

**EXXONMOBIL CORPORATION**

**HOUSTON, Texas**

PCU 296-6A5

H&P 239

## **Post Job Summary**

### **Cement Intermediate Casing**

Date Prepared: 7/29/2010  
Version: 1

Service Supervisor: BIRCHELL, DEVIN

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	Surface Casing	10.75	9.950	45.50	0	4,401	0	4,242		80
Open Hole Section	Intermediate Open Hole		8.750		4,401	9,570	4,242	9,461	100	
Casing	Intermediate Casing	7.00	6.276	26.00	0	9,553	0	9,422		94

## Pumping Schedule

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Avg Rate bbl/min	Volume
1	Spacer	TUNED SPACER III	10.00	5.0	80.0 bbl
2	Cement Slurry	New Vernal Tuned Light	11.00	4.0	765.0 sacks
3	Mud	Drilling Fluid/ Mud	9.10	6.0	

## Fluids Pumped

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

Fluid Density:    10.00 lbm/gal  
Fluid Volume:    80.0 bbl

**Stage/Plug # 1    Fluid 2:**    New Vernal Tuned Light  
TUNED LIGHT (TM) SYSTEM  
0.75 lbm    HR-601

Fluid Weight:    11.00 lbm/gal  
Slurry Yield:    2.25 ft<sup>3</sup>/sack  
Total Mixing Fluid:    10.04 Gal  
Volume:    765.0 sacks

**Stage/Plug # 1    Fluid 3:**    Drilling Fluid/ Mud

Fluid Density:    9.10 lbm/gal

# HALLIBURTON

## ***Job Summary***

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### **Job Information**

<b>Job Start Date</b>	7/28/2010 12:15:00 PM
<b>Job MD</b>	9,649.0 ft
<b>Job TVD</b>	9,439.0 ft
<b>Height of Plug Container/Swage Above Rig Floor</b>	4.0 ft
<b>Surface Temperature at Time of Job</b>	86 degF
<b>Mud Type</b>	Water Based Mud
<b>Actual Mud Density</b>	9 lbm/gal
<b>Mud PV</b>	12.8 cp
<b>Mud YP</b>	1.8 lb/100sqft
<b>Mud 10 min gel</b>	4 lbs/100sqft
<b>Time Circulated before job</b>	4.50 hour(s)
<b>Pipe Movement During Hole Circulation</b>	Reciprocated
<b>Pipe Movement During Cementing</b>	Reciprocated
<b>Calculated Displacement</b>	362.27 bbl
<b>Job Displaced by (rig/halco)</b>	Cement Unit HP Pumps

### **Cementing Equipment**

<b>Number of Centralizers Used</b>	8
<b>Did Float Equipment Hold?</b>	Yes
<b>Plug set used?</b>	Yes
<b>Did Plugs Bump?</b>	Yes
<b>Calculated Pressure to Bump Plugs</b>	630.0 psig

# HALLIBURTON

## Service Supervisor Reports

### Job Log

Date/Time	Chart #	Activity Code	Pump Rate	Volume	Pressure (psig)	Comments
07/27/2010 17:30		Call Out				Called Crew for Job
07/27/2010 18:15		Pre-Convoy Safety Meeting				Crew Arrived at Yard
07/27/2010 18:30		Depart from Service Center or Other Site				Crew Left Yard
07/27/2010 21:00		Arrive At Loc				
07/27/2010 21:10		Pre-Rig Up Safety Meeting				Discussed Possible Hazards of Rigging Up
07/28/2010 00:00		Wait on Customer or Customer Sub- Contractor Equip				To Finish Running Casing and Rig Down CRT
07/28/2010 07:30		Pre-Rig Up Safety Meeting				Pre Rig-Up Safety Meeting for Plug Container
07/28/2010 08:30		Rig-Up Completed				
07/28/2010 09:00		Pre-Job Safety Meeting				Went over procedures With Crews
07/28/2010 09:30		NPT Due to HES - Start				Miss Labeled Bulk Truck, Load Ticket had Right Information but was Loaded Wrong
07/28/2010 12:00		NPT Due to HES - End				Bulk Truck with New Product
07/28/2010 12:15	3	Test Lines			5000.0	Tested Lines to 5000 psi
07/28/2010 12:29	4	Pump Spacer	5	86.7	500.0	Pumped Tuned Spacer III @ 10 ppg designed volume of 80 bbls, recorded volume of 86.7 bbls
07/28/2010 12:50		Drop Bottom Plug				
07/28/2010 12:53	5	Pump Cement - Start	4	315.3	500.0	Pump 11 ppg Yield 2.25 cuft/sk Mix Fluid 10.04 gal/sk designed volume of 306 bbls, recorded volume of 315.3 bbls
07/28/2010 14:10		Drop Top Plug				Washed Up on Plug

# HALLIBURTON

Date/Time	Chart #	Activity Code	Pump Rate	Volume	Pressure (psig)	Comments
07/28/2010 14:13	6	Pump Displacement - Start	6	352	200.0	Displaced with 9.1 ppg Mud, calculated volume of 361.5 bbls, recorded volume of 352
07/28/2010 14:20		Displ Reached Cmmt	6		500.0	Displacement reach Cement
07/28/2010 15:20	8	Slow Rate	2		800.0	Slowed to 3 bpm to land Plug
07/28/2010 15:23	9	Bump Plug			1200.0	Land Plug @ 2750 psi Pressured 500 psi Over
07/28/2010 15:29	10	Check Floats				Floats Held With 1 bbl Back
07/28/2010 15:35		Pre-Rig Down Safety Meeting				Discussed Hazards in rig-down procedure
07/28/2010 17:00		Rig-Down Completed				
07/28/2010 17:10		Pre-Convoy Safety Meeting				Discussed All Hazards in Route Home
07/28/2010 17:30		Depart Location for Service Center or Other Site				

### The Road to Excellence Starts with Safety

<b>Sold To #:</b> 331699	<b>Ship To #:</b> 2792491	<b>Quote #:</b>	<b>Sales Order #:</b> 7507815
<b>Customer:</b> EXXONMOBIL CORPORATION		<b>Customer Rep:</b> Naranjo, German	
<b>Well Name:</b> PCU		<b>Well #:</b> 296-6A5	<b>API/UWI #:</b> 05-103-11478
<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 6 Township 2S Range 96W			
<b>Contractor:</b> H&P		<b>Rig/Platform Name/Num:</b> 239	
<b>Job Purpose:</b> Cement Intermediate Casing			
<b>Well Type:</b> Development Well		<b>Job Type:</b> Cement Intermediate Casing	
<b>Sales Person:</b> TURNER, JAMIE		<b>Srvc Supervisor:</b> BIRCHELL, DEVIN	<b>MBU ID Emp #:</b> 466993

### Job Personnel

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
BIRCHELL, DEVIN Ray		466993	CORNELL, CHARLES C		470457	MCGHIE, SETH Bunker		470775
PAUU, SEMISI Tu'a		445202	SPENCER, WESTON Chad		391271			

### Equipment

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way
10719778	45 mile	10822555	45 mile	11056349	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
<b>TOTAL</b>			Total is the sum of each column separately					

### Job

Formation Name	Top	Bottom	Called Out	Date	Time	Time Zone
Formation Depth (MD)			On Location	27 - Jul - 2010	17:30	MST
Form Type		BHST	Job Started	27 - Jul - 2010	21:00	MST
Job depth MD	9649. ft	Job Depth TVD	Job Started	28 - Jul - 2010	12:15	MST
Water Depth		Wk Ht Above Floor	Job Completed	28 - Jul - 2010	15:30	MST
Perforation Depth (MD)	From	To	Departed Loc	0	17:30	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
Intermediate Open Hole				8.75				4573.	9548.	4414.	9439.
Intermediate Casing	Unknown		7.	6.276	26.	HYDRIL - SERIES 500 TYPE 513	P-110	.	9548.	.	9439.
Surface Casing	Unknown		10.75	9.95	45.5	BTC	J-55	.	4573.	.	4414.

### 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			

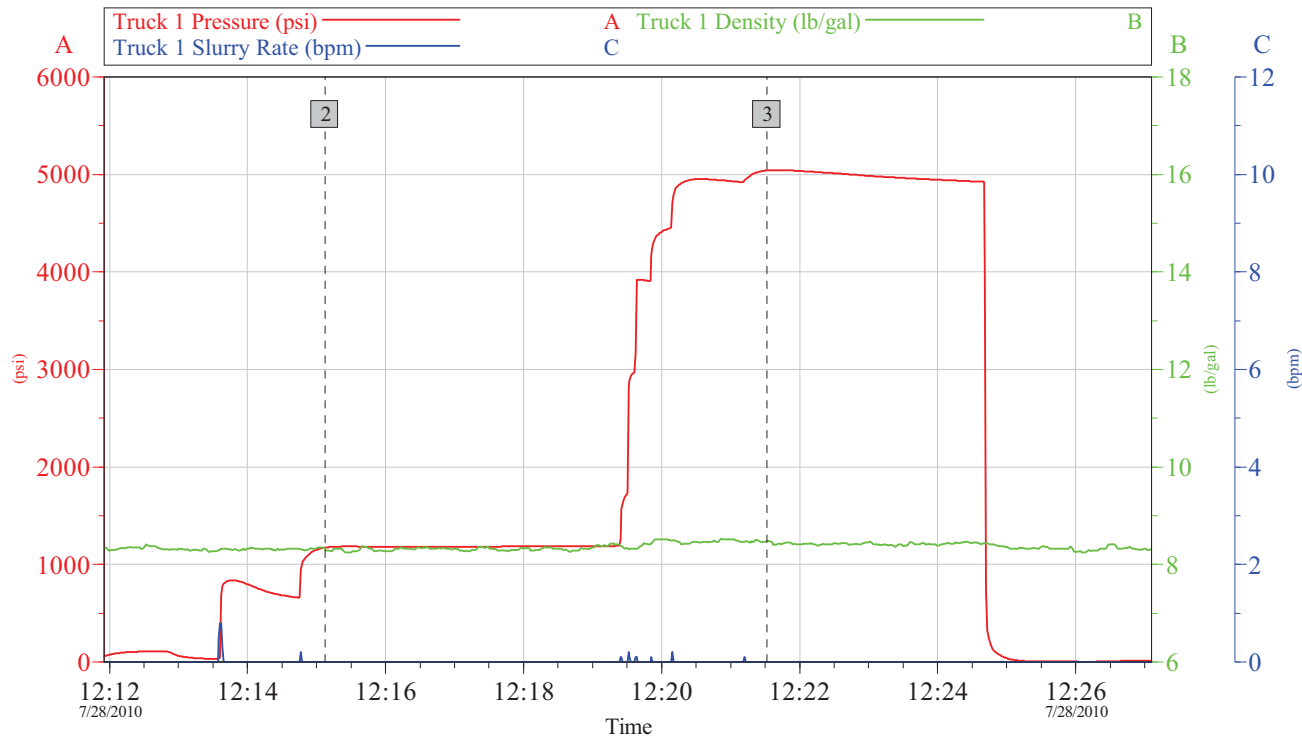
Miscellaneous Materials													
Gelling Agt		Conc		Surfactant		Conc		Acid Type		Qty		Conc %	
Treatment Fld		Conc		Inhibitor		Conc		Sand Type		Size		Qty	
Fluid Data													
Stage/Plug #: 1													
Fluid #	Stage Type	Fluid Name			Qty	Qty uom	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sk	Mix Fluid Gal/sk	Rate bbl/min	Total Mix Fluid Gal/sk		
1	TUNED SPACER III	TUNED SPACER III - SBM (483826)			80.00	bbl	10.	.0	.0	6.0			
	38.32 gal/bbl	FRESH WATER											
	59.8 lbm/bbl	BARITE, 100 LB SK (100003680)											
2	New Vernal Tuned Light	TUNED LIGHT (TM) SYSTEM (452984)			765.0	sacks	11.	2.25	10.04	6.0	10.04		
	0.75 lbm	HR-601, 50 LB BAG (101328348)											
	10.035 Gal	FRESH WATER											
3	Drilling Fluid/Mud					bbl	9.1			6.0			
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 @	
The Information Stated Herein Is Correct					Customer Representative Signature								

# HALLIBURTON

## Data Acquisition

### PCU 296-6A5 Intermediate Cement Job

#### Pressure Test



#### Global Event Log

2 Pressure Test 12:15:07 3 Pressure Test 12:21:32

Customer: ExxonMobil  
Well Name: PCU 296-6A5

Job Date: 28-Jul-2010  
UWI: 05-103-11478

Sales Order #: 7507815  
RIG: H&P 239

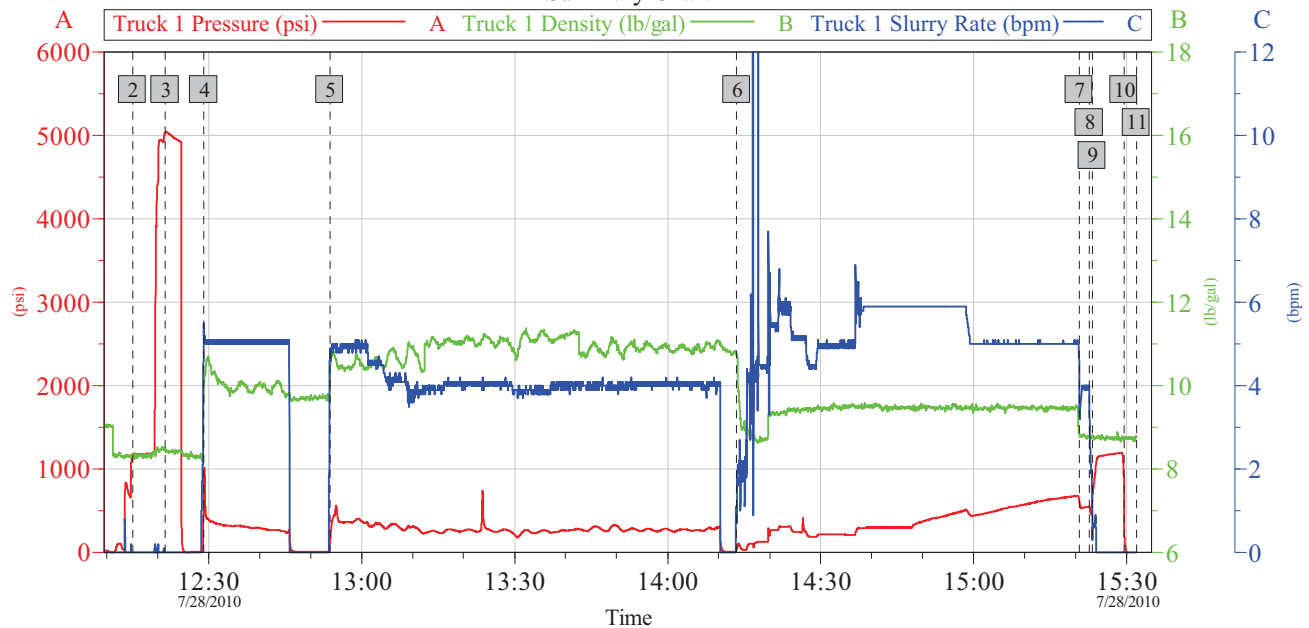
OptiCem v6.4.9  
28-Jul-10 15:23



# HALLIBURTON

## PCU 296-6A5 Intermediate Cement Job

### Summary Chart



### Global Event Log

2	Pressure Test	12:15:07	3	Pressure Test	12:21:32	4	Pump Spacer	12:29:07
5	Pump Cement	12:53:48	6	Pump Displacement	14:13:33	7	Slow Rate	15:20:40
8	Slow Rate	15:22:40	9	Bump Plug	15:23:13	10	Check Floats	15:29:26
11	Ending Job	15:31:54						

Customer: ExxonMobil  
Well Name: PCU 296-6A5

Job Date: 28-Jul-2010  
UWI: 05-103-11478

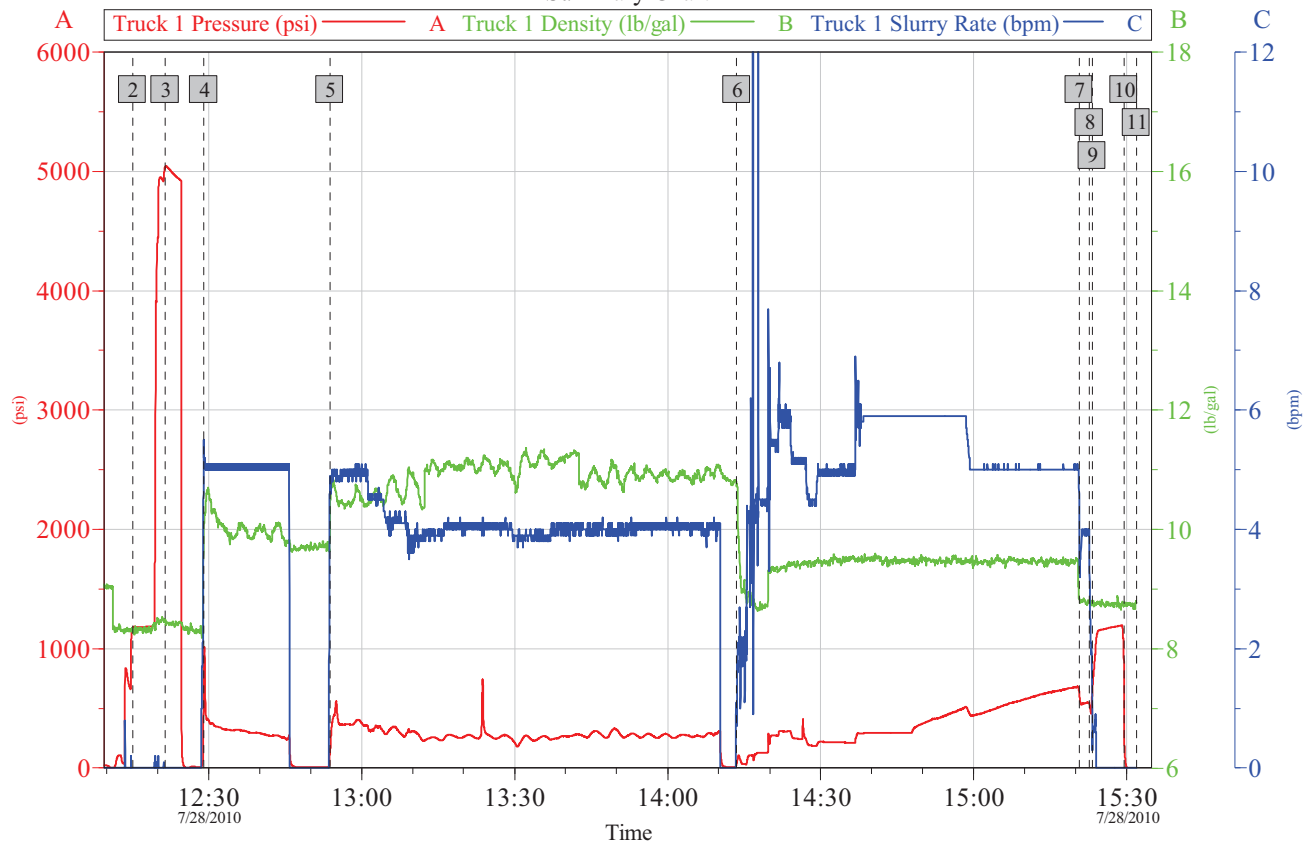
Sales Order #: 7507815  
RIG: H&P 239

OptiCem v6.4.9  
28-Jul-10 15:32

# HALLIBURTON

## PCU 296-6A5 Intermediate Cement Job

### Summary Chart



Customer: ExxonMobil  
Well Name: PCU 296-6A5

Job Date: 28-Jul-2010  
UWI: 05-103-11478

Sales Order #: 7507815  
RIG: H&P 239

OptiCem v6.4.9  
28-Jul-10 15:32

# HALLIBURTON

## Lab Data

# HALLIBURTON

Cementing Rockies, Vernal

LAB RESULTS - Primary

### Job Information

Request/Slurry	89042/1	Rig Name	H&P 239	Date	July 19th 2010
Submitted By	Simukayi Mutasa	Job Type	Intermediate Casing	Bulk Plant	Vernal
Customer	ExxonMobil	Location	Rio Blanco	Well	PCU 296-6A5

### Well Information

Casing/Liner Size	7"	Depth MD	9548 ft	BHST	210 F
Hole Size	8 3/4"	Depth TVD	9439 ft	BHCT	155 F

### Cement Information - Primary Design

Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties		
		Tuned Light				Slurry Density	10.999	PPG
						Slurry Yield	2.21	FT3
						Water Requirement	9.67	GPS
						Water Source	Field (Fresh) Water	
100.00	% BWOC	Cement Blend						
36.88	%	> Boral Craig Pozmix	Bulk	Jul 17, 2010				
11	%	> HGS 6000 dry blended	Bulk	Jul 17, 2010				
53.19	%	> Holcim Type V	Bulk	Jul 17, 2010				
13	%	> Silicalite - Compacted	Bulk	Jul 17, 2010				
0.75	lb/sk	HR-601	Bulk	Jul 17, 2010	21HR05X-18S2CK			
0.50	lb/sk	D-Air 3000	Bulk	Jul 17, 2010	201063AC			
0.20	lb/sk	FWCA	Bulk	Jul 17, 2010	YB0155S6P4			
80.70	L/100kg	Field (Fresh) Water	Lab	Jul 07, 2010	06/25/2010			

### Operation Test Results Request ID 89042/1

#### UCA Comp. Strength, Request Test ID:953436

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)
191	3,000	06:50	09:30	1,369	1,642	1,681	1,753	72

#### Thickening Time, Request Test ID:953435

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)
155	5,984	48	7	03:44	05:01	05:02	06:26

#### Mud Balance Density, Request Test ID:953441

Density (ppg)

11.2

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## Marsh Funnel, Request Test ID:953442

Volume [ml]	Time [Sec]	Foam Quality
250	21	0

## Free Water, Request Test ID:953438

Test Temp (°F)	% FW 45 Inc
155	0

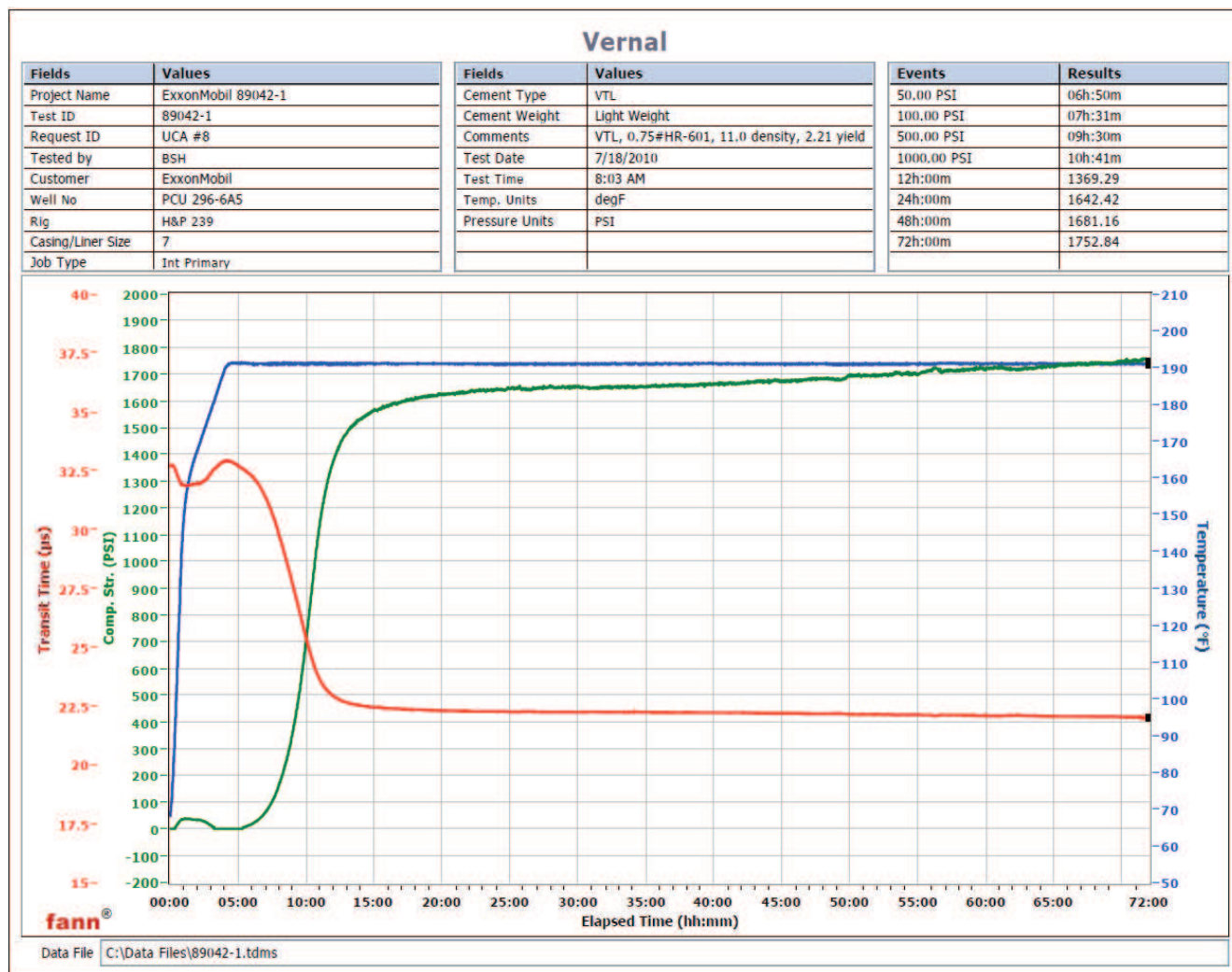
No free water and no settling.

## API Rheology, Request Test ID:953437

Temp (°F)	600	300	200	100	60	30	6	3	Cond Time (min)	PV/YP
80	220	107	80	48	36	25	17	17	0	92.4 / 17.4

## API Fluid Loss, Request Test ID:953439

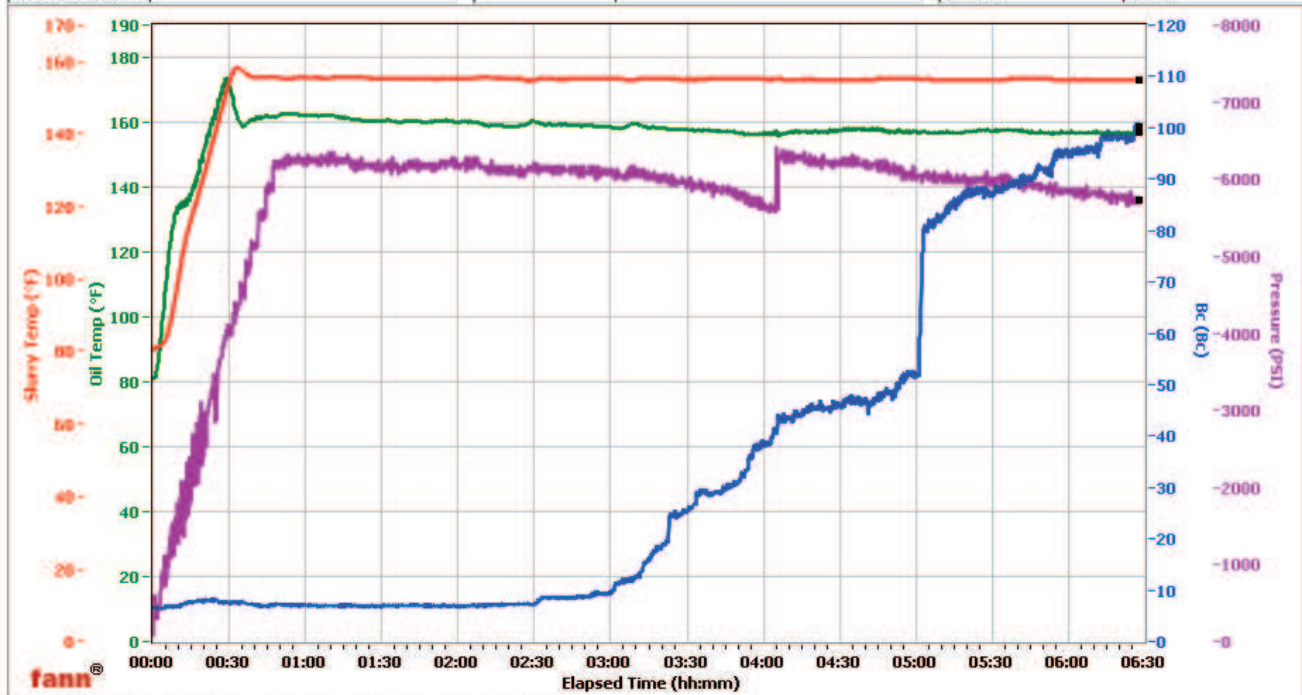
Test Temp (°F)	Test Pressure (psi)	Test Time (min)	Meas. Vol (<30 min, cc)	Extr. ISO FL (cc/30 min)
155	1,000	8.32	43	163



# HALLIBURTON

## Vernal

Fields	Values	Fields	Values	Events	Results
Project Name	ExxonMobil 89042-1	Job Type	Int. Primary	30.00 Bc	03h:44m
Test ID	89042-1	Cement Type	VTL	50.00 Bc	04h:52m
Request ID	HPHT#4	Cement Weight	Light Weight	60.00 Bc	05h:01m
Tested by	BSH	Test Date	07/18/10	70.00 Bc	05h:02m
Customer	ExxonMobil	Test Time	02:40 PM	100.00 Bc	06h:26m
Well No	PCU 296-6A5	Temp. Units	degF	200.00 Bc	NaN
Rig	H&P 239	Pressure Units	PSI	03h:00m	9.05
Casing/Liner Size	7			06h:00m	94.93



Data File O:\HPHT Data Files\Vernal Consistometer #4\ExxonMobil 89042-1A.tdms

Comments VTL, 0.75#HR-601, 11.0 density, 2.21 yield