Form 3160-3
(August 1999)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0136
Expires November 30, 2000

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
SF - 078566

6. If Indian, Allottee 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.
STOREY LS 4M

2. Name of Operator
BP AMERICA PRODUCTION COMPANY
Contact: CHERRY HLAVA
E-Mail: hlavacl@bp.com

9. API Well No.
30045 32443

3a. Address
P.O. BOX 3092
HOUSTON, TX 77253-3092

3b. Phone No. (include area code)
Ph: 281.366.4081
Fx: 281.366.0700

10. Field and Pool, or Exploratory
BASIN DAKOTA & BLANCO MV

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface SENE 1890FNL 1570FEL 36.61722 N Lat, 107.65250 W Lon
At proposed prod. zone SENE 1820FNL 2450FEL 36.61722 N Lat, 107.65250 W Lon

11. Sec., T., R., M., or Blk. and Survey or Area
G Sec 34 T28N R08W Mer NMP

14. Distance in miles and direction from nearest town or post office*
22.3 MILES SOUTH/EAST FROM BLOOMFIELD, NM

12. County or Parish
SAN JUAN

13. State
NM

15. Distance from proposed location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
1570'

16. No. of Acres in Lease

17. Spacing Unit dedicated to this well
320.00 N/2

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

19. Proposed Depth
7246 MD

20. BLM/BIA Bond No. on file
WY2924

21. Elevations (Show whether DF, KB, RT, GL, etc.
6262 GL

22. Approximate date work will start
08/15/2004

23. Estimated duration
7 DAYS

SEP 2004

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
(Electronic Submission)	CHERRY HLAVA	06/29/2004
Title: REGULATORY ANALYST		
Approved by (Signature) [signature]	Name (Printed/Typed)	Date 9-16-04
Title AFM	Office FFO	

Application approval does not warrant or certify 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.

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.

Additional Operator Remarks (see next page)

Electronic Submission #32493 verified by the BLM Well Information System
For BP AMERICA PRODUCTION COMPANY, sent to the Farmington

HOLD C104 FOR Directional Survey

DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS".

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4

**** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ****

NMOCD

District I
PO Box 1980, Hobbs NM 88241-1980
District II
PO Drawer DD, Artesia, NM 87211-0719
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

Form C-102
Revised February 21, 1994
Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
30-045-32443	71599 : 72319	Basin Dakota : Blanco Mesaverde

4 Property Code	5 Property Name	6 Well Number
001133	Storey LS	# 4M

7 OGRID No.	8 Operator Name	9 Elevation
000778	BP AMERICA PRODUCTION COMPANY	6262

10 Surface Location

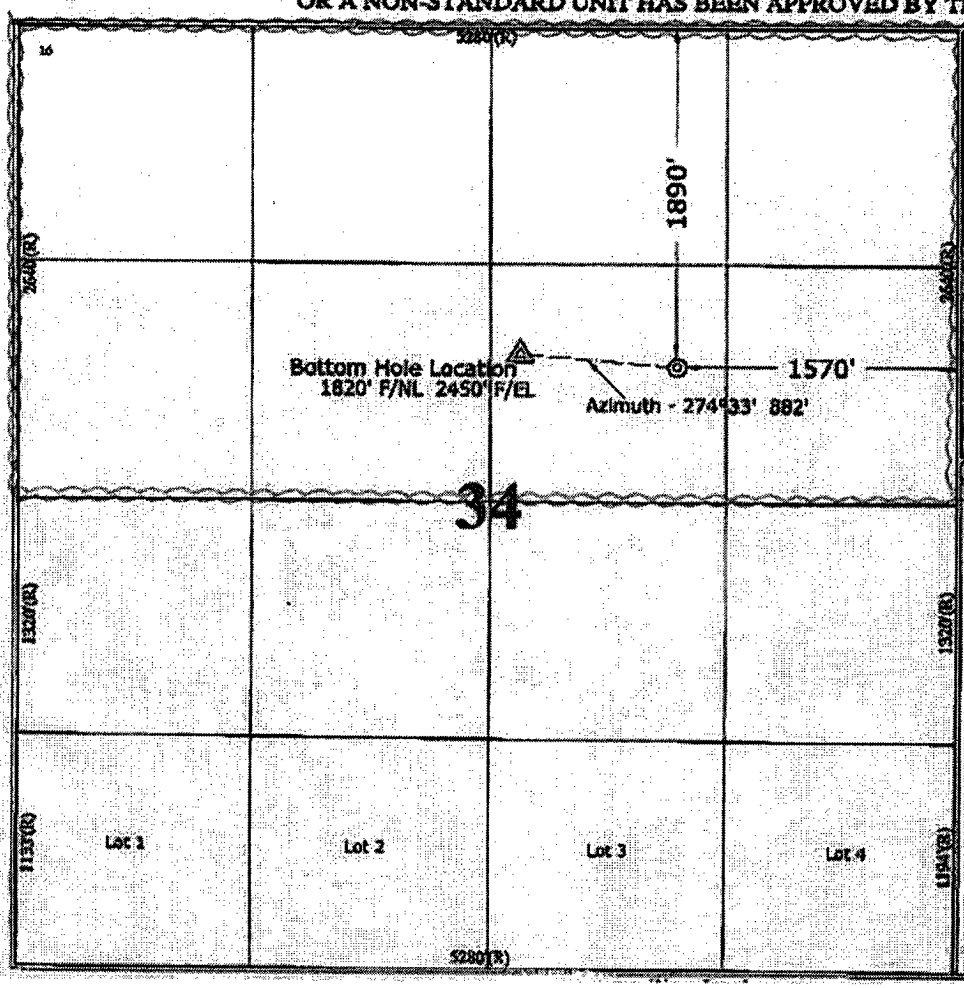
UL or Lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
G	34	28 N	8 W		1890	NORTH	1570	EAST	SAN JUAN

11 Bottom Hole Location If Different From Surface

7 UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
G	34	28 N	8 W		1820	NORTH	2450	EAST	SAN JUAN

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.

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



17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Cherry Hlava
Signature
Cherry Hlava
Printed Name
Regulatory Analyst
Title
6-29-04
Date

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Added BHL: June 28, 2004
May 26, 2004
Date of Survey

Signature and Seal of Professional Surveyor

GARY D. VANN
NEW MEXICO
REGISTERED PROFESSIONAL LAND SURVEYOR
7016

Certificate Number

BP AMERICA PRODUCTION COMPANY

DRILLING AND COMPLETION PROGRAM

Lease:	Storey	Well No.	Storey LS #4M	Field:	Blanco/Basin Dakota
County:	San Juan, New Mexico	Location:	34-28N-8W:1890' FNL, 1570' FEL		
Minerals:	State	BHLOC:	34-28N-8W:1820' FNL, 2450' FEL		
Rig :	Aztec 184	Surface:	Lat: 36 deg, 37.20 min; Long: 107 deg 39.85 min		

OBJECTIVE: Drill 240' below the top of the Two Wells Mbr, set 4-1/2" production casing, Stimulate DK, CH, MF, PL and CHCR intervals.

METHOD OF DRILLING	
TYPE OF TOOLS	DEPTH OF DRILLING
Rotary	0 - TD

LOG PROGRAM	
Type - single run	Depth Interval
Cased Hole TDT- CBL	TD to 7" shoe
	Identify 4 ½" cement top

SPECIAL TESTS
TYPE
None

APPROXIMATE DEPTHS OF GEOLOGICAL MARKER

Actual GL:	6262	Estimated KB:	6,276.0'
Marker	SUBSEA	TVD	APPROX. MD
Ojo Alamo	4,582'	1,694'	
Kirtland	4,450'	1,826'	
Fruitland *	4,036'	2,240'	
Fruitland Coal *	3,722'	2,554'	
Pictured Cliffs *	3,623'	2,653'	
Lewis *	3,289'	2,987'	
Cliff House #	2,155'	4,121'	
Menefee #	1,961'	4,315'	
Point Lookout #	1,418'	4,858'	
Mancos	1,054'	5,222'	
Greenhorn	-503'	6,779'	
Graneros (bent,mkr)	-566'	6,842'	
Two Wells Mbr #	-601'	6,877'	
Paguate Mbr #	-697'	6,973'	
Cubero Mbr #	-735'	7,011'	
L. Cubero Mbr #	-770'	7,046'	
Encinal Cyn Mbr#	-797'	7,073'	
TOTAL DEPTH:	-841'	7,117'	

Probable completion interval — * Possible Pay

DRILL CUTTING SAMPLES		DRILLING TIME	
FREQUENCY	DEPTH	FREQUENCY	DEPTH
30'/10' intervals	3087 - TD	Geolograph	0 - TD

MUD PROGRAM:

Approx. Interval	Type Mud	Weight, #/gal	Vis sec/qt	W/L cc's/30 min	Other Specification
200'	Spud	8.8 - 9.0	Sufficient to clean hole.		
3,087'	Water/LSND	8.4 - 9.0		<9	Sweep hole while whilst water drilling, LCM onsite
7,117'	Air	1	1000 cfm for hammer		Volume sufficient to maintain a stable and clean wellbore

CASING PROGRAM:

Casing String	Estimated Depth	Hole Size	Casing Size	Wt, Grade, Thread	Landing Point	Cement
Surface/Cond	200'	13 1/2"	9-5/8"	32#, H-40 ST&C		cmt to surface
Intermediate 1	3,087'	8-3/4"	7"	20#, J/K-55 ST&C	100' below LWIS	cmt to surface
Production	7,117'	6-1/4"	4-1/2"	11.6#, J-55	DKOT	Cmt to 150' inside Intermediate 1
						TOC survey required

CORING PROGRAM:

None

COMPLETION PROGRAM:

Rigless, 3-4 Stage Limited Entry Hydraulic Frac, FMC Unihead

GENERAL REMARKS:

Notify BLM/NMOCD 24 hours prior to Spud, BOP testing, and Casing and Cementing.

BOP Pressure Testing Requirements

Formation	Depth	Anticipated bottom hole pressure	Max anticipated surface pressure**
Cliffhouse	4,121'	500	0
Point Lookout	4,858'	600	0
Dakota	6,877'	2600	1121

Requested BOP Pressure Test Exception = 1500 psi

** Note: Determined using the following formula: ABHP – (.22*TVD) = ASP

Form 46 Reviewed by: | Logging program reviewed by:

PREPARED BY:		APPROVED:	DATE:	APPROVED:		DATE:
HGJ	JMP		2-Jun-04			
Form 46 7-84bw		For Drilling Dept.		For Production Dept.		

Additional Operator Remarks:

Notice of Staking was submitted on 06/24/2004

BP America Production Company respectfully requests permission to drill the subject well to a total depth of approximately 7246 feet and complete into the
Basin Dakota Pool, produce the well to establish a production rate, perform a deliverability test, isolate the Dakota then complete into the Blanco Mesaverde Pool and commingle production downhole.

SUPPLEMENTAL TO SURFACE USE PLAN
New Facilities:
A 4 diameter buried steel pipeline that is + or - 300 feet in length will be constructed. The pipe wall thickness is .156 and the pipe wall strength is 42,000#. It will be adjacent to the access road and tie the well into an existing gas meter operated by BP America Production Company. The pipeline will not be used to transport gas to drill the well. After the well is spud the pipeline will be authorized by a right-of-way issued by El Paso Services.

If conditions allow, it is our intent to pre-set the 9 5/8" casing on the above mentioned well by drilling a surface hole with air/air mist in lieu of drilling mud and the surface casing be cemented with 94.5 cu/ft type I-II, 20% FLYASH, 14.5 PPG, 7.41 gal/sk, 1.61 cf/sk Yield, 80 DEG BHST ready mix cement. If the area will not allow for pre-set the approved cement program will be followed.

Our Form 46 drilling plan has changed slightly. The BOP Pressure Testing Requirements are located on the bottom of the Form 46.

APD/ROW

Cementing Program

Well Name:	Storey LS 4M	Field:	Blanco Mesaverde / Basin Dakota
Location:	34-28N-8W:1890' FNL, 1570' FEL	API No.	
County:	San Juan	Well Flac	
State:	New Mexico	Formation:	Dakota MesaVerde
		KB Elev (est)	6276
		GL Elev. (est)	6262

Casing Program:

Casing String	Est. Depth (ft.)	Hole Size (in.)	Casing Size (in.)	Thread	TOC (ft.)	Stage Tool Or TOL (ft.)	Cmt Cir. Out (bbl.)
Surface	200	13.5	9.625	ST&C	Surface	NA	
Intermediate	3206	8.75	7	LT&C	Surface	NA	
Production -	7246	6.25	4.5	ST&C	3106	NA	

Casing Properties: (No Safety Factor Included)

Casing String	Size (in.)	Weight (lb/ft)	Grade	Burst (psi.)	Collapse (psi.)	Joint St. (1000 lbs.)	Capacity (bbl/ft.)	Drift (in.)
Surface	9.625	32	H-40	3370	1400	254	0.0787	8.845
Intermediate	7	20	K-55	3740	2270	234	0.0405	6.456
Production -	4.5	11.6	J-55	5350	4960	154	0.0155	3.875

Mud Program

Apx. Interval (ft.)	Mud Type	Mud Weight
0 - SCP	Water/Spud	8.6-9.2
SCP - ICP	Water/LSND	8.6-9.2
ICP - ICP2	Gas/Air Mist	NA
ICP2 - TD	LSND	8.6 - 9.2

Recommended Mud Properties Prio Cementing:

PV	<20
YP	<10
Fluid Loss	<15

Cementing Program:

	Surface	Intermediate	Production
Excess %, Lead	100	75	40
Excess %, Tail	NA	0	40
BHST (est deg. F)	75	120	183
Special Instructions	1,6,7	1,6,8	2,4,6

1. Do not wash pumps and lines.
2. Wash pumps and lines.
3. Reverse out
4. Run Blend Test on Cement
5. Record Rate, Pressure, and Density on 3.5" disk
6. Confirm densitometer with pressurized mud scales
7. 1" cement to surface if cement is not circulated.
8. If cement is not circulated to surface, run temp. survey 10-12 hr. after landing plug.

Notes:

*Do not wash up on top of plug. Wash lines before displacing production cement job to minmize drillout.

Surface:

Preflush	20 bbl.	FreshWater	
Slurry 1 TOC@Surface	160 sx Class C Cement + 2% CaCl2 (accelerator)		195 cuft
			0.4887 cuft/ft OH

Slurry Properties:	Density (lb/gal)	Yield (ft3/sk)	Water (gal/sk)
Slurry 1	15.2	1.27	5.8

Cementing Program

Casing Equipment: 9-5/8", 8R, ST&C
1 Guide Shoe
1 Top Wooden Plug
1 Autofill insert float valve
Centralizers, 1 per joint except top joint
1 Stop Ring
1 Thread Lock Compound

Intermediate:

	Fresh Water	20 bbl	fresh water	
	Lead Slurry 1 TOC@Surface	270 sx	Class "G" Cement + 3% D79 extender +1/4 #/sk. Cellophane Flake + 5 lb/sk Gilsonite	694 cuft
	Tail Slurry 2 500 ft fill	60 sx	50/50 Class "G"/Poz + 2% gel (extender) +1/4 #/sk. Cellophane Flake + 2% CaCl2 (accelerator) + 5 lb/sk Gilsonite	75 cuft 0.1503 cuft/ft OH 0.1746 cuft/ft csg ann

Slurry Properties:	Density (lb/gal)	Yield (ft3/sk)	Water (gal/sk)
Slurry 1	11.4	2.63	15.8
Slurry 2	13.5	1.27	5.72

Casing Equipment: 7", 8R, ST&C

1 Float Shoe (autofill with minimal LCM in mud)
1 Float Collar (autofill with minimal LCM in mud)
1 Stop Ring
Centralizers one in middle of first joint, then every third collar
1 Top Rubber Plug
1 Thread Lock Compound

Production:

	Fresh Water	10 bbl	CW100	
	Lead Slurry 1 TOC, 400' above 7" shoe	180	LiteCrete D961 / D124 / D154 + 0.03 gps D47 antifoam + 0.5% D112 fluid loss + 0.11% D65 TIC	445 cuft
	Tail Slurry 2 1395 ft fill	140 sx	50/50 Class "G"/Poz + 5% D20 gel (extender) + 0.1% D46 antifoam + 1/4 #/sk. Cellophane Flake + 0.25% D167 Fluid Loss + 5 lb/sk Gilsonite	200 cuft

Cementing Program

		+0.1% d800, retarder		
		+0.15% D65, dispersant		
				0.1026 cuft/ft OH
Slurry Properties:	Density	Yield	Water	
	(lb/gal)	(ft3/sk)	(gal/sk)	0.1169 cuft/ft csg ann
Slurry 1	9.5	2.52	6.38	
Slurry 2	13	1.44	6.5	Top of Mancos
				5351

Casing Equipment:

4-1/2", 8R, ST&C
1 Float Shoe (autofill with minimal LCM in mud)
1 Float Collar (autofill with minimal LCM in mud)
1 Stop Ring
Centralizers, every 4th joint in mud drilled holes, none in air drilled holes.
1 Top Rubber Plug
1 Thread Lock Compound

SAN JUAN BASIN
Dakota Formation
Pressure Control Equipment

Background

The objective Dakota formation maximum surface pressure is anticipated to be less than 1000 psi, based on shut-in surface pressures from adjacent wells. Pressure control equipment working pressure minimum requirements are therefore 2000 psi. Equipment to be used will conform to API RP-53 (Figure 2.C.2) for a 2000 psi system per Federal Onshore Order No. 2. Due to available conventional equipment within the area, 3000 psi rated pressure control equipment will typically be utilized in a double ram type arrangement. Regional drilling rights to be utilized have substructure height limitations which exclude the use of annular preventers; therefore a rotating head will be installed above these rams. This pressure control equipment will be utilized for conventional drilling below conductor to total depth in the Basin Dakota. No abnormal temperature, pressure, or H2S anticipated.

Equipment Specification

Interval	BOP Equipment
Below conductor casing to total depth	11" nominal or 7 1/16",3000 psi double ram preventer with rotating head.

All ram type preventers and related control equipment will be hydraulically tested to 250 psi (low pressure) and 2000 psi (high pressure), upon installation, following any repairs or equipment replacements, or at 30 day intervals. Accessories to BOP equipment will include kelly cock, upper kelly cock with a handle available, floor safety valves and choke manifold which will also be tested to equivalent pressure.

FEDERAL CEMENTING REQUIREMENTS

1. **All permeable zones containing fresh water and other usable water containing 10,000 PPM or less total dissolved solids will be isolated and protected from contamination by cement circulated in place for the protection of permeable zones per the NTL-FRA 90-1 Section III A.**

2. **The hole size will be no smaller than 1 ½" larger diameter than the casing O.D. across all water zones.**

3. **An adequate spacer will be pumped ahead of the cement slurry to help prevent mud contamination of the cement.**

4. **An adequate number of casing centralizers will be run through usable water zones to ensure that the casing is centralized through these zones. The adequate number of centralizers to use will be determined by API SPEC 10D.**

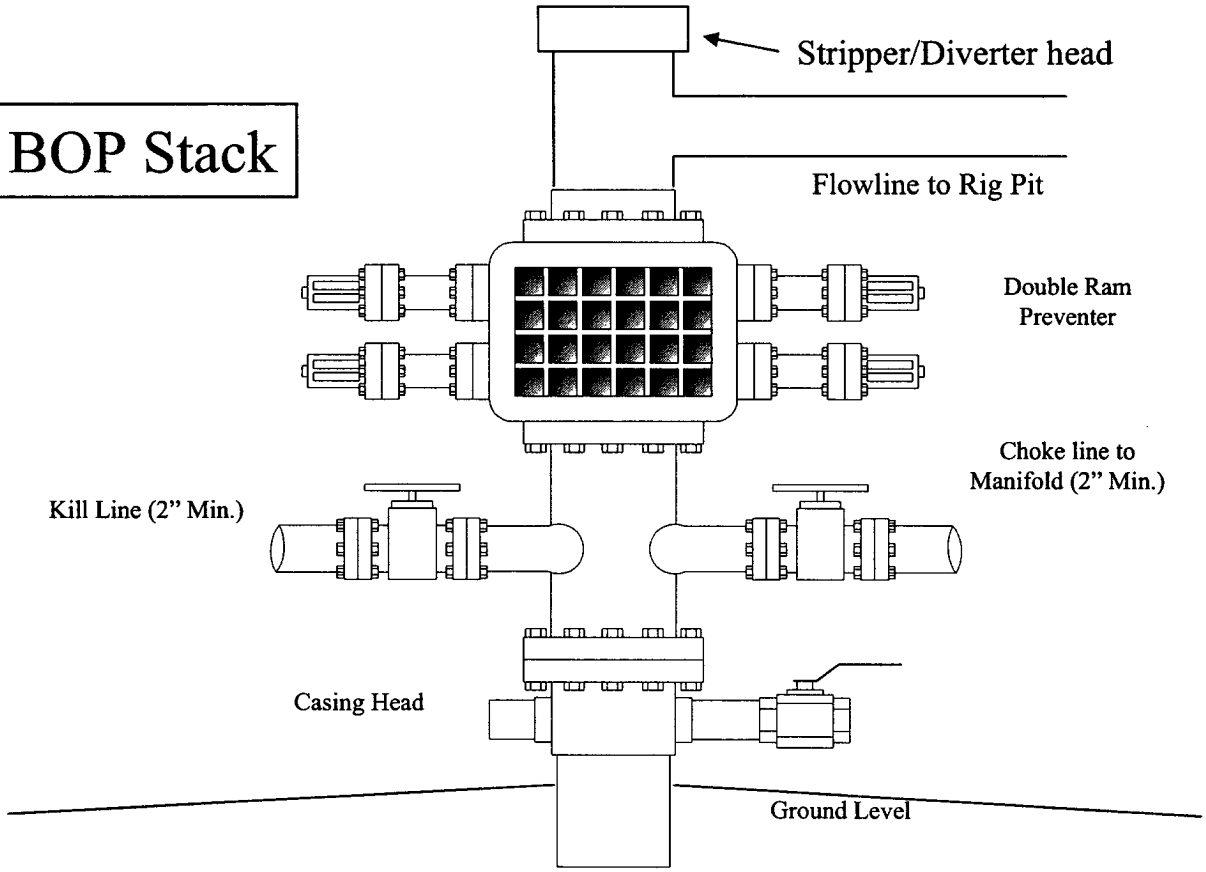
5. **Centralizers will impart a swirling action around the casing and will be used just below and into the base of the lowest usable water zone.**

6. **A chronological log will be kept recording the pump and slurry information and will be sent to the BLM with the subsequent sundry.**

BP American Production Company

Well Control Equipment Schematic

BOP Stack



Choke & Kill Manifold