FNL, 1980FEL, Section 27. T-18-S, R-31-E
Lease: LC-029392B

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) 234-5972 or (505) 361-2822 - for wells in Eddy County, in sufficient time for a representative to witness:

A. Spudding

B. Cementing casing: **13-3/8** inch **8-5/8** inch **5-1/2** inch

C. BOP tests

2. **Hydrogen Sulfide has been reported in Sections 29 and 30 in the Queen-Grayburg with concentrations between 200-2000 ppm. It is recommended that monitoring equipment be available prior to drilling into the Queen formation and that a H2S drilling plan be activated if H2S is encountered.**

3 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.

6. A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales.

7. Gamma-Ray/Neutron logs shall be run from the base of the Salado Formation to the surface; cable speed not to exceed 30 feet per minute.

II. CASING:

1. The **13-3/8** inch surface casing shall be set **a minimum of 25 feet into the Rustler Anhydrite approximately 650 feet**, below usable water 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.

Fresh water mud to be used until surface casing is set.

2. The minimum required fill of cement behind the **8-5/8** inch intermediate casing is **cement shall circulate to surface. Recommended casing set point in the Seven Rivers Anhydrite. Possible lost circulation in the Grayburg and San Andres/Brushy Canyon formations.**

3. The minimum required fill of cement behind the **5-1/2** inch production casing is **cement shall extend a minimum of 200 feet into the intermediate casing.**

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 **13-3/8** 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.

BOP manifold must comply with Onshore Order 2. Diagram not included with APD.

2. Minimum working pressure of the blowout preventer and related equipment (BOPE) required for drilling below the surface casing shall be **5M** psi. Minimum working pressure of the blowout preventer and related equipment (BOPE) required for drilling below the **8-5/8** inch casing shall be **5M** psi.

3. The appropriate BLM office shall be notified in sufficient time for a representative to witness the tests.
- **Pressure shall be maintained for at least 10 minutes or until requirements of test are met, whichever is longer. Onshore Order 2 III.A.2.i.**
- 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.
- BOPE must be tested prior to drilling into the **Wolfcamp** Formation by an independent service company.

IV. 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. Monitoring equipment shall consist of the following:

1. Recording pit level indicator to indicate volume gains and losses.
2. Mud measuring device for accurately determining the mud volumes necessary to fill the hole during trips.
3. Flow-sensor on the flow line to warn of abnormal mud returns from the well.