

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

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMSF - 078096
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input checked="" type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator AMOCO PRODUCTION COMPANY Contact: MARY CORLEY E-Mail: corley.m@bbl.com		7. If Unit or CA Agreement, Name and No.
3a. Address P.O. BOX 3092 HOUSTON, TX 77253	3b. Phone No. (include area code) Ph: 281.366.4491 Fx: 281.366.0700	8. Lease Name and Well No. MUDGE B 19M
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface NWSE Lot J 1320FSL 2180FEL 36.53700 N Lat, 108.00700 W Lon At proposed prod. zone NESE Lot I 1980FSL 900FEL 36.53700 N Lat, 108.00700 W Lon		9. API Well No. 30-45-30758
14. Distance in miles and direction from nearest town or post office* 9 1/2 MILES FROM AZTEC, NM		10. Field and Pool, or Exploratory BASIN DAKOTA/BLANCO MESAVERDE
15. Distance from proposed location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 1320	16. No. of Acres in Lease 320.00	11. Sec., T., R., M., or Blk. and Survey or Area J Sec 17 T31N R11W Mer NMP
18. Distance from proposed location to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth 7911 MD - 7604 TVD	12. County or Parish SAN JUAN
21. Elevations (Show whether DF, KB, RT, GL, etc.) 6317 GL	22. Approximate date work will start 08/31/2001	13. State NM
23. Estimated duration		17. Spacing Unit dedicated to this well 320.00
20. BLM/BIA Bond No. on file		

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification
- Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature	Name (Printed/Typed) MARY CORLEY	Date 07/27/2001
Title AUTHORIZED REPRESENTATIVE		
Approved by (Signature) /s/ Joel Farrell	Name (Printed/Typed)	Date AUG 28
Title	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 States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Additional Operator Remarks (see next page)

Electronic Submission #6012 verified by the BLM Well Information System  
For AMOCO PRODUCTION COMPANY, sent to the Farmington  
Committed to AFMSS for processing by Maurice Johnson on 08/01/2001 ()

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

DEVELOPMENT AND PRODUCTION ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS"

\*\* ORIGINAL \*\* ORIGINAL \*\* ORIGINAL \*\* ORIGINAL \*\* ORIGINAL \*\* ORIGINAL \*\* ORIGINAL \*\* ORIGINAL \*\*

HOLD C104 FOR Directional Survey  
AMOCO

K✓

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 <b>30045-30758</b>		2 Pool Code <b>71599 F 72319</b>		3 Pool Name <b>BASIN DAKOTA</b>		4 Pool Name <b>BLANCO MESAVERDE</b>	
5 Property Code <b>000906</b>		6 Property Name <b>Mudge B</b>				7 Well Number <b># 19M</b>	
8 OGRID No. <b>000778</b>		9 Operator Name <b>AMOCO PRODUCTION COMPANY</b>				10 Elevation <b>6317</b>	

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
<b>J</b>	<b>17</b>	<b>31 N</b>	<b>11 W</b>		<b>1320</b>	<b>SOUTH</b>	<b>2180</b>	<b>EAST</b>	<b>SAN JUAN</b>

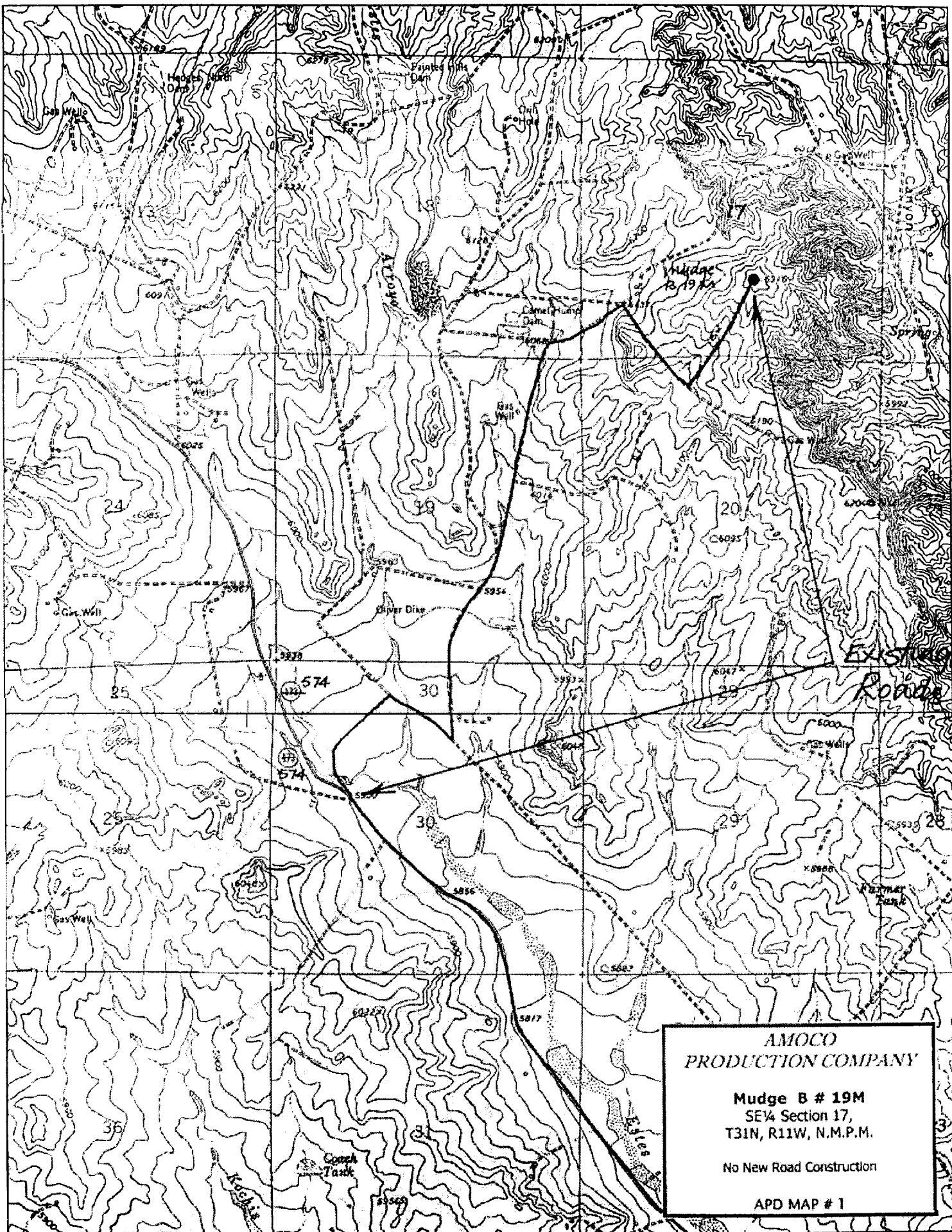
11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<b>I</b>	<b>17</b>	<b>31 N</b>	<b>11 W</b>		<b>1980</b>	<b>SOUTH</b>	<b>900</b>	<b>EAST</b>	<b>SAN JUAN</b>

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

	<p>16 OPERATOR CERTIFICATION</p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.</p> <p><i>Mary Corley</i> Signature</p> <p><b>MARY CORLEY</b> Printed Name</p> <p><b>SR. REGULATORY Analyst</b> Title</p> <p><b>07.27.2001</b> Date</p>
	<p>17 SURVEYOR CERTIFICATION</p> <p>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><b>May 30, 2001</b> Date of Survey</p> <p>Signature and Seal of Professional Surveyor</p> <p> 7016 Certificate Number</p>



**AMOCO PRODUCTION COMPANY  
DRILLING AND COMPLETION PROGRAM**

**Prospect Name:** Mudge B  
**Lease:** MUDGE B  
**County:** San Juan  
**State:** New Mexico  
**Date:** July 27, 2001

**Well No:** 19M  
**Surface Location:** 17-31N-11W, 1320 FSL, 2180 FEL  
**Field:** Blanco Mesaverde/Basin Dakota  
**Bottom Location:** 17-31N-11W, 1980 FSL, 900 FEL

<b>OBJECTIVE:</b> Drill 450' below the base of the Greenhorn Limestone, set 41/2" production casing, Stimulate LS, CH, MF, PL and DK intervals							
<b>METHOD OF DRILLING</b>				<b>APPROXIMATE DEPTHS OF GEOLOGICAL MARKER</b>			
TYPE OF TOOLS		DEPTH OF DRILLING		Estimated GL: 6317		Estimated KB: 6331	
Rotary		0 - TD					
<b>LOG PROGRAM</b>				<b>MARKER</b>			
TYPE		DEPTH INVERAL				SUBSEA	
<u>OPEN HOLE</u>						MEAS. DEPTH	
GR-Induction		TD to 7" shoe		Ojo Alamo		5093. 1308	
Density/Neutron		TD to 7" shoe		Fruitland Coal *		4064 2447	
				Pictured Cliffs *		3437 3141	
<u>CASED HOLE</u>				Lewis Shale #		3161 3446	
GR-CCL-TDT		TDT - TD to 7" shoe		Cliff House #		1855 4786	
CBL		Identify 4 1/2" cement top		Menefee Shale #		1596 5043	
				Point Lookout #		1185 5453	
				Mancos		799 5839	
				Greenhorn		-916 7554	
				Bentonite Marker		-965 7603	
REMARKS:				Two Wells #		-1019 7657	
- Please report any flares (magnitude & duration).				Dakota MB #		-1138 7776	
				Burro Canyon *		-1223 7861	
				Morrison *		-1273 7911	
				TOTAL DEPTH		-1415 7911	
				# Probable completion interval		* Possible Pay	
<b>SPECIAL TESTS</b>				<b>DRILL CUTTING SAMPLES</b>		<b>DRILLING TIME</b>	
TYPE				FREQUENCY DEPTH		FREQUENCY DEPTH	
None				10 feet Production hole		Geograph 0-TD	
REMARKS:							

<b>MUD PROGRAM:</b>						
Approx. Interval	Type Mud	Weight, #/ga	Vis, sec/qt	W/L cc's/30 min	Other Specification	
0 - 200	Spud	8.6-9.2				
200 - 3543 (1)	Water/LSND	8.6-9.2		<6		
3543 - 7861	Gas/Air/N2/Mist	Volume sufficient to maintain a stable and clean wellbore				
7861 - 7911 (2)	LSND	9.0-9.2		<6		
REMARKS:						
(1) The hole will require sweeps to keep unloaded while fresh water drilling. Let hole conditions dictate frequency.						
(2) Mud up 50' above Morrison +/-.						
<b>CASING PROGRAM:</b> (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	200	9 5/8"	H-40 ST&C	32#	12.25"	1 —
Intermediate 1	3543	7"	J/K-55 ST&C	20#	8.75"	1,2 —
Production	7911	4 1/2"	J-55	11.6#	6.25"	3 —
REMARKS:						
(1) Circulate Cement to Surface						
(2) Set casing 100' into Lewis Shale						
(3) Bring cement 100' above 7" shoe						
<b>CORING PROGRAM:</b>						
None						
<b>COMPLETION PROGRAM:</b>						
Rigless, 4-6 Stage Limited Entry Hydraulic Frac						
<b>GENERAL REMARKS:</b>						
Notify BLM/NMOCDD 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:		
HGJ/MNP				29 June 2001		
				Version 1.0		

## Cementing Program

Slurry 1 TOC@Surface	108 sx Class G Cement + 2% CaCl <sub>2</sub> (accelerator) 0.25 #/sk Cellophane Flake (lost circulation additive) 0.1% D46 antifoam	125 cuft  0.3132 cuft/ft OH 100 % excess
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Slurry Properties:	Density (lb/gal)	Yield (ft <sup>3</sup> /sk)	Water (gal/sk)
Slurry 1	15.8	1.16	4.95

Casing Equipment:

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

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### Intermediate:

Fresh Water	20 bbl	fresh water
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Lead Slurry 1 TOC@Surface	277 sx Class "G" Cement + 3% D79 extender + 2% S1 Calcium Chloride + 1/4 #/sk. Cellophane Flake + 0.1% D46 antifoam	804 cuft
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Tail Slurry 2  500 ft fill	107 sx 50/50 Class "G"/Poz + 2% gel (extender) 0.1% D46 antifoam + 1/4 #/sk. Cellophane Flake + 2% CaCl <sub>2</sub> (accelerator)	135 cuft  0.1503 cuft/ft OH 0.1746 cuft/ft csg ann 80 % excess
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Slurry Properties:	Density (lb/gal)	Yield (ft <sup>3</sup> /sk)	Water (gal/sk)
Slurry 1	11.4	2.9	17.77
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
- 10 Centralizers (one in middle of first joint, then every third collar)
- 2 Fluidmaster vane centralizers @ base of Ojo
- 7 Centralizers one every 4th joint from Ojo to base of surface casing
- 1 Top Rubber Plug
- 1 Thread Lock Compound

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### Production:

Fresh Water	10 bbl	CW100
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Lead Slurry 1 TOC@Surface	147 LiteCrete D961 / D124 / D154 + 0.03 gps D47 antifoam + 0.5% D112 fluid loss	316 cuft
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# Cementing Program

+ 0.11% D65 TIC

Tail  
Slurry 2

1572 ft fill

123 sx 50/50 Class "G"/Poz  
+ 5% D20 gel (extender)  
+ 0.1% D46 antifoam  
+ 1/4 #/sk. Cellophane Flake  
+ 0.25% D167 Fluid Loss

177 cuft  
+ 5 #/sk D24 gilsonite  
+ 0.15% D65 TIC  
+ 0.1% D800 retarder

Slurry Properties:

Density  
(lb/gal)

Yield  
(ft<sup>3</sup>/sk)

Water  
(gal/sk)

0.1026 cuft/ft OH  
10 % excess  
0.1169 cuft/ft csg ann

Slurry 1  
Slurry 2

9.5  
13

2.14  
1.44

6.38  
6.5

Top of Mancos  
5839

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  
39 Centralizers (every third joint)

1 Top Rubber Plug  
1 Thread Lock Compound

Note:

1. The job should be pumped at 2-3 bpm max rate. Do not exceed 3 bpm on displacement
2. Wash pump and lines before displacement. Slow to 1 bpm for the last 30 bbl of displacement.