

**EXXONMOBIL CORPORATION**

**HOUSTON, Texas**

FRU 197-33B10

H&P 321

## **Post Job Summary**

### **Cement Production Casing**

Date Prepared: 8/19/10  
Version: 1

Service Supervisor: ANDERSON, BENJAMIN

Submitted by: Isaac Whorl

**HALLIBURTON**

# HALLIBURTON

## Wellbore Geometry

Job Tubulars					MD		TVD		Excess %	Shoe Joint Length ft
Type	Description	Size in	ID in	Wt lbm/ft	Top ft	Bottom ft	Top ft	Bottom ft		
Casing	10.75" Casing	10.75	9.950	45.50	0	4,114	0	3,831		80
Open Hole Section	8 3/4" Hole		8.750		4,114	12,667	3,831.00	12,592	150	
Casing	4.5" Casing	4.50	3.826	15.10	0	12,653	0	12,592		89

## Pumping Schedule

Fluid #	Fluid Type	Fluid Name	Density lbm/gal	Avg Rate bbl/min	Volume
1	Spacer	PolyFlake Tracer	10.00	6.00	50.0 bbl
2	Spacer	Drilling Fluid / Mud	10.00	6.00	371.0 bbl
3	Spacer	TUNED SPACER III	11.00	6.00	70.0 bbl
4	Cement Slurry	Primary Cement	12.00	6.00	3220.0 sacks
5	Spacer	NaCl Displacement	8.50	6.00	178.0 bbl

## Fluids Pumped

**Stage/Plug # 1**      **Fluid 1:**      PolyFlake Tracer  
1 ppb      Poly-E-Flake

Fluid Density: 10.00 lbm/gal  
Fluid Volume: 50.00 bbl

**Stage/Plug # 1**      **Fluid 2:**      Drilling Mud

Fluid Density: 10.00 lbm/gal  
Fluid Volume: 371.00 bbl

**Stage/Plug # 1**      **Fluid 3:**      TUNED SPACER III  
TUNED SPACER III - (483826)  
0.1 gal/bbl      D-AIR 3000L  
117.6 lbm/bbl      Barite

Fluid Density: 11.00 lbm/gal  
Fluid Volume: 70.00 bbl

**Stage/Plug # 1**      **Fluid 4:**      Primary Cement  
VARICEM (TM) CEMENT  
0.3 %      Fe-2

Fluid Weight: 12.00 lbm/gal  
Slurry Yield: 2.18 ft<sup>3</sup>/sack  
Total Mixing Fluid: 12.13 Gal  
Volume: 3220.0 sacks  
Calculated Fill: 8,667.00 ft

**Stage/Plug # 1**      **Fluid 5:**      NaCl Displacement  
Displacement Fluid  
7.15 ppb      Salt

Fluid Density: 8.50 lbm/gal  
Fluid Volume: 178.00 bbl

# HALLIBURTON

## ***Job Summary***

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### **Job Information**

<b>Job Start Date</b>	8/17/2010 6:42:00 PM
<b>Job MD</b>	12,653.0 ft
<b>Height of Plug Container/Swage Above Rig Floor</b>	5.0 ft
<b>Surface Temperature at Time of Job</b>	68 degF
<b>Mud Type</b>	Water Based Mud
<b>Mud Density</b>	9.6 lbm/gal
<b>Mud PV</b>	19 cP
<b>Mud YP</b>	25 lbs/100ft <sup>2</sup>
<b>Hole Conditioning Time</b>	5 hours
<b>Hole Conditioning Rate</b>	60 spm (6.42 bpm)
<b>Pipe Movement During Cementing</b>	Reciprocated
<b>Calculated Displacement</b>	179.00 bbl
<b>Job Displaced by (rig/halco)</b>	Cement Unit HP Pumps
<b>Length of Rat Hole</b>	3.00 ft

### **Cementing Equipment**

<b>Number of Centralizers Used</b>	140
<b>Did Float Equipment Hold?</b>	Yes
<b>Plug set used?</b>	Yes
<b>Brand of Plug set used?</b>	Weatherford
<b>Did Plugs Bump?</b>	Yes
<b>Calculated Pressure to Bump Plugs</b>	2,346.0 psig

# HALLIBURTON

## Service Supervisor Reports

### Job Log

Date/Time	Activity Code	Pump Rate	Volume	Pressure (psig)	Comments
08/16/2010 23:00	Call Out				CREW CALLED OUT, GOT TRUCKS PREPPED FOR CONVOY AND JOB
08/17/2010 00:30	Pre-Convoy Safety Meeting				DISCUSSED CONVOY PROCEDURE, ROUTE, STOP, WILDLIFE, TRAFFIC, ROAD HAZARDS, EMERGENCY, AND BREAKDOWN PROCEDURES
08/17/2010 05:00	Arrive at Location from Service Center				RIG IS RUNNING CASING
08/17/2010 12:23	Pre-Rig Up Safety Meeting				DISCUSSED RIG UP PROCEDURES, PINCH POINTS, LIFTING TECHNIQUES, RED ZONES, SLIPS/TRIPS/FALLS
08/17/2010 12:23	Rig-Up Equipment				RIGGED UP SAFELY AND TO BOTH HALLIBURTON AND EXXON STANDARDS
08/17/2010 14:25	Other				Rig lands final casing joint, begins circulating the well. Circulates 1 and a half bottoms up.
08/17/2010 18:40	Rig-Up Completed				Rig up to well head complete,
08/17/2010 18:42	Pre-Job Safety Meeting				DISCUSSED JOB PROCEDURES, RIG ISSUES, SAFETY ISSUES, HAZARDS WITH PRESSURE, EMERGENCY, AND EVACUATION PROCEDURES. Rig begins pumping 50 bbl Poly-E-Flake tracer and then 371 bbls of mud at 60 spm
08/17/2010 19:23	Test Lines			250.0	TEST IS GOOD
08/17/2010 19:23	Test Lines			5000.0	TEST IS GOOD
08/17/2010 20:04	Pump Spacer	4	70	400.0	PUMPED TUNED SPACER @ 11 PPG. Recorded volume of 67 bbls
08/17/2010 20:22	Drop Bottom Plug				Plug left cement head
08/17/2010 20:27	Pump Cement	7	1280		MIXED @ 12 PPG, 11.91 gal/sk, 2.18 ft <sup>3</sup> /sk, primary cement. Barrel counter read 1280 bbls, company man wanted to go off of mix water. Mix water volume calculated out to 1086.6 bbls. All cement in bins, silos, and bulk trucks was used (3220 sks).

# HALLIBURTON

Date/Time	Activity Code	Pump Rate	Volume	Pressure (psig)	Comments
08/17/2010 22:34	Shutdown				Flecs controller shutdown by accident
08/17/2010 23:34	Drop Top Plug				PLUG LEFT CEMENT HEAD
08/17/2010 23:42	Pump Displacement	6	176	2000.0	PUMPED FRESH WATER @ 8.33 PPG WITH SALT. Displacement tank volume 176 bbls, bbl counter volume 200 bbls
08/18/2010 00:17	Bump Plug	3		2800.0	PRESSURED 800 PSI OVER AS PER COMPANY MAN
08/18/2010 00:20	Check Floats				FLOATS HELD, GOT 2 BBLS BACK
08/18/2010 00:27	Check Floats				Checks floats a second time, held for 3 minutes and got 2 bbls back
08/18/2010 00:45	Post-Job Safety Meeting (Pre Rig-Down)				DISCUSSED JOB OUTCOME AND DISCUSSED RIG DOWN PROCEDURES, PINCH POINTS, LIFTING TECHNIQUES, RED ZONES, SLIPS/TRIPS/FALLS
08/18/2010 01:00	Rig-Down Equipment				RIGGED DOWN SAFELY AND TO BOTH HALLIBURTON AND EXXON STANDARDS
08/18/2010 03:15	Pre-Convoy Safety Meeting				DISCUSSED CONVOY PROCEDURE, ROUTE, STOP, WILDLIFE, TRAFFIC, ROAD HAZARDS, EMERGENCY, AND BREAKDOWN PROCEDURES
08/18/2010 03:30	Depart Location for Service Center or Other Site				THANKS FOR USING HALLIBURTON!!!

### The Road to Excellence Starts with Safety

<b>Sold To #:</b> 331699	<b>Ship To #:</b> 2778614	<b>Quote #:</b>	<b>Sales Order #:</b> 7554880
<b>Customer:</b> EXXONMOBIL CORPORATION		<b>Customer Rep:</b> Prucnal, Simon	
<b>Well Name:</b> FRU		<b>Well #:</b> 197-33B10	<b>API/UWI #:</b>
<b>Field:</b> PICEANCE CREEK	<b>City (SAP):</b> MEEKER	<b>County/Parish:</b> Rio Blanco	<b>State:</b> Colorado
<b>Lat:</b> N 39.921 deg. OR N 39 deg. 55 min. 17.044 secs.		<b>Long:</b> E 108.283 deg. OR E 108 deg. 16 min. 57.112 secs.	
<b>Contractor:</b> H&P		<b>Rig/Platform Name/Num:</b> H & P 321	
<b>Job Purpose:</b> Cement Production Casing			
<b>Well Type:</b> Development Well		<b>Job Type:</b> Cement Production Casing	
<b>Sales Person:</b> TURNER, JAMIE		<b>Srv Supervisor:</b> ANDERSON, BENJAMIN	<b>MBU ID Emp #:</b> 342843

### Job Personnel

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
ANDERSON, BENJAMIN L		342843	BERGIN, JASON P		293977	JOHNSON, KURT D		470766
MCCONKIE, TRAVIS Terry		471264	PAUU, SEMISI Tu'a		445202	VAUGHN, WILLIAM Floyd		448738
WALKER, DERRICK		267871	WHITE, KAMEREON V		475856			

### Equipment

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way
10713216	120 mile	10741125	120 mile	10784082	120 mile	10804583	120 mile
10825967	120 mile	10948690	120 mile	10982756	120 mile	10994447	120 mile
11062230	120 mile	11076824	120 mile	11172374	120 mile	11211506	120 mile

### Job Hours

Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours
<b>TOTAL</b>			Total is the sum of each column separately					

### Job

Formation Name	Formation Depth (MD)	Top	Bottom	Form Type	Job depth MD	Job Depth TVD	Water Depth	Perforation Depth (MD)	From	To
				BHST	12653. ft	12653. ft				
							Wk Ht Above Floor			5. ft

### Job Times

Called Out	Date	Time	Time Zone
	16 - Aug - 2010	23:00	MST
	17 - Aug - 2010	05:00	MST
	17 - Aug - 2010	18:42	MST
	18 - Aug - 2010	00:27	MST
	18 - Aug - 2010	03:30	MST

### Well Data

Description	New / Used	Max pressure psig	Size in	ID in	Weight lbm/ft	Thread	Grade	Top MD ft	Bottom MD ft	Top TVD ft	Bottom TVD ft
8 3/4" Hole				8.75				4110.	12888.	3831.	12592.
10.75" Casing	Unknown		10.75	9.95	45.5		J-55	.	4110.	.	3831.
4.5" Casing	Unknown		4.5	3.826	15.1		P-110	.	12888.	.	12592.

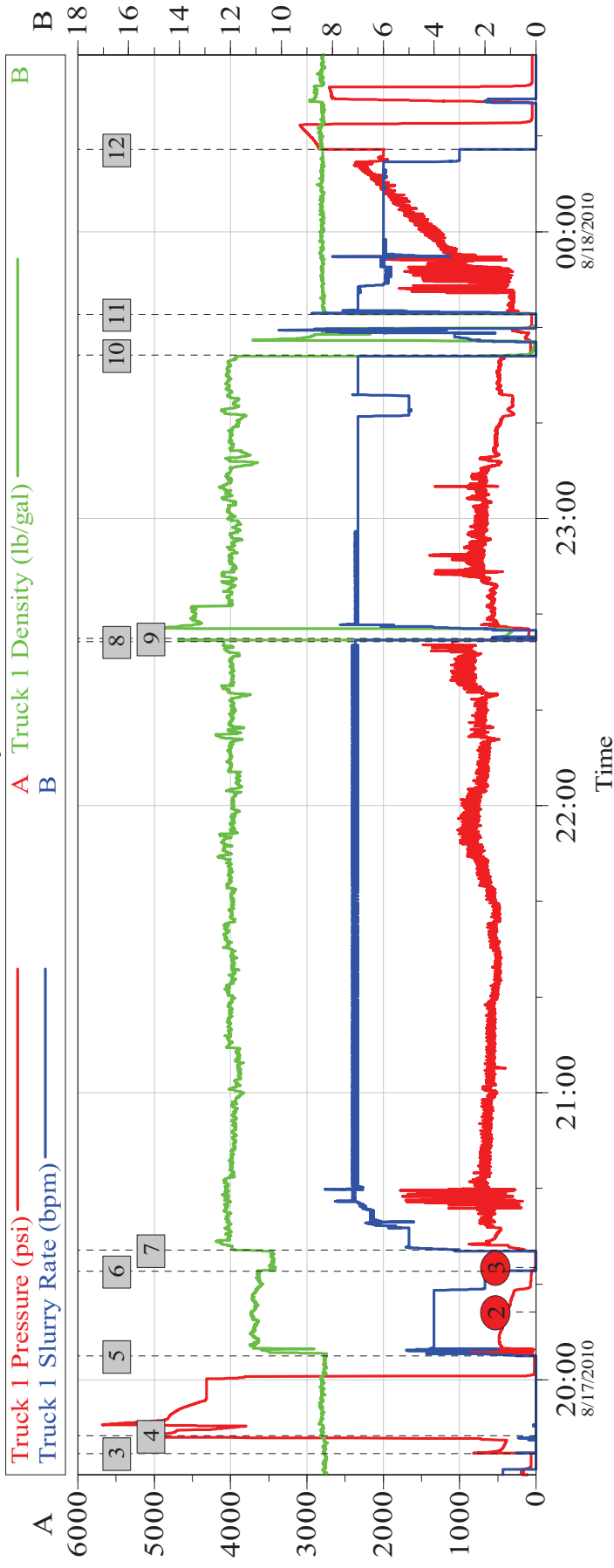
### Tools and Accessories

Type	Size	Qty	Make	Depth	Type	Size	Qty	Make	Depth	Type	Size	Qty	Make
Guide Shoe					Packer					Top Plug			
Float Shoe					Bridge Plug					Bottom Plug			

Float Collar					Retainer					SSR plug set						
Insert Float										Plug Container						
Stage Tool										Centralizers						
<b>Miscellaneous Materials</b>																
Gelling Agt		Conc		Surfactant		Conc		Acid Type		Qty		Conc	%			
Treatment Fld		Conc		Inhibitor		Conc		Sand Type		Size		Qty				
<b>Fluid Data</b>																
<b>Stage/Plug #: 1</b>																
Fluid #	Stage Type	Fluid Name			Qty	Qty uom	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sk	Mix Fluid Gal/sk	Rate bbl/min	Total Mix Fluid Gal/sk					
1	PolyFlake Tracer				50.00	bbl	10.	.0	.0	6.0						
	1 ppb	POLY-E-FLAKE (101216940)														
2	Drilling Fluid / Mud				371.00	bbl	10.	.0	.0	6.0						
3	TUNED SPACER III	TUNED SPACER III - SBM (483826)			70.00	bbl	11.	.0	.0	6.0						
	36.83 gal/bbl	FRESH WATER														
	0.1 gal/bbl	D-AIR 3000L, 5 GAL PAIL (101007444)														
	117.6 lbm/bbl	BARITE, 100 LB SK (100003680)														
4	Primary Cement	VARICEM (TM) CEMENT (452009)			3220.0	sacks	12.	2.18	12.13	6.0	12.13					
	12.125 Gal	FRESH WATER														
	0.3 %	FE-2 (100001615)														
5	NaCl Displacement				178.00	bbl	8.5	.0	.0	6.0						
	7.15 ppb	SALT, 100 LB BAG (100003652)														
<b>Calculated Values</b>		<b>Pressures</b>			<b>Volumes</b>											
Displacement		Shut In: Instant			Lost Returns		Cement Slurry			Pad						
Top Of Cement		5 Min			Cement Returns		Actual Displacement			Treatment						
Frac Gradient		15 Min			Spacers		Load and Breakdown			Total Job						
<b>Rates</b>																
Circulating		Mixing			Displacement		Avg. Job									
Cement Left In Pipe		Amount	80 ft	Reason	Shoe Joint											
Frac Ring # 1 @		ID		Frac ring # 2 @		ID		Frac Ring # 3 @		ID		Frac Ring # 4 @				
The Information Stated Herein Is Correct					Customer Representative Signature											

### FRU 197-33B10 2 String Production

#### Summary Chart



#### Global Event Log

3	Test Lines	8/17/2010 19:44:33	4	Test Lines	8/17/2010 19:48:16
5	Pump Spacer 1	8/17/2010 20:04:54	6	Drop Bottom Plug	8/17/2010 20:22:39
7	Pump Cement	8/17/2010 20:27:03	8	Flees Controller shutdown	8/17/2010 22:34:16
9	Start Job	8/17/2010 22:34:56	10	Drop Top Plug	8/17/2010 23:34:08
11	Pump Displacement	8/17/2010 23:42:42	12	Bump Plug	8/18/2010 00:17:11

Customer: EXXONMOBIL  
Well Description: FRU 197-33B10

Job Date: 17-Aug-2010

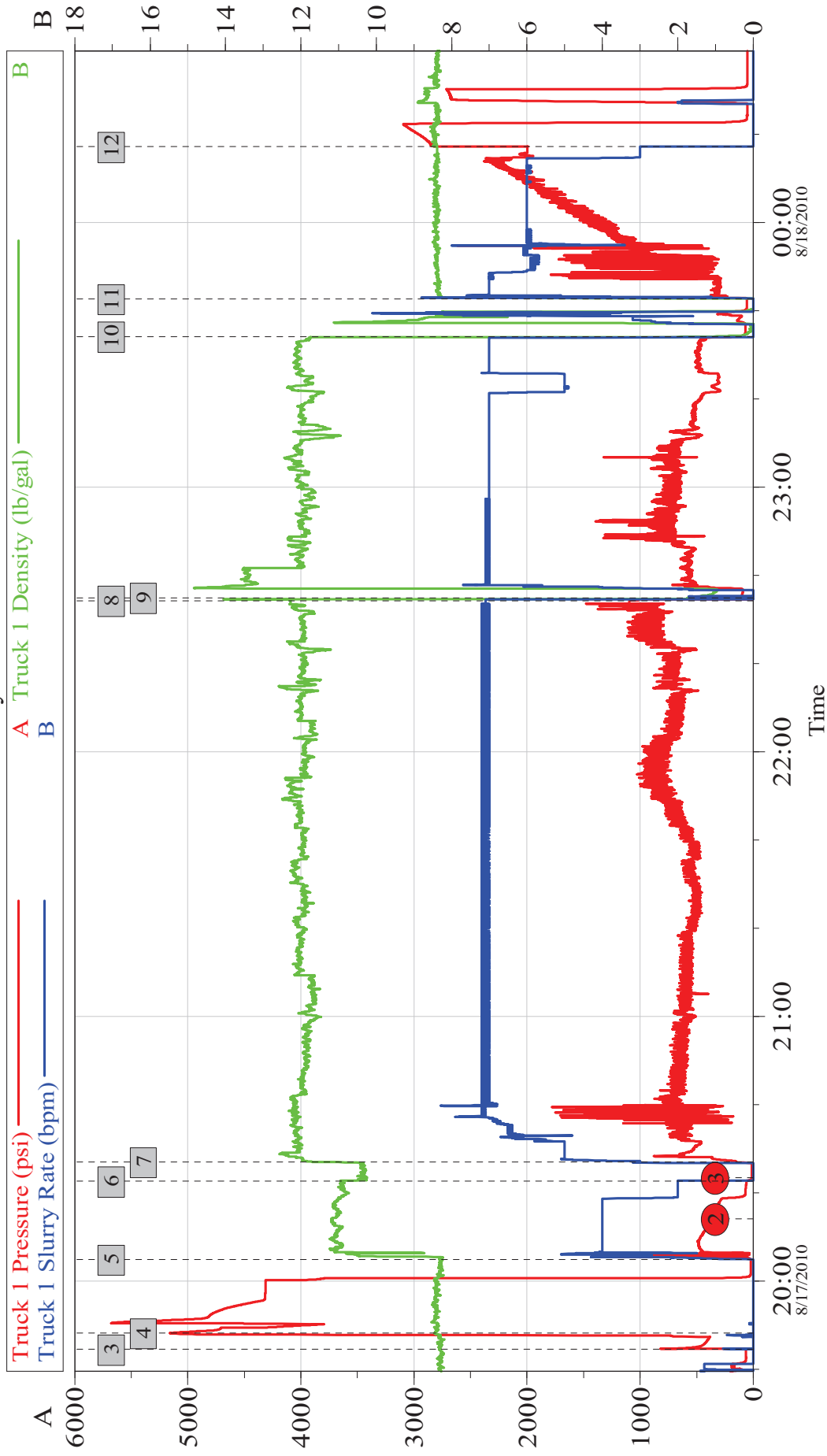
Sales Order #: 7554880

OptiCem v6.4.9  
18-Aug-10 00:59



FRU 197-33B10 2 String Production

Summary Chart



Customer: EXXONMOBIL  
Well Description: FRU 197-33B10

Job Date: 17-Aug-2010

Sales Order #: 7554880

OptiCem v6.4.9  
18-Aug-10 01:01

# HALLIBURTON

## Lab Data

# HALLIBURTON

Cementing Rockies, Meeker

## LAB RESULTS - Primary

### Job Information

Request/Slurry	76766/1	Rig Name	H&P 321	Date	April 30th 2010
Submitted By	Isaac Whorl	Job Type	Production Casing	Bulk Plant	Meeker
Customer	ExxonMobil	Location	Rio Blanco	Well	FRU 197-33B10

### Well Information

Casing/Liner Size	4 1/2"	Depth MD	12653 ft	BHST	270 F
Hole Size	8 3/4"	Depth TVD	12268 ft	BHCT	210 F

### Cement Information - Primary Design

Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties		
		VariCem				Slurry Density	12.001	PPG
						Slurry Yield	2.17	FT3
						Water Requirement	11.95	GPS
						Water Source	Field (Fresh) Water	
100.00	% BWOC	TXI Lightweight	Bulk	Aug 11, 2010				
25.00	% BWOC	Silicalite - Compacted	Bulk	Aug 11, 2010	08-10-10			
0.60	% BWOC	HALAD-344 (PB)	Bulk	Aug 11, 2010	ZMOF0040AO			
0.60	% BWOC	D-Air 3000	Bulk	Aug 11, 2010	20101709AC			
0.10	% BWOC	Econolite (Powder - PB)	Bulk	Aug 11, 2010	U020210			
0.30	% BWOC	Fe-2 (citric acid)	Bulk	Aug 11, 2010	9121652			
132.94	L/100kg	Field (Fresh) Water	Lab	Jul 23, 2010				

### Operation Test Results Request ID 76766/1

#### UCA Comp. Strength, Request Test ID:834231

End Temp (°F)	Pressure (psi)	50 psi (hh:mm)	500 psi (hh:mm)	12 hr CS (psi)	24 hr CS (psi)	48 hr CS (psi)	End CS (psi)	End Time (hrs)
242	3,000	06:18	06:41	1,249	1,471	1,505	1,606	72

#### Thickening Time, Request Test ID:834230

Temp (°F)	Pressure (psi)	Reached in (min)	Start BC	30 Bc (hh:mm)	40 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)
210	7,681	60	2	07:42	07:42	07:42	07:42	07:47

#### Free Water, Request Test ID:834233

Test Temp (°F)	% FW 45 Inc
180	0

Trace FW, 0 channeling, 0 settling.

#### API Rheology, Request Test ID:834232

Temp (°F)	600	300	200	100	60	30	6	3	Cond Time (min)	PV/YP
80	46	25	19	12	9	7	4	4	0	20.9 / 4.9

#### API Fluid Loss, Request Test ID:834234

Test Temp (°F)	Test Pressure (psi)	Test Time (min)	Meas. Vol (< 30 min, cc)	Extr. ISO FL (cc/30 min)	Conditioning time (min)
180	1,000	10.93	47	156	30

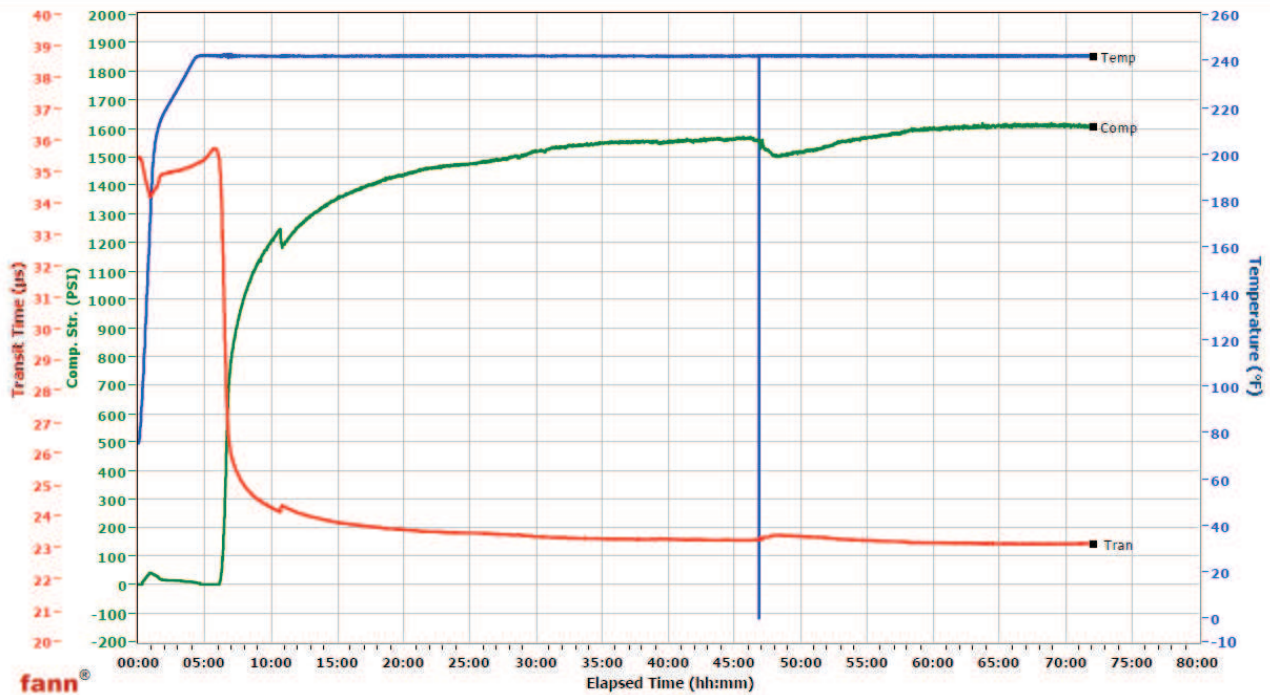
# HALLIBURTON

## White River City Ranch

Fields	Values
Project Name	exxonmobil 76766-1
Test ID	76766-1
Request ID	6
Tested by	RR
Customer	ExxonMobil
Well No	FRU 197-33B10
Rig	H&P 321
Casing/Liner Size	
Job Type	PROD PRIMARY

Fields	Values
Cement Type	TXI
Cement Weight	Light Weight
Comments	TXI, FE-2 .300%, DENSITY 12.0, YIELD 2.17
Test Date	8/12/2010
Test Time	10:53 AM
Temp. Units	degF
Pressure Units	PSI

Events	Results
50.00 PSI	06h:18m
100.00 PSI	06h:23m
500.00 PSI	06h:41m
1000.00 PSI	07h:57m
12h:00m	1249.39
24h:00m	1470.79
48h:00m	1505.13
72h:00m	1605.88



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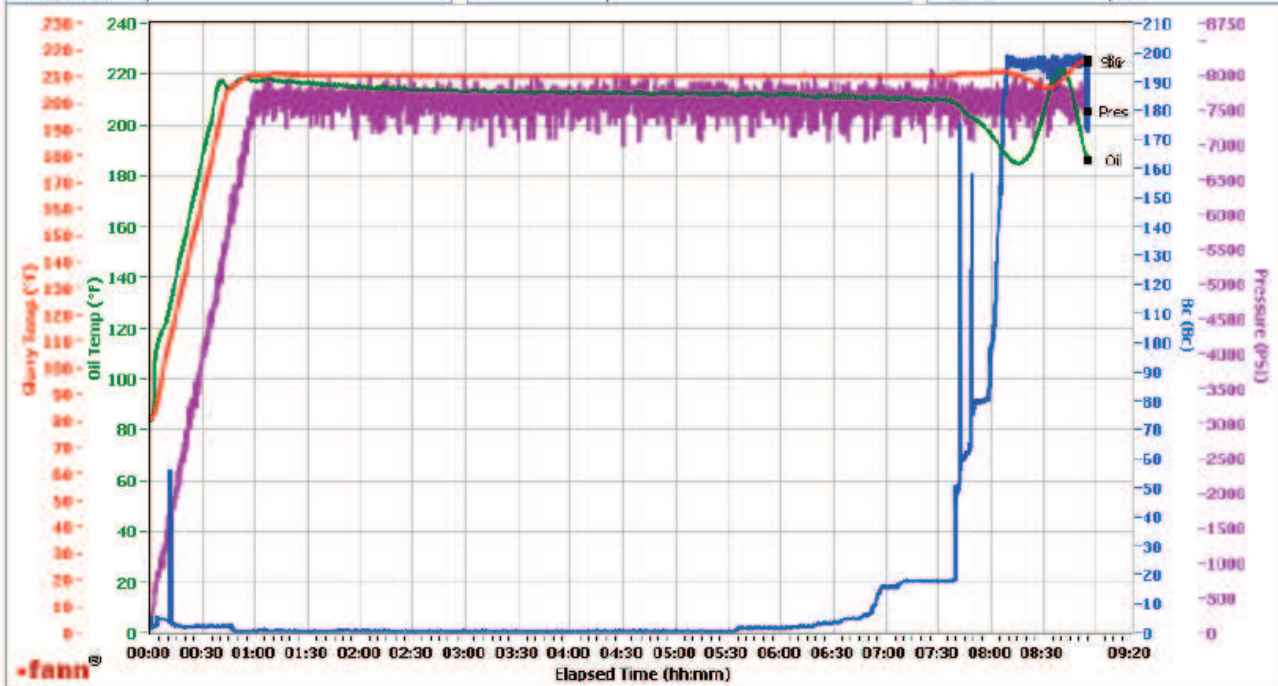
# HALLIBURTON

## WRCR

Fields	Values
Project Name	EXXONMOBIL 76756-1
Test ID	76756-1
Request ID	4
Tested by	RR
Customer	EXXONMOBIL
Well No	FRU 197-33B10
Rig	H&P 321
Casing/Liner Size	

Fields	Values
Job Type	PRODUCTION PRIMARY
Cement Type	TXI
Cement weight	Standard
Test Date	01/01/70
Test Time	07:39 AM
Temp. Units	degF
Pressure Units	PSI

Events	Results
30.00 Bc	07:42
40.00 Bc	07:42
50.00 Bc	07:42
70.00 Bc	07h 42m
100.00 Bc	07h 47
200.00 Bc	NaN
03h 00m	0.54
06h 00m	1.71



Data File C:\HPHT Data Files\WRCR\WRCR Consistometer #4\EXXONMOBIL 76756-1.tdms

Comments TXI, FE-2 30%, DENSITY 12.0, YIELD 2.17 YARD