

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. TYPE OF WORK DRILL <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO. SF - 078051
b. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER <input type="checkbox"/> SINGLE ZONE <input type="checkbox"/> MULTIPLE ZONE <input checked="" type="checkbox"/>		6. IF INDIAN, ALLOTTEE OR TRIBE NAME
2. NAME OF OPERATOR AMOCO PRODUCTION COMPANY P.O. BOX 3092 HOUSTON, TX 77079		7. UNIT AGREEMENT NAME
3. ADDRESS AND TELEPHONE NO. MARY CORLEY AUTHORIZED REPRESENTATIVE PHONE: 281.366.4491 EXT: FAX: 281.366.0700 EMAIL: corleyml@bp.com		8. FARM OR LEASE NAME, WELL NO. MUDGE LS 24M
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)* At Surface 2370 FSL AND 780 FEL NESE SEC 33 T32N R11W At proposed prod. zone		9. API WELL NO. 30-045-30625
14. DISTANCE IN MILES AND DIRECTION FROM THE NEAREST TOWN OR POST OFFICE 12 MILES FROM AZTEC		10. FIELD AND POOL, OR WILDCAT BASIN DAKOTA/BLANCO MESAVERDE
15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drig. unit line, if any)	16. NO. ACRES IN LEASE 320.00	11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA SECTION 33 T32N R11W
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE FT.	19. PROPOSED DEPTH 7584 MD / TVD	12. COUNTY OR PARISH SAN JUAN
21. ELEVATIONS (Show whether DF, RT, GR, etc.) 6092 GL		13. STATE NM
22. APPROX. DATE WORK WILL START* 05/15/2001		

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT

Notice of Staking Submitted 02/26/2001. Amoco Production Company respectfully request permission to drill the subject well to a total depth of approximately 7584', complete in the Basin Dakota Pool, produce the well for approximately 30 days to establish production rate, add the Blanco Mesaverde Pool and commingle production downhole. Application for downhole commingling authority (NMOC order R-11363) will be submitted to all appropriate parties for approval after production has been established in the Basin Dakota Pool and prior to completion of and downhole commingling with the Blanco Mesaverde. Attached in support of our application please find 2 .pdf files and 1 .doc file.

procedural review pursuant to 43 CFR 3160.3
and appeal pursuant to 43 CFR 3160.4.

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

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data on present productive zone and proposed productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24. ELECTRONIC SUBMISSION #3551 VERIFIED BY THE BLM WELL INFORMATION SYSTEM
FOR AMOCO PRODUCTION COMPANY SENT TO THE FARMINGTON FIELD OFFICE
SIGNED: MARY CORLEY TITLE: AUTHORIZED REPRESENTATIVE DATE: 04/09/2001

PERMIT NO. _____ APPROVAL DATE _____

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:

APPROVED BY: /s/ Lee Otteri TITLE: _____ DATE: _____
AMOCO HOLD C104 FOR NSL for Dakota completion

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 30-045-30625		2 Pool Code 71599 & 72319		3 Pool Name BASIN DAKOTA & BLANCO MESAVERDE		
4 Property Code 000911		5 Property Name Mudge LS			6 Well Number # 24M	
7 OGRID No. 00778		8 Operator Name AMOCO PRODUCTION COMPANY			9 Elevation 6092 -	

10 Surface Location

UL or Lot No. I	Section 33	Township 32 N	Range 11 W	Lot Idn	Feet from the 2370	North/South line SOUTH	Feet from the 780	East/West line EAST	County SAN JUAN
--------------------	---------------	------------------	---------------	---------	-----------------------	---------------------------	----------------------	------------------------	--------------------

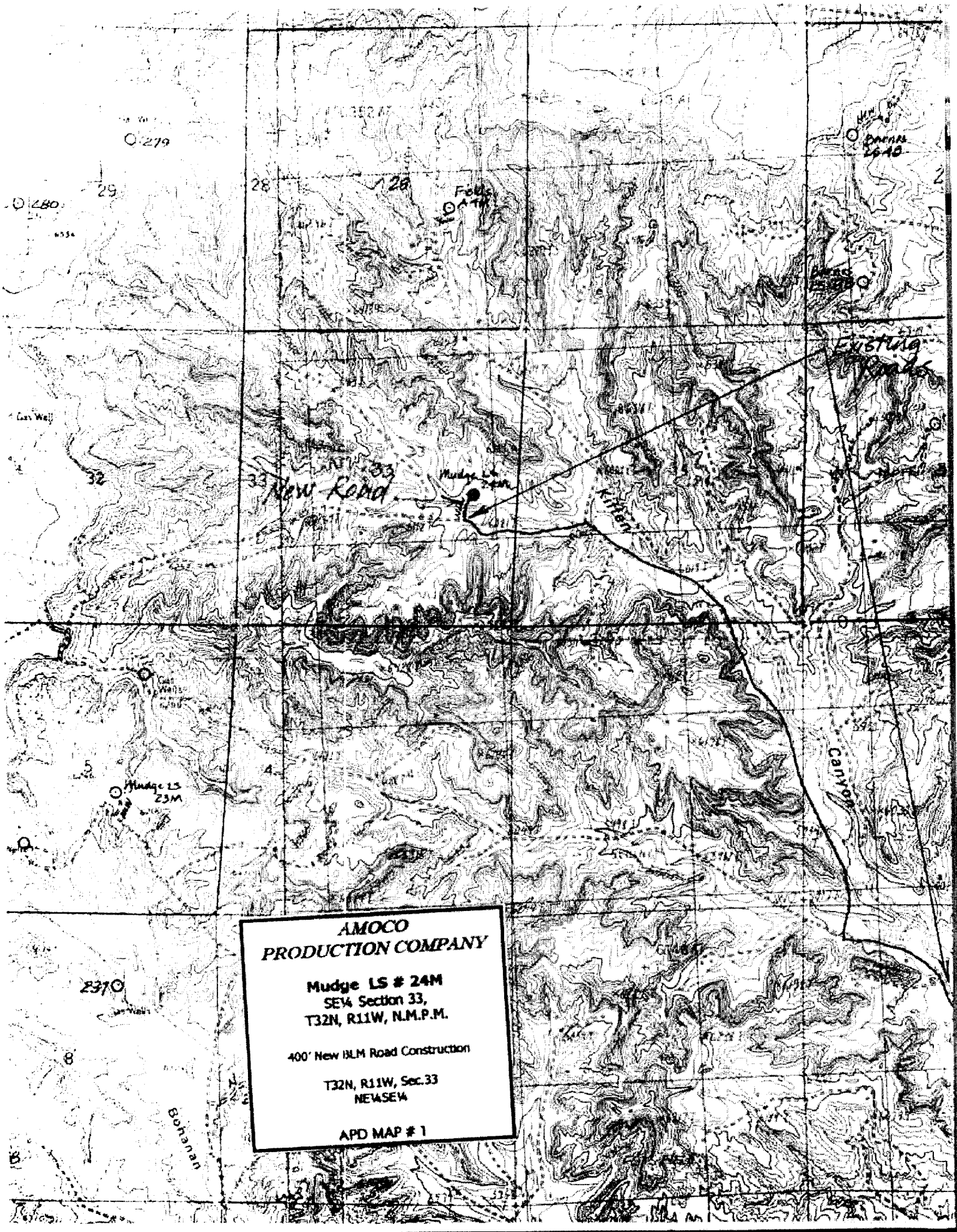
11 Bottom Hole Location If Different From Surface

12 UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
------------------	---------	----------	-------	---------	---------------	------------------	---------------	----------------	--------

13 Dedicated Acres 320.00	14 Joint or Infill	15 Consolidation Code	16 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

14	33	3049	24	JUN 2001 RECEIVED OIL CON. DIV DIST. 3	17 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. Signature <i>Mary Corley</i> MARY CORLEY SR. REGULATORY ANALYST Date 04/09/2001	
					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. January 27, 2001 Date of Survey Signature and Seal of Professional Surveyor 7016 Certificate Number	



**AMOCO
PRODUCTION COMPANY**

**Mudge LS # 24M
SE1/4 Section 33,
T32N, R11W, N.M.P.M.**

400' New BLM Road Construction

**T32N, R11W, Sec.33
NEWSEW**

APD MAP # 1

**AMOCO PRODUCTION COMPANY
DRILLING AND COMPLETION PROGRAM**

Prospect Name: Mudge LS
Lease: MUDGE LS
County: San Juan
State: New Mexico
Date: April 9, 2001

Well No: 24M
Surface Location: 33-32N-11W, 2370 FSL, 780 FEL
Field: Blanco Mesaverde/Basin Dakota

OBJECTIVE: Drill 400' below the base of the Greenhorn Limestone, set 4" Liner across Dakota, Stimulate LS, CH, MF, PL and DK intervals									
METHOD OF DRILLING				APPROXIMATE DEPTHS OF GEOLOGICAL MARKER					
TYPE OF TOOLS		DEPTH OF DRILLING		Estimated GL: 6092		Estimated KB: 6106			
Rotary		0 - TD							
LOG PROGRAM									
TYPE		DEPTH INTERVAL							
OPEN HOLE									
GR-Induction		TD to 5 1/2" shoe							
Density/Neutron		TD to 5 1/2" shoe							
Sonic		TD to 5 1/2" shoe							
CASED HOLE									
GR-CCL-TDT		TDT - PBTD-7 5/8" shoe							
		GR-CCL - PBTD-0'							
CBL		Top of 4" - 5' above 7 5/8" shoe							
REMARKS: - Please report any flares (magnitude & duration).				MARKER		SUBSEA		MEAS. DEPTH	
				Ojo Alamo		4963		1143	
				Fruitland Coal		3943		2163	
				Pictured Cliffs		3311		2796	
				Lewis Shale		3233		2873	
				Cliff House		1546		4560	
				Menefee Shale		1384		4722	
				Point Lookout		1036		5070	
				Mancos		881		5225	
				Greenhorn		-1025		7131	
Bentonite Marker		-1078		7184					
Two Wells		#		-1138		7244			
Dakota MB		#		-1242		7348			
Burro Canyon		*		-1387		7493			
Morrison		*		-1437		7543			
TOTAL DEPTH				-1478		7584			
				# Probable completion interval		* Possible Pay			
SPECIAL TESTS				DRILL CUTTING SAMPLES		DRILLING TIME			
TYPE				FREQUENCY DEPTH		FREQUENCY DEPTH			
None				10 feet Production hole		Geograph 0-TD			
REMARKS:									
MUD PROGRAM:									
Approx. Interval		Type Mud	Weight, #/gal	Vis, sec/qt	W/L cc's/30 min	Other Specification			
0	- 120-135	3 jts. Spud	8.6-9.2						
120-135	- 2113	(1)(2) Water/LSND	8.6-9.2						
2113	- 7184	Gas/Air/Mist	Volume sufficient to maintain a stable and clean wellbore						
7184	7584	LSND	8.6-9.2						
REMARKS:									
(1) The hole will require sweeps to keep unloaded while fresh water drilling. Let hole conditions dictate frequency.									
(2) Top set Fruitland Coal to minimize lost circulation, air volume to maintain hole stability.									
CASING PROGRAM: (Normally, tubular goods allocation letter specifies casing sizes to be used. Hole sizes will be governed by Contract)									
Casing String	Estimated Depth	Casing Size	Grade	Weight	Hole Size	Landing Pt, Cmt, Etc.			
Surface/Conductor	120-135	10 3/4"	J-55 ST&C	40.5#	14.75"	1			
Intermediate 1	2113	7 5/8"	K-55 LT&C	26.4#	9.875"	1.2			
Intermediate 2	7184	5 1/2"	K-55 LT&C	15.5#	6.75"	4			
Production (liner)	7584	4"	K-55 H 511	11#	4.75"	3			
REMARKS:									
(1) Circulate Cement to Surface				(4) Bring cement 200' above 7 5/8" shoe					
(2) Set casing 50' above Fruitland Coal									
(3) Liner Lap should be a minimum of 100'									
CORING PROGRAM:									
None									
COMPLETION PROGRAM:									
Rigless, 4-6 Stage Limited Entry Hydraulic Frac									
GENERAL REMARKS:									
Notify BLM/NMOCD 24 hours prior to Spud, BOP testing, and Casing and Cementing.									
Form 46 Reviewed by:				Logging program reviewed by: N/A					
PREPARED BY:		APPROVED:		DATE:					
KAS/KAT				March 2, 2001					
Form 46 12-00 KAT				Version 1.0					

Cementing Program: MUDGE LS 24M

	Surface	Intermediate	I2	Liner
Excess %, Bit	100%	80	50	10
Excess %, Caliper	NA	NA	NA	30
BHST (est deg. F)	60	120	150	160
Pipe Movement	NA	Rotate/Reciprocate	Rotate/Reciprocate	as per Liner Co.
Rate, Max (bpm)	7	4	4	2
Rate Recommended (bpm)	6	4	3	2
Pressure, Max (psi)	200	2000	2000	2000
Shoe Joint	40	80	80	40
Batch Mix	NA	NA	NA	NA
Circulating prior cmtng (hr)	0.5	1.5	2.5	2
Time Between Stages, (hr)	NA	NA	NA	NA
Special Instructions	1,6,7	1,6,8	1,6,9	2,3,4,6

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 liner cement job to minimize drillout.
- ** After cement set time the liner top will be drilled out and liner circulated clean with treated water.
- *** Run TMD cased hole logs to identify pay; Perforating and CH logs can be run rigless.

Surface:

Preflush	20 bbl.	FreshWater	
Slurry 1	20sx Class G Cement		139cuft
TOC@Surface	+ 2% CaCl ₂ (accelerator)		
	0.25 #/sk Cellophane Flake (lost circulation additive)		0.5563cuft/ft OH
	0.1% D46 antifoam		100% excess
Slurry Properties:	Density	Yield	Water
	(lb/gal)	(ft ³ /sk)	(gal/sk)
Slurry 1	15.8	1.16	4.95
Casing Equipment:	10-3/4", 8R, ST&C		
	1 Guide Shoe		
	1 Top Wooden Plug		
	1 Autofill insert float valve		
	4 Centralizers		
	1 Stop Ring		
	1 Thread Lock Compound		

Cementing Program: MUDGE LS 24M

Intermediate:				
Fresh Water	20 bbl	fresh water		
Lead		208sx Class "G" Cement	605 cuft	
Slurry 1		+ 3% D79 extender		
TOC@Surface		+ 2% S1 Calcium Chloride		
		+1/4 #/sk. Cellophane Flake		
		+ 0.1% D46 antifoam		
Tail		152sx 50/50 Class "G"/Poz	1931 cuft	
Slurry 2		+ 2% gel (extender)		
500f fill		0.1% D46 antifoam	0.2148 cuft/ft OH	
		+1/4 #/sk. Cellophane Flake	0.2338 cuft/ft csg ann	
		+ 2% CaCl2 (accelerator)	80 % excess	
Slurry Properties:				
	Density	Yield	Water	
	(b/gal)	(ft3/sk)	(gal/sk)	
Slurry 1	11.4	2.9	17.77	
Slurry 2	13.5	1.27	5.72	
Casing Equipment:				
	7-5/8", 8R, ST&C			
	1 Float Shoe (autofill with minimal LCM in mud)			
	1 Float Collar (autofill with minimal LCM in mud)			
	1 Stop Ring			
	9 Centralizers (one in middle of first joint, then every third collar)			
	2 Fluidmaster vane centralizers @ base of Ojo			
	8 Centralizers one every 4th joint from Ojo to base of surface casing			
	1 Top Rubber Plug			
	1 Thread Lock Compound			

Int 2:				
Fresh Water	10 bbl	CW100		
Lead		487 LiteCrete D961 / D124 / D154	1043 cuft	
Slurry 1		+ 0.03 gps D47 antifoam		
TOC@Surface		+ 0.5% D112 fluid loss		
		+ 0.11% D65 TIC		
Tail		80sx 50/50 Class "G"/Poz	115 cuft	
Slurry 2		+ 5% D20 gel (extender)	+ 5 #/sk D24 gilsonite	
500f fill		+ 0.1% D46 antifoam	+ 0.15% D65 TIC	
		+ 1/4 #/sk. Cellophane Flake	+ 0.1% D800 retarder	
		+ 0.25% D167 Fluid Loss		
			0.1521 cuft/ft OH	
Slurry Properties:				
	Density	Yield	Water	
	(lb/gal)	(ft3/sk)	(gal/sk)	
Slurry 1	9.5	2.14	6.38	
Slurry 2	13	1.44	6.5	
Casing Equipment:				
	5-1/2", 8R, ST&C			
	1 Float Shoe (autofill with minimal LCM in mud)			
	1 Float Collar (autofill with minimal LCM in mud)			
	1 Stop Ring			
	35 Centralizers (every third joint)			
	1 Top Rubber Plug			
	1 Thread Lock Compound			

Cementing Program: MUDGE LS 24M

Production (liner):

Preflush	10 bbl.	CW100 / LCM wash	
Lead Cement		2350/50 Poz/G	34 cuft
Slurry 1		5% D20 bentonite	0.1% D46 antifoam
	100 ft lap	0.25#/sk D29 cellophane	
	100 ft cap	0.25% D167 Fluid loss	0.0358 cuft/ft OH
		0.15% D65 TIC	0.0464 cuft/ft csg ann
		0.15% D800 retarder	0.1336 cuft/ft csg
Slurry Properties:	Density	Water	10 % excess
	(lb/gal)	(ft ³ /sk)	(gal/sk)
Slurry 1	13	1.44	6.5
Liner Float Equipment:	Float Shoe and Float Collar (furnished by Liner Hanger Company)		
	1 Thread Lock Compound		

Note:

1. Coordinate w/Liner hard to drop plug, or set/release Liner as required
2. The job should be pumped at 2-3 bpm max rate. Do not exceed 3 bpm on displacement
3. Wash pump and lines before displacement. Slow to 1 bpm for the last 30 bbl of displacement.
4. This is to be a rigless completion. After cement set time, liner top will be dressed off an liner circulated clean with 2 % KCl or 2 gal/1000 gal L64.

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.

**Amoco Production Company
EOP Pressure Testing Requirements**

Well Name: MUDGE LS 24M

County: San Juan

State: New Mexico

Formation	TVD	Anticipated Bottom Hole Pressure	Maximum Anticipated Surface Pressure **
Ojo Alamo	1143		
Fruitland Coal	2163		
PC	2796		
Lewis Shale	2873		
Cliff House	4560	500	0
Menefee Shale	4722		
Point Lookout	5070	600	0
Mancos	5225		
Dakota	7244	2600	1450

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

Requested BOP Pressure Test Exception: 3000 PSI
--

**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

Below conductor casing to total depth

BOP Equipment

**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.