ATS-12-478

OCD-HOBBS HOBBS OCD SECRETARY'S POTASH

JUL 17 2012

RECEIVED

Form 3160-3
(April 2004)

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. NMNM- 01135

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. LUSK 34 FEDERAL #2H <39355>

2. Name of Operator APACHE CORPORATION 873

9. API Well No. 30-025- 40693

3a. Address 303 VETERANS AIRPARK LN #3000 MIDLAND, TX 79705

3b. Phone No. *(include area code)* 432-818-1167

10. Field and Pool, or Exploratory LUSK; BONE SPRING, SOUTH <41460>

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

At surface 330' FNL & 1715' FWL

At proposed prod. zone 330' FSL & 1980' FWL

11. Sec., T. R. M. or Blk. and Survey or Area UL: C SEC: 34 T19S R32E

14. Distance in miles and direction from nearest town or post office* APPROX 19 MILES SOUTHWEST OF LOVINGTON, NM

12. County or Parish LEA

13. State NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 330'

16. No. of acres in lease 1118.01

17. Spacing Unit dedicated to this well 159.43 ACRES

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. ~680'

19. Proposed Depth TVD ~ 9605' MD ~ 13915'

20. BLM/BIA Bond No. on file BLM - CO - 1463 NATIONWIDE and NMB000736 INDIVIDUAL

21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3569'

22. Approximate date work will start* As soon As Approved

23. Estimated duration ~ 25 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 Sorina L Flores — Name *(Printed/Typed)* SORINA L. FLORES — Date 04/12/2012

Title SUPV OF DRILLING SERVICES

Approved by *(Signature)* /S/ Aden L. Seidlitz — Name *(Printed/Typed)* /S/ Aden L. Seidlitz — Date JUL 11 2012

Title 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

KZ 07/19/12

SEE ATTACHED FOR CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

JUL 19 2012

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE
620 E. GREENE STREET
CARLSBAD, NM 88220

STATEMENT ACCEPTING RESPONSIBILITY FOR OPERATIONS

Operator Name: APACHE CORPORATION

Street or Box: 303 VETERANS AIRPARK LANE, STE. 3000

City, State: Midland, TX

Zip Code: 79705

The undersigned accepts all applicable terms, conditions, stipulations, and restrictions concerning operations conducted on the leased land or portion thereof, as described below:

Lease No: LUSK 34 FEDERAL #2H

Legal Description of Land: 330' FNL & 1715' FWL

UL: C Section: 34 Township: 19S Range: 32E

County: LEA State: NM

Bond Coverage: $150,000

Statewide Oil and Gas Surety Bond, APACHE CORPORATION.

BLM Bond File No.: BLM-CO-1463 NATIONWIDE + INDIVIDUAL NMB000736 BH

Signature: Bobby L Smith Printed Name: BOBBY L. SMITH

Title: DRILLING MANAGER, PERMIAN REGION

Date:

DRILLING PLAN: BLM COMPLIANCE

(Supplement to BLM 3160-3)

APACHE CORPORATION (OGRID: 873) LUSK 34 FEDERAL #2H

Lease #: NMNM-007724 TVD: ~ 9605' MD: ~ 13915' GL: 3569'

SHL: 330' FNL & 1715' FWL BHL: 330' FSL & 1980' FWL UL: C SEC: 34 T19S R32E LEA COUNTY, NM

1. **GEOLOGIC NAME OF SURFACE FORMATION:** Quaternery Alluvium Deposits

2. **ESTIMATED TOPS OF GEOLOGICAL MARKERS & DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS:**

Quaternaery Alluvium	Surface	Bone Spring	7440'
Rustler	926'	1st BS Carbonate	8123'
Salt Top	1394'	1st BS Sand	8618'
Salt Bottom	2653'	2nd BS Carbonate	8905'
Capitan Reef	3247'	2nd BS Sand	9159' (Oil)
Delaware	4454' (Oil)	TD	9605' TVD / 13915' MD

Depth to Ground Water: ~400'

Fresh water & prospectively valuable minerals, as described by BLM, encountered during drilling, will be recorded by depth & adequately protected. All oil & gas shows within zones of correlative rights will be tested to determine commercial potential. Surface fresh water sands will be protected by setting 13-3/8" csg @ ~~950'~~ & circ cmt back to surface. Hydrocarbon zones will be protected by setting 13-3/8" csg @ ~~3270'~~ , 9-5/8" csg @ 4500' & Production csg @ +/- 13915'. KOP: ~ ~~8977'~~, TVD: ~ 9605' MD: ~13915'

3. **CASING PROGRAM:** All casing is NEW & API approved

STRING	HOLE SIZE	DEPTH	OD CSG	WEIGHT	COLLAR	GRADE	COLLAPSE	BURST	TENSION
Surface	24"	0' – ~~950'~~ 1045	20"	94#	STC	H-40	1.125	1.0	1.8
Intermediate1	17-1/2"	0' – 1800' 1800' – ~~3270'~~ 3200	13-3/8"	54.5# 61#	STC	J-55 HCK-55	1.125	1.0	1.8
Intermediate2	12-1/4"	0' – 3200' 3200' – 4500'	9-5/8"	36#	STC	J-55 HCK-55	1.125	1.0	1.8
Production	8-3/4" 7-7/8"	0'-8900' 8900' – 13915'	5-1/2"	17#	LTC	L-80	1.125	1.0	1.8

4. **CEMENT PROGRAM:**

A. **Surface (TOC Surface) **100% excess cmt; cmt to surface****

Lead: 725 sx Class C w/ 0.005 # Static Free + 5% Sodium Chloride + 0.125# CF + 1 gal/100sx FP-6L + 4% Bentonite + 1% Sodium Metasilicate + 5% MPA-5 (12.5 wt, 2.12 yld) *Comp Strengths :* ***12 hr*** *– 288 psi* ***24 hr*** *– 674 psi*

Tail: 350 sx Class C w/0.005# Static Fee + 2% CaCL2 + 1 gal/100sx FP-6L (14.8 wt, 1.34 yld) *Comp Strengths:* ***12 hr*** *– 1000 psi* ***24 hr*** *– 1549 psi*

B. **Intermediate1 (TOC Surface) **50% excess cmt; cmt to surface****

Lead: 1780 sx Poz C w/ 0.005# Static Free + 0.125sx CF + 5# LCM-1 + 0.1% FL52 + 1 gal/100sx FP6L + 4% Bentonite + 1% Sodium Metasilicate + 5% MPA5 (12.5wt, 2.02 yld) *Comp Strengths:* ***12 hr*** *– 425 psi* ***24 hr*** *– 573* psi

Tail: 250 sx Class C w/ 1 gal/100sx FP-6L (14.8 wt, 1.33 yld) *Comp Strengths:* ***12 hr*** *– 1193 psi* ***24 hr*** *– 1640 psi*

C. **Intermediate2 (TOC @ ~~3070'~~ 2700' from Surface) **50% excess cmt; cmt to surface****

Lead: 590 sx Class C w/ 1 gal/100sx FP-6L (14.8 wt, 1.33 yld) *Comp Strengths:* ***12 hr*** *– 1193 psi* ***24 hr*** *– 1640 psi*

D. **Production (TOC: ~~~3600'~~ 3200' from surface) **30% excess cmt****

Lead: 600 sx Poz Class H w/0.005# Static Free + 5% Sodium Chloride + 0.125# CF + 5# LCM-1 + 0.2% FL52 + 1 gal/1000sx FP6L + 4% Bentonite + 0.3% Sodium Metasilicate + 5% MPA5 (12.5 wt, 2.12 yld) *Comp Strengths:* ***12 hr*** *– 471 psi* ***24 hr*** *– 837 psi*

Tail: 1070 sx Class H w/5% Sodium Cloride + 0.3% CD32 + 0.5% FL25 + 0.5% FL52 + 1 gal/100SX FP6L + 0.6% Sodium Metasilicate + 2% Bentonite (14.2 wt, 1.31 yld) *Comp Strengths:* ***12 hr*** *– 59psi* ***24 psi*** *–876 psi*

*** **The above cmt volumes could be revised pending caliper measurement from open hole logs.** For Surface csg: If cmt does not circ to surface, the appropriate BLM office shall be notified & a tag with 1" will be performed at four positions 90 degrees apart to verify cmt depth. If depth is greater than 100' or water is standing in the annulus, remedial cementing will be done. If no water & TOC tag is less than 100', when 100% excess cmt of the annulus volume is run on the primary job, ready-mix will be used to bring cmt to surface.*

5. PROPOSED CONTROL EQUIPMENT

"EXHIBIT 3 & 3A": 13-5/8" 3M psi WP BOP consisting of an annular type preventer. Annular will be nippled up on the 13-5/8" surface csg head & tested to 70% of csg burst. After intermediate csg is set & cemented, a 13 5/8" 3M X 11" 5M "B" section will be installed and an 11" 5M BOP (consisting of an annular type preventer, pipe rams & blind rams will be installed on the "B" section & utilized continuously until TD is reached. BOP will be tested @ 3M psi (max surface pressure is not expected to exceed 3M psi). BHP calculated to be approx 4224psi. *All BOP's and associated equipment will be tested as per BLM *Drilling Operations Order #2*. BOP will be operated and checked each 24 hr period & blind rams will be operated & checked on each trip out of hole. Tests will be documented on the daily driller's log. *"EXHIBIT 3 & 3A"* also shows a 5M psi choke manifold with a 3" blow down line. Full opening stabbing valve & Kelly cock will be on derrick floor in case of need. No abnormal pressures of temperatures are expected in this well. No nearby wells have encountered any problems.

6. PROPOSED MUD CIRCULATION SYSTEM: (Closed Loop System)

INTERVAL	MW (ppg)	VISC (sec/qt)	FLUID LOSS (cc)	MUD TYPE
0' ~~950'~~ 1045	8.4 – 8.8	29	NC	Fresh Water
~~950'~~ – ~~3270'~~ 3200	9.8 – 10.0	29	NC	Brine
~~3270'~~ – 4500'	8.4 – 8.7	29	NC	Fresh Water
4500'-13915'	8.9 – 9.0	29	NC	Cut Brine

*** The necessary mud products for weight addition and fluid loss control will be on location at all times. In order to run open hole logs & casing, the above mud properties may have to be altered to meet these needs.*

7. AUXILIARY WELL CONTROL EQUIPMENT / MONITORING EQUIPMENT:

13-3/8" x 3M psi annular type preventer
11" x 5M psi Double BOP/Blind & pipe ram & 11" 5M psi annular type preventer
4-1/2" x 3000 psi Kelly valve
11" x 5M psi mud cross – H2S detector on production hole
Gate-type safety valve 3" choke line from BOP to manifold
2" adjustable chokes – 3" blow down line
Fill up line as per Onshore Order 2

8. LOGGING, CORING & TESTING PROGRAM: See COA

A. OH logs: Dual Laterolog, MSFL, CNL, Litho-Density, Gamma Ray, Caliper & Sonic from TD back to 9-5/8" csg shoe.
B. Run CNL, Gamma Ray from 9-5/8" csg shoe back to surface.
C. No cores, DST's or mud logger are planned at this time.
D. Additional testing will be initiated subsequent to setting the 7" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows & drill stem tests.

9. POTENTIAL HAZARDS:

No abnormal pressures or temperatures are anticipated. In accordance with Onshore Order 6, Apache does not anticipate there will be enough H2S from surface to Bone Spring formations to meet the BLM's minimum requirements for the submission of an "H2S Drilling Operation Plan" or "Public Protection Plan" for the drilling & completion of this well. Since Apache has an H2S Safety package on all wells, attached is an "H2S Drilling Operations Plan". Adequate flare lines will be installed off of the mud/gas separator where gas may be flared safely. All personnel will be familiar with all aspects of safe operation of equipment being used. Estimated BHP: 4224 psi Estimated BHT : 115°.

10. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS:

Road and location construction will begin after BLM has approved APD. Anticipated spud date will be as soon as approved. Move in operations and drilling is expected to take ~ 25 days. If production casing is run then an additional 90 days will be needed to complete well and construct surface facilities and/or lay flow lines in order to place well on production.

11. OTHER FACETS OF OPERATION:

After running csg, cased hole Gamma Ray, Neutron Collar logs will be run from TD back to all possible productive zones. The Lusk; Bone Spring, South formation will be perforated and stimulated in order to establish production. The proposed well will be tested & potentialed as an Oil Well.

Apache

Lea County, NM
Lusk 34 Federal 2H
Sec. 34, T19S - R32E

Job # 1210295

Plan: Plan 1 04-09-2012

Standard Planning Report

10 April, 2012

Database:	GCR DB v5000	**Local Co-ordinate Reference:**	Site Lusk 34 Federal 2H
Company:	Apache	**TVD Reference:**	WELL @ 3579.00usft (Original Well Elev)
Project:	Lea County, NM	**MD Reference:**	WELL @ 3579.00usft (Original Well Elev)
Site:	Lusk 34 Federal 2H	**North Reference:**	Grid
Well:	Sec. 34, T19S - R32E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Job # 1210295		
Design:	Plan 1 04-09-2012		

Project	Lea County, NM		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Lusk 34 Federal 2H				
Site Position:		**Northing:**	590,933.70 usft	**Latitude:**	32° 37' 23.5360 N
From:	Map	**Easting:**	718,772.00 usft	**Longitude:**	103° 45' 25.2497 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.31 °

Well	Sec. 34, T19S - R32E					
Well Position	**+N/-S**	0.00 usft	**Northing:**	590,933.70 usft	**Latitude:**	32° 37' 23 5360 N
	+E/-W	0.00 usft	**Easting:**	718,772 00 usft	**Longitude:**	103° 45' 25.2497 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**		**Ground Level:**	3,569.00 usft

Wellbore	Job # 1210295				
Magnetics	***Model Name***	***Sample Date***	***Declination (°)***	***Dip Angle (°)***	***Field Strength (nT)***
	IGRF2010_14	4/9/2012	7.60	60 50	48,754

Design	Plan 1 04-09-2012				
Audit Notes:					
Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.00	0.00	0.00	176.46	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0 00	0.00	0.00	0 00	0.00	0.00	0.00	0.00	0.00	0.00	
8,977.13	0.00	0 00	8,977.13	0.00	0.00	0.00	0.00	0 00	0.00	
9,867.23	89 01	176.46	9,550.00	-561.98	34.77	10.00	10.00	0 00	176.46	Lusk 2H Land
11,892.13	89.01	176.46	9,585.00	-2,582.71	159.82	0.00	0.00	0.00	-105 11	Lusk 2H Mid Pt
11,913.44	89 44	176.46	9,585 29	-2,603.99	161.14	2.00	2.00	-0.01	-0.17	
13,914.72	89.44	176.46	9,605.00	-4,601.34	284.83	0 00	0.00	0.00	0 00	Lusk 2H BHL

Database:	GCR DB v5000	**Local Co-ordinate Reference:**	Site Lusk 34 Federal 2H
Company:	Apache	**TVD Reference:**	WELL @ 3579.00usft (Original Well Elev)
Project:	Lea County, NM	**MD Reference:**	WELL @ 3579.00usft (Original Well Elev)
Site:	Lusk 34 Federal 2H	**North Reference:**	Grid
Well:	Sec. 34, T19S - R32E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Job # 1210295		
Design:	Plan 1 04-09-2012		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0 00	0.00	0.00	0.00	0.00	0.00	0.00
926.00	0.00	0.00	926.00	0.00	0 00	0.00	0.00	0.00	0.00
Rustler									
1,394 00	0.00	0 00	1,394.00	0.00	0.00	0 00	0 00	0.00	0.00
T/Salt									
2,653.00	0.00	0.00	2,653.00	0.00	0.00	0.00	0.00	0.00	0.00
B/Salt									
3,247.00	0.00	0.00	3,247.00	0.00	0.00	0.00	0.00	0.00	0.00
Capitan Reef									
4,454.00	0.00	0.00	4,454 00	0.00	0.00	0.00	0.00	0.00	0.00
Delaware									
7,440.00	0.00	0.00	7,440 00	0.00	0.00	0.00	0.00	0.00	0.00
Bone Spring									
8,123.00	0.00	0.00	8,123 00	0.00	0.00	0 00	0.00	0 00	0.00
1st BS Carbonate									
8,618.00	0.00	0 00	8,618 00	0.00	0.00	0.00	0.00	0.00	0.00
1st BS Sand									
8,905 00	0 00	0.00	8,905.00	0.00	0 00	0.00	0.00	0.00	0.00
2nd BS Carbonate									
8,977.13	0.00	0.00	8,977.13	0 00	0.00	0 00	0 00	0 00	0.00
KOP = 8977'									
9,000.00	2.29	176.46	8,999.99	-0.46	0.03	0.46	10.00	10.00	0.00
9,100.00	12.29	176 46	9,099 06	-13.10	0 81	13.12	10.00	10 00	0.00
9,162 20	18 51	176.46	9,159.00	-29 57	1.83	29.63	10.00	10 00	0.00
2nd BS Sand									
9,200.00	22.29	176.46	9,194.42	-42 72	2 64	42 80	10.00	10.00	0.00
9,300 00	32 29	176.46	9,283.18	-88.42	5.47	88.59	10 00	10.00	0.00
9,400.00	42 29	176.46	9,362.64	-148.81	9.21	149.09	10 00	10.00	0.00
9,500.00	52.29	176.46	9,430.39	-222.05	13.74	222.48	10.00	10.00	0 00
9,600.00	62.29	176.46	9,484.36	-305.92	18 93	306.51	10.00	10.00	0.00
9,700 00	72.29	176.46	9,522.93	-397.88	24.61	398.64	10 00	10.00	0.00
9,800.00	82.29	176.46	9,544 90	-495.11	30.63	496.06	10.00	10 00	0.00
9,867.23	89.01	176.46	9,550.00	-561.98	34.77	563.06	10.00	10.00	0.00
Land = 9867'									
9,900.00	89.01	176 46	9,550.57	-594.69	36.79	595.82	0.00	0.00	0.00
10,000.00	89 01	176.46	9,552 30	-694.48	42 96	695 81	0 00	0.00	0.00
10,100.00	89.01	176.46	9,554 02	-794.28	49.14	795 79	0.00	0 00	0.00
10,200 00	89 01	176.46	9,555.75	-894.07	55.31	895 78	0 00	0.00	0.00
10,300.00	89 01	176.46	9,557.48	-993.86	61.49	995.76	0 00	0.00	0.00
10,400.00	89.01	176 46	9,559.21	-1,093.66	67.66	1,095.75	0.00	0.00	0 00
10,500.00	89.01	176 46	9,560.94	-1,193.45	73 84	1,195.73	0.00	0.00	0 00
10,600.00	89.01	176.46	9,562.66	-1,293.25	80.01	1,295 72	0 00	0.00	0.00
10,700.00	89.01	176.46	9,564 39	-1,393 04	86.19	1,395.70	0.00	0.00	0.00
10,800.00	89.01	176.46	9,566.12	-1,492.83	92.36	1,495 69	0 00	0.00	0.00
10,900 00	89.01	176 46	9,567.85	-1,592.63	98.54	1,595 67	0.00	0.00	0.00
11,000.00	89.01	176.46	9,569.58	-1,692.42	104.71	1,695.66	0.00	0.00	0.00
11,100.00	89.01	176.46	9,571 31	-1,792.22	110.89	1,795 64	0 00	0.00	0.00
11,200.00	89 01	176.46	9,573.04	-1,892.01	117.07	1,895.63	0.00	0.00	0 00
11,300.00	89.01	176.46	9,574.76	-1,991.81	123.24	1,995.61	0.00	0.00	0.00
11,400.00	89.01	176.46	9,576.49	-2,091.60	129 42	2,095 60	0.00	0.00	0.00
11,500.00	89.01	176.46	9,578 22	-2,191.39	135 60	2,195 58	0.00	0.00	0.00
11,600.00	89.01	176.46	9,579 95	-2,291 19	141.77	2,295.57	0.00	0.00	0.00

Database:	GCR DB v5000	**Local Co-ordinate Reference:**	Site Lusk 34 Federal 2H
Company:	Apache	**TVD Reference:**	WELL @ 3579.00usft (Original Well Elev)
Project:	Lea County, NM	**MD Reference:**	WELL @ 3579.00usft (Original Well Elev)
Site:	Lusk 34 Federal 2H	**North Reference:**	Grid
Well:	Sec. 34, T19S - R32E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Job # 1210295		
Design:	Plan 1 04-09-2012		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,700.00	89.01	176.46	9,581.68	-2,390.98	147.95	2,395 55	0.00	0 00	0.00
11,800.00	89.01	176.46	9,583.41	-2,490.78	154.13	2,495 54	0.00	0 00	0.00
11,892.13	89 01	176 46	9,585.00	-2,582 71	159.82	2,587.65	0.00	0.00	0.00
Mid Pt = 11892'									
11,900.00	89.17	176.46	9,585 13	-2,590.57	160.31	2,595 52	2.00	2.00	-0.01
11,913.44	89.44	176.46	9,585.29	-2,603.99	161.14	2,608.97	2 00	2.00	-0.01
12,000.00	89.44	176.46	9,586.14	-2,690.37	166.49	2,695.52	0.00	0.00	0.00
12,100 00	89.44	176.46	9,587.13	-2,790.18	172.67	2,795.51	0.00	0.00	0.00
12,200.00	89.44	176.46	9,588.11	-2,889.98	178 85	2,895.51	0.00	0.00	0.00
12,300.00	89.44	176.46	9,589.10	-2,989.79	185 03	2,995.51	0.00	0 00	0 00
12,400 00	89.44	176 46	9,590 08	-3,089.59	191 21	3,095.50	0.00	0 00	0.00
12,500.00	89.44	176.46	9,591.07	-3,189.39	197.39	3,195.50	0.00	0.00	0.00
12,600.00	89.44	176.46	9,592.05	-3,289.20	203.57	3,295.49	0 00	0.00	0 00
12,700.00	89.44	176.46	9,593.04	-3,389.00	209.75	3,395.49	0.00	0.00	0 00
12,800 00	89.44	176.46	9,594.02	-3,488.80	215.93	3,495.48	0.00	0.00	0.00
12,900.00	89.44	176.46	9,595.01	-3,588.61	222 11	3,595.48	0 00	0.00	0.00
13,000.00	89.44	176 46	9,595.99	-3,688.41	228 29	3,695.47	0 00	0.00	0 00
13,100.00	89.44	176.46	9,596.98	-3,788.22	234.47	3,795.47	0.00	0.00	0 00
13,200 00	89 44	176.46	9,597.96	-3,888.02	240.66	3,895.46	0.00	0.00	0.00
13,300 00	89.44	176.46	9,598.95	-3,987.82	246 84	3,995.46	0.00	0 00	0.00
13,400.00	89.44	176.46	9,599.93	-4,087.63	253.02	4,095 45	0.00	0.00	0.00
13,500.00	89.44	176.46	9,600.92	-4,187.43	259 20	4,195.45	0.00	0.00	0.00
13,600.00	89.44	176.46	9,601.90	-4,287.24	265.38	4,295 44	0.00	0.00	0.00
13,700.00	89.44	176.46	9,602.89	-4,387.04	271.56	4,395.44	0.00	0.00	0.00
13,800.00	89.44	176.46	9,603.87	-4,486.84	277.74	4,495.43	0.00	0.00	0.00
13,900.00	89.44	176.46	9,604.86	-4,586.65	283.92	4,595 43	0.00	0 00	0 00
13,914.72	89.44	176.46	9,605 00	-4,601 34	284.83	4,610.15	0.00	0.00	0.00
TD = 13915'									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Lusk 2H Land - plan hits target center - Point	0.00	0.00	9,550 00	-561.98	34 77	590,371.72	718,806.76	32° 37' 17.9734 N	103° 45' 24.8788 W
Lusk 2H Mid Pt - plan hits target center - Point	0.00	0.00	9,585.00	-2,582.71	159.82	588,350.99	718,931.82	32° 36' 57.9717 N	103° 45' 23.5449 W
Lusk 2H BHL - plan hits target center - Point	0.00	0.00	9,605.00	-4,601 34	284.83	586,332.36	719,056.83	32° 36' 37.9907 N	103° 45' 22.2115 W

Database:	GCR DB v5000	**Local Co-ordinate Reference:**	Site Lusk 34 Federal 2H
Company:	Apache	**TVD Reference:**	WELL @ 3579.00usft (Original Well Elev)
Project:	Lea County, NM	**MD Reference:**	WELL @ 3579.00usft (Original Well Elev)
Site:	Lusk 34 Federal 2H	**North Reference:**	Grid
Well:	Sec. 34, T19S - R32E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Job # 1210295		
Design:	Plan 1 04-09-2012		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
926 00	926.00	Rustler		0.00	
1,394 00	1,394.00	T/Salt		0.00	
2,653.00	2,653.00	B/Salt		0.00	
3,247.00	3,247.00	Capitan Reef		0.00	
4,454.00	4,454.00	Delaware		0.00	
7,440.00	7,440.00	Bone Spring		0.00	
8,123.00	8,123.00	1st BS Carbonate		0.00	
8,618.00	8,618.00	1st BS Sand		0.00	
8,905.00	8,905.00	2nd BS Carbonate		0.00	
9,162.20	9,159 00	2nd BS Sand		0 00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
8,977.13	8,977.13	0 00	0.00	KOP = 8977'
9,867 23	9,550.00	-561.98	34.77	Land = 9867'
11,892 13	9,585.00	-2,582.71	159.82	Mid Pt = 11892'
13,914.72	9,605.00	-4,601 34	284.83	TD = 13915'

Apache

Project: Lea County, NM
Site: Lusk 34 Federal 2H
Well: Sec. 34, T19S - R32E
Wellbore: Job # 1210295
Plan: Plan 1 04-09-2012
Rig:

PROJECT DETAILS Lea County, NM	
Geodetic System	US State Plane 1983
Datum	North American Datum 1983
Ellipsoid	GRS 1980
Zone	New Mexico Eastern Zone
System Datum	Mean Sea Level
Location North	Grid

WELL DETAILS: Sec 34, T19S - R32E

Northing	Ground Level / Easting	3569 00 / Latitude	Longitude
590933 70	718772 00	32° 37' 23 5360 N	103° 45' 25 2497 W

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Lusk 2H Land	9550 00	-561 98	34 77	590371 72	718806 77	Point
Lusk 2H Mid Pt	9585 00	-2582 71	159 82	588350 99	718931 82	Point
Lusk 2H BHL	9605 00	-4601 34	284 83	586332 36	719056 83	Point

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	
0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	
8977 13	0 00	0 00	8977 13	0 00	0 00	0 00	0 00	0 00	
9867 23	89 01	176 46	9550 00	-561 98	34 77	10 00	176 46	563 06	Lusk 2H Land
11892 13	89 01	176 46	9585 00	-2582 71	159 82	0 00	-105 11	2587 65	Lusk 2H Mid Pt
11913 44	89 44	176 46	9585 29	-2603 99	161 14	2 00	-0 17	2608 97	
13914 72	89 44	176 46	9605 00	-4601 34	284 83	0 00	0 00	4610 15	Lusk 2H BHL

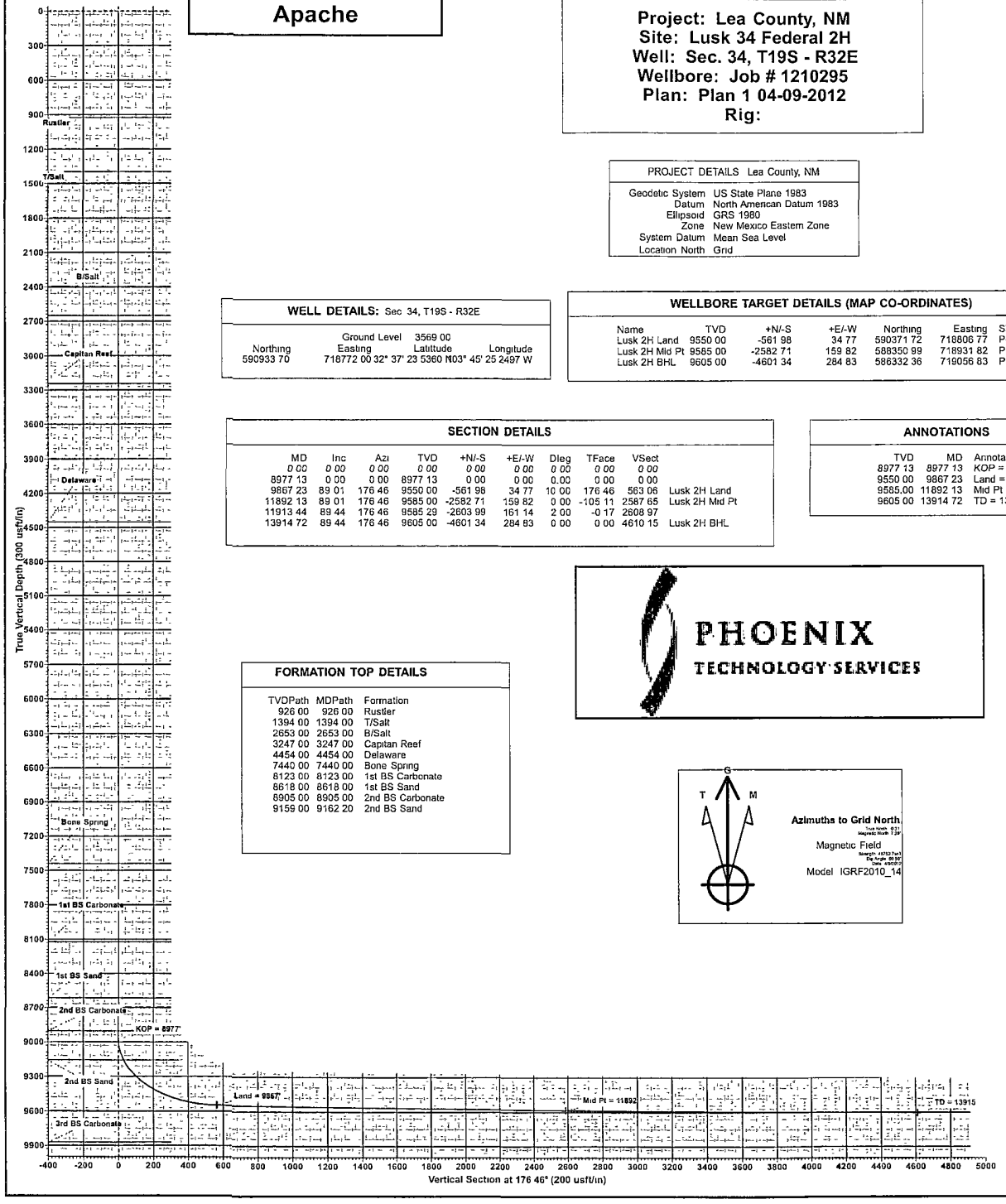
ANNOTATIONS

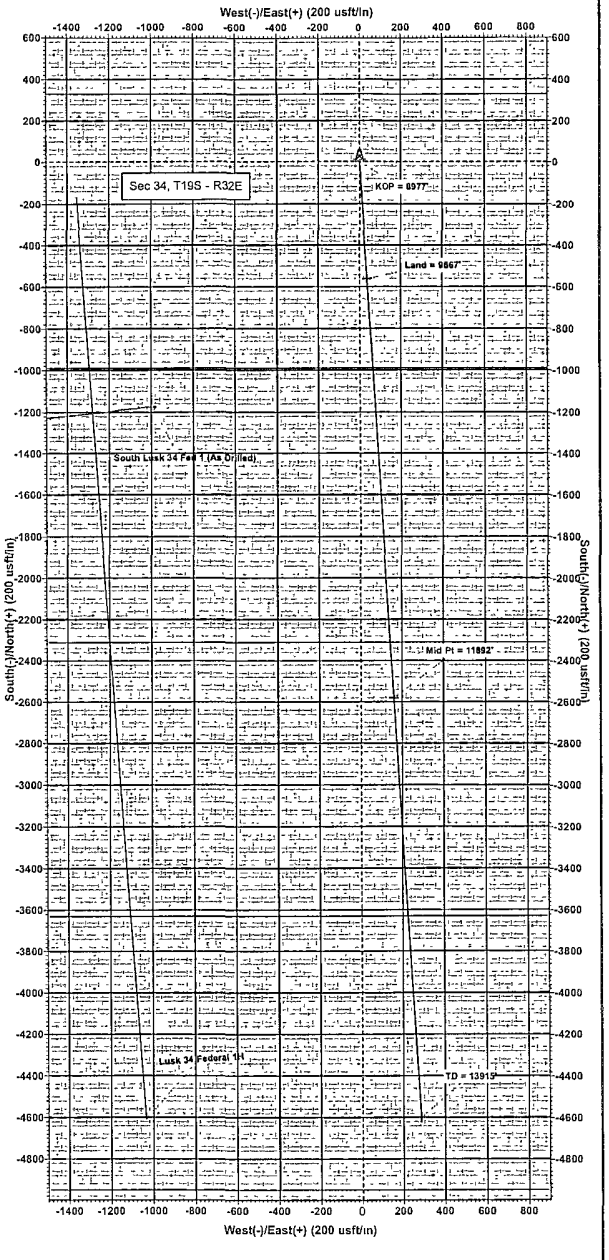
TVD	MD	Annotation
8977 13	8977 13	KOP = 8977'
9550 00	9867 23	Land = 9867'
9585.00	11892 13	Mid Pt = 11892'
9605 00	13914 72	TD = 13915'

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
926 00	926 00	Rustler
1394 00	1394 00	T/Salt
2653 00	2653 00	B/Salt
3247 00	3247 00	Capitan Reef
4454 00	4454 00	Delaware
7440 00	7440 00	Bone Spring
8123 00	8123 00	1st BS Carbonate
8618 00	8618 00	1st BS Sand
8905 00	8905 00	2nd BS Carbonate
9159 00	9162 20	2nd BS Sand

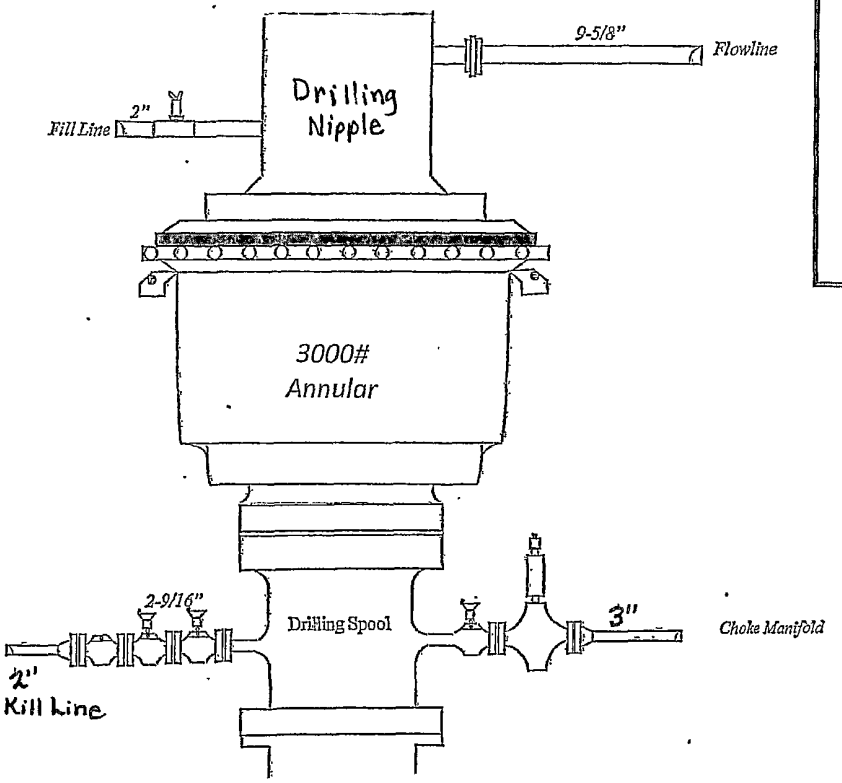
PHOENIX TECHNOLOGY SERVICES

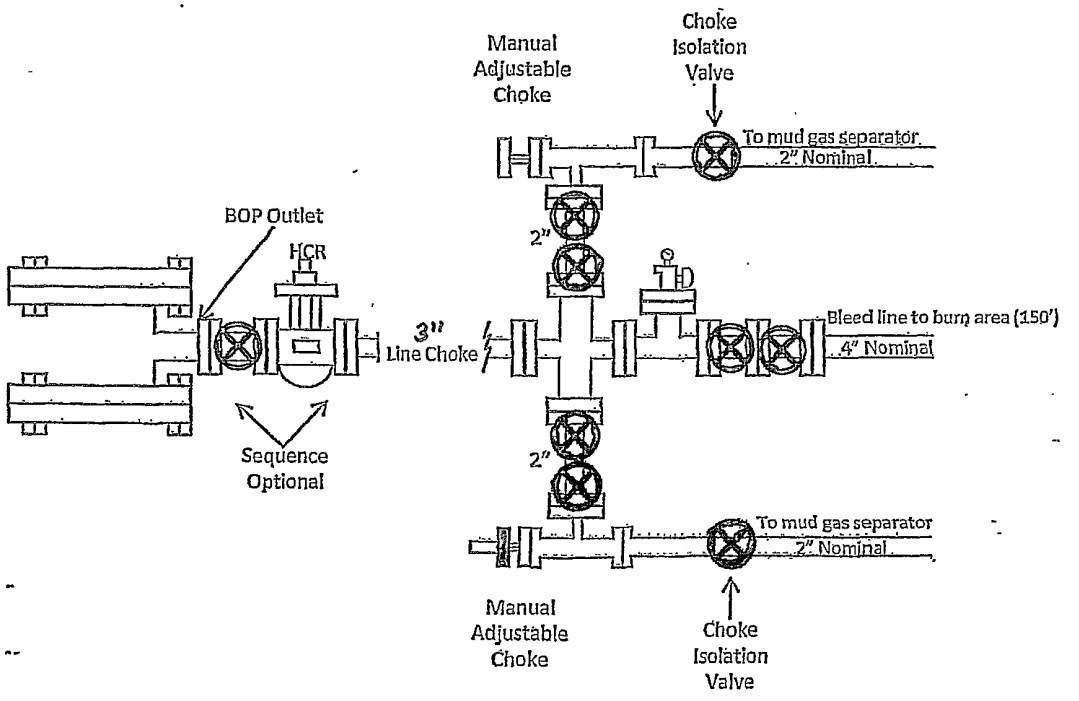




13-5/8" 3M psi
BOPE & Choke Manifold
Exhibit 3

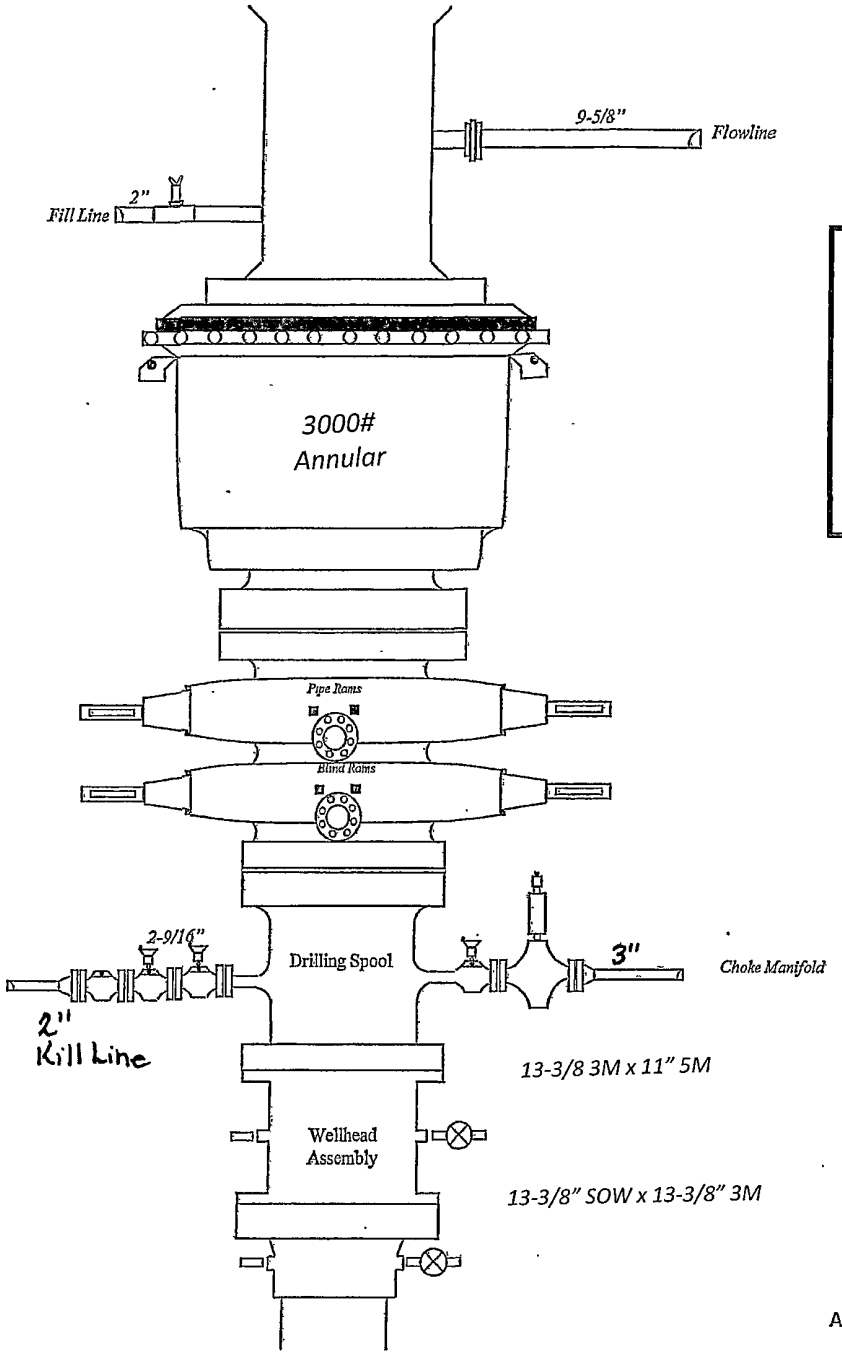
All valve & lines on choke manifold are 2" unless noted.
Exact manifold configuration may vary

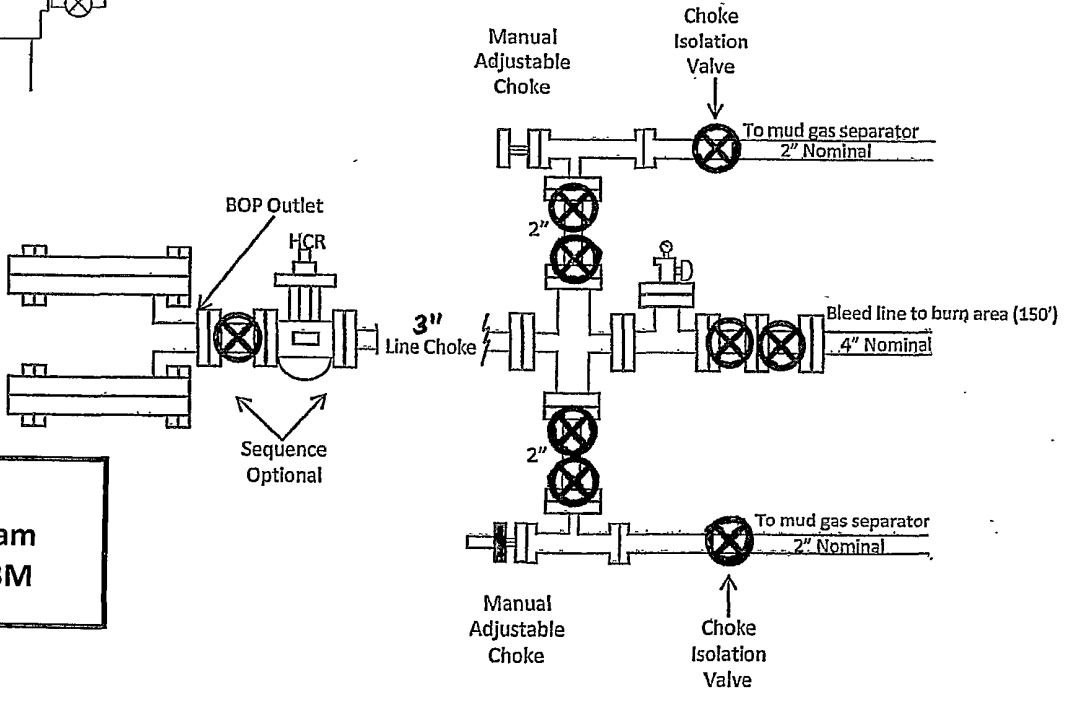




11" 5M psi
BOPE & Choke Manifold
EXHIBIT 3A

All valve & lines on choke manifold are 2" unless noted. Exact manifold configuration may vary





Choke Manifold Diagram
5M Service tested to 3M