

From: Jesse Gagliano
Sent: Thu Oct 29 22:37:23 2009
To: Fleece, Trent J
Subject: Re: cement
Importance: Normal

I would give it about 5 hours after job is in place.

From: Fleece, Trent J
To: Jesse Gagliano
Sent: Thu Oct 29 15:58:27 2009
Subject: cement

Jesse, how long until I can do a casing and negative test on the 18" shoe after pumping the job?

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From: Jesse Gagliano
Sent: Fri Oct 30 13:38:38 2009
To: Morel, Brian P; Fleece, Trent J
Cc: Hafle, Mark E; Gray, George E
Subject: Compressive strength curve for 18" Slurry
Importance: Normal
Attachments: image001.jpg

See below. Let me know if you have any questions. Thanks!!

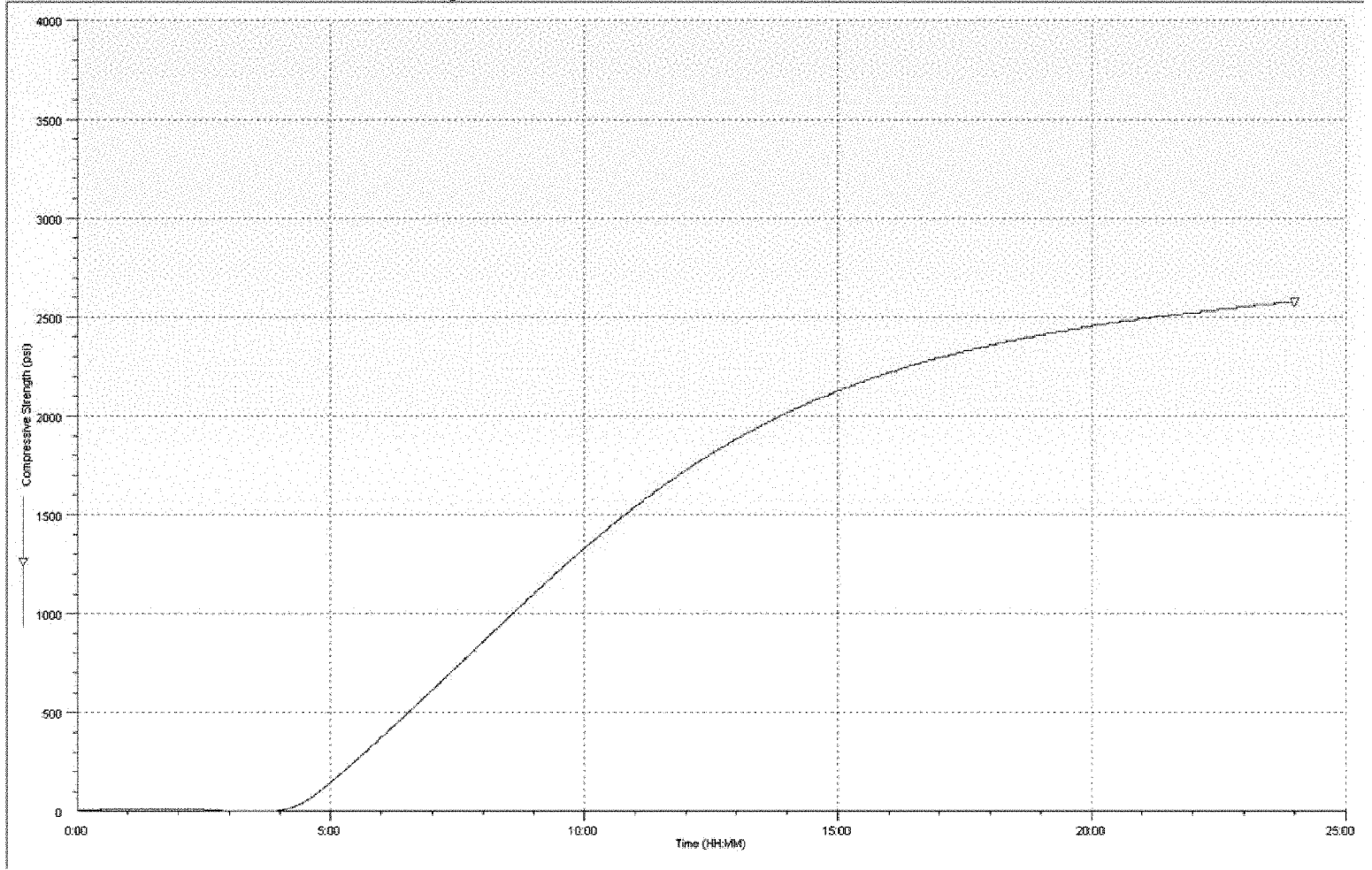
Jesse Gagliano
Halliburton Energy Services
Account Representative - Cementing
Office - 281-366-6106
Cell - 281-635-4798
Fax - 713-583-9700
E-mail - jesse.gagliano@halliburton.com

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Compressive strength type B (more than 14 lb/gal)
Transit Time: 8.59 microsec/in
Strength: 2571 psi

12 Hr C/S: 1723 psi
50 psi @ 4:31:00
500 psi @ 6:32:30

Well ID:
Customer:
Temperature: 105 °F



From: Jesse Gagliano
Sent: Wed Oct 28 15:39:57 2009
To: Hafle, Mark E; Fleece, Trent J; Morel, Brian P
Cc: Mike Stidham; Danny Mooney; Blake Redd; Martin Gingell; Randall Bradley
Subject: 18" Liner info
Importance: Normal
Attachments: MC 252_Macondo_18 Liner_v2_CustomerCopy.pdf; 18 in Liner Design Report.pdf;
Location Blend BL08-51879.1.pdf

Attached is the 18" Liner proposal, OptiCem Report, and lab test. I do not expect to get returns from the simulation for the 18" cement job. For compressibility Baroid came up with 3.8 bbls and Halliburton came up with 2.8 bbls, we are close. Let me know if you have any questions. Thanks!!

Jesse Gagliano
Halliburton Energy Services
Account Representative - Cementing
Office - 281-366-6106
Cell - 281-635-4798
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***Bp America Prod Co-sorac/gom Ebiz
PO Box 22024 - Do Not Mail
Tulsa, Oklahoma 74121-2024***

Macondo Prospect 1

United States of America

18" Liner

Prepared for: Mark Hafle, Brian Morel, & Trent Fleece

Version: 2
October 28, 2009

Submitted by:
Jesse Gagliano
Halliburton
10200 Bellaire Blvd
Houston, Texas 77072-5299

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*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:	_____
	Jesse Gagliano Technical Advisor
SERVICE CENTER:	Lafayette, La
SERVICE COORDINATOR:	Danny Mooney
OPER. ENGINEER:	Yarigsa Aviles
PHONE NUMBER:	1-800-444-7830

Job Information**18" Liner**

Well Name: Macondo Prospect	Well #: 1
Riser	0 - 5081 ft (MD)
Outer Diameter	24.000 in
Inner Diameter	19.500 in
22" Casing	5081 - 7947 ft (MD)
Outer Diameter	22.000 in
Inner Diameter	19.500 in
Linear Weight	277.01 lbm/ft
22" Open Hole	7947 - 8983 ft (MD)
Inner Diameter	22.000 in
Job Excess	15 %
Landing String	0 - 5081 ft (MD)
Outer Diameter	6.625 in
Inner Diameter	5.125 in
Linear Weight	47.01 lbm/ft
18" Innerstring	5081 - 8833 ft (MD)
Outer Diameter	5.500 in
Inner Diameter	4.670 in
Linear Weight	24.70 lbm/ft
18" Liner	7503 - 8983 ft (MD)
Outer Diameter	18.000 in
Inner Diameter	16.750 in
Linear Weight	117 lbm/ft
Water Depth	4992 feet
Air Gap	89 feet
Mud Type	Synthetic
Mud Weight	10.10 lbm/gal
BHST	105 degF
BHCT	93 degF

Spacer:

324.00 ft * 1.909 ft ³ /ft * 0 %	= 618.50 ft ³
444.00 ft * 0.3068 ft ³ /ft * 0 %	= 136.22 ft ³
200.00 ft * 0.8727 ft ³ /ft * 15 %	= 200.71 ft ³
Total Spacer	= 954.48 ft ³
	= 170.00 bbl

Cement : (836.00 ft fill)

686.00 ft * 0.8727 ft ³ /ft * 15 %	= 688.45 ft ³
150.00 ft * 0.8727 ft ³ /ft * 15 %	= 150.53 ft ³
Tail Cement	= 838.98 ft ³
	= 149.43 bbl

Shoe Joint Volume: (100.00 ft fill)

100.00 ft * 1.5302 ft ³ /ft	= 153.02 ft ³
	= 27.25 bbl
Tail plus shoe joint	= 992.00 ft ³
	= 176.68 bbl
Total Tail	= 915 sks

Total Pipe Capacity:

5081.00 ft * 0.1433 ft ³ /ft	= 727.89 ft ³
2422.00 ft * 0.1189 ft ³ /ft	= 288.09 ft ³
1330.00 ft * 0.1189 ft ³ /ft	= 158.20 ft ³
150.00 ft * 1.5302 ft ³ /ft	= 229.53 ft ³
	= 250.01 bbl

Displacement Volume to Shoe Joint:

Capacity of Pipe - Shoe Joint	= 250.01 bbl - 27.25 bbl
	= 222.76 bbl

Job Recommendation

18" Liner

Fluid Instructions

Fluid 1: Water Based Spacer

TUNED SPACER III - YP = 34

1.3 gal/bbl SEM-8 (Additive Material)

Fluid Density: 13 lbm/gal

Fluid Volume: 170 bbl

Fluid 2: Tail Cement

Premium Cement

94 lbm/sk Premium Cement (Cement)

0.07 % Halliburton EZ-FLO (Bulk Flow Enhancer)

0.25 % D-AIR 3000 (Defoamer)

1.88 lbm/sk KCL (Clay Control)

0.08 Gal/sk Halad(R)-344 EXP (Low Fluid Loss Control)

0.01 Gal/sk HR-6L (Retarder)

Fluid Weight 16.40 lbm/gal

Slurry Yield: 1.08 ft³/sk

Total Mixing Fluid: 4.41 Gal/sk

Top of Fluid: 8147 ft

Calculated Fill: 836 ft

Volume: 176.68 bbl

Calculated Sacks: 915.13 sks

Proposed Sacks: 920 sks

Fluid 3: Rheologically Enhanced Spacer

TUNED SPACER III - YP = 34

1.3 gal/bbl SEM-8 (Additive Material)

Fluid Density: 13 lbm/gal

Fluid Volume: 10 bbl

Fluid 4: Mud

SBM

Fluid Density: 10.10 lbm/gal

Fluid Volume 212.76 bbl

Detailed Pumping Schedule

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Estimated Avg Rate bbl/min	Downhole Volume
1	Spacer	TUNED SPACER III - YP = 34	13.0	7.0	170 bbl
2	Cement	Tail Cement	16.4	5.0	920 sks
3	Spacer	TUNED SPACER III - YP = 34	13.0	7.0	10 bbl
4	Mud	SBM	10.1	10.0	212.76 bbl

Hold safety meeting to discuss running and cementing the 18 in liner

1. Rig up and run 18 in Liner.
2. Insure that Cement Stand has been prepared and stood back with TIW above and below Side Door sub.
3. When preparing to P/U cement stand insure that hand is in riding belt to make up chickens to cement stand.
4. Once Lines are made up assure that TIW is closed on top of side door sub and lower TIW is open to allow circulation.
5. Have hand come out of derrick.
6. Have Cementer break circulation and circulate well.
7. Once circulation is established shut down and have hand close valve on cement line.
8. Remove all those from the rig floor and test lines to 5000 psi. Hold test for at least 3 minutes.
9. After test bleed pressure back and then have hand open valve.
10. Break circulation with spacer and begin injection of surfactant package into spacer.
11. Pump 170 bbls of Tuned Spacer III @ 13.0 ppg and an **YP = 34**.
12. Once spacer has been pumped begin weight up of cement.
13. Pump 920 sks of Cement @ 16.4 ppg as pr lab results.
14. Begin displacement with 10 bbls of Tuned Spacer III and mud and bring rate to 10 - 12 bpm.

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15. Slow down to 3 bpm for the last 30 bbls. Complete displacement and shut down and check floats.
16. Release running tool and P/U ten stands. Upon breaking connection place Wiper Ball in connection and pump through landing and inner string.
17. Once complete POOH.

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Cost Estimate

18" Liner

SAP Quote # 0

<u>Mtrl Nbr</u>	<u>Description</u>	<u>Qty</u>	<u>U/M</u>	<u>Unit Price</u>	<u>Net Amt</u>
7524	CMT DRILLING LINER BOM	1	JOB		0.00
	Spacer Material				
483826	TUNED SPACER III	180	BBL	122.28	22,010.40
101235090	SEM-8	234	GAL	47.45	11,103.30
	Cement Material				
100003687	PREMIUM CEMENT	920	SK	14.72	13,542.40
101002314	EZ-FLO	61	LB	10.57	644.77
101249405	HALAD-344 EXP	74	GAL	125.71	9,302.54
100001585	KCL POTASSIUM CHLORIDE	1730	LB	0.55	951.50
101007446	D-AIR 3000	217	LB	4.31	935.27
100005058	HR-6L RETARDER	10	GAL	22.89	228.90
	Total		USD		58,719.08

Conditions

NOTE

The cost in this analysis is good for the materials and/or services outlined within. These prices are based on Halliburton being awarded the work on a first call basis. Prices will be reviewed for adjustments if awarded on 2nd or 3rd call basis and/or after 30 days of this written analysis. This is in an effort to schedule our work and maintain a high quality of performance for our customers.

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/hes/general_terms_conditions.pdf 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.

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Cementing Gulf of Mexico, Broussard

LAB RESULTS - Tail

Job Information

Request/Slurry	51879/1	Rig Name	TRANSOCEAN MARIANAS	Date	October 26th 2009
Submitted By	Jesse Gagliano	Job Type	18" Drilling Liner	Bulk Plant	Fourchon-C-Port I, La, USA
Customer	BP	Location	Mississippi Cny	Well	Mississippi Canyon 252 OCS-G-32306 Macondo #1

Well Information

Casing/Liner Size	18"	Depth MD	8970 ft	BHST	105 F
Hole Size	22"	Depth TVD	8970 ft	BHCT	93 F

Drilling Fluid Information

Mud Company	Baroid	Type	SOBM	Density	9.8 PPG	PV/YP
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Cement Information - Tail Design

Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties		
						Slurry Density	16.399	PPG
						Slurry Yield	1.08	FT3
100.00	% BWOC	Lafarge Class H	Bulk	Oct 16, 2009		Water Requirement	4.33	GPS
0.07	% BWOC	EZ-FLO	Bulk	Oct 16, 2009		Total Mix Fluid	4.42	GPS
0.25	% BWOC	D-Air 3000	Bulk	Oct 16, 2009				
1.88	lb/sk	KCl (Potassium Chloride) Salt	Bulk	Oct 16, 2009				
0.08	gps	HALAD-344EXP	Lab	Jul 27, 2009		Water Source	Fresh Water	
0.01	gps	HR-6L	Lab	Sep 18, 2009	162	Water Chloride	N/A	ppm
4.33	gps	Fresh Water	Lab	Sep 22, 2009				

Operation Test Results Request ID 51879/1

Thickening Time, Request Test ID:583973

Temp (°F)	Pressure (psi)	Batch Mix (min)	Reached in (min)	Start BC	30 Bc (hh:mm)	40 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)
93	5,289	0	35	11	03:14	03:34	03:41	03:50

Mixability (0 - 5) - 0 is not mixable, Request Test ID:583975

Mixability rating (0 - 5)

5

Mud Balance Density, Request Test ID:583994

Density (ppg)

16.4

UCA Comp. Strength, Request Test ID:583974

End Temp (°F)	Pressure (psi)	50 psi (hh:mm)	500 psi (hh:mm)	12 hr CS (psi)	24 hr CS (psi)
105	5,289	04:31	06:32	1,723	2,571

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Non API Rheology, Request Test ID:583976

Test temp (°F)	600	300	200	100	60	30	20	10	6	3
80	222	130	96	56	38	22	18	10	8	6

Non API Rheology, Request Test ID:583977

Test temp (°F)	600	300	200	100	60	30	20	10	6	3
93	232	178	102	60	40	24	18	10	6	4

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