

# HALLIBURTON

Cementing Gulf of Mexico, Broussard

## LAB RESULTS - Spacer

### Job Information

Request/Slurry	72908/2	Rig Name	TRANSOCEAN HORIZON	Date	April 6th 2010
Submitted By	Quang Nguyen	Job Type	Production Casing	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	7"	Depth MD	19650 ft	BHST	0 F
Hole Size		Depth TVD	17200 ft	BHCT	140 F

### Drilling Fluid Information

Mud Company	MI	Type	SOBM	Density	14.4 PPG	PV/YP
-------------	----	------	------	---------	----------	-------

### Spacer Information - Spacer Design

Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Spacer Properties	
25.70	lb/bbl	Tuned Spacer III	Lab	Dec 12, 2009		Slurry Density	15.022 PPG
346.75	lb/bbl	Barite	Lab	Mar 11, 2010		Slurry Yield	1.62 FT3
0.12	gal/bbl	D-Air 3000L	Lab	Jul 28, 2009		Water Requirement	8.37 GPS
0.60	gal/bbl	SEM-8	Lab	Nov 28, 2009		Total Mix Fluid	GPS
0.60	gal/bbl	Dual Spacer Surfactant A	Lab	Jan 07, 2010		Water Source	Field (Fresh) Water
0.60	gal/bbl	Dual Spacer Surfactant B	Lab	Jan 07, 2010	H84375 96	Water Chloride	0 ppm
29.03	gal/bbl	Field (Fresh) Water	Rig	Apr 05, 2010			

### Operation Test Results Request ID 72908/2

#### Wettability, Request Test ID: 799450

Starting Mud Vol. (ml)	Conductivity of Pure Spacer (Hn)	Temp. (°F)	Spacer Vol. Added (ml)	Conductivity (Hn)
250	150	140	50	100
			100	150

Wettability passed

This report is the property of Halliburton Energy Services and neither it nor any part thereof, nor a copy thereof, is to be published or disclosed without first securing the expressed written approval of Halliburton. It may however be used in the course of regular business operations by any person or concern receiving such report from Halliburton. This report is for information purposes only and the content is limited to the sample described. Halliburton makes no warranties, expressed or implied, as to the accuracy of the contents or results. Any user of this report agrees Halliburton shall not be liable for any loss or damage regardless of cause, including any act or omission of Halliburton, resulting from the use hereof.

Global Customer Report

Page: 1

4563

Exhibit No. \_\_\_\_\_  
Worldwide Court  
Reporters, Inc.

BP-HZN-IIT-0004368

BP-H7NLMRI00137422  
CVX80311 00000311

Confidential

**Box Test, Request Test ID: 799453**

Temp (°F)

140

Pass/Fail

pass

**Mixability ID: 51 - 0 is not available, Request Test ID: 799454**

Mixability rating (0 - 5)

5

**Non API Rheology, Request Test ID: 799446**

Test temp (°F)	600	300	200	100	60	30	20	10	6	3
80	164	100	74	44	30	20	18	12	10	10

**Non API Rheology, Request Test ID: 799447**

Test temp (°F)	600	300	200	100	60	30	20	10	6	3
140	120	76	60	40	30	22	16	14	12	10

**Non API Rheology, Request Test ID: 799448**

Test temp (°F)	600	300	200	100	60	30	20	10	6	3
80	160	100	80	54	44	32	30	24	22	20

**Non API Rheology, Request Test ID: 799449**

Test temp (°F)	600	300	200	100	60	30	20	10	6	3
140	130	88	70	50	40	34	30	26	24	22

yp=27

**Rheology Comparability, Request Test ID: 799451**

Test Temp (°F)	Fluid 2	Fluid Ratio	600	300	200	100	60	30	20	10	6	3
80	mud	75/25	130	76	58	40	28	20	18	14	12	10
		50/50	100	60	50	30	22	14	12	10	8	4
		25/75	210	110	60	30	20	12	10	6	6	6

all ratios are compatible

This report is the property of Halliburton Energy Services and neither it nor any part thereof, nor a copy thereof, is to be published or disclosed without first securing the expressed written approval of Halliburton. It may however be used in the course of regular business operations by any person or concern receiving such report from Halliburton. This report is for information purposes only and the content is limited to the sample described. Halliburton makes no warranties, expressed or implied, as to the accuracy of the contents or results. Any user of this report agrees Halliburton shall not be liable for any loss or damage regardless of cause, including any act or omission of Halliburton, resulting from the use hereof.

Global Customer Report

Page: 2

Confidential

BP-HZN-IIT-0004369

BP.H7NLMRI00137423  
CVX80311 00000312

**Rheology Compatibility Request Test ID: 790452**

Test Temp (°F)	Fluid 2	Fluid Ratio	600	300	200	100	60	30	20	10	6	3
140	mud	75/25	90	50	40	26	20	14	12	10	8	6
		50/50	90	40	30	18	14	10	6	6	4	2
		25/75	128	70	46	22	14	8	6	2	2	2

all ratios are compatible

This report is the property of Halliburton Energy Services and neither it nor any part thereof, nor a copy thereof, is to be published or disclosed without first securing the expressed written approval of Halliburton. It may however be used in the course of regular business operations by any person or concern receiving such report from Halliburton. This report is for information purposes only and the content is limited to the sample described. Halliburton makes no warranties, expressed or implied, as to the accuracy of the contents or results. Any user of this report agrees Halliburton shall not be liable for any loss or damage regardless of cause, including any act or omission of Halliburton, resulting from the use hereof.

