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

UNITED STATES DEPARTMENT OF THE INTERIOR

5. Lease Serial No. BUREAU OF LAND MANAGEMENT MW-9-633 NMNM-0-0600 6. If Indian, Allottee or Tribe Name APPLICATION FOR PERMIT TO DRILL OR REENTER ☐ REENTER la. Type of Work: DRILL 7. If Unit or CA Agreement, Name and No. 8. Lease Name and Well No. ATLANTIC A LS 9 M ☐ Single Zone □ Oil Well Gas Well Multiple Zone ☐ Other 1b. Type of Well: Contact: CHERRY HLAVA API Well No. BP AMERICA PRODUCTION COMPANY E-Mail: HLAVACL@BP.COM 30-045-32794 Field and Pool, or Exploratory 3a. Address 3b. Phone No. (include area code) Ph: 281.366.4081 BASIN DK & BLANCO MV HOUSTON, TX 77253-3092 4. Location of Well (Report location clearly and in accordance with any State requirements.*) 11. Sec., T., R., M., or Blk. and Survey or Area NWSW Lot 12 2355FSL 1210FWL 36.86889 N Lat, 107.87500 W Lon At surface Sec 27 T31N R10W Mer NMP At proposed prod. zone NWSW Lot 12 2355FSL 1210FWL 36.86889 N Lat, 107.87500 W Lon 14. Distance in miles and direction from nearest town or post office* 12. County or Parish 13. State 9 MILES N/E FROM AZTEC, NM SAN JUAN MM 16. No. of Acres in Lease Distance from proposed location to nearest property or 17. Spacing Unit dedicated to this well lease line, ft. (Also to nearest drig. unit line, if any) 1210 322.90 18. Distance from proposed location to nearest well, drilling, BLM/BIA Bond No. on file Proposed Depth completed, applied for, on this lease, ft. 7526 MD 600 WY2924 7526 TVD 21. Elevations (Show whether DF, KB, RT, GL, etc. Approximate date 23. Estimated duration 6175 GL 03/01/2004 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. 4. Bond to cover the operations unless covered by an existing bond on file (see A Drilling Plan. Item 20 above) A Surface Use Plan (if the location is on National Forest System Lands, the Operator certification SUPO shall be filed with the appropriate Forest Service Office). Such other site specific information and/or plans as may be required by the authorized officer. Name (Printed/Typed) 25. Signature Date (Electronic Submission) CHERRY HLAVA Ph: 281.366.4081 12/30/2004 REGULATORY ANALYST Approved by Name (Printed/Typed) Office 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

Additional Operator Remarks (see next page)

Electronic Submission #52439 verified by the BLM Well Information System For BP AMERICA PRODUCTION COMPANY, sent to the Farmington

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

States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

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

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

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

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

PO Box 2088, San	ita Fe, NM 8	7504-2088							☐ AR	MENDED REPORT
• • •		WE	LL LO	CATION	AND ACR	EAGE DEDIC	ATIO	N PLA'	${f T}$	
30-045	API Number	794	715	2 Pool Code		SIN Dakota	1 B	Pool Na	Mesave	erde
OOO 2		A	Atlantic	A LS	³ Property	y Name	7			• Well Number # 9M
00077	No.	F	BP AMI	ERICA	PRODUCT	r Name	ANY			*Elevation 6175
	. 01				¹⁰ Surface l	Location			·	
UL or Lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet f	rom the	East/West line	County
Lot 12 (L)	27	31 N	10 W		2355	SOUTH	12	210	WEST	SAN JUAN
					Location If	Different From				
⁷ UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet fr	om the	East/West line	County
322.90		t or Infill	Consolidatio	n Code 15	Order No.	-	.			
NO ALLO	WABLE					ON UNTIL ALL EEN APPROVET				ONSOLIDATED
"	ayeee		278(R)		278'(R)	1278'(R)	.	hereby ceri	tify that the inform	RTIFICATION mation contained herein is of my knowledge and belief.
Lot 4			Lot 3	8	Lot 2	Lot 1	1318′	C	herry Als	eva
Lot 5		Lot 6	ot 6		6 17 Lot 8	1318'R)	Cher Printed Nar Regul Title	a valy 57		
<u> </u>				27	O CANA	2005		I hereby cer	rtify that the well i	RTIFICATION ocation shown on this plat

or under my supervision, and that the same is true and correct to the best of my belief. 1210' Lot 12 Lot 11 September 10, 2004 Signature and Seal of Professional Lot 13 Lot 14 MOFESSIONAN 7016

1308'(R)

(R) - 8LM Record

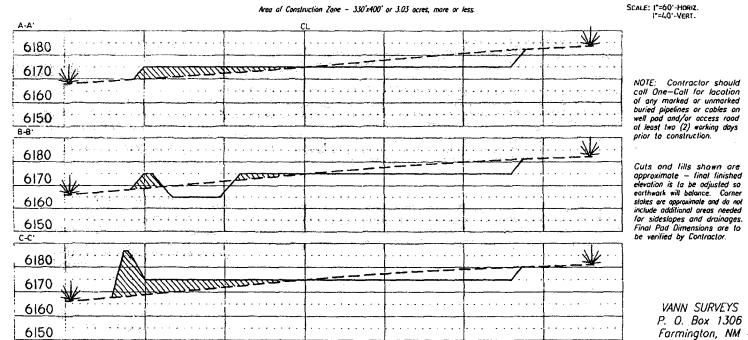
1308'(R)

Submit 3 Copies To Appropriate District	State of	New Me	exico		Form C-103
Office District I	Energy, Minerals	and Natu	ral Resources		May 27, 2004
1625 N. French Dr., Hobbs, NM 88240				WELL API NO.	
District II	OIL CONSER'	VATION	DIVISION	NEW WEI	LL
1301 W. Grand Ave., Artesia, NM 88210 District III	1220 South			5. Indicate Type of Lease	_
1000 Rio Brazos Rd., Aztec, NM 87410			1		FEE
District IV	Santa F	e, NM 87	/505	6. State Oil & Gas Lease l	No.
1220 S. St. Francis Dr., Santa Fe, NM	,				
87505 SLINDRY NOTI	CES AND REPORTS O	NWELLS		7. Lease Name or Unit Ag	rraament Nama
(DO NOT USE THIS FORM FOR PROPOS				Atlantic A	
DIFFERENT RESERVOIR. USE "APPLIC				(APD filed with BLM N	
PROPOSALS.)	4 🖂		<u>[</u>	8. Well Number	IVIIIVI UTTILZ)
1. Type of Well: Oil Well	Gas Well 🛛 Other			9 M	
2. Name of Operator				9. OGRID Number	
BP AMERICA PRODUCTION (COMPANY			000778	
3. Address of Operator	JONATAINA	······································		10. Pool name or Wildcat	
P.O. BOX 3092 HOUSTON, TX	77079-2064			Basin Dakota & Blanco N	
4. Well Location				Distribution & Dianes 1	72054 7 07 40
		a			
	feet from the _				line
Section 27	Township		Range 10W	NMPM SAN JUA	N County
Section of the second	11. Elevation (Show w	hether DR,	RKB, RT, GR, etc.)	10 A	
A CONTRACT STREET		611	8'		
Pit or Below-grade Tank Application 🛛 o	r Closure 🗌				
Pit typeDRILLINGDepth to Ground	lwater <u>>100'</u> Distance from	nearest fresi	h water well <u>> 1000'</u> Di	istance from nearest surface wat	er > 1000'
Pit Liner Thickness: 12 mil B	Below-Grade Tank: Volume		bbls; Constructi	on Material IMPERVIOUS	
10 01 1 4		1° 4 NT			
12. Check A	Appropriate Box to in	idicate in	ature of Notice, F	Report or Other Data	
NOTICE OF IN	TENTION TO:		l elibe	EQUENT REPORT	OE:
PERFORM REMEDIAL WORK □	PLUG AND ABANDON	ı 🗆	REMEDIAL WORK		NG CASING □
TEMPORARILY ABANDON	CHANGE PLANS	· 🗀	COMMENCE DRIL	 -	
PULL OR ALTER CASING	MULTIPLE COMPL	H	CASING/CEMENT		· 🗆
FOLL ON ALTER CASING	WIOLTIFLE COWIFL		CASING/CEIVIENT	10 <u>6</u>	
OTHER: LINED DRILLING PIT		\boxtimes	OTHER:		П
13. Describe proposed or compl	leted operations. (Clearl			give pertinent dates, includ	ing estimated date
of starting any proposed wo					
or recompletion.	,	•	•	2 1	
•					
Construct a lined drilling pit per B	SP America – San Juan	Basin Dril	ling/ Workover Pit	Construction Plan issued	date of
04/15/2004. Pit will be closed accord	rding to closure plan on	file.			
•					a a
	•				
			•		
	· ·				
	•				
·					
I hereby certify that the information a	above is true and comple	te to the be	st of my knowledge	and belief. I further certify the	at any pit or below-
grade tank has been/will be constructed or	closed according to NMOCD	guidelines 🗅], a general permit 🔲 o	r an (attached) alternative OCD	-approved plan 📋.
SIGNATURE		TITI E	Damilatami Analiist	DATE 12/21/2004	
SIGNATURE		TITLE	Regulatory Analyst	DATE12/31/2004	
Type or print name Cherry Hlava	E-mail address: h	lawaal@h-	com	Telephone No. 281-3	866 4081
For State Use Only	15-man audiess. II	iavaci@op	.00111	r elephone Ivo. 281-3	00 -1 001
1 State Use Only	- Vi .1				
APPROVED BY:					
	-1/8/h	ביין ביי		ЛАТЕ	
Conditions of Approval (if any):	JAN-	TITLE		DATE_	

PAD LAYOUT PLAN & PROFILE BP AMERICA PRODUCTION COMPANY

Atlantic A LS # 9M 2355' F/SL 1210' F/WL SEC. 27, T31N, R10W, N.M.P.M.

Lat: 36°52'08" Long: 107°52'30" SAN JUAN COUNTY, NEW MEXICO В C (5) 5' <u>@</u> F 6' 35 **PROPOSED** FLARE PIT **PROPOSED** RESERVE PIT 8 Mud Tanks (C) ELEV. | 6175 S 70° E 150 Draw Warks Malars 150 LAYDOWN 30 5505 Proposed Access Road @ C5' 150 150 A١ NOTES: Reserve Pil Dike - Should be 8' above Deep side (overflow - 3' wide & 1' above shallow side)
Flore Pit - Overflow pipe shauld be halfway between top and bottom and extend over plastic liner and into flore pil. 4001 CONSTRUCTION ZONE



•				MERICA PRO							
			DRI	LLING AND CO)/8/2004	PRO	GHA	Л			
Logge	Atlantic A L	<u> </u>	Wo	II Name & No. Atla				Field:	Planca Masay	erde/Basin Dakota	
	San Juan,			ace Location: 27-3		55' ESI	1210' E		Dianco Mesav	erue/basiii Dakuta	
Minerals:		464A IAIGYICO	Juli		36.8686807 L						
Rig:	Aztec 184		_, 	BH Location: sam		orig107	.07400				
OBJECTIVE:	72100 104	Drill 250' be	low the ton	of the Two Wells Mb		duction	casing	Stimulate DK	ME and PL in	tervals	
	<u> </u>			OF THE TWO TYCES WILL				DEPTHS OF C			
TVDE	OF TOOLS			OF DRILLING	Actual		3175		timated KB: 6		
	Rotary			- TD	Marker	GL. C	1	SUBSEA	TVD	APPROX. MD	
<u> </u>	riotary	LOG PROGRA		- 10	Ojo Alamo		+-	4,591'	+	1,598'	
T		LOG PROGRA			Kirtland		1 1		1,598'		
Type			Depth Inte	rvai	Fruitland		*	4,517' 3,852'	1,672' 2,337'	1,672' 2,337'	
Single F	nun	•			Fruitland Coa	ı	+	3,593'	2,596'	2,596'	
	ļ				Pictured Cliffs		+	3,274'	2,596	2,915'	
					Lewis		+ + +	3,085'	3,104'	3,104'	
Cased H	lole				Cliff House		#	1,767'	4,422'	4,422'	
TDT- C			TD to 7" sl	nne	Menefee		#	1,767	4,749	4,422	
151-0	DC	Idor	ntify 4 ½" cer		Point Lookout	<u> </u>	#	1,015'	5,174	5,174'	
REMARKS:		iuer	my 4 72 CB	ment top	Mancos	•	+ π	648'	5,541'	5,174	
	any flares /	nagnitude & dur	ation)		Greenhorn			-987'	7,176'	7,176'	
r icase report	arry naics (i	grintade & dur	allonj.		Graneros (bei	nt.mkr\	+	-1,035'	7,176	7,176	
					Two Wells		#	-1,035	7,276	7,276'	
					Paguate		#	-1,181'	7,270	7,370'	
					Cubero		#	-1,213'	7,402'	7,402'	
-					L. Cubero		#	-1,236'	7,425'	7,425'	
					Encinal Cyn		#	-1,273'	7,462'	7,462'	
					TOTAL DE	PTH:		-1,337'	7,526'	7,526'	
					# Probable c	ompletio	n interv			ible Pay	
SPECIAL TEST	s					CUTTING				ING TIME	
TYPE					FREQUE			DEPTH	FREQUENCY		
None					30'/10' int	~~	3,2		Geolograph	0 - TD	
REMARKS:								· · · · · · · · · · · · · · · · · · ·			
MUD PROGRA											
Interval	Type□M			Vis, □sec/qt	/30 min			Other S	pecification		
200'	Spud	8.8 - 9.		ficient to clean hole.						,	
3,204'	Water/LSI				<9			hole while while			
7,526'	Air	1	10	00 cfm for hammer		Volu	ume su	fficient to maint	ain a stable an	d clean wellbore	
CASING PROG											
Casing □ S		Depth	Size	Casing Size	Grade, Thre		eight	Landing Po	oint	Cement	
Surface/Conduc	tor	200'	13 1/2"		H-40 ST&0		32#			cmt to surface	
Intermediate 1		3,204'	8-3/4"	7"	J/K-55 ST8		20#	100' below L	WIS	cmt to surface	
Production		7,526'	6-1/4"	4-1/2"	J-55	1	1.6#	1.6# DKOT 150' inside Intermediate TOC survey required			
CORING PROG None	RAM:										
COMPLETION	PROGRAM.										
Rigless, 2-3 Sta		•	rac EMC I	Inihead							
GENERAL REM		and y riyuraulic r	140, 1 WO	noud							
		s prior to Soud	BOP testing	, and Casing and Ce	ementing						
	Testing Red		DOT TOOLING	, and caoing and or	omening.						
POL LIESSUIG		Depth		Anticipated botto	m hole pressu	re		Max antici	pated surface	pressure**	
Formati	ion	be		50	0				0		
	,	4,422'	l l	50	•						
Formati Cliffhou	ise	4,422'							0		
Formati Cliffhou Point Loc	ise kout	4,422' 5,174'		60	0				0		
Formati Cliffhou Point Loo Dakot	ise kout a	4,422'	ception = 15	600 260	0	ed using	the follo	owing formula:	999.28	ΓVD) = ASP	
Formati Cliffhou Point Loo Dakot Reque Form 46 Review	sted BOP Powed by:	4,422' 5,174' 7,276' ressure Test Exc	ging prograr	600 260 00 psi ** Ν π reviewed by:	0 00 lote: Determine		the folk	owing formula:	999.28	TVD) = ASP	
Formati Cliffhou Point Loc Dakot Reque: Form 46 Review PREPARED BY	sted BOP Powed by:	4,422' 5,174' 7,276' ressure Test Exc		600 260 00 psi ** Ν π reviewed by:	0 00 lote: Determine	ed using	the follo	owing formula:	999.28 ABHP – (.22*1	TVD) = ASP DATE:	
Formati Cliffhou Point Loc Dakot Reque: Form 46 Review PREPARED BY	sted BOP Powed by:	4,422' 5,174' 7,276' ressure Test Exc	ging prograr	600 260 00 psi ** N n reviewed by: DVED:	00 lote: Determine				999.28 ABHP – (.22*1 VED:		

Cementing Program

Document Sam - Juan Sam -													
	Wall Name:	Atlantic A I S #0	RA.										
New Mexico Femaliani Fem	Location:			FWL									
Ref Bev (eat) 6199 Size Siz	County:	San Juan											
Cut Elev. (est) 5175 State Sta	State:	New Mexico									lasin Dakot	a	
Saming Program: East, Depth													
Descripting Est. Depth Hole Size Casing Size Thread TOC Situgh To Cold Cir. Out Thread TOC Th													
(ii.) (iii.) (i		Fet Denth	Hole Size		Caelan Si	zo Th	reed TOC		Stane To	cont Cir C	ia s t		
Surface 200 13.5 8.25 \$74C Surface NA	Jasing Juniy				-								
Production 7258 6.25 6.5 \$160 \$161 \$162 \$1	Surface	200			9.6					• • •			
Sating Properties:													
Description Size Weight Grade Burst Collapse Joint St. Capacity Print			/No Cafety Es			5 5	&C 3104		NA				
Company Comp				actor microaec		Bu	rst Collaps	,	Joint St.	Capacity	Drift		
A	• •	(in.)	(lb/ft)			(ps	i.) (psi.)		(1000 lbs	. (bbl/ft.)			
Mod Type		9.6											
Must Program Apr. Interval Apr		,											
Application Mod Type Mod Weight					11.0 0-00	· · ·		4900		· •	0100	3.01	
Fig.													
Description		Mud Type	Mud Weight					Mud Prop	erties Prio	Cementing	i		
1- SCP Water/Spud 8.5-9.2 Fluid L <15 SCP - (CP	111.)												
CP - ICP 2 CassAM Milet	0 - SCP	Water/Spud			8.6-9.2								
CP2 1	SCP - ICP												
Surface Surface Intermediate Production			·										
Surface Surface Production Productio					0.0 - 9.2								
Excess NA	romonung ragius				Surf	ace	Interr	nediate		Producti	on		
### PRINT (at deg. F) ### Special Instructions 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 densilmoneter with pressurized mud scales 7. I" 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** **Preflush** **Preflush** **Density** **(lb/gal)** **Presh Water** *	Excess %, Lead												
1,6,7													
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. Confilm densitometer with pressurized mud scales 7. "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 Skurry 1 154 sx Class C Cement 42% CaCI2 (accelerator) 195 curft Preflush 195 curft 195		18											
2. Wesh pumps and lines. 3. Reverse out 4. Run Blend Test on Cement 5. Record Raic, Pressure, and Density on 3.5" disk 6. Confirm densitometer with pressurized mud scales 7. 1" cement to surface! Cement is not circulated. 8. If cement is not circulated. 9. Preflush 100 not wash up on top of plug. Wash lines before displacing production cement job to minmize drilliout. Surface: Preflush 20 bbl. FreshWater Slurry Slurry 1 154 sx Class C Cement 195 cuft 10C@Surface 10C@Surface 110C@Surface 1154 xx Class C Cement 195 cuft 1154 xx Class C Cement 195 cuft 1155 cuft 1154 xx Class C Cement 195 cuft 1157 5.8 Slurry 1 15.2 1.27 5.8 Casing Equipment: Poss**, SR, ST&C 1 Guide Shoe 1 Top Wooden Plug 1 Autifult Insert float valve Centralizers, 1 per joint except top joint 1 Stop Ring 1 Thread Lock Compound Intermediate: Fresh Water Lead 254 sx Class "G" Cement 154 / Misk. Cellophane Flake 155 / Misk Cellophane Flake 155 / Misk Cellophane Flake 155 / Misk Cellophane Flake 156 / Misk Cellophane Flake 15	opcolar mondonom		pumps and lines	3.	•,•	·,·	•	,0,0		2,7,0			
4. Run Blend Test Cement 5. Record Rate, Pressure, and Density on 3.5" disk 6. Confirm densitioneter with pressurized mud scales 7. 1" cement to surface if cement is not circulated. 8. If cement is not circulated. 8. If cement is not circulated. 9. If ce													
S. Record Rate, Pressure, and Density on 3.5" disk 6. Confirm densilometer with pressurized mul 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 Preflush 20 bbl. FreshWater Slurry 1 154 sx Class C Cement 195 cuft 100@Surface 195 cuft 100@Surface 195 cuft 100@Surface 195 cuft 100@Surface 100@Sur													
6. Confirm densitioneter with pressurized mud scales 7. 1" cement to surface if cement is not circulated. 8. If cement is not circulated. 9. If cement is not				oneity on 2 E	" diak								
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 Sturry 1 154 sx Class C Cement TOC@Surface 195 curft 195 curft TOC@Surface 195 curft 195 c				renany on 3.3									
To not wash up on top of plug. Wash lines before displacing production cement job to minmize drillout.		6 Confirm dens	itometer with pr	essurized mu	d scales								

**************************************		7. 1" cement to	surface if cemer	nt is not circu	lated.	r. after landir	ıg plug.						
Preflush 20 bbl. FreshWater	Notes:	7. 1" cement to	surface if cemer	nt is not circu	lated.	r. after landir	ng plug.						
Preflush 20 bbl. FreshWater	Notes:	7. 1" cement to 8. If cement is n	surface if cemer ot circulated to	nt is not circu surface, run t	lated. emp. survey 10-12 h			nmize drill	out.				
TOC@Surface + 2% CaCl2 (accelerator) 0.4887 cuft/ft OH Slurry Properties: Density (lb/gal) (ft3/sk) (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, 1 per joint except top joint 1 Stop Ring 1 Thread Lock Compound Intermediate: Fresh Water 20 bbl fresh water Lead Slurry 1 + 3% D79 extender + 1/4 #/sk. Cellophane Flake + 5 lb/sk Gillsonite Tall Surry 2 + 2% gel (extender) - 1/4 #/sk. Cellophane Flake + 5 lb/sk Gillsonite Slurry Properties: Density (lb/gal) (l		7. 1" cement to 8. If cement is n	surface if cemer ot circulated to	nt is not circu surface, run t	lated. emp. survey 10-12 h			nmize drill	out.				
TOC@Surface + 2% CaCl2 (accelerator) 0.4887 cuft/ft OH Slurry Properties: Density (lb/gal) (ft3/sk) (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, 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 43% D79 extender 1 TOC@Surface 45% Glisonite 43% D79 extender 1 Tall 59 sx 50/50 Class "G"/Poz 75 cuft 1 4/8/sk. Cellophane Flake 4 5 lb/sk Glisonite 500 ft fill 5		7. 1" cement to 8. If cement is n *Do not wash u	surface if cemer ot circulated to	nt is not circu surface, run t	lated. emp. survey 10-12 h efore displacing pro	duction cem	ent job to mir	nmize drill	out.			•	
Density (lb/gal) Yield Water (lb/gal) (lf.3/sk) (gal/sk)	Notes: Surface:	7. 1" cement to 8. If cement is n *Do not wash up Preflush	surface if cemer ot circulated to	nt is not circu surface, run t	lated. emp. survey 10-12 h efore displacing pro	oduction cem	ent job to mir	nmize drill	out.	-			
Sturry Properties: Density (lib/gal) Sturry 1 S		7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1	surface if cemer ot circulated to	nt is not circu surface, run t	lated. emp. survey 10-12 h efore displacing pro 20 bbl. 154 sx Class (duction cem	ent job to min	nmize drill	out.		195 cuft		
Sturry 1 15.2 1.27 5.8		7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1	surface if cemer ot circulated to	nt is not circu surface, run t	lated. emp. survey 10-12 h efore displacing pro 20 bbl. 154 sx Class (duction cem	ent job to min	nmize drill	out.	0.		OH	
Sturry 1 15.2 1.27 5.8		7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1	surface if cemer ot circulated to	nt is not circu surface, run t	lated. emp. survey 10-12 h efore displacing pro 20 bbl. 154 sx Class (duction cem	ent job to min	nmize drill	out.	0.		ОН	
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 ntermediate: Fresh Water 20 bbl fresh water Fresh Water 20 bbl fresh water 694 cuft 4 3% D79 extender + 1/4 #/sk. Cellophane Flake + 5 ib/sk Gilsonite Tall Slurry 2 500 ft fill 10 59 sx 50/50 Class "G"/Poz + 2% gel (extender) + 1/4 #/sk. Cellophane Flake + 5 ib/sk Gilsonite 11.4 #/sk. Cellophane Flake + 5 ib/sk Gilsonite Slurry Properties: Density (lb/gal) 11.4 11.4 11.4 11.4 11.6 11.6 11.6 11.6 11.6 11.6 11.6 11.6 11.7 11.8 11.8	Surface:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1	surface if cemer of circulated to o on top of plug.	nt is not circu surface, run t	lated. emp. survey 10-12 h efore displacing pro 20 bbl. 154 sx Class (Fre C Cement 12 (accelerate	ent job to mineshWater	nmize drill	Water	0.		ОН	
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	Surface:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface	surface if cemer of circulated to o on top of plug.	nt is not circu surface, run t	efore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	Free Comment of the C	ent job to min eshWater or) td	nmize drill	Water (gal/sk)			он	
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	Surface:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface	surface if cemer of circulated to o on top of plug.	nt is not circu surface, run t	efore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	Free Comment of the C	ent job to min eshWater or) td	nmize drill	Water (gal/sk)			ОН	
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 Tall Slurry 2 Tall Slurry 2 500 ft fill 500 ft fill 500 ft fill 41/4 #/sk. Cellophane Flake 45 bl/sk Gilsonite 10 Selurry 1 11.4 264 sx Class "G" Cement 43% D79 extender 43% D79 extender 43% D79 extender 41/4 #/sk. Cellophane Flake 45 bl/sk Gilsonite 75 cuft 42% gal (extender) 41/4 #/sk. Cellophane Flake 45 bl/sk Gilsonite Slurry Properties: Density (lb/gal) Slurry 1 11.4 2.63 15.8	Surface: Slurry Properties:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface	p on top of plug. Density (lb/gal)	nt is not circu surface, run t Wash lines b	efore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	Free Comment of the C	ent job to min eshWater or) td	nmize drill	Water (gal/sk)			он	
Centralizers, 1 per joint except top joint 1 Stop Ring 1 Thread Lock Compound 1 Stop Ring 1	Surface: Slurry Properties:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface	p on top of plug. Density (lb/gal) 9-5/8", 8R, ST 1 Guide Shoe	t is not circu surface, run t Wash lines b	efore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	Free Comment of the C	ent job to min eshWater or) td	nmize drill	Water (gal/sk)			ОН	
1 Stop Ring 1 Thread Lock Compound Intermediate: Fresh Water 20 bbl fresh water 264 sx Class "G" Cement 694 cuft Slurry 1 + 3% D79 extender + 1/4 #/sk. Cellophane Flake + 5 lb/sk Gilsonite Tall 59 sx 50/50 Class "G"/Poz 75 cuft Slurry 2 + 2% gel (extender) + 1/4 #/sk. Cellophane Flake 0.1503 cuft/ft OH + 2% CaCl2 (accelerator) 0.1746 cuft/ft csg anr + 5 lb/sk Gilsonite Slurry Properties: Density (lb/gal) (ft3/sk) (gal/sk) Slurry 1 11.4 2.63 15.8	Surface: Slurry Properties:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface	Density (lb/gal) 9-5/8", 8R, ST 1 Guide Shoe	t is not circu surface, run t Wash lines b	efore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	Free Comment of the C	ent job to min eshWater or) td	nmize drill	Water (gal/sk)			ОН	
1 Thread Lock Compound Termediate: Fresh Water 20 bbl fresh water	Surface: Slurry Properties:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface	Density (ib/gal) 9-5/8", 8R, ST 1 Guide Shoe 1 Top Woode 1 Autofill inse	wash lines b Wash lines b	efore displacing pro 20 bbl. 154 sx Class 6 + 2% CaCl	Free Comment of the C	ent job to min eshWater or) td	nmize drill	Water (gal/sk)			ОН	
Lead	Surface: Slurry Properties:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface	Density (lb/gal) 9-5/8", 8R, ST 1 Guide Shoe 1 Top Woode 1 Autofill inse Centralizers,	wash lines b Wash lines b	efore displacing pro 20 bbl. 154 sx Class 6 + 2% CaCl	Free Comment of the C	ent job to min eshWater or) td	nmize drill	Water (gal/sk)			ОН	
Lead	Surface: Slurry Properties:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface	Density (ib/gal) 9-5/8", 8R, ST 1 Guide Shoe 1 Top Woode 1 Autofill inse Centralizers, 1 Stop Ring	Wash lines b Wash lines b F&C en Plug ert float valve 1 per joint ex	efore displacing pro 20 bbl. 154 sx Class 6 + 2% CaCl	Free Comment of the C	ent job to min eshWater or) td	nmize drill	Water (gal/sk)			ОН	
Lead 264 sx Class "G" Cement 694 cuft	Surface: Slurry Properties: Casing Equipment:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface	Density (ib/gal) 9-5/8", 8R, ST 1 Guide Shoe 1 Top Woode 1 Autofill inse Centralizers, 1 Stop Ring	Wash lines b Wash lines b F&C en Plug ert float valve 1 per joint ex	efore displacing pro 20 bbl. 154 sx Class 6 + 2% CaCl	Free Comment of the C	ent job to min eshWater or) td	nmize drill	Water (gal/sk)			ОН	
Slurry 1	Surface: Slurry Properties: Casing Equipment:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface Slurry 1	Density (ib/gal) 9-5/8", 8R, ST 1 Guide Shoe 1 Top Woode 1 Autofill inse Centralizers, 1 Stop Ring	Wash lines b Wash lines b F&C en Plug ert float valve 1 per joint ex	lated. emp. survey 10-12 hi refore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	Free Comment (Free Comment (Fr	ent job to min shWater or) id //sk) 1.27	nmize drill	Water (gal/sk)			он	
Slurry 1	Surface: Slurry Properties: Casing Equipment:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface Slurry 1	Density (ib/gal) 9-5/8", 8R, ST 1 Guide Shoe 1 Top Woode 1 Autofill inse Centralizers, 1 Stop Ring	Wash lines b Wash lines b F&C en Plug ert float valve 1 per joint ex	lated. emp. survey 10-12 hi refore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	Free Comment (Free Comment (Fr	ent job to min shWater or) id //sk) 1.27	nmize drill	Water (gal/sk)			ОН	
Slurry 1	Surface: Slurry Properties: Casing Equipment:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface Slurry 1	Density (ib/gal) 9-5/8", 8R, ST 1 Guide Shoe 1 Top Woode 1 Autofill inse Centralizers, 1 Stop Ring	Wash lines b Wash lines b F&C en Plug ert float valve 1 per joint ex	lated. emp. survey 10-12 hi refore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	Free Comment (Free Comment (Fr	ent job to min shWater or) id //sk) 1.27	nmize drill	Water (gal/sk)			ОН	
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) +1/4 #/sk. Cellophane Flake 0.1503 cuft/ft OH +2% CaCl2 (accelerator) 0.1746 cuft/ft csg anr +5 lb/sk Gilsonite Slurry Properties: Density (lb/gal) (ft3/sk) (gal/sk) Slurry 1 11.4 2.63 15.8	Surface: Slurry Properties: Casing Equipment:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface Slurry 1:	Density (ib/gal) 9-5/8", 8R, ST 1 Guide Shoe 1 Top Woode 1 Autofill inse Centralizers, 1 Stop Ring	Wash lines b Wash lines b F&C en Plug ert float valve 1 per joint ex	lated. emp. survey 10-12 hi refore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	Free C Cement 12 (accelerate (ff:	ent job to mineshWater or) Id idsk) 1.27		Water (gal/sk)		4887 cuft/ft	ОН	
Tail 59 sx 50/50 Class "G"/Poz 75 cuft Slurry 2 + 2% gel (extender) + 1/4 #/sk. Cellophane Flake 0.1503 cuft/ft OH 500 ft fill + 2% CaCl2 (accelerator) 0.1746 cuft/ft csg and + 5 lb/sk Gilsonite + 5 lb/sk Gilsonite Slurry Properties: Density Yield Water (lb/gal) (ft3/sk) (gal/sk) Slurry 1 11.4 2.63 15.8	Surface: Slurry Properties: Casing Equipment:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface Sturry 1:	Density (ib/gal) 9-5/8", 8R, ST 1 Guide Shoe 1 Top Woode 1 Autofill inse Centralizers, 1 Stop Ring	Wash lines b Wash lines b F&C en Plug ert float valve 1 per joint ex	lated. emp. survey 10-12 hi refore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	Free C Cement 12 (accelerate (fts)	ent job to min shWater or) Id /sk) 1.27	ment	Water (gal/sk)		4887 cuft/ft	ОН	
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 and + 5 lb/sk Glisonite Slurry Properties: Density (b/gal) (ft3/sk) (gal/sk) (lb/gal) (ft3/sk) (gal/sk) (slurry 1 11.4 2.63 15.8	Surface: Slurry Properties: Casing Equipment:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface Slurry 1: Fresh Water Lead Slurry 1	Density (ib/gal) 9-5/8", 8R, ST 1 Guide Shoe 1 Top Woode 1 Autofill inse Centralizers, 1 Stop Ring	Wash lines b Wash lines b F&C en Plug ert float valve 1 per joint ex	lated. emp. survey 10-12 hi refore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	Free Comment of the C	ent job to min shWater or) id //sk) 1.27 sh water Class "G" Ce % D79 extend	ment er	Water (gal/sk) 5.8		4887 cuft/ft	ОН	
Slurry 2	Surface: Slurry Properties: Casing Equipment:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface Slurry 1: Fresh Water Lead Slurry 1	Density (ib/gal) 9-5/8", 8R, ST 1 Guide Shoe 1 Top Woode 1 Autofill inse Centralizers, 1 Stop Ring	Wash lines b Wash lines b F&C en Plug ert float valve 1 per joint ex	lated. emp. survey 10-12 hi refore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	free 264 sx + 3 + 1/2	ent job to mineshWater or) id id i/sk) 1.27 Sh water Class "G" Ce % D79 extend 4 #/sk. Cellop	ment er hane Flak	Water (gal/sk) 5.8		4887 cuft/ft	ОН	
1.4 #/sk. Cellophane Flake 0.1503 cutf/ft OH +2% CaCl2 (accelerator) 0.1746 cutf/ft csg and +5 lb/sk Glisonite	Surface: Slurry Properties: Casing Equipment:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface Slurry 1: Fresh Water Lead Slurry 1 TOC@Surface	Density (ib/gal) 9-5/8", 8R, ST 1 Guide Shoe 1 Top Woode 1 Autofill inse Centralizers, 1 Stop Ring	Wash lines b Wash lines b F&C en Plug ert float valve 1 per joint ex	lated. emp. survey 10-12 hi refore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	free 264 sx + 3 + 1/2	ent job to mineshWater or) id id i/sk) 1.27 Sh water Class "G" Ce % D79 extend 4 #/sk. Cellop	ment er hane Flak	Water (gal/sk) 5.8		4887 cuft/ft	он	
+ 2% CaCl2 (accelerator) 0.1746 cuft/ft csg and 5 lb/sk Gilsonite Comparison	Surface: Slurry Properties: Casing Equipment:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface Slurry 1: Fresh Water Lead Slurry 1 TOC@Surface	Density (ib/gal) 9-5/8", 8R, ST 1 Guide Shoe 1 Top Woode 1 Autofill inse Centralizers, 1 Stop Ring	Wash lines b Wash lines b F&C en Plug ert float valve 1 per joint ex	lated. emp. survey 10-12 hi refore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	free 264 sx + 3 + 1/+ 5 59 sx	ent job to min shWater or) id //sk) 1.27 Sh water Class "G" Ce % D79 extend 4 #/sk. Cellop lb/sk Gilsoni 50/50 Class ".	ment er hane Flak te G"/Poz	Water (gal/sk) 5.8		4887 cuft/ft	ОН	
+ 5 lb/sk Glisonite Slurry Properties: Density Yield Water (lb/gal) (ft3/sk) (gal/sk) Slurry 1 11.4 2.63 15.8	Surface: Slurry Properties: Casing Equipment:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface Slurry 1 : Fresh Water Lead Slurry 1 TOC@Surface	Density (lb/gal) 9-5/8", 8R, ST 1 Guide Shoe 1 Top Woode 1 Autofill Insecentializers, 1 Stop Ring 1 Thread Loc	Wash lines b Wash lines b F&C en Plug ert float valve 1 per joint ex	lated. emp. survey 10-12 hi refore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	free 264 sx + 3 +11 + 5 59 sx + 2	ent job to min eshWater or) Id id i/sk) 1.27 Sh water Class "G" Ce % D79 extend 4 #/sk. Cellop Ib/sk Gilsoni 50/50 Class "% % gel (extend	ment ler hane Flak te G"/Poz er)	Water (gal/sk) 5.8		4887 cuft/ft 694 cuft 75 cuft		
Slurry Properties: Density Yield Water (Ib/gal) (ft3/sk) (gal/sk) Slurry 1 11.4 2.63 15.6	Surface: Slurry Properties: Casing Equipment:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface Slurry 1 : Fresh Water Lead Slurry 1 TOC@Surface	Density (lb/gal) 9-5/8", 8R, ST 1 Guide Shoe 1 Top Woode 1 Autofill Insecentializers, 1 Stop Ring 1 Thread Loc	Wash lines b Wash lines b F&C en Plug ert float valve 1 per joint ex	lated. emp. survey 10-12 hi refore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	free 264 sx + 3 + 11 + 5 59 sx + 2 + 17	ent job to min shWater or) Id /sk) 1.27 Sh water Class "G" Ce % D79 extend 4 #/sk. Cellop ib/sk Gilson in % gel (extend 4 #/sk. Cellop	ment er hane Flak ie er) hane Flak	Water (gal/sk) 5.8	0.	694 cuft 75 cuft	ОН	
(lb/gal) (ft3/sk) (gal/sk) slurry 1 11.4 2.63 15.8	Surface: Slurry Properties: Casing Equipment:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface Slurry 1 : Fresh Water Lead Slurry 1 TOC@Surface	Density (lb/gal) 9-5/8", 8R, ST 1 Guide Shoe 1 Top Woode 1 Autofill Insecentializers, 1 Stop Ring 1 Thread Loc	Wash lines b Wash lines b F&C en Plug ert float valve 1 per joint ex	lated. emp. survey 10-12 hi refore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	free 264 sx +3 +1/+5 59 sx +2/+2/+	ent job to min shWater or) id //sk) 1.27 sh water Class "G" Ce % D79 extend 4 #/sk. Cellop ib/sk Gilsoni 50/50 Class ", % gei (extend 4 #/sk. Cellop % CaCl2 (acc	ment er hane Flak te G"/Poz er) hane Flak elerator)	Water (gal/sk) 5.8	0.	694 cuft 75 cuft	ОН	
(lb/gal) (ft3/sk) (gal/sk) Slurry 1 11.4 2.63 15.8	Surface: Slurry Properties: Casing Equipment:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface Slurry 1 : Fresh Water Lead Slurry 1 TOC@Surface	Density (lb/gal) 9-5/8", 8R, ST 1 Guide Shoe 1 Top Woode 1 Autofill Insecentializers, 1 Stop Ring 1 Thread Loc	Wash lines b Wash lines b F&C en Plug ert float valve 1 per joint ex	lated. emp. survey 10-12 hi refore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	free 264 sx +3 +1/+5 59 sx +2/+2/+	ent job to min shWater or) id //sk) 1.27 sh water Class "G" Ce % D79 extend 4 #/sk. Cellop ib/sk Gilsoni 50/50 Class ", % gei (extend 4 #/sk. Cellop % CaCl2 (acc	ment er hane Flak te G"/Poz er) hane Flak elerator)	Water (gal/sk) 5.8	0.	694 cuft 75 cuft	ОН	
• .	Surface: Slurry Properties: Casing Equipment:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface Slurry 1 : Fresh Water Lead Slurry 1 TOC@Surface	Density (ib/gal) 9-5/8", 8R, ST 1 Guide Shoe 1 Top Woode 1 Autofill Inse Centralizers, 1 Stop Ring 1 Thread Loc	Wash lines b Wash lines b F&C en Plug ert float valve 1 per joint ex	lated. emp. survey 10-12 hi refore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	free 264 sx + 3 +11/ + 5 59 sx + 2 +11/ + 2 + 5	ent job to min shWater or) Id /sk) 1.27 Class "G" Ce % D79 extend 4 #/sk. Cellop ib/sk Gilsoni % gel (extend 4 #/sk. Cellop % CaCl2 (acc ib/sk Gilsoni	ment er hane Flak te G"/Poz er) hane Flak elerator)	Water (gal/sk) 5.8	0.	694 cuft 75 cuft	ОН	
13.5 1.27 5.72	Surface: Slurry Properties: Casing Equipment: Intermediate:	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface Slurry 1 : Fresh Water Lead Slurry 1 TOC@Surface	Density (lb/gal) 9-5/8", 8R, ST 1 Guide Shoe 1 Top Woode 1 Autorill Inse Centralizers, 1 Stop Ring 1 Thread Loc	T&C Some Plug The project of the compound	lated. emp. survey 10-12 hi refore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	free 264 sx + 3 + 1/+ 5 59 sx + 2 + 1/2 + 5 Yie (ft3	ent job to min shWater or) id //sk) /sk) 1.27 sh water Class "G" Ce % D79 extend 4 #/sk. Cellop ib/sk Gilsoni 50/50 Class " % gel (extend 4 #/sk. Cellop ib/sk Gilsoni id //sk)	ment er hane Flak te G"/Poz er) hane Flak elerator)	Water (gal/sk) 5.8 5.8 e	0.	694 cuft 75 cuft	ОН	
	Surface: Slurry Properties: Casing Equipment: Intermediate: Slurry Properties: Slurry 1	7. 1" cement to 8. If cement is n *Do not wash up Preflush Slurry 1 TOC@Surface Slurry 1 : Fresh Water Lead Slurry 1 TOC@Surface	Density (lb/gal) 9-5/8", 8R, ST 1 Guide Shoe 1 Top Woode 1 Autorill Inse Centralizers, 1 Stop Ring 1 Thread Loc	T&C Service of the compound of	lated. emp. survey 10-12 hi refore displacing pro 20 bbl. 154 sx Class (+ 2% CaCl	free 264 sx + 3 + 17 + 25 + 55 Yie (ft3 2.	ent job to min shWater or) Id /sk) 1.27 Sh water Class "G" Ce % D79 extend 4 #/sk. Cellop 150/50 Class " % gel (extend 4 #/sk. Cellop % CaCl2 (acc ib/sk Gilsoni id /sk) 63	ment er hane Flak te G"/Poz er) hane Flak elerator)	Water (gal/sk) 5.8 see water (gal/sk) 15.8	0.	694 cuft 75 cuft	ОН	

Schlumberger Private Page 1

Cementing Program

- 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

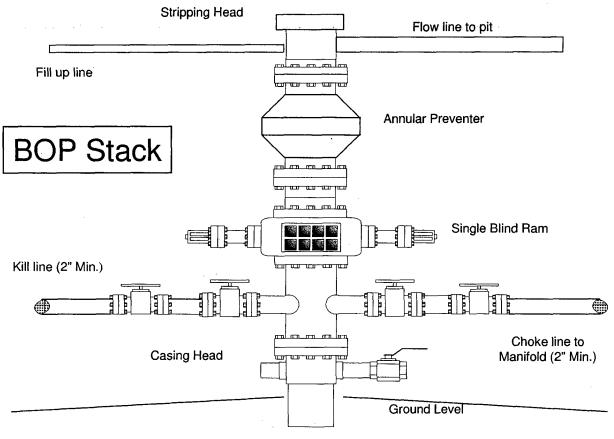
Production:	Fresh Water		10 bbl	CW100		
	Lead			188 LiteCrete D961 / D1	24 / D154	473 cuft
	Slurry 1			+ 0.03 gps D47 anti	foam	
	TOC, 400' above	7" shoe		+ 0.5% D112 fluid lo		
	•			+ 0.11% D65 TIC		
	Tail			148 sx 50/50 Class "G"/	Poz	213 cuft
	Slurry 2			+ 5% D20 gel (exter	nder)	
	148	5 ft fill		+ 0.1% D46 antifoar	n	
				+ 1/4 #/sk. Cellopha	ine Flake	
				+ 0.25% D167 Fluid	Loss	
				+ 5 lb/sk Gilsonite		
				+0.1% d800, retarde	er .	
				+0.15% D65, disper	sant	
						0.1026 cuft/ft OH
Slurry Properties:		Density		Yield	Water	
		(ib/gal)		(ft3/sk)	(gal/sk)	0.1169 cuft/ft csg ann
Slurry 1			.5	2.52	6.38	
Slurry 2		1	3	1.44	6.5	Top of Mancos
						5541
Casing Equipment	t:	4-1/2", 8R, ST&C				
		1 Float Shoe (auto	ofill with minimal LCM in mud)			

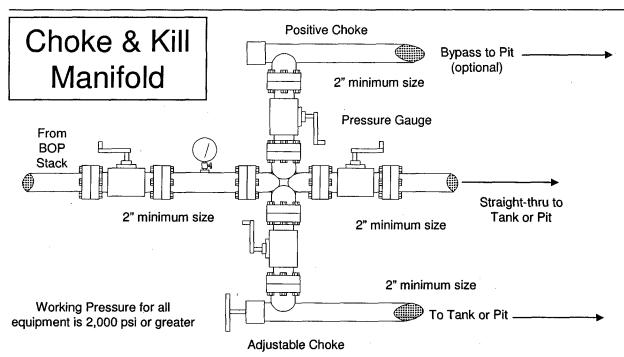
- 1 Float Shoe (autofill with minimal LCM in mud)
 1 Float Collar (autofill with minimal LCM in mud)
 1 Stop Ring
 Centralizers, every 4th joint in mud drilled holes, none in air drilled holes.
 1 Top Rubber Plug
 1 Thread Lock Compound

BP American Production Company

Well Control Equipment Schematic







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", 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.