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HALLIBURTON

Torch Energy Services
1221 Lamar St Ste 1175
Houston, Texas 77010

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JUN 29 2010
HOBBSOCD

San Juan Mesa State 16 1

Roosevelt County, New Mexico
United States of America
S:16 T:4S R:30E

Cementing Cost Estimate

Prepared for: Dorsey Rogers
June 22, 2010
Version: 2

Submitted by:
Robert Reyes

Halliburton
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HALLIBURTON

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

Foreword

Halliburton is pleased to have this opportunity to present this proposal for your consideration. We earnestly request the service work to be performed on this well. These Service Coordinators can be reached in our District, at the following phone numbers:

MIDLAND SALES OFFICE
1-800-844-8451

ODESSA DISTRICT
1-800-417-5096

CEMENTING:
Scott Kerby / Joe Briseno
BJ Wheeler

STIMULATION:
Larry Staples / Jerry Thurman
Gary Pacheco

LOGGING &
PERFORATING
Mike Wood / Josh Stumpner

COILED TUBING
& NITROGEN
Larry Staples / Jerry Thurman
Gary Pacheco

TOOLS & TESTING,
PROD. SVCS., TCP,
COMPL. PRODUCTS
Steve Engleman / Kevin Warren

BAROID
Fernando Arizpe

HOBBS DISTRICT
1-800-416-6081

CEMENTING
Jeremy Rey / Jaime Gonzales

STIMULATION:
Larry Staples / Jerry Thurman
Gary Pacheco

LOGGING &
PERFORATING
Josh Mount / Vernon Reever

DRILL BITS
Jeff Tranum

TOOLS & TESTING,
PROD. SVCS., TCP,
COMPL. PRODUCTS
John Breeden

BAROID
Freddy Redmon

PREPARED BY: Bruce Day

We look forward to working with you to provide the very best quality services available in the Permian Basin.

Robert Reyes, Principle Technical Service Specialist

Cementing Best Practices

1. **Cement quality and weight**: You must choose cement slurry that is designed to solve the problems specific to each string of pipe.

2. **Waiting time**: You must hold the cement slurry in place and under pressure until it hardens. 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 plastic, and the initial set of cement occurs during the rapid reaction stage. If the cement is not allowed to hydrate; it will be subject to changes in density, dilution, settling, water separation, and gas cutting that can lead to lack of zonal isolation with resultant 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 constantly changes the flow patterns in the annulus for better cement bonding.

4. **Mud properties:** Plastic viscosity (PV) should be less than 15 centipoise (cp), and less than 10 cp, if possible, yield point (YP) should be less than 10 pound/100-square feet (lb/100 ft^2) decreasing down to about 5 lb/100 ft^2.

5. **Mud gel strength**: A nonthixotropic mud is desirable for good mud removal. Mud left in the hole prior to running casing should have 10-second/10-minute/30-minute gel strength such that the 10-minute is less than double the 10-second and the 30-minute is less than 20 lb/100 ft^2). Sufficient shear strength may not be achieved on a primary cement job to remove mud left in the hole should the mud develop more than 25 lb/100 ft^2.

6. **Mud fluid loss**: Decreasing the filtrate loss into a permeable zone enhances the creation of a thin filter cake. This increases the fluid mud in the hole, which is more easily removed. Generally, an API fluid loss of 7 or 8 milliliter (ml) is sufficient with high-temperature/high-pressure fluid loss (HTHP) no more than double this amount.

7. **Circulation**: Circulate bottoms up twice, or until well conditioned mud is being returned to the surface. There should be no cuttings in the mud returns. An annular velocity of 260 feet per minute is optimum (SPE/IADC 18617), if possible.

8. **Flow rate**: Turbulent flow is more desirable flow regime for mud removal. If turbulence cannot be achieved, better mud removal is found when maximum flow energy is used. The maximum pump rate should be determined to obtain the best flow regime.

9. **Hole size**: The optimum hole size recommended for good mud removal is 1.5 to 2 inches larger than the casing or liner size. Hole sizes larger than 2 inches annular space can be dealt with, but those that are smaller than 1.5 inches present difficult problems.

10. **Pipe Centralization**: This helps to create a uniform flow area perpendicular to flow direction. Cement will take the path of least resistance so that centralization is important in keeping the pipe off the walls of the hole. At least a 70 percent standoff should be achieved for centralization.

11. **Rat hole**: When applicable, a weighted viscous pill in the rat hole prevents cement from swapping with lighter weight mud when displacement stops.

12. **Shoe joint**: A shoe joint is recommended on all primary casings and liners. The length of the shoe joint will vary, although the absolute minimum length is one joint of pipe. If conditions exist, such as not running a bottom plug, two joints should be the minimum length.

Job Information — Surface Casing

Well Name: San Juan Mesa State 16 Well #: 1

17-1/2" Hole	0 - 400 ft (MD)
Inner Diameter	17.500 in
Job Excess	100 %
Surface Casing	0 - 400 ft (MD)
Outer Diameter	13.375 in
Inner Diameter	12.715 in
Linear Weight	48 lbm/ft

Calculations

Cement : (400.00 ft fill)

400.00 ft * 0.6946 ft^3/ft * 100 %	= 555.71 ft^3
Tail Cement	= 555.71 ft^3
	= 98.98 bbl

Shoe Joint Volume: (40.00 ft fill)

40.00 ft * 0.8818 ft^3/ft	= 35.27 ft^3
	= 6.28 bbl
Tail plus shoe joint	= 590.98 ft^3
	= 105.26 bbl
Total Tail	= 439 sks

Install floating equipment, run casing to bottom, and circulate a minimum of 2-3 hole volumes prior to cementing as follows:

Fluid Instructions

Fluid 1: Pump 20 bbl
Fresh Water

Fluid Volume:	20 bbl

Fluid 2: Tail-in with 440 sks
HalCem - C
2 % Calcium Chloride - Flake (Accelerator)

Fluid Weight	14.80 lbm/gal
Slurry Yield:	1.35 ft^3/sk
Total Mixing Fluid:	6.39 Gal/sk
Top of Fluid:	0 ft
Calculated Fill:	400 ft
Volume:	105.26 bbl
Calculated Sacks:	438.74 sks
Proposed Sacks:	440 sks

Job Information — Contingency Intermediate

Well Name: San Juan Mesa State 16 Well #: 1

Surface Casing	0 - 400 ft (MD)
Outer Diameter	13.375 in
Inner Diameter	12.715 in
Linear Weight	48 lbm/ft
12-1/4" Hole	400 - 2500 ft (MD)
Inner Diameter	12.250 in
Job Excess	50 %
Intermediate Casing	0 - 2500 ft (MD)
Outer Diameter	8.625 in

Calculations — Contingency Intermediate

Cement : (2000.00 ft fill)

400.00 ft * 0.476 ft^3/ft * 0 %	= 190.42 ft^3
1600.00 ft * 0.4127 ft^3/ft * 50 %	= 990.54 ft^3
Total Lead Cement	= 1180.96 ft^3
	= 210.34 bbl
Sacks of Cement	= 676 sks

Cement : (500.00 ft fill)

500.00 ft * 0.4127 ft^3/ft * 50 %	= 309.54 ft^3
Tail Cement	= 309.54 ft^3
	= 55.13 bbl

Shoe Joint Volume: (40.00 ft fill)

40.00 ft * 0.3422 ft^3/ft	= 13.69 ft^3
	= 2.44 bbl
Tail plus shoe joint	= 323.23 ft^3
	= 57.57 bbl
Total Tail	= 240 sks

Install floating equipment, run casing to bottom, and circulate a minimum of 2-3 hole volumes prior to cementing as follows:

Fluid Instructions

Fluid 1: Pump 500 gallons Super Flush 102		Fluid Volume:	11.90 bbl
Fluid 2: Pump 10 bbl Fresh Water		Fluid Volume:	10 bbl
Fluid 3: Lead with 680 sks ExtendaCem - CZ		Fluid Weight Slurry Yield: Total Mixing Fluid: Top of Fluid: Calculated Fill: Volume: Calculated Sacks: Proposed Sacks:	13.50 lbm/gal 1.75 ft^3/sk 9.20 Gal/sk 0 ft 2000 ft 210.34 bbl 676.38 sks 680 sks
Fluid 4: Tail-in with 240 sks HalCem - C 2 %	Calcium Chloride - Flake (Accelerator)	Fluid Weight Slurry Yield: Total Mixing Fluid: Top of Fluid: Calculated Fill: Volume: Calculated Sacks: Proposed Sacks:	14.80 lbm/gal 1.35 ft^3/sk 6.39 Gal/sk 2000 ft 500 ft 57.57 bbl 239.96 sks 240 sks

Well Name: San Juan Mesa State 16 Well #: 1

Surface Casing	0 - 400 ft (MD)
Outer Diameter	13.375 in
Inner Diameter	12.715 in
Linear Weight	48 lbm/ft
12-1/4" Hole	400 - 2500 ft (MD)
Inner Diameter	12.250 in
7-7/8" Hole	2500 - 9000 ft (MD)
Inner Diameter	7.875 in
Job Excess	50 %
Production Casing	0 - 9000 ft (MD)
Outer Diameter	5.500 in
Inner Diameter	4.892 in
Linear Weight	17 lbm/ft
Casing Grade	J-55

Calculations

Cement : (3000.00 ft fill)

3000.00 ft * 0.1733 ft^3/ft * 50 %	= 779.65 ft^3
Primary Cement	= 779.65 ft^3
	= 138.86 bbl

Shoe Joint Volume: (40.00 ft fill)

40.00 ft * 0.1305 ft^3/ft	= 5.22 ft^3
	= 0.93 bbl
Tail plus shoe joint	= 784.87 ft^3
	= 139.79 bbl
Total Tail	= 478 sks

Install floating equipment, run casing to bottom, and circulate a minimum of 2-3 hole volumes prior to cementing as follows:

Fluid Instructions

Fluid 1: Pump 500 gallons
Super Flush 102

Fluid Volume:	11.90 bbl

Fluid 2: Pump 10 bbl
Fresh Water

Fluid Volume:	10 bbl

Fluid 3: Mix and pump 480 sks
VersaCem - PBSH2

0.5 %	LAP-1 (Low Fluid Loss Control)
0.4 %	CFR-3 (Dispersant)
3 lbm/sk	Salt (Salt)
0.25 lbm/sk	D-AIR 3000 (Defoamer)

Fluid Weight	13.20 lbm/gal
Slurry Yield:	1.64 ft^3/sk
Total Mixing Fluid:	8.55 Gal/sk
Top of Fluid:	6000 ft
Calculated Fill:	3000 ft
Volume:	139.79 bbl
Calculated Sacks:	477.70 sks
Proposed Sacks:	480 sks

Conditions

NOTE

The cost in this analysis is good for the materials and/or services outlined within and shall be valid for 30 days from the date of this proposal. In order to meet your needs under this proposal with a high quality of service and responsive timing, Halliburton will be allocating limited resources and committing valuable equipment and materials to your area of operations. Accordingly, the discounts reflected in this proposal are available only for materials and services awarded on a first-call basis. Alternate pricing may apply in the event that Halliburton is awarded work on any basis other than as a first-call provider.

The unit prices stated in the proposal are based on our current published prices. The projected equipment, personnel, and material needs are only estimates based on information about the work presently available to us. At the time the work is actually performed, conditions then existing may require an increase or decrease in the equipment, personnel, and/or material needs. Charges will be based upon unit prices in effect at the time the work is performed and the amount of equipment, personnel, and/or material actually utilized in the work. Taxes, if any, are not included. Applicable taxes, if any, will be added to the actual invoice.

It is understood and agreed between the parties that with the exception of the subject discounts, all services performed and equipment and materials sold are provided subject to Halliburton's General Terms and Conditions contained in our current price list, (which include LIMITATION OF LIABILITY and WARRANTY provisions), and pursuant to the applicable Halliburton Work Order Contract (whether or not executed by you), unless a Master Service and/or Sales Contract applicable to the services, equipment, or materials supplied exists between your company and Halliburton, in which case the negotiated Master Contract shall govern the relationship between the parties. A copy of the latest version of our General Terms and Conditions is available from your Halliburton representative or at: http://www.halliburton.com/terms for your convenient review, and we would appreciate receiving any questions you may have about them. Should your company be interested in negotiating a Master Contract with Halliburton, our Law Department would be pleased to work with you to finalize a mutually agreeable contract. In this connection, it is also understood and agreed that Customer will continue to execute Halliburton usual field work orders and/or tickets customarily required by Halliburton in connection with the furnishing of said services, equipment, and materials.
Any terms and conditions contained in purchase orders or other documents issued by the customer shall be of no effect except to confirm the type and quantity of services, equipment, and materials to be supplied to the customer.
If customer does not have an approved open account with Halliburton or a mutually executed written contract with Halliburton, which dictates payment terms different than those set forth in this clause, all sums due are payable in cash at the time of performance of services or delivery of equipment, products, or materials. If customer has an approved open account, invoices are payable on the twentieth day after date of invoice.

Customer agrees to pay interest on any unpaid balance from the date payable until paid at the highest lawful contract rate applicable, but never to exceed 18% per annum. In the event Halliburton employs an attorney for collection of any account, customer agrees to pay attorney fees of 20% of the unpaid account, plus all collection and court costs.