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**OCT 01 2012**  
**NMOC D ARTESIA**

*new API:*  
*30-015-40927*

ATS-12-1105

Form 3160-3  
 (April 2004)

OCD Artesia

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

UNITED STATES  
 DEPARTMENT OF THE INTERIOR  
 BUREAU OF LAND MANAGEMENT  
**APPLICATION FOR PERMIT TO DRILL OR REENTER**

5 Lease Serial No. **BHL: NMNM 0002862** *SHL-NM 030452*

6 If Indian, Allottee or Tribe Name  
 See pg 1 of 8pt DP for lease info.

7 If Unit or CA Agreement, Name and No  
**Poker Lake Unit NMNM 71016X**

8. Lease Name and Well No.  
**Poker Lake Unit 367H** *< 306402 >*

9. API Well No  
*30-015-40772*

10. Field and Pool, or Exploratory  
**Nash Draw (Del., BS, Avalon Sand)** *< 47545 >*

11. Sec., T. R. M. or Blk and Survey or Area  
**Sec 34, T24S, R30E, Mer, NMP**

1a. Type of work:  DRILL  REENTER

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

2 Name of Operator  
**BOPCO, L. P.**

3a. Address **P. O. Box 2760  
 Midland, TX 79702**

3b. Phone No. (include area code)  
**432-683-2277**

4. Location of Well (Report location clearly and in accordance with any State requirements.)\*  
 At surface **NENW UL C, 620' FNL, 2000' FWL, Lat: N 32.179764, Long: W 103.8706**  
 At proposed prod zone **SWNE, UL G, 1950' FNL, 1950' FEL, S28, T24S, R30E**

14 Distance in miles and direction from nearest town or post office\*  
**22 miles east of Malaga**

12 County or Parish  
**Eddy**

13. State  
**NM**

15 Distance from proposed\* location to nearest property or lease line, ft (Also to nearest drng unit line, if any)  
**700' (from lease line)**  
**11,438' (unit line)**

16. No. of acres in lease  
**3,120**

17. Spacing Unit dedicated to this well  
**360**

18 Distance from proposed location\* to nearest well, drilling, completed, applied for, on this lease, ft  
**1,765'**

19. Proposed Depth  
**12,899' MD / 7,549' TVD**

20. BLM/BIA Bond No. on file  
**COB 000050**

21 Elevations (Show whether DF, KDB, RT, GL, etc.)  
**3,340' GL**

22--Approximate date work will start\*  
**02/01/2013**

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  
*Jeremy Braden*  
 Title **Engineering Assistant**

Name (Printed/Typed)  
**Jeremy Braden**

Date **8/13/12**

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

Name (Printed/Typed) **/s/ Don Peterson**

Date **SEP 27 2012**

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**

**SEE ATTACHED FOR  
 CONDITIONS OF APPROVAL**

**Approval Subject to General Requirements  
 & Special Stipulations Attached**

DISTRICT I  
1625 N. French Dr., Hobbs, NM 88240

DISTRICT II  
1901 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>30-015-40772</b>		Pool Code 47545	Pool Name Nash Draw (Delaware, BS, Avalon Sand)
Property Code 306402	Property Name POKER LAKE UNIT		Well Number 367H
OGRID No. 260737	Operator Name BOPCO, L.P.		Elevation 3340'

Surface Location

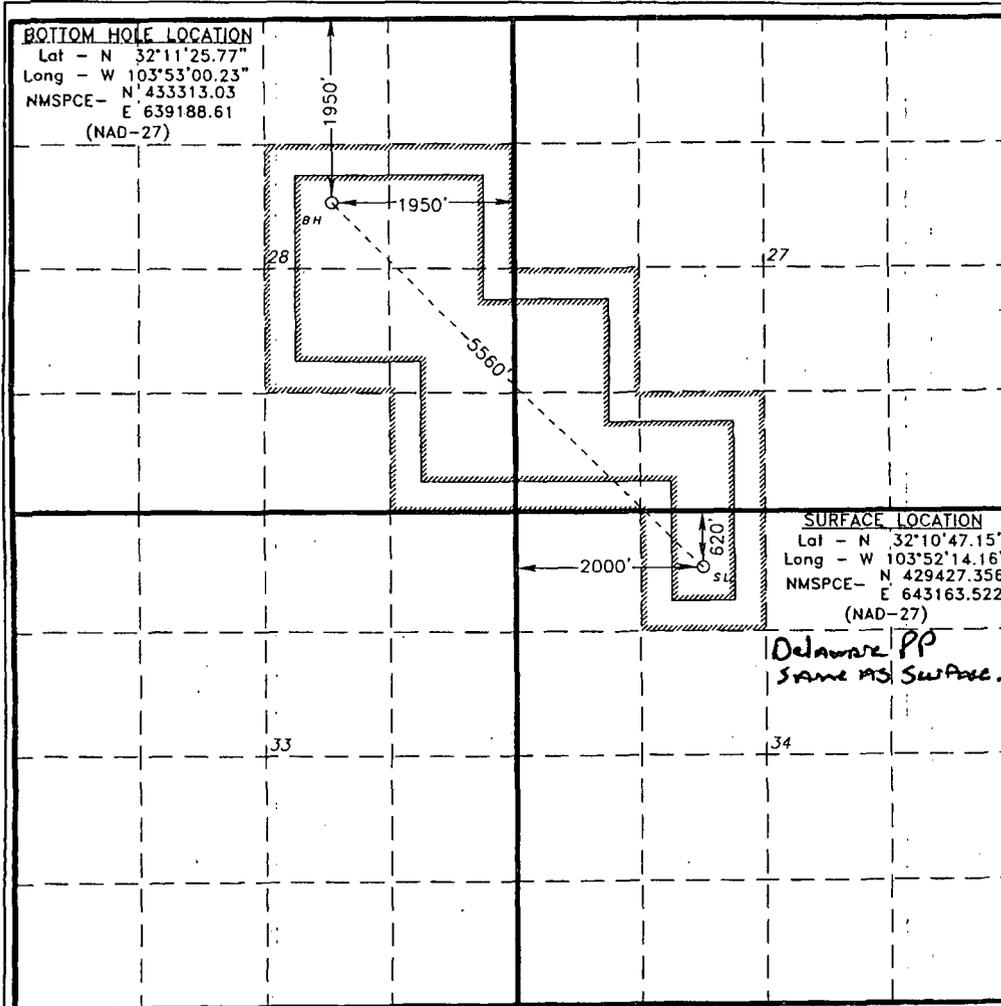
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	34	24 S	30 E		620	NORTH	2000	WEST	EDDY

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
G	28	24 S	30 E		1950	NORTH	1950	EAST	EDDY

Dedicated Acres 360	Joint or Infill	Consolidation Code	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



**OPERATOR CERTIFICATION**

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

*Jeremy Braden* 8-3-12  
Signature Date  
Jeremy Braden  
Printed Name  
jdbraden@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

Date Surveyed  
Signature & Seal of Professional Surveyor  
7677

Certificate No. Gary L. Jones 7977

BASIN SURVEYS 26961

# **BOPCO, L.P.**

**P. O. Box 2760  
Midland, Texas 79702**

**432-683-2277**

**FAX-432-687-0329**

August 2, 2012

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

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

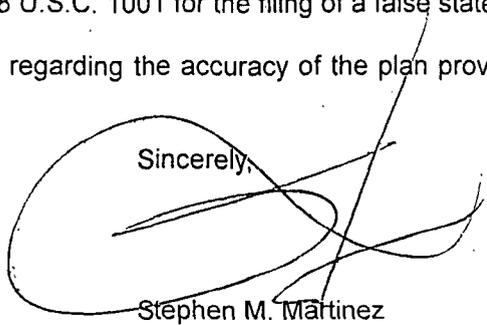
RE: APPLICATION FOR PERMIT TO DRILL  
POKER LAKE UNIT #364H  
620' FNL, 2000' FWL, SEC. 34, T24S, R30E, EDDY COUNTY, NM

Dear Mr. Peterson,

In reference to the above captioned well, I hereby certify that I, or persons under my direct supervision have inspected the proposed drill site and access route; that I am familiar with the conditions which currently exist; that the statements made in the attached eight point drilling plan and multi-use surface plan are, to the best of my knowledge, true and correct; and that the work associated with operations proposed herein will be performed by BOPCO, L.P. and it's contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

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,



Stephen M. Martinez  
Division Drilling Superintendent

Surface casing is to be set into the Rustler below all fresh water sands at an approximate depth of 1,074' and cement circulated to surface.

7" casing will be set at approximately 7,741' MD, 7,554' 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: NMNM 0030452**

**Bottom Hole Lease Numbers – Federal Lease: NMNM 0002862**

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 367H**

LEGAL DESCRIPTION - SURFACE: 620' FNL, 2000' FWL, Section 34, T24S, R30E, Eddy County, NM.  
BHL: 1950' FNL, 1950' FEL, Section 28, T24S, 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 3359' (estimated)  
GL 3340'

Formation Description	Est from KB (TVD)	Est (MD)	SUB-SEA TOP	BEARING
T/Fresh Water	400'	400'	+ 2,959'	Fresh Water
T/Rustler	859'	859'	+ 2,500'	Barren
T/Salado	1,084'	1,084'	+ 2,275'	Barren
B/Salt	3,669'	3,669'	- 310'	Oil/Gas
T/Lamar	3,884'	3,884'	- 525'	Oil/Gas
T/Ramsey	3,919'	3,919'	- 560'	Oil/Gas
Cherry Canyon	4,794'	4,794'	- 1,435'	Oil/Gas
Brushy Canyon	6,049'	6,049'	- 2,690'	Oil/Gas
KOP	7,041'	7,041'	- 3,682'	Oil/Gas
LBC "8A" Sand	7,424'	7,485'	- 4,065'	Oil/Gas
EOC	7,619'	7,993'	- 4,260'	Oil/Gas
Target #1	7,619'	7,993'	- 4,260'	Oil/Gas
TD Horizontal Hole	7,549'	12,899'	- 4,190'	Oil/Gas

**POINT 3: CASING PROGRAM**

TYPE	INTERVAL MD	HOLE SIZE	PURPOSE	INSTALLATION TYPE
20"	0' - 120'	26"	Conductor	Contractor Discretion
13-3/8", 48 ppf, H-40, or 54.5 ppf, J-55 8rd, ST&C*	0' - 1,074'	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' - 3,900'	12-1/4"	Intermediate	New
7", 26 ppf, N-80, Buttress or 8rd LTC*	0' - 7,741'	8-3/4"	Production	New

Completion System	INTERVAL MD	HOLE SIZE	PURPOSE	INSTALLATION TYPE
4-1/2", 11.6 ppf, HCP-110 8rd LT&C, BTC	7,691' - 12,899'	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*	7.27	1.36	1.12
13-3/8", 54.5 ppf, J-55, 8rd, STC*	16.95	2.16	1.76
9-5/8", 40 ppf, N-80, 8rd, LT&C*	5.60	1.38	2.64
9-5/8", 40 ppf, J-55, 8rd, LT&C*	4.78	1.13	1.82
7", 26 ppf, N-80, Buttress*	3.57	1.32	1.72
7", 26 ppf, N-80, 8rd, LTC*	3.06	1.27	1.72

<b>Completion System</b>			
4-1/2", 11.6 ppf, HCP-110 8rd. LT&C	3.66	2.11	2.51
4-1/2", 11.6 ppf, HCP-110 BTC	4.81	2.21	2.51

\* 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 DIAGRAM 1 & 2)

The BOPE when rigged up on the 13-3/8" surface casing head (12-1/4" open hole) will consist of 13-5/8" X 5,000 psi dual ram BOP's with mud cross, choke manifold, chokes, and hydril per Diagram 1 (5,000 psi WP). The pipe and blind rams, choke, kill lines, kelly cocks, inside BOP, etc. when installed on the surface casing head will be hydro-tested to 250-300 psig and 2000 psig by independent tester. The hydril when installed on surface casing head will be tested to 1000 psi.

The BOPE when rigged up on the 9-5/8" intermediate casing spool (8-3/4" open hole) will consist of 13-5/8" x 5,000 psi annular, 13-5/8" x 5,000 psi pipe & blind rams with mud cross, choke manifold and chokes as in Diagram 1. The pipe and blind rams, choke, kill lines, kelly cocks inside BOP, etc. will be tested to 3000 psig by independent tester. In addition to the high pressure test, a low pressure (250-300 psig) test will be required. Hydril will be tested to 1500 psig.

The BOPE when rigged up on the 7" intermediate casing spool (6-1/8" open hole) will consist of 13-5/8" x 5,000 psi annular, 13-5/8" x 5,000 psi pipe & blind rams with mud cross choke manifold and chokes as in Diagram 1. The pipe and blind rams, choke, kelly lines, kelly cocks inside BOP, etc. will be tested to 3000 psig by independent tester. In addition to the high pressure test, a low pressure (250-300 psig) test will be required. Hydril will be tested to 1500 psig.

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

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" or 3.5", 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 12,899' MD (7,549' TVD) and max surface pressure should be +/- 1872 psi as prescribed in onshore order #2 shown as max BHP minus 0.22 psi/ft. Thus, 2000 psi BOPE (for 12-1/4" hole) and 3000 psi BOPE (for 8-3/4" and 6-1/8" hole) is all that is needed for this well. **Please refer to diagram 2 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. There is a list of possible flex hose serial numbers that could be used attached with the choke manifold diagram**

Please refer to diagram 2 for choke manifold and closed loop system layout. .

#### POINT 5: MUD PROGRAM

DEPTH	MUD TYPE	WEIGHT	FV	PV	YP	FL	Ph
0 -1,074'	FW Spud Mud	8.5 - 9.2	38-70	NC	NC	NC	10.0
1,074' - 3,900'	Brine Water	9.8 - 10.2	28-30	NC	NC	NC	9.5 - 10.5
3,900' - 7,741'	FW/Gel	8.7 - 9.0	28-36	NC	NC	NC	9.5 - 10.0
7,741'-12,899'	FW/Gel/Starch	8.7 - 9.0	28-36	NC	NC	<100	9.5 - 10.0

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

### POINT 6: TECHNICAL STAGES OF OPERATION

A) TESTING  
None anticipated.

B) LOGGING

*See COA*

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
SURFACE: Lead: 0' - 774' <i>13<sup>3</sup>/<sub>4</sub></i>	630	774	Class C +2% CACL + 4% Bentonite + 0.25 LB/SK Cello Flake + 3 lb/sk LCM-1	8.69	13.50	1.75
Tail: 774' - 1,074'	345	300	Class C + 2% CACL + 0.25 LB/SK CF 0.25LB/SK Cello Flake + 3 lb/sk LCM-1	6.35	14.80	1.35
INTERMEDIATE: Lead: 0' - 3,400' <i>9<sup>5</sup>/<sub>8</sub></i>	1020	3400	EconoCEM HLC + 5% CaCl + 5#/sk Gilsonite	9.32	12.90	1.85
Tail: 3,400' - 3,900'	270	500	HalCem C	6.34	14.80	1.33
Production Stage 1: <i>7<sup>11</sup></i>						
Lead: 5,000' - 7,041'	180	2041	Tuned Light + 0.75% + CFR-3 + 1.5#/sk CaCl	12.41	10.20	2.76
Tail: 7,041' - 7,741'	115	700	VersaCem-PBSH2 + 0.4% Halad-9	8.76	13.0	1.65
DV Tool @ 5,000' Stage 2:						
Lead: 3,400' - 4,500'	115	1100	EconCem HLC + 1% Econolite + 5% CaCl + 5#/sk Gilsonite	10.71	12.60	2.04
Tail: 4,500' - 5,000'	100	500.4	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 12,899'. The top of the Completion System will be set at approximately 7,691'. 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 7,041' at which point a directional hole will be kicked off and drilled at an azimuth of 314.350 degrees, building angle at 12.00 deg/100' to 60 degrees at a TVD of 7,454' (MD 7,541'). This angle and azimuth will be maintained for 200' to a measured depth of 7,741 (7,554' 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 314.350 degrees, inclination of 90.821 degrees to a measured depth of 12,899', TVD 7,549'. 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 and diagram 2)** 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 2 for choke manifold and closed loop system layout.) 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 2.**

**POINT 7: ANTICIPATED RESERVOIR CONDITIONS**

Normal pressures are anticipated throughout Delaware section. A BHP of 3533 psi (max) or MWE of 9.0 ppg is expected. Lost circulation may exist in the Delaware Section from 3,884' – 7,549' 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

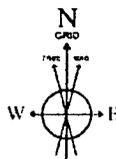
JDB/KEK



# BOPCO, L.P.

Location: Eddy County, NM  
 Field: Poker Lake Unit  
 Facility: Poker Lake Unit No. 367H

Slot: No. 367H SHL  
 Well: No. 367H  
 Wellbore: No. 367H PWB



BGGM (1945 0 to 2014 0) Dip 60.03° Field 48439 2 nT  
 Magnetic North is 7.69 degrees East of True North (at 7/20/2012)  
 Grid North is 0.25 degrees East of True North

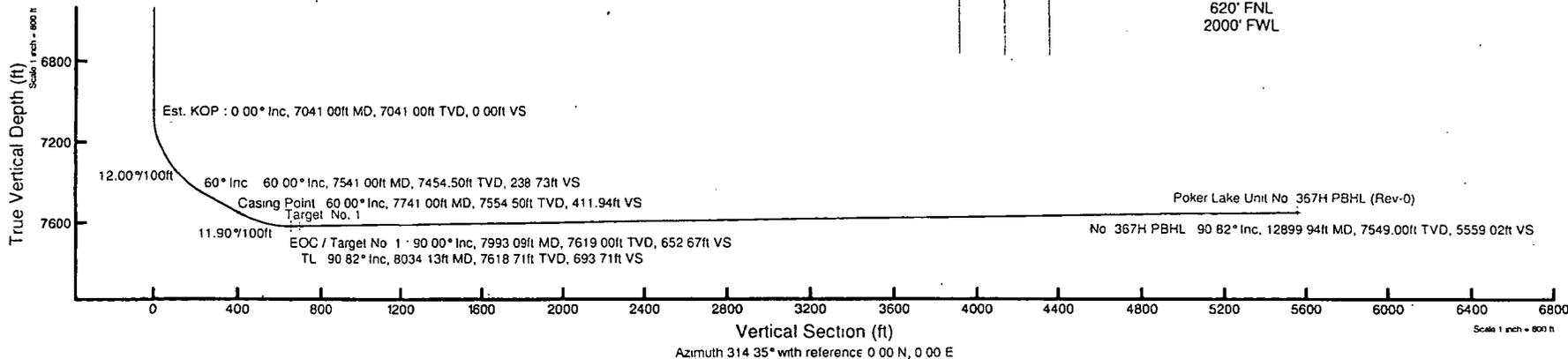
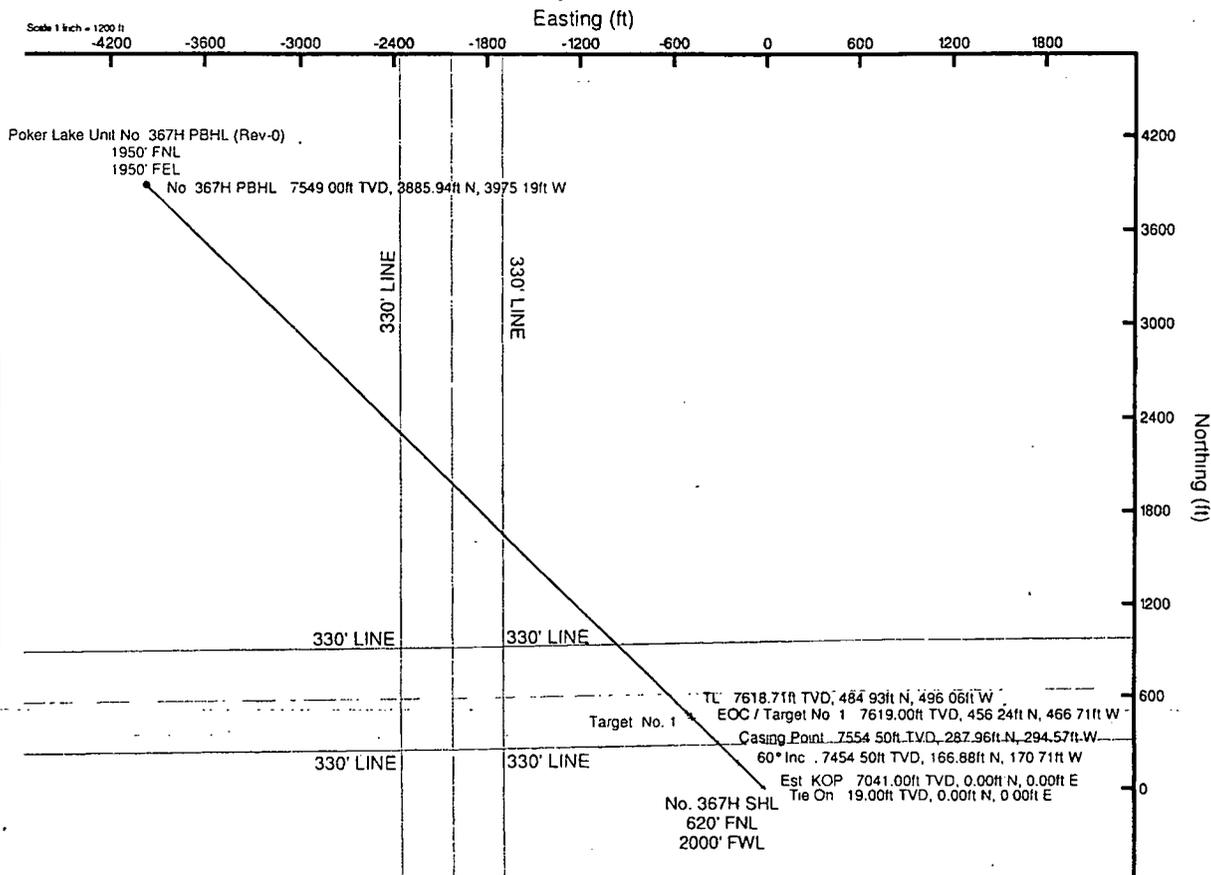
To correct azimuth from True to Grid subtract 0.25 degrees  
 To correct azimuth from Magnetic to Grid add 7.44 degrees

For example if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 - 7.44 = 97.44

Plot reference method is Rev-A.0	
True vertical depths are referenced to Rig on No. 367H SHL (K8)	Grid System: NAD83 / TM New Mexico SP, Eastern Zone (2011), US feet
Measured depths are referenced to Rig on No. 367H SHL (K8)	North Reference: Grid north
Rig on No. 367H SHL (K8) to Mean Sea Level: 3352 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot No. 367H SHL): -3342 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: herick on 7/24/2012

### Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	19.00	0.00	314.350	19.00	0.00	0.00	0.00	0.00
Est. KOP	7041.00	0.00	314.350	7041.00	0.00	0.00	0.00	0.00
60° Inc	7541.00	60.00	314.350	7454.50	166.88	-170.71	12.00	238.73
Casing Point	7741.00	60.00	314.350	7554.50	287.98	-294.57	0.00	411.94
EOC / Target No. 1	7993.09	90.00	314.350	7619.00	458.24	-466.71	11.90	652.67
TL	8034.13	90.82	314.350	7618.71	484.93	-496.06	2.00	693.71
No. 367H PWB	12899.94	90.82	314.350	7549.00	3885.94	-3975.19	0.00	5559.02



Vertical Section (ft)  
 Azimuth 314.35° with reference 0.00 N, 0.00 E



# Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	No. 367H SHL
Area	Eddy County, NM	Well	No. 367H
Field	Poker Lake Unit	Wellbore	No. 367H PWB
Facility	Poker Lake Unit No. 367H		

REPORT SETUP INFORMATION			
Projection System	NAD27 / TM New Mexico SP, Eastern Zone (3001), US feet	Software System	WellArchitect® 3.0.0
North Reference	Grid	User	Harrkol
Scale	0.999933	Report Generated	7/24/2012 at 2:30:22 PM
Convergence at slot	0.25° East	Database/Source file	WA Midland/No._367H_PWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W
Facility Reference Pt			643163.52	429427.36	32°10'47.159"N	103°52'14.177"W
Field Reference Pt			630272.49	405347.85	32°06'49.387"N	103°54'45.266"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on No. 367H SHL (KB) to Facility Vertical Datum	19.00ft
Horizontal Reference Pt	Slot	Rig on No. 367H SHL (KB) to Mean Sea Level	3359.00ft
Vertical Reference Pt	Rig on No. 367H SHL (KB)	Rig on No. 367H SHL (KB) to Mud Line at Slot (No. 367H SHL)	19.00ft
MD Reference Pt	Rig on No. 367H SHL (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	314.35°



# Planned Wellpath Report

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# BAKER HUGHES

## REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No. 367H SHL
Area	Eddy County, NM	Well	No. 367H
Field	Poker Lake Unit	Wellbore	No. 367H PWB
Facility	Poker Lake Unit No. 367H		

## WELLPATH DATA (143 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00†	0.000	314.350	0.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
19.00	0.000	314.350	19.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	Tic On
119.00†	0.000	314.350	119.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
219.00†	0.000	314.350	219.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
319.00†	0.000	314.350	319.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
419.00†	0.000	314.350	419.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
519.00†	0.000	314.350	519.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
619.00†	0.000	314.350	619.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
719.00†	0.000	314.350	719.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
819.00†	0.000	314.350	819.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
859.00†	0.000	314.350	859.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	Rustler
919.00†	0.000	314.350	919.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
1019.00†	0.000	314.350	1019.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
1084.00†	0.000	314.350	1084.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	Salado
1119.00†	0.000	314.350	1119.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
1219.00†	0.000	314.350	1219.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
1319.00†	0.000	314.350	1319.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
1419.00†	0.000	314.350	1419.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
1519.00†	0.000	314.350	1519.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
1619.00†	0.000	314.350	1619.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
1719.00†	0.000	314.350	1719.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
1819.00†	0.000	314.350	1819.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
1919.00†	0.000	314.350	1919.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
2019.00†	0.000	314.350	2019.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
2119.00†	0.000	314.350	2119.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
2219.00†	0.000	314.350	2219.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
2319.00†	0.000	314.350	2319.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
2419.00†	0.000	314.350	2419.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
2519.00†	0.000	314.350	2519.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
2619.00†	0.000	314.350	2619.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
2719.00†	0.000	314.350	2719.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
2819.00†	0.000	314.350	2819.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
2919.00†	0.000	314.350	2919.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
3019.00†	0.000	314.350	3019.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
3119.00†	0.000	314.350	3119.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
3219.00†	0.000	314.350	3219.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
3319.00†	0.000	314.350	3319.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
3419.00†	0.000	314.350	3419.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
3519.00†	0.000	314.350	3519.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
3619.00†	0.000	314.350	3619.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
3669.00†	0.000	314.350	3669.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	B/Salt
3719.00†	0.000	314.350	3719.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
3819.00†	0.000	314.350	3819.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
3884.00†	0.000	314.350	3884.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	Lamar
3919.00†	0.000	314.350	3919.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	Ramsey



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## REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No. 367H SHL
Area	Eddy County, NM	Well	No. 367H
Field	Poker Lake Unit	Wellbore	No. 367H PWB
Facility	Poker Lake Unit No. 367H		

## WELLPATH DATA (143 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4019.00†	0.000	314.350	4019.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
4119.00†	0.000	314.350	4119.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
4219.00†	0.000	314.350	4219.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
4319.00†	0.000	314.350	4319.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
4419.00†	0.000	314.350	4419.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
4519.00†	0.000	314.350	4519.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
4619.00†	0.000	314.350	4619.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
4719.00†	0.000	314.350	4719.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
4794.00†	0.000	314.350	4794.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	Cherry Canyon
4819.00†	0.000	314.350	4819.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
4919.00†	0.000	314.350	4919.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
5019.00†	0.000	314.350	5019.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
5119.00†	0.000	314.350	5119.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
5219.00†	0.000	314.350	5219.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
5319.00†	0.000	314.350	5319.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
5419.00†	0.000	314.350	5419.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
5519.00†	0.000	314.350	5519.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
5619.00†	0.000	314.350	5619.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
5719.00†	0.000	314.350	5719.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
5819.00†	0.000	314.350	5819.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
5919.00†	0.000	314.350	5919.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
6019.00†	0.000	314.350	6019.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
6049.00†	0.000	314.350	6049.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	Brushy Canyon
6119.00†	0.000	314.350	6119.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
6219.00†	0.000	314.350	6219.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
6319.00†	0.000	314.350	6319.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
6419.00†	0.000	314.350	6419.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
6519.00†	0.000	314.350	6519.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
6619.00†	0.000	314.350	6619.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
6719.00†	0.000	314.350	6719.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
6819.00†	0.000	314.350	6819.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
6919.00†	0.000	314.350	6919.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
7019.00†	0.000	314.350	7019.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	
7041.00	0.000	314.350	7041.00	0.00	0.00	0.00	643163.52	429427.36	32°10'47.159"N	103°52'14.177"W	0.00	Est. KOP
7119.00†	9.360	314.350	7118.65	6.36	4.44	-4.55	643158.98	429431.80	32°10'47.203"N	103°52'14.230"W	12.00	
7219.00†	21.360	314.350	7214.91	32.80	22.93	-23.45	643140.07	429450.28	32°10'47.387"N	103°52'14.449"W	12.00	
7319.00†	33.360	314.350	7303.56	78.67	54.99	-56.26	643107.27	429482.35	32°10'47.706"N	103°52'14.829"W	12.00	
7419.00†	45.360	314.350	7380.73	141.97	99.25	-101.52	643062.01	429526.59	32°10'48.146"N	103°52'15.353"W	12.00	
7485.47†	53.336	314.350	7424.00	192.36	134.47	-137.55	643025.98	429561.82	32°10'48.496"N	103°52'15.771"W	12.00	Lower Brushy Canyon 8A
7519.00†	57.360	314.350	7443.06	219.94	153.75	-157.28	643006.26	429581.09	32°10'48.687"N	103°52'15.999"W	12.00	
7541.00	60.000	314.350	7454.50	238.73	166.88	-170.71	642992.82	429594.23	32°10'48.818"N	103°52'16.155"W	12.00	60° Inc.
7619.00†	60.000	314.350	7493.50	306.28	214.10	-219.02	642944.52	429641.44	32°10'49.287"N	103°52'16.715"W	0.00	
7719.00†	60.000	314.350	7543.50	392.88	274.64	-280.95	642882.60	429701.98	32°10'49.889"N	103°52'17.432"W	0.00	
7741.00	60.000	314.350	7554.50	411.94	287.96	-294.57	642868.97	429715.30	32°10'50.021"N	103°52'17.590"W	0.00	Casing Point
7819.00†	69.282	314.350	7587.87	482.34	337.18	-344.92	642818.63	429764.51	32°10'50.510"N	103°52'18.173"W	11.90	



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## REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No. 367H SHL
Area	Eddy County, NM	Well	No. 367H
Field	Poker Lake Unit	Wellbore	No. 367H PWB
Facility	Poker Lake Unit No. 367H		

## WELLPATH DATA (143 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7919.00†	81.183	314.350	7613.31	578.87	404.65	-413.94	642749.61	429831.98	32°10'51.181"N	103°52'18.973"W	11.90	
7993.09	90.000	314.350	7619.00	652.67	456.24	-466.71	642696.84	429883.56	32°10'51.694"N	103°52'19.584"W	11.90	EOC / Target No 1
8019.00†	90.518	314.350	7618.88	678.58	474.35	-485.24	642678.32	429901.67	32°10'51.874"N	103°52'19.799"W	2.00	
8034.13	90.821	314.350	7618.71	693.71	484.93	-496.06	642667.50	429912.25	32°10'51.979"N	103°52'19.924"W	2.00	TL
8119.00†	90.821	314.350	7617.49	778.57	544.25	-556.74	642606.82	429971.57	32°10'52.568"N	103°52'20.627"W	0.00	
8219.00†	90.821	314.350	7616.06	878.56	614.14	-628.24	642535.32	430041.46	32°10'53.263"N	103°52'21.456"W	0.00	
8319.00†	90.821	314.350	7614.63	978.55	684.04	-699.74	642463.83	430111.35	32°10'53.958"N	103°52'22.284"W	0.00	
8419.00†	90.821	314.350	7613.19	1078.53	753.94	-771.24	642392.33	430181.24	32°10'54.652"N	103°52'23.113"W	0.00	
8519.00†	90.821	314.350	7611.76	1178.52	823.83	-842.75	642320.83	430251.13	32°10'55.347"N	103°52'23.941"W	0.00	
8619.00†	90.821	314.350	7610.33	1278.51	893.73	-914.25	642249.34	430321.02	32°10'56.042"N	103°52'24.770"W	0.00	
8719.00†	90.821	314.350	7608.89	1378.50	963.62	-985.75	642177.84	430390.91	32°10'56.736"N	103°52'25.598"W	0.00	
8819.00†	90.821	314.350	7607.46	1478.49	1033.52	-1057.25	642106.34	430460.80	32°10'57.431"N	103°52'26.426"W	0.00	
8919.00†	90.821	314.350	7606.03	1578.48	1103.42	-1128.75	642034.85	430530.70	32°10'58.126"N	103°52'27.255"W	0.00	
9019.00†	90.821	314.350	7604.60	1678.47	1173.31	-1200.25	641963.35	430600.59	32°10'58.820"N	103°52'28.083"W	0.00	
9119.00†	90.821	314.350	7603.16	1778.46	1243.21	-1271.76	641891.86	430670.48	32°10'59.515"N	103°52'28.912"W	0.00	
9219.00†	90.821	314.350	7601.73	1878.45	1313.11	-1343.26	641820.36	430740.37	32°11'00.210"N	103°52'29.740"W	0.00	
9319.00†	90.821	314.350	7600.30	1978.44	1383.00	-1414.76	641748.86	430810.26	32°11'00.904"N	103°52'30.569"W	0.00	
9419.00†	90.821	314.350	7598.87	2078.43	1452.90	-1486.26	641677.37	430880.15	32°11'01.599"N	103°52'31.397"W	0.00	
9519.00†	90.821	314.350	7597.43	2178.42	1522.79	-1557.76	641605.87	430950.04	32°11'02.294"N	103°52'32.226"W	0.00	
9619.00†	90.821	314.350	7596.00	2278.41	1592.69	-1629.26	641534.37	431019.94	32°11'02.988"N	103°52'33.054"W	0.00	
9719.00†	90.821	314.350	7594.57	2378.40	1662.59	-1700.76	641462.88	431089.83	32°11'03.683"N	103°52'33.883"W	0.00	
9819.00†	90.821	314.350	7593.14	2478.39	1732.48	-1772.27	641391.38	431159.72	32°11'04.378"N	103°52'34.711"W	0.00	
9919.00†	90.821	314.350	7591.70	2578.38	1802.38	-1843.77	641319.88	431229.61	32°11'05.072"N	103°52'35.540"W	0.00	
10019.00†	90.821	314.350	7590.27	2678.37	1872.27	-1915.27	641248.39	431299.50	32°11'05.767"N	103°52'36.368"W	0.00	
10119.00†	90.821	314.350	7588.84	2778.36	1942.17	-1986.77	641176.89	431369.39	32°11'06.462"N	103°52'37.197"W	0.00	
10219.00†	90.821	314.350	7587.41	2878.35	2012.07	-2058.27	641105.39	431439.28	32°11'07.156"N	103°52'38.025"W	0.00	
10319.00†	90.821	314.350	7585.97	2978.34	2081.96	-2129.77	641033.90	431509.17	32°11'07.851"N	103°52'38.854"W	0.00	
10419.00†	90.821	314.350	7584.54	3078.33	2151.86	-2201.28	640962.40	431579.07	32°11'08.546"N	103°52'39.682"W	0.00	
10519.00†	90.821	314.350	7583.11	3178.32	2221.76	-2272.78	640890.90	431648.96	32°11'09.240"N	103°52'40.511"W	0.00	
10619.00†	90.821	314.350	7581.68	3278.31	2291.65	-2344.28	640819.41	431718.85	32°11'09.935"N	103°52'41.339"W	0.00	
10719.00†	90.821	314.350	7580.24	3378.30	2361.55	-2415.78	640747.91	431788.74	32°11'10.630"N	103°52'42.168"W	0.00	
10819.00†	90.821	314.350	7578.81	3478.29	2431.44	-2487.28	640676.41	431858.63	32°11'11.324"N	103°52'42.996"W	0.00	
10919.00†	90.821	314.350	7577.38	3578.28	2501.34	-2558.78	640604.92	431928.52	32°11'12.019"N	103°52'43.825"W	0.00	
11019.00†	90.821	314.350	7575.95	3678.27	2571.24	-2630.28	640533.42	431998.41	32°11'12.714"N	103°52'44.653"W	0.00	
11119.00†	90.821	314.350	7574.51	3778.26	2641.13	-2701.79	640461.92	432068.31	32°11'13.408"N	103°52'45.482"W	0.00	
11219.00†	90.821	314.350	7573.08	3878.25	2711.03	-2773.29	640390.43	432138.20	32°11'14.103"N	103°52'46.310"W	0.00	
11319.00†	90.821	314.350	7571.65	3978.24	2780.93	-2844.79	640318.93	432208.09	32°11'14.797"N	103°52'47.139"W	0.00	
11419.00†	90.821	314.350	7570.22	4078.23	2850.82	-2916.29	640247.43	432277.98	32°11'15.492"N	103°52'47.967"W	0.00	
11519.00†	90.821	314.350	7568.78	4178.22	2920.72	-2987.79	640175.94	432347.87	32°11'16.187"N	103°52'48.796"W	0.00	
11619.00†	90.821	314.350	7567.35	4278.21	2990.61	-3059.29	640104.44	432417.76	32°11'16.881"N	103°52'49.624"W	0.00	
11719.00†	90.821	314.350	7565.92	4378.20	3060.51	-3130.80	640032.94	432487.65	32°11'17.576"N	103°52'50.453"W	0.00	
11819.00†	90.821	314.350	7564.49	4478.19	3130.41	-3202.30	639961.45	432557.54	32°11'18.271"N	103°52'51.282"W	0.00	
11919.00†	90.821	314.350	7563.05	4578.18	3200.30	-3273.80	639889.95	432627.44	32°11'18.965"N	103°52'52.110"W	0.00	
12019.00†	90.821	314.350	7561.62	4678.17	3270.20	-3345.30	639818.45	432697.33	32°11'19.660"N	103°52'52.939"W	0.00	
12119.00†	90.821	314.350	7560.19	4778.16	3340.09	-3416.80	639746.96	432767.22	32°11'20.355"N	103°52'53.767"W	0.00	



# Planned Wellpath Report

Rev-A.0  
Page 5 of 5



## REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No. 367H SHL
Area	Eddy County, NM	Well	No. 367H
Field	Poker Lake Unit	Wellbore	No. 367H PWB
Facility	Poker Lake Unit No. 367H		

## WELLPATH DATA (143 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
12219.00†	90.821	314.350	7558.75	4878.14	3409.99	-3488.30	639675.46	432837.11	32°11'21.049"N	103°52'54.596"W	0.00	
12319.00†	90.821	314.350	7557.32	4978.13	3479.89	-3559.80	639603.96	432907.00	32°11'21.744"N	103°52'55.424"W	0.00	
12419.00†	90.821	314.350	7555.89	5078.12	3549.78	-3631.31	639532.47	432976.89	32°11'22.438"N	103°52'56.253"W	0.00	
12519.00†	90.821	314.350	7554.46	5178.11	3619.68	-3702.81	639460.97	433046.78	32°11'23.133"N	103°52'57.082"W	0.00	
12619.00†	90.821	314.350	7553.02	5278.10	3689.58	-3774.31	639389.47	433116.68	32°11'23.828"N	103°52'57.910"W	0.00	
12719.00†	90.821	314.350	7551.59	5378.09	3759.47	-3845.81	639317.98	433186.57	32°11'24.522"N	103°52'58.739"W	0.00	
12819.00†	90.821	314.350	7550.16	5478.08	3829.37	-3917.31	639246.48	433256.46	32°11'25.217"N	103°52'59.567"W	0.00	
12899.94	90.821	314.350	7549.00	5559.02	3885.94	-3975.19	639188.61	433313.03	32°11'25.779"N	103°53'00.238"W	0.00	No. 367H PBHL

## TARGETS

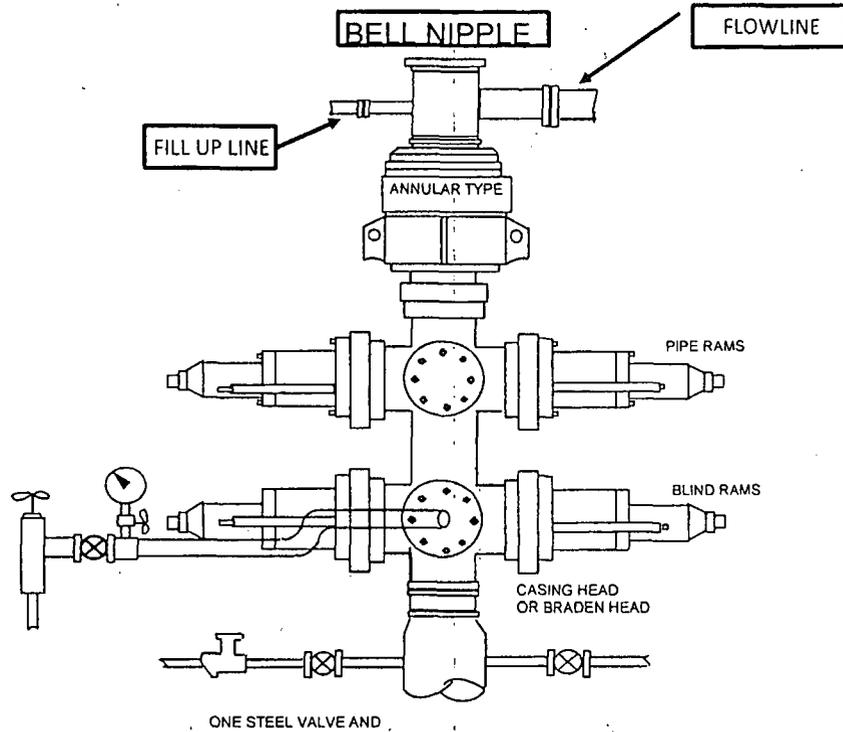
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
1) Poker Lake Unit No. 367H PBHL (Rev-0)	12899.94	7549.00	3885.94	-3975.19	639188.61	433313.03	32°11'25.779"N	103°53'00.238"W	point
Target No. 1		7619.00	456.24	-466.71	642696.84	429883.56	32°10'51.694"N	103°52'19.584"W	point

## SURVEY PROGRAM - Ref Wellbore: No. 367H PWB Ref Wellpath: Rev-A.0

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
19.00	12899.94	NaviTrak (Standard)		No. 367H PWB

# BOPCO, L. P.

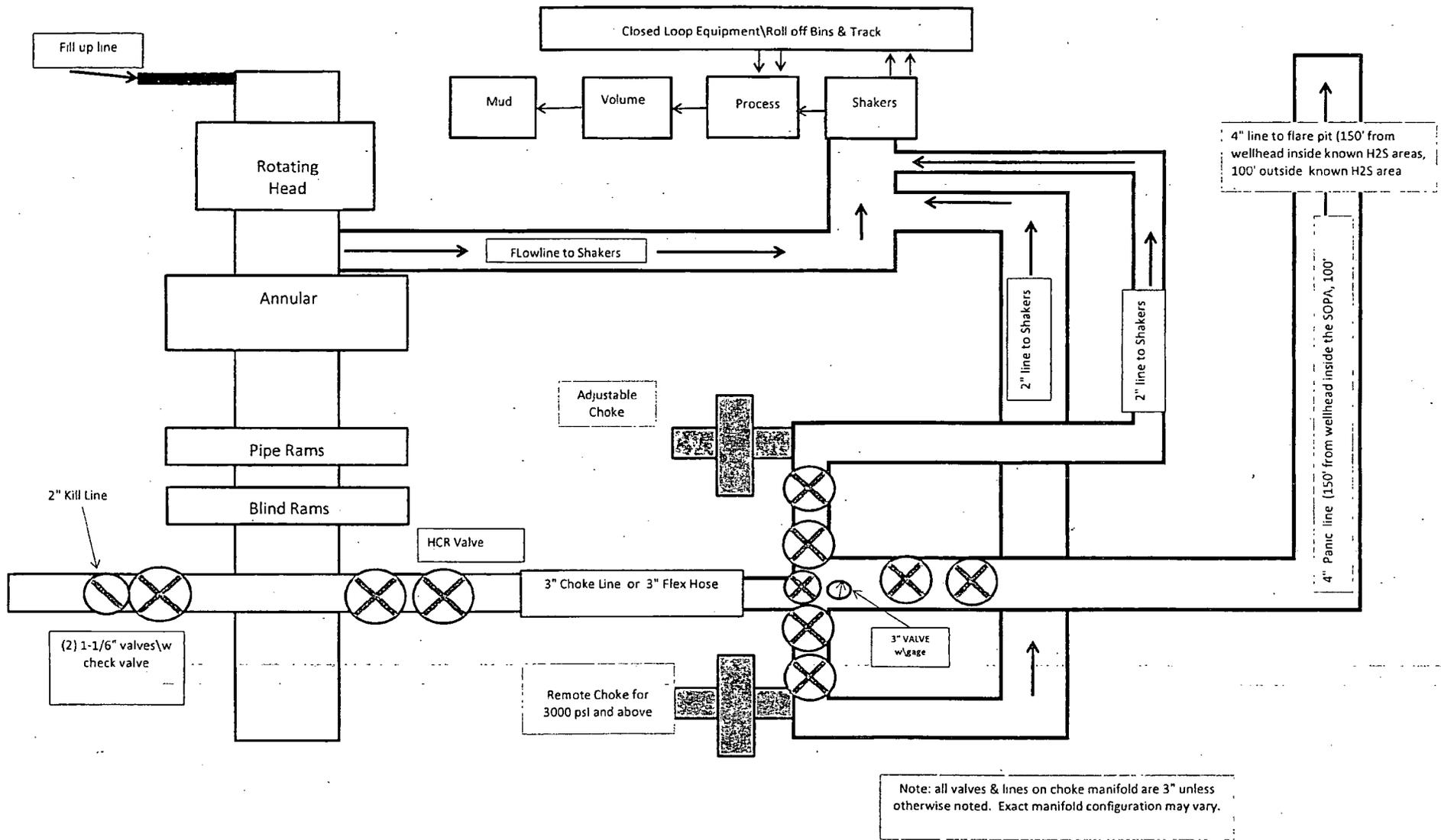
## 13 5/8" X 5-M WP BOPE WITH 5-M WP ANNULAR



### THE FOLLOWING CONSTITUTE MINIMUM BLOWOUT PREVENTER REQUIREMENTS

- A One double gate Blowout preventer with lower pipe rams and upper blind rams, all hydraulically controlled.
- B Opening on preventers between rams to be flanged, studded or clamped and at least two inches in diameter.
- C All connections from operating manifold to preventers to be all steel hose or tube a minimum of one inch in diameter.
- D The available closing pressure shall be at least 15% in excess of that required with sufficient volume to operate (close, open, and re-close) the preventers.
- E All connections to and from preventers to have a pressure rating equivalent to that of the BOPs
- F Manual controls to be installed before drilling cement plug.
- G Valve to control flow through drill pipe to be located on rig floor.
- H Chokes must be adjustable. Choke spool may be used between rams.

**DIAGRAM 1**



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

# Choke & Kill, BOP

## MW Choke & Kill

Designed as a flexible connection to the choke manifold.

**Tube:** petroleum resistant for oil based drilling fluids

**Cover:** ozone, petroleum, and abrasion resistant

**Reinforcement:** high tensile steel wire spiral layers

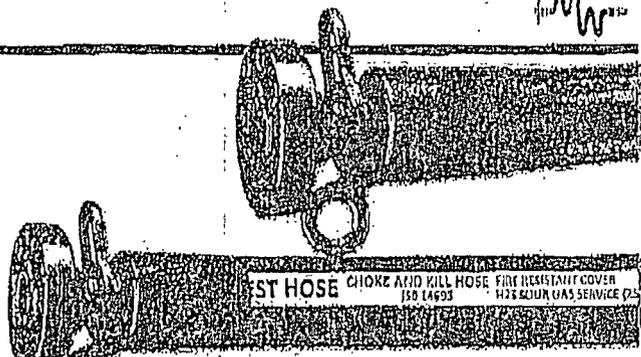
**Thermal Blanket:** 1500° continuous ratings,

non-flammable, non-conductive

**Armor Wall:** .144"

**Max Length:** 150 feet

 -20° F / +212° F  
-29° C / +100° C



Part No.	Length	Weight	Pressure	Weight
CK-48 Red	3	4.94	5,000	14.9
CK-56 Red	3 1/2	5.44		17.7
CK-64 Red	4	6.31		26.4
CK-48 Armor	3	6.5		20.8
CK-56 Armor	3 1/2	7	10,000	23.1
CK-64 Armor	4	8		26.3
CK-4810K Red	3	5.31		22.3
CK-5610K Red	3 1/2	5.81		25.0
CK-6410K Red	4	4.75	10,000	36.1
CK-4810K Armor	3	6.5		26.0
CK-5610K Armor	3 1/2	7		29.0
CK-6410K Armor	4	8		32.8

## MW BOP Control Line

For blowout preventer lines.

**Tube:** for hydraulic BOP actuation

**Thermal Blanket:** 1500°

continuous rating,

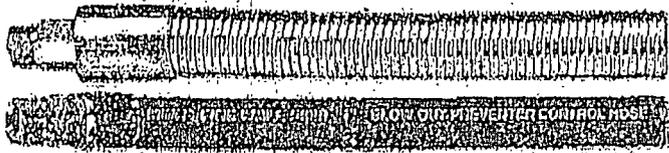
non-flammable, non-conductive

**Armor Wall:** .08"

Popular with a larger hex and longer threads for easier

installation of hammer unions.

 -20° F / +212° F  
-29° C / +100° C

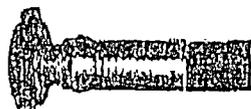


Part No.	Length	Weight	Pressure	Weight
BOP-16 Armor	1	2.06	5,000	3.9
BOP-32 Armor	2	3.75		11.7
BOP-16	1	1.77	10,000	2.1
BOP-32	2	3.09		10.2

Carbon or stainless steel nipples are available and 1/2", 3/4", 1-1/4", and 1-1/2" sizes are available too.



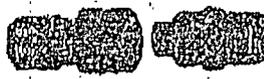
Weld-on Flanges or Hammer Unions



Integral 1002/1502 Hammer Union Fittings



Safety Clamps



Fire Proof Quick Connects



Ring Gaskets

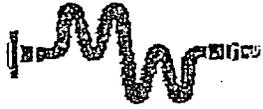
**MIDWEST  
HOSE AND SPECIALTY INC.**

**INTERNAL HYDROSTATIC TEST REPORT**

<b>Customer:</b> LATSHAW DRILLING		<b>P.O. Number:</b> RIG#4	
<b>HOSE SPECIFICATIONS</b>			
<b>Type:</b> CHOKE & KILL		<b>Length:</b> 30'	
<b>I.D.</b> 3" INCHES		<b>O.D.</b> 6-1/2"	
<b>WORKING PRESSURE</b>	<b>TEST PRESSURE</b>	<b>BURST PRESSURE</b>	
5,000 PSI	10,000		
<b>COUPLINGS</b>			
<b>Stem Part No.</b> D3.0X64WB		<b>Ferrule No.</b> D3.0X64WB	
<b>Type of Coupling:</b> 4-1/16 5K FLANGE		<b>Die Size:</b>	
<b>PROCEDURE</b>			
<i>Hose assembly procedure tested with water at ambient temperature.</i>			
<b>TIME HELD AT TEST PRESSURE</b>		<b>ACTUAL BURST PRESSURE:</b>	
15 MIN.		0 PSI	
<b>COMMENTS:</b> SER#81810			
<b>Date:</b> 3/1/2011	<b>Tested By:</b> DONNIE MCLEMORE		<b>Approved:</b> BRENT BURNETT

**MIDWEST  
HOSE AND SPECIALTY INC.**

INTERNAL HYDROSTATIC TEST REPORT		
Customer: LATSHAW DRILLING		P.O. Number: RIG#4
HOSE SPECIFICATIONS		
Type: CHOKE LINE	Length: 30'	
I.D. 3" INCHES	O.D. 6" INCHES	
WORKING PRESSURE 5,000 PSI	TEST PRESSURE 10,000 PSI	BURST PRESSURE PSI
COUPLINGS		
Type of End Fitting 4 1/16 5K FLANGE		
Type of Coupling: SWEDGED	MANUFACTURED BY MIDWEST HOSE & SPECIALTY	
PROCEDURE		
<i>Hose assembly pressure tested with water at ambient temperature.</i>		
TIME HELD AT TEST PRESSURE 1 MIN.	ACTUAL BURST PRESSURE: 0 PSI	
COMMENTS: 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		
Date: 3/2/2011	Tested By: BOBBY FINK	Approved: MENDI JACKSON



Midwest Hose  
& Specialty, Inc.

### Internal Hydrostatic Test Graph

April 4, 2012

Customer: Latshaw

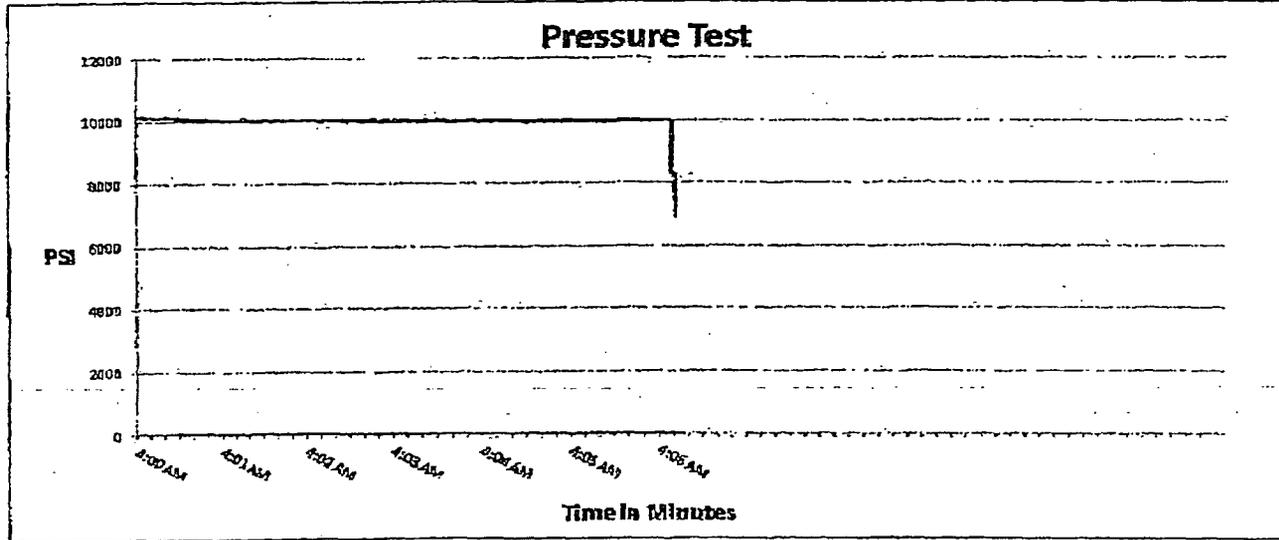
Pick Ticket #: 81610

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 Fittings</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>
5884	E1610



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 McEman

Approved By: Bobby Fink



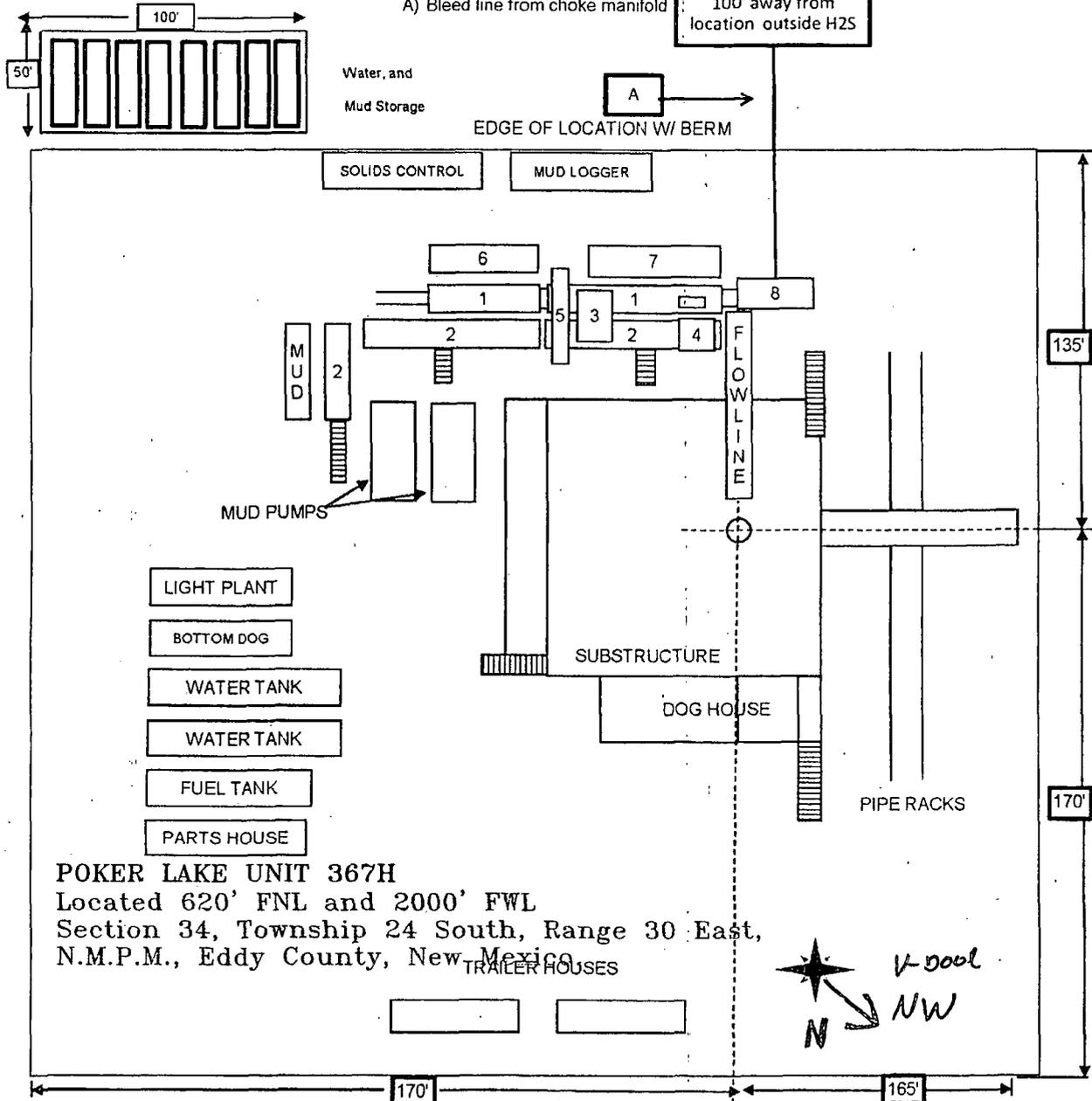
RIG LAYOUT

Exhibit "D"

RIG LAYOUT SCHEMATIC  
INCLUSIVE OF CLOSED-LOOP DESIGN PLAN

Solids Control Equipment Legend

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



**POKER LAKE UNIT 367H**  
 Located 620' FNL and 2000' FWL  
 Section 34, Township 24 South, Range 30 East,  
 N.M.P.M., Eddy County, New Mexico



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### **I. H<sub>2</sub>S Contingency Plan**

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- B. Objective
- C. Discussion of Plan

### **II. Emergency Procedures**

- A. Emergency Procedures and Public Protection
- B. Emergency Procedures Implementation
- C. Simulated Blowout Control Drills

### **III. Ignition Procedures**

- A. Responsibility
- B. Instructions

### **IV. Training Requirements**

### **V. Emergency Equipment**

### **VI. Evacuation Plan**

- A. General Plan
- B. Emergency Phone Lists

### **VII. General Information**

- A. H<sub>2</sub>S Toxicity Table
- B. Respirator Use
- C. Emergency Rescue

## 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 rams 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<sub>2</sub>S) 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<sub>2</sub>S 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<sub>2</sub>S Drilling Operations Contingency Plan and the Public Protection Plan.

Service company personnel and visiting personnel must be notified if the zone contains H<sub>2</sub>S, 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 2.)

**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 diagram 2 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 diagram 2).
- Choke manifold (See diagram 2).
- 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

<u>Name</u>	<u>Title</u>	<u>Cell Phone Number</u>
Stephen Martinez	Drilling Supt.	432-556-0262
Buddy Jenkins	Assistant Supt	432-238-3295
Bill Dannels	Engineer	432-638-9463
Pete Lensing	Engineer	432-557-7157
Charles Warne	Engineer	432-894-1392

### 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.      | 4) Terrain of surrounding area (Please refer to page 2 of survey plat package also see point 11 of multi-surface use plan)       |
| 2) Location of H2S alarms      | 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) |
| 3) Location of briefing areas. | 6) Location of caution and/or danger signs.      (7) Location of Breathing Equipment   |

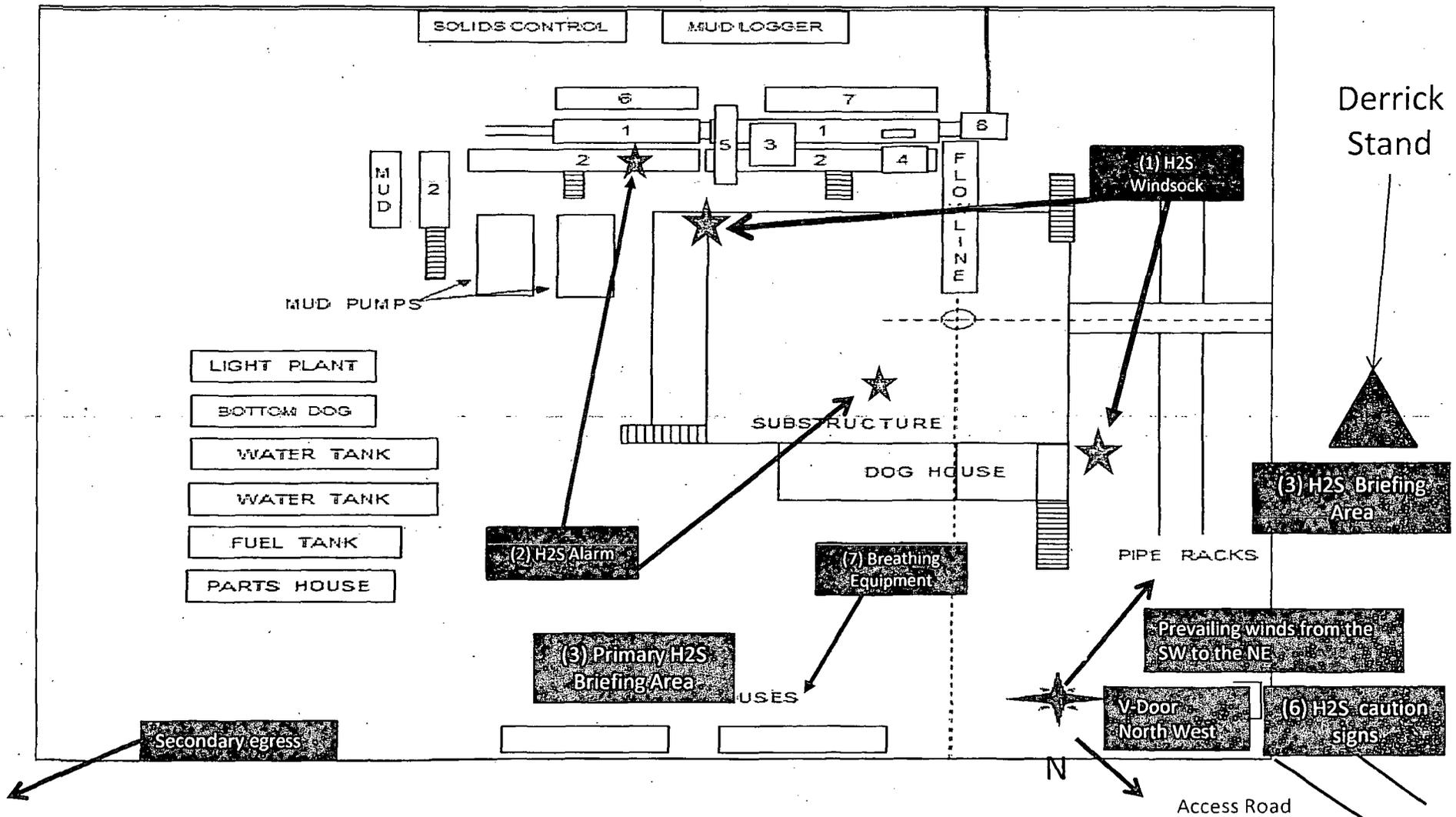
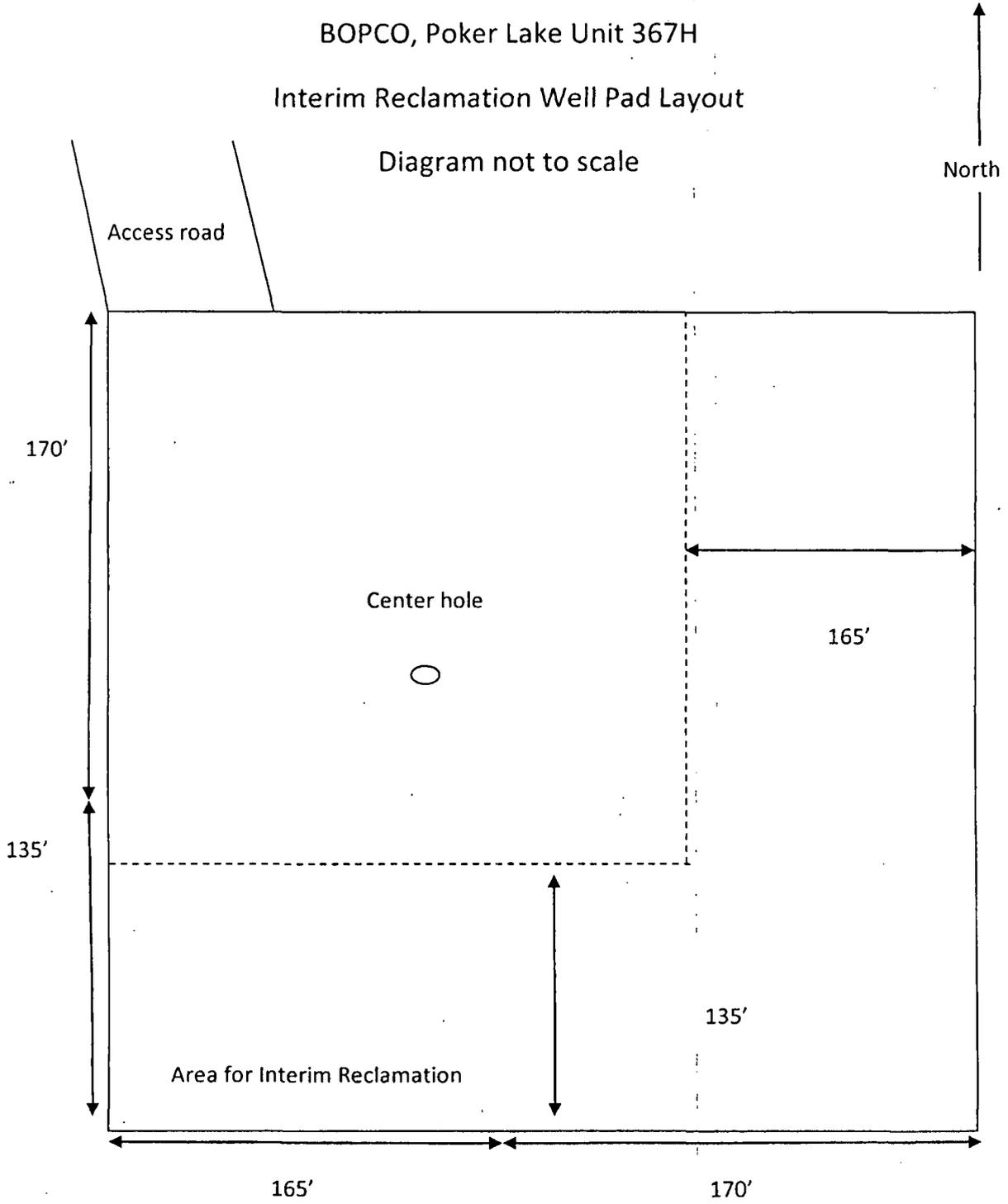


Diagram 3

BOPCO, Poker Lake Unit 367H

Interim Reclamation Well Pad Layout

Diagram not to scale



## Location On-Site Notes

Location on-site conducted by Cecil Watkins-BOPCO L.P., Justin Frye-BLM, and Robert Gomez-Basin Survey on 06/27/2012. The Poker Lake Unit 367H was moved 180' North & 50' West to clear natural drainage gorge. A new surface footage call will be located at 620' FNL & 2000' FWL of Sec 34-T24S-R30E V-Door Northwest. Rotated pad to be parallel with pasture fence.

# PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	BOPCO LP
LEASE NO.:	NM02862
WELL NAME & NO.:	367H Poker Lake Unit
SURFACE HOLE FOOTAGE:	620' FNL & 2000' FWL
BOTTOM HOLE FOOTAGE:	1950' FNL & 1950' FEL, Sec.28
LOCATION:	Section 34, T.24 S., R.30 E., NMPM
COUNTY:	Eddy County, New Mexico

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