

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. SL NMLC 0063873A BL LC063873A
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name See front page of 8pt for lease info. TOS 3/13/2013
2. Name of Operator BOPCO, L. P. C 2607377		7. If Unit or CA Agreement, Name and No. Poker Lake Unit NMNM 71016X
3a. Address P. O. Box 2760 Midland, TX 79702	3b. Phone No. (include area code) 432-683-2277	8. Lease Name and Well No. Poker Lake Unit 378H C 3064087
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface NENW,UL C, 915' FNL & 1765' FWL, Lat:N32.149736,Long:W103.8713 At proposed prod. zone 260'FNL&1010' FWL,Sec 14-T25S-R30E,Lat:N32.136994,Lg:W103.856589		9. API Well No. 30-015-41196
14. Distance in miles and direction from nearest town or post office* 13 miles southeast of Malaga		10. Field and Pool, or Exploratory Corral Canyon NE (Delaware) C 962097
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 260'	16. No. of acres in lease 4,322.6 acres	11. Sec., T. R. M. or Blk. and Survey or Area Sec 10, T25S-R30E, Mer, NMP
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1,372' (PLU 380)	19. Proposed Depth 7,726' TVD/ 13,795' MD	12. County or Parish Eddy
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3312' GL	22. Approximate date work will start* 03/08/2013	13. State NM
23. 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.  | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).    |
| 2. A Drilling Plan.   | 5. Operator certification  |
| 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). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature <i>Courtney Lockhart</i>	Name (Printed/Typed) Courtney Lockhart	Date 2-5-13
Title Regulatory Analyst		

Approved by (Signature) /s/ Don Peterson	Name (Printed/Typed) /s/ Don Peterson	Date MAR 11 2013
Title FIELD MANAGER		
Office CARLSBAD FIELD OFFICE		

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

APPROVAL FOR 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.

\*(Instructions on page 2)

Carlsbad Controlled Water Basin

Approval Subject to General Requirements  
& Special Stipulations Attached

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

## 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

Form C-102

Revised July 16, 2010

Submit one copy to appropriate  
District Office

## OIL CONSERVATION DIVISION

1220 South St. Francis Dr.  
Santa Fe, New Mexico 87505

## WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number <b>30-015-41196</b>	Pool Code 96209	Pool Name CORRAL CANYON (DELAWARE) NORTHEAST
Property Code 306402	Property Name POKER LAKE UNIT	Well Number 378H
OGRID No. 260737	Operator Name BOPCO, L.P.	Elevation 3312'

## Surface Location

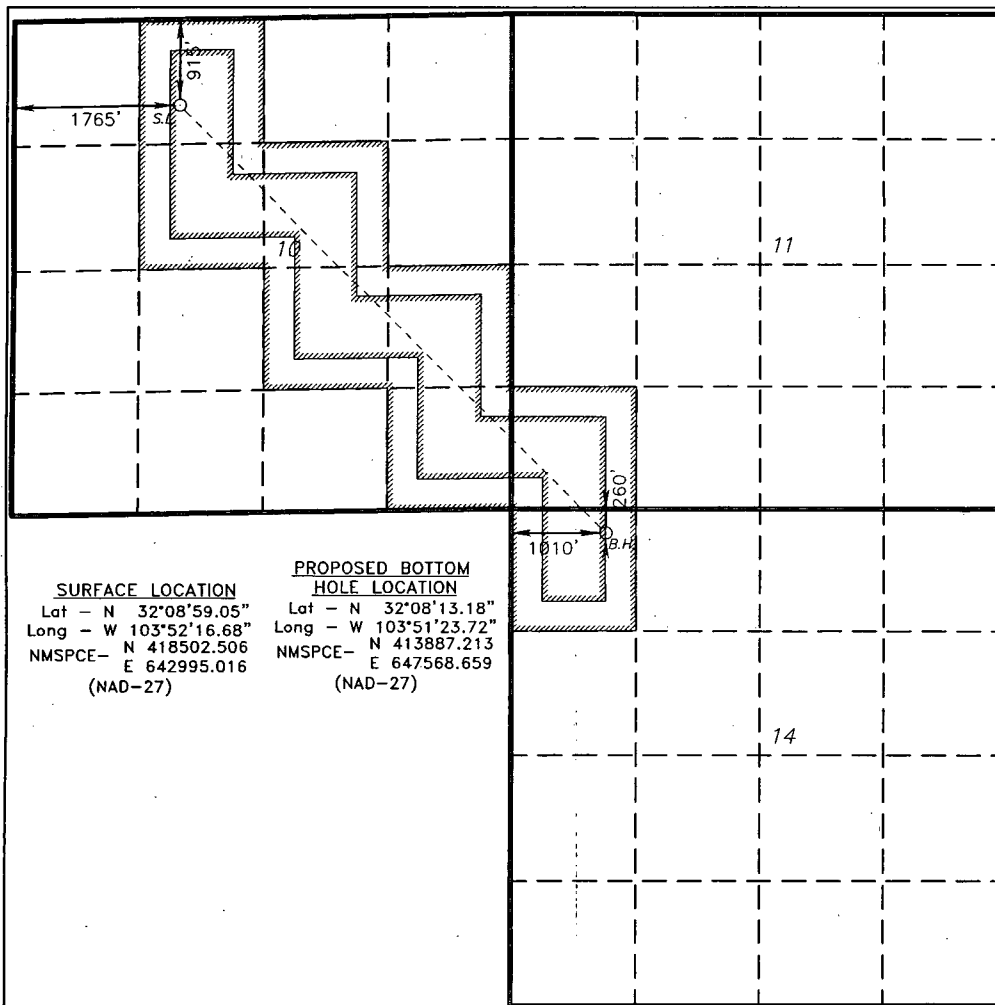
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	10	25 S	30 E		915	NORTH	1765	WEST	EDDY

## 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
D	14	25 S	30 E		260	NORTH	1010	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
320			

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



## SURFACE LOCATION

Lat - N 32°08'59.05"  
Long - W 103°52'16.68"  
NMSPCE- N 418502.506  
E 642995.016  
(NAD-27)

PROPOSED BOTTOM  
HOLE LOCATION

Lat - N 32°08'13.18"  
Long - W 103°51'23.72"  
NMSPCE- N 413887.213  
E 647568.659  
(NAD-27)

## 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.

*Courtney Lockhart* 1-15-13  
Signature Date

Courtney Lockhart

Printed Name  
cjlockhart@basspet.com

Email Address

## 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.

NOVEMBER 15, 2012  
NEW MEXICO  
Date Surveyed  
Signature & Seal of  
Professional Surveyor  
GARY L. JONES  
W. & E. 1003

Certificate No. Gary L. Jones 7977

BASIN SURVEYS 27663

**BOPCO, L.P.**

P. O. Box 2760  
Midland, Texas 79702

432-683-2277

FAX-432-687-0329

January 18, 2013

Bureau of Land Management  
Carlsbad Field Office  
620 East Green Street  
Carlsbad, New Mexico 88220-6292

Attn: Mr. Don Peterson – Assistant Field Manager, Minerals

RE: APPLICATION FOR PERMIT TO DRILL  
POKER LAKE UNIT #378H  
915' FNL, 1765' FWL, Sec. 10, T25S, R30E, Eddy County, NM

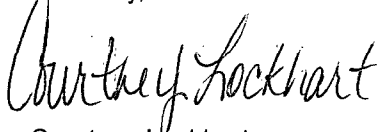
Dear Mr. Peterson,

In reference to the above captioned well, 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 the APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein 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 false statements.

Executed this 18<sup>th</sup> day of January, 2013.

If you have any questions regarding the accuracy of the plan provided herein, please do not hesitate to contact me at (432) 683-2277.

Sincerely,



Courtney Lockhart  
Regulatory Analyst

Surface casing is to be set into the Rustler below all fresh water sands at an approximate depth of 871' and cement circulated to surface.

7" casing will be set at approximately 7,743' MD, 7,539' TVD (In curve) and cemented in two stages with DV Tool set at approximately 5,000'. Cement will be circulated 500' into the 9-5/8" intermediate casing.

Drilling procedure, BOP diagram, and anticipated tops are attached.

This well is located outside the R111 Potash area and Secretary's Potash area.

The surface location is nonstandard and located inside the Poker Lake Unit.

The bottom hole location is nonstandard and located inside the Poker Lake Unit.

**Surface Lease Numbers- Federal Lease: NMLC ~~0061616A~~**

**Bottom Hole Lease Numbers – Federal Lease: NMLC ~~0063873A~~**

BOPCO, L.P., at P. O. Box 2760, Midland, TX, 79702 is a subsidiary of BOPCO, L.P., 201 Main Street, Ft. Worth, TX, 76102. Bond No. COB000050 (Nationwide).

# **EIGHT POINT DRILLING PROGRAM** **BOPCO, L.P.**

**NAME OF WELL: Poker Lake Unit 378H**

**LEGAL DESCRIPTION - SURFACE:** 915' FNL, 1765' FWL, Section 10, T25S, R30E, Eddy County, NM.

**BHL:** 260' FNL, 1010' FWL, Section 14, T25S, R30E, Eddy County, New Mexico.

**POINT 1: ESTIMATED FORMATION TOPS** (See No. 2 Below)

**POINT 2: WATER, OIL, GAS AND/OR MINERAL BEARING FORMATIONS**

Anticipated Formation Tops: KB 3331' (estimated)  
GL 3312'

Formation Description	Est from KB (TVD)	Est (MD)	SUB-SEA TOP	BEARING
T/Fresh Water	400'	400'	+ 2,931'	Fresh Water
T/Rustler	851'	851'	+ 2,480'	Barren
T/Salado	1,111'	1,111'	+ 2,220'	Barren
B/Salt	3,701'	3,701'	- 370'	Oil/Gas
T/Lamar	3,911'	3,911'	- 580'	Oil/Gas
T/Ramsey	3,946'	3,946'	- 615'	Oil/Gas
Cherry Canyon	4,841'	4,841'	- 1,510'	Oil/Gas
Brushy Canyon	6,041'	6,041'	- 2,710'	Oil/Gas
KOP	6,943'	6,943'	- 3,612'	Oil/Gas
Lower Brushy Canyon "8A"	7,436'	7,536'	- 4,105'	Oil/Gas
EOC	7,616'	8,032'	- 4,285'	Oil/Gas
Target #1	7,616'	8,032'	- 4,285'	Oil/Gas
TD Horizontal Hole	7,726'	13,795'	- 4,395'	Oil/Gas

## **POINT 3: CASING PROGRAM**

TYPE	INTERVAL MD	HOLE SIZE	PURPOSE	INSTALLATION TYPE
20"	0' - 120'	30"	Conductor	Contractor Discretion
13-3/8", 48 ppf, H-40, or 54.5#, J-55 8rd, ST&C*	0' - <del>871'</del> 895' see CDA	17-1/2"	Surface	New
9-5/8", 40 ppf, N-80, 8rd, LT&C or 9-5/8" 40 ppf, J-55, 8rd, LT&C*	0' - 3,926'	12-1/4"	Intermediate	New
7", 26 ppf, N-80, Buttress or 8rd LTC*	0' - 7,743'	8-3/4"	Production	New

Completion System				
4-1/2", 11.6 ppf, HCP-110 8rd LT&C, BTC	7,693' - 13,795'	6-1/8"	Completion System	New

\* Depending on availability.

**CASING DESIGN SAFETY FACTORS:**

TYPE	TENSION	COLLAPSE	BURST
13-3/8", 48 ppf, H-40, 8rd, ST&C*	21	4.61	2.24
13-3/8", 54.5 ppf, J-55, 8rd, STC*	20.91	2.67	1.77
9-5/8", 40 ppf, N-80, 8rd, LT&C*	5.56	1.37	2.62
9-5/8", 40 ppf, J-55, 8rd, LT&C*	4.75	1.23	1.80
7", 26 ppf, N-80, Buttress*	3.57	1.33	1.72
7", 26 ppf, N-80, 8rd, LTC*	3.07	1.28	1.72

<b>Completion System</b>			
4-1/2", 11.6 ppf, HCP-110 8rd. LT&C	3.61	2.07	2.48
4-1/2", 11.6 ppf, HCP-110 BTC	4.75	2.17	2.48

\* Depending on availability.

## DESIGN CRITERIA AND CASING LOADING ASSUMPTIONS:

### SURFACE CASING - (13-3/8")

Tension	A 1.6 design factor utilizing the effects of buoyancy (9.2 ppg).
Collapse	A 1.0 design factor with full internal evacuation and a collapse force equal to the mud gradient in which the casing will be run (0.48 psi/ft). The effects of axial load on collapse will be considered.
Burst	A 1.3 design factor with a surface pressure equal to the fracture gradient at setting depth less a gas gradient to the surface. Internal burst force at the shoe will be fracture pressure at that depth. Backup pressure will be formation pore pressure. In all cases a conservative fracture pressure will be used such that it represents the upper limit of potential fracture resistance up to a 1.0 psi/ft gradient. The effects of tension on burst will not be utilized.

### PROTECTIVE CASING - (9-5/8")

Tension	A 1.6 design factor utilizing the effects of buoyancy (10.2 ppg).
Collapse	A 1.125 design factor with full internal evacuation and a collapse force equal to the mud gradient in which the casing will be run (0.52 psi/ft). The effects of axial load on collapse will be considered.  In the case of development drilling, collapse design should be analyzed using internal evacuation equal to 1/3 the proposed total depth of the well. This criterion will be used when there is absolutely no potential of the protective string being used as a production casing string.
Burst	A 1.0 surface design factor and a 1.3 downhole design factor with a surface pressure equivalent to the fracture gradient at setting depth less a gas gradient to the surface. Internal burst force at the shoe will be fracture pressure at that depth. Backup pressure will be formation pore pressure. In all cases a conservative fracture pressure will be used such that it represents the upper limit of potential fracture resistance up to a 1.0 psi/ft gradient.

### Production CASING - (7")

Tension	A 1.6 design factor utilizing the effects of buoyancy (9.0 ppg).
Collapse	A 1.125 design factor with full internal evacuation and a collapse force equal to the mud gradient in which the casing will be run (0.48 psi/ft). The effects of axial load on collapse will be considered.
Burst	A 1.25 design factor with anticipated maximum tubing pressure (5000 psig) on top of the maximum anticipated packer fluid gradient. (0.433 psi/ft) Backup on production strings will be formation pore pressure. (0.433 psi/ft) The effects of tension on burst will not be utilized.

### Completion System - (4-1/2")

Tension	A 1.6 design factor utilizing the effects of buoyancy (9.0 ppg).
Collapse	A 1.125 design factor with full internal evacuation and a collapse force equal to the mud gradient in which the casing will be run (0.48 psi/ft). The effects of axial load on collapse will be considered.
Burst	A 1.25 design factor with anticipated maximum tubing pressure (5000 psig) on top of the maximum anticipated packer fluid gradient. (0.433 psi/ft) Backup on production strings will be formation pore pressure. (0.433 psi/ft) The effects of tension on burst will not be utilized.

#### POINT 4: PRESSURE CONTROL EQUIPMENT (SEE ATTACHED DIAGRAMS A, B, or C)

After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed, used, maintained and tested as per Onshore Order 2. In addition to the high pressure test, a low pressure (250-300 psig) test will be performed.

After running the 9-5/8" intermediate casing, a 13-5/8" or 11" BOP/BOPE system with a minimum rating of 3M will be installed on the 9-5/8" intermediate casing spool (8-3/4" open hole), used, maintained and tested as per Onshore Order 2. In addition to the high pressure test, a low pressure (250-300 psig) test will be performed.

After running the 7" intermediate casing, a 13-5/8" or 11" BOP/BOPE system with a minimum rating of 3M will be installed on the 9-5/8" intermediate casing spool (8-3/4" open hole), used, maintained and tested as per Onshore Order 2. In addition to the high pressure test, a low pressure (250-300 psig) test will be performed.

#### H2S contingency

H2S monitors shall be installed prior to drilling out the surface shoe. If H2S is encountered in quantities greater than 10 PPM, the well will be shut in and H2S equipment will be installed, including a flare line that will be extended pursuant to onshore oil and gas order #6.

These tests will be performed:

- a) Upon installation
- b) After any component changes
- c) Thirty days after a previous test
- d) As required by well conditions
- e) Any time a seal is broken within a system

A function test to insure that the preventers are operating correctly will be performed on each trip.

BOPCO, L.P. would like to request a variance to use an armored, 3", 5000 psi WP flex hose for the choke line in the drilling of the well if the rig is equip with hose. (See specification for hose that might be used, attached with APD exhibits). This is rig equipment and will help quicken nipple up time thus saving money without a safety problem. The hose itself is rated to 5000 psi, and has 5000 psi flanges on each end. This well is to be drilled to 13,795' MD (7,726' TVD) and max surface pressure should be +/- 1916 psi as prescribed in onshore order #2 shown as max BHP minus 0.22 psi/ft. Thus, 3000 psi BOPE is all that is needed for this well. **Please refer to diagrams A, B, or C for choke manifold and closed loop system layout. If an armored flex hose is utilized, the company man will have all of the proper certified paper work for that hose available on location.**

#### POINT 5: MUD PROGRAM

DEPTH	MUD TYPE	WEIGHT	FV	PV	YP	FL	Ph	
0 - 871' <sup>815'</sup>	FW Spud Mud	8.5 – 9.2	38-70	NC	NC	NC	10.0	9.5 – 10.5
871' – 3,926'	Brine Water	9.8 – 10.2	28-30	NC	NC	NC	9.5 – 10.5	9.5 – 10.5
3,926' – 7,743'	FW/Gel	8.7 – 9.0	28-36	NC	NC	NC	9.5 – 10.0	9.5 – 10.5
7,743'-13,795'	FW/Gel/Starch	8.7 – 9.0	28-36	NC	NC	<100	9.5 – 10.0	9.5 – 10.5

**NOTE: May increase vis for logging purposes only.**

## MUD MONITORING SYSTEM

1. BOPCO L.P. plans to drill the proposed well with water and does not expect to mud up. In the event of abnormal pressures that require mudding up, BOPCO L.P. will record slow pump rates on the daily drilling report on a daily basis.
2. Visual mud monitoring equipment will be installed to detect volume changes.
3. Pit volume totalizers are installed on rig before spud.
4. BOPCO L.P. has the drilling mud checked every 24 hrs., and the daily mud check will be posted in the company man's trailer.
5. BOPCO L.P. will be using a 3M system so trip tanks will not be required per Onshore order #2.
6. Gas detections systems will be installed on exploratory wells per Onshore order #2. Please refer to section G under point 6 in the 8pt drilling program for H2S safety information.

Sufficient mud materials will be kept at the well site to maintain mud properties and meet minimum lost circulation and weight increase requirements at all times (sack or bulk barite will not be on location until 500' above the top of the wolfcamp.)

## POINT 6: TECHNICAL STAGES OF OPERATION

A) TESTING  
None anticipated.

B) LOGGING

Run #1: GR with MWD during drilling of build and horizontal portions of 8-3/4" and 6-1/8" hole.

Run #2: Shuttle log w/GR, PE, Density, Neutron, Resistivity in lateral leg open hole.

Mud Logger: Rigged up at 100'

C) CONVENTIONAL CORING

None anticipated

## D) CEMENT

INTERVAL	AMOUNT SXS	FT OF FILL	TYPE	GALS/SX	PPG	FT <sup>3</sup> /SX
13 3/8" SURFACE: Lead: 0' – 571'	460	571	Class C +2% CACL + 4% Bentonite + 0.25 LB/SK Cello Flake + 3 lb/sk LCM-1	8.69	13.50	1.75
Tail: 571' – 871'	340	300	Class C + 2% CACL + 0.25 LB/SK CF	6.35	14.80	1.35
INTERMEDIATE: Lead: 0' – 3,426'	1050	3426	0.25LB/SK Cello Flake + 3 lb/sk LCM-1 EconoCEM HLC + 5% CaCl + 5#/sk Gilsonite	9.32	12.90	1.85
Tail: 3,426' – 3,926'	270	500	HalCem C	6.34	14.80	1.33
7" Production Stage 1: Lead: 5,000' – 6,943'	170	1943	Tuned Light + 0.75% + CFR-3 + 1.5#/sk CaCl	12.41	10.20	2.76
Tail: 6,943' – 7,743'	130	800	VersaCem-PBSH2 + 0.4% Halad-9	8.76	13.0	1.67
DV Tool @ 5,000'						
Stage 2: Lead: 3,426' – 4,500'	110	1074	EconCem HLC + 1% Econolite + 5% CaCl + 5#/sk Gilsonite	10.71	12.60	2.04
Tail: 4,500' – 5,000'	100	500	HalCem C	6.34	14.80	1.33

Cement excesses will be as follows:

Surface – 100% excess with cement circulated to surface.

1<sup>st</sup> Intermediate – 50% excess above fluid caliper with cement circulated to surface.

Production – 50% above gauge hole or 35% above electric log caliper with cement circulated 500' up into the 9-5/8" 1<sup>st</sup> intermediate casing in areas outside the SOPA. Cement will be circulated to surface on areas inside the SOPA.

Cement volumes will be adjusted proportionately for depth changes of the multi stage tool.

#### E) COMPLETIONS SYSTEM

A 4-1/2" completion system with open hole packers will be run in the producing lateral to a depth of 13,795'. The top of the Completion System will be set at approximately 7,693'. Cement will not be required for this system.

#### F) DIRECTIONAL DRILLING

BOPCO, L.P. plans to drill out the 9-5/8" intermediate casing with a 8-3/4" bit to a TVD of approximately 6,943' at which point a directional hole will be kicked off and drilled at an azimuth of 135.26 degrees, building angle at 10.00 deg/100' to 60 degrees at a TVD of 7,439' (MD 7,543'). This angle and azimuth will be maintained for 200' to a measured depth of 7,743' (7,539' TVD). At this depth 7", 26#, N80, Buttress, or 8rd LTC casing will be installed and cemented in two stages (DV Tool @ approximately 5000') with cement circulated 500' inside the 9-5/8" intermediate casing. A 6-1/8" open hole lateral will then be drilled out from 7" casing at an azimuth of 135.26 degrees, inclination of 88.91 degrees to a measured depth of 13,795', TVD 7,726'. At this depth a 4-1/2" Completion System with packers installed for zone isolation will be run into the producing lateral.

#### G) H<sub>2</sub>S SAFETY EQUIPMENT

As stated in the BLM Onshore Order 6, for wells located inside the H<sub>2</sub>S area, H<sub>2</sub>S equipment will be rigged up after setting surface casing. For the wells located inside the H<sub>2</sub>S area the flare pit will be located 150' from the location. For wells located outside the H<sub>2</sub>S area flare pit will be located 100' away from the location. **(See page 6 of Survey plat package for flare line reference)** There is not any H<sub>2</sub>S anticipated in the area, although in the event that H<sub>2</sub>S is encountered, the H<sub>2</sub>S contingency plan attached will be implemented. **(Please refer to diagram B or C for choke manifold and closed loop system layout when H<sub>2</sub>S is present)** Please refer to H<sub>2</sub>S location diagram for location of important H<sub>2</sub>S safety items.

#### H) CLOSED LOOP AND CHOKE MANIFOLD

**Please see diagram A, B or C depending on configuration.**

**POINT 7: ANTICIPATED RESERVOIR CONDITIONS**

Normal pressures are anticipated throughout Delaware section. A BHP of 3615 psi (max) or MWE of 9.0 ppg is expected. Lost circulation may exist in the Delaware Section from 3,701'-7,726' TVD.

**POINT 8: OTHER PERTINENT INFORMATION****A) Auxiliary Equipment**

Upper and lower kelly cocks. Full opening stab in valve on the rig floor.

**B) Anticipated Starting Date**

Upon approval

30 days drilling operations

14 days completion operations

BTC



**Weatherford**<sup>®</sup>

## **Drilling Services**

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## **Proposal**

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## **BOPCO, L.P.**

POKER LAKE UNIT 378H

EDDY CO, NM

WELL FILE: **PLAN 1**

JANUARY 7, 2013

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**Weatherford International, Ltd.**

P.O. Box 61028  
Midland, TX 79711 USA  
+1.432.561.8892 Main  
+1.432.561.8895 Fax  
[www.weatherford.com](http://www.weatherford.com)

**BOPCO, L.P.**

**Poker Lake Unit 378H  
Eddy Co, NM**

KB ELEV: 3301  
GL ELEV: 3282

# SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	135.26	0.00	0.00	0.00	0.00	0.00	0.00	
2	6943.15	0.00	135.26	6943.15	0.00	0.00	0.00	0.00	0.00	
3	7543.15	60.00	135.26	7439.35	-203.49	201.65	10.00	135.26	286.48	
4	7743.15	60.00	135.26	7539.35	-326.52	323.57	0.00	0.00	459.68	
5	8032.21	88.91	135.26	7616.00	-522.24	517.52	10.00	0.00	735.23	
6	13795.66	88.91	135.26	7726.00	-4615.30	4573.63	0.00	0.00	6497.62	PBHL

# SITE DETAILS

Poker Lake Unit 378H  
Site Centre Northing: 418502.51  
Easting: 642995.02  
Ground Level: 3312.00  
Positional Uncertainty: 0.00  
Convergence: 0.25

# WELL DETAILS

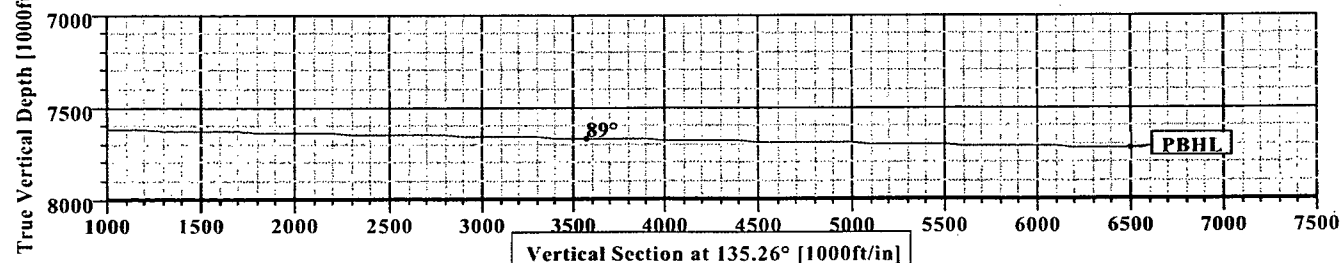
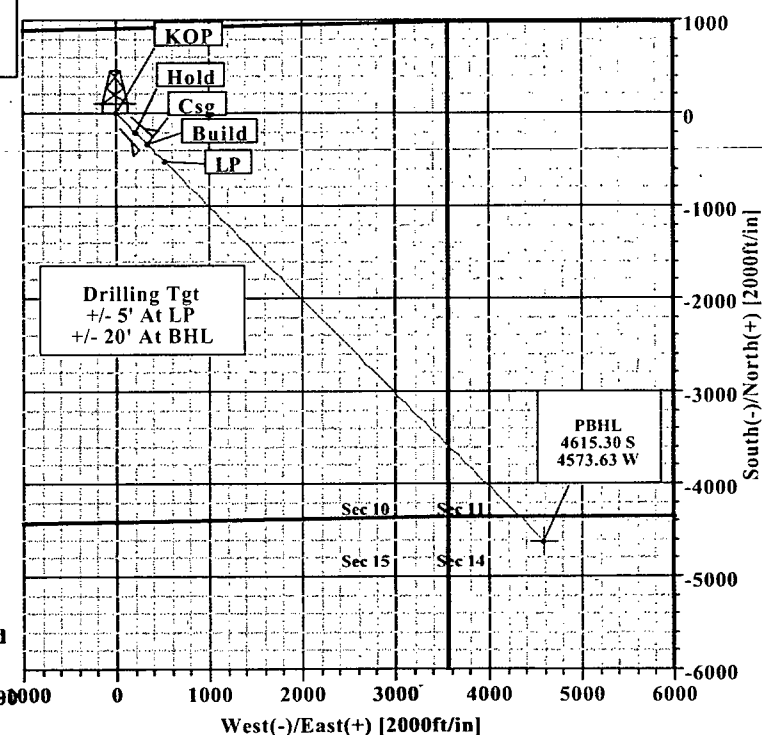
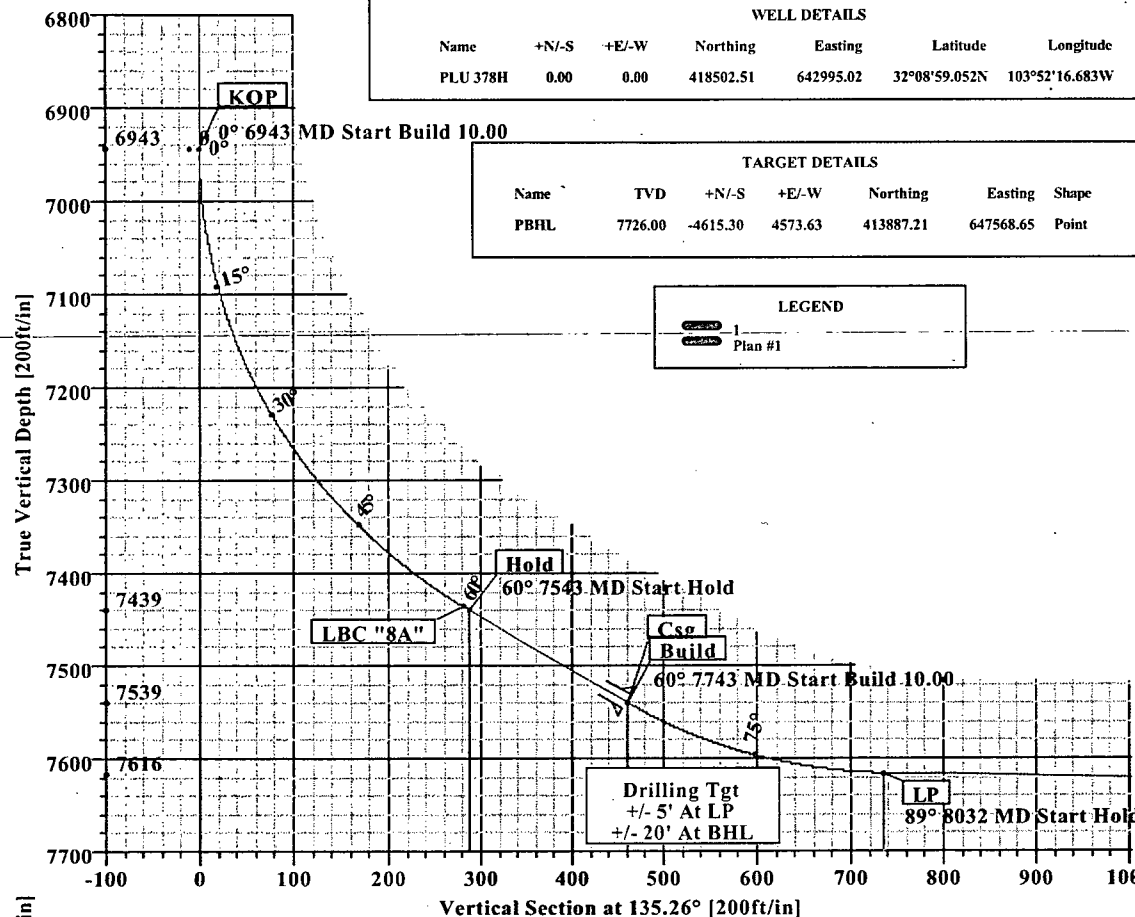
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
PLU 378H	0.00	0.00	418502.51	642995.02	32°08'59.052N	103°52'16.683W	N/A

# TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL	7726.00	-4615.30	4573.63	413887.21	647568.65	Point

# LEGEND

1  
Plan #1



**Weatherford**

Plan: Plan #1 (PLU 378H/1)

Created By: Russell W. Joyner

Date: 1/7/2013



**Weatherford**

<b>Company:</b> BOPCO, L.P. <b>Field:</b> Eddy County, NM (Nad 27) <b>Site:</b> Poker Lake Unit 378H <b>Well:</b> PLU 378H <b>Wellpath:</b> 1				<b>Date:</b> 1/7/2013 <b>Time:</b> 13:23:19 <b>Page:</b> 1 <b>Co-ordinate(NE) Reference:</b> Well: PLU 378H, Grid North <b>Vertical (TVD) Reference:</b> SITE 3331.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,135.26Azi) <b>Survey Calculation Method:</b> Minimum Curvature <b>Db:</b> Sybase						
<b>Plan:</b> Plan #1  <b>Principal:</b> Yes				<b>Date Composed:</b> 1/7/2013 <b>Version:</b> 1 <b>Tied-to:</b> From Surface						
<b>Site:</b> Poker Lake Unit 378H										
<b>Site Position:</b> <b>From:</b> Map <b>Position Uncertainty:</b> 0.00 ft <b>Ground Level:</b> 3312.00 ft		<b>Northing:</b> 418502.51 ft <b>Easting:</b> 642995.02 ft		<b>Latitude:</b> 32 8 59.052 N <b>Longitude:</b> 103 52 16.683 W <b>North Reference:</b> Grid <b>Grid Convergence:</b> 0.25 deg						
<b>Well:</b> PLU 378H				<b>Slot Name:</b>						
<b>Well Position:</b> +N/-S 0.00 ft <b>Position Uncertainty:</b> 0.00 ft		<b>Northing:</b> 418502.51 ft <b>Easting:</b> 642995.02 ft		<b>Latitude:</b> 32 8 59.052 N <b>Longitude:</b> 103 52 16.683 W						
<b>Wellpath:</b> 1				<b>Drilled From:</b> Surface <b>Tie-on Depth:</b> 0.00 ft <b>Above System Datum:</b> Mean Sea Level <b>Declination:</b> 7.51 deg <b>Mag Dip Angle:</b> 60.03 deg						
<b>Current Datum:</b> SITE <b>Magnetic Data:</b> 2/15/2013 <b>Field Strength:</b> 48397 nT <b>Vertical Section: Depth From (TVD)</b> ft		<b>Height</b> 3331.00 ft <b>+N/-S</b> ft		<b>Direction</b> deg						
0.00		0.00		135.26						
<b>Plan Section Information</b>										
<b>MD</b> ft	<b>Incl</b> deg	<b>Azim</b> deg	<b>TVD</b> ft	<b>+N/-S</b> ft	<b>+E/-W</b> ft	<b>DLS</b> deg/100ft	<b>Build</b> deg/100ft	<b>Turn</b> deg/100ft	<b>TFO</b> deg	<b>Target</b>
0.00	0.00	135.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6943.15	0.00	135.26	6943.15	0.00	0.00	0.00	0.00	0.00	0.00	
7543.15	60.00	135.26	7439.35	-203.49	201.65	10.00	10.00	0.00	135.26	
7743.15	60.00	135.26	7539.35	-326.52	323.57	0.00	0.00	0.00	0.00	
8032.21	88.91	135.26	7616.00	-522.24	517.52	10.00	10.00	0.00	0.00	
13795.66	88.91	135.26	7726.00	-4615.30	4573.63	0.00	0.00	0.00	0.00	PBHL
<b>Survey</b>										
<b>MD</b> ft	<b>Incl</b> deg	<b>Azim</b> deg	<b>TVD</b> ft	<b>N/S</b> ft	<b>E/W</b> ft	<b>VS</b> ft	<b>DLS</b> deg/100ft	<b>MapN</b> ft	<b>MapE</b> ft	<b>Comme</b>
6900.00	0.00	135.26	6900.00	0.00	0.00	0.00	0.00	418502.51	642995.02	
6943.15	0.00	135.26	6943.15	0.00	0.00	0.00	0.00	418502.51	642995.02	KOP
6950.00	0.69	135.26	6950.00	-0.03	0.03	0.04	10.00	418502.48	642995.05	
7000.00	5.69	135.26	6999.91	-2.00	1.98	2.82	10.00	418500.51	642997.00	
7050.00	10.69	135.26	7049.38	-7.06	6.99	9.93	10.00	418495.45	643002.01	
7100.00	15.69	135.26	7098.05	-15.15	15.02	21.34	10.00	418487.36	643010.04	
7150.00	20.69	135.26	7145.54	-26.24	26.00	36.93	10.00	418476.27	643021.02	
7200.00	25.69	135.26	7191.48	-40.21	39.85	56.61	10.00	418462.30	643034.87	
7250.00	30.69	135.26	7235.54	-56.98	56.47	80.22	10.00	418445.53	643051.49	
7300.00	35.69	135.26	7277.37	-76.42	75.73	107.58	10.00	418426.09	643070.75	
7350.00	40.69	135.26	7316.66	-98.36	97.48	138.48	10.00	418404.15	643092.50	
7400.00	45.69	135.26	7353.11	-122.66	121.55	172.69	10.00	418379.85	643116.57	
7450.00	50.69	135.26	7386.43	-149.12	147.78	209.94	10.00	418353.39	643142.80	
7500.00	55.69	135.26	7416.38	-177.55	175					

# Weatherford

## Wft Plan Report X Y's.



**Weatherford**

<b>Company:</b> BOPCO, L.P. <b>Field:</b> Eddy County, NM (Nad 27) <b>Site:</b> Poker Lake Unit 378H <b>Well:</b> PLU 378H <b>Wellpath:</b> 1	<b>Date:</b> 1/7/2013 <b>Time:</b> 13:23:19 <b>Page:</b> 2 <b>Co-ordinate(NE) Reference:</b> Well: PLU 378H, Grid North <b>Vertical (TVD) Reference:</b> SITE 3331.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,135.26Azi) <b>Survey Calculation Method:</b> Minimum Curvature <b>Db:</b> Sybase
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### Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	MapN ft	MapE ft	Comment
7850.00	70.69	135.26	7583.86	-395.39	391.82	556.65	10.00	418107.12	643386.84	
7900.00	75.69	135.26	7598.32	-429.38	425.50	604.50	10.00	418073.13	643420.52	
7950.00	80.69	135.26	7608.55	-464.13	459.94	653.42	10.00	418038.38	643454.96	
8000.00	85.69	135.26	7614.48	-499.38	494.87	703.05	10.00	418003.13	643489.89	
8032.21	88.91	135.26	7616.00	-522.24	517.52	735.23	10.00	417980.27	643512.54	LP
8100.00	88.91	135.26	7617.30	-570.38	565.23	803.00	0.00	417932.13	643560.25	
8200.00	88.91	135.26	7619.21	-641.39	635.60	902.98	0.00	417861.12	643630.62	
8300.00	88.91	135.26	7621.11	-712.41	705.98	1002.96	0.00	417790.10	643701.00	
8400.00	88.91	135.26	7623.02	-783.43	776.36	1102.95	0.00	417719.08	643771.38	
8500.00	88.91	135.26	7624.93	-854.45	846.73	1202.93	0.00	417648.06	643841.75	
8600.00	88.91	135.26	7626.84	-925.46	917.11	1302.91	0.00	417577.05	643912.13	
8700.00	88.91	135.26	7628.75	-996.48	987.49	1402.89	0.00	417506.03	643982.51	
8800.00	88.91	135.26	7630.66	-1067.50	1057.86	1502.87	0.00	417435.01	644052.88	
8900.00	88.91	135.26	7632.57	-1138.52	1128.24	1602.86	0.00	417363.99	644123.26	
9000.00	88.91	135.26	7634.47	-1209.54	1198.62	1702.84	0.00	417292.97	644193.64	
9100.00	88.91	135.26	7636.38	-1280.55	1268.99	1802.82	0.00	417221.96	644264.01	
9200.00	88.91	135.26	7638.29	-1351.57	1339.37	1902.80	0.00	417150.94	644334.39	
9300.00	88.91	135.26	7640.20	-1422.59	1409.74	2002.78	0.00	417079.92	644404.76	
9400.00	88.91	135.26	7642.11	-1493.61	1480.12	2102.76	0.00	417008.90	644475.14	
9500.00	88.91	135.26	7644.02	-1564.62	1550.50	2202.75	0.00	416937.89	644545.52	
9600.00	88.91	135.26	7645.92	-1635.64	1620.87	2302.73	0.00	416866.87	644615.89	
9700.00	88.91	135.26	7647.83	-1706.66	1691.25	2402.71	0.00	416795.85	644686.27	
9800.00	88.91	135.26	7649.74	-1777.68	1761.63	2502.69	0.00	416724.83	644756.65	
9900.00	88.91	135.26	7651.65	-1848.69	1832.00	2602.67	0.00	416653.82	644827.02	
10000.00	88.91	135.26	7653.56	-1919.71	1902.38	2702.66	0.00	416582.80	644897.40	
10100.00	88.91	135.26	7655.47	-1990.73	1972.76	2802.64	0.00	416511.78	644967.78	
10200.00	88.91	135.26	7657.38	-2061.75	2043.13	2902.62	0.00	416440.76	645038.15	
10300.00	88.91	135.26	7659.28	-2132.77	2113.51	3002.60	0.00	416369.74	645108.53	
10400.00	88.91	135.26	7661.19	-2203.78	2183.89	3102.58	0.00	416298.73	645178.91	
10500.00	88.91	135.26	7663.10	-2274.80	2254.26	3202.56	0.00	416227.71	645249.28	
10600.00	88.91	135.26	7665.01	-2345.82	2324.64	3302.55	0.00	416156.69	645319.66	
10700.00	88.91	135.26	7666.92	-2416.84	2395.02	3402.53	0.00	416085.67	645390.04	
10800.00	88.91	135.26	7668.83	-2487.85	2465.39	3502.51	0.00	416014.66	645460.41	
10900.00	88.91	135.26	7670.74	-2558.87	2535.77	3602.49	0.00	415943.64	645530.79	
11000.00	88.91	135.26	7672.64	-2629.89	2606.14	3702.47	0.00	415872.62	645601.16	
11100.00	88.91	135.26	7674.55	-2700.91	2676.52	3802.45	0.00	415801.60	645671.54	
11200.00	88.91	135.26	7676.46	-2771.92	2746.90	3902.44	0.00	415730.59	645741.92	
11300.00	88.91	135.26	7678.37	-2842.94	2817.27	4002.42	0.00	415659.57	645812.29	
11400.00	88.91	135.26	7680.28	-2913.96	2887.65	4102.40	0.00	415588.55	645882.67	
11500.00	88.91	135.26	7682.19	-2984.98	2958.03	4202.38	0.00	415517.53	645953.05	
11600.00	88.91	135.26	7684.10	-3056.00	3028.40	4302.36	0.00	415446.51	646023.42	
11700.00	88.91	135.26	7686.00	-3127.01	3098.78	4402.35	0.00	415375.50	646093.80	
11800.00	88.91	135.26	7687.91	-3198.03	3169.16	4502.33	0.00	415304.48	646164.18	
11900.00	88.91	135.26	7689.82	-3269.05	3239.53	4602.31	0.00	415233.46	646234.55	
12000.00	88.91	135.26	7691.73	-3340.07	3309.91	4702.29	0.00	415162.44	646304.93	
12100.00	88.91	135.26	7693.64	-3411.08	3380.29	4802.27	0.00	415091.43	646375.31	
12200.00	88.91	135.26	7695.55	-3482.10	3450.66	4902.25	0.00	415020.41	646445.68	
12300.00	88.91	135.26	7697.46	-3553.12	3521.04	5002.24	0.00	414949.39	646516.06	
12400.00	88.91	135.26	7699.36	-3624.14	3591.42	5102.22	0.00	414878.37	646586.44	
12500.00	88.91	135.26	7701.27	-3695.15	3661.79	5202.20	0.00	414807.36	646656.81	
12600.00	88.91	135.26	7703.18	-3766.17	3732.17	5302.18	0.00	414736.34	646727.19	
12700.00	88.91	135.26	7705.09	-3837.19	3802.54	5402.16	0.00	414665.32	646797.56	
12800.00	88.91	135.26	7707.00	-3908.21	3872.92	5502.15	0.00	414594.30	646867.94	

# Weatherford

## Wft Plan Report X Y's.



**Weatherford**

<b>Company:</b> BOPCO, L.P.	<b>Date:</b> 1/7/2013	<b>Time:</b> 13:23:19	<b>Page:</b> 3
<b>Field:</b> Eddy County, NM (Nad 27)	<b>Co-ordinate(NE) Reference:</b> Well: PLU 378H, Grid North		
<b>Site:</b> Poker Lake Unit 378H	<b>Vertical (TVD) Reference:</b> SITE 3331.0		
<b>Well:</b> PLU 378H	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,135.26Azi)		
<b>Wellpath:</b> 1	<b>Survey Calculation Method:</b> Minimum Curvature		
		<b>Db:</b> Sybase	

### Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	MapN ft	MapE ft	Comment
12900.00	88.91	135.26	7708.91	-3979.22	3943.30	5602.13	0.00	414523.29	646938.32	
13000.00	88.91	135.26	7710.81	-4050.24	4013.67	5702.11	0.00	414452.27	647008.69	
13100.00	88.91	135.26	7712.72	-4121.26	4084.05	5802.09	0.00	414381.25	647079.07	
13200.00	88.91	135.26	7714.63	-4192.28	4154.43	5902.07	0.00	414310.23	647149.45	
13300.00	88.91	135.26	7716.54	-4263.30	4224.80	6002.05	0.00	414239.21	647219.82	
13400.00	88.91	135.26	7718.45	-4334.31	4295.18	6102.04	0.00	414168.20	647290.20	
13500.00	88.91	135.26	7720.36	-4405.33	4365.56	6202.02	0.00	414097.18	647360.58	
13600.00	88.91	135.26	7722.27	-4476.35	4435.93	6302.00	0.00	414026.16	647430.95	
13700.00	88.91	135.26	7724.17	-4547.37	4506.31	6401.98	0.00	413955.14	647501.33	
13795.66	88.91	135.26	7726.00	-4615.30	4573.63	6497.62	0.00	413887.21	647568.65	PBHL

### Targets

Name	Description Dip:	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	Latitude Deg Min Sec	Longitude Deg Min Sec
PBHL		7726.00	-4615.30	4573.63	413887.21	647568.65	32 8 13.181 N	103 51 23.722 W

### Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
7743.15	7539.35	0.000	0.000	Csg

### Annotation

MD ft	TVD ft	
6943.15	6943.15	KOP
7543.15	7439.35	Hold
7743.15	7539.35	Build
8032.21	7616.00	LP
13795.65	7726.00	PBHL

**Weatherford****Weatherford Drilling Services**

GeoDec v5.03

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Report Date: January 07, 2013  
Job Number: \_\_\_\_\_  
Customer: BOPCO  
Well Name: Poker Lake Unit 378H  
API Number: \_\_\_\_\_  
Rig Name: \_\_\_\_\_  
Location: Eddy Co, NM  
Block: \_\_\_\_\_  
Engineer: RWJ

---

US State Plane 1927	Geodetic Latitude / Longitude
System: New Mexico East 3001 (NON-EXACT)	System: Latitude / Longitude
Projection: SPC27 Transverse Mercator	Projection: Geodetic Latitude and Longitude
Datum: NAD 1927 (NADCON CONUS)	Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866	Ellipsoid: Clarke 1866
North/South 418502.510 USFT	Latitude 32.1497368 DEG
East/West 642995.020 USFT	Longitude -103.8713009 DEG
Grid Convergence: .25°	
Total Correction: +7.36°	

---

Geodetic Location WGS84	Elevation =	0.0 Meters
Latitude =	32.14974° N	32° 8 min 59.052 sec
Longitude =	103.87130° W	103° 52 min 16.683 sec

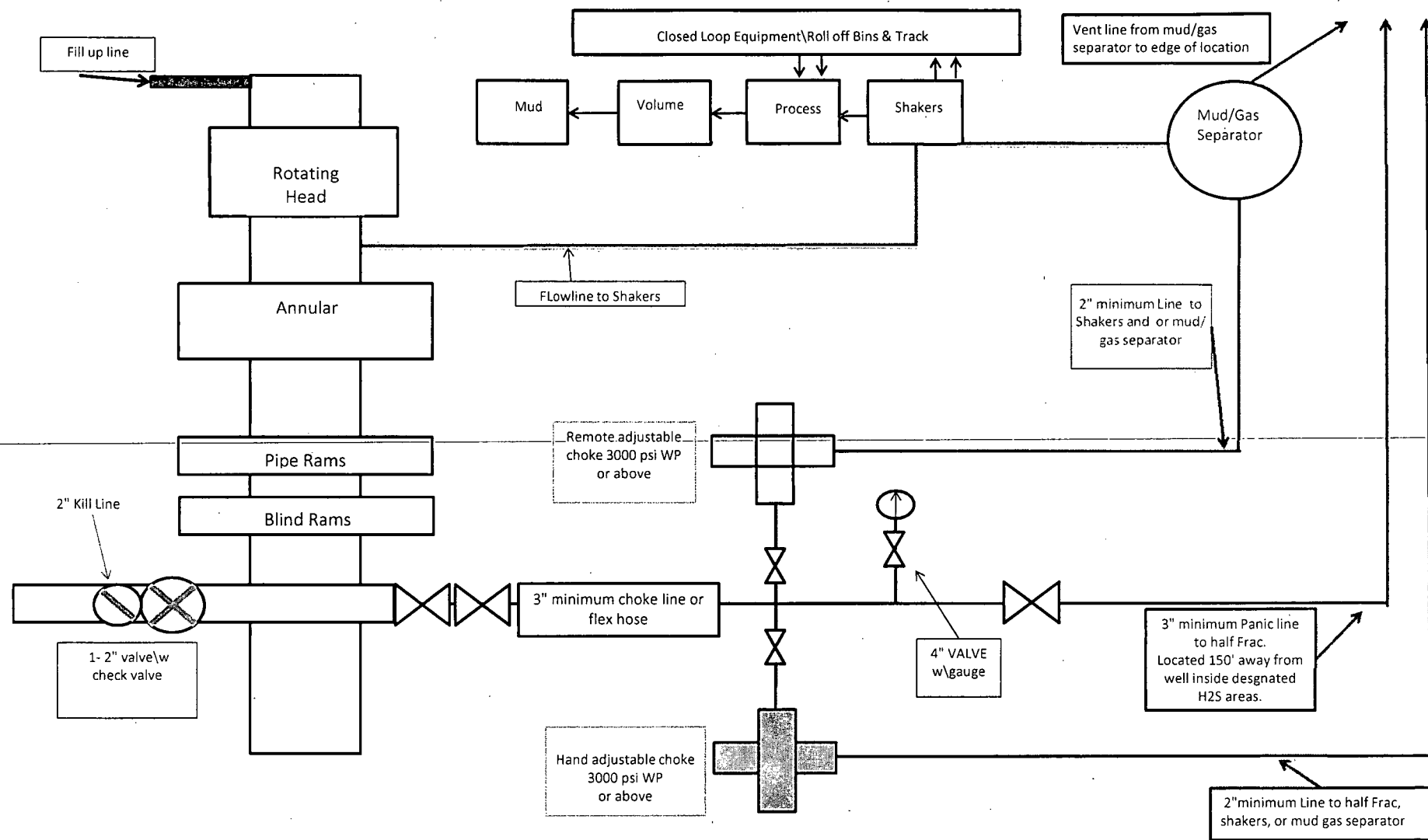
---

Magnetic Declination =	7.61°	[True North Offset]
Local Gravity =	.9988 g	Checksum = 6861
Local Field Strength =	48364 nT	Magnetic Vector X = 23985 nT
Magnetic Dip =	59.98°	Magnetic Vector Y = 3205 nT
Magnetic Model =	bggm2012	Magnetic Vector Z = 41875 nT
Spud Date =	Mar 15, 2013	Magnetic Vector H = 24198 nT

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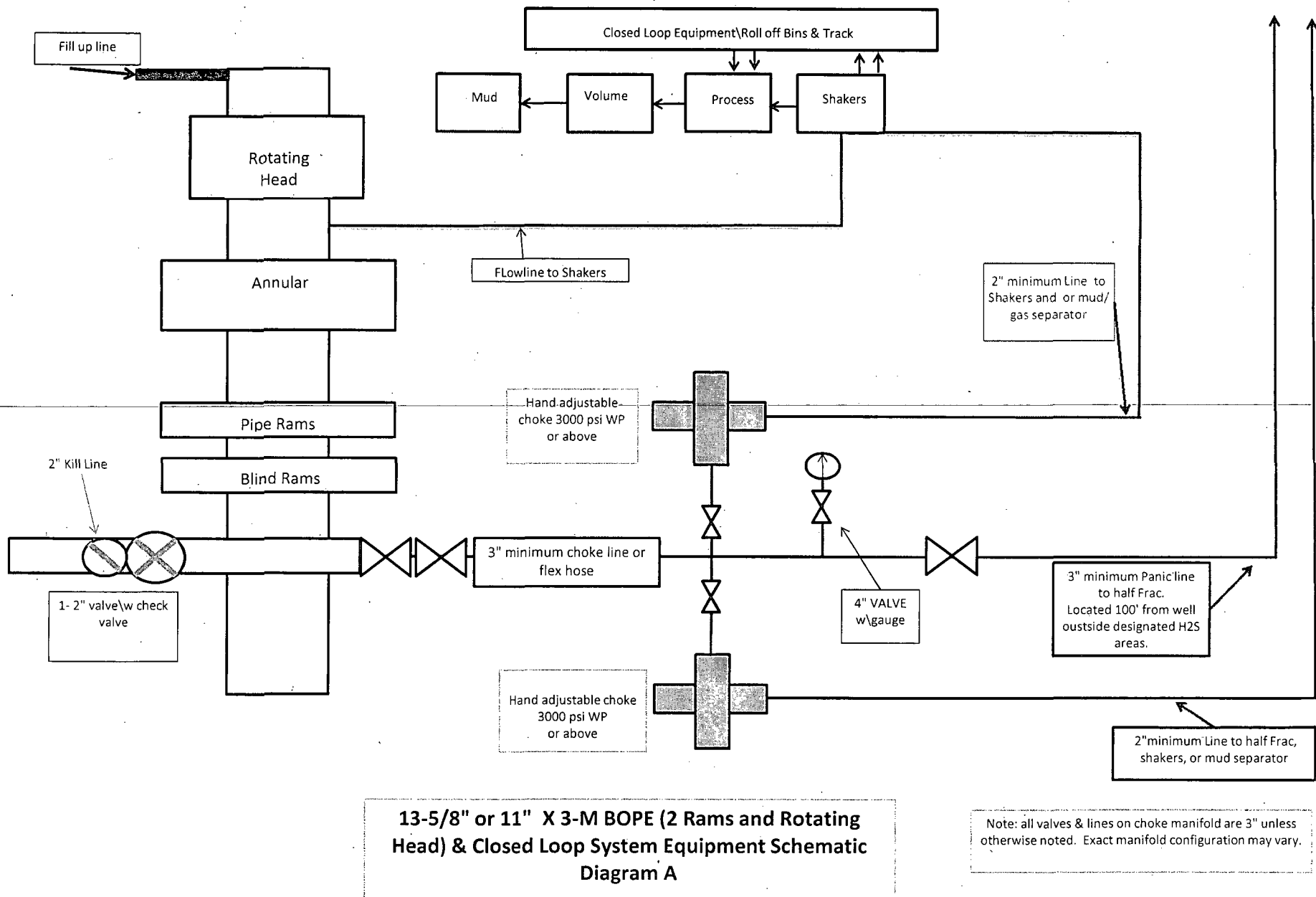
Signed: \_\_\_\_\_

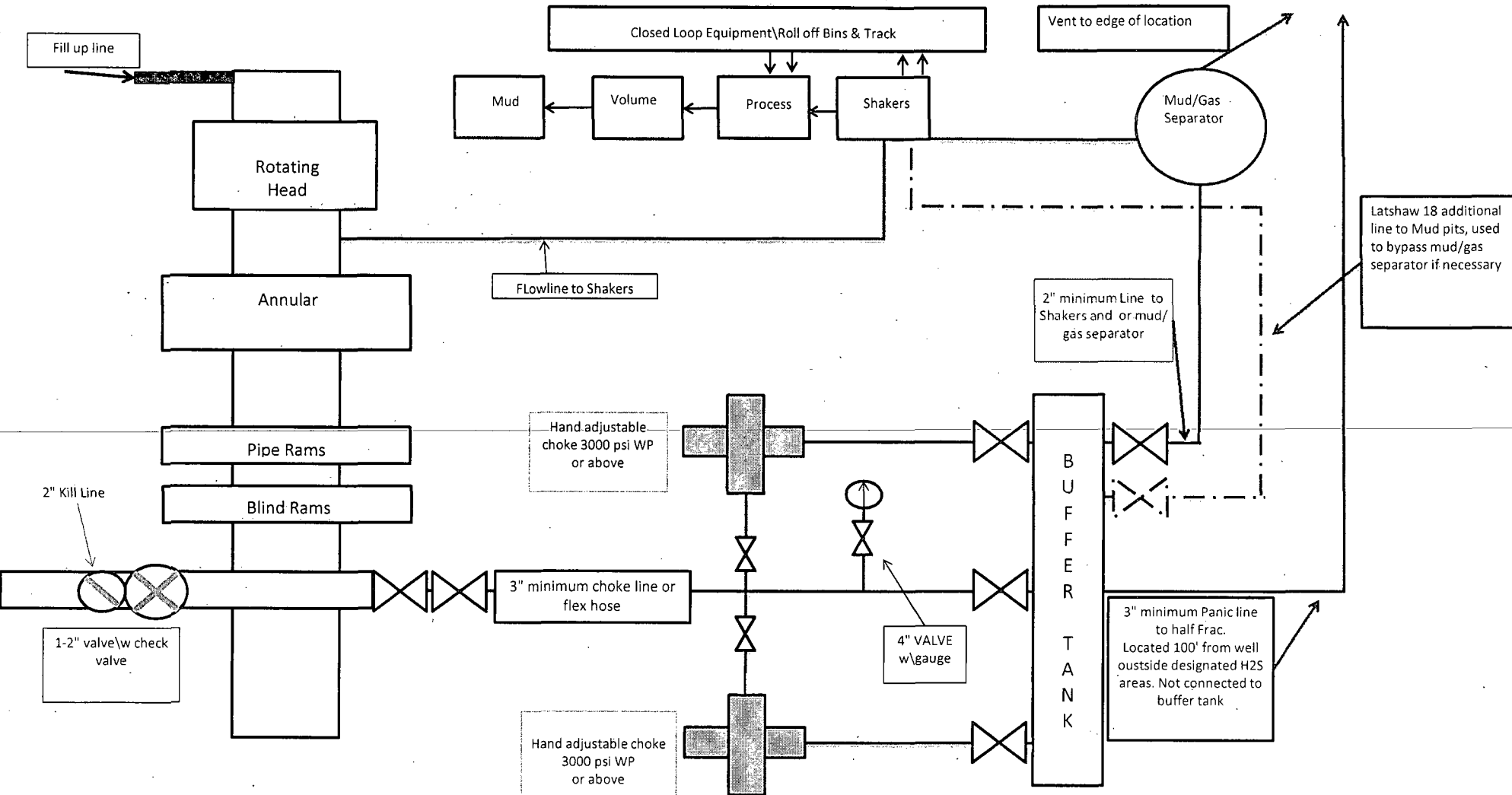
Date: \_\_\_\_\_



**13-5/8" or 11" X 3-M BOPE (2 Rams and Rotating Head) & Closed Loop System Equipment Schematic**  
**H2S contingency**  
**Diagram B**

Note: all valves & lines on choke manifold are 3" unless otherwise noted. Exact manifold configuration may vary.





Latshaw 4 closed loop system, with Latshaw 18 addition "clouded."

**Latshaw 13-5/8" or 11" X 3-M BOPE (2 Rams and Rotating Head) & Closed Loop System Equipment Schematic Diagram C**

Note: all valves & lines on choke manifold are 3" unless otherwise noted. Exact manifold configuration may vary.

Latshaw 18 additional line to Mud pits, used to bypass mud/gas separator if necessary

**MIDWEST**  
**HOSE AND SPECIALTY INC.**

<b>INTERNAL HYDROSTATIC TEST REPORT</b>			
<b>Customer:</b> LATSHAW DRILLING		<b>P.O. Number:</b> RIG#4	
<b>HOSE SPECIFICATIONS</b>			
<b>Type:</b> CHOKER LINE		<b>Length:</b> 30'	
<b>I.D.</b> 3" INCHES		<b>O.D.</b> 6" INCHES	
<b>WORKING PRESSURE</b> 5,000 PSI	<b>TEST PRESSURE</b> 10,000 PSI		<b>BURST PRESSURE</b> PSI
<b>COUPLINGS</b>			
<b>Type of End Fitting</b> 4 1/16 5K FLANGE			
<b>Type of Coupling:</b> SWEDGED		<b>MANUFACTURED BY</b> MIDWEST HOSE & SPECIALTY	
<b>PROCEDURE</b>			
<i>Hose assembly pressure tested with water at ambient temperature.</i>			
<b>TIME HELD AT TEST PRESSURE</b> 1 MIN.		<b>ACTUAL BURST PRESSURE:</b> 0 PSI	
<b>COMMENTS:</b> SO#81610 Hose is covered with stainless steel armour cover and wrapped with fire resistant vermiculite coated fiberglass insulation rated for 1500 degrees complete with lifting eyes			
<b>Date:</b> 3/2/2011	<b>Tested By:</b> BOBBY FINK		<b>Approved:</b> MENDI JACKSON



Midwest Hose  
& Specialty, Inc.

## Internal Hydrostatic Test Graph

April 4, 2012

Customer: Latshaw

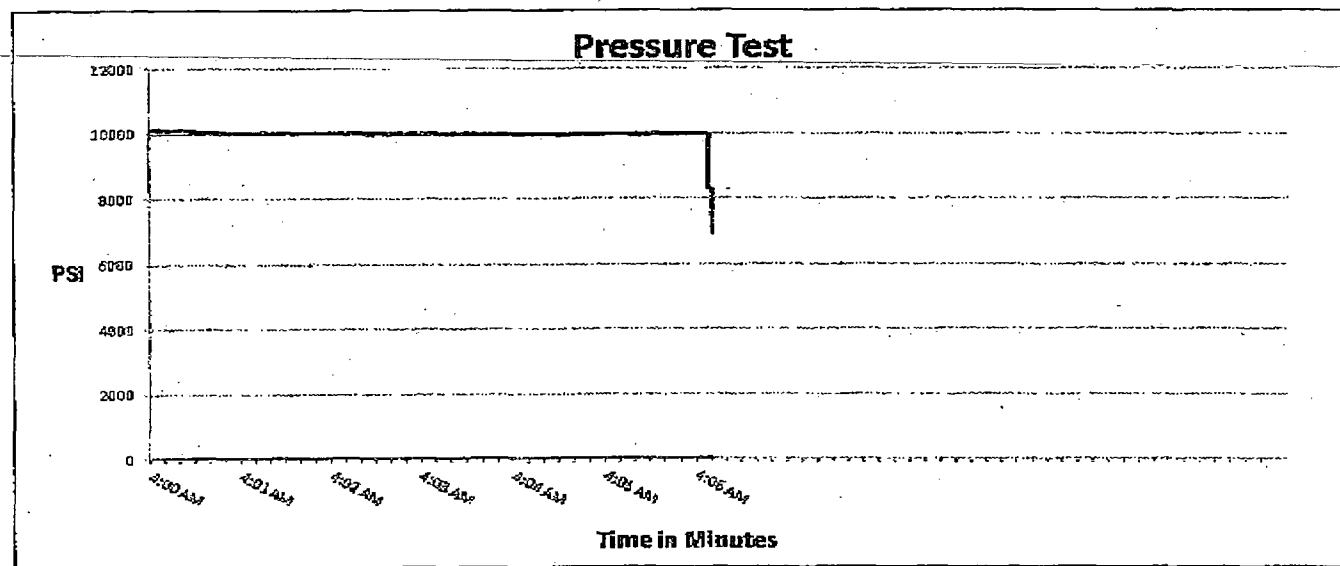
Pick Ticket #: 81610

### Hose Specifications

<u>Hose Type</u>	<u>Length</u>
D	30'
<u>I.D.</u>	<u>O.D.</u>
3"	4 15/32
<u>Working Pressure</u>	<u>Burst Pressure</u>
5000 PSI	Standard Safety Multiplier Applies

### Verification

<u>Type of Fitting</u>	<u>Coupling Method</u>
41/16 SK	Swage
<u>Die Size</u>	<u>Final O.D.</u>
5.12"	5.16"
<u>Hose Serial #</u>	<u>Hose Assembly Serial #</u>
6884	81610



Test Pressure  
10000 PSI

Time Held at Test Pressure  
6 1/4 Minutes

Actual Burst Pressure

Peak Pressure  
10195 PSI

**Comments:** Hose assembly pressure tested with water at ambient temperature.

**Tested By:** Donnie McEmore

**Approved By:** Bobby Fink

*Donnie McEmore*

*Bobby Fink*



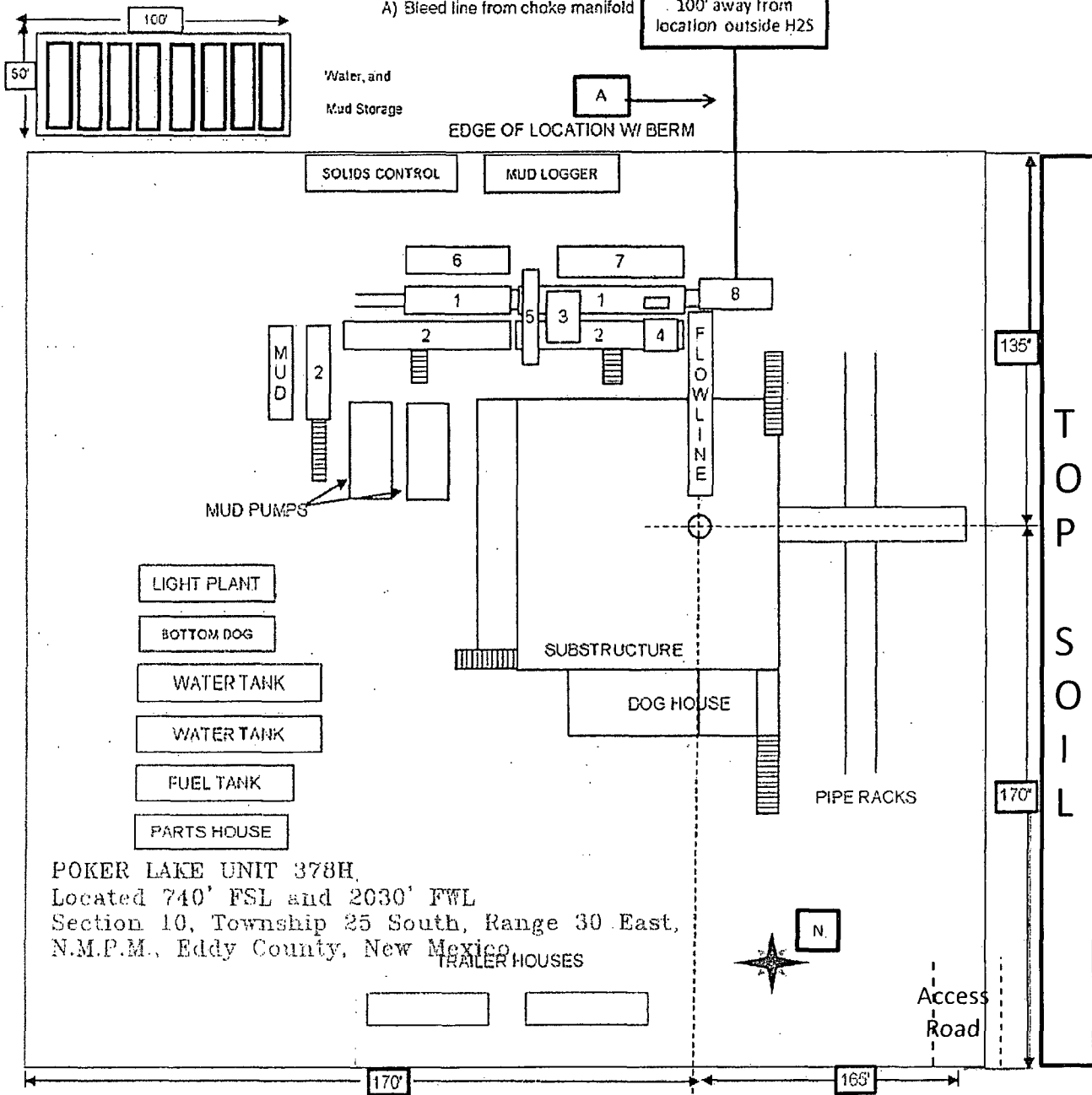
# RIG LAYOUT

Exhibit "D"

## RIG LAYOUT SCHEMATIC INCLUSIVE OF CLOSED-LOOP DESIGN PLAN Solids Control Equipment Legend

- |                                   |                    |
|-----------------------------------|--------------------|
| 1) Roll Off Bin                   | 5) Centrifuge      |
| 2) Steel Tank                     | 6) Dewatering Unit |
| 3) Mud Cleaner                    | 7) Catch Tank      |
| 4) Shaker                         | 8) Choke Manifold  |
| A) Bleed line from choke manifold |                    |

Flare Pit 150' away  
from location in H2S  
area,  
100' away from  
location outside H2S



POKER LAKE UNIT 378H,  
Located 740' FSL and 2030' FWL  
Section 10, Township 25 South, Range 30 East,  
N.M.P.M., Eddy County, New Mexico

TRAILER HOUSES

**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  
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basinsurveys.com

W.O. Number: DAJ 27195

Survey Date: 10-06-2012

Scale: 1" = 2000'

Date: 10-17-2012

**BOPCO, L.P.**

Sheet 6 of 6 Sheets

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## H<sub>2</sub>S 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 (H<sub>2</sub>S).

### **Objective:**

Prevent any and all accidents, and prevent the uncontrolled release of H<sub>2</sub>S 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 500' above or three days prior to drilling into the first known sour zone.

***Emergency Response and Public Protection 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 500 feet above or three days prior to drilling into the first known sour zone.

***Emergency call lists:*** Included are the telephone numbers of all persons that would need to be contacted should an H<sub>2</sub>S 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.

## EMERGENCY PROCEDURES AND PUBLIC PROTECTION SECTION

- I. In the event of any evidence of H<sub>2</sub>S levels above 10 ppm, 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 H<sub>2</sub>S 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 & Gas of the situation.
  - B. Isolate area and prevent entry by unauthorized persons into the 100 ppm ROE.
  - C. Remove all personnel to the Safe Briefing Area.
  - D. Notify public safety personnel for help with maintaining roadblocks and implementing evacuation. Phone number list attached.
  - E. 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**

1. When alarm sounds, don escape unit and report to upwind Safe Briefing Area.
2. Check status of other personnel (buddy system).
3. Secure breathing apparatus.
4. Wait for orders from supervisor.

#### **B. Drilling Foreman**

1. Report to the upwind Safe Briefing Area.
2. Don Breathing Apparatus and return to the point of release with the Tool Pusher or Driller (buddy system).
3. Determine the concentration of H<sub>2</sub>S.
4. Assess the situation and take appropriate control measures.

#### **C. Tool Pusher**

1. Report to the upwind Safe Briefing Area.
2. Don breathing apparatus and return to the point of release with the Drilling Foreman or the Driller (buddy system).
3. Determine the concentration.
4. Assess the situation and take appropriate control measures.

#### **D. Driller**

1. Check the status of other personnel (in a rescue attempt, always use the buddy system).
2. Assign the least essential person to notify the Drilling Foreman and Tool Pusher, in the event of their absence.

3. 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

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

F. Mud Engineer

1. Report to the upwind Safe Briefing Area.
2. When instructed, begin check of mud for pH level and H<sub>2</sub>S level.

G. On-site Safety Personnel

1. Don Breathing Apparatus.
2. Check status of all personnel.
3. 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). Use 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**

1. Sound the alarm immediately.
2. Stop the rotary and hoist kelly joint above the rotary table.
3. Stop the circulatory pump.
4. Close the drill pipe rams.
5. Record casing and drill pipe shut-in pressures and pit volume increases.

#### **B. Drill No. 2 – Tripping Drill Pipe**

1. Sound the alarm immediately.
2. Position the upper tool joint just above the rotary table and set the slips.

3. Install a full opening valve or inside blowout preventor tool in order to close the drill pipe.
4. Close the drill pipe rams.
5. Record the shut-in annular pressure.

## **II. Crew Assignments**

### **A. Drill No. 1 – Bottom Drilling**

1. Driller
  - a) Stop the rotary and hoist kelly joint above the rotary table.
  - b) Stop the circulatory pump.
  - c) Check flow.
  - d) If flowing, sound the alarm immediately.
  - e) Record the shut-in drill pipe pressure.
  - f) Determine the mud weight increase needed or other courses of action.
2. Derrickman
  - a) Open choke line valve at BOP.
  - b) Signal Floor Man # 1 at accumulator that choke line is open.
  - c) Close choke and upstream valve after pipe tams have been closed.
  - d) Read the shut-in annular pressure and report readings to Driller.
3. Floor Man # 1
  - a) Close the pipe rams after receiving the signal from the Derrickman.
  - b) Report to Driller for further instructions.

4. Floor Man # 2

- a) Notify the Tool Pusher and Operator Representative of the H<sub>2</sub>S alarms.
- b) Check for open fires and, if safe to do so, extinguish them.
- c) Stop all welding operations.
- d) Turn-off all non-explosion proof lights and instruments.
- e) Report to Driller for further instructions.

5. Tool Pusher

- a) Report to the rig floor.
- b) Have a meeting with all crews.
- c) Compile and summarize all information.
- d) Calculate the proper kill weight.
- e) Ensure that proper well procedures are put into action.

6. Operator Representative

- a) Notify the Drilling Superintendent.
- b) Determine if an emergency exists and if so, activate the contingency plan.

**B. Drill No. 2 – Tripping Pipe**

1. Driller

- a) Sound the alarm immediately when mud volume increase has been detected.
- b) Position the upper tool joint just above the rotary table and set slips.
- c) Install a full opening valve or inside blowout preventor tool to close the drill pipe.
- d) Check flow.

- e) Record all data reported by the crew.
- f) Determine the course of action.

2. Derrickman

- a) Come down out of derrick.
- b) Notify Tool Pusher and Operator Representative.
- c) Check for open fires and, if safe to do so, extinguish them.
- d) Stop all welding operations.
- e) Report to Driller for further instructions.

3. Floor Man # 1

- a) Pick up full opening valve or inside blowout preventor tool and stab into tool joint above rotary table (with Floor Man # 2).
- b) Tighten valve with back-up tongs.
- c) Close pipe rams after signal from Floor Man # 2.
- d) Read accumulator pressure and check for possible high pressure fluid leaks in valves or piping.
- e) Report to Driller for further instructions.

4. Floor Man # 2

- a) Pick-up full opening valve or inside blowout preventor tool and stab into tool joint above rotary table (with Floor Man # 1).
- b) Position back-up tongs on drill pipe.
- c) Open choke line valve at BOP.
- d) Signal Floor Man # 1 at accumulator that choke line is open.
- e) Close choke and upstream valve after pipe rams have been closed.
- f) Check for leaks on BOP stack and choke manifold.

- g) Read annular pressure.
- h) Report readings to the Driller.

5. Tool Pusher

- a) Report to the rig floor.
- b) Have a meeting with all of the crews.
- c) Compile and summarize all information.
- d) See that proper well kill procedures are put into action.

6. Operator Representative

- a) Notify Drilling Superintendent
- b) 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. The State Police shall be the Incident Command on the scene of any major release. Intentional ignition must be coordinated with the NMOCD and local officials. 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 (SO<sub>2</sub>), which is also highly toxic. Do not assume the area is safe after the well is ignited.

## TRAINING REQUIREMENTS

When working in an area where Hydrogen Sulfide ( $H_2S$ ) might be encountered, definite training requirements must be carried out. The Company Supervisor will ensure that all personnel at the well site, whether regularly assigned, contracted, or employed on an unscheduled basis, have had adequate training by a qualified instructor in the following:

1. Hazards and Characteristics of Hydrogen Sulfide and Sulfur Dioxide.
2. Physicals effects of Hydrogen Sulfide on the human body.
3. Toxicity of Hydrogen Sulfide and Sulfur Dioxide.
4.  $H_2S$  detection, emergency alarm and sensor location.
5. Emergency rescue.
6. First aid and artificial resuscitation.
7. The effects of Hydrogen Sulfide on metals.
8. Location safety.

In addition, Supervisory Personnel will be trained in the following areas:

1. If high tensile tubular are to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well as well as blowout prevention and well control procedures.
3. The contents and requirements of the  $H_2S$  Drilling Operations Contingency Plan and the Public Protection Plan.

Service company personnel and visiting personnel must be notified if the zone contains  $H_2S$ , and each service company must provide adequate training and equipment for their employees before they arrive at the well site.

## **EMERGENCY EQUIPMENT**

As stated in the BLM Onshore Order 6, for wells located in a known H<sub>2</sub>S areas, H<sub>2</sub>S equipment will be rigged up after setting surface casing. For wells located inside known H<sub>2</sub>S areas, the flare pit will be located 150' from the location and for wells located outside known H<sub>2</sub>S areas, the flare pit will be located 100' away from the location. (See page 6 of Survey plat package and diagram B or C.)

**It is not anticipated that any H<sub>2</sub>S is in the area, however in the event that H<sub>2</sub>S is encountered, the attached H<sub>2</sub>S Contingency Plan will be implemented.** (Please refer to diagrams B or C for choke manifold and closed loop system layout.) See H<sub>2</sub>S location layout diagram for location of all H<sub>2</sub>S equipment on location.

All H<sub>2</sub>S safety equipment and systems will be installed, tested and be operational when drilling reaches a depth of 500' above, or three days prior to penetrating a known formation containing H<sub>2</sub>S.

### **Lease Entrance Sign:**

Caution signs should be located at all roads providing direct access to the location. Signs shall have a yellow background with black lettering and contain the words "CAUTION" and "POISON GAS" that is legible from a distance of at least 50 feet.

**LEASE NAME  
CAUTION – POTENTIAL POISON GAS  
HYDROGEN SULFIDE  
NO ADMITTANCE WITHOUT AUTHORIZATION**

### **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:**

- H<sub>2</sub>S monitors with alarms will be located on the rig floor, at the cellar, and at the mud pits. These monitors will be set to alarm at 10 PPM with a red light and to alarm at 15 PPM with a red light and audible alarm.

**Well Condition Flags:**

The Well Condition flags should be located at all roads providing direct access to 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, H<sub>2</sub>S Gas Present

**Respiratory Equipment:**

- Fresh air breathing equipment should be placed at the company supervision trailer and the safe briefing areas and should include the following:
  - A minimum of two SCBA's at each briefing area and the supervisor company supervision trailer.
  - Enough air line units to operate safely, anytime the H<sub>2</sub>S 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.

**Fire Extinguishers:**

Adequate fire extinguishers shall be located at strategic locations.

**Mud Program:**

The mud program has been designed to minimize the volume of H<sub>2</sub>S circulated to the surface. Proper mud weight, safe drilling practices and the use of H<sub>2</sub>S scavengers will minimize hazards when penetrating H<sub>2</sub>S bearing zones.

**Metallurgy:**

All drill strings, casing, tubing, wellhead; blowout preventer, drilling spools, kill lines, choke manifold and lines, and valves shall be suitable for H<sub>2</sub>S service.

**Well Control Equipment:**

- Flare Line (See page 6 of survey plat package for flare line reference).
- Choke manifold (See diagram B or C and refer to H2S location diagram for location of important H2S safety items ).
- Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing units.
- Auxiliary equipment may include, if applicable, annular preventer & rotating head.

**Communication Equipment:**

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

**Well Testing:**

- There will be no drill stem testing.

**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.
- A smoking area will be designated at a pre-determined safe distance from the wellhead and any other possible flammable areas.

***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 Indian Fire and Safety in Hobbs, NM or at Total Safety in Hobbs, NM.

## **EVACUATION PLAN**

### **General Plan**

The direct lines of action to protect the public from hazardous gas situations are as follows:

1. When the company approved supervisor (Drilling Foremen, Tool Pusher or Driller) determine that Hydrogen Sulfide gas cannot be limited to the well location, and the public will be involved, he will activate the evacuation plan. Escape routes are noted on the Area Map.
2. Company safety personnel or designee will notify the appropriate local government agency that a hazardous condition exists and evacuation needs to be implemented.
3. Company approved safety personnel that have been trained in the use of the proper emergency equipment will be utilized.
4. Law enforcement personnel (State Police, Local Police Department, Fire Department, and the Sheriff's Department) will be called to aid in setting up and maintaining road blocks. Also, they will aid in evacuation of the public if necessary.

**NOTE:** Law enforcement personnel will not be asked to come into a contaminated area. Their assistance will be limited to uncontaminated areas. Constant radio contact will be maintained with them.

5. After the discharge of gas has been controlled, Company approved safety personnel will determine when the area is safe for re-entry.

### **See Emergency Action Plan**

### **Contacting Authorities**

BOPCO L.P. personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. (Operator Name)'s response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER).

## H<sub>2</sub>S CONTINGENCY PLAN EMERGENCY CONTACTS

BOPCO L.P. Midland Office

432-683-2277

### Key Personnel

Name	Title	Cell Phone Number
Stephen Martinez	Drilling Supt.	432-556-0262
Martyn Robertson	Engineer	432-894-4765
Chris Giese	Engineer	432-661-7328
Stephen Ordoyne	Engineer	985-665-7249
Charles Warne	Engineer	432-312-4431

### Artesia

Ambulance	911
State Police	575-746-2703
City Police	575-746-2703
Sheriff's Office	575-746-9888
Fire Department	575-746-2701
Local Emergency Planning Committee	575-746-2122
New Mexico Oil Conservation Division	575-748-1283

### Carlsbad

Ambulance	911
State Police	575-885-3137
City Police	575-885-2111
Sheriff's Office	575-887-7551
Fire Department	575-887-3798
Local Emergency Planning Committee	575-887-6544
US Bureau of Land Management	575-887-6544

New Mexico Emergency Response Commission (Santa Fe)	505-476-9600
24 Hour	505-827-9126
New Mexico State Emergency Operations Center	505-476-9635
National Emergency Response Center (Washington, DC)	800-424-8802

### Other

Wild Well Control	432-550-6202 (Permian Basin)
Cudd PressureControl	432-580-3544 or 432-570-5300 (Permian Basin)
Flight For Life – 4000 24 <sup>th</sup> St. Lubbock, Texas	806-743-9911
Aerocare – R3, Box 49F, Lubbock, Texas	806-747-8923
Med Flight Air Amb – 2301 Yale Blvd SE #D3, Albuquerque, NM	505-842-4433
S B Air Med Service – 2505 Clark Carr Loop SE, Albuquerque, NM	505-842-4949
Indian Fire and Safety – 3317 NW Cnty Rd, Hobbs, NM	575-393-3093
Total Safety – 3229 Industrial Dr., Hobbs, NM	575-392-2973

## TOXIC EFFECTS OF HYDROGEN SULFIDE

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 colorless. It forms an explosive mixture with air between 4.3 and 46.0 percent by volume. Hydrogen sulfide is almost as toxic as hydrogen cyanide and is between five and six times more toxic than carbon monoxide. Toxicity data for hydrogen sulfide and various other gases are compared in Table I. Physical effects at various Hydrogen Sulfide exposure levels are shown in Table II.

Table I - TOXICITY OF VARIOUS GASES

Common Name	Chemical Formula	Specific Gravity (SC=1)	Threshold Limit (1)	Hazardous Limit (2)	Lethal Concentration (3)
Hydrogen Cyanide	HCN	0.94	10 PPM	150 PPM/HR	300 PPM
Hydrogen Sulfide	H <sub>2</sub> S	1.18	10 PPM	250 PPM/HR	600 PPM
Sulfur Dioxide	SO <sub>2</sub>	2.21	5 PPM	--	1000 PPM
Chlorine	CL <sub>2</sub>	2.45	1 PPM	4 PPM/HR	1000 PPM
Carbon Monoxide	CO	0.97	50 PPM	400 PPM/HR	1000 PPM
Carbon Dioxide	CO <sub>2</sub>	1.52	5000 PPM	5%	10%
Methane	CH <sub>4</sub>	0.55	90,000 PPM	Combustible in air	Above 5%

- 1) **Threshold Limit** – Concentration at which it is believed that all worker may be repeatedly exposed day after day without adverse effects.
- 2) **Hazardous Limit** – Concentration that will cause death with short-term exposure.
- 3) **Lethal Concentration** – Concentration that will cause death with short-term exposure.

**Table II – PHYSICAL EFFECTS OF HYDROGEN SULFIDE**

<b>Percent (%)</b>	<b>PPM</b>	<b>Concentration Grains 100 STD. FT3*</b>	<b>Physical Effects</b>
<b>0.001</b>	<b>&lt; 10</b>	<b>00.65</b>	<b>Obvious &amp; unpleasant odor.</b>
<b>0.002</b>	<b>10</b>	<b>01.30</b>	<b>Safe for 8 hours of exposure.</b>
<b>0.010</b>	<b>100</b>	<b>06.48</b>	<b>Kills smell in 3-15 minutes. May sting eyes &amp; throat.</b>
<b>0.020</b>	<b>200</b>	<b>12.96</b>	<b>Kills smell shortly; stings eyes &amp; throat.</b>
<b>0.050</b>	<b>500</b>	<b>32.96</b>	<b>Dizziness; Breathing ceases in a few minutes. Needs prompt artificial respiration.</b>
<b>0.070</b>	<b>700</b>	<b>45.36</b>	<b>Unconscious quickly; Death will result if not rescued promptly.</b>
<b>0.100</b>	<b>1000</b>	<b>64.30</b>	<b>Unconscious at once; Followed by death within minutes.</b>

- **At 15.00 PSIA and 60° F.**

## **USE OF SELF-CONTAINED BREATHING APPARATUS**

1. Anyone who uses an SCBA shall: Be approved by a physician or licensed health care practitioner; Pass a fit test; Be trained in donning and doffing, proper use, including how to ensure a proper face seal, conducting an inspection of the SCBA, and conduct proper maintenance.
2. Such items as facial hair (beard or sideburns) and eyeglasses will not allow a proper face mask seal.
3. Anyone reasonably expected to wear SCBA's shall have these items removed before entering a toxic atmosphere.
4. A special mask with a mount for prescription glasses must be obtained for anyone who must wear eyeglasses in order to see while using an SCBA.
5. SCBA's should be worn in H<sub>2</sub>S concentrations above 10 PPM.

## **RESCUE & FIRST AID FOR H<sub>2</sub>S POISONING**

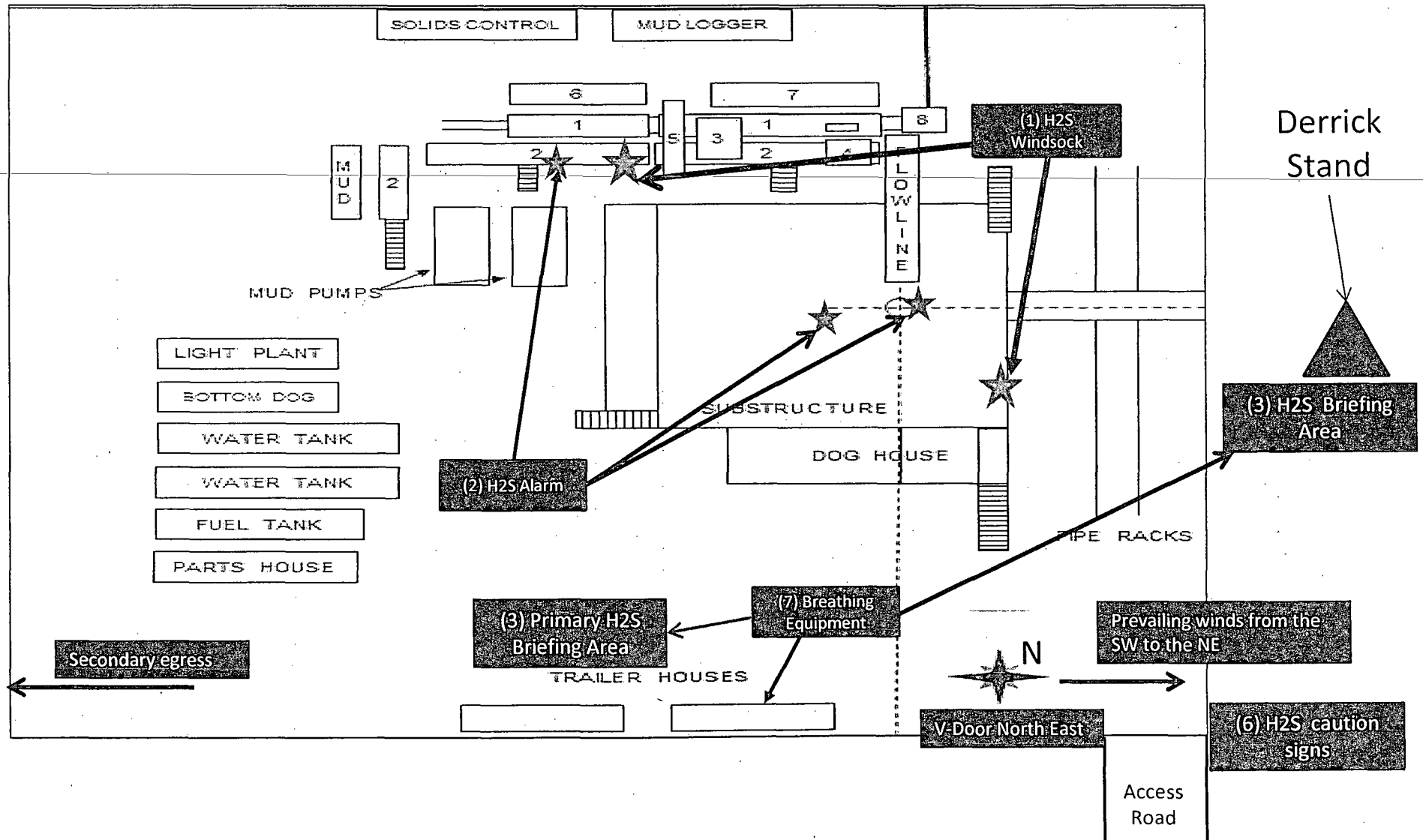
**DO NOT PANIC – REMAIN CALM – THINK**

1. Hold your breath – do not inhale first.
2. Put on SCBA.
3. Remove victim(s) to fresh air as quickly as possible. Go upwind from source or at right angle to the wind. Do not go downwind.
4. Briefly apply chest pressure – using arm lift method of artificial respiration to clean victim's lungs and to avoid inhaling any toxic gas directly from victim's lungs.
5. Provide artificial respiration if needed.
6. Provide for prompt transportation to the hospital and continue giving artificial respiration if needed.
7. Inform hospital/medical facilities of the possibility of H<sub>2</sub>S gas poisoning before they treat.

Besides basic first aid, everyone on location should have a good working knowledge of artificial respiration and CPR, as well as first aid for eyes and skin contact with liquid H<sub>2</sub>S.

# Proposed H2S Safety Schematic

- 1) Location of windsocks.
- 2) Location of H2S alarms
- 3) Location of briefing areas.
- 4) Terrain of surrounding area (Please refer to page 2 of survey plat package also see point 11 of multi-surface use plan)
- 5) Location of flare line(s) and pit(s) (Please refer to diagram 2 choke manifold diagram and or page six of survey plat packet)
- 6) Location of caution and/or danger signs.
- 7) Location of Breathing Equipment



## Location On-Site Notes

Location on-site conducted by Todd Carpenter-BOPCO L.P., John Fast-BLM, and Jason Morgan - Basin Survey on 11/16/2012. The Poker Lake Unit 378H was approved as is with surface footage calls of 915' FNL & 1765' FWL of Section 10, T25S-R30E. Layout includes v-door facing the east, dirt stockpile to the west and access road will enter from east/southeast corner.

# Flowline and Powerline Route Diagram 4



# Access Road Diagram

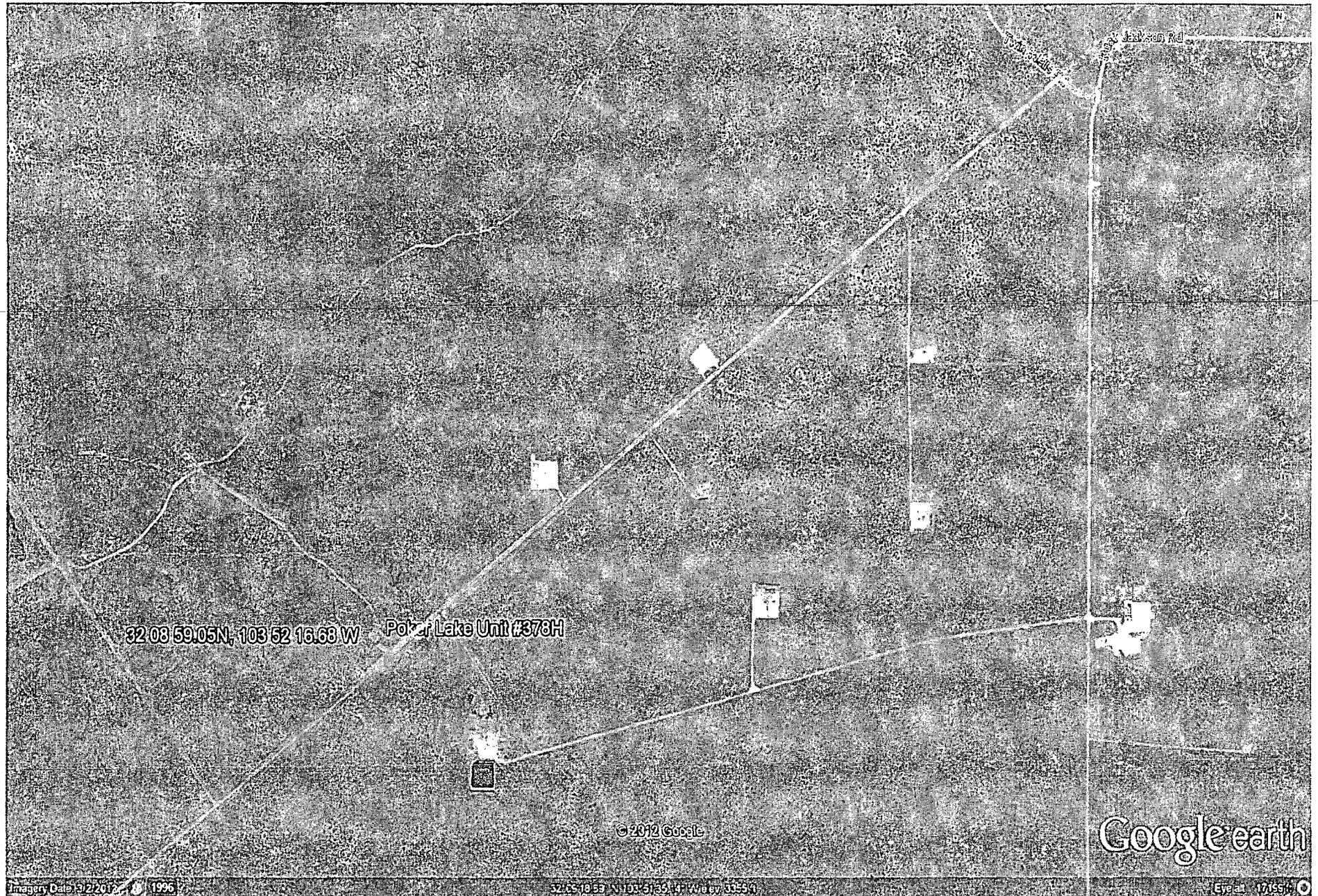
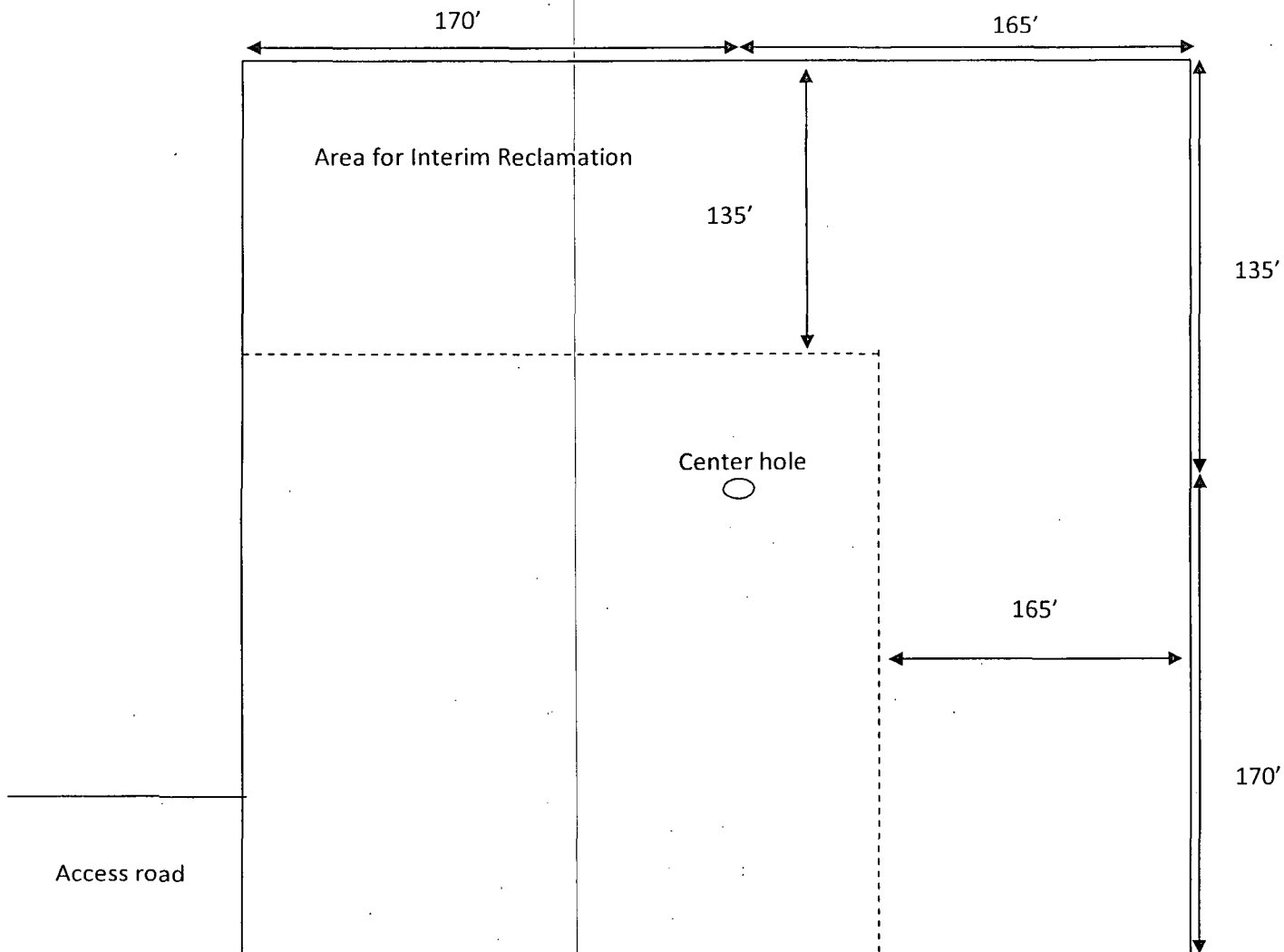
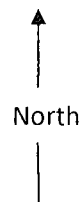


Diagram 3

BOPCO, Poker Lake Unit #378H

Interim Reclamation Well Pad Layout



# PECOS DISTRICT CONDITIONS OF APPROVAL

<b>OPERATOR'S NAME:</b>	<b>BOPCO, L. P.</b>
<b>LEASE NO.:</b>	<b>NMLC-063873A</b>
<b>WELL NAME &amp; NO.:</b>	<b>POKER LAKE UNIT 378H</b>
<b>SURFACE HOLE FOOTAGE:</b>	<b>0915' FNL &amp; 1765' FWL</b>
<b>BOTTOM HOLE FOOTAGE</b>	<b>0260' FNL &amp; 1010' FWL Sec. 14, T. 25S., R 30 E.</b>
<b>LOCATION:</b>	<b>Section 10, T. 25S., R 30 E., NMPM</b>
<b>COUNTY:</b>	<b>Eddy County, New Mexico</b>

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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.

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## **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)**

### **Commercial Well Determination**

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

### **Unit Wells**

The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

## **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) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

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

### **B. TOPSOIL**

The operator shall stockpile the topsoil 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.

### **C. CLOSED LOOP SYSTEM**

Tanks are required for drilling operations: No Pits.

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

### **D. FEDERAL MINERAL MATERIALS PIT**

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

### **E. WELL PAD SURFACING**

Surfacing of the well pad is not required.

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

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

## **F. ON LEASE ACCESS ROADS**

### **Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) 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**

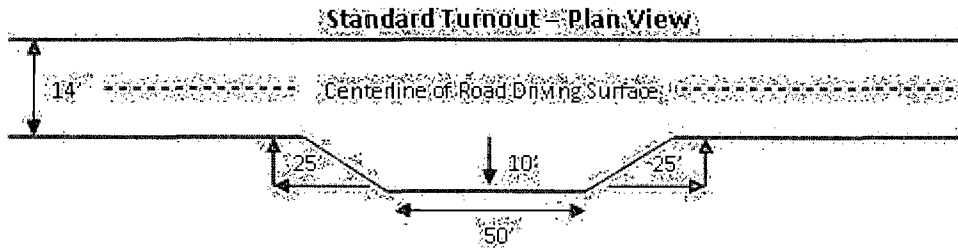
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

### **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:

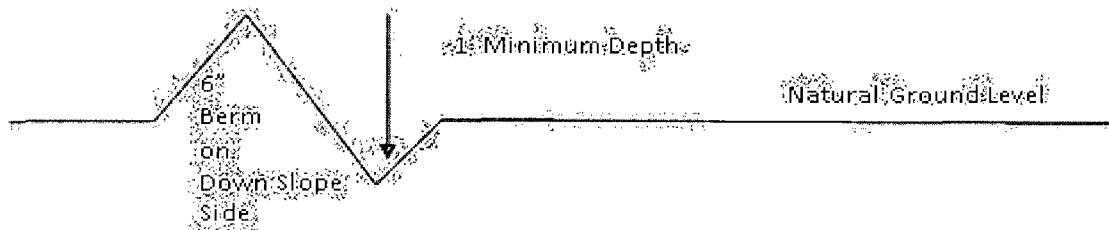


### Drainage

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

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

### Culvert Installations

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

### Cattleguards

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

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

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

### **Fence Requirement**

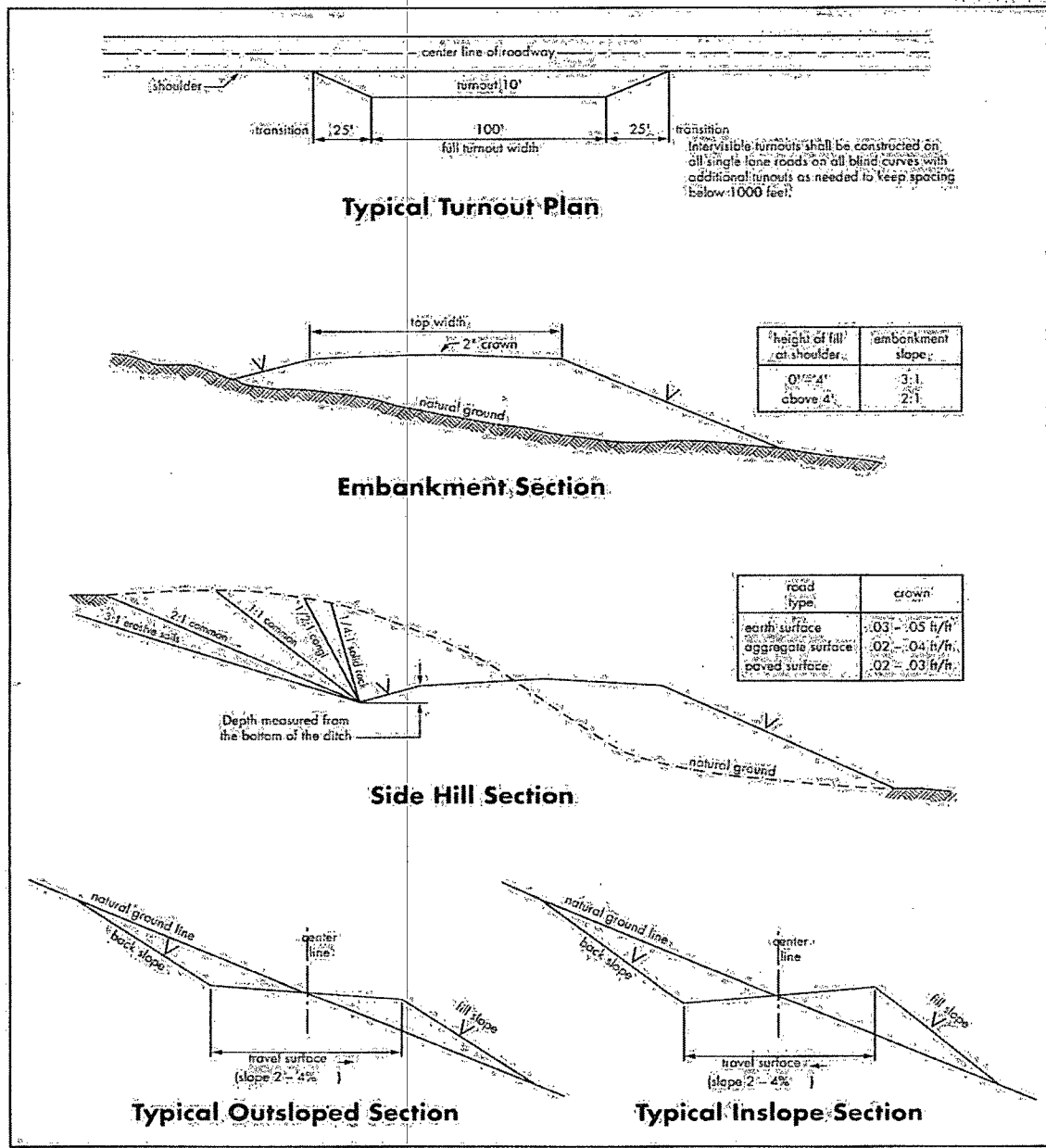
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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

### **Public Access**

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

**Figure.1 – Cross Sections and Plans For Typical Road Sections**



## VII. DRILLING

### A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

☒ **Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,  
(575) 361-2822

1. **Hydrogen Sulfide (H<sub>2</sub>S) monitors shall be installed prior to drilling out the surface shoe. If H<sub>2</sub>S is encountered in quantities greater than 10 PPM the well shall be shut in and H<sub>2</sub>S equipment shall be installed and flare line must be extended pursuant to Onshore Oil and Gas Order #6. After detection, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items.**
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. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
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 GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall 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 program need prior approval if the items substituted are of lesser grade or different casing size. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).**

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

**Wait on cement (WOC) time prior to drilling out 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. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. 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.**

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

**Possible lost circulation in the Delaware and Bone Spring.  
Medium Cave/Karst**

1. The **13 3/8 inch** surface casing shall be set at approximately **895 feet** (at the base of the Rustler formation) and cemented to the surface. **If the salt is encountered set the casing 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.
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.  
**Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.**

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

3. The minimum required fill of cement behind the **7** inch production casing is:

**Operator has proposed DV tool at depth of 5000', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range.**

- a. First stage to DV tool:

- ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.

- b. Second stage above DV tool:

- ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.

4. Cement not required on the **4-1/2** inch completion assembly. **Packer system being used.**
5. 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. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.
  - a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.
4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
  - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

- c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOPE, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock.
- d. The results of the test shall be reported to the appropriate BLM office.
- e. 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.**
- f. 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. This test shall be performed prior to the test at full stack pressure.

#### **D. DRILL STEM TEST**

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

#### **E. WASTE MATERIAL AND FLUIDS**

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

**JAM 030413**

## **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 from the BLM Standard Environmental Color Chart (CC-001: June 2008).

## **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**