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In Lieu of
Form 3160
(June 1990)

UNITED STATES
DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT
Bureau of Land Management
Farmington Field Office

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

SUNDRY NOTICE AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir. Use "APPLICATION TO DRILL" for permit for such proposals

SUBMIT IN TRIPLICATE		5.	Lease Designation and Serial No. NM-03190
		6.	If Indian, Allottee or Tribe Name
		7.	If Unit or CA, Agreement Designation Cox Canyon
1. Type of Well Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/>		8.	Well Name and No. Cox Canyon Unit #007B
2. Name of Operator WILLIAMS PRODUCTION COMPANY		9.	API Well No. 30-045-33022
3. Address and Telephone No. PO Box 640 Aztec, NM 87410-0640 (505) 634-4208		10.	Field and Pool, or Exploratory Area BLANCO MESAVERDE
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) 1140 FNL & 1560 FWL (sur), 660 FNL & 1950 FWL (bhl), Sec 17, T32N, R11W		11.	County or Parish, State San Juan, New Mexico

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

TYPE OF SUBMISSION	TYPE OF ACTION
<input checked="" type="checkbox"/> Notice of Intent	Abandonment
<input type="checkbox"/> Subsequent Report	Recompletion
<input type="checkbox"/> Final Abandonment	Plugging Back
	Casing Repair
	Altering Casing
	<input checked="" type="checkbox"/> Other <u>Cement change</u>
	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.)*

Williams Production would like to change the cementing procedures on this well as per the attached plan.

RCVD JAN 7 '10

OIL CONS. DIV.

DIST. 3

CONDITIONS OF APPROVAL

Adhere to previously issued stipulations.

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

Signed

Larry Higgins

Title Drilling C.O.M.

Date December 17, 2009

(This space for Federal or State office use)

Approved by Troy L. Saliers

Title PE

Date 1/6/10

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.

NMOCD

HALLIBURTON

**Williams Production Company
One Williams Center
Tulsa, Oklahoma 74101-3102**

Cox Canyon Unit 7B
Blanco Mv Field
San Juan County, New Mexico
United States of America
S:17 T:32N R:11W
API/UWI 3004533022

Cement Recommendation

Prepared for: Gary Sizemore

December 15, 2009
Version: 1

Submitted by:
Hap Pinkerton
Halliburton
601 S Boulder Suite 300
Tulsa, Oklahoma 74119
918.581.5213

HALLIBURTON

*Halliburton appreciates the opportunity to present
this proposal and looks forward to being of service to you.*

Foreword

Enclosed is our recommended procedure for cementing the casing strings in the referenced well. The information in this proposal includes well data, calculations, materials requirements, and cost estimates. This proposal is based on information from our field personnel and previous cementing services in the area.

Halliburton Energy Services recognizes the importance of meeting society's needs for health, safety, and protection of the environment. It is our intention to proactively work with employees, customers, the public, governments, and others to use natural resources in an environmentally sound manner while protecting the health, safety, and environmental processes while supplying high quality products and services to our customers.

We appreciate the opportunity to present this proposal for your consideration and we look forward to being of service to you. Our Services for your well will be coordinated through the Service Center listed below. If you require any additional information or additional designs, please feel free to contact myself or our field representative listed below.

Prepared and Submitted by:

Hap Pinkerton
Technical Advisor

SERVICE CENTER:	Farmington
SERVICE MANAGER:	Alex Moore
SERVICE COORDINATOR:	Jess Tallman
DISTRICT TECH MANAGER:	Shawn Faurote
OPER. ENGINEER:	Jeff Bergman
DISTRICT SALES:	Randy Snyder
PHONE NUMBER:	505.324.3500

Executive Summary

Cementing Best Practices

1. Cement quality and weight: You must choose a cement slurry that is designed to solve the problems specific to each casing string.
2. Waiting time: You must hold the cement slurry in place and under pressure until it reaches its' initial set without disturbing it. A cement slurry is a time-dependent liquid and must be allowed to undergo a hydration reaction to produce a competent cement sheath. A fresh cement slurry can be worked (thickening or pump time) as long as it is in a plastic state and before going through its' transition phase. If the cement slurry is not allowed to transition without being disturbed, it may be subjected to changes in density, dilution, settling, water separation, and gas cutting that may lead to a lack of zonal isolation and possible bridging in the annulus.
3. Pipe movement: Pipe movement may be one of the single most influential factors in mud removal. Reciprocation and/or rotation mechanically breaks up gelled mud and changes the flow patterns in the annulus to improve displacement efficiency.
4. Mud properties (for cementing):
Rheology:
Plastic Viscosity (PV) < 15 centipoise (cp)
Yield Point (YP) < 10 lb/100 ft²
These properties should be reviewed with the Mud Engineer, Drilling Engineer, and Company Representative(s) to ensure no hole problems are created.
Gel Strength:
The 10-second/10-minute gel strength values should be such that the 10-second and 10-minute readings are close together or flat (i.e., 5/6). The 30-minute reading should be less than 20 lb/100 ft². Sufficient shear stress may not be achieved on a primary cement job to remove mud left in the hole if the mud were to develop more than 25 lb/100 ft² of gel strength.
Fluid Loss:
Decreasing the filtrate loss into a permeable zone enhances the creation of a thin, competent filter cake. A thin, competent filter cake created by a low fluid loss mud system is desirable over a thick, partially gelled filter cake. A mud system created with a low fluid loss will be more easily displaced. The fluid loss value should be < 15 cc/s (ideal would be 5 cc/s).
5. Circulation: Prior to cementing circulate full hole volume twice, or until well conditioned mud is being returned to the surface. There should be no cutting in the mud returns. An annular velocity of 260 feet per minute is optimum (SPE/IADC 18617), if possible.
6. Flow rate: Turbulent flow is the most desirable flow regime for mud removal. If turbulence cannot be achieved pump at as high a flow rate that can practically and safely be used to create the maximum flow energy. The highest mud removal is achieved when the maximum flow energy is obtained.
7. Pipe Centralization: The Cement will take the path of least resistance, therefore proper centralization is important to help prevent the casing from contacting the borehole wall. A minimum standoff of 70% should be targeted for optimum displacement efficiency.
8. Rat hole: A weighted viscous pill placed in the rat hole prior to cementing will minimize the risk of higher density cement mixing with lower density mud when the well is static.
9. Top and Bottom plugs: A top and bottom plug are recommended to be run on all primary casing jobs. The bottom plug should be run after the spacer and ahead of the first cement slurry.
10. Spacers and flushes: Spacers and/or flushes should be used to prevent contamination between the cement slurry and the drilling fluid. They are also used to clean the wellbore and aid with bonding. To determine the volume, either a minimum of 10 minutes contact time or 1000 ft. of annular fill, whichever is greater, is recommended.

Job Information**Surface Casing**

Well Name: Cox Canyon Unit

Well #: 7B

Surface Open Hole 0 - 300 ft (MD)
 Inner Diameter 12.250 in
 Job Excess 100 %

Surface Casing 0 - 300 ft (MD)
 Outer Diameter 9.625 in
 Inner Diameter 8.921 in
 Linear Weight 36 lbm/ft
 Casing Grade K-55

Calculations**Surface Casing**

Spacer:

Total Spacer = 56.15 ft³
 = 10.00 bbl

Cement : (300.00 ft fill)

300.00 ft * 0.3132 ft³/ft * 100 % = 187.91 ft³
Lead Cement = 187.91 ft³
 = 33.47 bbl

Shoe Joint Volume: (10.00 ft fill)

10.00 ft * 0.4341 ft³/ft = 4.34 ft³
 = 0.77 bbl
Tail plus shoe joint = 192.25 ft³
 = 34.24 bbl
Total Tail = 120 sks

Total Pipe Capacity:

300.00 ft * 0.4341 ft³/ft = 130.22 ft³
 = 23.19 bbl

Displacement Volume to Shoe Joint:

Capacity of Pipe - Shoe Joint = 23.19 bbl - 0.77 bbl
 = 22.42 bbl

Job Recommendation**Surface Casing**

Fluid Instructions

Fluid 1: Water Based Spacer

Water

Fluid Density: 8.34 lbm/gal

Fluid Volume: 10 bbl

Fluid 2: Lead Cement

Premium Plus - Type III

94 lbm/sk Premium Plus - Type III (Cement-non-api)

2 % Cal-Seal 60 (Accelerator)

0.25 lbm/sk Poly-E-Flake (Lost Circulation Additive)

0.3 % Versaset (Thixotropic Additive)

2 % Econolite (Light Weight Additive)

6 % Salt (Salt)

Fluid Weight 13.50 lbm/gal

Slurry Yield: 1.80 ft³/sk

Total Mixing Fluid: 9.41 Gal/sk

Top of Fluid: 0 ft

Calculated Fill: 300 ft

Volume: 38.39 bbl

Calculated Sacks: 120 sks

Proposed Sacks: 120 sks

Fluid 3: Water Based Spacer

Water Displacement

Fluid Density: 8.34 lbm/gal

Fluid Volume: 22.42 bbl

Job Procedure**Surface Casing****Detailed Pumping Schedule**

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Estimated Avg Rate bbl/min	Downhole Volume
1	Spacer	Water	8.3		10 bbl
2	Cement	Cement Slurry	13.5		120 sks
3	Spacer	Water Displacement	8.3		22.42 bbl

Job Information**Intermediate Casing**

Well Name: Cox Canyon Unit

Well #: 7B

Surface Casing	0 - 300 ft (MD)
Outer Diameter	9.625 in
Inner Diameter	8.921 in
Linear Weight	36 lbm/ft
Casing Grade	K-55

Intermediate Open Hole	300 - 2883 ft (MD)
	300 - 2780 ft (TVD)
Inner Diameter	8.750 in
Job Excess	80 %

Intermediate Casing	0 - 2883 ft (MD)
	0 - 2780 ft (TVD)
Outer Diameter	7.000 in
Inner Diameter	6.276 in
Linear Weight	26 lbm/ft
Casing Grade	L-80

Calculations**Intermediate Casing**

Spacer:

$$\begin{aligned}\text{Total Spacer} &= 112.29 \text{ ft}^3 \\ &= 20.00 \text{ bbl}\end{aligned}$$

Cement : (2479.00 ft fill)

$$\begin{aligned}300.00 \text{ ft} * 0.1668 \text{ ft}^3/\text{ft} * 0 \% &= 50.04 \text{ ft}^3 \\ 2179.00 \text{ ft} * 0.1503 \text{ ft}^3/\text{ft} * 80 \% &= 589.62 \text{ ft}^3 \\ \text{Total Lead Cement} &= 639.67 \text{ ft}^3 \\ &= 113.93 \text{ bbl} \\ \text{Sacks of Cement} &= 234 \text{ sks}\end{aligned}$$

Cement : (404.00 ft fill)

$$\begin{aligned}404.00 \text{ ft} * 0.1503 \text{ ft}^3/\text{ft} * 80 \% &= 109.32 \text{ ft}^3 \\ \text{Tail Cement} &= 109.32 \text{ ft}^3 \\ &= 19.47 \text{ bbl}\end{aligned}$$

Shoe Joint Volume: (40.00 ft fill)

$$\begin{aligned}40.00 \text{ ft} * 0.2148 \text{ ft}^3/\text{ft} &= 8.59 \text{ ft}^3 \\ &= 1.53 \text{ bbl} \\ \text{Tail plus shoe joint} &= 117.91 \text{ ft}^3 \\ &= 21.00 \text{ bbl} \\ \text{Total Tail} &= 100 \text{ sks}\end{aligned}$$

Total Pipe Capacity:

$$\begin{aligned}2883.00 \text{ ft} * 0.2148 \text{ ft}^3/\text{ft} &= 619.35 \text{ ft}^3 \\ &= 110.31 \text{ bbl}\end{aligned}$$

Displacement Volume to Shoe Joint:

$$\begin{aligned}\text{Capacity of Pipe - Shoe Joint} &= 110.31 \text{ bbl} - 1.53 \text{ bbl} \\ &= 108.78 \text{ bbl}\end{aligned}$$

Job Recommendation**Intermediate Casing**

Fluid Instructions

Fluid 1: Water Based Spacer

Water

Fluid Density: 8.34 lbm/gal
Fluid Volume: 20 bbl

Fluid 2: Lead Cement

EXTENDACEM (TM) SYSTEM

5 lbm/sk Pheno Seal - Blend (Lost Circulation Additive)

5 % Cal-Seal 60 (Accelerator)

0.5 % D-AIR 3000 (Defoamer)

Fluid Weight 11.50 lbm/gal
Slurry Yield: 2.73 ft³/sk
Total Mixing Fluid: 15.37 Gal/sk
Top of Fluid: 0 ft
Calculated Fill: 2479 ft
Volume: 113.95 bbl
Calculated Sacks: 234.18 sks
Proposed Sacks: 235 sks

Fluid 3: Tail Cement

Premium Cement

94 lbm/sk Premium Cement (Cement)

0.125 lbm/sk Poly-E-Flake (Lost Circulation Additive)

Fluid Weight 15.60 lbm/gal
Slurry Yield: 1.18 ft³/sk
Total Mixing Fluid: 5.20 Gal/sk
Top of Fluid: 2479 ft
Calculated Fill: 404 ft
Volume: 20.98 bbl
Calculated Sacks: 100 sks
Proposed Sacks: 100 sks

Fluid 4: Water Based Spacer

Water Displacement

Fluid Density: 8.34 lbm/gal
Fluid Volume: 108.78 bbl**Job Procedure****Intermediate Casing****Detailed Pumping Schedule**

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Estimated Avg Rate bbl/min	Downhole Volume
1	Spacer	Water	8.3		20 bbl
2	Cement	Lead Cement Slurry	11.5		235 sks
3	Cement	Tail Cement	15.6		100 sks
4	Spacer	Water Displacement	8.3		108.78 bbl

Job Information**Production Liner**

Well Name: Cox Canyon Unit

Well #: 7B

Intermediate Casing

0 - 2883 ft (MD)

0 - 2780 ft (TVD)

Outer Diameter

7.000 in

Inner Diameter

6.276 in

Linear Weight

26 lbm/ft

Casing Grade

L-80

Production Open Hole

2883 - 6208 ft (MD)

2883 - 6105 ft (TVD)

Inner Diameter

6.250 in

Job Excess

30 %

Drill Pipe

0 - 2783 ft (MD)

0 - 2679 ft (TVD)

Outer Diameter

2.875 in

Inner Diameter

2.151 in

Linear Weight

10.40 lbm/ft

Production Liner (1)

2783 - 3608 ft (MD)

2679 - 3504 ft (TVD)

Outer Diameter

4.500 in

Inner Diameter

3.826 in

Linear Weight

15.50 lbm/ft

Casing Grade

J-55

Production Liner (2)

3608 - 6208 ft (MD)

3504 - 6105 ft (TVD)

Outer Diameter

4.500 in

Inner Diameter

4.052 in

Linear Weight

10.50 lbm/ft

Casing Grade

K-55

Mud Weight

8.50 lbm/gal

BHCT

120 degF

Calculations**Production Liner**

Spacer:

$$\begin{aligned} 662.00 \text{ ft} * 0.1697 \text{ ft}^3/\text{ft} * 0 \% &= 112.37 \text{ ft}^3 \\ \text{Total Spacer} &= 112.29 \text{ ft}^3 \\ &= 20.00 \text{ bbl} \end{aligned}$$

Spacer:

$$\begin{aligned} 662.00 \text{ ft} * 0.1697 \text{ ft}^3/\text{ft} * 0 \% &= 112.37 \text{ ft}^3 \\ \text{Total Spacer} &= 112.29 \text{ ft}^3 \\ &= 20.00 \text{ bbl} \end{aligned}$$

Spacer:

$$\begin{aligned} 662.00 \text{ ft} * 0.1697 \text{ ft}^3/\text{ft} * 0 \% &= 112.37 \text{ ft}^3 \\ \text{Total Spacer} &= 112.29 \text{ ft}^3 \\ &= 20.00 \text{ bbl} \end{aligned}$$

Cement : (3262.00 ft fill)

$$\begin{aligned} 50.00 \text{ ft} * 0.1697 \text{ ft}^3/\text{ft} * 0 \% &= 8.49 \text{ ft}^3 \\ 100.00 \text{ ft} * 0.2148 \text{ ft}^3/\text{ft} * 0 \% &= 21.48 \text{ ft}^3 \\ 725.00 \text{ ft} * 0.2131 \text{ ft}^3/\text{ft} * 30 \% &= 200.80 \text{ ft}^3 \\ 2387.00 \text{ ft} * 0.1026 \text{ ft}^3/\text{ft} * 30 \% &= 318.40 \text{ ft}^3 \\ \text{Total Lead Cement} &= 549.17 \text{ ft}^3 \\ &= 97.81 \text{ bbl} \\ \text{Sacks of Cement} &= 205 \text{ sks} \end{aligned}$$

Cement : (213.00 ft fill)

$$\begin{aligned} 213.00 \text{ ft} * 0.1026 \text{ ft}^3/\text{ft} * 30 \% &= 28.41 \text{ ft}^3 \\ \text{Tail Cement} &= 28.41 \text{ ft}^3 \\ &= 5.06 \text{ bbl} \end{aligned}$$

Shoe Joint Volume: (80.00 ft fill)

$$\begin{aligned} 80.00 \text{ ft} * 0.0896 \text{ ft}^3/\text{ft} &= 7.16 \text{ ft}^3 \\ &= 1.28 \text{ bbl} \\ \text{Tail plus shoe joint} &= 35.58 \text{ ft}^3 \\ &= 6.34 \text{ bbl} \\ \text{Total Tail} &= 25 \text{ sks} \end{aligned}$$

Total Pipe Capacity:

$$\begin{aligned} 2783.00 \text{ ft} * 0.0252 \text{ ft}^3/\text{ft} &= 70.23 \text{ ft}^3 \\ 825.00 \text{ ft} * 0.0798 \text{ ft}^3/\text{ft} &= 65.87 \text{ ft}^3 \\ 2600.00 \text{ ft} * 0.0896 \text{ ft}^3/\text{ft} &= 232.83 \text{ ft}^3 \\ &= 65.71 \text{ bbl} \end{aligned}$$

Displacement Volume to Shoe Joint:

$$\begin{aligned} \text{Capacity of Pipe - Shoe Joint} &= 65.71 \text{ bbl} - 1.28 \text{ bbl} \\ &= 64.43 \text{ bbl} \end{aligned}$$

Job Recommendation

Production Liner

Fluid Instructions

Fluid 1: Water Spacer

Water

Fluid Density: 8.40 lbm/gal

Fluid Volume: 20 bbl

Fluid 2: Reactive Spacer

SUPER FLUSH 101

Fluid Density: 10 lbm/gal

Fluid Volume: 20 bbl

Fluid 3: Water Spacer

Water

Fluid Density: 8.40 lbm/gal

Fluid Volume: 20 bbl

Fluid 4: Lead Cement

FRACSEAL (TM) SYSTEM

0.2 % Versaset (Thixotropic Additive)

0.1 % HALAD-766 (Low Fluid Loss Control)

1 % ZoneSeal 4000 (Foamer)

Fluid Weight 13.07 lbm/gal

Slurry Yield: 1.43 ft³/sk

Total Mixing Fluid: 6.71 Gal/sk

Top of Fluid: 2733 ft

Calculated Fill: 3262 ft

Volume: 97.80 bbl

Calculated Sacks: 205.04 sks

Proposed Sacks: 210 sks

Fluid 5: Tail Cement

FRACCEM (TM) SYSTEM

0.2 % Versaset (Thixotropic Additive)

0.1 % HALAD-766 (Low Fluid Loss Control)

1 % ZoneSeal 4000 (Foamer)

Fluid Weight 13.07 lbm/gal

Slurry Yield: 1.43 ft³/sk

Total Mixing Fluid: 6.71 Gal/sk

Top of Fluid: 5995 ft

Calculated Fill: 213 ft

Volume: 6.35 bbl

Calculated Sacks: 24.97 sks

Proposed Sacks: 25 sks

Fluid 6: Water Based Spacer

Water Displacement

Fluid Density: 8.34 lbm/gal

Fluid Volume: 64.43 bbl

Detailed Pumping Schedule

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Estimated Avg Rate bbl/min	Downhole Volume
1	Spacer	Water	8.4		20 bbl
2	Spacer	SUPER FLUSH 101	10.0		20 bbl
3	Spacer	Water	8.4		20 bbl
4	Cement	Foamed Slurry	13.1		210 sks
5	Cement	Tail Cement	13.1		25 sks
6	Spacer	Water Displacement	8.3		64.43 bbl

Foam Output Parameter Summary:

Fluid #	Fluid Name	Unfoamed Liquid Volume	Beginning Density lbm/gal	Ending Density lbm/gal	Beginning Rate scf/bbl	Ending Rate scf/bbl
Stage 1						
4	Foamed Slurry	52.04bbl	9.2	9.2	204.8	479.3

Foam Design Specifications:

Foam Calculation Method: Constant Density
Backpressure: 14.70 psig
Bottom Hole Circulating Temp: 120 degF
Mud Outlet Temperature: 110 degF

Calculated Gas = 17707.7 scf
Additional Gas = 15000 scf
Total Gas = 32707.7 scf