

HOBBS OCD

SECRETARY'S POTASH OCT 01 2012

Form 3160-3
(April 2004)

OCD Hobbs

RECEIVED

FORM APPROVED
OMB No. 1004-0137
Expires March 31, 2007UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM-0001135
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator APACHE CORPORATION		7. If Unit or CA Agreement, Name and No.
3a. Address 303 VETERANS AIRPARK LN #3000		8. Lease Name and Well No. (39355) LUSK 34 FEDERAL #1H
3b. Phone No. (include area code) 432-818-1167		9. API Well No. 30-025- 40797
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface 490' FNL & 360' FWL Unit A At proposed prod. zone 330' FSL & 660' FWL Lot 1		10. Field and Pool, or Exploratory LUSK; BONESPRING, SOUTH (41460)
14. Distance in miles and direction from nearest town or post office* Approx 19 miles Southwest of Lovington, NM		11. Sec., T. R. M. or Blk. and Survey or Area UL: D SEC 34 T19S R32E
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 360'	16. No. of acres in lease 1118.01 ACRES	17. Spacing Unit dedicated to this well 159.46 ACRES
18. Distance from proposed* location to nearest well, drilling, completed, applied for, on this lease, ft. ~ 160'	19. Proposed Depth TVD: 9585' MD: 13740'	20. BLM/BIA Bond No. on file BLM - CO - 1463 Nationwide
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3561'	22. Approximate date work will start* As soon as possible	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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature - <i>Sorina L Flores</i>	Name (Printed/Typed) SORINA L. FLORES	Date 6/6/12
Title SUPV OF DRILLING SERVICES		
Approved by (Signature) <i>Aden L Seidlitz</i>	Name (Printed/Typed)	Date SEP 24 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

SEE ATTACHED FOR
CONDITIONS OF APPROVALApproval Subject to General Requirements
& Special Stipulations Attached

OCT 02 2012

DRILLING PLAN: BLM COMPLIANCE

(Supplement to BLM 3160-3)

APACHE CORPORATION (OGRID: 873) LUSK 34 FEDERAL #1H

Lease #: NMNM-007724 TVD: 9585' MD: 13740' GL: 3561'

SHL: 490' FNL & 360' FWL BHL: 330' FSL & 660' FWL UL: D SEC: 34 T19S R32E LEA COUNTY, NM

1. GEOLOGIC NAME OF SURFACE FORMATION: Quaternary Alluvium Deposits

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

Quaternary Alluvium	Surface		
Rustler	926'	Bone Spring	7440'
Salt Top	1394'	1 st BS Carbonate	8123'
Salt Bottom	2653'	1 st BS Sand	8618'
Yata	2826'	2 nd BS Carbonate	8905'
Capitan Reef	3247'	2 nd BS Sand	9159' (Oil)
Delaware	4454' (Oil)	TD	9585' TVD / 13740' 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 @ 3217', 9-5/8" csg @ 4500' & Production csg @ +/- 13740'. KOP: ~8957', TVD: ~9585' MD: ~13740'

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' 10/10	20"	94#	STC	H-40	1.0	1.21	1.8
Intermediate1	17-1/2"	0' - 1800' 1800' - 3270'	13-3/8"	54.5# 61#	STC	J-55 HCK-55	1.0	1.21	1.8
Intermediate2	12-1/4"	0' - 3200' 3200' - 4500'	9-5/8"	36#	STC	J-55 HCK-55	1.0	1.21	1.8
Production	8-3/4" 7-7/8"	0' - 8900' 8900' - 13740'	5-1/2"	17#	LTC	L-80	1.125	1.21	1.8

4. CEMENT PROGRAM:

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

Lead: 670 sx Class H 50/50 w/10% Gel + 0.5# Star seal + 0.25% Defoamer + 3% Salt (11.9 wt, 2.31 yld)

Comp Strengths: 12 hr - 589 psi 24 hr - 947 psi

Tail: 360 sx Class C w/0.25% Defoamer (14.8 wt, 1.33 yld) Comp Strengths: 12 hr - 813 psi 24 hr - 1205 psi

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

Lead: 1610 sx Class H 50/50 w/ 10% Gel + 2# Star Seal + 0.25% De-foamer (11.9 wt, 2.24 yld)

Comp Strengths: 12 hr - 540 psi 24 hr - 866 psi

Tail: 210 sx Class C w/ 0.25% De-foamer (14.8 wt, 1.34 yld) Comp Strengths: 12 hr - 813 psi 24 hr - 1205 psi

C. Intermediate2 (TOC @ 3000' from Surface) **50% excess cmt**

Lead: 310 sx Class C w/ 1% CaCL + 2# Star seal + 0.25% Defoamer (14.8 wt, 1.34 yld)

Comp Strengths: 12 hr - 813 psi 24 hr - 1205 psi

Tail: 260 sx Class C w/ 1% CaCL + 0.25% De-foamer (14.8 wt, 1.34 yld)

Compressive Strengths: 12 hr - 813 psi 24 hr - 1205 psi

D. Production (TOC: ~3150' from surface) **30% excess cmt**

Lead: 520 sx Class H 50/50 w/10% Gel + 5# Star Seal + 0.35% Retarder + 0.25% Defoamer (11.9 wt, 2.23 yld)

Comp Strengths: 12 hr - 540 psi 24 hr - 866 psi

Tail: 840 sx Class C Star Bond w/0.5% fluid loss + 0.1% Retarder + 0.55% Hi temp fluid loss + 0.1% Free water control + 0.25% Defoamer (14.8 wt, 1.34 yld) Comp Strengths: 12 hr - 813 psi 24 psi - 1205 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. TOC shall be determined by either a temp survey or tagging, as directed by BLM, for the specific set of circumstances. Cmt will then be brought to surface via either 1" or ready mix operations, as specified by BLM at that time.**

5. PROPOSED CONTROL EQUIPMENT

"EXHIBIT 3 & 3A": 21-1/4" 2M or 20-3/4" 3Mpsi WP BOP consisting of at least an annular type preventer. This BOP will be nipped up on the 20" surface csg head & tested to 70% of csg burst. After intermediate csg is set & cemented, a 2M or 3M "B" section will be installed and a 13-5/8" 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 or 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' <i>ICD</i>	8.4 - 8.8	29	NC	Fresh Water
950' - 3270'	9.8 - 10.0	29	NC	Brine
3270' - 4500'	8.4 - 8.7	29	NC	Fresh Water
4500' - 13740'	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:

21-1/4" 2M or 20-3/4" 3Mpsi annular type preventer
 13-5/8" x 5M psi Double BOP/Blind & pipe ram & 13-5/8" 5M psi annular type preventer
 4-1/2" or 5" x 3000 psi Kelly valve
 13-5/8" 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. *Start to well*

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 & potentialized as an Oil Well.

Apache

Lea County, NM

Lusk 34 Federal 1H

Sec. 34, T19S - R32E

Job # 1210294

Plan: Plan 1 04-09-2012

Standard Planning Report

10 April, 2012

Planning Report

Database:	GCR DB v5000	Local Co-ordinate Reference:	Site Lusk 34 Federal 1H
Company:	Apache	TVD Reference:	Est KB @ 3579.00usft (Original Well Elev)
Project:	Lea County, NM	MD Reference:	Est KB @ 3579.00usft (Original Well Elev)
Site:	Lusk 34 Federal 1H	North Reference:	Grid
Well:	Sec. 34, T19S - R32E	Survey Calculation Method:	Minimum Curvature
Wellbore:	Job # 1210294		
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 1H			
Site Position:		Northing:	590,767.20 usft	Latitude: 32° 37' 21.9609 N
From:	Map	Easting:	717,417.90 usft	Longitude: 103° 45' 41.0931 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: 590,767.20 usft	Latitude: 32° 37' 21.9609 N
	+E/-W	0.00 usft	Easting: 717,417.90 usft	Longitude: 103° 45' 41.0931 W
Position Uncertainty	0.00 usft	Wellhead Elevation:		Ground Level: 3,561.00 usft

Wellbore	Job # 1210294				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	4/9/2012	7.60	60.50	48,753

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	175.89

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	
8,957.19	0.00	0.00	8,957.19	0.00	0.00	0.00	0.00	0.00	0.00	
9,843.99	88.68	175.89	9,530.00	-558.32	40.12	10.00	10.00	0.00	175.89	Lusk 1H Land
11,794.61	88.68	175.89	9,575.00	-2,503.41	179.89	0.00	0.00	0.00	180.00	Lusk 1H Mid Pt
11,829.24	89.71	175.89	9,575.49	-2,537.94	182.37	3.00	3.00	0.00	0.06	
13,739.65	89.71	175.89	9,585.00	-4,443.42	319.25	0.00	0.00	0.00	0.00	Lusk 1H BHL

Planning Report

Database:	GCR DB v5000	Local Co-ordinate Reference:	Site Lusk 34 Federal 1H
Company:	Apache	TVD Reference:	Est KB @ 3579.00usft (Original Well Elev)
Project:	Lea County, NM	MD Reference:	Est KB @ 3579.00usft (Original Well Elev)
Site:	Lusk 34 Federal 1H	North Reference:	Grid
Well:	Sec. 34, T19S - R32E	Survey Calculation Method:	Minimum Curvature
Wellbore:	Job # 1210294		
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									
8,957.19	0.00	0.00	8,957.19	0.00	0.00	0.00	0.00	0.00	0.00
KOP = 8957'									
9,000.00	4.28	175.89	8,999.96	-1.59	0.11	1.60	10.00	10.00	0.00
9,100.00	14.28	175.89	9,098.53	-17.66	1.27	17.71	10.00	10.00	0.00
9,163.42	20.62	175.89	9,159.00	-36.62	2.63	36.72	10.00	10.00	0.00
2nd BS Sand									
9,200.00	24.28	175.89	9,192.80	-50.55	3.63	50.68	10.00	10.00	0.00
9,300.00	34.28	175.89	9,279.91	-99.28	7.13	99.53	10.00	10.00	0.00
9,400.00	44.28	175.89	9,357.22	-162.34	11.67	162.76	10.00	10.00	0.00
9,500.00	54.28	175.89	9,422.37	-237.85	17.09	238.46	10.00	10.00	0.00
9,600.00	64.28	175.89	9,473.39	-323.48	23.24	324.32	10.00	10.00	0.00
9,700.00	74.28	175.89	9,508.72	-416.66	29.94	417.73	10.00	10.00	0.00
9,800.00	84.28	175.89	9,527.30	-514.54	36.97	515.86	10.00	10.00	0.00
9,843.99	88.68	175.89	9,530.00	-558.32	40.12	559.76	10.00	10.00	0.00
Land = 9844'									
9,900.00	88.68	175.89	9,531.29	-614.17	44.13	615.75	0.00	0.00	0.00
10,000.00	88.68	175.89	9,533.59	-713.89	51.30	715.73	0.00	0.00	0.00
10,100.00	88.68	175.89	9,535.89	-813.60	58.46	815.70	0.00	0.00	0.00
10,200.00	88.68	175.89	9,538.20	-913.32	65.63	915.67	0.00	0.00	0.00
10,300.00	88.68	175.89	9,540.50	-1,013.04	72.79	1,015.65	0.00	0.00	0.00
10,400.00	88.68	175.89	9,542.81	-1,112.75	79.96	1,115.62	0.00	0.00	0.00
10,500.00	88.68	175.89	9,545.12	-1,212.47	87.12	1,215.59	0.00	0.00	0.00
10,600.00	88.68	175.89	9,547.42	-1,312.18	94.29	1,315.57	0.00	0.00	0.00
10,700.00	88.68	175.89	9,549.73	-1,411.90	101.45	1,415.54	0.00	0.00	0.00
10,800.00	88.68	175.89	9,552.04	-1,511.62	108.62	1,515.51	0.00	0.00	0.00
10,900.00	88.68	175.89	9,554.34	-1,611.33	115.78	1,615.49	0.00	0.00	0.00
11,000.00	88.68	175.89	9,556.65	-1,711.05	122.95	1,715.46	0.00	0.00	0.00
11,100.00	88.68	175.89	9,558.96	-1,810.77	130.12	1,815.44	0.00	0.00	0.00
11,200.00	88.68	175.89	9,561.27	-1,910.48	137.28	1,915.41	0.00	0.00	0.00
11,300.00	88.68	175.89	9,563.58	-2,010.20	144.45	2,015.38	0.00	0.00	0.00
11,400.00	88.68	175.89	9,565.88	-2,109.91	151.61	2,115.36	0.00	0.00	0.00
11,500.00	88.68	175.89	9,568.19	-2,209.63	158.78	2,215.33	0.00	0.00	0.00
11,600.00	88.68	175.89	9,570.50	-2,309.35	165.94	2,315.30	0.00	0.00	0.00

Planning Report

Database:	GCR DB v5000	Local Co-ordinate Reference:	Site Lusk 34 Federal 1H
Company:	Apache	TVD Reference:	Est KB @ 3579.00usft (Original Well Elev)
Project:	Lea County, NM	MD Reference:	Est KB @ 3579.00usft (Original Well Elev)
Site:	Lusk 34 Federal 1H	North Reference:	Grid
Well:	Sec. 34, T19S - R32E	Survey Calculation Method:	Minimum Curvature
Wellbore:	Job # 1210294		
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	88.68	175.89	9,572.81	-2,409.06	173.11	2,415.28	0.00	0.00	0.00
11,794.61	88.68	175.89	9,575.00	-2,503.41	179.89	2,509.86	0.00	0.00	0.00
Mid Pt = 11795'									
11,800.00	88.84	175.89	9,575.12	-2,508.78	180.27	2,515.25	3.00	3.00	0.00
11,829.24	89.71	175.89	9,575.49	-2,537.94	182.37	2,544.48	3.00	3.00	0.00
11,900.00	89.71	175.89	9,575.84	-2,608.52	187.44	2,615.25	0.00	0.00	0.00
12,000.00	89.71	175.89	9,576.34	-2,708.26	194.60	2,715.24	0.00	0.00	0.00
12,100.00	89.71	175.89	9,576.83	-2,808.00	201.77	2,815.24	0.00	0.00	0.00
12,200.00	89.71	175.89	9,577.33	-2,907.74	208.93	2,915.24	0.00	0.00	0.00
12,300.00	89.71	175.89	9,577.83	-3,007.49	216.10	3,015.24	0.00	0.00	0.00
12,400.00	89.71	175.89	9,578.33	-3,107.23	223.26	3,115.24	0.00	0.00	0.00
12,500.00	89.71	175.89	9,578.83	-3,206.97	230.43	3,215.24	0.00	0.00	0.00
12,600.00	89.71	175.89	9,579.32	-3,306.71	237.59	3,315.24	0.00	0.00	0.00
12,700.00	89.71	175.89	9,579.82	-3,406.45	244.76	3,415.24	0.00	0.00	0.00
12,800.00	89.71	175.89	9,580.32	-3,506.20	251.92	3,515.23	0.00	0.00	0.00
12,900.00	89.71	175.89	9,580.82	-3,605.94	259.09	3,615.23	0.00	0.00	0.00
13,000.00	89.71	175.89	9,581.32	-3,705.68	266.25	3,715.23	0.00	0.00	0.00
13,100.00	89.71	175.89	9,581.81	-3,805.42	273.42	3,815.23	0.00	0.00	0.00
13,200.00	89.71	175.89	9,582.31	-3,905.16	280.58	3,915.23	0.00	0.00	0.00
13,300.00	89.71	175.89	9,582.81	-4,004.90	287.75	4,015.23	0.00	0.00	0.00
13,400.00	89.71	175.89	9,583.31	-4,104.65	294.91	4,115.23	0.00	0.00	0.00
13,500.00	89.71	175.89	9,583.81	-4,204.39	302.08	4,215.23	0.00	0.00	0.00
13,600.00	89.71	175.89	9,584.30	-4,304.13	309.24	4,315.22	0.00	0.00	0.00
13,700.00	89.71	175.89	9,584.80	-4,403.87	316.41	4,415.22	0.00	0.00	0.00
13,739.65	89.71	175.89	9,585.00	-4,443.42	319.25	4,454.87	0.00	0.00	0.00
TD = 13740'									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Lusk 1H Land	0.00	0.00	9,530.00	-558.32	40.12	590,208.88	717,458.01	32° 37' 16.4342 N	103° 45' 40.6591 W
- plan hits target center									
- Point									
Lusk 1H Mid Pt	0.00	0.00	9,575.00	-2,503.41	179.89	588,263.79	717,597.78	32° 36' 57.1802 N	103° 45' 39.1474 W
- plan hits target center									
- Point									
Lusk 1H BHL	0.00	0.00	9,585.00	-4,443.42	319.25	586,323.78	717,737.15	32° 36' 37.9765 N	103° 45' 37.6402 W
- plan hits target center									
- Point									

Planning Report

Database:	GCR DB v5000	Local Co-ordinate Reference:	Site Lusk 34 Federal 1H
Company:	Apache	TVD Reference:	Est KB @ 3579.00usft (Original Well Elev)
Project:	Lea County, NM	MD Reference:	Est KB @ 3579.00usft (Original Well Elev)
Site:	Lusk 34 Federal 1H	North Reference:	Gnd
Well:	Sec. 34, T19S - R32E	Survey Calculation Method:	Minimum Curvature
Wellbore:	Job # 1210294		
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	
9,163.42	9,159.00	2nd BS Sand		0.00	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
8,957.19	8,957.19	0.00	0.00	KOP = 8957'	
9,843.99	9,530.00	-558.32	40.12	Land = 9844'	
11,794.61	9,575.00	-2,503.41	179.89	Mid Pt = 11795'	
13,739.65	9,585.00	-4,443.42	319.25	TD = 13740'	

Apache

Project: Lea County, NM
Site: Lusk 34 Federal 1H
Well: Sec. 34, T19S - R32E
Wellbore: Job # 1210294
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

Ground Level 3581 00
Northing 590767 20
Easting 717417 90
32° 37' 21 9609 N03° 45' 41 0930 W

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting	Shape
Lusk 1H Land	9530 00	-558 32	40 12	590208 88	717458 02	Point
Lusk 1H Mid Pt	9575 00	-2503 41	179 89	588263 79	717597 79	Point
Lusk 1H BHL	9585 00	-4443 42	319 25	586323 78	717737 15	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	
8957 19	0 00	0 00	8957 19	0 00	0 00	0 00	0 00	0 00	
9843 99	89 88	175 89	9530 00	-558 32	40 12	10 00	175 89	559 76	Lusk 1H Land
11794 61	89 88	175 89	9575 00	-2503 41	179 89	0 00	180 00	2509 88	Lusk 1H Mid Pt
11829 24	89 71	175 89	9575 49	-2537 94	182 37	3 00	0 06	2544 48	
13739 65	89 71	175 89	9585 00	-4443 42	319 25	0 00	0 00	4454 87	Lusk 1H BHL

ANNOTATIONS

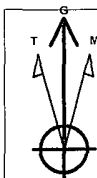
TVD	MD	Annotation
8957 19	8957 19	KOP = 8957'
9530 00	9843 99	Land = 9844'
9575 00	11794 61	Mid Pt = 11795'
9585 00	13739 65	TD = 13740'

FORMATION TOP DETAILS

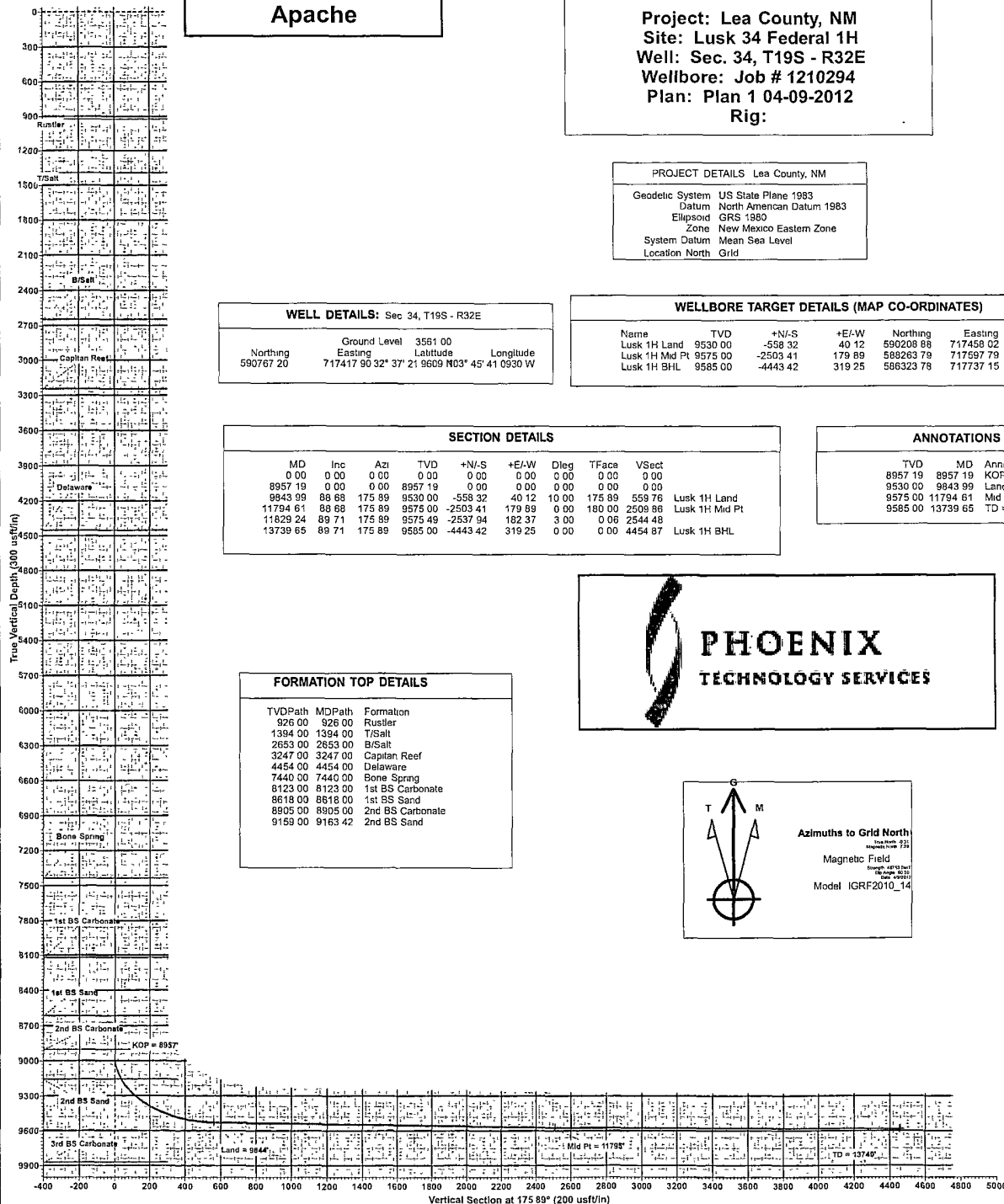
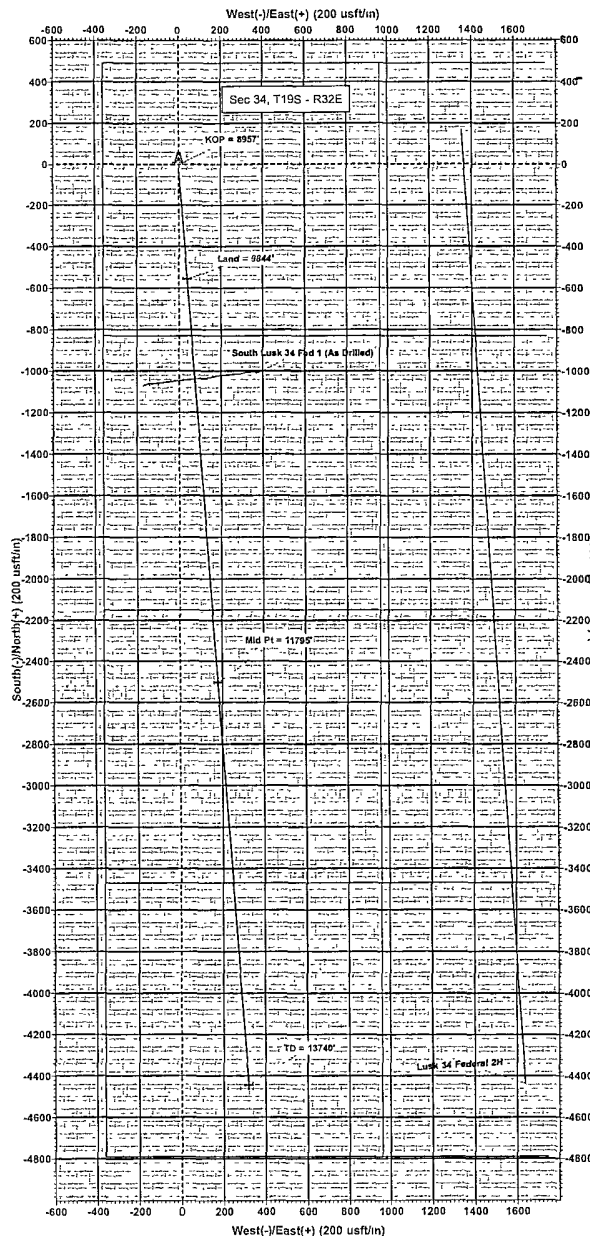
TVDPath	MDPath	Formation
926 00	926 00	Rusler
1394 00	1394 00	T/Salt
2653 00	2653 00	B/Salt
3247 00	3247 00	Capitan Reef
4454 00	4454 00	Delaware
7440 00	7440 00	Bone Spring
8123 00	8123 00	1st BS Carbonate
8618 00	8618 00	1st BS Sand
8905 00	8905 00	2nd BS Carbonate
9159 00	9163 42	2nd BS Sand

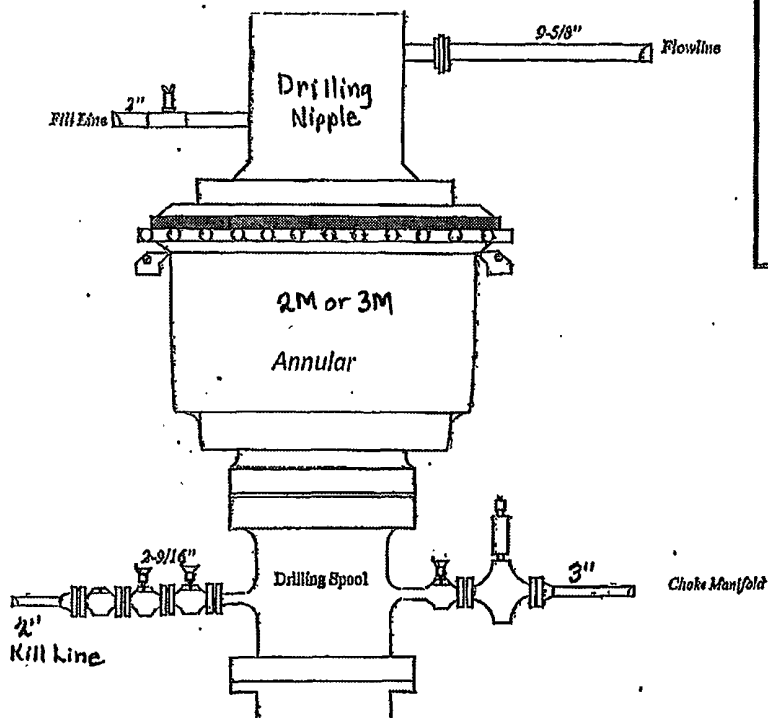


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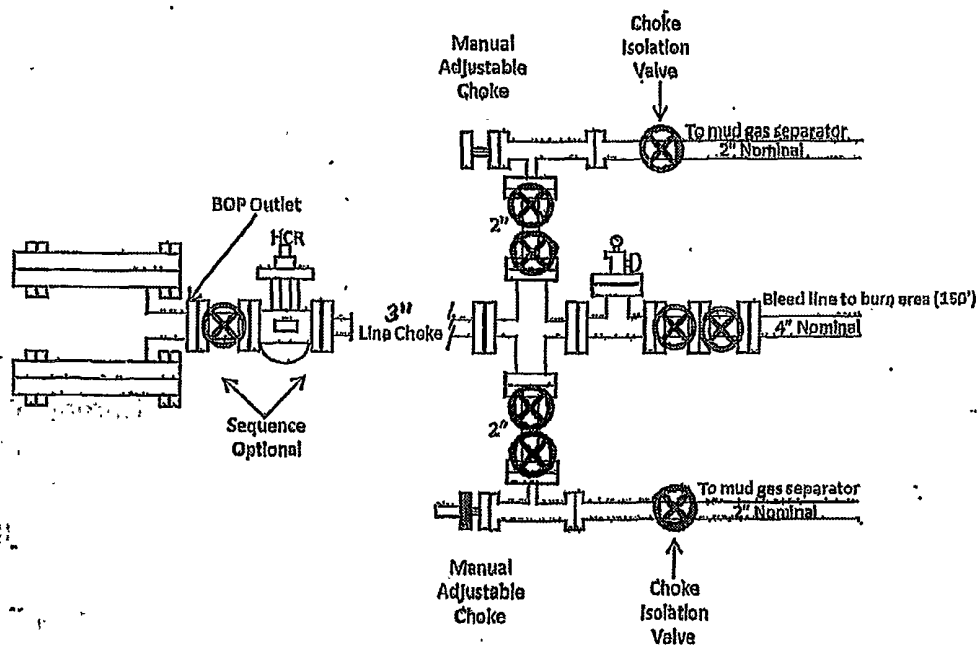
Azimuths to Grid North
Magnetic Field
Model IGRF2010_14

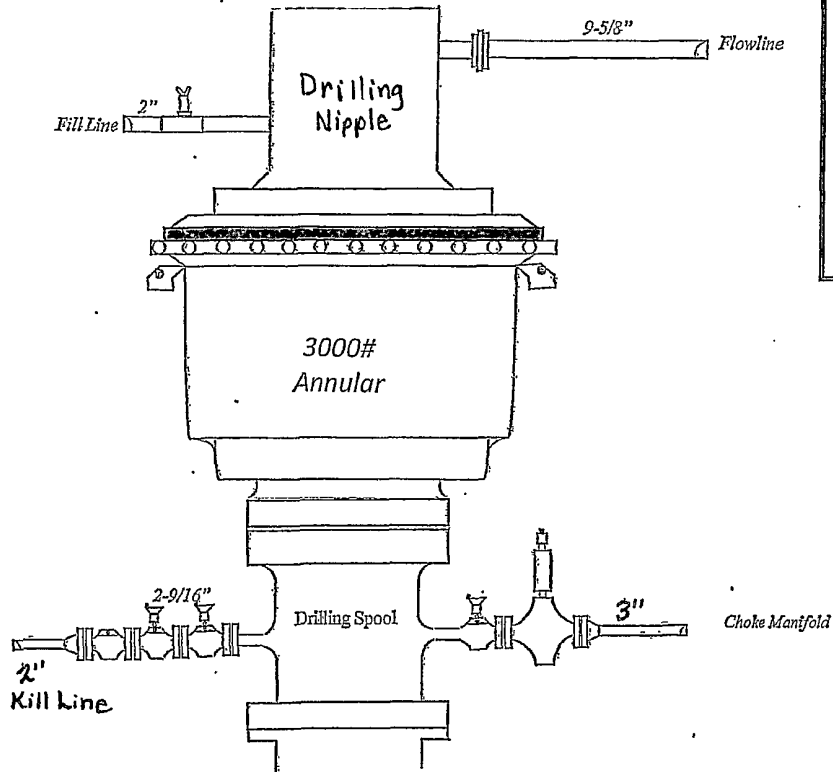




**20" 2M or 3M psi
BOPE & Choke Manifold**
Exhibit 3

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

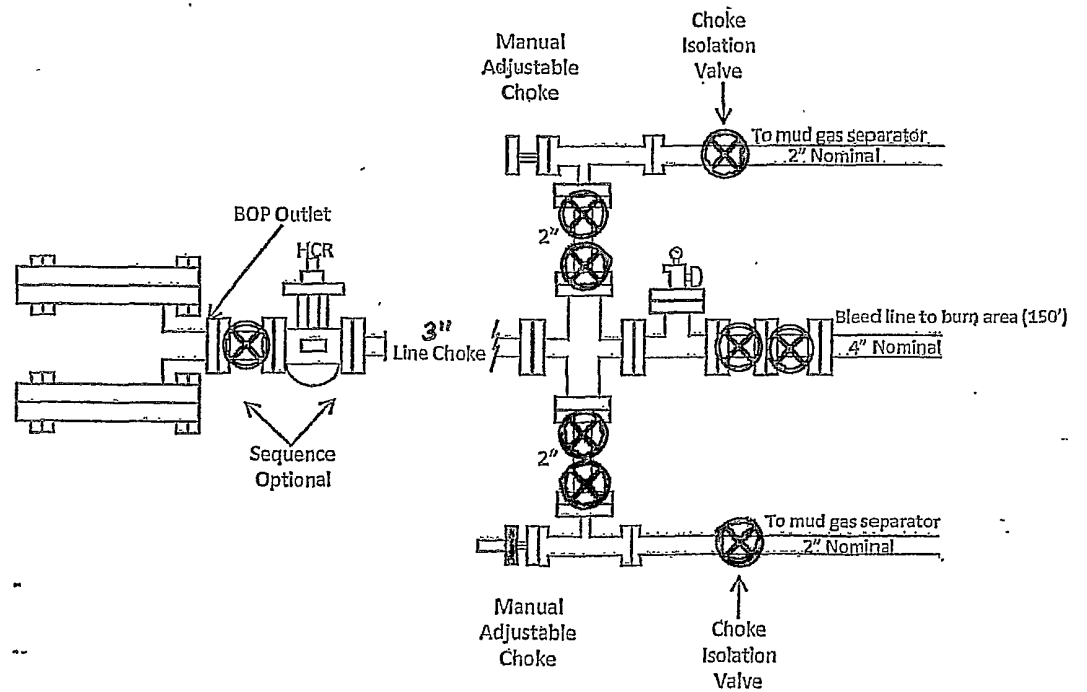


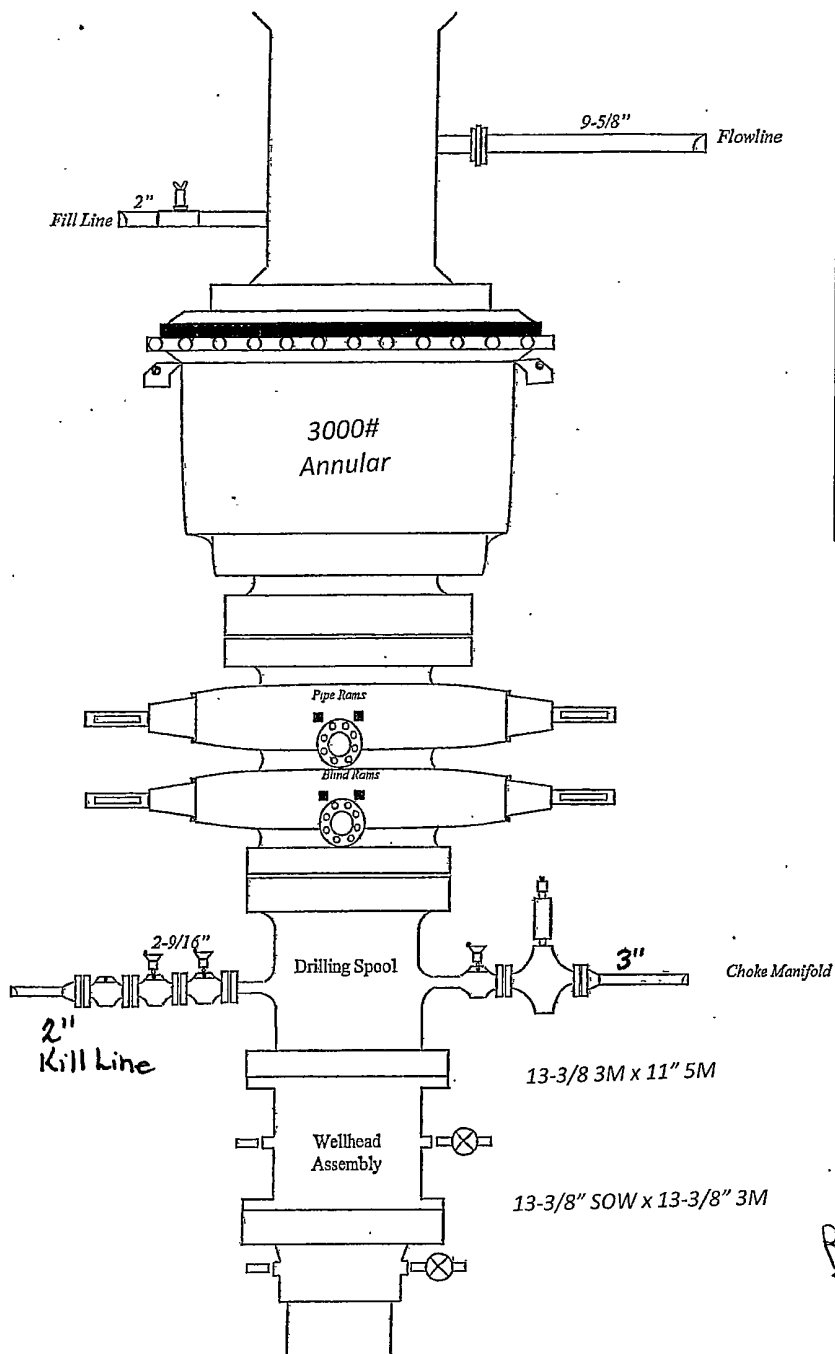


13-5/8" 3M psi BOPE & Choke Manifold

Exhibit 3

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

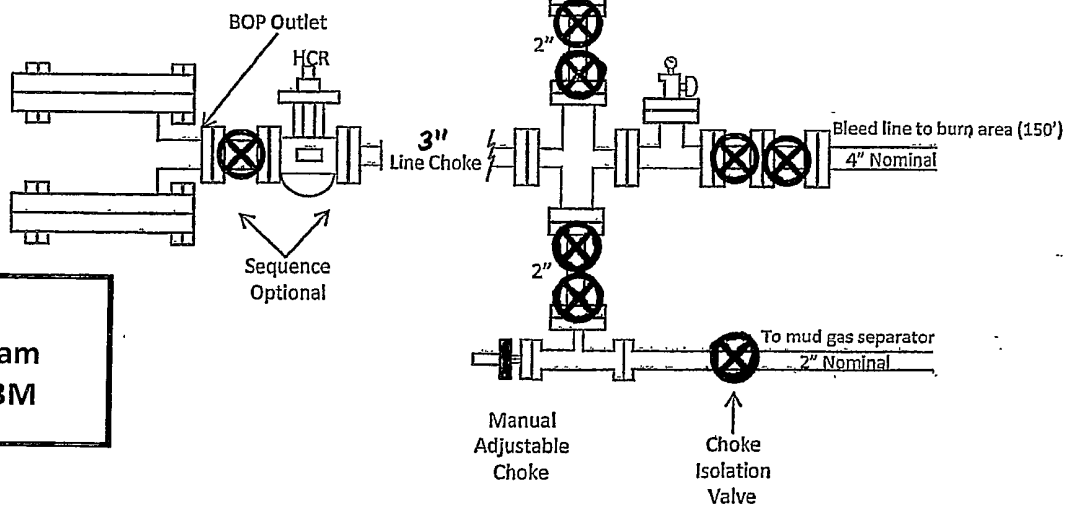




**11" 5M psi
BOPE & Choke Manifold
EXHIBIT 3A**

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

Remote - Per Onshore Order # 6



**Choke Manifold Diagram
5M Service tested to 3M**

Apache

Closed Loop Equipment Diagram

Exhibit 4

