

OCD-ARTESIA

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

ATS-12-656

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: ☒ DRILL ☐ REENTER

CONFIDENTIAL

1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☒ Multiple Zone2. Name of Operator
CHESAPEAKE AGENT FOR BOPCOContact: ERIN CARSON
E-Mail: erin.carson@chk.com3a. Address
PO BOX 18496
OKLAHOMA CITY, OK 73154-04963b. Phone No. (include area code)
Ph: 405-935-2896

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

At surface NWNW 125FNL 400FWL

At proposed prod. zone SWSW 100FSL 400FWL

RECEIVED

AUG 03 2012

14. Distance in miles and direction from nearest town or post office*
46 MILES TO LOVING, NM

NMOCD ARTESIA

15. Distance from proposed location to nearest property or
lease line, ft. (Also to nearest drug unit line, if any)
125 TO THE NORTH16. No. of Acres in Lease
1920.0018. Distance from proposed location to nearest well, drilling,
completed, applied for, on this lease, ft.
70 TO THE WEST OF PROPOSED LATERAL PATH 3182 MD19. Proposed Depth
8265 TVD21. Elevations (Show whether DF, KB, RT, GL, etc)
3241 GL22. Approximate date work will start
10/10/20125. Lease Serial No.
NMLC063875A

6. If Indian, Allottee or Tribe Name

7. If Unit or CA Agreement, Name and No.
NMNM071016X8. Lease Name and Well No.
PLU ROSS RANCH 21 25 30 USA 1H

9. API Well No.

10. Field and Pool, or Exploratory
WILDCAT, BONE SPRING11. Sec., T., R., M., or Blk. and Survey or Area
Corral Canyon

Sec 21 T25S R30E Mer NMP

12. County or Parish
EDDY13. State
NM17. Spacing Unit dedicated to this well
160.0020. BLM/BIA Bond No. on file
ESB00015923. Estimated duration
30 DAYS

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
(Electronic Submission)Name (Printed/Typed)
ERIN CARSON Ph: 405-935-2896Date
05/01/2012Title
AUTHORIZED REPRESENTATIVE

Approved by (Signature) /s/ Don Peterson

Name (Printed/Typed) /s/ Don Peterson

Date
AUG - 1 2012Title
for FIELD MANAGEROffice
CARLSBAD FIELD OFFICEApplication 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)

Carlsbad Controlled Water Basin

Electronic Submission #136697 verified by the BLM Well Information System
For CHESAPEAKE AGENT FOR BOPCO, sent to the Carlsbad
Committed to AFMSS for processing by KURT SIMMONS on 05/02/2012 ()Approval Subject to General Requirements
& Special stipulations AttachedSEE ATTACHED FOR
CONDITIONS OF APPROVAL

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


ONSHORE ORDER NO. 1
Chesapeake Agent for BOPCO
PLU Ross Ranch 21-25-30 USA 1H
Eddy County, NM

CONFIDENTIAL - TIGHT HOLE
OPERATOR CERTIFICATION

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 17th day of February, 2011

Name: 
Toby Reid - Field Superintendent

Address: 1616 W Bender Blvd Hobbs, NM 88240

Telephone: 575-725-8497

E-mail: toby.reid@chk.com

DISTRICT I
1825 N. French Dr., Hobbs, NM 88240
Phone (505) 803-0161 Fax: (505) 203-0720

DISTRICT II
811 S. First St., Artesia, NM 88210
Phone (505) 740-1283 Fax: (505) 740-0720

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone (505) 834-0170 Fax: (505) 834-0170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87605
Phone (505) 476-3460 Fax: (505) 476-3462

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 August 1, 2011

Submit one copy to appropriate
District Office

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-40580	Pool Code 06403	Pool Name Corral Canyon
Property Code 39390	Property Name PLU ROSS RANCH 21 25 30 USA	Well Number 1H
GRID No. 147179	Operator Name CHESAPEAKE OPERATING CO.	Elevation 3241'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	21	25 S	30 E		125	NORTH	400	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	21	25 S	30 E		100	SOUTH	400	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			13182 8/1

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
3239.3' 3247.8' OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

	<p>SURFACE LOCATION Lat - N 32.122639059' Long - W 103.893487227' NMSPCE- E 677503.332 (NAD-83) Lat - N 32.122514945' Long - W 103.893004956' NMSPCE- N 408630.054 E 636318.233 (NAD-27)</p>	<p>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: <i>Bryan Arrant</i> Date: 5/22/2012 Printed Name: Bryan Arrant Email Address: bryan.arrant@chk.com</p>
	<p>PROPOSED BOTTOM HOLE LOCATION Lat - N 32.108625258' Long - W 103.893499178' NMSPCE- N 403532.107 E 677520.438 (NAD-83) Lat - N 32.108500996' Long - W 103.893017479' NMSPCE- N 403474.080 E 636335.184 (NAD-27)</p>	<p>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. Date Surveyed: February 16, 2012 Signature: <i>Gary L. Jones</i> Professional Surveyor: 7977 Certificate No. Gary L. Jones 7977 BASIN SURVEYS 26055</p>

Eddy, NM

DRILLING PLAN
PAGE 1

OHSORE 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	SUB-SEA	KBTVD	MD
Rustler	2373	893	893
Top of Salt	2076	1190	1190
Base of Salt	-309	3575	3575
Lamar	-516	3782	3782
Bell Canyon	-536	3802	3802
Cherry Canyon	-1436	4702	4702
Brushy Canyon	-3016	6282	6282
Bone Spring	-4336	7602	7602
Lower Avalon	-4925	8191	8248
Lateral TD	-4999	8265	13182

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
Water	Rustler	893
Oil/Gas	Brushy Canyon	6282
Oil/Gas	Bone Spring	7602

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

Eddy, NM

DRILLING PLAN
PAGE: 2

3. BOP EQUIPMENT

Will have a 5000 psi rig stack (see proposed schematic) for drill out below surface casing. Stack will be tested as specified below. Surface casing and Intermediate Casing shoes will be tested to 10.5 ppg equivalent after drilling out 10' of new formation.

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

B. Frequency

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

C. Frequency

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.

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

Eddy, NM

DRILLING PLAN

PAGE

3

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:

System Operating Pressure	Precharge Pressure
1500 psi	750 psi
2000 psi	1000 psi
3000 psi	1000 psi

3. Closing times for the annular preventer 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 Operating Pressure	Remaining Pressure After Test
1500 psi	950 psi
2000 psi	1200 psi
3000 psi	1200 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.

3. CASING PROGRAM

a. The proposed casing program will be as follows:

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	450'	17-1/2"	13-3/8"	48 #	H-40	STC	New
Shallow Intermediate	0'	3,675'	11"	8-5/8"	32 #	J-55	LTC	New
Production	0'	13,182'	7-7/8"	5-1/2"	17.0 #	P-110	LTC	New

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

Set
CWA

Eddy, NM

DRILLING PLAN
 PAGE. 4

c. Casing Safety Factors

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension
Surface	1.44	1.7	2.27
Shallow intermediate	2.16	1.62	2.1
Production	1.39	1.98	2.02

Min SF is the smallest of a group of safety factors that include the following considerations:

	Surf	Int	Prod
Burst Design			
Pressure Test- Surface, Int, Prod Csg P external: Water P internal: Test psi + next section heaviest mud in csg.	X	X	X
Displace to Gas- Surf Csg P external: Water P internal: Dry Gas from Next Csg. Point	X		
Frac at Shoe, Gas to Surf- Int Csg P external: Water P internal: Dry Gas, 15 ppg. Frac Gradient		X	
Stimulation (Frac) Pressures- Prod Csg P external: Water P internal: Max inj. pressure w/ heaviest injected fluid			X
Tubing leak- Prod Csg (packer at KOP) P external: Water P internal: Leak just below surf, 8.7 ppg. packer fluid			X
Collapse Design			
Full Evacuation P external: Water gradient in cement, mud above TOC P internal: none	X	X	X
Cementing- Surf, Int, Prod Csg P external: Wet cement P internal: water	X	X	X
Tension Design			
100k lb overpull	X	X	X

ONSHORE ORDER NO. 1

Chesapeake Operating, Inc. Agent for BOPCO
PLU Ross Ranch 21-25-30 USA 1H

CONFIDENTIAL -- TIGHT HOLE
Lease No.

DRILLING PLAN

Eddy, NM

PAGE

5

5. CEMENTING PROGRAM

Slurry	Type	Top	Btm	Wt	Yld	%Exc	Sx
Surface			950	(ppg)	(sx/cu ft)	Open Hole	
Single Slurry	C + 4% Gel	0'	1,000'	13.5	1.73	200	1180
Shallow Int							
Lead	TXI + 5% Salt	0'	3,175'	12	1.99	200	1067
Tail	50C/50Poz +5% Salt	3,175'	3,675'	14.2	1.37	200	290
Production							
Lead	35/65Poz H +8% Gel	3,175'	7,812'	12.4	2.11	75	637
Tail	50/50Poz H +2% Gel	7,812'	13,182'	14.5	1.27	75	1291

1. Final cement volumes will be determined by caliper.
2. Surface casing shall have at least one centralizer installed on each of the bottom three joints starting with the shoe joint.
3. The production casing will be cemented in a single stage.
4. Production casing will have one centralizer on every other joint from TD to KOP (horizontal type) and from KOP to intermediate casing (bowspring type).

Pilot Hole Plugging Plan:
No pilot Hole

Eddy, NM

DRILLING PLAN
PAGE. 6

6. MUD PROGRAM

From	To	Type	Weight	F. Vis	Filtrate
0'	1,000'	Spud Mud	8.4 - 8.7	32 - 34	NC - NC
1,000'	3,675'	Brine	9.5 - 10.1	28 - 29	NC - NC
3,675'	7,812'	Cut Brine	8.3 - 9	28 - 29	NC - NC
7,812'	8,564'	Cut Brine	8.3 - 9	28 - 29	NC - NC
8,564'	13,182'	Cut Brine	8.3 - 9	28 - 29	NC - NC

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

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 *See COA*

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

- Drill stem tests are not planned.
- The logging program will be as follows:

TYPE	Logs	Interval	Timing	Vendor
Mud Log	2 man Mudlog	Int Csg to TD	Int Csg Drill Out	Suttles
OH	Triple Combo	Curve to Int Csg	After Curve	TBD
OH	GR/Neutron	Int Cas to Surf	After Curve	TBD
LWD	MWD Gamma	Curve and Lateral	While Drilling	Phoenix

- Core samples are not planned
- A Directional Survey will be run.

8. ABNORMAL PRESSURES AND HYDROGEN SULFIDE

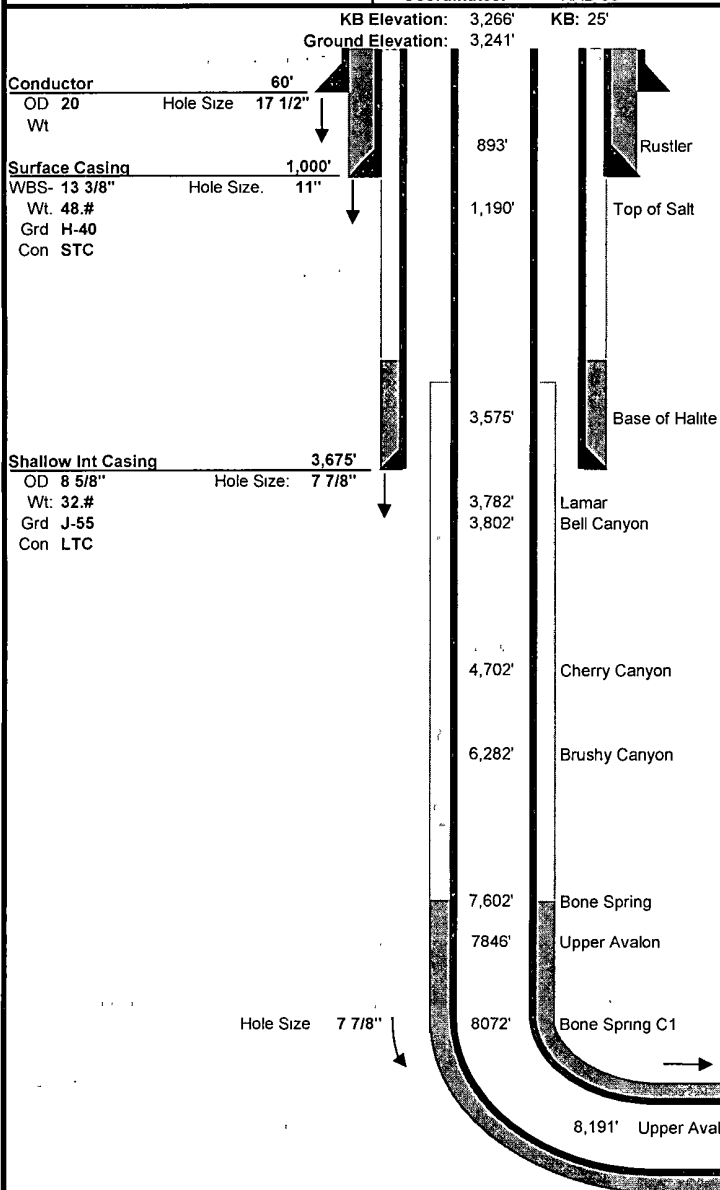
- No abnormal pressures or temperatures are expected. Estimated BHP is 3664 psi
- Hydrogen sulfide gas is not anticipated



Drilling Engineer: Chris Gray
Superintendent: Daniel Gipson
Geologist: Chris Persellin

Well Name: PLU Ross Ranch 21-25-30 USA 1H
Target: Lower Avalon Shale
County, State: Eddy, NM
Surface Location: 125' FNL 400' FWL, Section 21, Township 25S, Range 30 E
BH Location: 100 FSL 400' FWL, Section 21, Township 25S, Range 30 E
SHL Latitude: 32.122639 SHL North: 408630
SHL Longitude: -103.893487 SHL East: 677503
BHL Latitude: 32.10862526 BHL North: 403532
BHL Longitude: -103.8934992 BHL East: 677520
Coordinates: NAD 83 Coordinates: NMSPC

Drilling Rig: Patterson 62
Directional: Phoenix
Drilling Mud: Nova
Cement: Schlumberger
Wellhead: Sunbelt
Property Number: 643901
AFE Number: 161963



Wellhead Equipment	
A Section	13-3/8" x 13-5/8" 5K SOW (Multibowl)
B Section	N/A (Multibowl)
C Section	11" 5K X 7-1/16" 10K w/10k gate valve
D Section	N/A
Required BOP Stack	13-5/8" 5K- Double, Annular, Rot Head w/orbit valve

Mud					
Depth	Type	Weight	F. Vis	FL	
0' - 1,000'	Spud Mud	8.4 - 8.7	32 - 34	NC - NC	
1,000' - 3,675'	Brine	9.5 - 10.1	28 - 29	NC - NC	
3,675' - 7,812'	Cut Brine	8.3 - 9	28 - 29	NC - NC	
7,812' - 8,564'	Cut Brine	8.3 - 9	28 - 29	NC - NC	
8,564' - 13,182'	Cut Brine	8.3 - 9	28 - 29	NC - NC	

Cement							
Slurry	Top	Btm	Wt	Yld	%Exc	Bbl	Sx
Surface							
Single Slurry	0'	1,000'	13.5	1.73	200	363	1180
Shallow Int							
Lead	0'	3,175'	12.0	1.99	200	378	1067
Tail	3,175'	3,675'	14.2	1.37	200	71	290
Production							
Lead	3,175'	7,812'	12.4	2.11	75	239	637
Tail	7,812'	13,182'	14.5	1.27	75	292	1291

Type	Logs	Interval	Vendor
Mud Log	2 man Mudlog	Int Csg to TD	Suttles
OH	Triple Combo	Curve to Int Csg	TBD
OH	GR/Neutron	Int Cas to Surf	TBD
LWD	MWD Gamma	Curve and Lateral	Phoenix

Directional Plan						
Target Line:	8292' KBTVD (0°VS) @ 90.3 degrees inc					
Target Window:	20' above, 20' below, 50' left, 50' right					
KOP	MD	INC	AZM	TVD	VS	DLS
EOB	7,812'	0.00	0.00	7,812'	0'	0.00
TD	8,564'	90.30	180.00	8,289'	480'	12.00
TD	13,182'	90.30	180.00	8,265'	5,098'	0.00
Hardlines:	Lateral- 330' from parallel lease lines					
	Vertical- Actual Lease Lines					
Notes:	Please note SHL and BHL distance from lease lines					

Permian District

Poker Lake

PLU Ross Ranch 21-25-30 USA 1H

Well #1

Wellbore #1

Plan: PLAT

Standard Planning Report

25 April, 2012

EXHIBIT 6

Chesapeake Operating Planning Report

Database:	Drilling Database	Local Co-ordinate Reference:	Well Well #1
Company:	Permian District	TVD Reference:	WELL @ 0.00ft (Original Well Elev)
Project:	Poker Lake	MO Reference:	WELL @ 0.00ft (Original Well Elev)
Site:	PLU Ross Ranch 21-25-30 USA 1H	North Reference:	Grid
Well:	Well #1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	PLAT		

Project:	Poker Lake, Eddy County, NM		
Map System:	US State Plane 1983	System Datum:	Ground Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site:	PLU Ross Ranch 21-25-30 USA 1H		
Site Position:	From: Map	Northing:	408,630.05 usft
		Easting:	677,503.33 usft
		Latitude:	32 122639
		Longitude:	-103 893487
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Grid Convergence:	0 23 °

Well:	Well #1		
Well Position:	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
			Latitude:
			Longitude:
Position Uncertainty:	0.00 ft	Wellhead Elevation:	Ground Level:

Wellbore:	Wellbore #1		
Magnetics:	Model Name:	Sample Date:	Declination
	User Defined	1/17/2012	(°)
			Dip Angle
			(°)
			Field Strength
			(nT)

Design:	PLAT		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.00	0.00	0.00
			Direction
			(°)

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,811.72	0.00	0.00	7,811.72	0.00	0.00	0.00	0.00	0.00	0.00	
8,564.22	90.30	179.81	8,289.18	-479.96	1.61	12.00	12.00	0.00	179.81	
13,182.31	90.30	179.81	8,265.00	-5,097.96	17.11	0.00	0.00	0.00	0.00	RR 21 25 30 BHL

Chesapeake Operating

Planning Report

Database:	Drilling Database	Local Co-ordinate Reference:	Well Well #1
Company:	Permian District	TVD Reference:	WELL @ 0.00ft (Original Well Elev)
Project:	Poker Lake	MD Reference:	WELL @ 0.00ft (Original Well Elev)
Site:	PLU Ross Ranch 21-25-30 USA 1H	North Reference:	Grid
Well:	Well #1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	PLAT		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00	

Chesapeake Operating

Planning Report

Database:	Drilling Database	Local Co-ordinate Reference:	Well Well #1
Company:	Permian District	TVD Reference:	WELL @ 0.00ft (Original Well Elev)
Project:	Poker Lake	MD Reference:	WELL @ 0.00ft (Original Well Elev)
Site:	PLU Ross Ranch 21-25-30 USA 1H	North Reference:	Grid
Well:	Well #1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	PLAT		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00
7,800.00	0.00	0.00	7,800.00	0.00	0.00	0.00	0.00	0.00	0.00
7,811.72	0.00	0.00	7,811.72	0.00	0.00	0.00	0.00	0.00	0.00
7,900.00	10.59	179.81	7,899.50	-8.14	0.03	8.14	12.00	12.00	0.00
8,000.00	22.59	179.81	7,995.16	-36.64	0.12	36.64	12.00	12.00	0.00
8,100.00	34.59	179.81	8,082.80	-84.41	0.28	84.42	12.00	12.00	0.00
8,200.00	46.59	179.81	8,158.60	-149.36	0.50	149.37	12.00	12.00	0.00
8,300.00	58.59	179.81	8,219.23	-228.65	0.77	228.65	12.00	12.00	0.00
8,400.00	70.59	179.81	8,262.06	-318.82	1.07	318.82	12.00	12.00	0.00
8,500.00	82.59	179.81	8,285.20	-415.91	1.40	415.92	12.00	12.00	0.00
8,564.22	90.30	179.81	8,289.18	-479.96	1.61	479.97	12.00	12.00	0.00
8,600.00	90.30	179.81	8,288.99	-515.74	1.73	515.74	0.00	0.00	0.00
8,700.00	90.30	179.81	8,288.47	-615.74	2.07	615.74	0.00	0.00	0.00
8,800.00	90.30	179.81	8,287.95	-715.74	2.40	715.74	0.00	0.00	0.00
8,900.00	90.30	179.81	8,287.42	-815.73	2.74	815.74	0.00	0.00	0.00
9,000.00	90.30	179.81	8,286.90	-915.73	3.07	915.74	0.00	0.00	0.00
9,100.00	90.30	179.81	8,286.37	-1,015.73	3.41	1,015.74	0.00	0.00	0.00
9,200.00	90.30	179.81	8,285.85	-1,115.73	3.74	1,115.73	0.00	0.00	0.00
9,300.00	90.30	179.81	8,285.33	-1,215.73	4.08	1,215.73	0.00	0.00	0.00
9,400.00	90.30	179.81	8,284.80	-1,315.72	4.41	1,315.73	0.00	0.00	0.00
9,500.00	90.30	179.81	8,284.28	-1,415.72	4.75	1,415.73	0.00	0.00	0.00
9,600.00	90.30	179.81	8,283.76	-1,515.72	5.09	1,515.73	0.00	0.00	0.00
9,700.00	90.30	179.81	8,283.23	-1,615.72	5.42	1,615.73	0.00	0.00	0.00
9,800.00	90.30	179.81	8,282.71	-1,715.72	5.76	1,715.73	0.00	0.00	0.00
9,900.00	90.30	179.81	8,282.19	-1,815.71	6.09	1,815.73	0.00	0.00	0.00
10,000.00	90.30	179.81	8,281.66	-1,915.71	6.43	1,915.72	0.00	0.00	0.00
10,100.00	90.30	179.81	8,281.14	-2,015.71	6.76	2,015.72	0.00	0.00	0.00
10,200.00	90.30	179.81	8,280.62	-2,115.71	7.10	2,115.72	0.00	0.00	0.00
10,300.00	90.30	179.81	8,280.09	-2,215.71	7.43	2,215.72	0.00	0.00	0.00
10,400.00	90.30	179.81	8,279.57	-2,315.71	7.77	2,315.72	0.00	0.00	0.00
10,500.00	90.30	179.81	8,279.04	-2,415.70	8.11	2,415.72	0.00	0.00	0.00

Chesapeake Operating Planning Report

Database:	Drilling Database:	Local Co-ordinate Reference:	*Well Well #1
Company:	Permian District	TVD Reference:	WELL @ 0:00ft (Original Well Elev)
Project:	Roker Lake	MD Reference:	WELL @ 0:00ft (Original Well Elev)
Site:	PLU Ross Ranch 21-25-30 USA 1H	North Reference:	Gnd
Well:	Well #1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	PLAT		

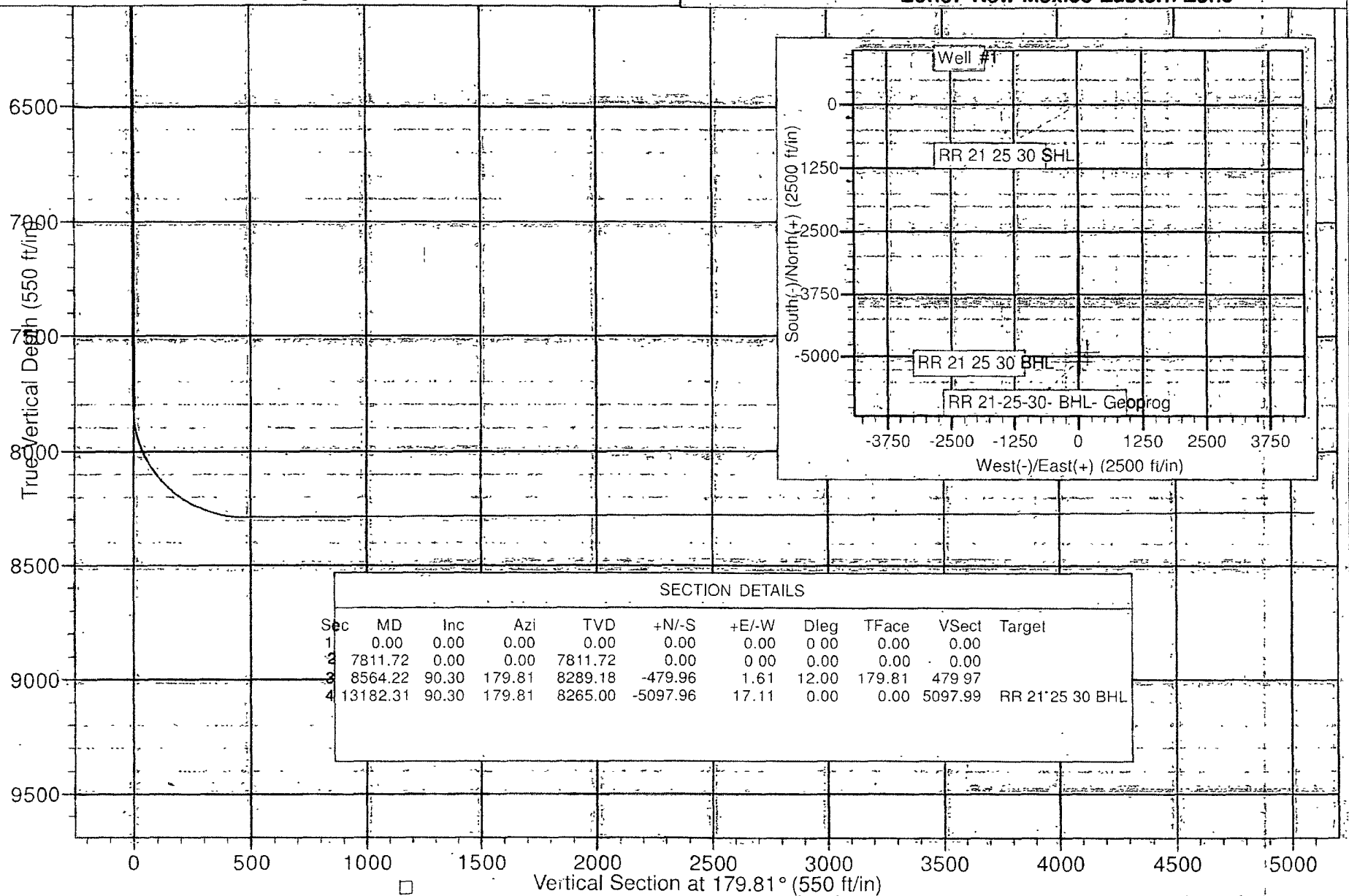
Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
10,600.00	90.30	179.81	8,278.52	-2,515.70	8.44	2,515.72	0.00	0.00	0.00	
10,700.00	90.30	179.81	8,278.00	-2,615.70	8.78	2,615.71	0.00	0.00	0.00	
10,800.00	90.30	179.81	8,277.47	-2,715.70	9.11	2,715.71	0.00	0.00	0.00	
10,900.00	90.30	179.81	8,276.95	-2,815.70	9.45	2,815.71	0.00	0.00	0.00	
11,000.00	90.30	179.81	8,276.43	-2,915.69	9.78	2,915.71	0.00	0.00	0.00	
11,100.00	90.30	179.81	8,275.90	-3,015.69	10.12	3,015.71	0.00	0.00	0.00	
11,200.00	90.30	179.81	8,275.38	-3,115.69	10.45	3,115.71	0.00	0.00	0.00	
11,300.00	90.30	179.81	8,274.86	-3,215.69	10.79	3,215.71	0.00	0.00	0.00	
11,400.00	90.30	179.81	8,274.33	-3,315.69	11.13	3,315.70	0.00	0.00	0.00	
11,500.00	90.30	179.81	8,273.81	-3,415.68	11.46	3,415.70	0.00	0.00	0.00	
11,600.00	90.30	179.81	8,273.29	-3,515.68	11.80	3,515.70	0.00	0.00	0.00	
11,700.00	90.30	179.81	8,272.76	-3,615.68	12.13	3,615.70	0.00	0.00	0.00	
11,800.00	90.30	179.81	8,272.24	-3,715.68	12.47	3,715.70	0.00	0.00	0.00	
11,900.00	90.30	179.81	8,271.71	-3,815.68	12.80	3,815.70	0.00	0.00	0.00	
12,000.00	90.30	179.81	8,271.19	-3,915.67	13.14	3,915.70	0.00	0.00	0.00	
12,100.00	90.30	179.81	8,270.67	-4,015.67	13.47	4,015.70	0.00	0.00	0.00	
12,200.00	90.30	179.81	8,270.14	-4,115.67	13.81	4,115.69	0.00	0.00	0.00	
12,300.00	90.30	179.81	8,269.62	-4,215.67	14.15	4,215.69	0.00	0.00	0.00	
12,400.00	90.30	179.81	8,269.10	-4,315.67	14.48	4,315.69	0.00	0.00	0.00	
12,500.00	90.30	179.81	8,268.57	-4,415.66	14.82	4,415.69	0.00	0.00	0.00	
12,600.00	90.30	179.81	8,268.05	-4,515.66	15.15	4,515.69	0.00	0.00	0.00	
12,700.00	90.30	179.81	8,267.53	-4,615.66	15.49	4,615.69	0.00	0.00	0.00	
12,800.00	90.30	179.81	8,267.00	-4,715.66	15.82	4,715.69	0.00	0.00	0.00	
12,900.00	90.30	179.81	8,266.48	-4,815.66	16.16	4,815.68	0.00	0.00	0.00	
13,000.00	90.30	179.81	8,265.95	-4,915.66	16.49	4,915.68	0.00	0.00	0.00	
13,100.00	90.30	179.81	8,265.43	-5,015.65	16.83	5,015.68	0.00	0.00	0.00	
13,182.31	90.30	179.81	8,265.00	-5,097.96	17.11	5,097.99	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
RR 21 25 30 BHL	0.00	0.00	8,265.00	-5,097.96	17.11	403,532.11	677,520.43	32.108625	-103.893499	
- hit/miss target										
- Shape										
- Point										
RR 21 25 30 SHL	0.00	0.00	8,292.00	0.00	0.00	408,630.05	677,503.33	32.122639	-103.893487	
- plan misses target center by 200.27ft at 8200.00ft MD (8158.60 TVD, -149.36 N, 0.50 E)										
- Point										

Project: Poker Lake
 Site: PLU Ross Ranch 21-25-30 USA 1H
 Well: Well #1
 Wellbore: Wellbore #1
 Design: PLAT

PROJECT DETAILS: Poker Lake

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone



Chesapeake Minimum BOPE Requirements

Wellname: PLU Ross Ranch 21-25-30 USA 1H

Operation: Intermediate and Production Hole Sections

BLOWOUT PREVENTOR SCHEMATIC CHESAPEAKE OPERATING INC Permian District-Minimum Requirements

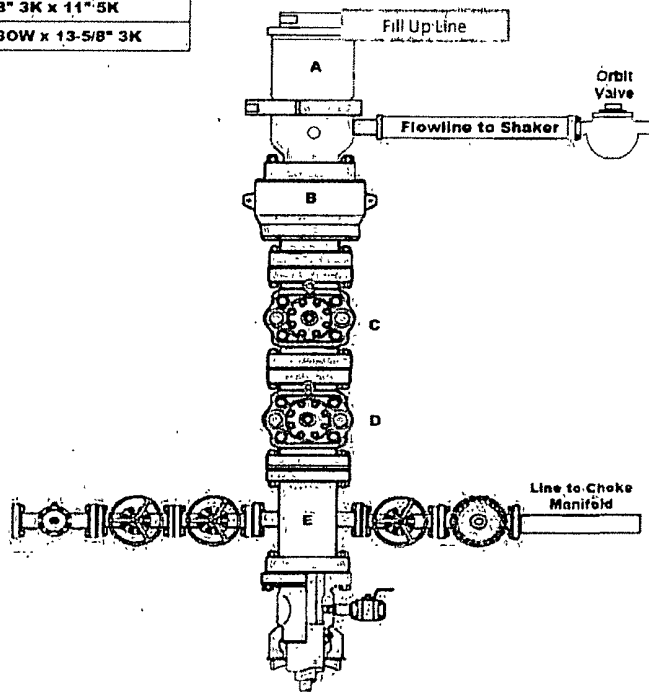
FIELD : Avalon

OPERATION: Intermediate and Production Hole Sections

SIZE	PRESSURE	DESCRIPTION
A	500	Rotating Head
B 13 5/8"	5,000	Annular
C 13 5/8"	5,000	Pipe Ram
D 13 5/8"	5,000	Blind Ram
E 13 5/8"	5,000	Mud Cross
F		
DSA	As required for each hole size	
C-Sec		
B-Sec	13-5/8" 3K x 11" 5K	
A-Sec	13-3/8" SOW x 13-5/8" 3K	

Test Notes:

- Pressure test to rating of BOP or wellhead every 21 days.
- Function test on tps
- H2S service trim required



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
3"	5,000	Gate Valve
3"	5,000	HCR Valve
3"	5,000	Steel Line Only

EXHIBIT F1

Chesapeake Minimum BOPE Requirements

Wellname: PLU Ross Ranch 21-25-30 USA 1H

Operation: Intermediate and Production Hole Sections

CHOKE MANIFOLD SCHEMATIC

CHESAPEAKE OPERATING INC

Permian District

Avalon Minimum Requirements

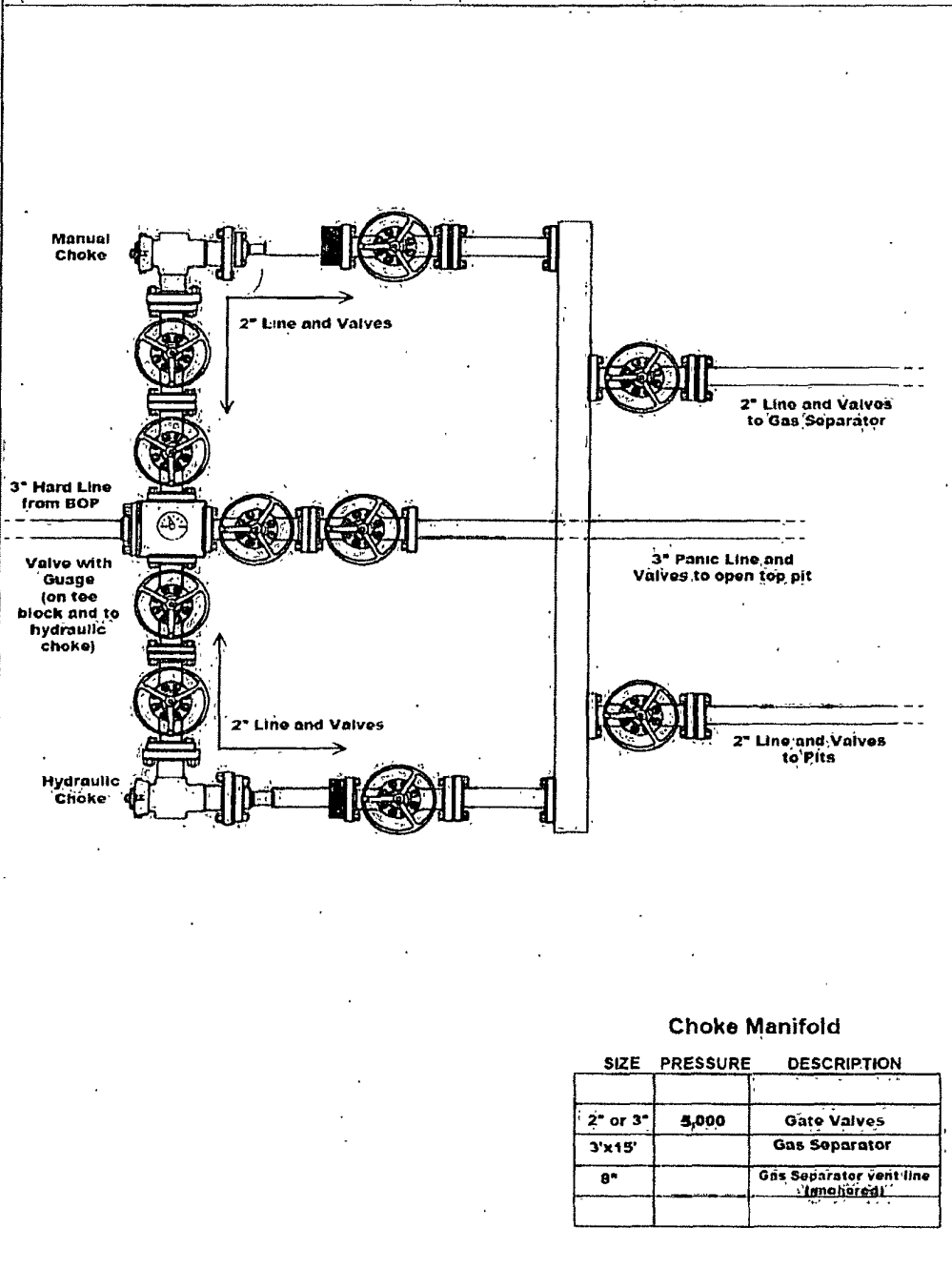


EXHIBIT F2

**Chesapeake Operating, Inc.'s Closed Loop System
PLU ROSS RANCH 21 25 30 USA 1H
Unit D, Sec. 21, T-25-S R-30-E
Eddy Co., NM
API # TBD**

Equipment & Design:

Chesapeake Operating, Inc. is to use a closed loop system with roll-off steel pits.

This rig has:

One Derrick FLC-503 Dual Shale Shaker

One Derrick 3-Cone Desander

One Atmospheric Degasser

One 500 bbl frac tank for fresh water

One 500 bbl frac tank brine water

Operations & Maintenance:

During each and every tour, the rig's drilling crew will inspect and monitor closely the drilling fluids contained within the steel pits and visually monitor any spill which may occur.

Within 48 hours should a spill, release or leak occur, the NMOCD District II office in Artesia (575-748-1283) will be notified. Please note that notifications may be made earlier to the district office should a greater release occur.

Closure:

During and after drilling operations, liquids (which apply), all drill cuttings and drilling fluids will be hauled and disposed to the Controlled Recovery, Inc.'s location.

The permit number for Controlled Recovery, Inc. is: NM-01-0006

The alternative disposal facility will be Sundance Disposal.

Their permit # is: NM-01-0003.

Chesapeake Operating, Inc.

Legals:

PLU ROSS RANCH 21-25-30 USA 1H

643901

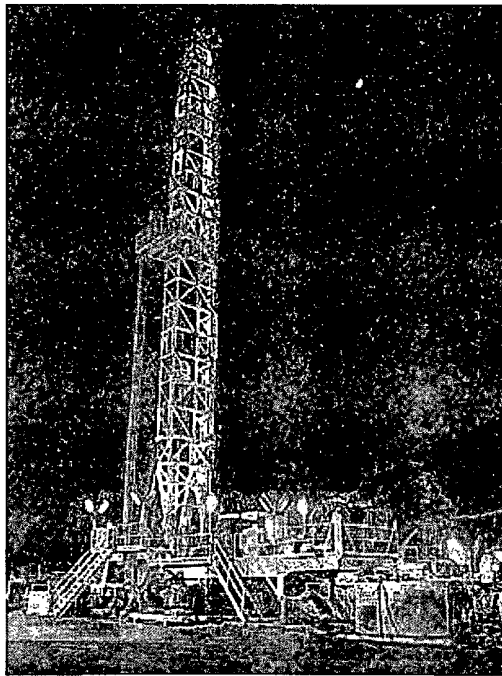
NW NW

32.12251490 / -103.893005

Rig Line: 6, Contractor: Patterson, Rig Number: 62

Eddy County, NM

H₂S “Contingency Plan”



Safety Solutions, LLC
7907 Industrial

(432) 563-0400
Midland, TX 79706

Emergency Assistance Telephone List

PUBLIC SAFETY: **911 or**

Eddy Nm County Sheriff's Department (575) 887-7551

Fire Department:

Eddy County (575) 628-5451

Carlsbad (575) 885-3125

Hospitals:

Carlsbad Medical Center (505) 887-4100

Artesia General Medical (505) 748-3333

Dept. of Public Safety/Carlsbad NM (575) 887-7551

NM Dept. of Transportation (505) 827-5100

NM Railroad Commission (817) 307-7210

U.S. Dept. of Labor (806) 743-7681

AirMed/ Care Star (877) 264-3570

Chesapeake Operating, Inc.

Chesapeake / Midland Office (432) 687-2992

Company Drilling Consultants:

Nathan Berg Cell (405) 618-0767

Marcus Garcia

Trailer (832) 380-6700

Drilling Engineer

Chris Gary Cell (405) 935-4346

Drilling Superintendent

Tim Hartsfield Cell (432) 940-9978

Latshaw Superintendent

Ray Ash Cell (432) 638-2008

Latshaw (918) 355-4380

Tool Pusher:

Lupe Rodriquez Cell (432) 755-4418

Jason Cell (432) 556-0675

(832) 380-6700

Safety Director

Cody Ashley Cell (940) 867-4102

Arron Gallegos Cell (432) 638-7734

Safety Consultants

Safety Solutions, LLC Office (432) 563-0400

Cliff Strasner Cell (432) 894-9789

Craig Strasner Cell (432) 894-0341

Table of Contents

I. H₂S Contingency Plan

- a. Scope
- b. Objective
- c. Discussion of Plan

II. Emergency Procedures

- a. Emergency Procedures
- b. Emergency Reaction Steps
- c. Simulated Blowout Control Drills

III. Ignition Procedures

- a. Responsibility
- b. Instructions

IV. Training Requirements

V. Emergency Equipment

VI. Check Lists

- a. Status Check List
- b. Procedural Check List

VII. Briefing Procedures

VIII. Evacuation Plan

- a. General Plan
- b. Emergency Phone Lists

IX. Maps and Plats

- a. Location Plat
- b. Map to Location
- c. Radius of Exposure

X. General Information

- a. Drilling/Re-entry Permits
- b. H-9 Permit
- c. H₂S Permissible Limits
- d. Toxicity Table
- e. Physical Properties
- f. Respirator Use
- g. Emergency Rescue

H₂S CONTINGENCY PLAN SECTION

Scope:

This contingency plan provides an organized plan of action for alerting and protecting the public within an area of exposure prior to an intentional release, or following the accidental release of a potentially hazardous volume of hydrogen sulfide. The plan establishes guidelines for all personnel whose work activity may involve exposure to Hydrogen Sulfide Gas (H₂S).

Objective:

Prevent any and all accidents, and prevent the uncontrolled release of H₂S into the atmosphere.

Provide proper evacuation procedures to cope with emergencies.

Provide immediate and adequate medical attention should an injury occur.

Discussion of Plan:

Suspected Problem Zones:

Implementation: This plan, with all details, is to be fully implemented 1000' before drilling into the first sour zone.

Emergency Response Procedure: This section outlines the conditions and denotes steps to be taken in the event of an emergency.

Emergency Equipment and Procedure: This section outlines the safety and emergency equipment that will be required for the drilling of this well.

Training Provisions: This section outlines the training provisions that must be adhered to 1000' before drilling into the first sour zone.

Emergency call list: Included are the telephone numbers of all persons that would need to be contacted, should an H₂S emergency occur.

Briefing: This section deals with the briefing of all persons involved with the drilling of this well.

Public Safety: Public Safety Personnel will be made aware of the drilling of this well.

Check Lists: Status check lists and procedural check lists have been included to ensure adherence to the plan.

General Information: A general information section has been included to supply support information.

EMERGENCY PROCEDURES SECTION

- I. In the event of any evidence of H₂S level above 10ppm, take the following steps immediately:
 - a. Secure breathing apparatus.
 - b. Order non-essential personnel out of the danger zone.
 - c. Take steps to determine if the H₂S level can be corrected or suppressed, and if so, proceed with normal operations.
- II. If uncontrollable conditions occur, proceed with the following:
 - a. Take steps to protect and/or remove any public downwind of the rig, including partial evacuation or isolation. Notify necessary public safety personnel and the New Mexico Oil Conservation Division of the situation.
 - b. Remove all personnel to the Safe Briefing Area.
 - c. Notify public safety personnel for help with maintaining roadblocks and implementing evacuation.
 - d. Determine and proceed with the best possible plan to regain control of the well. Maintain tight security and safety measures.
- III. Responsibility:
 - a. The Company Approved Supervisor shall be responsible for the total implementation of the plan.
 - b. The Company Approved Supervisor shall be in complete command during any emergency.
 - c. The Company Approved Supervisor shall designate a back up Supervisor in the event that he/she is not available.

EMERGENCY PROCEDURE IMPLEMENTATION

I. Drilling or Tripping

a. All Personnel

- i. When alarm sounds, don escape unit and report to upwind Safe Briefing Area.
- ii. Check status of other personnel (buddy system).
- iii. Secure breathing apparatus.
- iv. Wait for orders from supervisor.

b. Drilling Foreman

- i. Report to the upwind Safe Briefing Area.
- ii. Don Breathing Apparatus and return to the point of release with the Tool Pusher or Driller (buddy system).
- iii. Determine the concentration of H₂S.
- iv. Assess the situation and take appropriate control measures.

c. Tool Pusher

- i. Report to the upwind Safe Briefing Area.
- ii. Don Breathing Apparatus and return to the point of release with the Drilling Foreman or the Driller (buddy system).
- iii. Determine the concentration of H₂S.
- iv. Assess the situation and take appropriate control measures.

d. Driller

- i. Check the status of other personnel (in a rescue attempt, always use the buddy system).
- ii. Assign the least essential person to notify the Drilling Foreman and Tool Pusher, in the event of their absence.
- iii. Assume the responsibility of the Drilling Foreman and the Tool Pusher until they arrive, in the event of their absence.

e. Derrick Man and Floor Hands

- i. Remain in the upwind Safe Briefing Area until otherwise instructed by a supervisor.

f. Mud Engineer

- i. Report to the upwind Safe Briefing Area.
- ii. When instructed, begin check of mud for pH level and H₂S level.

g. Safety Personnel

- i. Don Breathing Apparatus.
- ii. Check status of personnel.
- iii. Wait for instructions from Drilling Foreman or Tool Pusher.

II. Taking a Kick

- a. All Personnel report to the upwind Safe Briefing Area.
- b. Follow standard BOP procedures.

III. Open Hole Logging

- a. All unnecessary personnel should leave the rig floor.
- b. Drilling Foreman and Safety Personnel should monitor the conditions and make necessary safety equipment recommendations.

IV. Running Casing or Plugging

- a. Follow "Drilling or Tripping" procedures.
- b. Assure that all personnel have access to protective equipment.

SIMULATED BLOWOUT CONTROL DRILLS

All drills will be initiated by activating alarm devices (air horn). One long blast, on the air horn, for ACTUAL and SIMULATED Blowout Control Drills. This operation will be performed by the Drilling Foreman or Tool Pusher at least one time per week for each of the following conditions, with each crew:

Drill #1 Bottom Drilling

Drill #2 Tripping Drill Pipe

In each of these drills, the initial reaction time to shutting in the well shall be timed as well as the total time for the crew to complete its entire pit drill assignment. The times must be recorded on the IADC Driller's Log as "Blowout Control Drill".

Drill No.:

Reaction Time to Shut-In: minutes, seconds.

Total Time to Complete Assignment: minutes, seconds.

I. Drill Overviews

a. Drill No. 1 – Bottom Drilling

- i. Sound the alarm immediately.
- ii. Stop the rotary and hoist Kelly joint above the rotary table.
- iii. Stop the circulatory pump.
- iv. Close the drill pipe rams.
- v. Record casing and drill pipe shut-in pressures and pit volume increases.

b. Drill No. 2 – Tripping Drill Pipe

- i. Sound the alarm immediately.
- ii. Position the upper tool joint just above the rotary table and set the slips.
- iii. Install a full opening valve or inside blowout preventer tool in order to close the drill pipe.
- iv. Close the drill pipe rams.
- v. Record the shut-in annular pressure.

II. Crew Assignments

a. Drill No. 1 – Bottom Drilling

i. Driller

1. Stop the rotary and hoist Kelly joint above the rotary table.
2. Stop the circulatory pump.
3. Check Flow.
4. If flowing, sound the alarm immediately
5. Record the shut-in drill pipe pressure
6. Determine the mud weight increase needed or other courses of action.

ii. Derrickman

1. Open choke line valve at BOP.
2. Signal Floor Man #1 at accumulator that choke line is open.
3. Close choke and upstream valve after pipe tam have been closed.
4. Read the shut-in annular pressure and report readings to Driller.

iii. Floor Man #1

1. Close the pipe rams after receiving the signal from the Derrickman.
2. Report to Driller for further instructions.

iv. Floor Man #2

1. Notify the Tool Pusher and Operator representative of the H₂S alarms.
2. Check for open fires and, if safe to do so, extinguish them.
3. Stop all welding operations.
4. Turn-off all non-explosions proof lights and instruments.
5. Report to Driller for further instructions.

v. Tool Pusher

1. Report to the rig floor.
2. Have a meeting with all crews.

3. Compile and summarize all information.
4. Calculate the proper kill weight.
5. Ensure that proper well procedures are put into action.

vi. Operator Representative

1. Notify the Drilling Superintendent.
2. Determine if an emergency exists and if so, activate the contingency plan.

b. Drill No. 2 – Tripping Pipe

i. Driller

1. Sound the alarm immediately when mud volume increase has been detected.
2. Position the upper tool joint just above the rotary table and set slips.
3. Install a full opening valve or inside blowout preventer tool to close the drill pipe.
4. Check flow.
5. Record all data reported by the crew.
6. Determine the course of action.

ii. Derrickman

1. Come down out of derrick.
2. Notify Tool Pusher and Operator Representative.
3. Check for open fires and, if safe to do so , extinguish them.
4. Stop all welding operations.
5. Report to Driller for further instructions.

iii. Floor Man #1

1. Pick up full opening valve or inside blowout preventer tool and stab into tool joint above rotary table (with Floor Man #2).
2. Tighten valve with back-up tongs.

3. Close pipe rams after signal from Floor Man #2.
4. Read accumulator pressure and check for possible high pressure fluid leaks in valves or piping.
5. Report to Driller for further instructions.

iv. Floor Man #2

1. Pick-up full opening valve or inside blowout preventer tool and stab into tool joint above rotary table (with Floor Man #1).
2. Position back-up tongs on drill pipe.
3. Open choke line valve at BOP.
4. Signal Floor Man #1 at accumulator that choke line is open.
5. Close choke and upstream valve after pipe rams have been closed.
6. Check for leaks on BOP stack and choke manifold.
7. Read annular pressure.
8. Report readings to the Driller.

v. Tool Pusher

1. Report to the rig floor.
2. Have a meeting with all of the crews.
3. Compile and summarize all information.
4. See that proper well kill procedures are put into action.

vi. Operator Representative

1. Notify Drilling Superintendent
2. Determine if an emergency exists, and if so, activate the contingency plan.

IGNITION PROCEDURES

Responsibility:

The decision to ignite the well is the responsibility of the DRILLING FOREMAN in concurrence with the STATE POLICE. In the event the Drilling Foreman is incapacitated, it becomes the responsibility of the RIG TOOL PUSHER. This decision should be made only as a last resort and in a situation where it is clear that:

1. Human life and property are endangered.
2. There is no hope of controlling the blowout under the prevailing conditions.

If time permits, notify the main office, but do not delay if human life is in danger. Initiate the first phase of the evacuation plan.

Instructions for Igniting the Well:

1. Two people are required for the actual igniting operation. Both men must wear self-contained breathing apparatus and must use a full body harness and attach a retrievable safety line to the D-Ring in the back. One man must monitor the atmosphere for explosive gases with the LEL monitor, while the Drilling Foreman is responsible for igniting the well.
2. The primary method to ignite is a 25mm flare gun with a range of approximately 500 feet.
3. Ignite from upwind and do not approach any closer than is warranted.
4. Select the ignition site best suited for protection and which offers an easy escape route.
5. Before igniting, check for the presence of combustible gases.
6. After igniting, continue emergency actions and procedures as before.
7. All unassigned personnel will limit their actions to those directed by the Drilling Foreman.

Note: After the well is ignited, burning Hydrogen Sulfide will convert to Sulfur Dioxide, which is also highly toxic. Do not assume the area is safe after the well is ignited.

TRAINING PROGRAM

When working in an area where Hydrogen Sulfide (H₂S) might be encountered, definite training requirements must be carried out. The Company Supervisor will ensure that all personnel, at the well site, have had adequate training in the following:

1. Hazards and characteristics of Hydrogen Sulfide.
2. Physicals effects of Hydrogen Sulfide on the human body.
3. Toxicity of Hydrogen Sulfide and Sulfur Dioxide.
4. H₂S detection, Emergency alarm and sensor location.
5. Emergency rescue.
6. Resuscitators.
7. First aid and artificial resuscitation.
8. The effects of Hydrogen Sulfide on metals.
9. Location safety.

Service company personnel and visiting personnel must be notified if the zone contains H₂S, and each service company must provide adequate training and equipment for their employees before they arrive at the well site.

EMERGENCY EQUIPMENT REQUIREMENTS

Lease Entrance Sign:

Should be located at the lease entrance with the following information:

CAUTION – POTENTIAL POISON GAS
HYDROGEN SULFIDE
NO ADMITTANCE WITHOUT AUTHORIZATION

Respiratory Equipment:

- Fresh air breathing equipment should be placed at the safe briefing areas and should include the following:
- Two SCBA's at each briefing area.
- Enough air line units to operate safely, anytime the H₂S concentration reaches the IDLH level (100 ppm).
- Cascade system with enough breathing air hose and manifolds to reach the rig floor, the derrickman and the other operation areas.

Windssocks or Wind Streamers:

- A minimum of two 10" windssocks located at strategic locations so that they may be seen from any point on location.
- Wind streamers (if preferred) should be placed at various locations on the well site to ensure wind consciousness at all times. (Corners of location).

Hydrogen Sulfide Detector and Alarms:

- 1 - Four channel H₂S monitor with alarms.
- Four (4) sensors located as follows: #1 – Rig Floor, #2 – Bell Nipple, #3 – Shale Shaker, #4 – Mud Pits.
- Gastec or Draeger pump with tubes.
- Sensor test gas.

Well Condition Sign and Flags:

The Well Condition Sign w/flags should be placed a minimum of 150' before you enter the location. It should have three (3) color coded flags (green, yellow and red) that will be used to denote the following location conditions:

GREEN – Normal Operating Conditions
YELLOW – Potential Danger
RED – Danger, H₂S Gas Present

Auxiliary Rescue Equipment:

- Stretcher
- 2 – 100' Rescue lines.
- First Aid Kit properly stocked.

Mud Inspection Equipment:

Garret Gas Train or Hach Tester for inspection of Hydrogen Sulfide in the drilling mud system.

Fire Extinguishers:

Adequate fire extinguishers shall be located at strategic locations.

Blowout Preventer:

- The well shall have hydraulic BOP equipment for the anticipated BHP.
- The BOP should be tested upon installation.
- BOP, Choke Line and Kill Line will be tested as specified by Operator.

Confined Space Monitor:

There should be a portable multi-gas monitor with at least 3 sensors (O₂, LEL H₂S). This instrument should be used to test the atmosphere of any confined space before entering. It should also be used for atmospheric testing for LEL gas before beginning any type of Hot Work. Proper calibration documentation will need to be provided.

Communication Equipment:

- Proper communication equipment such as cell phones or 2-way radios should be available at the rig.
- Radio communication shall be available for communication between the company man's trailer, rig floor and the tool pusher's trailer.

- Communication equipment shall be available on the vehicles.

Special Control Equipment:

- Hydraulic BOP equipment with remote control on the ground.
- Rotating head at the surface casing point.

Evacuation Plan:

- Evacuation routes should be established prior to spudding the well.
- Should be discussed with all rig personnel.

Designated Areas:

Parking and Visitor area:

- All vehicles are to be parked at a pre-determined safe distance from the wellhead.
- Designated smoking area.

Safe Briefing Areas:

- Two Safe Briefing Areas shall be designated on either side of the location at the maximum allowable distance from the well bore so they offset prevailing winds or they are at a 180 degree angle if wind directions tend to shift in the area.
- Personal protective equipment should be stored at both briefing areas or if a moveable cascade trailer is used, it should be kept upwind of existing winds. When wind is from the prevailing direction, both briefing areas should be accessible.

Note:

- Additional equipment will be available at the Safety Solutions, LLC office.
- Additional personal H₂S monitors are available for all employees on location.
- Automatic Flare Igniters are recommended for installation on the rig.

Affected Notification List



The geologic zones that will be encountered during drilling are known to contain hazardous quantities of H₂S. The accompanying map illustrates the affected areas of the community. The residents within this radius will be notified via a hand delivered written notice describing the activities, potential hazards, conditions of evacuation, evacuation drill siren alarms and other precautionary measures.

Evacuee Description:

Residents: **THERE ARE NO RESIDENTS WITHIN 3000' ROE.**

Notification Process:

A continuous siren audible to all residence will be activated, signaling evacuation of previously notified and informed residents.

Evacuation Plan:

All evacuees will migrate lateral to the wind direction.

The Oil Company will identify all home bound or highly susceptible individuals and make special evacuation preparations, interfacing with the local and emergency medical service as necessary.

***Given no offset well info about H₂S Production, Chesapeake is assuming a ROE of 3000' for 100 ppm, as per Onshore Order 6. A search of the area surrounding the drilling location found no public buildings, roadways, or residences within 3000'.

Toxic Effects of H₂S Poisoning

Hydrogen Sulfide is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 10 PPM, which is .001% by volume. Hydrogen Sulfide is heavier than air (specific gravity – 1.192) and is colorless and transparent. Hydrogen Sulfide is almost as toxic as Hydrogen Cyanide and is 5-6 times more toxic than Carbon Monoxide. Occupational exposure limits for Hydrogen Sulfide and other gases are compared below in Table 1. Toxicity table for H₂S and physical effects are shown in Table 2.

Table 1
Permissible Exposure Limits of Various Gases

Common Name	Symbol	Sp. Gravity	TLV	STEL	IDLH
Hydrogen Cyanide	HCN	.94	4.7 ppm	C	
Hydrogen Sulfide	H ₂ S	1.192	10 ppm	15 ppm	100 ppm
Sulfide Dioxide	SO ₂	2.21	2 ppm	5 ppm	
Chlorine	CL	2.45	.5 ppm	1 ppm	
Carbon Monoxide	CO	.97	25 ppm	200 ppm	
Carbon Dioxide	CO ₂	1.52	5000 ppm	30,000 ppm	
Methane	CH ₄	.55	4.7% LEL	14% UEL	

Definitions

- A. TLV – Threshold Limit Value is the concentration employees may be exposed based on a TWA (time weighted average) for eight (8) hours in one day for 40 hours in one (1) week. This is set by ACGIH (American Conference of Governmental Hygienists) and regulated by OSHA.
- B. STEL – Short Term Exposure Limit is the 15 minute average concentration an employee may be exposed to providing that the highest exposure never exceeds the OEL (Occupational Exposure Limit). The OEL for H₂S is 19 PPM.
- C. IDLH – Immediately Dangerous to Life and Health is the concentration that has been determined by the ACGIH to cause serious health problems or death if exposed to this level. The IDLH for H₂S is 100 PPM.
- D. TWA – Time Weighted Average is the average concentration of any chemical or gas for an eight (8) hour period. This is the concentration that any employee may be exposed based on an TWA.

TABLE 2Toxicity Table of H₂S

Percent %	PPM	Physical Effects
.0001	1	Can smell less than 1 ppm.
.001	10	TLV for 8 hours of exposure.
.0015	15	STEL for 15 minutes of exposure.
.01	100	Immediately Dangerous to Life & Health. Kills sense of smell in 3 to 5 minutes.
.02	200	Kills sense of smell quickly, may burn eyes and throat.
.05	500	Dizziness, cessation of breathing begins in a few minutes .
.07	700	Unconscious quickly, death will result if not rescued promptly.
.10	1000	Death will result unless rescued promptly. Artificial resuscitation may be necessary.

PHYSICAL PROPERTIES OF H₂S

The properties of all gases are usually described in the context of seven major categories:

COLOR
ODOR
VAPOR DENSITY
EXPLOSIVE LIMITS
FLAMMABILITY
SOLUBILITY (IN WATER)
BOILING POINT

Hydrogen Sulfide is no exception. Information from these categories should be considered in order to provide a fairly complete picture of the properties of the gas.

COLOR – TRANSPARENT

Hydrogen Sulfide is colorless so it is invisible. This fact simply means that you can't rely on your eyes to detect its presence. In fact that makes this gas extremely dangerous to be around.

ODOR – ROTTEN EGGS

Hydrogen Sulfide has a distinctive offensive smell, similar to "rotten eggs". For this reason it earned its common name "sour gas". However, H₂S, even in low concentrations, is so toxic that it attacks and quickly impairs a victim's sense of smell, so it could be fatal to rely on your nose as a detection device.

VAPOR DENSITY – SPECIFIC GRAVITY OF 1.192

Hydrogen Sulfide is heavier than air so it tends to settle in low-lying areas like pits, cellars or tanks. If you find yourself in a location where H₂S is known to exist, protect yourself. Whenever possible, work in an area upwind and keep to higher ground.

EXPLOSIVE LIMITS – 4.3% TO 46%

Mixed with the right proportion of air or oxygen, H₂S will ignite and burn or explode, producing another alarming element of danger besides poisoning.

FLAMMABILITY

Hydrogen Sulfide will burn readily with a distinctive clear blue flame, producing Sulfur Dioxide (SO₂), another hazardous gas that irritates the eyes and lungs.

SOLUBILITY – 4 TO 1 RATIO WITH WATER

Hydrogen Sulfide can be dissolved in liquids, which means that it can be present in any container or vessel used to carry or hold well fluids including oil, water, emulsion and sludge. The solubility of H₂S is dependent on temperature and pressure, but if conditions are right, simply agitating a fluid containing H₂S may release the gas into the air.

BOILING POINT – (-76 degrees Fahrenheit)

Liquefied Hydrogen Sulfide boils at a very low temperature, so it is usually found as a gas.

RESPIRATOR USE

The Occupational Safety and Health Administration (OSHA) regulate the use of respiratory protection to protect the health of employees. OSHA's requirements are written in the Code of Federal Regulations, Title 29, Part 1910, Section 134, Respiratory Protection. This regulation requires that all employees who might be required to wear respirators, shall complete a OSHA mandated medical evaluation questionnaire. The employee then should be fit tested prior to wearing any respirator while being exposed to hazardous gases.

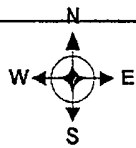
Written procedures shall be prepared covering safe use of respirators in dangerous atmospheric situations, which might be encountered in normal operations or in emergencies. Personnel shall be familiar with these procedures and the available respirators.

Respirators shall be inspected prior to and after each use to make sure that the respirator has been properly cleaned, disinfected and that the respirator works properly. The unit should be fully charged prior to being used.

Anyone who may use respirators shall be properly trained in how to properly seal the face piece. They shall wear respirators in normal air and then in a test atmosphere. (Note: Such items as facial hair (beard or sideburns) and eyeglass temple pieces will not allow a proper seal.) Anyone that may be expected to wear respirators should have these items removed before entering a toxic atmosphere. A special mask must be obtained for anyone who must wear eyeglasses. Contact lenses should not be allowed.

Respirators shall be worn during the following conditions:

- A. Any employee who works near the top or on the top of any tank unless tests reveal less than 20 ppm of H₂S.
- B. When breaking out any line where H₂S can reasonably be expected.
- C. When sampling air in areas where H₂S may be present.
- D. When working in areas where the concentration of H₂S exceeds the Threshold Limit Value for H₂S (10 ppm).
- E. At any time where there is a doubt as to the H₂S level in the area to be entered.



**Prevailing wind direction is from the Southwest.

Patterson 62

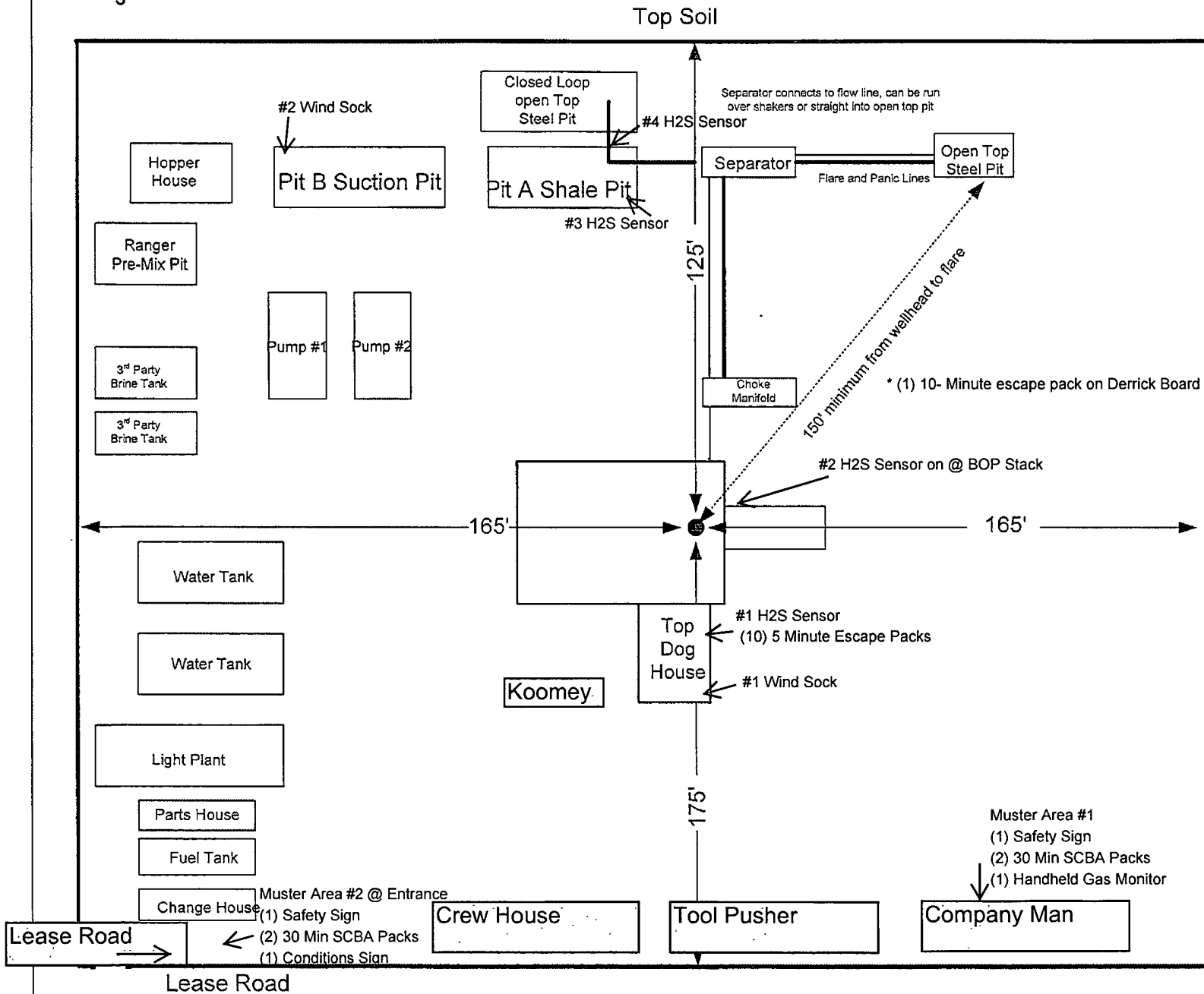
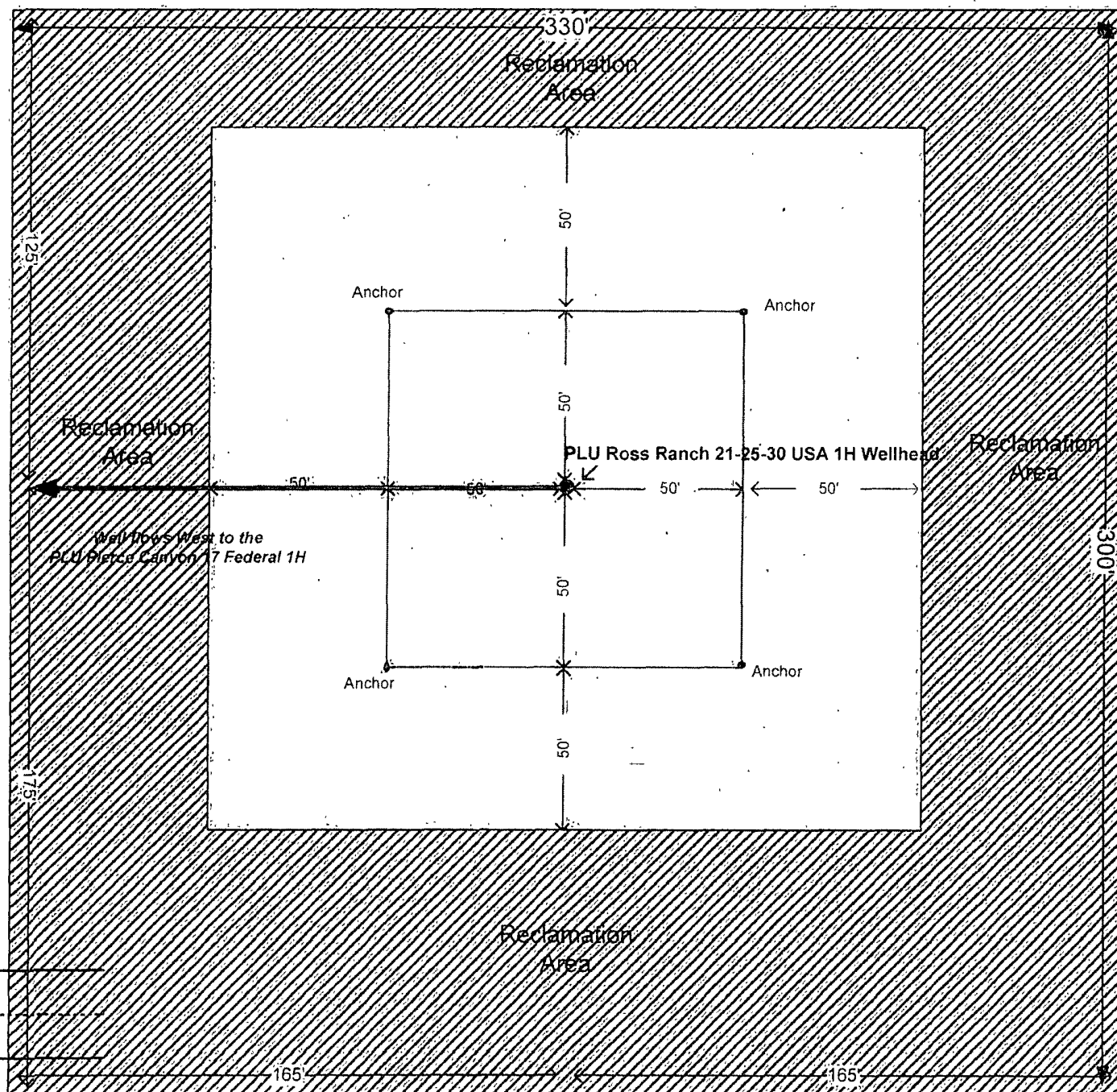
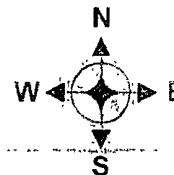


EXHIBIT D

PLU Ross Ranch 21-25-30 USA 1H

Property Number 643901 PAD SITE Number 915683
Section 21 – T25S – R30E 125 FNL & 400 FWL of Section
Lat.: 32-1226 – Long.: -103-8930
Eddy County, New Mexico



Drawing not to scale

**This lease is subject to
Chesapeake's Site Security Plan
located at 6100 N. Western
Oklahoma City, OK 73118**

Prepared by: Donny Lowry
Date: 3/5/2012

EXHIBIT C

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CHESAPEAKE AGENT FOR BOPCO
LEASE NO.:	LC063875A
WELL NAME & NO.:	1H-PLU ROSS RANCH 21 25 30 USA
SURFACE HOLE FOOTAGE:	0125'/N. & 0400'/W.
BOTTOM HOLE FOOTAGE:	0100'/S. & 0400'/W.
LOCATION:	Section 21, T. 25 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.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☐ **Special Requirements**
- ☐ **Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
 - Medium Cave/Karst
 - Logging requirements
 - Waste Material and Fluids
- ☐ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment & Reclamation**