

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

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

5. Lease Serial No. **NWSPS-078096**

6. If Indian, Allottee or tribe Name

7. If Unit or CA Agreement, Name and No

8. Lease Name and Well No.
Mudge C 1M

9. API Well No.
30-045-33342

10. Field and Pool, or Exploratory
Basin Dakota & Blanco Mesaverde

11. Sec., T., R., M., or Blk, and survey or Area
SECTION 9 T31N & R11W
L

12. County or Parish
SAN JUAN

13. State
NEW MEXICO

17. Spacing Unit dedicated to this well
320 W/2

20. BLM/BIA Bond No. on file
WY2924

23. Estimated duration
7 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: **Cherry Hlava** Name (Printed/typed): **Cherry Hlava** Date: **09/12/2005**

Title: **Regulatory Analyst**

Approved by (Signature): **[Signature]** Name (Printed/Typed): **[Signature]** Date: **10/24/05**

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.

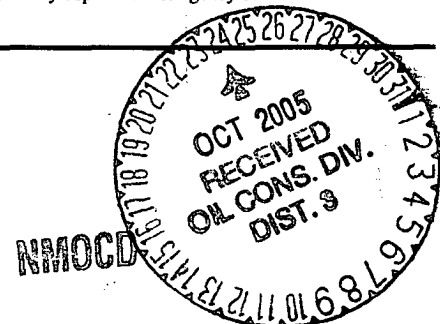
Conditions of approval, if any, are attached.

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.

*(Instructions on reverse)

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

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



District I
PO Box 1980, Hobbs NM 88241-1980
District II
PO Drawer KK, 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 30-045-33342	² Pool Code 71599; 72319	³ Pool Name Basin Dakota; Blanco Mesaverde
⁴ Property Code 000907	⁵ Property Name Mudge C	⁶ Well Number # 1M
⁷ OGRID No. 000778	⁸ Operator Name BP AMERICA PRODUCTION COMPANY	⁹ Elevation 6102

¹⁰ Surface Location

UL or Lot No. L	Section 9	Township 31 N	Range 11 W	Lot Idn	Feet from the 2250	North/South line SOUTH	Feet from the 885	East/West line WEST	County SAN JUAN
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¹¹ Bottom Hole Location If Different From Surface

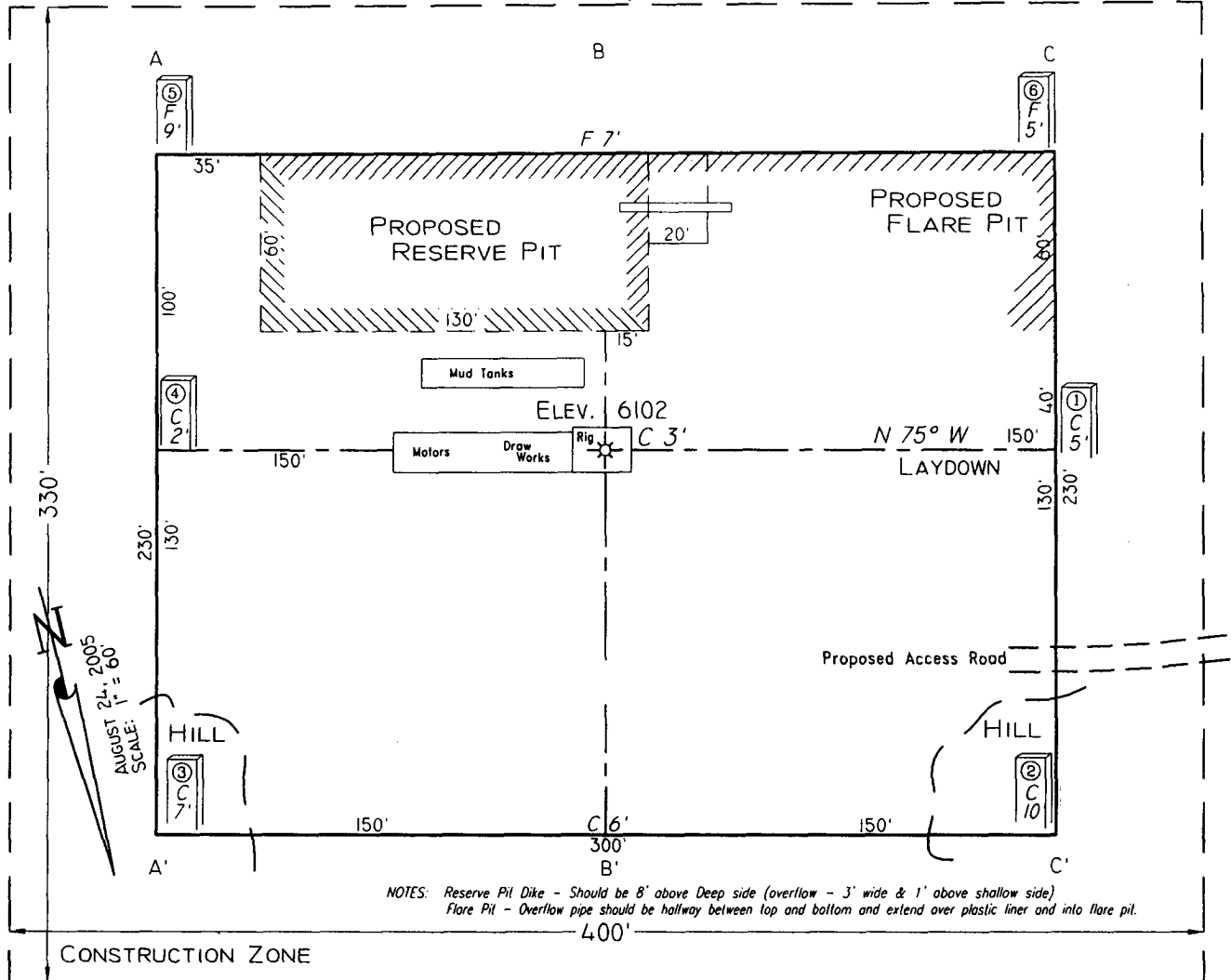
⁷ UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
¹² Dedicated Acres 320	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.						

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

	<p>¹⁶</p>	<p>¹⁷ OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.</p> <p>Cherry Hlava Signature Cherry Hlava Printed Name Regulatory Analyst Title 9-12-05 Date</p>
	<p>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.</p> <p>August 24, 2005 Date of Survey Signature and Seal of Professional Surveyor GARY D. YANN NEW MEXICO REGISTERED PROFESSIONAL LAND SURVEYOR 7016 Certificate Number</p>	

PAD LAYOUT PLAN & PROFILE
BP AMERICA PRODUCTION COMPANY
Mudge C# 1M
2250' F/SL 885' F/WL
SEC. 9, T31N, R11W, N.M.P.M.
SAN JUAN COUNTY, NEW MEXICO

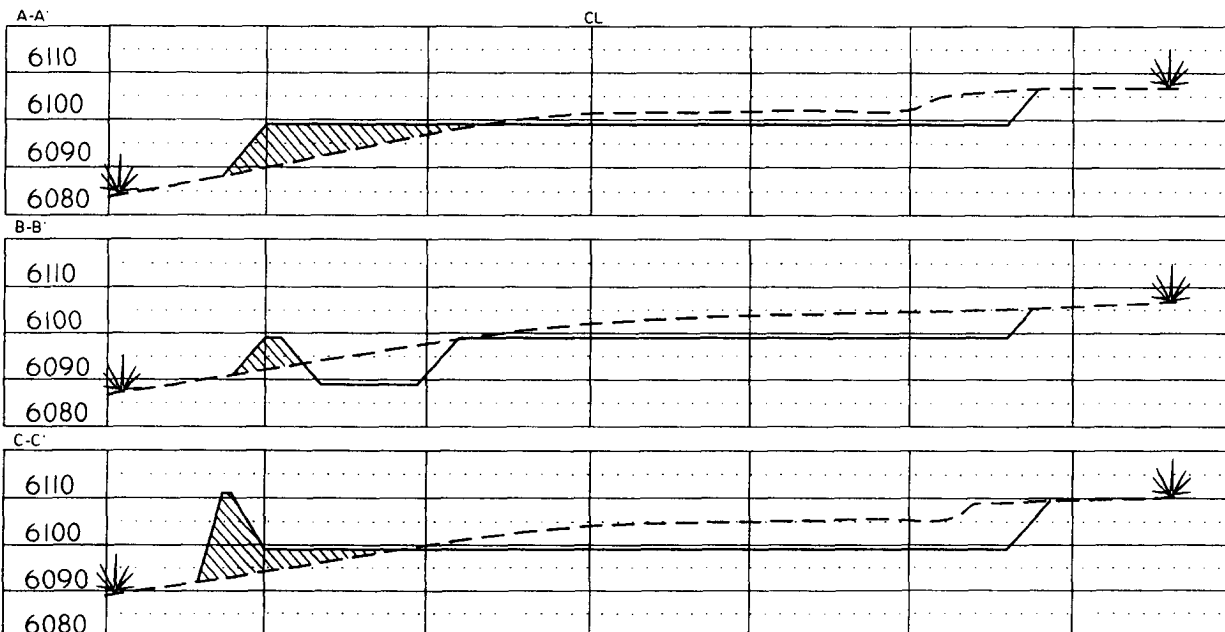
Lat: 36.9119°
Long: 108.0017°
Lat: 36°54'43"
Long: 108°00'06"



NOTES: Reserve Pit Dike - Should be 8" above Deep side (overflow - 3' wide & 1' above shallow side)
Flare Pit - Overflow pipe should be halfway between top and bottom and extend over plastic liner and into flare pit.

Area of Construction Zone - 330'x400' or 3.03 acres, more or less.

SCALE: 1"=60'-HORIZ.
1"=40'-VERT.



NOTE: Contractor should call One-Call for location of any marked or unmarked buried pipelines or cables on well pad and/or access road at least two (2) working days prior to construction.

Cuts and fills shown are approximate - final finished elevation is to be adjusted so earthwork will balance. Corner stakes are approximate and do not include additional areas needed for sideslopes and drainages. Final Pad Dimensions are to be verified by Contractor.

VANN SURVEYS
P. O. Box 1306
Farmington, NM

BP AMERICA PRODUCTION COMPANY

DRILLING AND COMPLETION PROGRAM

9/6/2005

Lease:	Mudge C	Well Name & No.	Mudge C #1M	Field:	Blanco Mesaverde/Basin Dakota
County:	San Juan, New Mexico	Surface Location:	9-31N-11W: 2250' FSL, 885' FWL		
Minerals:	State	Surface:	Lat: 36.9117031 deg; Long: -108.0009330 deg		
Rig:	Aztec 184	BH Location:	same		

OBJECTIVE: Drill 250' below the top of the Two Wells Mbr, set 4-1/2" production casing, Stimulate DK, MF, and PL intervals.

METHOD OF DRILLING		APPROXIMATE DEPTHS OF GEOLOGICAL MARKER			
TYPE OF TOOLS	DEPTH OF DRILLING	Actual GL:	6102	Estimated KB:	6,116.0'
Rotary	0 - TD	Marker		SUBSEA	TVD
LOG PROGRAM					APPROX. MD
Type	Depth Interval	Ojo Alamo		5,080'	1,036'
Single Run		Kirtland		5,033'	1,083'
		Fruitland	*	4,019'	2,097'
		Fruitland Coal	*	3,639'	2,477'
		Pictured Cliffs	*	3,356'	2,760'
		Lewis	*	3,147'	2,969'
Cased Hole	TD to 7" shoe	Cliff House	#	1,910'	4,206'
RST- CBL		Menefee	#	1,574'	4,542'
		Point Lookout	#	1,148'	4,968'
	Identify 4 1/2" cement top				

REMARKS:

In this area the Cliffhouse member of the Mesa Verde can be wet.

The recommended TD is intended to penetrate the uppermost BRCN (~10') so that the entire ENCN can be produced. Offsetting well 1500' to the south encountered no water flow in the BRCN. See attached cross-section.

	Mancos		809'	5,307'	5,307'
	Greenhorn		-945'	7,061'	7,061'
	Graneros (bent,mkr)		-999'	7,115'	7,115'
	Two Wells	#	-1,055'	7,171'	7,171'
	Paguate	#	-1,145'	7,261'	7,261'
	Cubero	#	-1,170'	7,286'	7,286'
	L. Cubero	#	-1,191'	7,307'	7,307'
	Encinal Cyn	#	-1,227'	7,343'	7,343'
	TOTAL DEPTH:		-1,305'	7,421'	7,421'
	# Probable completion interval			* Possible Pay	

SPECIAL TESTS

TYPE	DRILL CUTTING SAMPLES		DRILLING TIME	
	FREQUENCY	DEPTH	FREQUENCY	DEPTH
None	30'/10' intervals	3,069' to TD	Geograph	0 - TD

REMARKS:

MUD PROGRAM:

Interval	TypeMud	#/gal	Vis, sec/qt	/30 min	Other Specification
200'	Spud	8.8 - 9.0	Sufficient to clean hole.		
3,069'	Water/LSND	8.4 - 9.0		<9	Sweep hole while whilst water drilling, LCM onsite
7,421'	Air	1	1000 cfm for hammer		Volume sufficient to maintain a stable and clean wellbore

CASING PROGRAM:

CasingString	Depth	Size	Casing Size	Grade, Thread	Weight	Landing Point	Cement
Surface/Conductor	200'	13 1/2"	9-5/8"	H-40 ST&C	32#		cmt to surface
Intermediate 1	3,069'	8-3/4"	7"	J/K-55 ST&C	20#	100' below LWIS	cmt to surface
Production	7,421'	6-1/4"	4-1/2"	P-110	11.6#	DKOT	150' inside Intermediate - TOC survey required

CORING PROGRAM:

None

COMPLETION PROGRAM:

Rigless, 2-3 Stage Limited Entry Hydraulic Frac, FMC Unihead

GENERAL REMARKS:

Notify BLM/NMOCDD 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	4,206'	500	0
Point Lookout	4,968'	600	0
Dakota	7,171'	2600	1022.38
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	6-Sep-05		
Form 46 7-84bw	For Drilling Dept.		For Production Dept.	

Additional Operator Remarks
Mudge C 1M
APD

BP America Production Company respectfully requests permission to drill the subject well to a total depth of approximately 7421'. Complete in the Basin Dakota Pool, isolate the Dakota; complete into the Blanco Mesaverde, establish a production rate; drill out the bridge plug and commingle production downhole.

Application for Downhole Commingling authority (NMOCD order R-11363) will be submitted to all appropriate for approval after Permit to Drill has been approved.

If terrain allows 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.

SUPPLEMENTAL TO SURFACE USE PLAN

New Facilities:

A 4.5" diameter buried steel pipeline that is +/- 1000 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 Field Services.

APD/ROW

Cementing Program

Well Name:	Mudge C #1M			Well Flac	
Location:	9-31N-11W: 2250' FSL, 885' FWL			Formation:	Blanco Mesaverde/Basin Dakota
County:	San Juan			KB Elev (est)	6116
State:	New Mexico			GL Elev. (est)	6102

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	3069	8.75	7	ST&C	Surface	NA	
Production -	7421	6.25	4.5	ST&C	2969	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	2270	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	Recommended Mud Properties Prio Cementing:
			PV <20
			YP <10
			Fluid Los: <15
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	

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 minimize drillout.

Surface:

Preflush	20 bbl.	FreshWater	
Slurry 1	154 sx Class C Cement		195 cuft
TOC@Surface	+ 2% CaCl2 (accelerator)		
			0.4887 cuft/ft OH

Slurry Properties:	Density (lb/gal)	Yield (ft ³ /sk)	Water (gal/sk)
Slurry 1	15.2	1.27	5.8

Casing Equipment:

- 9-5/8", 8R, ST&C
- 1 Guide Shoe
- 1 Top Wooden Plug
- 1 Autofill insert float valve
- Centralizers, as needed
- 1 Stop Ring
- 1 Thread Lock Compound

Cementing Program

Intermediate:

Fresh Water	20 bbl	fresh water	
Lead		250 sx Class "G" Cement	658 cuft
Slurry 1		+ 3% D79 extender	
TOC@Surface		+ 1/4 #/sk. Cellophane Flake	
		+ 5 lb/sk Gilsonite	
Tail		59 sx 50/50 Class "G"/Poz	75 cuft
Slurry 2		+ 2% gel (extender)	
500 ft fill		+ 1/4 #/sk. Cellophane Flake	0.1503 cuft/ft OH
		+ 2% CaCl2 (accelerator)	0.1746 cuft/ft csg ann
		+ 5 lb/sk Gilsonite	

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 as needed
 1 Top Rubber Plug
 1 Thread Lock Compound

Production:

Fresh Water	10 bbl	CW100	
Lead		182 LiteCrete D961 / D124 / D154	459 cuft
Slurry 1		+ 0.03 gps D47 antifoam	
TOC, 400' above 7" shoe		+ 0.5% D112 fluid loss	
		+ 0.11% D65 TIC	
Tail		161 sx 50/50 Class "G"/Poz	232 cuft
Slurry 2		+ 5% D20 gel (extender)	
1614 ft fill		+ 0.1% D46 antifoam	
		+ 1/4 #/sk. Cellophane Flake	
		+ 0.25% D167 Fluid Loss	
		+ 5 lb/sk Gilsonite	
		+ 0.1% d800, retarder	
		+ 0.15% D65, dispersant	

0.1026 cuft/ft OH

Slurry Properties:

	Density (lb/gal)	Yield (ft3/sk)	Water (gal/sk)	
Slurry 1	9.5	2.52	6.38	0.1169 cuft/ft csg ann
Slurry 2	13	1.44	6.5	Top of Mancos

5307

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, as needed
 1 Top Rubber Plug
 1 Thread Lock Compound

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.**
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**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 single 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", 2000 psi Single ram preventer with 3000 psi annular preventer and rotating head.

All ram type and annular preventers as well as related control equipment will be hydraulically tested to 250 psi (low pressure) and 1500 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.

BP American Production Company

Well Control Equipment Schematic

