

EXXONMOBIL CORPORATION

HOUSTON, Texas

NPU 196-19B1

H & P 215

## **Post Job Summary**

### **Cement Production Casing**

Date Prepared: November 2, 2010  
Version: 1

Service Supervisor: ASHBY, ANDREW

Submitted by: Thomas Stumpf

**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	Intermediate Casing	7.00	6.276	26.00	0.00	11,164.00	0.00	11,029.00		80.00
Open Hole Section	Production Open Hole		6.125		10,864.00	14,761.00	11,029.00	14,617.00	350.00	
Casing	Production Casing	4.50	3.826	15.10	0.00	14,671.00	0.00	14,527.00		80.00

## Pumping Schedule

Fluid #	Fluid Type	Fluid Name	Density lbm/gal	Avg Rate bbl/min	Volume
1	Spacer	Tuned Spacer III	12.50	6.00	40.0 bbl
2	Cement Slurry	Econocem	13.00	6.00	100.0 sacks
3	Cement Slurry	ExpandaCem	13.50	6.00	940.0 sacks
4	Spacer	NaCl Displacement	8.44	6.00	209.0 bbl

## Fluids Pumped

**Stage/Plug # 1 Fluid 1:** Tuned Spacer III  
TUNED SPACER III - SBM (483826)  
59.8 lbm/bbl Barite

Fluid Density: 12.50 lbm/gal  
Fluid Volume: 40.00 bbl  
Pump Rate: 6.00 bbl/min

**Stage/Plug # 1 Fluid 2:** Econocem  
ECONOCEM (TM) SYSTEM  
6 % Halliburton Gel  
0.25 % SCR-100  
1.5 lbm BARACARB

Fluid Weight: 13.00 lbm/gal  
Slurry Yield: 1.44 ft<sup>3</sup>/sack  
Total Mixing Fluid: 6.87 Gal  
Sacks: 100.0 sacks

**Stage/Plug # 1 Fluid 3:** ExpandaCem  
EXPANDACEM (TM) SYSTEM  
0.9 % Halad(R)-344  
25 % Silicalite Compacted  
0.6 % D-AIR 3000  
0.1 % Econolite  
0.3 % Super CBL  
35 % SSA-1

Fluid Weight: 13.50 lbm/gal  
Slurry Yield: 1.98 ft<sup>3</sup>/sack  
Total Mixing Fluid: 9.34 Gal  
Sacks: 940.0 sacks  
Calculated Fill: 6,539.00 ft  
Calculated Top of Fluid: 8,222.00 ft  
Pump Rate: 6.00 bbl/min

**Stage/Plug # 1 Fluid 4:** NaCl Displacement  
DISPLACEMENT WATER w/ NaCl  
7.15 lbm/bbl Salt

Fluid Density: 8.44 lbm/gal  
Fluid Volume: 209.00 bbl  
Pump Rate: 6.00 bbl/min

# HALLIBURTON

## Job Summary

### Job Information

Job Start Date	10/31/2010 2:30:00 PM
Job MD	14,671.0 ft
Height of Plug Container/Swage Above Rig Floor	5.0 ft
Surface Temperature at Time of Job	60 degF
Mud Type	Water Based Mud
Name of Mud Company	BAROID
Actual Mud Density	12.1 lbm/gal
Time Circulated before job	5.75 hour(s)
Rate at Which Well was Circulated	3.300 bbl/min
Units of Gas Detected While Circulating	1000 API Gas Units
Pipe Movement During Hole Circulation	Reciprocated
Time From End Mud Circ. to Job Start	20.00 minute
Pipe Movement During Cementing	Reciprocated
Calculated Displacement	209.10 bbl
Job Displaced by (rig/halco)	Cement Unit HP Pumps

### Cementing Equipment

Did Float Equipment Hold?	Yes
Plug set used?	Yes
Brand of Plug set used?	Weatherford GEMOCO
Did Plugs Bump?	Yes

## Service Supervisor Reports

### Job Log

Date/Time	Activity Code	Pump Rate	Volume	Pressure (psig)	Comments
10/31/2010 04:00	Call Out				Crew called out. Plug Container#
10/31/2010 05:00	Other				Sent driver to pick up the Bulk Truck from the White River Facility.
10/31/2010 08:30	Pre-Convoy Safety Meeting				Met w/crew to discuss the safety and hazards of travel to location.
10/31/2010 08:45	Depart from Service Center or Other Site				Entered into Journey Management.
10/31/2010 09:00	Arrive At Loc				Ended Journey Management. Signed in at the Safety Shack. Casing Finished, Rig circulating.
10/31/2010 09:05	Assessment Of Location Safety Meeting				Met w/crew to discuss the best layout for spotting equipment and verifying materials on location
10/31/2010 09:15	Other				Spot equipment on Location
10/31/2010 09:20	Other				Met w/Company Rep to get numbers and verify information.
10/31/2010 09:25	Pre-Rig Up Safety Meeting				Met w/crew to discuss the safety and hazards of rigging up, Iron layout, water lines and product hoses.
10/31/2010 09:30	Rig-Up Equipment				Rig up Iron as fas as safe, water lines, buddy lines, and product lines.
10/31/2010 14:00	Pre-Job Safety Meeting				Met w/crew, Co. Reps., and rig crew to discuss the job proceedure, hazards involved, and safety measures. Discussed rigging up the floor.

# HALLIBURTON

Date/Time	Activity Code	Pump Rate	Volume	Pressure (psig)	Comments
10/31/2010 14:15	Rig-Up Equipment				Finish rigging up the floor.
10/31/2010 14:25	Start Job				
10/31/2010 14:27	Other	2		330.0	Fill Lines
10/31/2010 14:30	Pressure Test			368.0	Low Pressure Test (250 psi)
10/31/2010 14:35	Pressure Test			5351.0	High Pressure Test (5000 psi)
10/31/2010 14:43	Pump Spacer	3	40	1143.0	TS III Design 40 bbl, 12.5 ppg, 7.49 cuft/sk, 46.1 gps
10/31/2010 14:50	Shutdown				Shutdown - wasn't getting product very well.
10/31/2010 14:55	Other	3		746.0	Resume pumping spacer, problem resolved.
10/31/2010 14:59	Drop Bottom Plug				Shutdown & Drop Biotom Plug
10/31/2010 15:02	Pump Cement	3	25.6	1011.0	100 sks of Scavenger Cement @ 13 ppg, 1.44 cuft/sk, 6.87 gps
10/31/2010 15:10	Pump Cement	3.5	336.4	1171.0	940 sks of ExpandaCem Cement @ 13.5 ppg, .198 cuft/sk, 9.34 gps
10/31/2010 15:13	Shutdown				Problems Mixing ExpandaCem Cement - Tub Powdered Off
10/31/2010 15:15	Other	3.5		1225.0	Resume pumping cement
10/31/2010 15:34	Shutdown				Mixing tub Powdered off again
10/31/2010 15:39	Other	4		1177.0	Got it going again - Resume pumping cement - Mud scale cement often to check density
10/31/2010 15:42	Other	6		1488.0	Increase rate
10/31/2010 15:48	Slow Rate	5		1208.0	Slow Rate
10/31/2010 16:32	Drop Top Plug				Shutdown / Wash Pump & Lines to Pit / Drop Top Plug
10/31/2010 16:37	Pump Displacement	5	209	1087.0	Fresh Water Displacement w/NaCl
10/31/2010 16:59	Slow Rate	3		2844.0	Slow Rate to 3 BPM per Co. Rep. - Not getting good returns
10/31/2010 17:04	Other	5		2978.0	Resume Rate per Co. Rep.
10/31/2010 17:13	Slow Rate	4		3743.0	Slow Rate to 4 bpm per Co. Rep.
10/31/2010 17:15	Slow Rate	3		3528.0	Slow Rate to 3 bpm per Co. Rep.
10/31/2010 17:20	Slow Rate	2		3733.0	Slow Rate to 4 BPM, 142 bbl away into displacment
10/31/2010 17:26	Bump Plug	2		4546.0	Bump Plug @ 500 psi over circulating pressure (3875 psi) per Co. Rep.
10/31/2010 17:32	Check Floats				Floats Held, 3.5 bbls back.
10/31/2010 17:35	End Job				Job Complete per Company Rep.
10/31/2010 17:40	Post-Job Safety Meeting (Pre Rig-Down)				Met w/crew & Rig crew to discuss the safety & hazards of rigging down.
10/31/2010 17:50	Rig-Down Equipment				Rig down iron, product & water lines.
10/31/2010 20:00	Pre-Convoy Safety Meeting				Met w/crew to discuss safety and hazards of travel home, fit for duty and DOT hours.
10/31/2010 20:30	Depart Location for Service Center or Other Site				Entered into Journey Management.
10/31/2010 20:30	Other				Thanks for using Halliburton!!!

**The Road to Excellence Starts with Safety**

<b>Sold To #:</b> 331699		<b>Ship To #:</b> 2803950		<b>Quote #:</b>		<b>Sales Order #:</b> 7737369	
<b>Customer:</b> EXXONMOBIL CORPORATION				<b>Customer Rep:</b> McGourty, Alex			
<b>Well Name:</b> NPU			<b>Well #:</b> 196-19B1			<b>API/UWI #:</b> 05-103-11081	
<b>Field:</b> PICEANCE CREEK		<b>City (SAP):</b> MEEKER		<b>County/Parish:</b> Rio Blanco		<b>State:</b> Colorado	
<b>Legal Description:</b> Section 19 Township 1S Range 96W							
<b>Lat:</b> N 39.955 deg. OR N 39 deg. 57 min. 17.777 secs.				<b>Long:</b> W 108.201 deg. OR W -109 deg. 47 min. 54.798 secs.			
<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>Srvc Supervisor:</b> ASHBY, ANDREW			<b>MBU ID Emp #:</b> 450544	

**Job Personnel**

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
ASHBY, ANDREW A	11.5	450544	BEREECE, TERRY Lee	6	222819	PACE, GARRET L	3	475041
SMITH, KC Hyrum	11.5	462378	TEICHERT, RONDO Chad	11.5	476071	WALSH, JAMES Ronald	11.5	457722

**Equipment**

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way
10948685	45 mile	11023106	45 mile	11127525	45 mile	11189139	45 mile

**Job Hours**

Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours
31 Oct 2010	11.5	3						
<b>TOTAL</b>			Total is the sum of each column separately					

**Job****Job Times**

Formation Name					Called Out	Date	Time	Time Zone
<b>Formation Depth (MD)</b>	<b>Top</b>		<b>Bottom</b>			31 - Oct - 2010	04:00	MST
<b>Form Type</b>		BHST			<b>On Location</b>	31 - Oct - 2010	09:00	MST
<b>Job depth MD</b>	14766. ft	<b>Job Depth TVD</b>			<b>Job Started</b>	31 - Oct - 2010	14:30	MST
<b>Water Depth</b>		<b>Wk Ht Above Floor</b>			<b>Job Completed</b>	31 - Oct - 2010	18:00	MST
<b>Perforation Depth (MD)</b>	<b>From</b>		<b>To</b>		<b>Departed Loc</b>	31 - Oct - 2010	20:30	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
Production Open Hole				6.125				10864.	14761.	10734.	14617.
Intermediate Casing	Unknown		7.	6.276	26.	HYDRIL - SERIES 500 TYPE 513	P-110	.	11164.	.	11029.
Production Casing	Unknown		4.5	3.826	15.1	LTC	P-110	.	14,671	.	14,527

**Tools and Accessories**

Type	Size	Qty	Make	Depth	Type	Size	Qty	Make	Depth	Type	Size	Qty	Make
Guide Shoe					Packer		0			Top Plug	4.5	1	WF
Float Shoe		1			Bridge Plug		0			Bottom Plug	4.5	1	WF
Float Collar		1			Retainer		0			SSR plug set	0	0	
Insert Float		0								Plug Container	4.5	1	HES
Stage Tool		0								Centralizers	4.5		

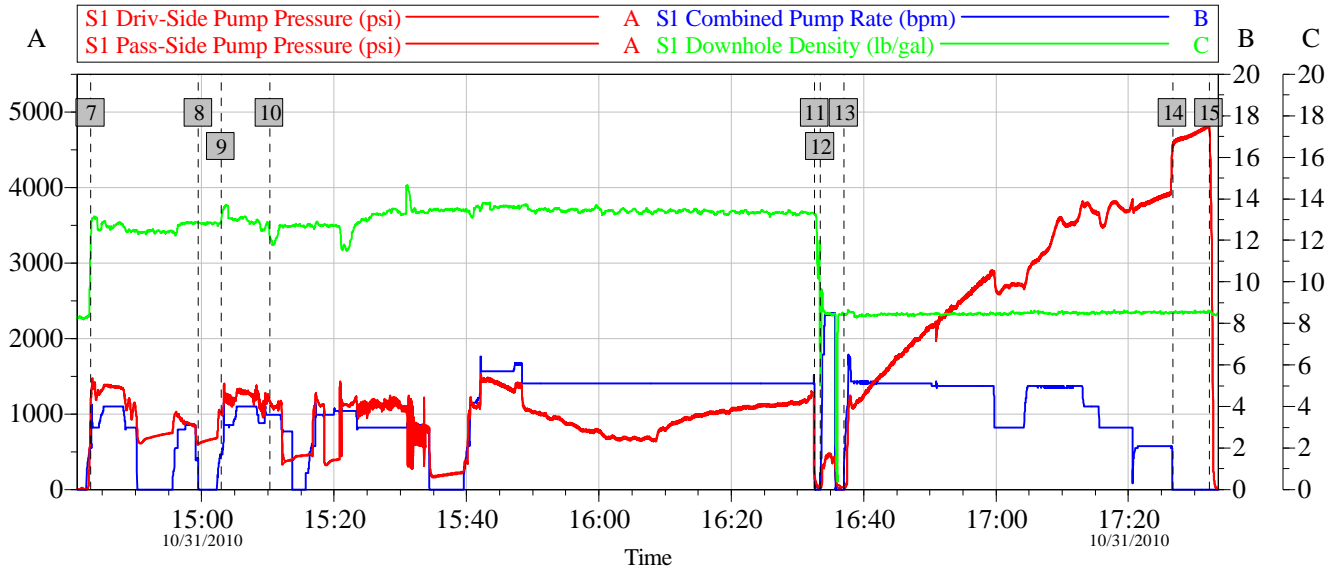
Miscellaneous Materials												
Gelling Agt		Conc	Surfactant		Conc	Acid Type		Qty	Conc		%	
Treatment Fld		Conc	Inhibitor		Conc	Sand Type		Size	Qty			
Fluid Data												
Stage/Plug #: 1												
Fluid #	Stage Type	Fluid Name			Qty	Qty uom	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sk	Mix Fluid Gal/sk	Rate bbl/min	Total Mix Fluid Gal/sk	
1	Tuned Spacer III	TUNED SPACER III - SBM (483826)			40.00	bbl	12.5	.0	.0	6.0		
	38.32 gal/bbl	FRESH WATER										
	59.8 lbm/bbl	BARITE, 100 LB SK (100003680)										
2	Econocem	ECONOCEM (TM) SYSTEM (452992)			100.0	sacks	13.	1.44	6.87		6.87	
	6 %	HALLIBURTON GEL, 50 LB SK (100064040)										
	0.25 %	SCR-100 (100003749)										
	1.5 lbm	BARACARB 1200, BULK (LBS)										
	6.869 Gal	FRESH WATER										
3	ExpandaCem	EXPANDACEM (TM) SYSTEM (452979)			940.0	sacks	13.5	1.98	9.34	6.0	9.34	
	0.9 %	HALAD(R)-344, 50 LB (100003670)										
	25 %	SILICALITE - COMPACTED, 50 LB SK (100012223)										
	0.6 %	D-AIR 3000 (101007446)										
	0.1 %	ECONOLITE (100001580)										
	0.3 %	SUPER CBL, 50 LB PAIL (100003668)										
	35 %	SAND-SSA-1 - SILICA FLOUR - 200 MESH, BULK (100003691)										
	0.6 %	SCR-100 (100003749)										
	9.342 Gal	FRESH WATER										
4	NaCl Displacement				209.00	bbl	8.44	.0	.0	6.0		
	7.15 lbm/bbl	SALT, 100 LB BAG (100003652)										
Calculated Values		Pressures			Volumes							
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			
Rates												
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 @	ID					
The Information Stated Herein Is Correct					Customer Representative Signature							

# HALLIBURTON

## Data Acquisition

ExxonMobil - NPU# 196-19B1

4.5" Production



Global Event Log									
Intersection			PSI	RATE	Intersection		PSI	RATE	
7	Pump Tuned Spacer	14:43:15	1143	2.000	8	Shutdown / Drop Bottom Plug	14:59:31	598.2	0.079
9	Pump Scavenger Cement	15:02:57	1011	1.700	10	Pump ExpandaCem Cement	15:10:17	1171	3.600
11	Shutdown / Drop Top Plug	16:32:37	137.1	0.041	12	Wash Pump & Lines	16:33:27	22.00	0.482
13	Pump Displacement	16:37:03	-2.000	0.539	14	Bump Plug	17:26:41	4546	0.000
15	Check Floats	17:32:11	4798	0.000					

Customer:  
Well Description:

Job Date: 31-Oct-2010  
UWI:

Sales Order #: 7737369

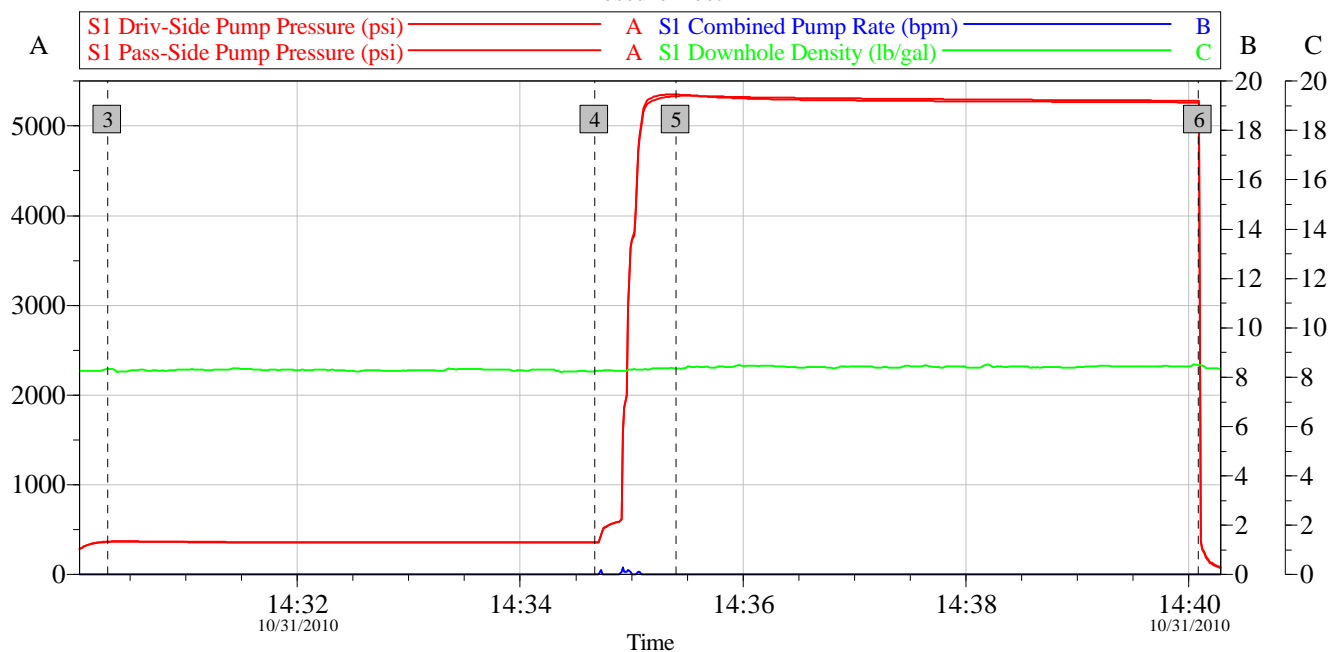
OptiCem v6.4.9  
01-Nov-10 06:12

# HALLIBURTON

ExxonMobil - NPU# 196-19B1

4.5" Production

Pressure Test



## Global Event Log

Intersection			PSI	RATE	Intersection			PSI	RATE
3	Low Pressure Test	14:30:18	368.6	0.000	4	End Pressure Test	14:34:40	359.0	0.000
5	High Pressure Test	14:35:24	5351	0.000	6	End Pressure Test	14:40:05	5262	0.000

Customer:	Job Date: 31-Oct-2010	Sales Order #: 7737369
Well Description:	UWI:	

OptiCem v6.4.9  
31-Oct-10 19:33



# HALLIBURTON

## Lab Data

# HALLIBURTON

Cementing Rockies, Meeker

## LAB RESULTS - Primary

### Job Information

Request/Slurry	107716/5	Rig Name	H&P 215	Date	October 28th 2010
Submitted By	Isaac Whorl	Job Type	Production Casing	Bulk Plant	Meeker
Customer	ExxonMobil	Location	Rio Blanco	Well	NPU 196-19B1

### Well Information

Casing/Liner Size	4 1/2"	Depth MD	14761 ft	BHST	290 F
Hole Size	6 1/8"	Depth TVD	14617 ft	BHCT	232 F

### Cement Information - Primary Design

Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties		
						Slurry Density	13.50	PPG
						Slurry Yield	1.97	FT3
						Water Requirement	9.19	GPS
						Water Source	Field (Fresh) Water	
100.00	% BWOC	TXI Lightweight	Bulk	Oct 29, 2010				
25.00	% BWOC	Silicalite - Compacted	Bulk	Oct 29, 2010				
0.90	% BWOC	HALAD-344 (PB)	Bulk	Oct 29, 2010	B0-192			
0.60	lb/sk	D-Air 3000	Bulk	Oct 29, 2010	2010242AC			
0.30	% BWOC	SUPER CBL	Bulk	Oct 29, 2010				
0.10	% BWOC	Econolite (Powder - PB)	Bulk	Oct 29, 2010	U090310			
0.60	% BWOC	SCR-100	Bulk	Oct 29, 2010				
35.00	% BWOC	SSA-1 (Silica Flour) - PB	Bulk	Oct 29, 2010	2010005AC			
102.31	L/100kg	Field (Fresh) Water	Lab	Oct 06, 2010				

### Operation Test Results Request ID 107716/5

#### UCA Comp. Strength, Request Test ID:1121026

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)
232	3,000	06:34	07:04	2,352	2,763	2,932	2,901	72

#### Thickening Time, Request Test ID:1121110

Temp (°F)	Pressure (psi)	Reached in (min)	Start BC	30 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)
232	10,250	42	2	04:07	04:09	04:11	04:11

#### API Rheology, Request Test ID:1121027

Temp (°F)	600	300	200	100	60	30	6	3	Cond Time (min)	PV/YP
80	60	60	44	27	19	13	7	6	20	53.9 / 7.7

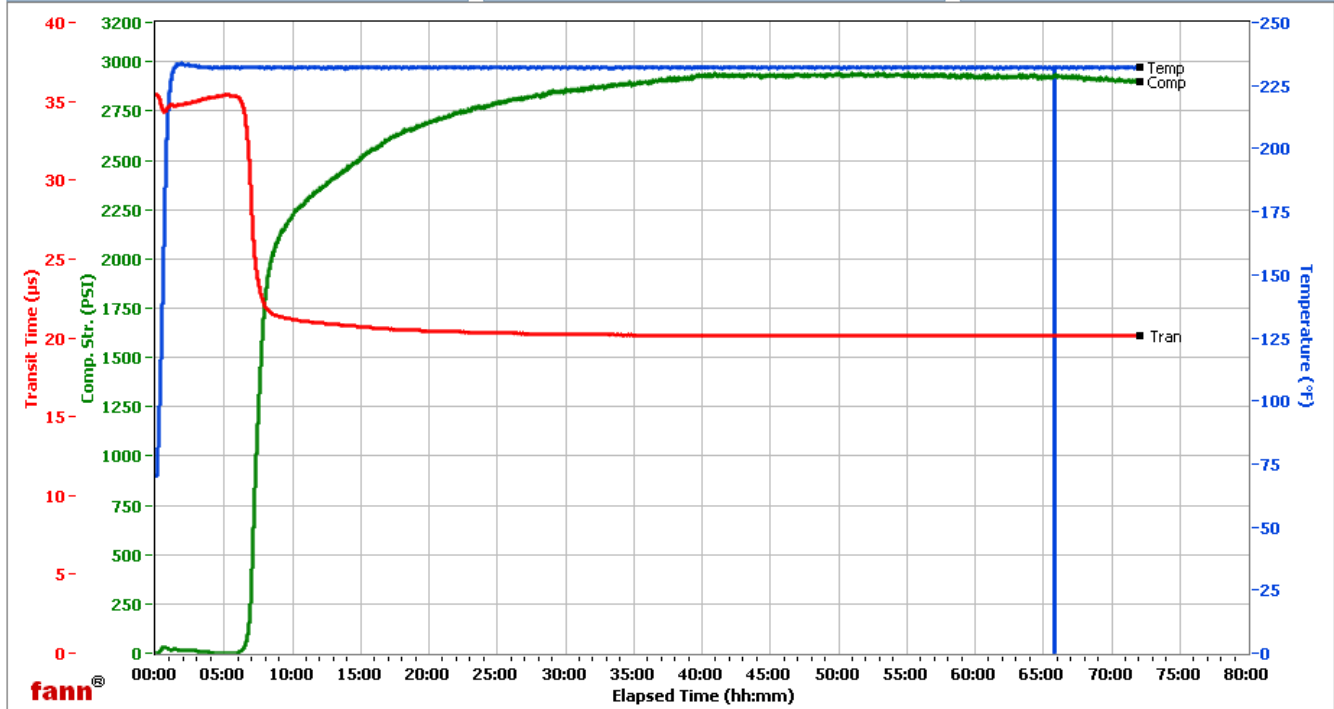
# HALLIBURTON

## WRCR

Fields	Values
Project Name	Exxonmobil 107716-5A
Test ID	107716-5A
Request ID	UCA #6
Tested by	D.P.
Customer	ExxonMobil
Well No	NPU 196-19B1
Rig	H&P 215
Casing/Liner Size	4.5

Fields	Values
Job Type	Primary
Cement Type	TXI
Cement Weight	Light Weight
Test Date	10/29/2010
Test Time	5:53 PM
Temp. Units	degF
Pressure Units	PSI

Events	Results
50.00 PSI	06h:34m
100.00 PSI	06h:43m
500.00 PSI	07h:04m
1000.00 PSI	07h:21m
12h:00m	2352.44
24h:00m	2763.21
48h:00m	2932.38
72h:00m	2901.41



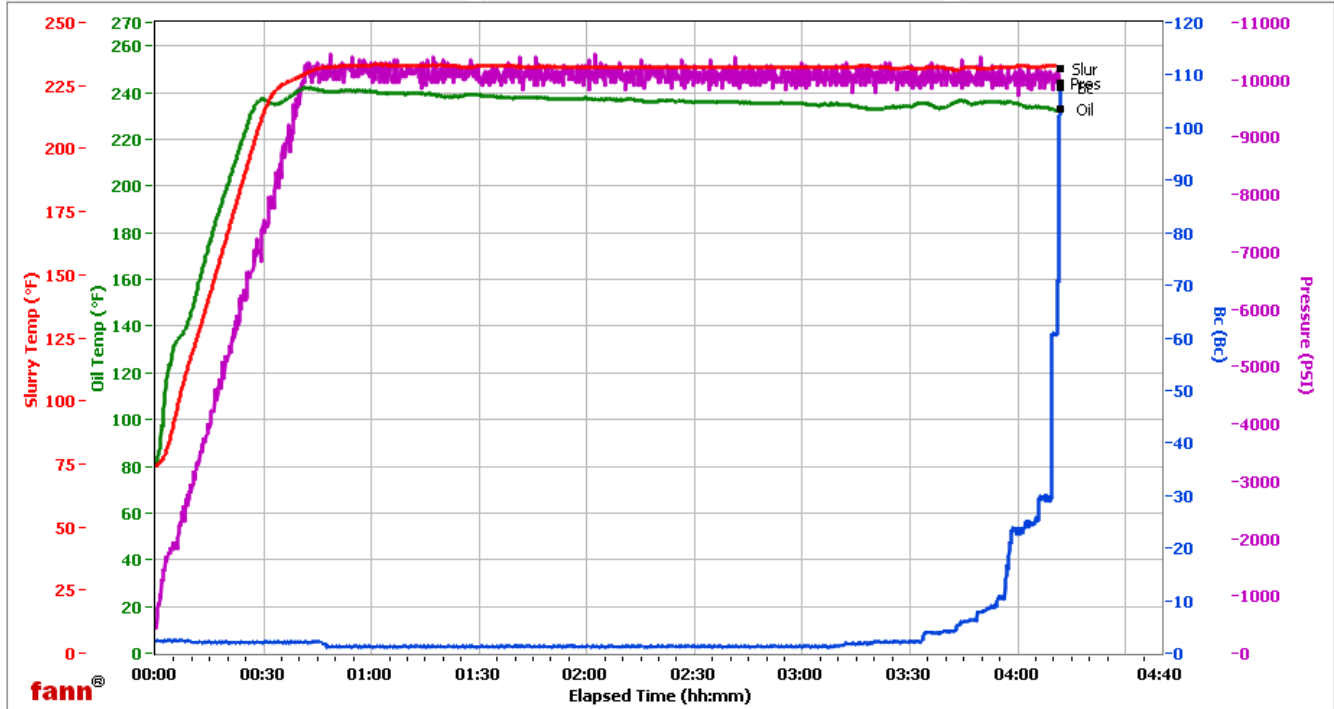
Data File C:\UCA Data\107716-5A.tdms

Comments 100% TXI, .6 SCR 100, .3 CBL

# HALLIBURTON

## WRCR

Fields	Values	Fields	Values	Events	Results
Project Name	ExxonMobil 107716-5A	Job Type	Production Primary	30.00 Bc	04h:07m
Test ID	107716-5A	Cement Type	TXI	50.00 Bc	04h:09m
Request ID	HPHT#1	Cement Weight	Light Weight	60.00 Bc	04h:09m
Tested by	SMR	Test Date	10/29/10	70.00 Bc	04h:11m
Customer	ExxonMobil	Test Time	10:10 PM	100.00 Bc	04h:11m
Well No	NPU 196-19B1	Temp. Units	degF	200.00 Bc	NaN
Rig	H&P 215	Pressure Units	PSI	03h:00m	1.23
Casing/Liner Size	4.5			06h:00m	NaN



Data File O:\HPHT Data Files WRCR\WRCR Consistometer #1\ExxonMobil 107716-5A.tdms

Comments TXI, 0.6% SCR-100, 13.5 Density, 1.97 Yield