ATS-10-323
EA-10-558

Form 3160-3
(August 2007)

RECEIVED
APR 29 2010
NMOCD ARTESIA

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Artesia

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM02862

6 If Indian, Allottee or Tribe Name

1a. Type of Work: ☒ DRILL ☐ REENTER

CONFIDENTIAL

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

8. Lease Name and Well No.
PLU BIG SINKS 22 FEDERAL COM 1H (38154)

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

2. Name of Operator
CHESAPEAKE AGENT FOR BOPCO
Contact: LINDA GOOD
E-Mail: linda good@chk com (147179)

9 API Well No.
30-015-37838

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

3b. Phone No. (include area code)
Ph: 405-935-4275

10. Field and Pool, or Exploratory
WILDCAT BONE SPRING (96037)

4. Location of Well *(Report location clearly and in accordance with any State requirements *)*

At surface SESE ~~100FSL~~ 175 ~~400FEL~~ 409

11. Sec., T., R., M., or Blk. and Survey or Area
Sec 22 T24S R30E Mer NMP

At proposed prod. zone NENE 330FNL 400FEL

14. Distance in miles and direction from nearest town or post office*
30 MILES ESE OF LOVING, 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	17. Spacing Unit dedicated to this well
	1920.00	160.00
18. Distance from proposed location to nearest well, drilling, completed, applied for, on this lease, ft	19. Proposed Depth	20. BLM/BIA Bond No. on file
	~~12871~~ MD 12796' ~~8185~~ TVD 8148	NM2634
21. Elevations (Show whether DF, KB, RT, GL, etc.	22. Approximate date work will start	23. Estimated duration
3400 GL		

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)	Date
(Electronic Submission)	LINDA GOOD Ph: 405-935-4275	03/01/2010

Title
SR. REGULATORY COMPLIANCE SPEC

Approved by (Signature)	Name (Printed/Typed)	Date
Cathy for /s/ Don Peterson		APR 27 2010

Title	Office
FIELD MANAGER	CARLSBAD FIELD OFFICE

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

APPROVAL FOR TWO YEARS

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

Additional Operator Remarks (see next page)

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Electronic Submission #82063 verified by the BLM Well Information System
For CHESAPEAKE AGENT FOR BOPCO, sent to the Carlsbad

Carlsbad Controlled Water Basin

NSL-6171-A

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

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

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 15, 2009

Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-37838	96037	Wildcat; Bone Spring

Property Code	Property Name	Well Number
38154	PLU BIG SINKS "22" FEDERAL ~~COM~~	1H

OGRID No.	Operator Name	Elevation
147179	CHESAPEAKE OPERATING CO.	3400'

Surface Location

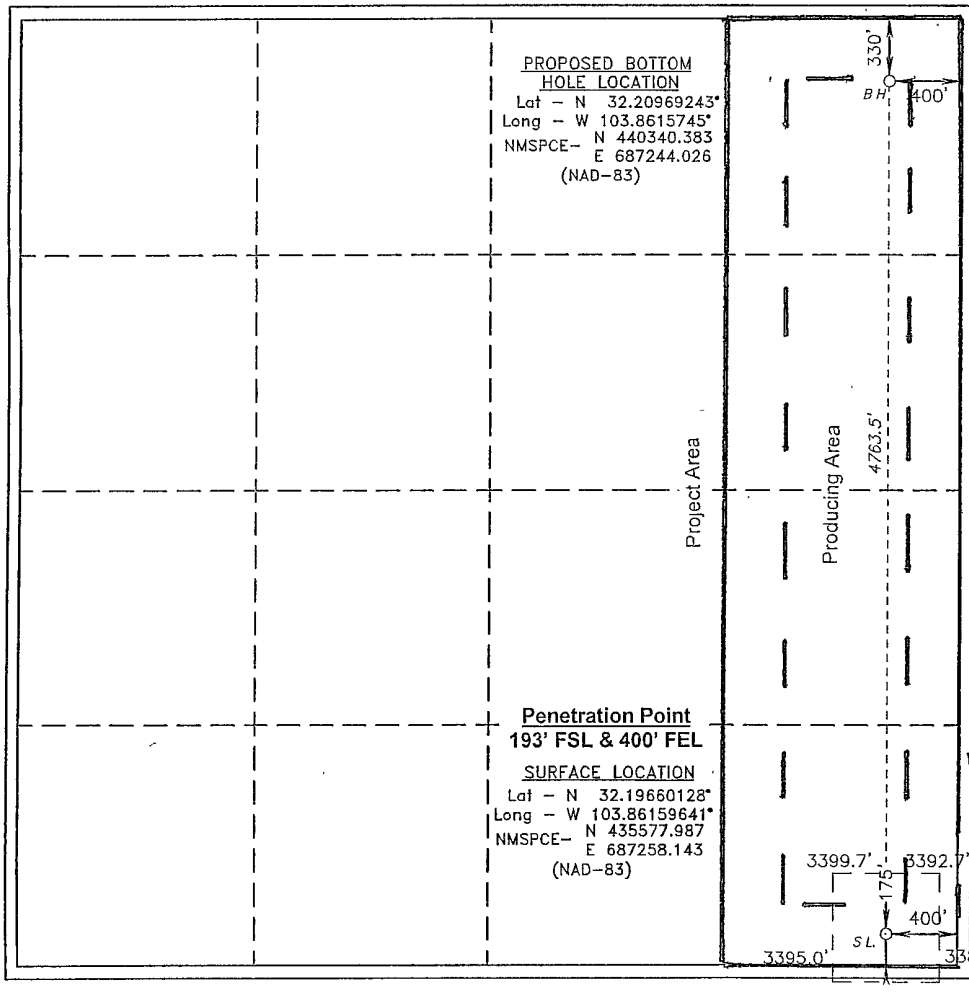
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	22	24 S	30 E		175	SOUTH	400	EAST	EDDY

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
A	22	24 S	30 E		330	NORTH	400	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			NSL-6171-A

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 contained 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 a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature 3/23/2010 Date

Bryan Arrant
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 supervison, and that the same is true and correct to the best of my belief.

Date Surveyed MARCH 12, 2010

Signature & Seal of Professional Surveyor

GARY L. JONES NEW MEXICO 7977 REGISTERED PROFESSIONAL SURVEYOR

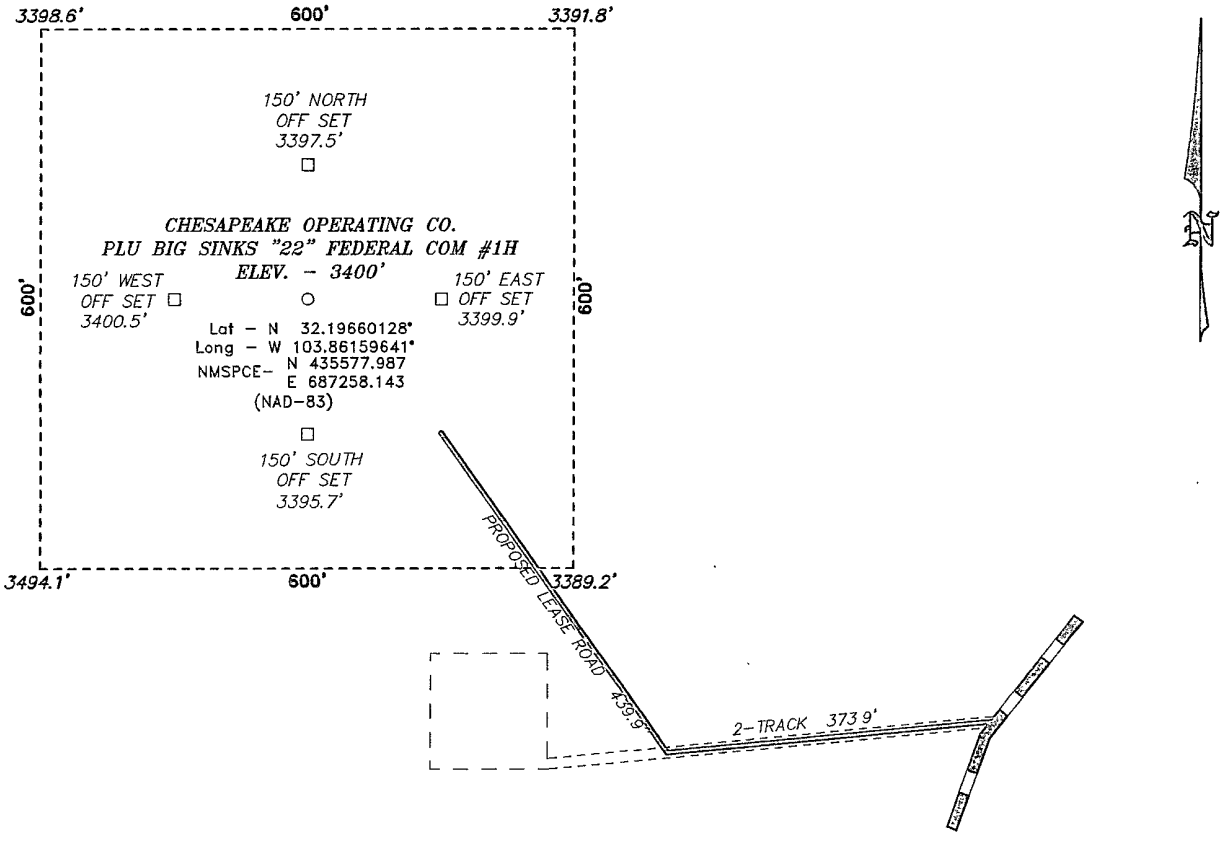
Certificate No. Gary L. Jones 7977

BASIN SURVEYS

NSL-6171-A

Revised EXHIBIT A-1

SECTION 22, TOWNSHIP 24 SOUTH, RANGE 30 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



200 0 200 400 FEET

SCALE: 1" = 200'

Directions to Location:

FROM THE JUNCTION OF TWIN WELLS AND McDONALD, GO NORTHEAST 0.7 MILES TO PROPOSED LEASE ROAD.

CHESAPEAKE OPERATING CO.

REF: PLU BIG SINKS "22" FEDERAL COM #1H / WELL PAD TOPO

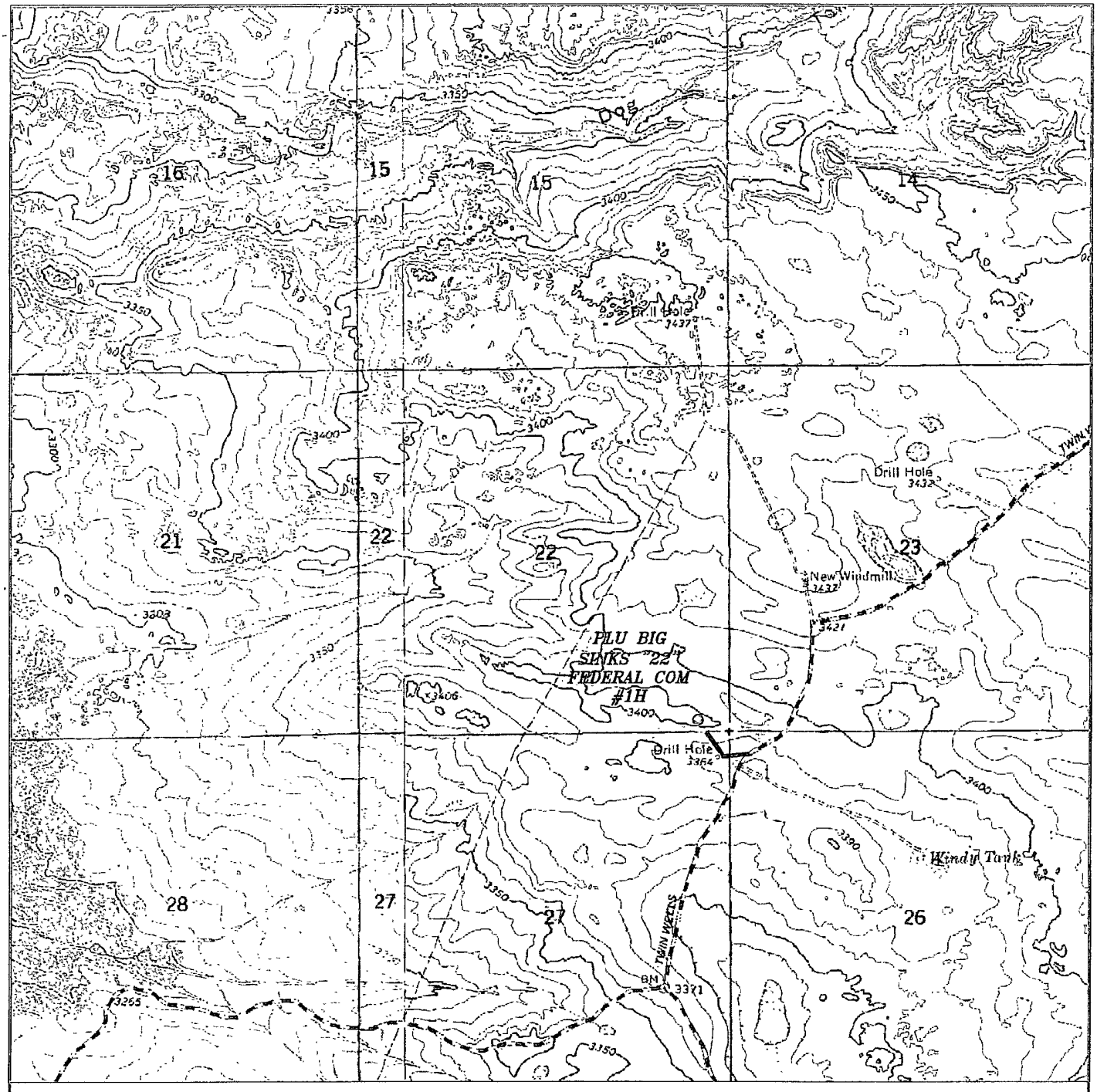
THE PLU BIG SINKS "22" FEDERAL COM #1H LOCATED 175' FROM THE SOUTH LINE AND 400' FROM THE EAST LINE OF SECTION 22, TOWNSHIP 24 SOUTH, RANGE 30 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

BASIN SURVEYS P.O. BOX 1786 -- HOBBS, NEW MEXICO

W.O. Number: 22488	Drawn By: J. SMALL
Date: 03-17-2010	Disk: JMS 22488
Survey Date: 03-12-2010	Sheet 1 of 1 Sheets

Revised

A-2



PLU BIG SINKS "22" FEDERAL COM #1H
Located 175' FSL and 400' FEL
Section 22, Township 24 South, Range 30 East,
N.M.P.M., Eddy County, New Mexico.

Basin Surveys
focused on excellence in the oilfield

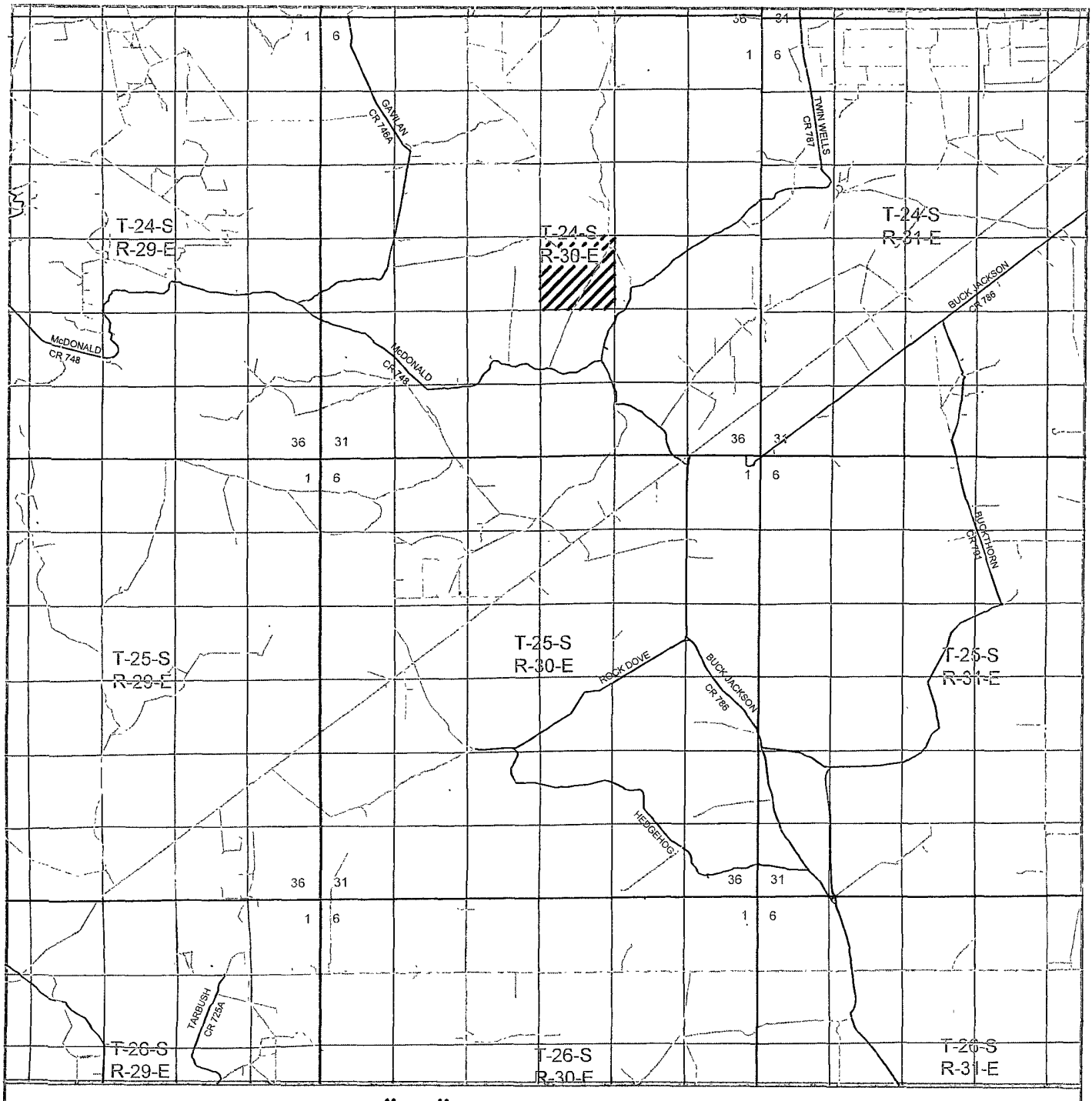
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 – Office
(575) 392-2206 – Fax
basinsurveys.com

W.O. Number:	JMS 22488
Survey Date:	03-12-2010
Scale:	1" = 2000'
Date:	03-17-2010

N

CHESAPEAKE OPERATING CO.

Revised
EXHIBIT A-3



PLU BIG SINKS "22" FEDERAL COM #1H
Located 175' FSL and 400' FEL
Section 22, Township 24 South, Range 30 East,
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Hobbs, New Mexico 88241
(575) 393-7316 – Office
(575) 392-2206 – Fax
basinsurveys.com

W.O. Number:	JMS 22488
Survey Date:	03-12-2010
Scale:	1" = 2 Miles
Date:	03-17-2010

N

CHESAPEAKE OPERATING CO.

REVISED
EXHIBIT A-4

PLU BIG SINKS "22" FEDERAL COM #1H
Located 175' FSL and 400' FEL
Section 22, Township 24 South, Range 30 East,
N.M.P.M., Eddy County, New Mexico.

basin surveys
focused on excellence in the oilfield

P.O. Box 1786
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(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number: JMS 22488

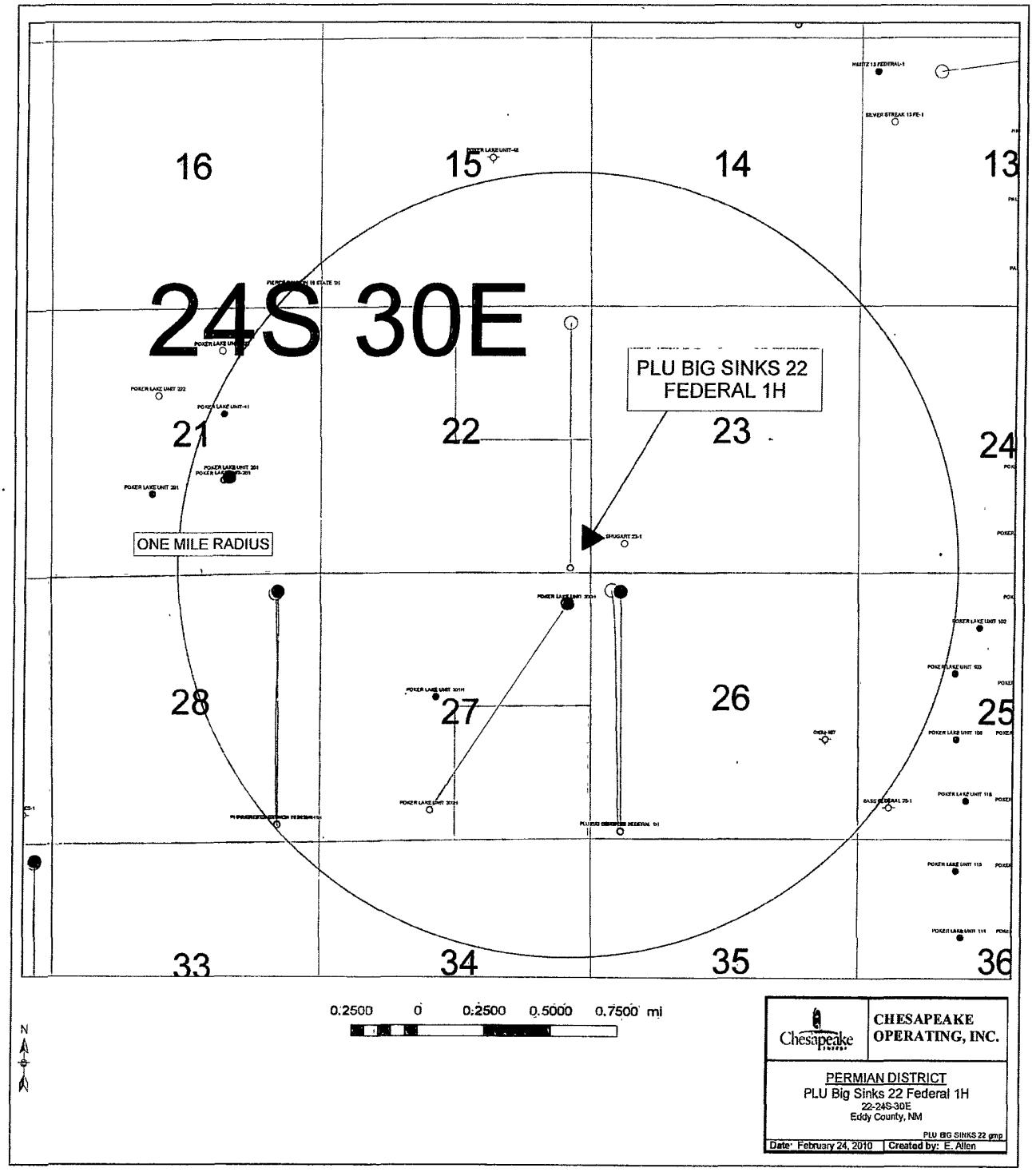
Scale: 1" = 2000'

YELLOW TINT - USA LAND
BLUE TINT - STATE LAND
NATURAL COLOR - FEE LAND

N

CHESAPEAKE OPERATING CO.

Revised
EXHIBIT H-5


24S 30E
PLU BIG SINKS 22 FEDERAL 1H
ONE MILE RADIUS
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N
Chesapeake
CHESAPEAKE OPERATING, INC.
PERMIAN DISTRICT
PLU Big Sinks 22 Federal 1H
22-24S-30E
Eddy County, NM
PLU BIG SINKS 22.gmp
Date: February 24, 2010
Created by: E. Allen

EXHIBIT B

Additional Operator Remarks:

CHESAPEAKE OPERATING, INC., (AGENT FOR BOPCO), RESPECTFULLY REQUESTS PERMISSION TO DRILL A WELL TO 12,871? 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 PROGRAM 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 LATSHAW RIG #6 LAYOUT, EXHIBIT F-1 TO F-2 BOP & CHOKE MANIFOLD AND EXHIBIT G DIRECTIONAL DRILL PLAN

EXHIBIT E ARCHAEOLOGICAL SURVEY WILL BE DELIVERED TO THE BLM WHEN COMPLETED.

CHESAPEAKE OPERATING, INC. HAS AN AGREEMENT WITH THE SURFACE OWNER.

~~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.

(CHK PN 631298)

Approved as agent only.

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

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

Approval of this application does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease, which would entitle the applicant to conduct operations thereon.

1. FORMATION TOPS

The estimated tops of important geologic markers are as follows:

Formation	SUBSEA	KBTVD	SUBSEA (BASE)	KBTVD (BASE)
Base of Salt			-570'	3990'
Manzanita Marker	-1720'	5,140'		
Brushy Canyon	-3084	6,504'		
Lower Brushy Canyon	-4133	7,553'		
Bone Spring Lime	4440'	7860'		
TOTAL DEPTH	**12,796' MD**			

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	Brushy Canyon	7,553'
Oil/Gas	Bone Spring	8,085'

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

3. BOP EQUIPMENT:

Will have a 5000 psi rig stack (see proposed schematic) for drill out below surface casing; this system will be tested to 5000 psi working pressure and 3500 psi working pressure for the annular preventer.

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-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 the rated working pressure.
7. 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 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 PROGRAM

a. The proposed casing program will be as follows:

Purpose	Interval	Hole Size	Casing Size	Weight	Grade	Thread	Condition
Surface	Surface – 700'	17-1/2"	13-3/8"	48.0#	H-40	STC	New
Intermediate	Surface – 4010'	11"	9-5/8"	40.0#	J-55	LTC	New
Production	Surface – 12,826'	7-7/8"	5-1/2"	20.0#	L-80	LTC	New

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

c. Casing Safety Factors:

13-3/8" Surface Casing: SFb = 1.7, SFc = 1.66 and SFt = 2.49
8-5/8" Intermediate Casing: SFb = 1.8, SFc = 2.51 and SFt = 1.98
5-1/2" Production Casing: SFb = 1.30, SFc = 2.39 and SFt = 1.37

d. The cementing program will be as follows:

5. Cementing Program

Interval	Type	Weight	Amount	Yield	Top Of Cement	Excess
Surface	Single Slurry	13.5 ppg	762 sks	1.73	Surface	150%
Intermediate	Lead:	10.2 ppg	710 sks	2.32	Surface	150%
	Tail:	14.2 ppg	490 sks	1.37		150%
Production 1st Stage	Lead	10.2 ppg	120 sks	2.17	2,800	200%
	Tail	14.8 ppg	100 sks	1.33		
Production 2nd Stage	Lead	12.0 ppg	360 sks	1.83	4,500'	40%
	Tail	13.2 ppg	788 sks	1.74		

See COA

Final cement volumes will be determined by caliper.
Surface casing shall have at least one centralizer installed on each of the bottom three joints starting with the shoe joint.

Pilot Hole Plugging Plan:

No pilot hole planned

6. MUD PROGRAM

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

Interval	Mud Type	Mud Weight	Viscosity	Fluid Loss
0' – 700'	FW/Gel	8.4 – 8.7	32-34	NC
700' – 4,010'	Brine	9.9 – 10.1	28-30	NC
4,010' – 7,800'	FW/Cut Brine	8.4 – 8.5	28-29	NC
7,800'-TD	FW/Cut Brine	8.8-9.5	34-38	10-25

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. Sanitary wastes will be contained in a chemical porta-toliet and then hauled to an approved sanitary landfill.

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

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

7. TESTING, LOGGING AND CORING

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

a. Drill stem tests are not planned.

See COA — b. The logging program will consist of Natural GR, Density-Neutron, PE & Dual Laterolog from pilot hole TD to surface casing; Neutron-GR surface casing to surface. GR in lateral.

c. Cores samples are not planned.

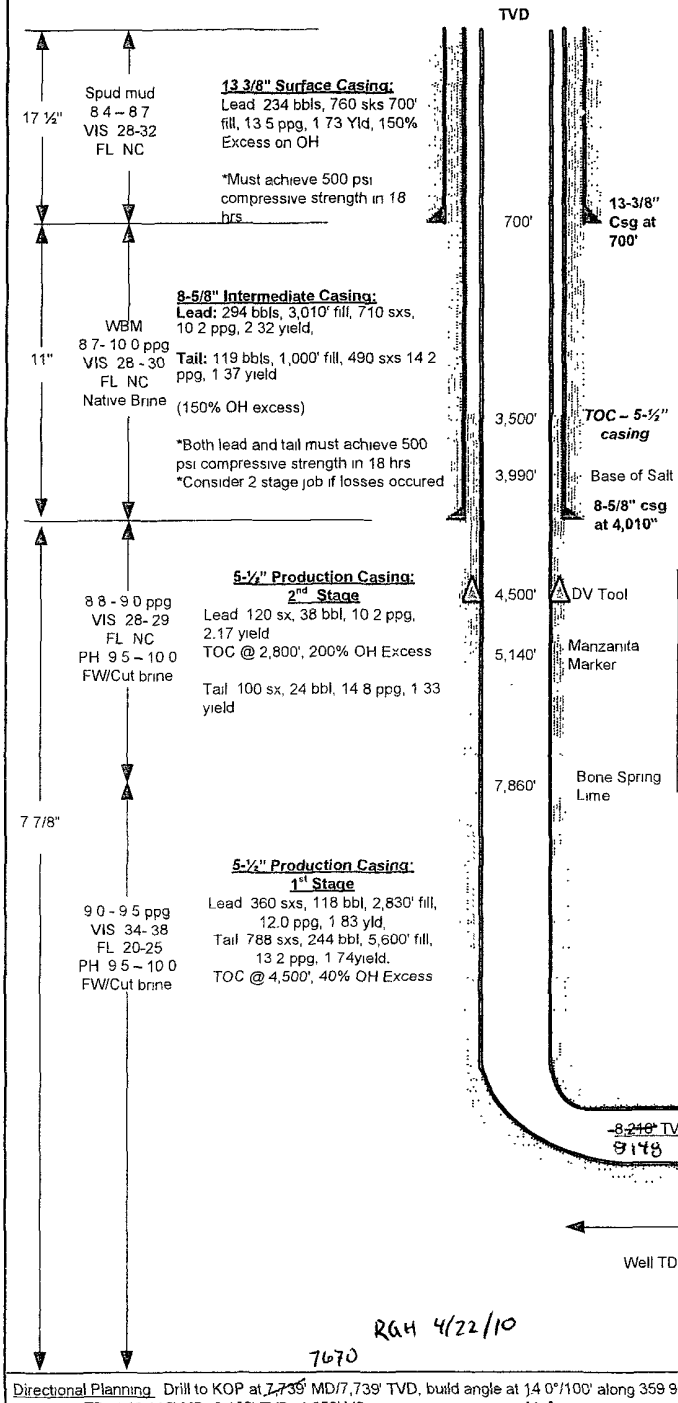
8. ABNORMAL PRESSURES AND HYDROGEN SULFIDE

a. The estimated bottom hole pressure is 3700 psi.

b. No abnormal pressures or temperatures are anticipated.

Chesapeake Operating Inc	Proposed Drilling Program

Well : **PLU BIG SINKS 22 FEDERAL COM 1H**
Field : **Delaware Basin North**
County : **Eddy** **State : NM**
Surf Locat : **Section 22-24S-30E, 100' FSL & 400' FEL Lat: 32.196276 Long: -103.861049**
BH Locat : **Section 22-24S-30E, 330' FNL & 400' FEL Lat: 32.209617 Long: -103.861064**
KB Elev : **3,420'** **Grd Elev : 3,400'**



Wellhead Equipment

Tree Connection	
Backpressure Valve	
Tubing Spool	11" 5M x 7 1/16" 10K
Casing Spool	11" 5M x 11" 5M
Bradenhead	11-3/4" SOW x 11" 5M

Logging Program

Company	Log Type	Interval
XX	Intermediate Log Triple Combo with dual inductionlog from +/- 8,000' to 4,010' and GR/Neutron to Surface	
XX	MWD-GR on BHA	Intermediate, Curve and lateral

Mud logging personnel at intermediate casing shoe to TD

Tubular Detail

	Size	Wt	Grd	Conn.	From	To
Surface	13-3/8"	48#	H-40	STC	0	700'
Inter	8-5/8"	32#	J-55	LTC	0	4,010'
Prod	5 ½"	20 0#	L-80	LTC	0'	Lateral TD

Lateral Directional Plan

	MD	INC	AZM	TVD	BUR	DLS
KOP	7,739'	0	0	7,739'	0	0
EOB	8,384'	90 3	359 95	8,148'	14 0	14 0
TD	12,826'	90 3	359 95	8,125'	0	0

Vendors

Rig	Latshaw 6
Directional	XX
Mud	XX
Cement	XX
Wellhead	XX
Wireline Logging	XX
Mud Logging	XX

**Mud logging at intermediate casing shoe

*Potentially productive zone

RGH 4/22/10

Directional Planning Drill to KOP at ~~7,739'~~ MD/7,739' TVD, build angle at 14 0°/100' along 359 95° azimuth to 90 3° inc at ~~8,384'~~ MD/8,148' TVD Drill lateral section to TD at ~~12,826'~~ MD, 8,125' TVD, 4,853' VS.

Drawn by	Date	AFE No	Property No	Drilling Engineer	Drilling Superintendent	Geologist
YA	Rev #0 2/13/10	152353	631298	Yemi Ajijolaiya	Cecil Luttrull	Robert Martin

Permian District

Poker Lake
PLU Big Sinks 22 Fed 1H
PLU Big Sinks 22 Fed 1H
PLU Big Sinks 22 Fed 1H

Plan: Design #1

Standard Planning Report

11 February, 2010

EXHIBIT 6

Chesapeake Operating

Planning Report

Database:	Drilling Database	**Local Co-ordinate Reference:**	Well PLU Big Sinks 22 Fed 1H
Company:	Permian District	**TVD Reference:**	WELL @ 0.0ft (Original Well Elev)
Project:	Poker Lake	**MD Reference:**	WELL @ 0.0ft (Original Well Elev)
Site:	PLU Big Sinks 22 Fed 1H	**North Reference:**	True
Well:	PLU Big Sinks 22 Fed 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	PLU Big Sinks 22 Fed 1H		
Design:	Design #1		

Project Poker Lake, Eddy County, NM

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site PLU Big Sinks 22 Fed 1H

Site Position:		**Northing:**	435,446.81 ft	**Latitude:**	32° 11' 46.59360000 N
From:	Lat/Long	**Easting:**	646,094.92 ft	**Longitude:**	103° 51' 39.77640000 W
Position Uncertainty:	0.0 ft	**Slot Radius:**	0.000 in	**Grid Convergence:**	0.25 °

Well PLU Big Sinks 22 Fed 1H

Well Position	***+N/-S***	*0.0 ft*	***Northing:***	435,446.81 ft	***Latitude:***	32° 11' 46.59360000 N
	+E/-W	0.0 ft	**Easting:**	646,094.92 ft	**Longitude:**	103° 51' 39.77640000 W
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	0.0 ft

Wellbore PLU Big Sinks 22 Fed 1H

Magnetics	*Model Name*	*Sample Date*	*Declination (°)*	*Dip Angle (°)*	*Field Strength (nT)*
	IGRF200510	2/11/2010	7.87	60.16	48,758

Design Design #1

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	359.95

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
7,670.4	0.00	0.00	7,670.4	0.0	0.0	0.00	0.00	0.00	0.00	
8,422.9	90.30	359.95	8,147.9	480.0	-0.5	12.00	12.00	0.00	359.95	
12,796.2	90.30	359.95	8,125.0	4,853.1	-4.6	0.00	0.00	0.00	0.00	BHL_PLU Big Sinks 2

Chesapeake Operating

Planning Report

Database:	Drilling Database	Local Co-ordinate Reference:	Well PLU Big Sinks 22 Fed 1H
Company:	Permian District	TVD Reference:	WELL @ 0.0ft (Original Well Elev)
Project:	Poker Lake	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	PLU Big Sinks 22 Fed 1H	North Reference:	True
Well:	PLU Big Sinks 22 Fed 1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLU Big Sinks 22 Fed 1H		
Design:	Design #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00

Database:	Drilling Database	**Local Co-ordinate Reference:**	Well PLU Big Sinks 22 Fed 1H
Company:	Permian District	**TVD Reference:**	WELL @ 0.0ft (Original Well Elev)
Project:	Poker Lake	**MD Reference:**	WELL @ 0.0ft (Original Well Elev)
Site:	PLU Big Sinks 22 Fed 1H	**North Reference:**	True
Well:	PLU Big Sinks 22 Fed 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	PLU Big Sinks 22 Fed 1H		
Design:	Design #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00
7,670.4	0.00	0.00	7,670.4	0.0	0.0	0.0	0.00	0.00	0.00
7,675.0	0.55	359.95	7,675.0	0.0	0.0	0.0	12.00	12.00	0.00
7,700.0	3.55	359.95	7,700.0	0.9	0.0	0.9	12.00	12.00	0.00
7,725.0	6.55	359.95	7,724.9	3.1	0.0	3.1	12.00	12.00	0.00
7,750.0	9.55	359.95	7,749.6	6.6	0.0	6.6	12.00	12.00	0.00
7,775.0	12.55	359.95	7,774.2	11.4	0.0	11.4	12.00	12.00	0.00
7,800.0	15.55	359.95	7,798.4	17.5	0.0	17.5	12.00	12.00	0.00
7,825.0	18.55	359.95	7,822.3	24.8	0.0	24.8	12.00	12.00	0.00
7,850.0	21.55	359.95	7,845.8	33.4	0.0	33.4	12.00	12.00	0.00
7,875.0	24.55	359.95	7,868.8	43.2	0.0	43.2	12.00	12.00	0.00
7,900.0	27.55	359.95	7,891.3	54.1	-0.1	54.1	12.00	12.00	0.00
7,925.0	30.55	359.95	7,913.1	66.3	-0.1	66.3	12.00	12.00	0.00
7,950.0	33.55	359.95	7,934.3	79.5	-0.1	79.5	12.00	12.00	0.00
7,975.0	36.55	359.95	7,954.8	93.9	-0.1	93.9	12.00	12.00	0.00
8,000.0	39.55	359.95	7,974.4	109.3	-0.1	109.3	12.00	12.00	0.00
8,025.0	42.55	359.95	7,993.3	125.7	-0.1	125.7	12.00	12.00	0.00
8,050.0	45.55	359.95	8,011.3	143.1	-0.1	143.1	12.00	12.00	0.00
8,075.0	48.55	359.95	8,028.3	161.4	-0.2	161.4	12.00	12.00	0.00
8,100.0	51.55	359.95	8,044.4	180.5	-0.2	180.5	12.00	12.00	0.00
8,125.0	54.55	359.95	8,059.4	200.5	-0.2	200.5	12.00	12.00	0.00
8,150.0	57.55	359.95	8,073.3	221.3	-0.2	221.3	12.00	12.00	0.00
8,175.0	60.55	359.95	8,086.2	242.7	-0.2	242.7	12.00	12.00	0.00
8,200.0	63.55	359.95	8,097.9	264.8	-0.3	264.8	12.00	12.00	0.00
8,225.0	66.55	359.95	8,108.5	287.4	-0.3	287.4	12.00	12.00	0.00
8,250.0	69.55	359.95	8,117.8	310.6	-0.3	310.6	12.00	12.00	0.00
8,275.0	72.55	359.95	8,125.9	334.3	-0.3	334.3	12.00	12.00	0.00
8,300.0	75.55	359.95	8,132.8	358.3	-0.3	358.3	12.00	12.00	0.00
8,325.0	78.55	359.95	8,138.4	382.7	-0.4	382.7	12.00	12.00	0.00
8,350.0	81.55	359.95	8,142.7	407.3	-0.4	407.3	12.00	12.00	0.00
8,375.0	84.55	359.95	8,145.7	432.1	-0.4	432.1	12.00	12.00	0.00

Database:	Drilling Database	Local Co-ordinate Reference:	Well PLU Big Sinks 22 Fed 1H
Company:	Permian District	TVD Reference:	WELL @ 0.0ft (Original Well Elev)
Project:	Poker Lake	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	PLU Big Sinks 22 Fed 1H	North Reference:	True
Well:	PLU Big Sinks 22 Fed 1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLU Big Sinks 22 Fed 1H		
Design:	Design #1		

Planned Survey

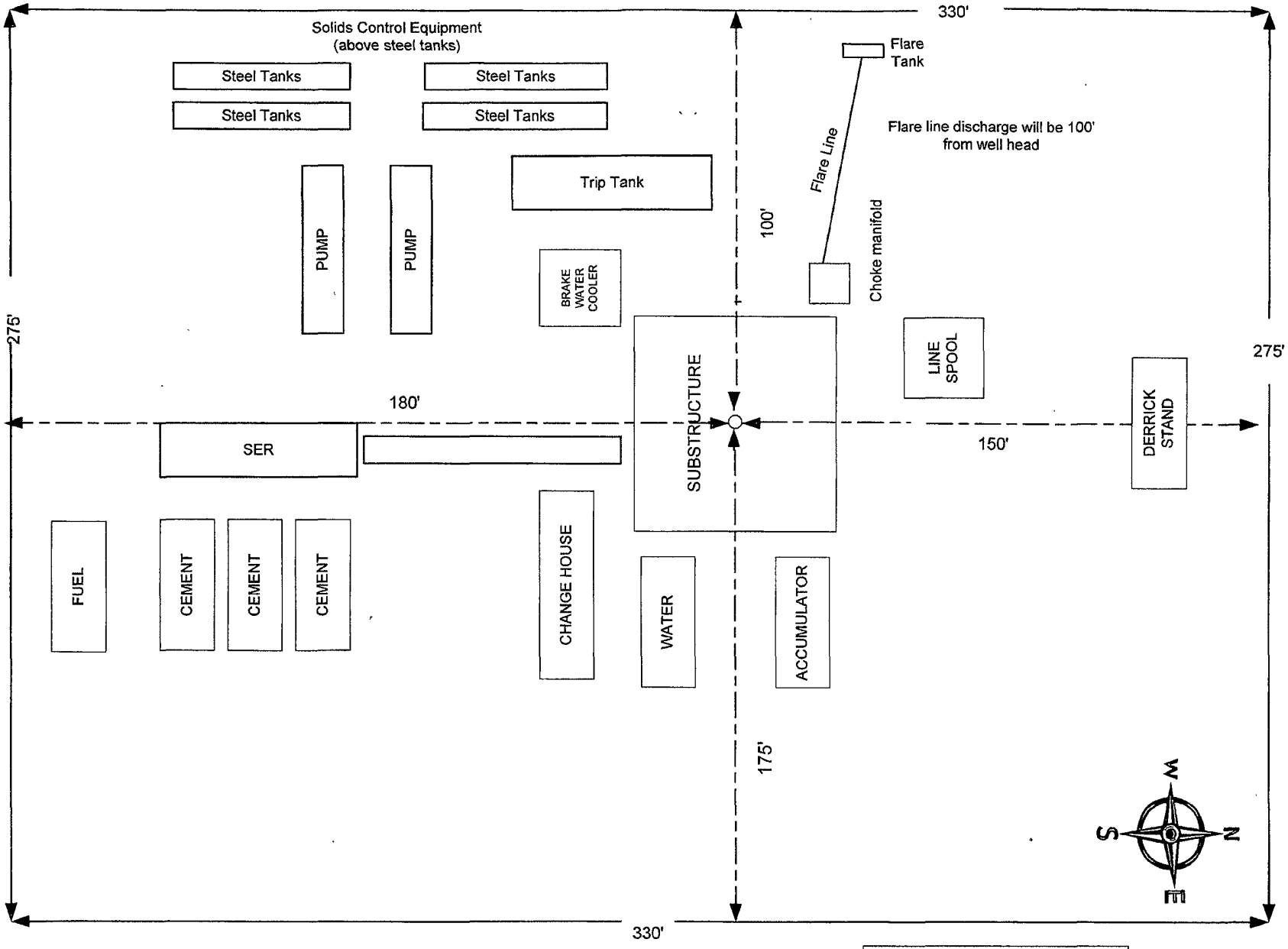
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,400.0	87.55	359.95	8,147.5	457 0	-0.4	457.0	12.00	12.00	0 00
8,422.9	90.30	359.95	8,147.9	480.0	-0 5	480 0	12.00	12 00	0.00
8,500.0	90.30	359 95	8,147.5	557.0	-0.5	557.0	0 00	0 00	0.00
8,600.0	90.30	359.95	8,147.0	657.0	-0 6	657.0	0 00	0.00	0.00
8,700.0	90.30	359.95	8,146.4	757 0	-0.7	757.0	0 00	0.00	0.00
8,800.0	90 30	359.95	8,145.9	857.0	-0.8	857 0	0 00	0.00	0 00
8,900.0	90.30	359.95	8,145.4	957 0	-0.9	957.0	0.00	0.00	0.00
9,000.0	90.30	359.95	8,144.9	1,057.0	-1.0	1,057 0	0.00	0.00	0.00
9,100.0	90.30	359.95	8,144.4	1,157.0	-1 1	1,157.0	0.00	0.00	0 00
9,200.0	90.30	359.95	8,143.8	1,257.0	-1.2	1,257.0	0 00	0 00	0.00
9,300.0	90 30	359.95	8,143.3	1,357.0	-1.3	1,357.0	0 00	0 00	0 00
9,400.0	90 30	359 95	8,142.8	1,457.0	-1.4	1,457.0	0 00	0 00	0.00
9,500.0	90.30	359.95	8,142.3	1,557.0	-1.5	1,557.0	0.00	0.00	0.00
9,600.0	90.30	359.95	8,141 7	1,657.0	-1 6	1,657.0	0.00	0 00	0.00
9,700.0	90 30	359.95	8,141.2	1,757 0	-1 7	1,757.0	0 00	0 00	0.00
9,800.0	90.30	359.95	8,140.7	1,857.0	-1.8	1,857.0	0.00	0.00	0.00
9,900.0	90.30	359.95	8,140.2	1,957.0	-1.9	1,957.0	0.00	0.00	0 00
10,000.0	90.30	359.95	8,139.6	2,057.0	-2.0	2,057 0	0.00	0.00	0.00
10,100.0	90.30	359.95	8,139.1	2,157.0	-2.1	2,157.0	0 00	0 00	0.00
10,200 0	90.30	359.95	8,138.6	2,257 0	-2.2	2,257.0	0.00	0.00	0 00
10,300.0	90 30	359.95	8,138.1	2,357.0	-2.3	2,357 0	0.00	0.00	0.00
10,400.0	90 30	359.95	8,137.5	2,457 0	-2.3	2,457.0	0 00	0 00	0 00
10,500.0	90 30	359 95	8,137 0	2,557.0	-2.4	2,557 0	0 00	0 00	0.00
10,600.0	90 30	359.95	8,136.5	2,657.0	-2 5	2,657.0	0 00	0.00	0.00
10,700 0	90.30	359.95	8,136 0	2,757 0	-2 6	2,757 0	0 00	0 00	0.00
10,800.0	90.30	359.95	8,135.5	2,857 0	-2 7	2,857 0	0 00	0 00	0.00
10,900 0	90 30	359.95	8,134.9	2,957.0	-2 8	2,957 0	0.00	0 00	0.00
11,000 0	90.30	359.95	8,134.4	3,057.0	-2.9	3,057 0	0 00	0.00	0.00
11,100.0	90 30	359 95	8,133.9	3,157 0	-3.0	3,157.0	0 00	0 00	0.00
11,200.0	90 30	359 95	8,133.4	3,257 0	-3 1	3,257 0	0.00	0.00	0.00
11,300.0	90.30	359.95	8,132.8	3,357.0	-3.2	3,357 0	0.00	0.00	0.00
11,400.0	90 30	359 95	8,132.3	3,457.0	-3 3	3,457 0	0.00	0.00	0.00
11,500.0	90 30	359.95	8,131.8	3,557 0	-3.4	3,557.0	0 00	0.00	0.00
11,600.0	90 30	359 95	8,131 3	3,657.0	-3.5	3,657.0	0.00	0.00	0.00
11,700.0	90.30	359.95	8,130.7	3,757 0	-3.6	3,757 0	0 00	0 00	0.00
11,800.0	90.30	359 95	8,130 2	3,857.0	-3 7	3,857.0	0.00	0.00	0.00
11,900.0	90.30	359.95	8,129 7	3,957 0	-3.8	3,957 0	0 00	0 00	0.00
12,000.0	90 30	359 95	8,129 2	4,057.0	-3.9	4,057 0	0.00	0.00	0.00
12,100.0	90.30	359.95	8,128.6	4,157 0	-4.0	4,157.0	0.00	0.00	0.00
12,200.0	90.30	359 95	8,128.1	4,257.0	-4.1	4,257.0	0 00	0.00	0 00
12,300.0	90 30	359.95	8,127.6	4,357 0	-4 2	4,357.0	0 00	0 00	0.00
12,400.0	90.30	359.95	8,127.1	4,457.0	-4 3	4,457.0	0.00	0.00	0.00
12,500 0	90.30	359.95	8,126.6	4,557 0	-4 4	4,557.0	0.00	0 00	0.00
12,600.0	90.30	359.95	8,126.0	4,657.0	-4 5	4,657.0	0.00	0 00	0.00
12,700.0	90.30	359 95	8,125.5	4,757.0	-4.5	4,757.0	0.00	0 00	0.00
12,796 2	90 30	359.95	8,125 0	4,853 1	-4 6	4,853 2	0.00	0.00	0.00

Database:	Drilling Database	**Local Co-ordinate Reference:**	Well PLU Big Sinks 22 Fed 1H
Company:	Permian District	**TVD Reference:**	WELL @ 0.0ft (Original Well Elev)
Project:	Poker Lake	**MD Reference:**	WELL @ 0.0ft (Original Well Elev)
Site:	PLU Big Sinks 22 Fed 1H	**North Reference:**	True
Well:	PLU Big Sinks 22 Fed 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	PLU Big Sinks 22 Fed 1H		
Design:	Design #1		

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
BHL_PLU Big Sinks 22 I - plan hits target center - Point	0.00	0.00	8,125.0	4,853.1	-4.6	440,299.90	646,068.96	2° 12' 34.62120000 N	3° 51' 39.83040000 W

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



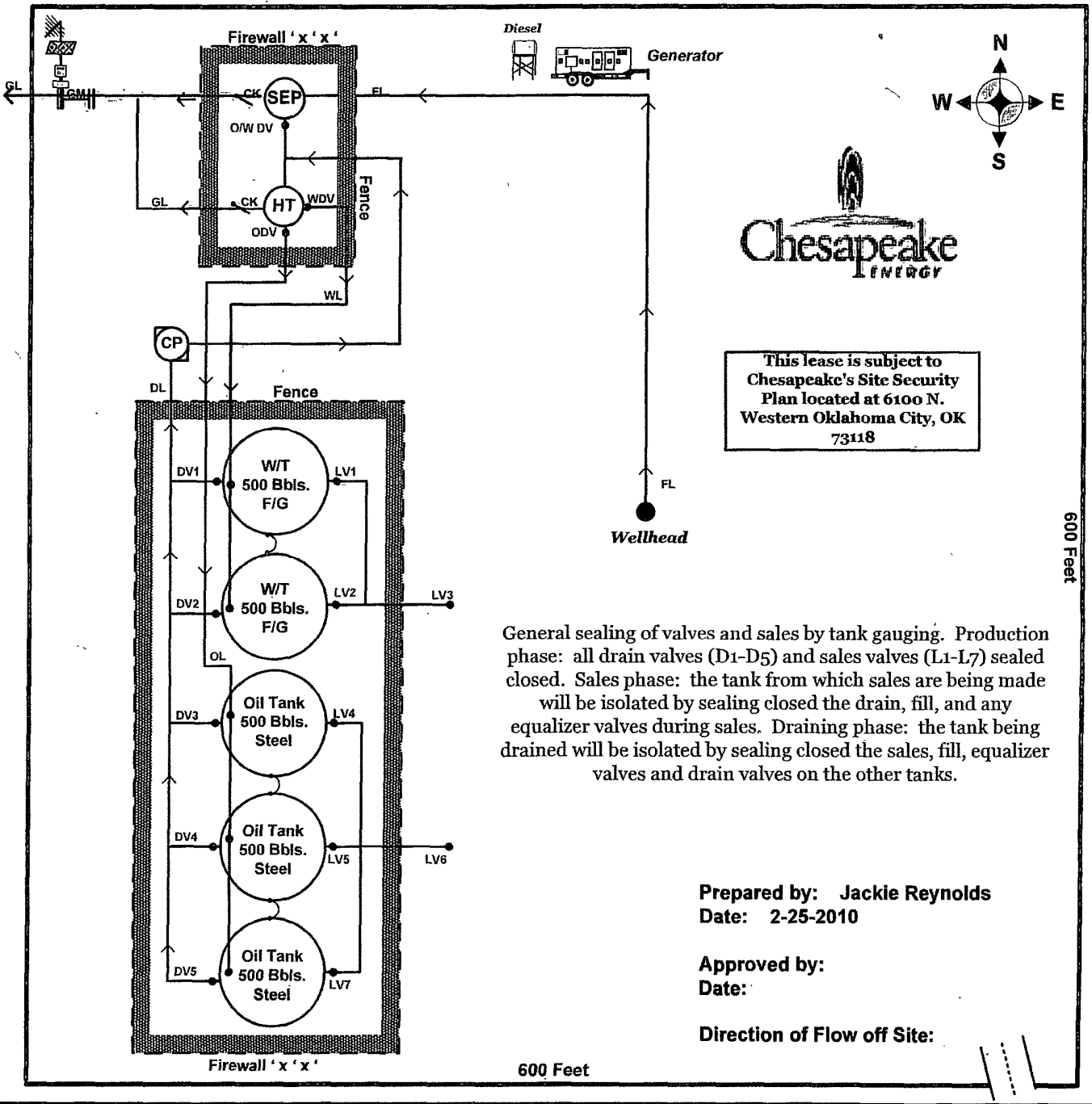
Not to scale

LATSHAW #6

Exhibit D

CHESAPEAKE OPERATING, INC.

PLU Big Sinks 22 Federal Com #1H
Lat.: N 32.19639527" – Long.: W 103.8615969"
S22/T24S/R30E - 100' FSL & 400' FEL
Eddy Co., New Mexico



General sealing of valves and sales by tank gauging. Production phase: all drain valves (D1-D5) and sales valves (L1-L7) sealed closed. Sales phase: the tank from which sales are being made will be isolated by sealing closed the drain, fill, and any equalizer valves during sales. Draining phase: the tank being drained will be isolated by sealing closed the sales, fill, equalizer valves and drain valves on the other tanks.

Prepared by: Jackie Reynolds
Date: 2-25-2010

Approved by:
Date:

Direction of Flow off Site:

EXHIBIT C

BLOWOUT PREVENTOR SCHEMATIC

CHESAPEAKE OPERATING INC

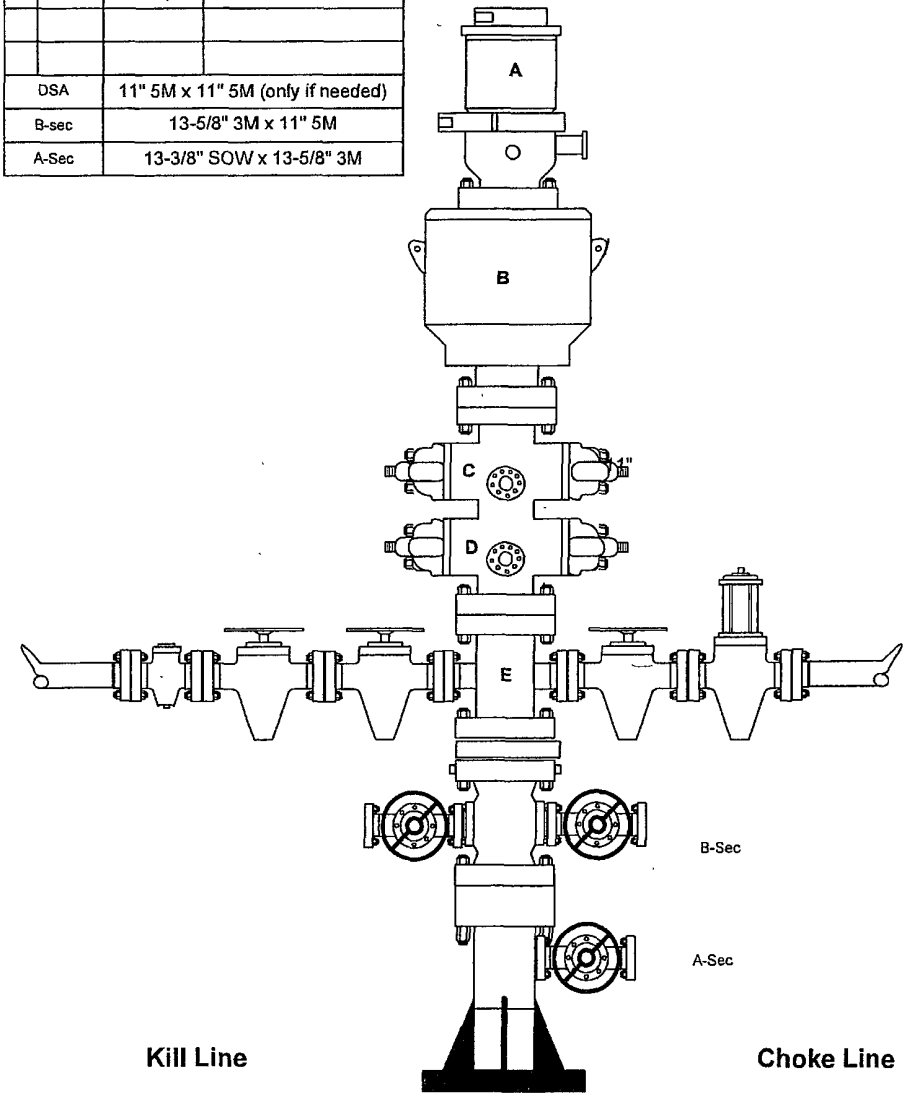
WELL : PLU Big Sinks 22 Federal 1H

RIG : Latshaw 6

COUNTY : Eddy **STATE:** New Mexico

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

	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	



Kill Line

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

Choke Line

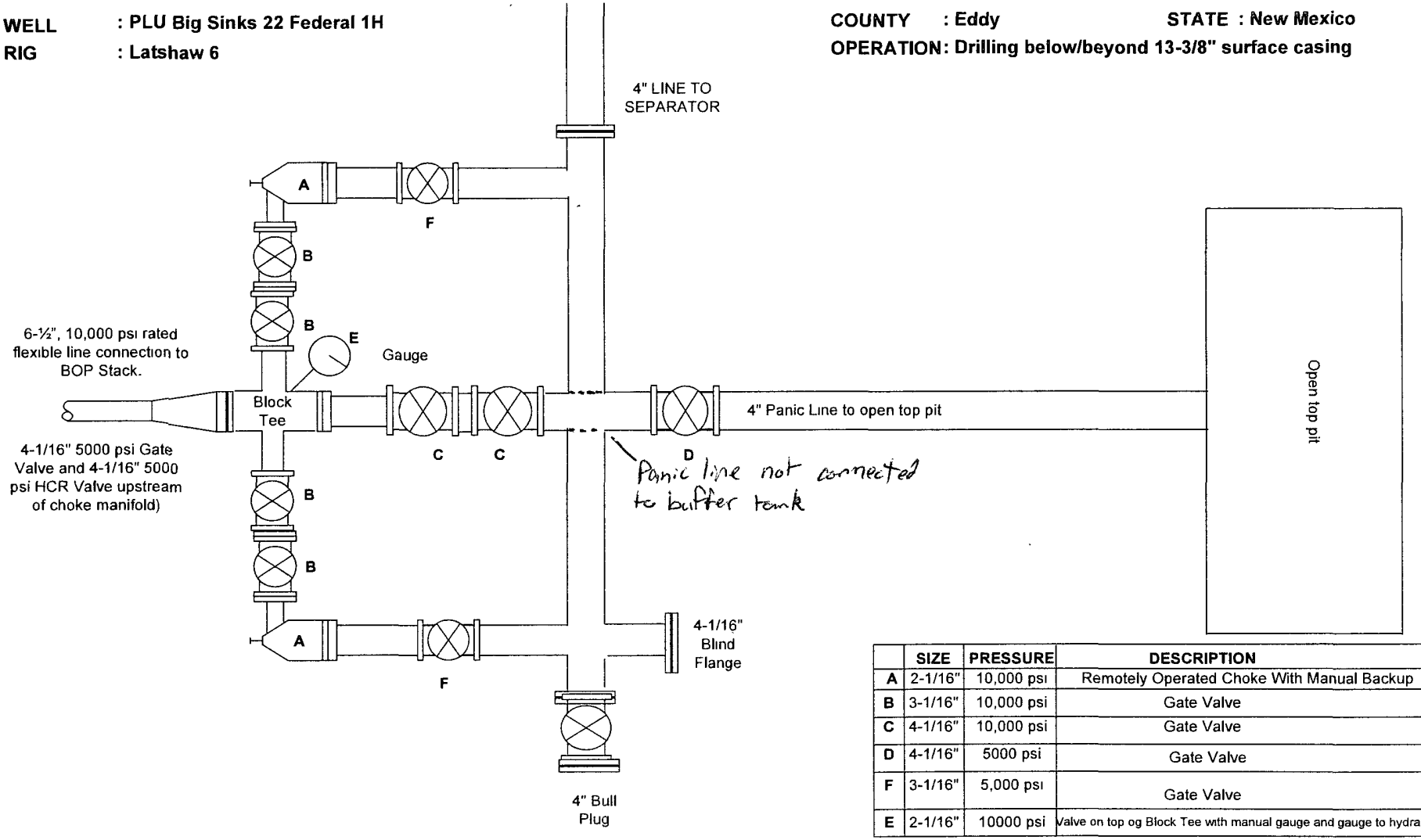
SIZE	PRESSURE	DESCRIPTION
4"	5000 psi	Gate Valve
4"	5000 psi	HCR Valve

EXHIBIT F-1

SCHEMATIC OF CHOKE MANIFOLD SHOWING CLOSED LOOP SYSTEM

WELL : **PLU Big Sinks 22 Federal 1H**
RIG : **Latshaw 6**

COUNTY : **Eddy** **STATE** : **New Mexico**
OPERATION: Drilling below/beyond 13-3/8" surface casing



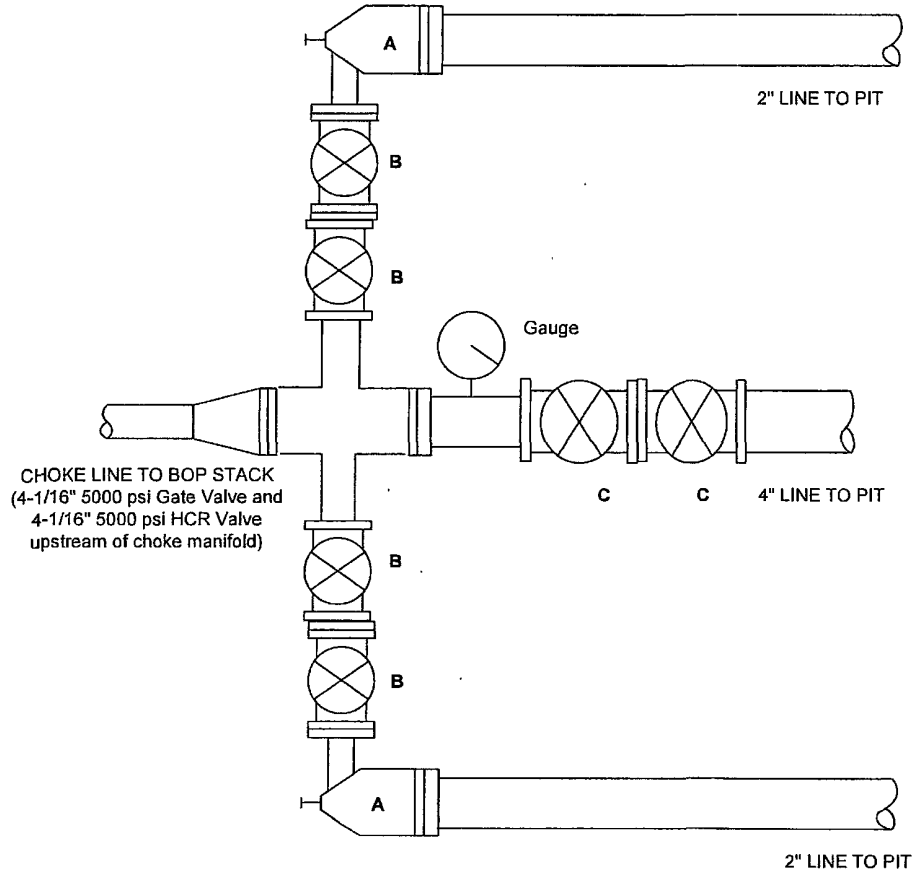
	SIZE	PRESSURE	DESCRIPTION
A	2-1/16"	10,000 psi	Remotely Operated Choke With Manual Backup
B	3-1/16"	10,000 psi	Gate Valve
C	4-1/16"	10,000 psi	Gate Valve
D	4-1/16"	5000 psi	Gate Valve
F	3-1/16"	5,000 psi	Gate Valve
E	2-1/16"	10000 psi	Valve on top og Block Tee with manual gauge and gauge to hydraulic choke

CHOKE MANIFOLD SCHEMATIC

CHESAPEAKE OPERATING, INC.

WELL : **PLU Big Sinks 22 Federal 1H**
RIG : **Latshaw 6**
COUNTY : **Eddy** **STATE** : **New Mexico**
OPERATION: **Drilling below/beyond 13-3/8" surface casing**

A 6-½" OD FLEXIBLE STEEL LINE RATED TO 10,000 PSI WOULD CONNECT BETWEEN THE BOP STACK AND CHOKE MANIFOLD.



	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

EXHIBIT F-2

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

1. EXISTING ROADS/LEASE ROADS

   a. The proposed lease road 750.7' 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. Existing county and lease roads will be used to enter proposed access road.
   c. Location, access, and vicinity plats attached hereto. See Exhibits A-1 to A-4.

   LOCATION

   a. 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.
   b. A locking gate will be installed at the site entrance.
   c. Any fences cut will be repaired. Cattle guards will be installed, if needed.
   d. 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.
   e. Driving directions are from the junction of Twin Wells and McDonald, Go Northeast 0.7 miles to proposed lease road.

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

3. LOCATION OF PRODUCTION FACILITIES

   It is anticipated that production facilities will be located on the well pad and oil to be sold at the wellhead and/or tank battery. We will need to lay pipeline connecting the well to an existing Southern Union line located about 2 – 2.5 miles to the east. – See Exhibit C

4. 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.

5. CONSTRUCTION MATERIALS

No construction materials will be used from Section 22-24S-30E. All material (i.e. shale) will be acquired from private or commercial sources.

6. METHODS FOR HANDLING WASTE DISPOSAL

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.

7. ANCILLARY FACILITIES

None

8. WELLSITE LAYOUT

The proposed site layout plat is attached showing the Latshaw Rig #6 orientation and equipment location. See Exhibit D.

9. 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 and BLM.

Backfilling leveling, and contouring are planned as soon as the drilling rig and steel tanks are removed. Wastes and spoils materials will be disposed 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 workover rig is removed.

Interim Reclamation: downsize the footprint of disturbance by reclaiming portions of the well pad not needed for production operations. The portions of the cleared well pad not needed for operational and safety purposes will be recontoured back to natural surroundings as much as possible. Caliche material will be used either to recontour or will be used to repair roads within the lease. Topsoil material will be spread out over reclaimed area and the site will be seeded with an approved BLM grass mix. In order to inspect and operate the well or complete work over operations, it may be necessary to drive, park, and operate on restored, interim vegetation as long as the damage is repaired or reclaimed after work is complete. In most cases the well pad is pulled in to within 30 feet of the well anchors unless layout won't allow or a safety issues is in place.

Final Reclamation Procedure: Upon final abandonment of the well, caliche material from the well pad and access road will be removed and utilized to recontour to a final contour that blends with the surrounding topography as much as possible. Any caliche material not used will be utilized to repair roads within the lease. Topsoil will be distributed over the reclamation area and cross ripped to control erosion, the side will be seeded with an approved BLM mixture.

11. SURFACE & MINERAL OWNERSHIP

United States of America
Department of Interior
Bureau of Land Management

GRAZING LESSEE
Richardson Cattle Co.
P.O. Box 487
Carlsbad, NM 88220

(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. CHESAPEAKE REPRESENTATIVES

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Sr. Regulatory Compliance Specialist
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405-849-4275 (Fax)
linda.good@chk.com

ONSHORE ORDER NO. 1
Chesapeake Agent for BOPCO
PLU Big Sinks 22 Federal Com 1H
SL: 100' FSL & 400' FEL
BL: 330' FNL & 400' FEL
Section 22-24S-30E
Eddy County, NM

CONFIDENTIAL – TIGHT HOLE
OPERATOR CERTIFICATION

SL: Lease No. NMNM 68430
BL: Lease No. NMNM 02862

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 25th day of February, 2010

Name: _____
Bud Cravey, Sr. Field Representative

Address: 2010 Rankin Highway, Midland, TX 79701

Telephone: 432-238-7293

E-mail: bud.cravey@chk.com

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	BOPCO L.P., (CHESAPEAKE as Agent)
LEASE NO.:	NMNM02862
WELL NAME & NO.:	1H-PLU BIG SINKS 22 FED
SURFACE HOLE FOOTAGE:	0175' FSL & 0400' FEL
BOTTOM HOLE FOOTAGE	0330' FNL & 0400' FEL
LOCATION:	Section 22, T. 24 S., R 30 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.

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, 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 feet from the source of the noise.

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

Pad Restriction
Limit pad dimensions to 150 to the south of the center hole as discussed on onsite in order to limit fill.

Commercial Well Determination

A commercial well determination will need to be submitted after production has been established for at least six months.

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. V-DOOR DIRECTION: east

C. TOPSOIL

The operator shall stockpile the topsoil in a low profile manner in order to prevent wind/water erosion of the topsoil. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be used for interim and final reclamation.

D. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

E. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call theCarlsbad Field Office at (575) 234-5972.

F. 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.

G. 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.

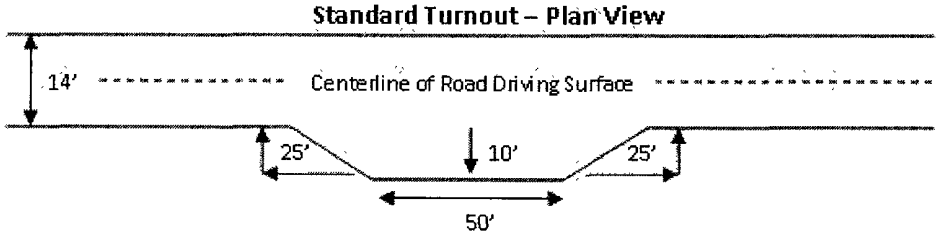
The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing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

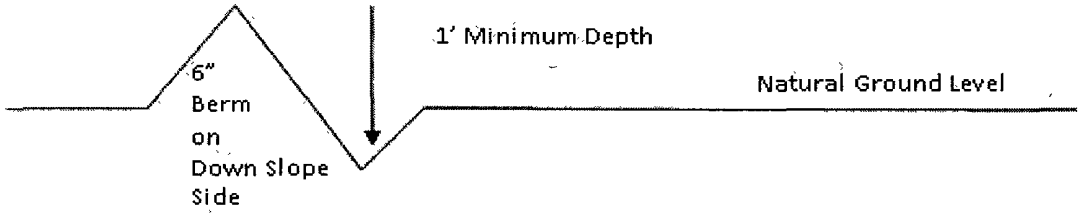
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



Drainage
Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping 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.

Cross Section of a Typical 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 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ 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.

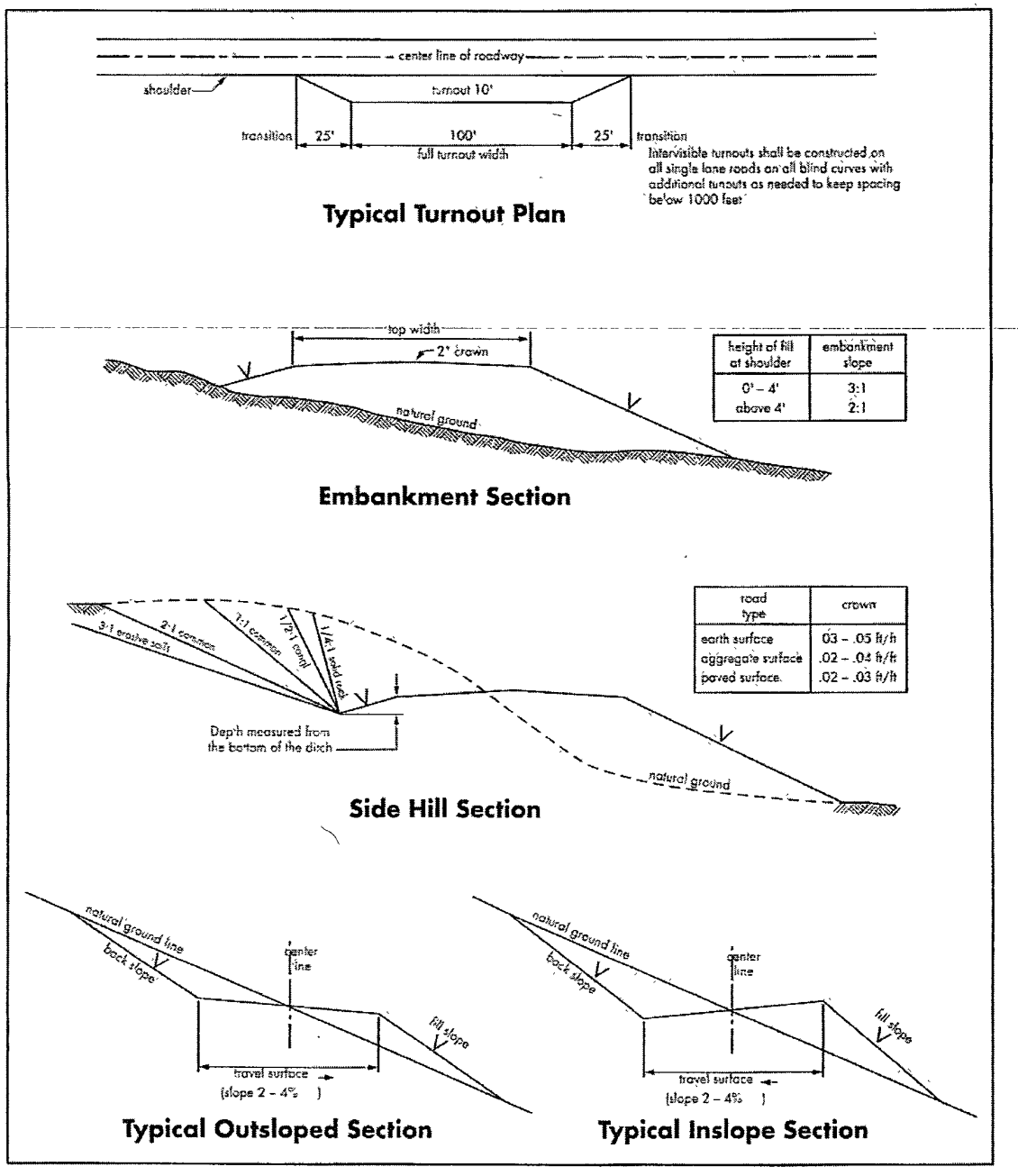
A gate shall be constructed and fastened securely to H-braces.

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 the area, 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 is located, this does not include the dog house or stairway area.

4. **The record of the drilling rate along with the CAL/GR/N well log run from TD to surface will be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

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

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

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

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Medium cave/karst
Possible lost circulation in the Delaware Mountain and Bone Spring Groups

1. The **13-3/8** inch surface casing shall be set at approximately **700** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If the salt is encountered at a shallower depth, the casing must be set 25 feet above the top of the salt.**

    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 surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

    b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

    c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

    d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Formation below the 13-3/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

    ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Casing to be set in the Lamar Limestone. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.**

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

Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

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

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

   a. First stage to DV tool, cement shall:

   ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job.

   b. Second stage above DV tool, cement shall:

   ☒ Cement should tie-back at least 1200 feet into previous casing string. Operator shall provide method of verification. **May require additional cement as the excess calculates as -2%.**

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 **5000 (5M)** psi. **5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**

3. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. Casing cut-off and BOP installation will not be initiated until the cement has had a minimum of 8 hours setup time for a water basin. The casing shall remain stationary and under pressure for at least eight hours after the operator places the cement. In the potash area, the minimum time is 12 hours and the casing shall remain stationary and under pressure during this time period. Casing shall be under pressure if the operator uses some acceptable means of holding pressure or if the operator employs one or more float valves to hold the cement in place. Testing the BOP/BOPE against a plug can commence after meeting the above conditions plus the BOP installation time.

    b. The tests shall be done by an independent service company using a test plug.

    c. The results of the test shall be reported to the appropriate BLM office.

    d. 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.**

    e. 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.

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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

Not applied for in APD

C. ELECTRIC LINES

IX. 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.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation 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 that is free of contaminants 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.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

X. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

In order to improve the probability of maintaining a stable lesser prairie-chicken population low profile plugged and abandoned well markers will be installed. The well marker will be approximately 2 inches above ground level and contain the following information: operator name, lease name, and well number and location, including unit letter, section, township, and range. The previous listed information will be welded, stamped, or otherwise permanently engraved into the metal of the marker.

Seed Mixture for LPC Sand/Shinnery 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:

Species	lb/acre
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A
**Four-winged Saltbush	5lbs/A

* This can be used around well pads and other areas where caliche cannot be removed.

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed