

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

Budget Bureau No. 1004-0135  
Expires: March 31, 1993

**SUNDRY NOTICES AND REPORTS ON WELLS**

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.

Use "APPLICATION FOR PERMIT - " for such proposals.

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COTTONWOOD, NM

5. Lease Designation and Serial No.

SF-078416-A

6. If Indian, Allottee or Tribe Name

7. If Unit or CA, Agreement Designation

SB

8. Well Name and No.

Hardie LS

#5B

9. API Well No.

3004529714

10. Field and Pool, or Exploratory Area

Blanco Mesaverde

11. County or Parish, State

1. Type of Well  
☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator  
AMOCO PRODUCTION COMPANY

Attention: Gail M. Jefferson

3. Address and Telephone No.  
P.O. BOX 800 DENVER, COLORADO 80201 (303) 830-6157

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
2530' FSL 1160' FWL Sec. 23 T 29N R 8W UNIT L

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

TYPE OF SUBMISSION

TYPE OF ACTION

- ☒ Notice of Intent
- ☐ Subsequent Report
- ☐ Final Abandonment Notice

- ☐ Abandonment
- ☐ Recompletion
- ☐ Plugging Back
- ☐ Casing Repair
- ☐ Altering Casing
- ☒ Other Revised Operations

- ☐ Change of Plans
- ☐ New Construction
- ☐ Non-Routine Fracturing
- ☐ Water Shut-Off
- ☐ Conversion to Injection
- ☐ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Amoco Production Company spudded the above referenced well and proceeded to drill and set pipe per the attachment. Drilling operations were suspended due to problems encountered while trying to set intermediate pipe as also described on the attachment. After several conversations with the BLM's Jim Lovato and various onsite visits by BLM Field Inspector Kevin Schneider, the cementing procedures for this well were amended in accordance with the BLM.

The attached cementing program procedures supercede the procedures originally submitted in our Application for Permit to Drill.

If you have any technical questions please contact Mark Yamasaki at (303) 830-5841 or Gail Jefferson for any administrative concerns.

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JAN 20 1999  
BLM COTTONWOOD, NM

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

Signed

Gail M. Jefferson

Title

Sr. Admin. Staff Asst.

Date

01-19-1999

(This space for Federal or State office use)

Approved by

/s/ Duane W. Spencer

Title

Date

JAN 20 1999

Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes 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.

\* See Instructions on Reverse Side

NMOC

# Revised Cementing Program

## Hardie LS 5B

Well Name: Hardie L.S. 5B  
 Location: NW Sec 23, T29N, R8W  
 County: San Juan  
 State: New Mexico

Field: Blanco Mesaverde  
 API No.  
 Well Flac  
 Formation: Mesa Verde  
 KB Elev (est) 6428'  
 GL Elev. (est) 6418'

### 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	250	12.25	9.625	ST&C	Surface	NA	
Intermediate	3183	8.75	5.5	ST&C	Surface	NA	
Production - (liner)	5768	4.75	3.5	ST&C	2933	Liner Top calculated for a minimum 200' lap	

### 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	36 K-55	3520	2020	423	0.0773	8.765
Intermediate		5.5	15 J-55	4810	4040	202	0.024	4.825
Production - (liner)		3.5	9.3 L-80				0.0087	2.867

### Mud Program

Apx. Interval (ft.)	Mud Type	Mud Weight
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### Recommended Mud Properties Prio Cementing:

PV <20  
 YP <10  
 Fluid Los <15

0 - SCP	Water/Spud	8.6-9.2
SCP - ICP	Water/LSND	8.6-9.2
ICP - TD	Gas/Air Mist	NA

### Cementing Program:

	Surface	Intermediate	Liner
Excess %, Bit	100%	100	40
Excess %, Caliper	NA	NA	15
BHST (est deg. F)	60	120	148
Pipe Movement	NA	Rotate/Reciprocate	as per Liner Co.
Rate, Max (bpm)	7	6	6
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	2,3,4,6

1. Don 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.

TIH - work trying to pull TBG w/slickline - trouble working free due to sand that was pulled in when plug was equalized. Worked free & LD plug. Clean balls off BP by reverse circ. on top of plug. TOH w/ 2 1/16th TBG. RU & flowed well with watchman & 3/4" choke.

TIH w/retrieving head & 1 1/4 DP - latch onto BP @ 4950' & TOH. RU & flow both zones w/watchman & 3/4" choke - FCP 175#. TIH w/ 2 1/16" TBG & tag fill @ 5110'. Cleanout fill & frac balls off BP @ 5176'. TOH w/TBG. RU & flow well w/watchman & 3/4" choke. TIH w/ret. head & DP - clean off BP w/air. Latch onto BP & TOH w/DP & BP. RU & flow all 3 zones with 3/4" choke - FCP 200#.

TIH w/bit & DP & TBG - tag sand @ 5360'. Clean out sand to 5440'. PU TBG to liner & SI. Flow well to pit w/watchman & 3/4" choke - SICP 330# - FCP 230# - FTP 0#. Flow well for 12 hrs. Final PSI 230#. Flow well to pit w/watchman & 3/4" choke - SICP 380# - FCP 185#. Flow well for 12 hrs - final PSI 185#.

TIH back to bottom - finish cleaning out to 5555'. Circ. clean & TOH w/TBG & LD DP. SI well. TIH w/bridge plug & TBG. Set plug @ 2930' - pressure test OK & TOH. RU & run CBL long from 1680' to 100' - CMT top @ 732' - called Jim Lovato w/BLM & est need for remedial CMT. RU & shoot 2 SQZ holes @ 710'. RU & est circ. up bradenhead. RU & pump 300 SXS of CMT & circ 10 BBLs of CMT to surface. SI Well with 500#. SI to WOC overnight.

TIH w/bit & tag CMT @ 670'. Drill up CMT to 719' & pressure test to 1000#. Held OK. TOH w/bit & TBG. TIH w/2 3/8" work string & RU to LD. SIFN. TOH & LD workstring. RU & TIH with 2 1/16" production string - tagged sand fill @ 5430'. Circ out fill to 5555'. Pull up to liner & RU to flow well with 3/4" choke & watchman - FCP 240 Average for night.

Flow well overnight w/watchman & 3/4" choke - TIH & tagged fill @ 5510'. Clean out from 5510' to 5625'. PU into liner & RU to flow well w/watchman & 3/4" choke - FCP 180#. Flow well overnight. TIH & tagged 6520' of fill. LD extra TBG & land TBG @ 4702'. ND BOP & NU wellhead. Pull TBG choke & RU to flow test well.

Rig released @ 1300 hrs 3/20/99.

3/22/99 - 2/23/99 RU a 3/4" choke off casing and a 3/8" choke off TBG & flow for del. test. ICP 285 psi. FCP 200 psi. ITP 215 psi. FTP 160 psi. Run 12 hr. test. Gas 3110 MCF, trace oil, trace water.

# TABULATION OF DEVIATION TEST

## AMOCO PRODUCTION COMPANY

DEPTH	DEVIATION	DEPTH	DEVIATION
284'	0.250	4518'	0.750
792'	0.750	4364'	0.000
1333'	1.500	4818'	4.250
1860'	1.750	5356'	2.250
2358'	0.750	5744'	1.750
2884'	0.750		
3257'	0.750		
3761'	1.250		
3951'	1.000		

### AFFIDAVIT

THIS IS TO CERTIFY that to the best of my knowledge, the above tabulation details the deviation test taken on AMOCO PRODUCTION COMPANY'S:

Hardie LS # 5B  
2530' FSL & 1160' FWL; Sec. 23 T29N R8W  
San Juan County, New Mexico

Signed:

Title: SR. Business Analyst

THE STATE OF TEXAS )  
 ) SS.  
 COUNTY OF HARRIS )

BEFORE ME, the undersigned authority, on this day personally appeared MARY CORLEY  
 known to me to be SR. Business Analyst for Amoco Production company and to be the person who  
 name is subscribed to the above statement, who being by me dully sworn on oath, states that she has knowle  
 of the facts stated herein and that said statement is true and correct.

SUBSCRIBED AND SWORN to before me, a Notary Public in and for said County and State this 23<sup>rd</sup>  
 day of March, 19 99.

Anne Evans  
 Notary Public

My Commission Expires: 3-21-2001

