

District I
PO Box 1980, Hobbs, NM 88241-1980
District II
811 South First, Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87505

Form C-101
Revised October 18, 1994
Instructions on back
Submit to Appropriate District Office
State Lease - 6 Copies
Fee Lease - 5 Copies

☐ AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

¹ Operator Name and Address. Amoco Production Company P. O. Box 800 Denver, Colorado 80201		² OGRID Number 000778
		³ API Number 30 - 0 45-29292
⁴ Property Code 667	⁵ Property Name Heaton LS	⁶ Well No. 3A

⁷ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	32	31N	11W		1705	North	1600	West	San Juan

⁸ Proposed 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
⁹ Proposed Pool 1 Blanco Mesaverde W/320 72319					¹⁰ Proposed Pool 2				

¹¹ Work Type Code N-New Well	¹² Well Type Code G	¹³ Cable/Rotary Rotary	¹⁴ Lease Type Code P-Private	¹⁵ Ground Level Elevation 5798 GL
¹⁶ Multiple No	¹⁷ Proposed Depth 5264'	¹⁸ Formation Blanco Mesaverde	¹⁹ Contractor Aztec	²⁰ Spud Date 1/1/96

²¹ Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
12.25	8.625	24#	120'	106 cu. ft. to surf.	
7.88	5.500	14#	2609'	723 cu. ft. to surf.	
4.75	2.875	6.5#	5264'	300 cu. ft. to 2,300'	

²² Describe the proposed program. If this application is to DEEPEN or PLUG BACK give the data on the present productive zone and proposed new productive zone. Describe the blowout prevention program, if any. Use additional sheets if necessary.

RECEIVED
OCT 17 1995
OIL CON. DIV.
DIST. 3

²³ I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

Signature: *Gail M. Jefferson*

Printed name: Gail M. Jefferson

Title: Sr. Admin. Staff Asst.

Date: 10/16/95

Phone: (303) 830-6157

OIL CONSERVATION DIVISION

Approved by: *Emile Busch* 10-18-95

Title: DEPUTY OIL & GAS INSPECTOR, DIST. #3

Approval Date: OCT 18 1995 Expiration Date: OCT 18 1996

Conditions of Approval:
Attached ☐

The signature, printed name, and title of the person authorized to make this report. The date this report was signed and the telephone number to call for questions about this report.

Program. Attach additional sheets if necessary.

Operator's OGRID number. If you do not have one it will be assigned and filled in by the District office.

Operator's name and address

API number of this well. If this is a new drill the OCD will assign the number and fill it in.

Property code. If this is a new property the OCD will assign the number and fill it in.

Property name that used to be called 'well name'

The number of this well on the property.

The surveyed location of this well New Mexico Principal Meridian NOTE: If the United States government survey designates a Lot Number for this location use that number in the 'UL or lot no.' box. Otherwise use the OCD Unit Letter.

The proposed bottom hole location of this well at TD

9 and 10 The proposed pool(s) to which this well is being drilled.

Work type code from the following table:

N New well
E Re-entry
D Drill deeper
P Plugback
A Add a zone

Well type code from the following table:

O Single oil completion
G Single gas completion
M Multiple completion
I Injection well
S SWD well
W Water supply well
C Carbon dioxide well

Cable or rotary drilling code
C Propose to cable tool drill
R Propose to rotary drill

Lease type code from the following table:
S State
P Private

Ground level elevation above sea level

Intend to multiple complete? Yes or No

Proposed total depth of this well

Geologic formation at TD

Name of the intended drilling company if known.

Anticipated spud date.

Proposed hole size ID inches, proposed casing OD inches, casing weight in pounds per foot, setting depth of the casing or depth and top of liner, proposed cementing volume, and estimated top of cement

Brief description of the proposed drilling program and BOP

District I
PO Box 1980, Hobbs, NM 88241-1980
District II
PO Drawer DD, Artesia, NM 88211-0719
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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
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State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number <u>30-045-29292</u>		1 Pool Code 72319		1 Pool Name Blanco Mesaverde	
1 Property Code <u>667</u>		1 Property Name HEATON LS			1 Well Number # 3A
1 OGRID No. 000778		1 Operator Name AMOCO PRODUCTION COMPANY			1 Elevation 5798

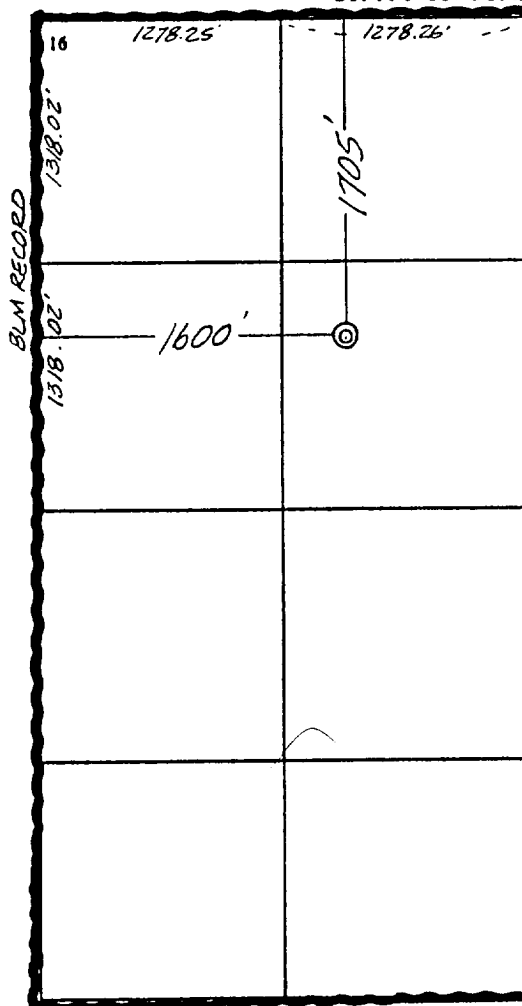
10 Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	32	31 N	11 W		1705	NORTH	1600	WEST	SAN JUAN

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
12 Dedicated Acres 320.00		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

	17 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief <u>Gail M. Jefferson</u> Signature Gail M. Jefferson Printed Name Sr. Admin. Staff Asst. Title 10/16/95 Date

AMOCO PRODUCTION COMPANY

DRILLING and COMPLETION PROGRAM

Lease/Well#: Heaton LS #3A
 County: San Juan New Mexico
 Former name:
 Surface Location: 1705' FNL & 1600' FWL of Section 32, T31N, R11W
 Field:

OBJECTIVE: Mesa Verde Gas

METHOD OF DRILLING		APPROXIMATE DEPTHS OF GEOLOGICAL MARKER	
TYPE OF TOOLS	DEPTH OF DRILLING	Actual GL-----Estimated KB	
Rotary	Ground Level - TD	5798	5810

LOGGING PROGRAM	DEPTH	Marker	Depth (ft.)	SS Elev. (ft.)
TYPE	No open hole logs required.	Ojo Alamo	826	4,984
		Kirtland	847	4,963
		Fruitland Coal	1,852	3,958
		PC *	2,271	3,539
		Lewis Shale	2,459	3,351
		Cliff House	3,815	1,995
		Menefee Shale *	4,059	1,751
		Point Lookout *	4,814	996
		Mancos	5,214	596
		Gallup		

Logging Program Remarks:

Greenhorn		
Graneros		
Dakota		
TOTAL DEPTH	5,264	546

* Possible pay
 ** Probable completion
 Ojo Alamo is possible usable water

SPECIAL TESTS		DRILL CUTTING SAMPLES		DRILLING TIME	
TYPE	DEPTH INTERVAL, ETC	FREQUENCY	DEPTH	FREQUENCY	DEPTH
None				Geolograph	Int - TD

Remarks:

Mud Logging Program:	None
Coring Program:	None

MUD PROGRAM:

Approx. Interval	Type Mud	Weight, #/gal	Vis, sec/qt	W/L, cc's/30 min.
0' - 2609' (1) (2)	Water	8.6 - 9.2	Sufficient to clean hole	N/C
2609' - TD (3)	Air/Mist			

Mud Program Remarks:

- 1 - The hole will require sweeps to keep unloaded while fresh water drilling. Let hole conditions dictate frequency.
- 2 - If required to mud up, mud up with a LSND designed for good hole cleaning.
- 3 - If required to mud up, mud up with a LSND designed for good hole cleaning, API WL between 10-15.

CASING PROGRAM:

Casing String	Estimated Depth	Casing Size	Hole Size	Landing Point, Cement, Etc
Conductor	120	8-5/8"		
Surface	2,609	5-1/2"	7.875"	1, 2
Production	5,264	2-7/8"	4.75"	3

Casing Program Remarks:

- 1 - Circulate cement to surface.
- 2 - Set casing a minimum of 150' into the Lewis Shale
- 3 - Circulate cement a minimum of 300' into the surface casing overlap.

GENERAL REMARKS:

Business Unit Engineering staff to design completion program.

Form 46 Reviewed by:	Logging program reviewed by:	
PREPARED BY:	APPROVED:	APPROVED:
P. Edwards/Craig/Ovitz		
Form 46 7-84bw	For Production Dept	For Exploration Dept
Date: 10/3/95	Rev. Date: 10/12/95 14:48	File: heatls3a.dlw

CEMENTING PROGRAM

Heaton LS #3A

Well Name: **Heaton LS #3A**
Location: **Sec 32, T31N, R11W**
County: **San Juan**
State: **New Mexico**

Field:
API No.
Well Flac
Formation: **Mesa Verde**
KB Elev. (est.) **5810 ft.**
GL Elev. (est.) **5798 ft.**

Casing Program:

Casing String	Est. Depth (ft.)	Hole Size (in.)	Casing Size (in.)	Thread	TOC (ft.)	Stage Tool Or TOL (ft.)	Cmt Circ. Out (bbl.)
Conductor	120	12.25	8.625	8R, ST&C	Surface	NA	
Surface	2,609	7.88	5.500	8R, ST&C	Surface	NA	
Production	5,264	4.75	2.875	8R, EUE	2300	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.)
Conductor	8.625	24	J-55	2950	1370	244	0.0636	7.972
Surface	5.500	14	J-55	4270	3120	172	0.0244	6.241
Production	2.875	6.5	N-80	10570	11160	144	0.00579	2.347

Mud Program:

Apx. Interval (ft.)	Mud Type	Mud Weight (lb/gal)
0 - SCP	Water/Spud	8.6-9.2
SCP - TD	Air/Mist	NA

Recommended Mud Properties Prior Cementing:

PV	< 20
YP	< 10
Fluid Loss	< 15

Cementing Program:

	Conductor	Surface	Production
Excess %, Bit	75	60	30
Excess %, Caliper	NA	NA	20
BHST (est. deg. F)	60	100	140
Pipe Movement	NA	Rotate/Reciprocate	Rotate/Reciprocate
Rate, Max. (bpm)	6	6	4
Rate, Recommended (bpm)	6	6	4
Pressure, Max. (psi)	200	2000	2000
Shoe Joint	40	80	40
Batch Mix	NA	NA	NA
Circulating prior cmtng (hr.)	0.5	1.5	1
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 Do not reverse out
- 4 Run Blend Test on Cement
- 5 Record Rate , Pressure, and Density on 3.5" disk
- 6 Confirm densometer with pressurized mud scales
- 7 1" cement to surface if cement is not circulated.
- 8 If cement is not circulated to the surface, run temp. survey 10-12 hr. after landing plug.

Notes:

- *** Displace top plug on the production casing job with 0.2% Clay Fix II or 2% KCl water.
- *** Do not wash up on top of plug. Wash pumps and lines. We want to do rig less completions.

CEMENTING PROGRAM

Heaton LS #3A

Conductor:

Preflush	10 bbl.	Fresh Water	
Slurry 1 TOC@Surface	90 sk	Standard Cement + 2% CaCl ₂ (not mixed) or 1.5 cu. yard Ready Mix	106 cu. ft.

Slurry Properties:	density (lb/gal)	yield (ft ³ /sk)	water (gal/sk)
slurry 1	15.60	1.18	5.20

Casing Equipment: (Halliburton) 8 5/8", 8R, ST&C
1 Top Wooden Plug

Surface:

Preflush	20 bbl. 20 bbl.	Mud Flush Fresh Water + dye marker	
Lead Slurry 1 TOC@Surface		50/50 Standard Cement/Blended Silicalite + 0.2% gel (total) + 0.5% Versaset + 0.4% Halad-344 + 0.2% CaCl ₂ + 1/4 lb/sk flocele	594 cu. ft.
Tail slurry 2	100 sk	Standard Cement + 0.4% Halad-344 + 0.4% CFR-3 + 2.0% Microbond + 5 lb/sk gilsonite + 1/4 lb/sk flocele	129 cu. ft.

Slurry Properties:	density (lb/gal)	yield (ft ³ /sk)	water (gal/sk)
slurry 1	12.00	2.03	11.45
slurry 2	15.11	1.29	5.40

Casing Equipment: (Halliburton) 5 1/2", 8R, ST&C
1 Type Regular Guide Shoe
1 Super Seal II Float Collar
1 Weld A
14 S-4 Centralizer
1 Top Rubber Plug
1 ea. on 1st 12 joints, 1 ea. above and below Ojo Alamo

CEMENTING PROGRAM

Heaton LS #3A

Production:

Preflush	05 bbl. 02 bbl.	Chemical Wash Fresh Water	
Lead Cement Slurry 1 TOC @ 2300 ft.		50/50 Std. Cmt/Poz A + 2% gel (total) + 5 lb/sk gilsonite + 0.4% Halad-344 + 1/4 lb/sk flocele	300 cu. ft.

Slurry Properties:	density (lb/gal)	yield (ft ³ /sk)	water (gal/sk)
slurry 1	13.50	1.32	5.59

Note: The job should be pumped at 4 bpm max rate. Do not exceed 2 bpm on displacement. Slow to 2 bpm for the displacement. Displace with 2% KCl or 0.2% Clay Fix II water. This is to be a rigless completion. Wash pumps and lines before displacing.

Casing Equipment: Halliburton 2 7/8", 8R, EUE, (no need to cut long pin)

- 1 Super Seal II Float Shoe
- 10 S-4 Fluidmaster Centralizer (2 7/8" * 4 3/4")
- 1 Lock Clamp
- 1 Weld A
- 1 Omega Latch Down Plug and Baffle

BOP Test Pressure

Amoco Production Company BOP Pressure Testing Requirements

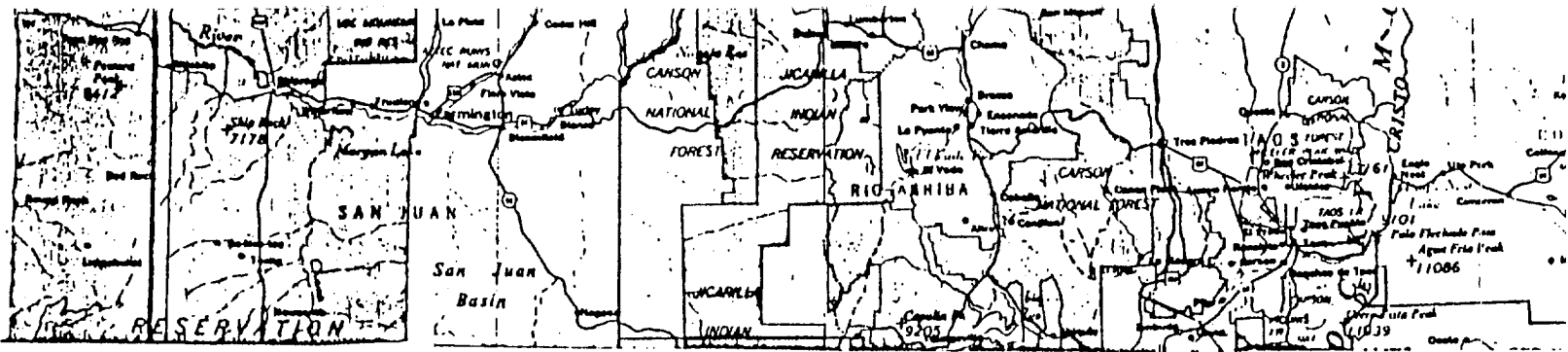
Lease/Well#: Heaton LS #3A
County: San Juan State: New Mexico

Formation	TVD	Anticipated Bottom Hole Pressure	Maximum Anticipated Surface Pressure **
Ojo Alamo	826		
Kirtland	847		
Fruitland Coal	1,852		
PC	2,271		
Lewis Shale	2,459		
Cliff House *	3,815	1200	361
Menefee Shale *	4,059		
Point Lookout *	4,814	1700	641
Mancos	5,214		
Gallup	0		
Greenhorn	0		
Graneros	0		
Dakota	0		

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

Requested BOP Pressure Test Exception:

750



HEATON LS # 3 A
1705' F/NL 1600' F/WL
SEC. 32, T31N, R11W, N.M.P.M.
RAIL POINT:
MUD POINT:
CEMENT POINT:

