

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0135
Expires: November 30, 2000

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side

5. Lease Serial No.
SF - 078095

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

Well Name and No.
MUDGE LS 23M

2. Name of Operator
AMOCO PRODUCTION COMPANY

Contact: MARY CORLEY
E-Mail: corleym@blm.gov

9. API Well No.
30-045-30632

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

3b. Phone No. (include area code)
Ph: 281.366.4491
Fx: 281.366.0700

10. Field and Pool, or Exploratory
BASIN DAKOTA/BLANCO MESAVERDE

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 5 T31N R11W Mer NWSE 2210FSL 1940FEL
36.55600 N Lat, 108.00700 W Lon

11. County or Parish, and State
SAN JUAN COUNTY, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> APDCH
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Application for Permit to Drill for the subject well was submitted on 04/11/2001 and approved on 06/08/2001. Amoco Production Company respectfully submits for your approval amendments to our drilling and completion Program as per the attached two (2) documents. The major change is in the casing and cementing program.

The subject well also requires NMOCD approval for a Non-Standard drilling location for the Basin Dakota completion. A request for an exception to the Non-Standard well location is being submitted to the NMOCD under a separate application.

14. I hereby certify that the foregoing is true and correct.

**Electronic Submission #5096 verified by the BLM Well Information System
For AMOCO PRODUCTION COMPANY, sent to the Farmington
Committed to AFMSS for processing by Maurice Johnson on 06/20/2001 ()**

Name (Printed/Typed) MARY CORLEY

Title AUTHORIZED REPRESENTATIVE

Signature

Date 06/19/2001

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By

Title

Date 7/3/01

Conditions of approval, if any, are attached. Approval of this notice 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.

Office

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.

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**AMOCO PRODUCTION COMPANY
DRILLING AND COMPLETION PROGRAM**

Prospect Name: Mudge LS
Lease: MUDGE LS
County: San Juan
State: New Mexico
Date: June 19, 2001

Well No: 23M
Surface Location: 5-31N-11W, 2210 FSL, 1940 FEL
Field: Blanco Mesaverde/Basin Dakota

OBJECTIVE: Drill 450' below the base of the Greenhorn Limestone, set 4 1/2" production casing, Stimulate LS, CH, MF, PL and DK intervals

METHOD OF DRILLING		APPROXIMATE DEPTHS OF GEOLOGICAL MARKER			
TYPE OF TOOLS	DEPTH OF DRILLING	Estimated GL: 6204		Estimated KB: 6218	
Rotary	0 - TD	MARKER		SUBSEA	MEAS. DEPTH
LOG PROGRAM TYPE <u>OPEN HOLE</u> GR-Induction TD to 7" shoe Density/Neutron TD to 7" shoe <u>CASED HOLE</u> GR-CCL-TDT TDT - TD to 7" shoe CBL Identify 4 1/2" cement top		Ojo Alamo		5141	1077
		Fruitland Coal	*	3997	2221
		Pictured Cliffs	*	3352	2866
		Lewis Shale	#	3318	2900
		Cliff House	#	1748	4470
		Menefee Shale	#	1549	4669
		Point Lookout	#	1091	5127
		Mancos		984	5234
		Greenhorn		-950	7168
		Bentonite Marker		-998	7216
		Two Wells	#	-1060	7278
		Dakota MB	#	-1170	7388
		Burro Canyon	*	-1290	7508
		Morrison	*	-1340	7558
		TOTAL DEPTH		-1488	7706
REMARKS:		# Probable completion interval * Possible Pay			
- Please report any flares (magnitude & duration).					
SPECIAL TESTS		DRILL CUTTING SAMPLES		DRILLING TIME	
TYPE		FREQUENCY	DEPTH	FREQUENCY	DEPTH
None		10 feet	Production hole	Geologist	0-TD
REMARKS:					

MUD PROGRAM:							
Approx. Interval			Type Mud	Weight, #/ga	Vis, sec/qt	W/L cc's/30 min	Other Specification
0	-	120-135	3 jts.	Spud	8.6-9.2		
120-135	-	2999	(1)	Water/LSND	8.6-9.2		<6
2999	-	7508		Gas/Air/N2/Mist	Volume sufficient to maintain a stable and clean wellbore		
7508		7706	(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 +/-.

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	9 5/8"	H-40 ST&C	32#	12.25"	1
Intermediate 1	2999	7"	J/K-55 ST&C	20#	8.75"	1,2
Production	7706	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

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:	
HGJ/KAT		May 1, 2001	
Form 46 12-00 KAT		Version 2.0	

BOP Test Pressure

Amoco Production Company BOP Pressure Testing Requirements

Well Name: Mudge LS
County: San Juan

23M
State: New Mexico

Formation	TVD	Anticipated Bottom Hole Pressure	Maximum Anticipated Surface Pressure **
Ojo Alamo	1077		
Fruitland Coal	2221		
PC	2866		
Lewis Shale	2900		
Cliff House	4470	500	0
Menefee Shale	4669		
Point Lookout	5127	600	0
Mancos	5234		
Dakota	7278	2600	1449

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

Requested BOP Pressure Test Exception: 3000 psi

Cementing Program

Well Name: Mudge LS 23M	Field: Blanco Mesaverde / Basin Dakota
Location: 5-31N-11W, 2210 FSL, 1940 FEL	API No.
County: San Juan	Well Flac
State: New Mexico	Formation: Dakota MesaVerde
	KB Elev (est) 6128
	GL Elev. (est) 6204

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	135	12.25	9.625	ST&C	Surface	NA	
Intermediate	3000	8.75	7	LT&C	Surface	NA	
Production -	7666	6.25	4.5	?	2900	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	Recommended Mud Properties Prio Cementing:
			PV <20
			YP <10
			Fluid Loss <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 %, Bit	100%	80	10
Excess %, Caliper	NA	NA	30
BHST (est deg. F)	60	120	160
Pipe Movement	NA	Rotate/Reciprocate	Rotate/Reciprocate
Rate, Max (bpm)	7	4	2
Rate Recommended (bpm)	6	4	2
Pressure, Max (psi)	200	2000	2000
Shoe Joint	40	80	40
Batch Mix	NA	NA	NA
Circulating prior cmtng (hr)	0.5	1.5	2
Time Between Stages, (hr)	NA	NA	NA
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.
- *** Run TMD cased hole logs to identify pay; Perforating and CH logs can be run rigless.

Surface:

Preflush	20 bbl.	FreshWater
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Cementing Program

Slurry 1 TOC@Surface		73 sx Class G Cement + 2% CaCl2 (accelerator) 0.25 #/sk Cellophane Flake (lost circulation additive) 0.1% D46 antifoam		85 cuft 0.3132 cuft/ft OH 100 % excess
Slurry Properties:	Density (lb/gal)	Yield (ft3/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			
<hr/>				
Intermediate:				
Fresh Water	20 bbl	fresh water		
Lead Slurry 1 TOC@Surface	229 sx Class "G" Cement + 3% D79 extender + 2% S1 Calcium Chloride + 1/4 #/sk. Cellophane Flake + 0.1% D46 antifoam'			663 cuft
Tail Slurry 2	107 sx 50/50 Class "G"/Poz + 2% gel (extender) 0.1% D46 antifoam + 1/4 #/sk. Cellophane Flake + 2% CaCl2 (accelerator)			135 cuft
500 ft fill				0.1503 cuft/ft OH 0.1746 cuft/ft csg ann 80 % excess
Slurry Properties:	Density (lb/gal)	Yield (ft3/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			

Production:

Fresh Water 10 bbl CW100

Lead 144 LiteCrete D961 / D124 / D154 309 cuft
Slurry 1 + 0.03 gps D47 antifoam
TOC@Surface + 0.5% D112 fluid loss