AFS-12-233

OCD-ARTESIA

RECEIVED
MAY 14 2012
NMOCD ARTESIA

Form 3160-3
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SECRETARY'S POTASH

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

5 Lease Serial No. NM 02477- 02447

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

7 If Unit or CA Agreement, Name and No

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

8 Lease Name and Well No. BEU Hackberry 34 Fed #1 SWD <39222>

2 Name of Operator BOPCO, L. P. <260737>

9. API Well No. 30-015-40288

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

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

10. Field and Pool, or Exploratory SWD; Devonian <96101>

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

At surface NENE,UL A, 800' FNL,825' FEL, Lat:N 32.621867,Long:W103.85065

At proposed prod zone

11. Sec., T. R. M. or Blk. and Survey or Area Sec 34 T19S-R31E, Mer, NMPM

14 Distance in miles and direction from nearest town or post office* 9 miles west/northwest of Halfway, NM

12. County or Parish Eddy

13 State NM

15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line, if any)	16. No. of acres in lease	17 Spacing Unit dedicated to this well
800'	1360	0
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft	19. Proposed Depth	20. BLM/BIA Bond No on file
1138' (Pre Ongard #5)	14,500' TVD	COB 000050
21 Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3465'	03/15/2012	60 Days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, shall be attached to this form:

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

25. Signature	Name (Printed/Typed)	Date
William R. Dannels	William Dannels	1/6/12

Title: Sr. Drilling Advisor

Approved by (Signature)	Name (Printed/Typed)	Date
/S/ Felicia J. Probert	/S/ Felicia J. Probert	MAY 02 2012

Title: for, STATE DIRECTOR

Office: NM STATE 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)

CAPITAN CONTROLLED WATER BASIN

Cannot inject until SWD order approved

SEE ATTACHED FOR CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

B O P C O, L.P.

P. O. Box 2760
Midland, Texas 79702

432-683-2277 FAX-432-687-0329

December 14, 2011

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
BIG EDDY UNIT HACKBERRY 34 FEDERAL #1 SWD
800' FNL, 825' FEL, SEC. 34, T19S, R31E, 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

BOPCO, L. P.
6 DESTA DRIVE, SUITE 3700 (79705)
P. O. BOX 2760
MIDLAND, TEXAS 79702

(432) 683-2277 **FAX (432) 687-0329**

December 19, 2011

Bureau of Land Management
620 E. Greene
Carlsbad, New Mexico 88220
Attn: John Chopp

Dear Mr. Chopp,

BOPCO, L.P. respectfully requests exception to the Prairie Chicken timing restrictions for Big Eddy Unit Hackberry 34 Federal #1 SWD located 800' FNL, 825' FEL, of Section 34, T19S, R31E, Eddy County, New Mexico.

Sincerely,

Stephen Martinez
Division Drilling Superintendent

SMM/JDB

DISTRICT I
1625 N French Dr., Hobbs, NM 88240
Phone (575) 393-6161 Fax. (575) 393-0720
DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210
Phone (575) 748-1283 Fax. (575) 748-9720
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone (505) 334-6178 Fax (505) 334-6170
DISTRICT IV
1220 S St Francis Dr., Santa Fe, NM 87505
Phone (505) 476-3460 Fax (505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

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

Form C-102
Revised August 1, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-40288	96101	SWD; Devonian

Property Code	Property Name	Well Number
39222	BEU HACKBERRY 34 FEDERAL	1 SWD

OGRID No.	Operator Name	Elevation
260737	BOPCO, L.P.	3465'

Surface Location

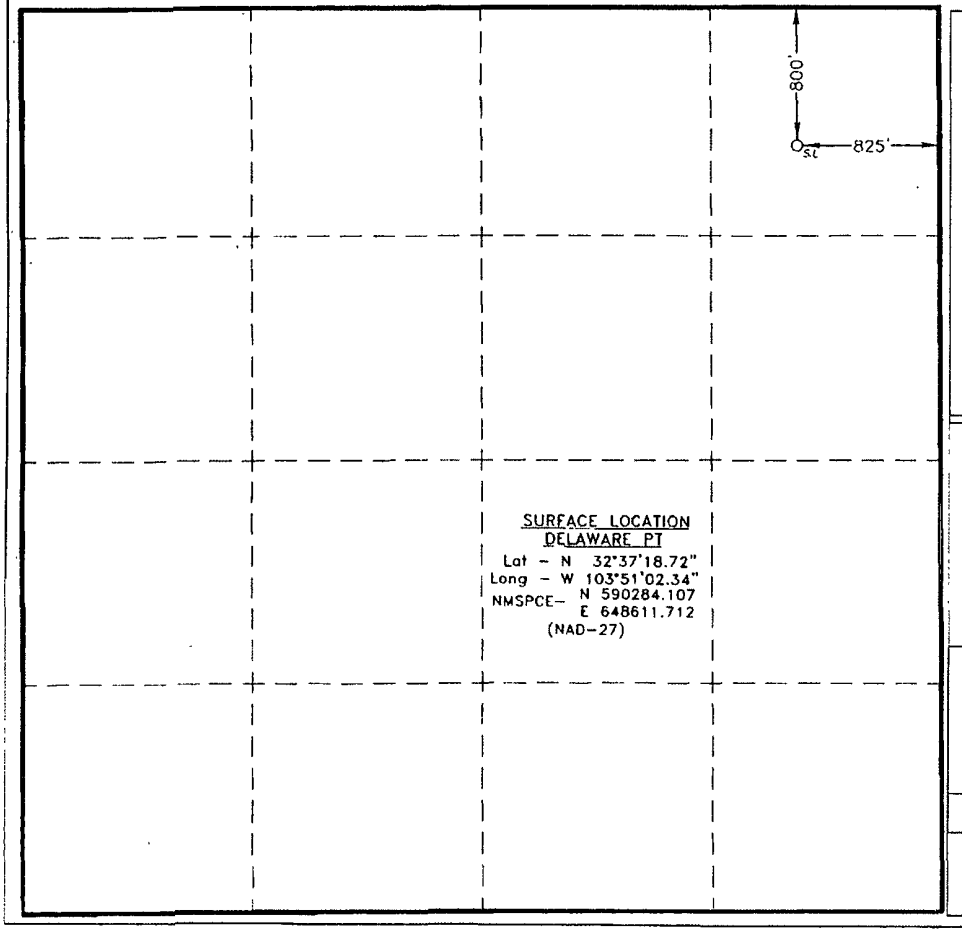
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	34	19 S	31 E		800	NORTH	825	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
0			

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.

William R. Dannels 10/31/11
Signature Date

William Dannels
Printed Name

WRDannels@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 supervison, and that the same is true and correct to the best of my belief.

OCTOBER 20, 2011
Date Surveyed

Signature & Seal of Professional Surveyor

GARY L. JONES NEW MEXICO 7977 REGISTERED PROFESSIONAL LAND SURVEYOR

W.O. Num. 26547

Certificate No. Gary L. Jones 7977

BASIN SURVEYS 25547

EIGHT POINT DRILLING PROGRAM
BOPCO, L.P.

NAME OF WELL: BEU HACKBERRY 34 Federal SWD #1
LEGAL DESCRIPTION - SURFACE: 800' FNL, 825' FEL, Section 34, T19S, R31E, Eddy County, NM.

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

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

Anticipated Formation Tops: KB 3491' (estimated)
GL 3465'

FORMATION/MARKER	ESTIMATED TOPS FROM KB (FT) TVD	EST SUBSEA TOP (FT)	BEARING
T/Fresh Water	156	3,335	Fresh Water
T/Rustler Anhydrite	741	2,750	Barren
T/Salt	811	2,680	Barren
B/Salt	2,021	1,470	Barren
T/Yates	2,391	1,100	Barren
T/Reef	2,801	690	Barren
T/Delaware Mtn. Group	4,341	-850	Oil/Gas
T/Bone Spring	6,991	-3,500	Oil/Gas
T/Wolfcamp	10,291	-6,800	Oil/Gas
T/Strawn	11,291	-7,800	Oil/Gas
T/Atoka	11,641	-8,150	Oil/Gas
T/Morrow	12,261	-8,770	Oil/Gas
T/Middle Morrow	12,391	-8,900	Oil/Gas
T/Lower Morrow	12,641	-9,150	Oil/Gas
T/Devonian	13,741	-10,250	Brine Water
PTD	14,500	-11,009	

POINT 3: CASING PROGRAM

55 TYPE	INTERVALS (MD)	HOLE SIZE	PURPOSE	CONDITION
30", 157.68#, X52, PE	0'-60'	36"	Conductor	Unspecified
20", 94#, K55, BTC	0'-800' 910' See COA	26"	Surface	New
16", 84#, HCN80, BTC	0'-2,700'	17-1/2"/18-7/8"*	1st Intermediate	New
10-3/4", 45.5#, HCN80, STC	0'-4,400'	14-3/4"	2nd Intermediate	New
7-5/8", 39#, HCL-80, BTC	0-500'	9-7/8"/8-3/4"**	Production	New
7-5/8", 39#, HCL-80, LTC	500'-13,755'	9-7/8"/8-3/4"**	Production	New
Open Hole (tubing set @ 13,700')	13,755'-14,500'	6-1/2"	Open Hole	NA

*Note: 17-1/2" hole will be drilled then hole opened up to 18-7/8" to allow 1" pipe if necessary.
**Note: Below Atoka hole size may be reduced from 9-7/8" to 8-3/4" — See COA

not approved - min clearance not satisfied.

CASING DESIGN SAFETY FACTORS:

TYPE	TENSION	COLLAPSE	BURST
30", 157.68#, X52, PE	238.8	3.30	19.0
20", 94#, K55, BTC	19.53	1.27	2.70
16", 84#, HCN80, BTC	8.37	1.296	1.40
10-3/4", 45.5#, HCN80, STC	3.99	1.37	1.31
7-5/8", 39#, HCL-80, BTC	1.67	1.63	1.41
7-5/8", 39#, HCL-80, LTC	1.65	1.63	1.41
4-1/2", 12.75#, L80, RTS-8 tubing	1.95	1.23	1.41

DESIGN CRITERIA AND CASING LOADING ASSUMPTIONS:

SURFACE CASING - (20")

Tension — A 1.6 design factor in air

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 (0.51 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 a 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.

1ST PROTECTIVE CASING - (16")

Tension — A 1.6 design factor in air.

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 (0.55 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. Back 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

2ND PROTECTIVE CASING - (10-3/4")

Tension — A 1 6 design factor in air

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 (0.52 psi/ft). The effects of axial load on collapse will be considered.

Burst — A 1.0 surface design factor and 1.3 downhole design factor with 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. Backup pressure will be formation pore pressure

PRODUCTION CASING - (7-5/8")

Tension — A 1.6 design factor in air

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 (0.57 psi/ft). The effects of axial load on collapse will be considered

Burst — A 1.25 design factor with anticipated maximum tubing pressure (6000 psig) on top of the maximum anticipated packer fluid gradient. (0.47 psi/ft) Backup on production strings will be formation pore pressure. (0.43 psi/ft) The effects of tension on burst will not be utilized.

POINT 4: PRESSURE CONTROL EQUIPMENT (SEE ATTACHED DIAGRAM)

The BOPE when rigged up on the 20" surface casing head (17-1/2" drill and opened to 18-7/8") will consist of 20" hydril and diverter system per Diagram 1 (2,000 psi WP). The hydril when installed on surface casing will be tested to 1,000 psi.

The BOPE when rigged up on the 16" intermediate casing spool (14-3/4" open hole) will consist of 20" hydril and diverter system per Diagram 1 (2000 psi). When installed on the 16" intermediate casing ~~head~~ spool, the BOPE will be hydro-tested to 250 psi low and 1600 psi high by an independent tester.

See COA

The BOPE when rigged up on the 10-3/4" intermediate casing spool (9-7/8" open hole) will consist of rental 13-5/8" x 10,000 psi annular, 13-3/8" x 10,000 psi pipe and blind rams, mud cross, 13-3/8" X 10,000 psi single ram preventer, choke manifold and chokes as in Diagram 2. The pipe and blind rams, choke, kill lines, kelly cocks, inside BOP, etc will be tested to 5,000 psig by an independent tester. In addition to the high pressure test, a low pressure test (250 psig) test will be required. Hydril will be tested to 5,000 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.

Please refer to Diagrams 2 & 3 for choke manifold and closed loop system layout.

BOPCO, LP is requesting an exception to utilize a 3 ½" ID, 10,000 psi WP, armored flex hose to be installed between the BOP stack and choke manifold in the drilling of this well. The hose has passed a hydrostatic test to 15,000psi by Midwest Hose & Specialty, Inc. The 40' hose, serial number 7469, has 10,000 psi swedged fittings. This well wil be drilled to a maximum TVD of 14,500' and a maximum surface pressure should be +/- 5,000 psi. We will still be utilizing 10M BOP equipment of Latshaw Rig 7. Please see attached documents for certifications, test reports, BOP schematic and choke manifold schematic.

See COA

POINT 5: MUD PROGRAM

DEPTH	MUD TYPE	WEIGHT	FV	PV	YP	FL	Ph
0' - ~~800'~~ 910'	FW Spud Mud	8.5 – 9.2	38-70	NC	NC	NC	10
~~800'~~ – 2,700'	Brine Water	9.8 – 10.2	28-30	NC	NC	NC	9 5 – 10.5
2,700' – 4,400'	FW/Gel	8.7 – 9 5	28-36	NC	NC	NC	9 5 – 10.0
4,400' – 13,755'	FW/XCD/Starch	9.5 – 10.5	36-45	10	10	<10	9.5 – 10.0
13,700' – 14,500'	Cut Brine	8.6 – 9.2	28-30	NC	NC	NC	10.0 – 11.0

NOTE: May increase vis for logging purposes only.

POINT 6: TECHNICAL STAGES OF OPERATION

A) TESTING

None anticipated.

B) LOGGING See COA

Resistivity

Run #1 @ 13,755': GR/CNL/LDT – ~~Restively~~-Sonic with GR/CNL to surface.

Run #2 @ 14,500': GR/CNL/LDT – ~~Restively~~-Sonic.

Mud Logger: RU mud logger at 100' to pick T/salt. Continue to use mudlogger to PTD.

POINT 6: TECHNICAL STAGES OF OPERATION – cont'd

C) CONVENTIONAL CORING

None anticipated.

D) CEMENT

	INTERVAL	SKS	FILL (ft)	TYPE	GAL/SK	PPG	FT^3/SK
SURFACE: Cement to surface.							
LEAD:	0' – 500'	900	500	HalCem-C + 4% Bentonite + 2% $CaCl_2$	8.91	13.7	1.70
EXCESS:	100%						
TAIL:	500' – 800'	675	300	HalCem-C + 1% $CaCl_2$	6.48	14.8	1.35
EXCESS:	100%						
1st INTERMEDIATE: Cement to surface.							
LEAD:	0' – 2,200'	1270	2,200	Econo-Cem-HLC + 3% Salt	9.65	12.9	1.81
EXCESS:	100%						
TAIL:	2,200' – 2,700'	400	500	Halcem-C + 0.4% Halad-9	6.31	14.8	1.33
EXCESS:	100%						
2nd INTERMEDIATE: Cement to surface.							
Stage 1:							
LEAD:	2,800' – 3,900'	600	1,100	Econo-Cem-HLC + 3% Salt	9.65	12.9	1.81
EXCESS:	75%						
TAIL:	3,900' – 4,400'	375	500	Halcem-C + 0.4% Halad-9	6.31	14.8	1.33
EXCESS:	75%						
ECP/DVT @ 2,800'	See COA						
Stage 2:							
LEAD:	0' – 2,400'	815	2,400	Econo-Cem-HLC + 3% Salt	9.65	12.9	1.81
EXCESS:	10%						
TAIL:	2,400'-2,800'	280	400	Halcem-C + 0.4% Halad-9	6.31	14.8	1 33
EXCESS	25% — See COA						
PRODUCTION: Bring TOC to 2400' (400' above T/Reef)							
Stage 1:							
LEAD:	7,500' – 10,500'	300	3,000	VersaCem-H + 0 2% HR-800 + 8% Bentonite	12.68	11.9	2 26
EXCESS.	25%						
TAIL:	10,500' – 13,755'	610	3,255	Halcem-H + 0.2% HR-800 + 0.6% Halad-9	4.86	15.85	1.17
EXCESS:	25% See COA						
DV Tool @ 7,500'	— See COA						
Stage 2:							
LEAD:	2,400' – 7,000'	315	4,600	Tuned Light + 1 pps Salt	14.70	9.7	3.21
EXCESS:	25%						
TAIL:	7,500' – 7,000'	100	500	Halcem-C + 0.4% Halad-9	6.31	14.8	1.33
EXCESS:	25% See COA						

E) DIRECTIONAL DRILLING

BOPCO, L. P. plans to drill a straight hole to PTD.

F) H_2S Safety Equipment

As stated in the BLM Onshore Order 6, for wells located in the SOPA, H_2S equipment will be rigged up after setting surface casing. For the wells located inside the SOPA the flare pit or ½ steel pits will be located 150' from the location. For wells located outside the SOPA the flare pit or ½ steel pit will be located 100' away from the location. **(See page 6 of Survey plat package)** There is not any H_2S anticipated in the area, although in the event that H_2S is encountered, the H_2S contingency plan attached will be implemented.

POINT 7: ANTICIPATED RESERVOIR CONDITIONS

Normal pressures are anticipated throughout Delaware section. Lost circulation may exist, but not likely, in the Delaware Section from 4341'-6991' TVD. Once in the Bone Spring pore pressures will gradually increase to the top of the Wolfcamp. Pore pressures may slightly increase through the Strawn and Atoka sections. A 7-5/8" production casing will be set into the Devonian with mud weights at 10.5 ppg or less. The Devonian BHP is 5950 psi and can be drilled with 8.8-9.2 ppg cut brine water. Maximum surface pressures in the Devonian if productive could be 5000 psi with 7500 ppm H_2S and 5% CO_2; however, we anticipate drilling down dip in a non-productive area. There is no Devonian production within +/- 10 miles.

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

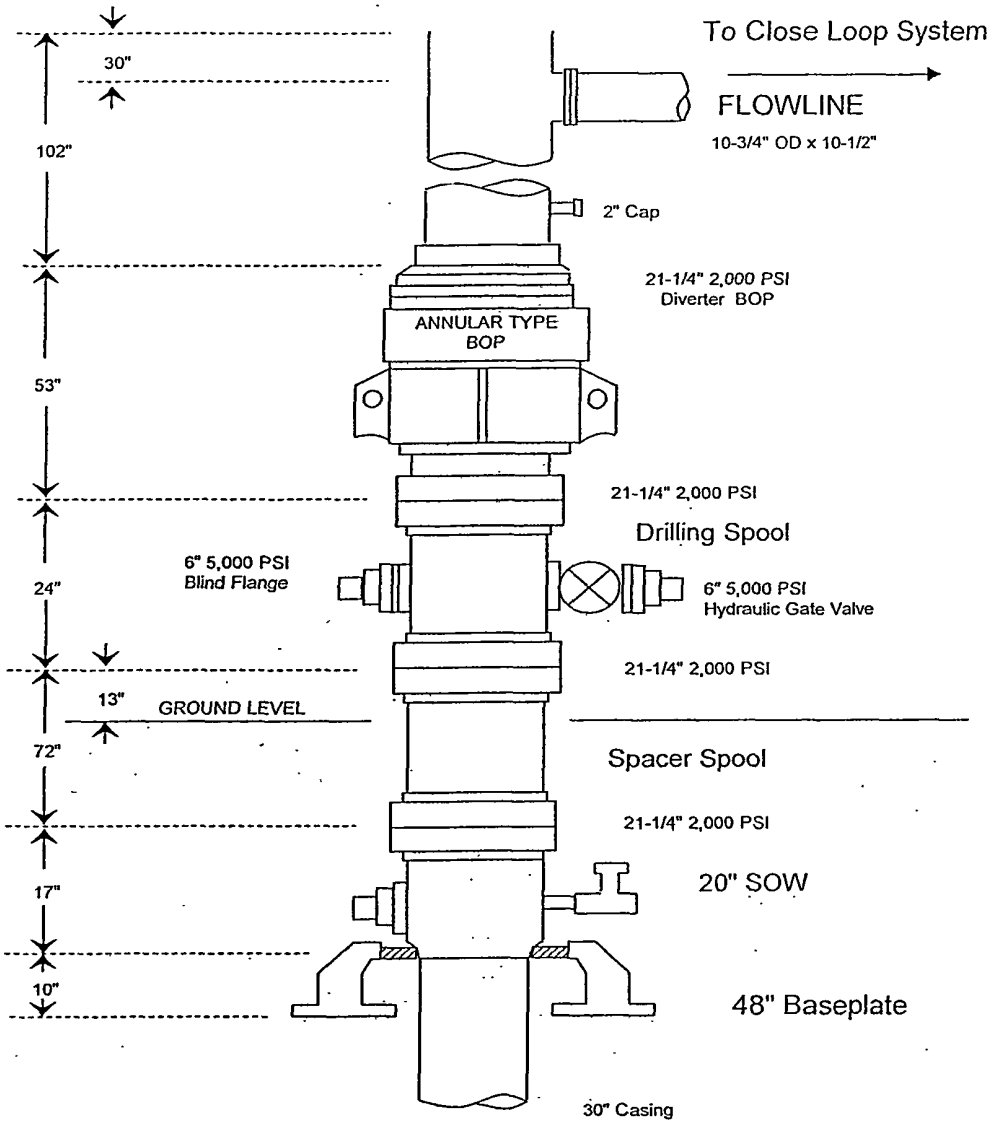
88 days drilling operations

7 days completion operations

WRD/mac

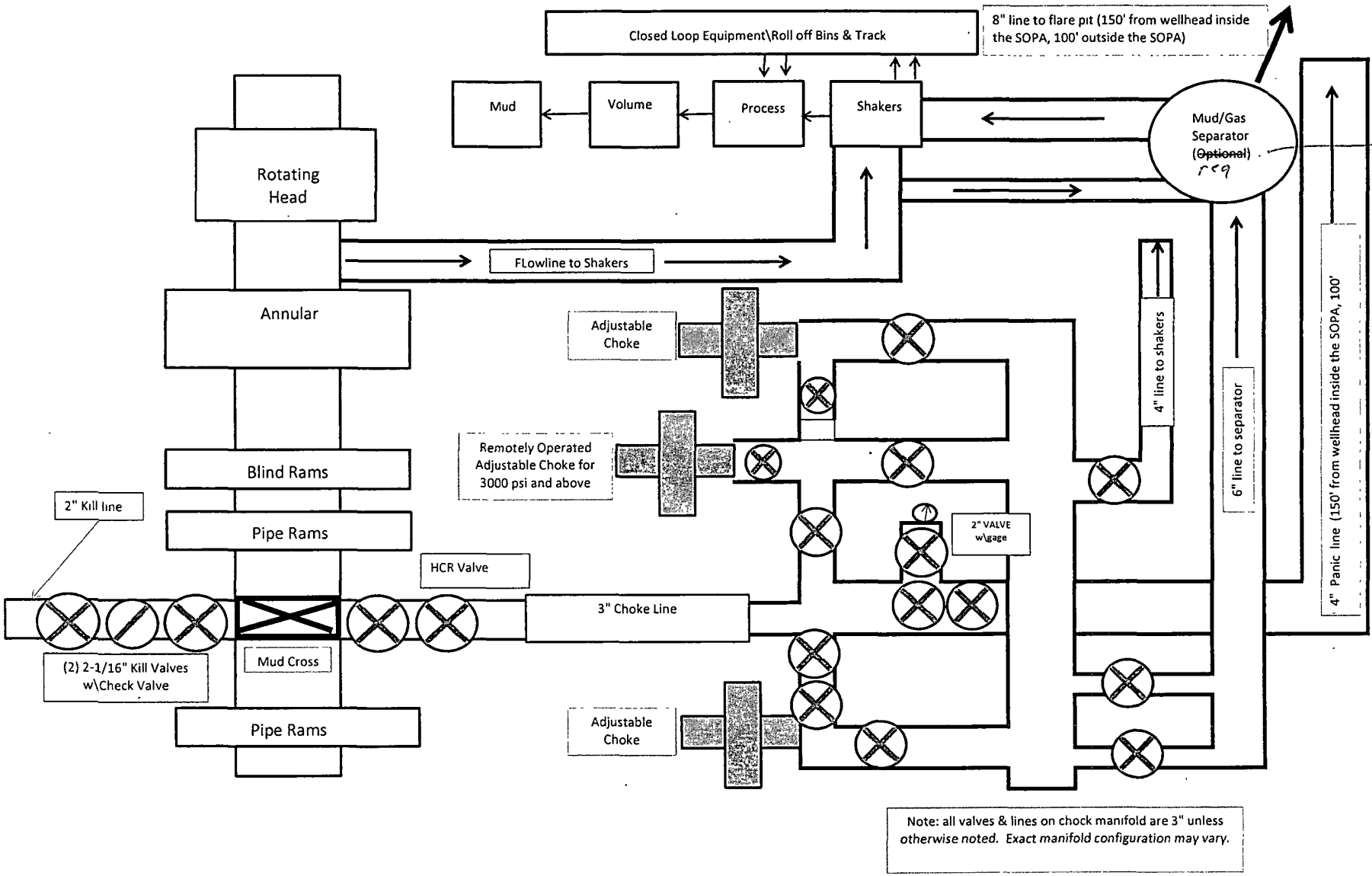
BOPCO, L. P

20" 2,000 PSI Diverter



Note: Actual lengths of casing heads may vary. Always measure items prior to installing in order to ensure proper spacing.

DIAGRAM 1



13-5/8" X 10-M BOPE (3 Rams and Rotating Head) & Closed Loop System Equipment Schematic

Diagram 2

BOPCO, L. P.

10-M WP BOPE WITH 10-M WP ANNULAR

THE FOLLOWING CONSTITUTE MINIMUM BLOWOUT PREVENTER REQUIREMENTS

A. Opening between the ram to be flanged, studded, or clamped.
B. All connections from operating manifolds to preventers to be all steel hose or tube a mininum of one inch in diameter.
C. The available closing pressure shall be at least 15% in excess of that required with suffficient volume to operate (close, open, and re-close) the preventers.
D. All connections to and from preventer to have a pressure rating equivalent to that of the BOPs.
E. Manual controls to be installed before drilling cement plug.
F. Kelly cock to be installed on kelly.
G. Inside blowout preventer to be available on rig floor.
H. Dual operating controls: one located by drillers position and the other located a safe distance from the rig floor.
I. All chokes will be adjustable. – See diagram – One remotely operated
J. **Exception to utilize a 3 1/2" ID psi WP, armored flex hose to be installed between the BOP stack and the choke manifold**

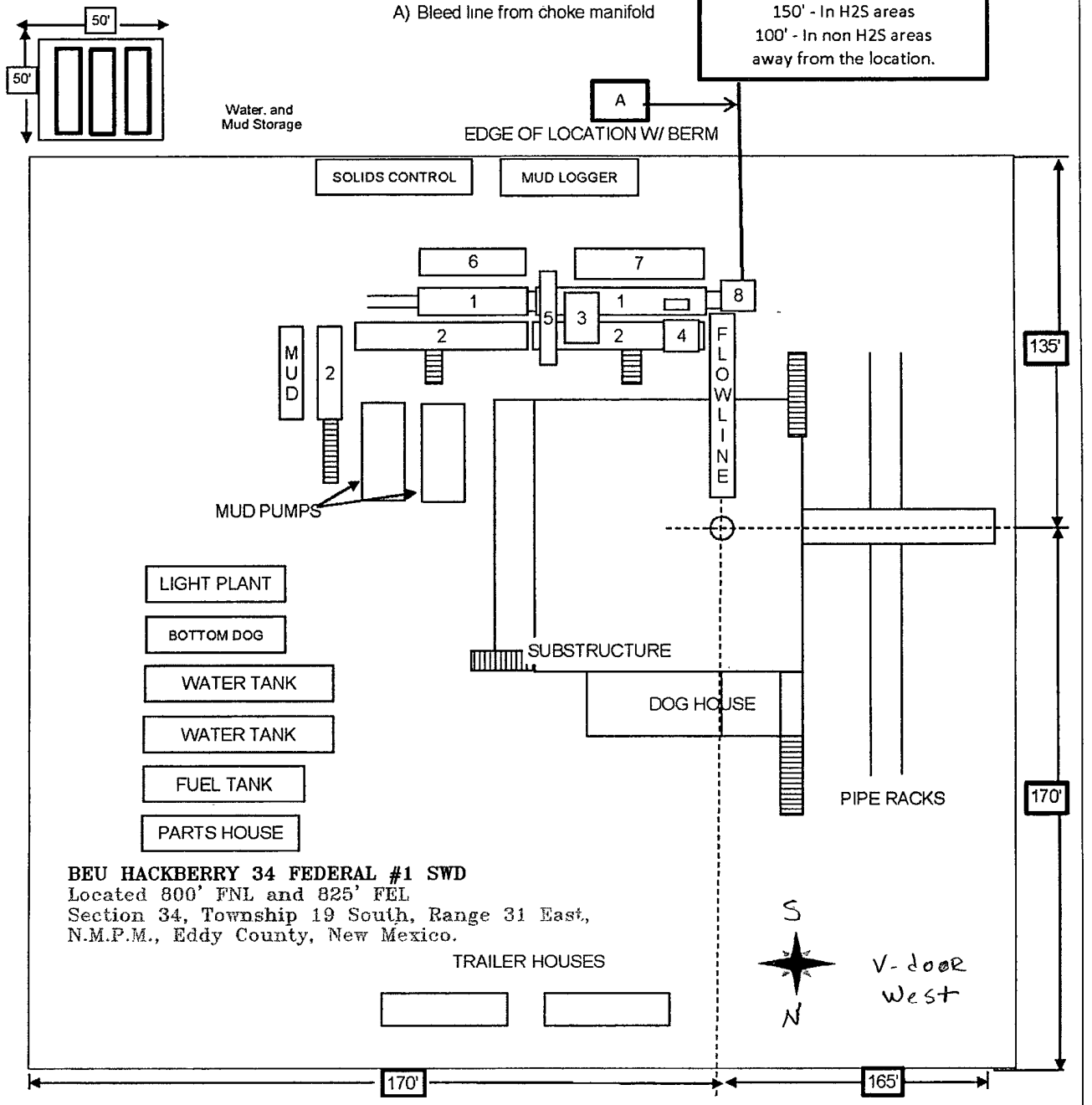
RIG LAYOUT

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

Flare Pit or 1/2 Steel Pit will be located at
150' - In H2S areas
100' - In non H2S areas
away from the location.



BEU HACKBERRY 34 FEDERAL #1 SWD
Located 800' FNL and 825' FEL
Section 34, Township 19 South, Range 31 East,
N.M.P.M., Eddy County, New Mexico.

Basin Surveys
focused on excellence in the oilfield
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W O Number: JMS 25547
Survey Date 10-20-2011
Scale, 1" = 2000'
Date 10-26-2011

BOPCO, L.P.

Sheet 6 of 6 Sheets

TEN 11/15/12

Midwest Hose & Specialty, Inc.

INTERNAL HYDROSTATIC TEST REPORT

Customer:	LATSHAW	**PO#:**	RIG# 7

HOSE SPECIFICATIONS

Type:	C & K	**Length:**	40'
I.D.	3 1/2 *INCHES*	**O.D.**	5 16/64 - 5 18/64 *INCHES*

WORKING PRESSURE	TEST PRESSURE	BURST PRESSURE
10,000 *PSI*	15,000 *PSI*	*PSI*

COUPLINGS

Type of Fitting	Type of Coupling
4 1/16 10K	SWAGED
Die Size	**Crimp Specification**
5.75	5 50/64 - 5 48/64

PROCEDURE

Hose assembly pressure tested with water at ambient temperature.

TIME HELD AT TEST PRESSURE	ACTUAL BURST PRESSURE
15 *MINUTES*	0 *PSI*

VERIFICATION

SO#	ASSET#	SERIAL#
110479		**7496**

COMMENTS:

DATE	TESTED BY	APPROVED BY
12/10/2011	BOBBY FINK	MENDI SMILEY

Midwest Hose & Specialty, Inc.

Internal Hydrostatic Test Report

June 3, 2011

Customer: Latshaw

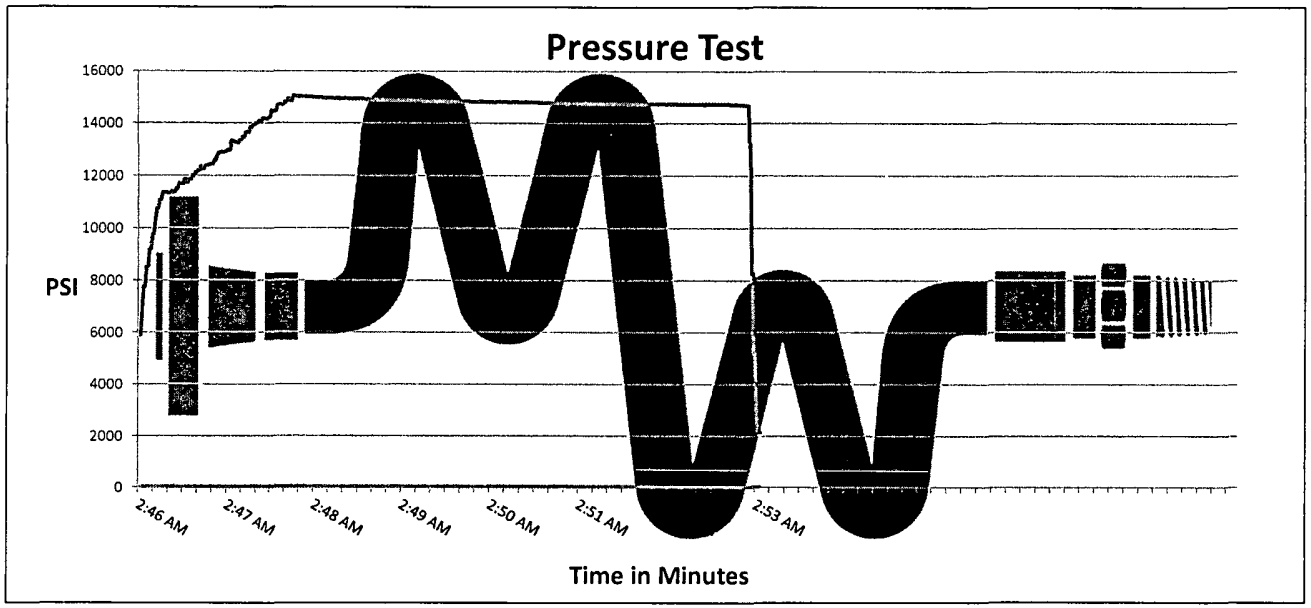
Purchase Order: RIG# 7

Hose Specifications

Hose Type	Length
E	40
I.D.	O.D.
4"	5 1/4
Working Pressure	Burst Pressure
10000 PSI	Standard Safety Multiplier Applies

Verification

Type of Fitting	Coupling Method
4 1/16 10K	Swage
Die Size	Final O.D.
5.75	5 49/64
Serial #	Sales Order
7496	110479



Test Pressure	Time Held at Test Pressure	Actual Burst Pressure	Peak Pressure
15000 PSI	2/4 Minutes		15131 PSI

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

Tested By: *Donnie Mclemore*

Approved By: *Kim Thomas*

X _____

X _____

Proposed H2S Safety Schematic

1) Location of windsocks (streamers scattered around rig)

2) Location of H2S alarms.

3) Location of briefing areas. (Primary near trailers)

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 page 6 of survey plat package and diagram)

6) Location of caution and/or danger signs.

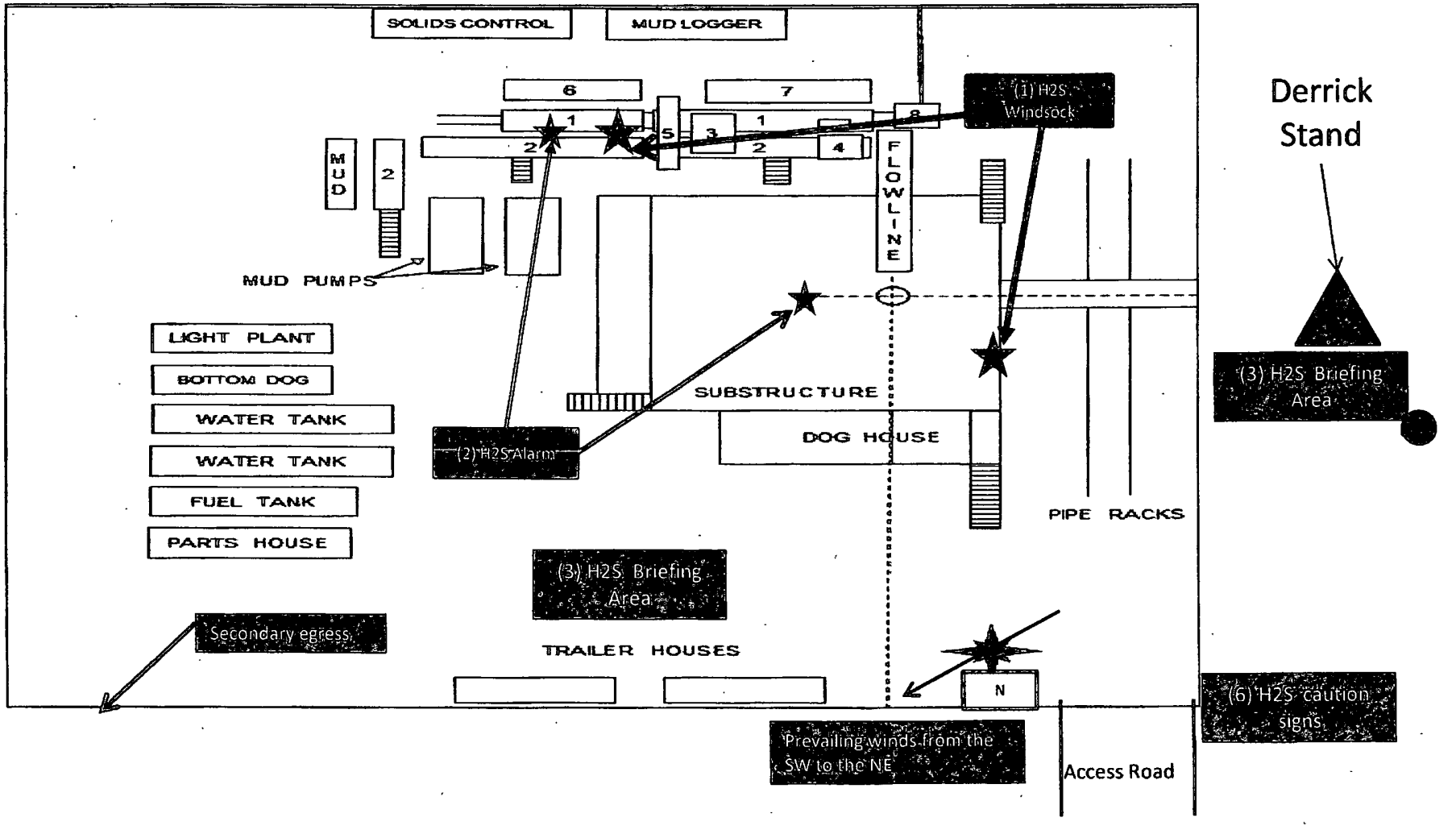
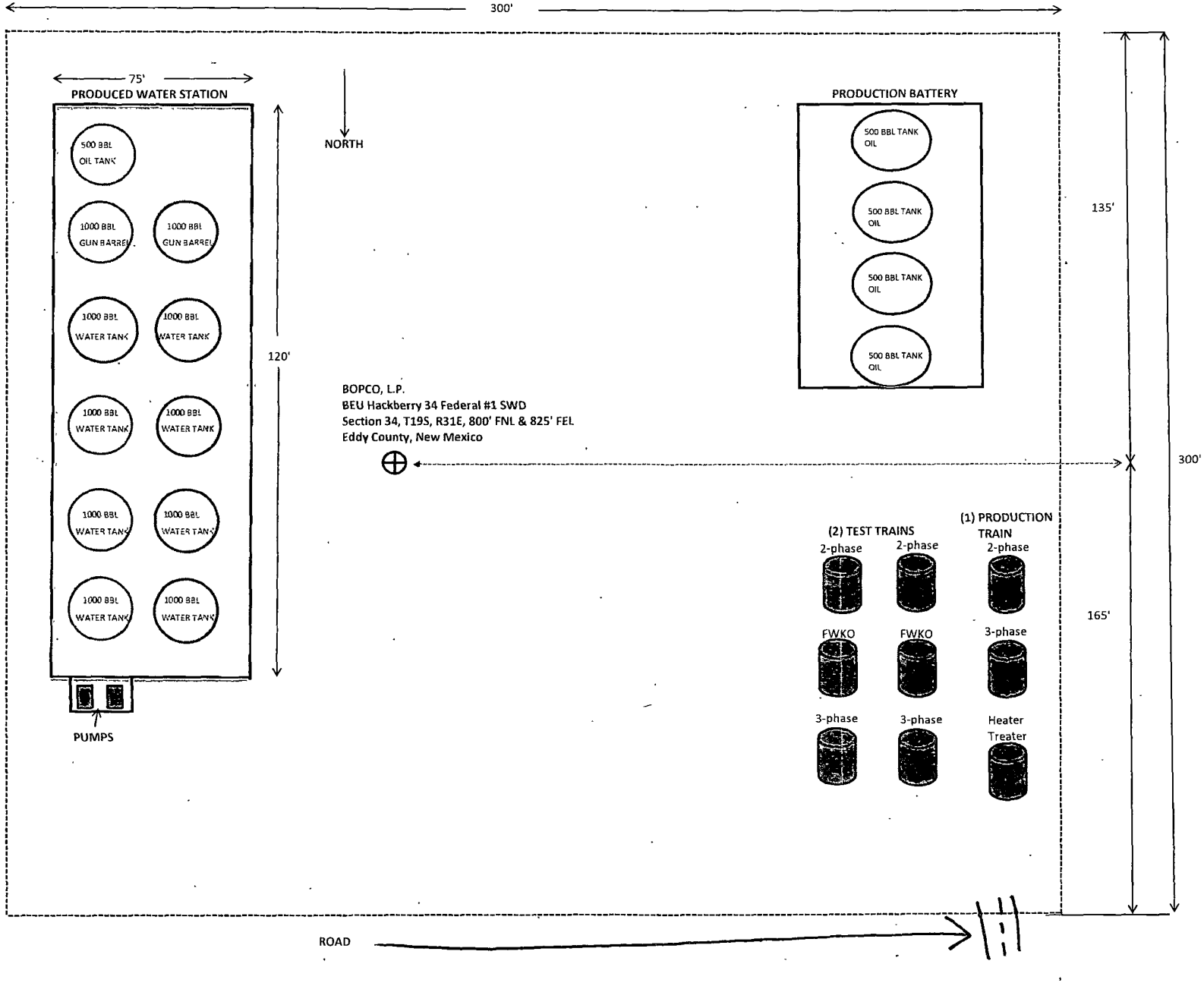


Diagram 3


300'
75'
PRODUCED WATER STATION
500 BBL OIL TANK
1000 BBL GUN BARREL
1000 BBL GUN BARREL
1000 BBL WATER TANK
1000 BBL WATER TANK
1000 BBL WATER TANK
1000 BBL WATER TANK
1000 BBL WATER TANK
1000 BBL WATER TANK
1000 BBL WATER TANK
1000 BBL WATER TANK
120'
PUMPS
NORTH
PRODUCTION BATTERY
500 BBL TANK OIL
500 BBL TANK OIL
500 BBL TANK OIL
500 BBL TANK OIL
BOPCO, L.P.
BEU Hackberry 34 Federal #1 SWD
Section 34, T19S, R31E, 800' FNL & 825' FEL
Eddy County, New Mexico
135'
300'
165'
(2) TEST TRAINS
(1) PRODUCTION TRAIN
2-phase
2-phase
2-phase
FWKO
FWKO
3-phase
3-phase
3-phase
Heater Treater
ROAD

Location On-Site Notes

Location on-site conducted by Bill Dannels, Buddy Jenkins and Carlos Cruz-BOPCO L.P., Randy Rust-BLM, and Robert Gomez-Basin Survey on 08/02/2011. The Big Eddy Unit Hackberry 34 Federal #1 SWD was evaluated and approved as is with a footage call of 800' FNL & 825' FEL of Section 34, T19S-R31E. Randy instructed to locate pits to south towards large dune area.

TABLE OF CONTENTS

H_2S 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_2S).

Objective:

Prevent any and all accidents, and prevent the uncontrolled release of H_2S 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_2S 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_2S 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_2S 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_2S.
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_2S 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_2S 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_2), 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_2S areas, H_2S equipment will be rigged up after setting surface casing. For wells located inside known H_2S areas, the flare pit will be located 150' from the location and for wells located outside known H_2S 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_2S is in the area, however in the event that H_2S is encountered, the attached H_2S Contingency Plan will be implemented. (Please refer to diagram 2 for choke manifold and closed loop system layout.) See H_2S location layout diagram for location of all H_2S equipment on location.

All H_2S 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_2S.

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

Windsocks or Wind Streamers:

- A minimum of two 10" windsocks 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_2S 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_2S 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_2S 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_2S circulated to the surface. Proper mud weight, safe drilling practices and the use of H_2S scavengers will minimize hazards when penetrating H_2S 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_2S 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_2S 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
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 24th St. Lubbock, Texas	806-743-9911
Aerocare – R3, Box 49F, Lubbock, Texas	806-747-8923
Med Flight Air Amb – 2301 Yale Blvd SE #D3, Albuq., NM	505-842-4433
S B Air Med Service – 2505 Clark Carr Loop SE, Albuq., 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	H2S	1.18	10 PPM	250 PPM/HR	600 PPM
Sulfur Dioxide	SO2	2.21	5 PPM	--	1000 PPM
Chlorine	CL2	2.45	1 PPM	4 PPM/HR	1000 PPM
Carbon Monoxide	CO	0.97	50 PPM	400 PPM/HR	1000 PPM
Carbon Dioxide	CO2	1.52	5000 PPM	5%	10%
Methane	CH4	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

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

- 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_2S concentrations above 10 PPM.

RESCUE & FIRST AID FOR H_2S 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 H2S 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_2S.

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	BOPCO, L.P.
LEASE NO.:	NM-02447
WELL NAME & NO.:	BEU Hackberry 34 Fed SWD #1
SURFACE HOLE FOOTAGE:	800' FNL & 825' FEL
BOTTOM HOLE FOOTAGE	SAME
LOCATION:	Section 34, T. 19 S., R. 31 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Road Construction Requirement
The entire ~7,550 feet of access road shall have a driving surface that does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty (20) feet.

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).

Cattleguard requirement
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.

Topsoil Requirement:
The topsoil to be stripped is approximately 6 inches in depth and will be stockpiled on the east side of the well location. The topsoil will be used for interim and final reclamation.

Archaeology Monitor Requirement
The access road passes through an area of paleontological potential in the NE ¼, Section 33 and the NW ¼, Section 34, T19S, R31E. This locality is directly south of archeological site LA 43354 where fossil animal bones have been found. Notify CFO Archeologist James Renn, (575) 234-2236, so that he can monitor grading of the existing two-track road in this locality.

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken:
Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate

containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

NOI:

A NOI sundry with the completion procedure for this well shall be submitted and approved prior to commencing completion work. The procedure will be reviewed to verify that the completion proposal will allow the operator to:

1. Properly evaluate the injection zone utilizing open hole logs, swab testing and/or any other method to confirm that hydrocarbons cannot be produced in paying quantities. This evaluation shall be reviewed by the BLM prior to injection commencing.
2. If off-lease water will be disposed in this well, the operator shall provide proof of right-of-way approval .
3. Restrict the injection fluid to the approved formation.

Hackberry Special Recreation Management Area:

Pipelines shall be buried a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. During all phases of construction, open ditches shall have proper signage notifying trail users of potential hazards. Upon completion of construction, roads/trails shall be returned to pre-construction condition with no bumps or dips. Power line poles will be spaced to avoid pole placement within trails and "two tracks." All vehicle and equipment operators will observe speed limits and practice responsible defensive driving habits. If trail route modifications are required due to development, proposed changes shall be approved by BLM. The requesting party will absorb all expenses incurred as the result of requested modifications.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5972 at least 3 working days prior to commencing construction of the access road and/or well pad.

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

B. 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 theCarlsbad 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 (20) feet.

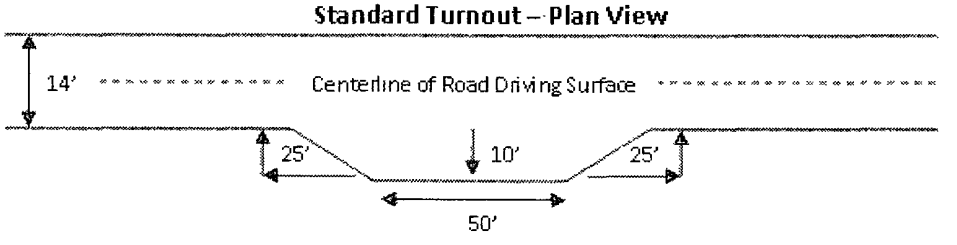
Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

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.

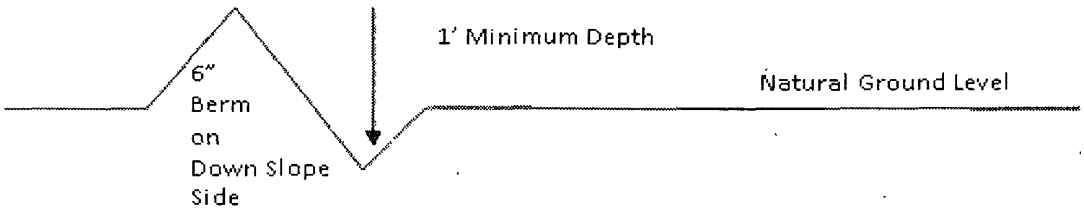
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



Drainage
Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

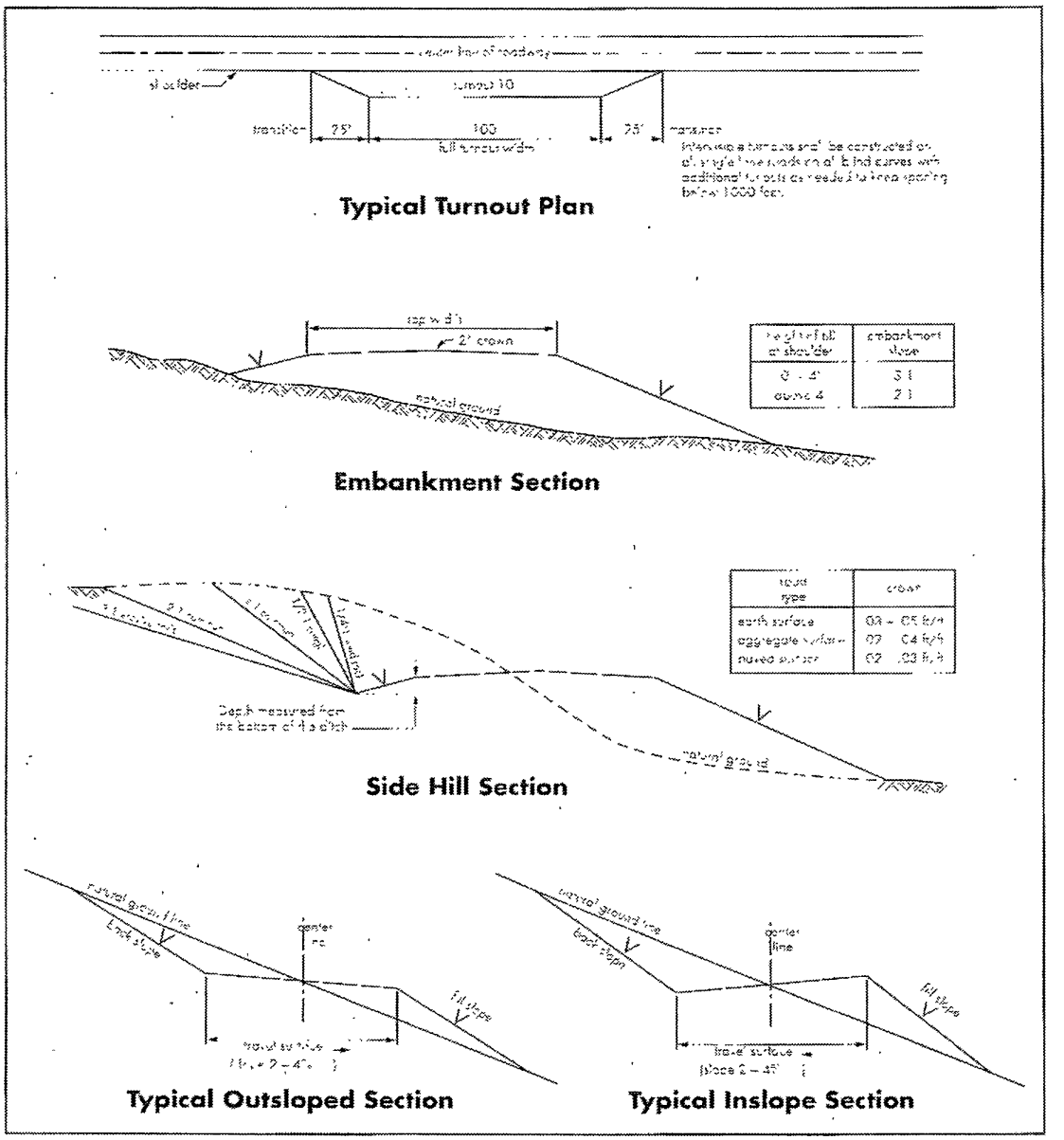
Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

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

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

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. **A Hydrogen Sulfide (H2S) Drilling Plan shall be activated prior to drilling out the surface shoe. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **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 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.

Secretary's Potash
Possible lost circulation in the Artesia Group.
Possible water and brine flows in the Salado and Artesia Groups.
Over pressured gas may be present in the Pennsylvanian Section – especially the Atoka Clastics.

1. The **20** inch surface casing shall be set at approximately **910** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. If **salt is encountered, set surface casing a minimum of 25 feet above the salt. Fresh water mud to be used to setting depth.**

    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 **16** 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 potash and the Capitan Reef.**

Operator shall submit sundry if DV tool for the 10-3/4" casing cannot be set within +/- 50 feet of proposed depth.

3. The minimum required fill of cement behind the **10-3/4** inch second intermediate casing is:

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. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to Capitan Reef and potash. Additional cement will be required as excess calculates to 11% due to enlarged hole size.**

Formation below the 10-3/4" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office.

PRODUCTION WELL BORE SHALL NOT BE REDUCED IN SIZE AS THE MINIMUM CLEARANCE OF 0.422 AROUND THE COLLARS OF THE 7-5/8" CASING WILL NOT BE MET.

Operator shall submit sundry if DV tool for the 7-5/8" casing cannot be set within +/- 50 feet of proposed depth.

4. The minimum required fill of cement behind the **7-5/8** inch production casing is:

   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. **Additional cement will be required due to hole size required for minimum clearance – 8.75" hole not approved. Excess cement calculates to 3%.**

   b. Second stage above DV tool:

   ☒ Top of cement to reach **2400'** at least **400** feet above the top of the Capitan Reef. **Additional cement will be required due to hole size required for minimum clearance – 8.75" hole not approved. Excess cement calculates to 3%.**

Formation below the 7-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done using the heaviest mud which will be used to drill the open hole section.

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 **2000 (2M)** 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. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **16"** intermediate casing shoe shall be **2000 (2M)** psi.

5. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **10-3/4"** second intermediate casing shoe shall be **5000 (5M)** psi. **5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure. Operator installing 10M and testing as 5M.**

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

    a. In potash areas, 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. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.

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

    d. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

    e. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

f. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **Atoka Clastics** formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

D. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the **Atoka Clastics** formation, and shall be used until production casing is run and cemented.

Proposed mud weight may not be adequate for drilling through the Atoka Clastics.

E. DRILL STEM TEST

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

F. WELL COMPLETION

A NOI sundry with the completion procedure for this well shall be submitted and approved prior to commencing completion work. The procedure will be reviewed to verify that the completion proposal will allow the operator to:

4. **Properly evaluate the injection zone utilizing open hole logs, swab testing and/or any other method to confirm that hydrocarbons cannot be produced in paying quantities. This evaluation shall be reviewed by the BLM prior to injection commencing.**
5. **If off-lease water will be disposed in this well, the operator shall provide proof of right-of-way approval .**
6. **Restrict the injection fluid to the approved formation.**

G. 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.

WWI 031212

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Containment Structures
The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

Painting Requirement
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color
Shale Green, Munsell Soil Color Chart # 5Y 4/2

IX. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

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

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

X. FINAL ABANDONMENT & RECLAMATION

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

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

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

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

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Sand dropseed (Sporobolus cryptandrus)	1.0
Sand love grass (Eragrostis trichodes)	1.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

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