

EXXONMOBIL CORPORATION

HOUSTON, Texas

PCU 296-5A3

H&P 321

## Post Job Summary

### Cement Intermediate Casing

Date Prepared: November 1, 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	Surface Casing	10.75	9.950	45.50	0.00	4,799.00	0.00	4,588.00		80.00
Open Hole Section	Intermediate Open Hole		9.875		4,799.00	10,255.00	4,588.00	9,988.00	100.00	
Casing	Intermediate Casing	7.00	6.276	26.00	0.00	10,240.00	0.00	9,973.00		80.00

## Pumping Schedule

Fluid #	Fluid Type	Fluid Name	Density lbm/gal	Avg Rate bbl/min	Volume
1	Spacer	TUNED SPACER III	10.00	6.00	80.0 bbl
2	Cement Slurry	New Vernal Tuned Light	11.00	6.00	1400.0 sacks
3	Spacer	Drilling Mud	8.60	8.00	388.0 bbl

## 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:    80.00 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:    1400.0 sacks  
Calculated Fill:    6,215.27 ft  
Calculated Top of Fluid:    3,970.73 ft

**Stage/Plug # 1    Fluid 3:**    Displacement Water  
DISPLACEMENT

Fluid Density:    8.60 lbm/gal  
Fluid Volume:    388.00 bbl

# HALLIBURTON

## Job Summary

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### Job Information

Job Start Date	10/30/2010 12:30:00 PM
Job MD	10,240.0 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	9.6 lbm/gal
Mud PV	20.0 cP
Mud YP	25.0 Lbf/100ft <sup>2</sup>
Time Circulated before job	1.25 hour(s)
Rate at Which Well was Circulated	8.000 bbl/min
Pipe Movement During Hole Circulation	Reciprocated
Time From End Mud Circ. to Job Start	20.00 minute
Pipe Movement During Cementing	Reciprocated
Calculated Displacement	388.70 bbl
Job Displaced by (rig/halco)	Cement Unit HP Pumps
Length of Rat Hole	15.00 ft

### Cementing Equipment

Number of Centralizers Used	52
Pipe Centralization	Bottom Joints (1 TO 10) and Through Production Int
Did Float Equipment Hold?	Yes
Plug set used?	Yes
Brand of Plug set used?	Weatherford GEMOCO
Did Plugs Bump?	Yes
Calculated Pressure to Bump Plugs	1,099.2 psig

# HALLIBURTON

## Service Supervisor Reports

### Job Log

Date/Time	Activity Code	Pump Rate	Volume	Pressure (psig)	Comments
10/29/2010 08:30	Call Out				Crew Called out for Job. Plug Container# D1264
10/29/2010 10:30	Pre-Convoy Safety Meeting				Met w/crew to discuss safety and hazards of travel to location
10/29/2010 11:00	Depart from Service Center or Other Site				Entered into Journey Management.
10/29/2010 14:30	Arrive At Loc				Ended Journey Management. [Casing being ran (25 jts left) ]
10/29/2010 15:00	Assessment Of Location Safety Meeting				Met w/crew to discuss hazards of site, location of materials and safety precautions.
10/29/2010 15:30	Pre-Rig Up Safety Meeting				Met w/crew to discuss the best way to rig up, safety and hazards involved.
10/29/2010 15:45	Rig-Up Equipment				Rig up Ground & Standpipe
10/29/2010 16:00	Other				Spot Equipment
10/30/2010 11:58	Other				On bottom, Circulating Bottoms Up (3356 strokes @ 34 spm)
10/30/2010 12:00	Rig-Up Equipment				Rig-up the rig floor.
10/30/2010 12:00	Pre-Job Safety Meeting				Met w/Rig Crew, Co. Rep, and our crew to discuss job procedres, contingencies, and safety measures.
10/30/2010 12:21	Other	2		152.0	Fill Lines
10/30/2010 12:24	Test Lines			563.0	Low Pressure Test (250 psi) - Lost 30 psi over 3 min
10/30/2010 12:30	Test Lines			5537.0	High Pressure Test (5000 - Lost 200 psi over 5 min
10/30/2010 12:39	Pump Spacer	5	80	386.0	75 sks Tuned Spacer @ 10.0 ppg, 5.99 cuft/sk, 40.86 gps. Pumped 71 bbls of spacer.
10/30/2010 12:53	Drop Bottom Plug				Shutdown & Drop Bottom Plug
10/30/2010 12:57	Pump Cement	5	561	595.0	1400 sks Tuned Light Cement @ 11.0 ppg, 2.25 cuft/sk, 10.04 gps. Pumped 576 bbls of cement measured by belly line mag meter. Mix water used was 345.8 bbls with a designed volume of 334.7 bbls.

# HALLIBURTON

Date/Time	Activity Code	Pump Rate	Volume	Pressure (psig)	Comments
10/30/2010 13:43	Slow Rate	3		155.0	Slow Rate per Co. Rep.
10/30/2010 13:47	Other	5.5		410.0	Increase Rate per Co. Rep.
10/30/2010 14:09	Slow Rate	4		234.0	Slow Rate per Co. Rep.,
10/30/2010 14:15	Other	5		279.0	Increase Rate per Co. Rep.
10/30/2010 14:19	Other	5.5		424.0	Increase Rate per Co. Rep.
10/30/2010 14:27	Other	6		478.0	Increase Rate per Co. Rep.
10/30/2010 14:41	Slow Rate	5.5		404.0	Decrease Rate per Co. Rep.
10/30/2010 14:52	Shutdown				Shutdown / Drop Top Plug
10/30/2010 14:55	Pump Displacement	8	388	317.0	Fresh Water Displacement w/ .03 gal/bbl Aldacide G & .05 gal/bbl Baracor 700
10/30/2010 14:57	Slow Rate	2			Trouble pulling water on.
10/30/2010 14:59	Pump Displacement	8		300.0	Problem fixed, resume pumping displacement.
10/30/2010 15:03	Displ Reached Cmmt	8		678.0	Displacement reached Cement
10/30/2010 15:28	Slow Rate	7		1172.0	Slow rate to keep pressure down.
10/30/2010 15:28	Slow Rate	6		1133.0	Slow rate to keep pressure down.
10/30/2010 15:46	Slow Rate	5		1419.0	Slow Rate per Co. Rep.
10/30/2010 15:48	Slow Rate	3		1180.0	Slow Rate per Co. Rep.
10/30/2010 15:54	Slow Rate	2		1157.0	Slow rate to bump plug.
10/30/2010 15:58	Bump Plug	2		2076.0	500 psi over final circulating pressure (1460 psi)
10/30/2010 16:04	Check Floats				held for 5 min, check floats, 2.5 bbls back - Floats held.
10/30/2010 16:15	End Job				Job Complete
10/30/2010 16:16	Post-Job Safety Meeting (Pre Rig-Down)				Met w/crew to discuss rigging down safely.
10/30/2010 16:25	Rig-Down Equipment				Rig everything down - Leave the standpipe for the rig to attach to the slide.

# HALLIBURTON

Date/Time	Activity Code	Pump Rate	Volume	Pressure (psig)	Comments
10/30/2010 19:00	Pre-Convoy Safety Meeting				Met w/crew to discuss fit-for-duty, safety and hazards of travel back.
10/30/2010 19:30	Depart Location for Service Center or Other Site				Entered into Journey Management.
10/30/2010 19:30	Other				Thanks for using Halliburton!!!

### The Road to Excellence Starts with Safety

<b>Sold To #:</b> 331699		<b>Ship To #:</b> 2751709		<b>Quote #:</b>		<b>Sales Order #:</b> 7720180	
<b>Customer:</b> EXXONMOBIL CORPORATION				<b>Customer Rep:</b> McClain, Eric			
<b>Well Name:</b> PCU			<b>Well #:</b> 296-5A3			<b>API/UWI #:</b> 05103112460000	
<b>Field:</b>		<b>City (SAP):</b> MEEKER		<b>County/Parish:</b> Rio Blanco		<b>State:</b> Colorado	
<b>Legal Description:</b> Section 5 Township 2S Range 96W							
<b>Contractor:</b> H&P			<b>Rig/Platform Name/Num:</b> 321				
<b>Job Purpose:</b> Cement Intermediate Casing							
<b>Well Type:</b> Development Well			<b>Job Type:</b> Cement Intermediate Casing				
<b>Sales Person:</b> MCNARY, GEORGE			<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	28.5	450544	BEREECE, TERRY Lee	20	222819	LEHAR, JARED	28.5	377274
PACE, GARRET L	28.5	475041	SMITH, KC Hyrum	28.5	462378	STUMPF, TOM	20	482818
TEICHERT, RONDO Chad	28.5	476071	WALSH, JAMES Ronald	28.5	457722	WHORL, ISAAC	20	464968

### Equipment

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way
10784082	140 mile	10948685	140 mile	10994445	140 mile	11023106	140 mile
11108221	140 mile	11127525	140 mile	11189139	140 mile	11263213	140 mile
11338211	140 mile	11338217	140 mile	11398321	140 mile	6325	140 mile
6573	140 mile	D1264	140 mile				

### Job Hours

Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours
29 Oct 2010	9	0	30 Oct 2010	19.5	3.75			
<b>TOTAL</b>	<b>28.5 hrs on Location &amp; 3.75 hrs Operating</b>		<i>Total is the sum of each column separately</i>					

### Job

Formation Name	Formation Depth (MD)	Top	Bottom	Form Type	Job depth MD	Water Depth	Perforation Depth (MD)	From	To
				BHST	10240. ft				
					Job Depth TVD				
					Wk Ht Above Floor	5. ft			

### Job Times

	Date	Time	Time Zone
Called Out	29 - Oct - 2010	08:30	MST
On Location	29 - Oct - 2010	14:30	MST
Job Started	30 - Oct - 2010	12:30	MST
Job Completed	30 - Oct - 2010	16:15	MST
Departed Loc	30 - Oct - 2010	19:30	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				9.875				4799.	10255.	4588.	9988.
Intermediate Casing	Unknown		7.	6.276	26.	HYDRIL - SERIES 500 TYPE 513	P-110	.	10240.	.	9973.
Surface Casing	Unknown		10.75	9.95	45.5	BTC	J-55	.	4799.	.	4588.

### Tools and Accessories

Type	Size	Qty	Make	Depth	Type	Size	Qty	Make	Depth	Type	Size	Qty	Make
Guide Shoe					Packer		0			Top Plug	7	1	W
Float Shoe		1			Bridge Plug		0			Bottom Plug	7	1	W
Float Collar		1			Retainer		0			SSR plug set		0	
Insert Float		0								Plug Container	7	1	HES
Stage Tool		0								Centralizers	7	52	

Summit  
Version:

Tuesday, November 02, 2010 09:03:00

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.	5.99	40.86	6.0	40.86		
	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)			1400.0	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	Displacement Water				388.00	bbl	.	.0	.0	.0			
Calculated Values				Pressures				Volumes					
Displacement	388.7 bbl	Shut In: Instant				Lost Returns				Cement Slurry	561	Pad	
Top Of Cement	3877.4 ft	5 Min				Cement Returns		0		Actual Displacement	386	Treatment	
Frac Gradient		15 Min				Spacers		80 bbl		Load and Breakdown		Total Job	
Rates													
Circulating	8 bpm	Mixing		5		Displacement		7		Avg. Job		6	
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								

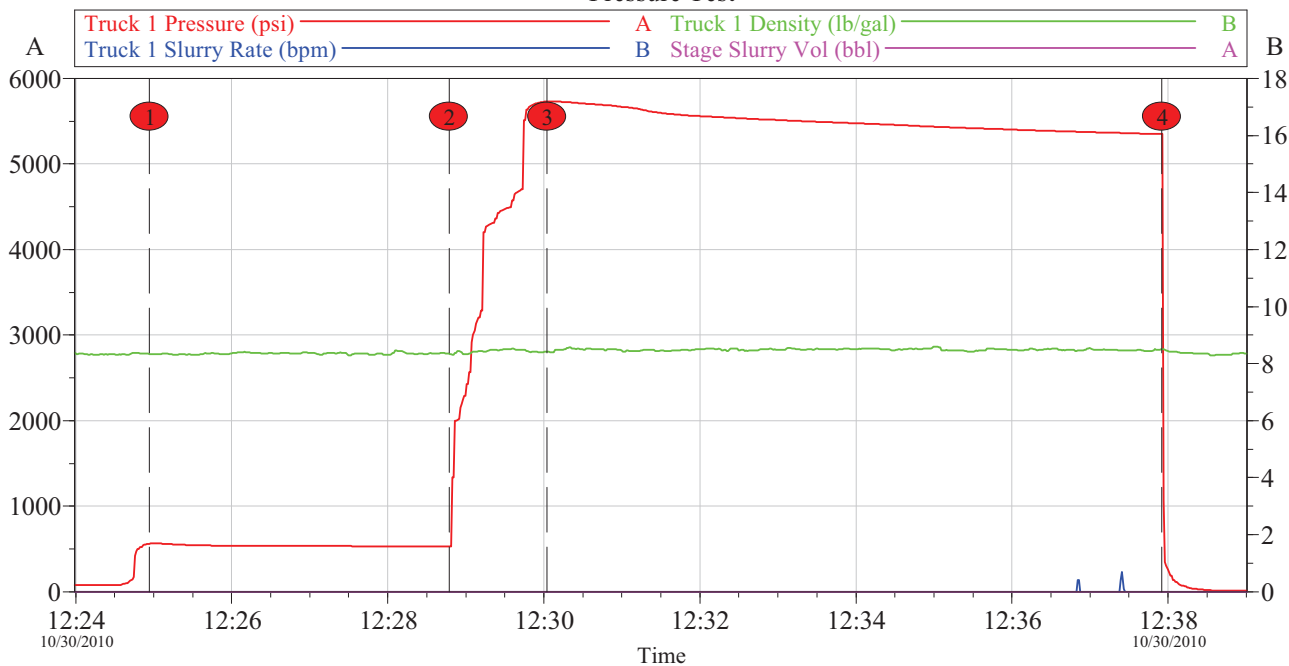


# HALLIBURTON

## Data Acquisition

### PCU 296-5A3 Intermediate Cement Job

#### Pressure Test



#### Local Event Log

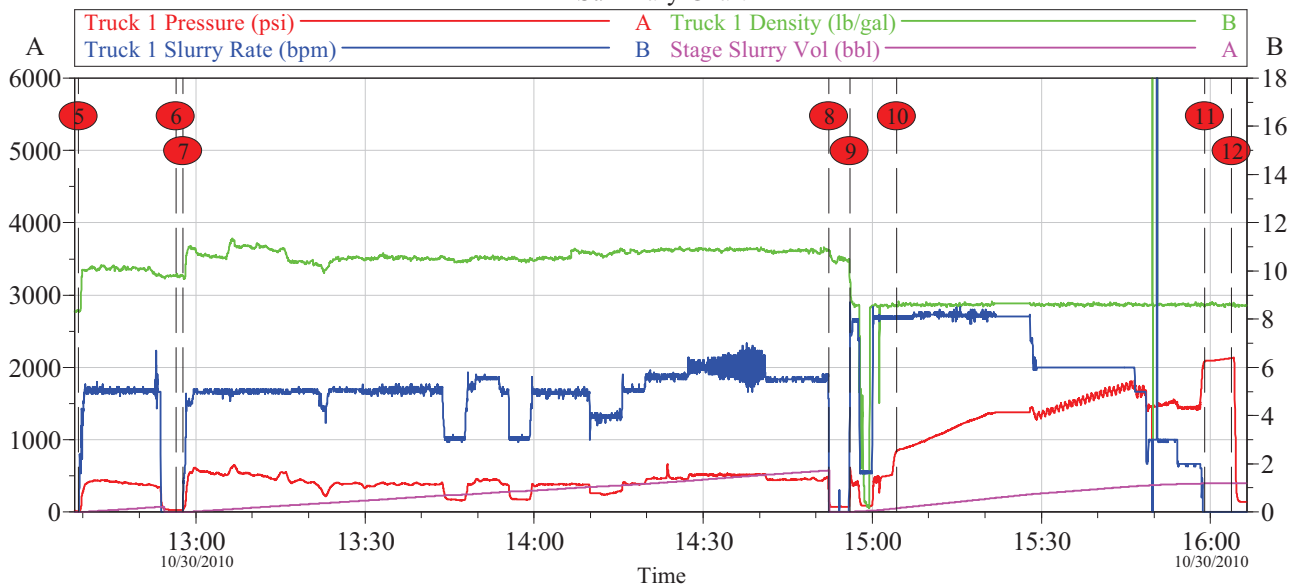
Intersection		PSI	BBL	Intersection		PSI	BBL
①	Low Pressure Test	12:24:57	560.1	0.000	②	End Low Pressure Test	12:28:47
③	High Pressure Test	12:30:02	5731	0.000	④	End High Pressure Test	12:37:55
						5350	0.033

Customer: EXXONMOBIL	Job Date: 30-Oct-2010	Sales Order #: 7720180	OptiCem v6.4.9 30-Oct-10 16:57
Well Description: PCU 296-5A3	UWI: 05-103-11246	Rig: H&P 321	

# HALLIBURTON

## PCU 296-5A3 Intermediate Cement Job

### Summary Chart



### Local Event Log

Intersection		PSI	BBL	Intersection		PSI	BBL
5	Pump Spacer	12:39:10	12.00	0.004	6	Drop Bottom Plug	12:56:28
7	Pump Cement	12:57:43	28.99	0.000	8	Drop Top Plug	14:52:18
9	Pump Displacement	14:56:01	237.9	0.409	10	Caught Cement	15:04:19
11	Bump Plug	15:58:59	2086	394.5	12	Check Floats	16:03:45
						2130	394.5

Customer: EXXONMOBIL  
Well Description: PCU 296-5A3

Job Date: 30-Oct-2010  
UWI: 05-103-11246

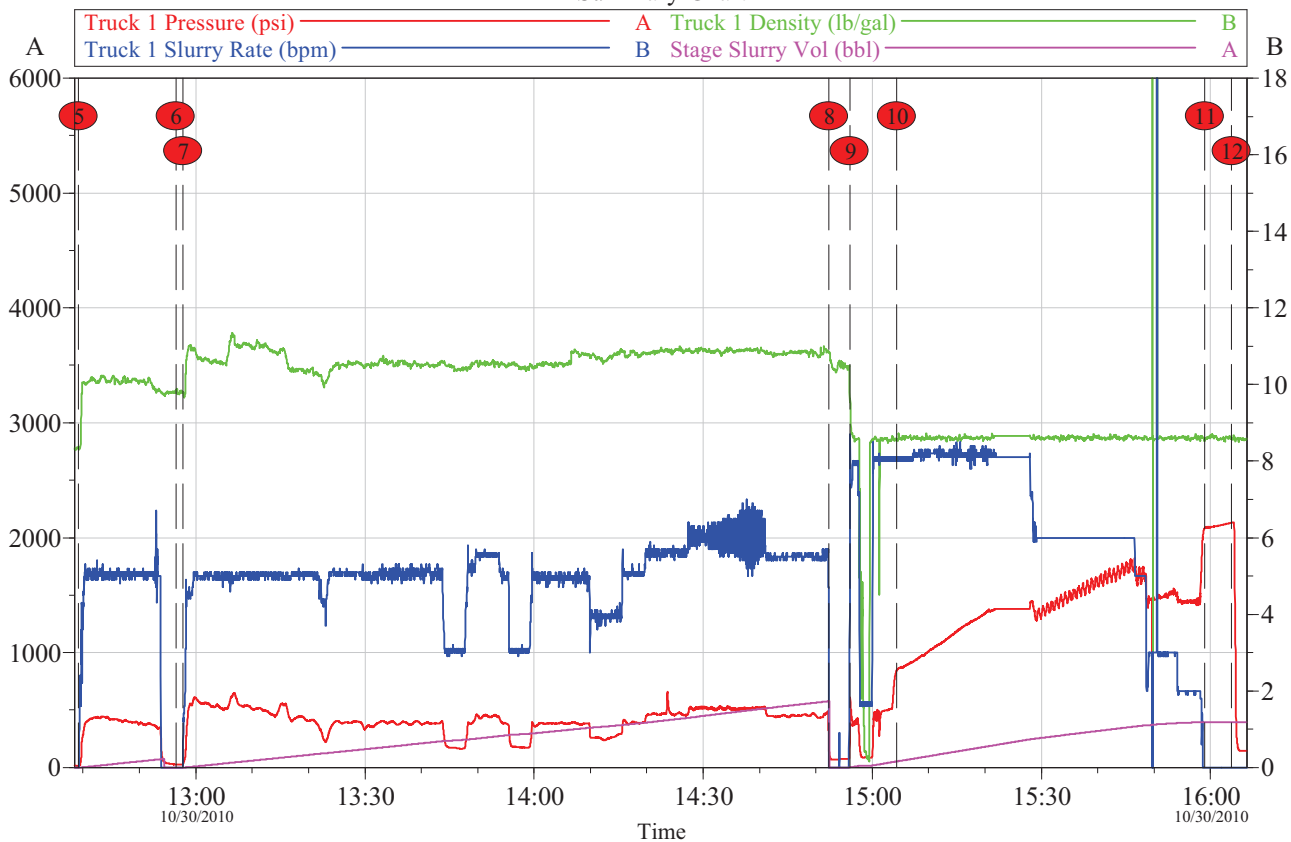
Sales Order #: 7720180  
Rig: H&P 321

OptiCem v6.4.9  
30-Oct-10 16:58

# HALLIBURTON

## PCU 296-5A3 Intermediate Cement Job

### Summary Chart



Customer: EXXONMOBIL	Job Date: 30-Oct-2010	Sales Order #: 7720180
Well Description: PCU 296-5A3	UWI: 05-103-11246	Rig: H&P 321

OptiCem v6.4.9  
30-Oct-10 16:59

# HALLIBURTON

## Lab Data

## HALLIBURTON

### Cementing Rockies, Vernal

### LAB RESULTS - Primary

#### Job Information

Request/Slurry	106043/1	Rig Name	H&P 321	Date	October 19th 2010
Submitted By	George McNary	Job Type	Intermediate Casing	Bulk Plant	Vernal
Customer	ExxonMobil	Location	Rio Blanco	Well	PCU 296-5A3

#### Well Information

Casing/Liner Size	7"	Depth MD	10240 ft	BHST	214 F
Hole Size	9 7/8"	Depth TVD	9989 ft	BHCT	162 F

#### Cement Information - Primary Design

Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties		
						Slurry Density	11.00	PPG
						Slurry Yield	2.21	FT3
						Water Requirement	9.67	GPS
						Water Source	Fresh Water	
		Tuned Light						
100.00	% BWOC	Cement Blend	Bulk	Oct 21, 2010				
36.88	%	> Boral Craig Pozmix	Bulk	Oct 21, 2010				
11	%	> HGS 6000 dry blended	Bulk	Oct 21, 2010				
53.19	%	> Holcim Type V	Bulk	Oct 21, 2010				
13	%	> Silicalite - Compacted	Bulk	Oct 21, 2010				
0.75	lb/sk	HR-601	Bulk	Oct 21, 2010	22HR07X0653GW			
0.50	lb/sk	D-Air 3000	Bulk	Oct 21, 2010	2010Z39AC			
0.20	lb/sk	FWCA	Bulk	Oct 21, 2010	37340			
80.70	L/100kg	Fresh Water						

#### Operation Test Results Request ID 106043/1

#### UCA Comp. Strength, Request Test ID:1104276

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)
194	3,000	05:58	08:36	1,482	1,591	1,645	1,705	72

#### Thickening Time, Request Test ID:1104261

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)
162	5,474	51	9	03:42	03:54	03:57	04:05

#### Free Water, Request Test ID:1104278

Test Temp (°F)	% FW 45 Inc	Conditioning time
180	0	30

#### API Rheology, Request Test ID:1108280

Temp (°F)	600	300	200	100	60	30	6	3	Cond Time (min)	PV/YP
80	184	117	88	57	45	37	36	30	20	86.6 / 31.6

#### API Fluid Loss, Request Test ID:1104277

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	4.22	38	203	30

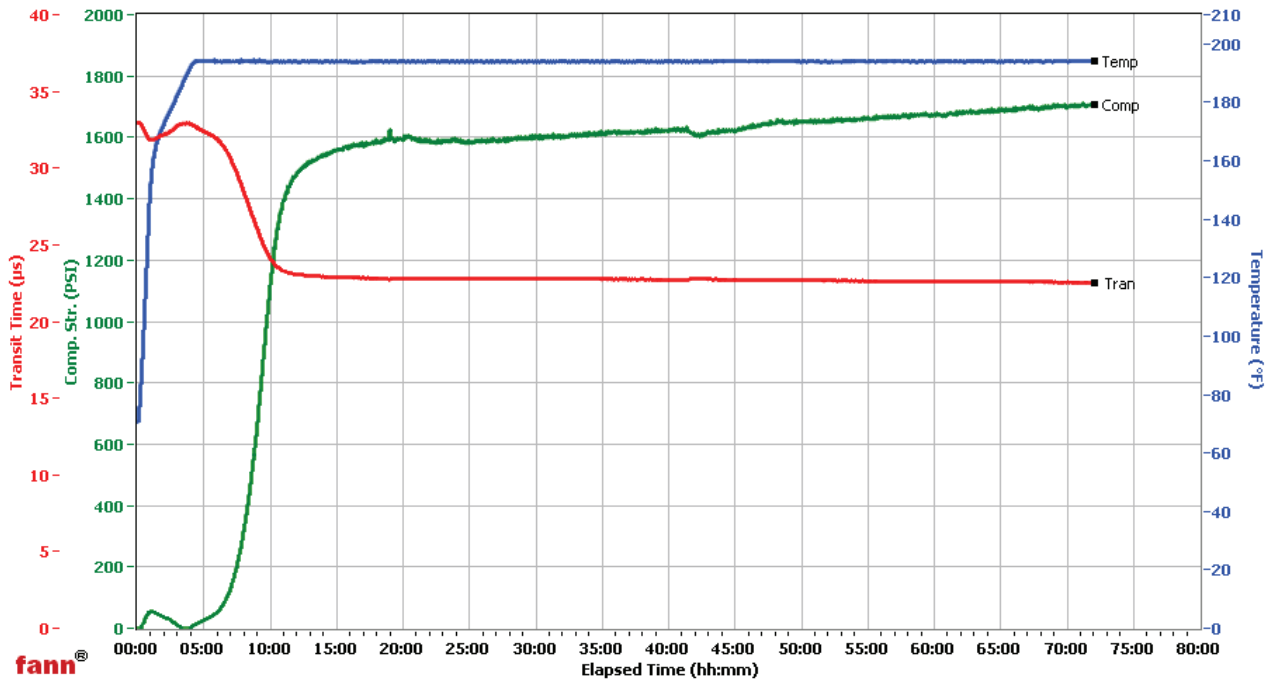
# HALLIBURTON

## Vernal

Fields	Values
Project Name	ExxonMobil 106043-1
Test ID	106043-1
Request ID	UCA #8
Tested by	CD
Customer	ExxonMobil
Well No	PCU 296-5A3
Rig	H&P 321
Casing/Liner Size	7

Fields	Values
Job Type	Intermediate
Cement Type	V
Cement Weight	Light Weight
Test Date	10/21/2010
Test Time	2:36 PM
Temp. Units	degF
Pressure Units	PSI

Events	Results
50.00 PSI	05h:58m
100.00 PSI	06h:44m
500.00 PSI	08h:36m
1000.00 PSI	09h:44m
12h:00m	1481.81
24h:00m	1590.81
48h:00m	1645.03
72h:00m	1705.40



Data File C:\Data Files\106043-1.bdms

Comments Tuned Light, 0.75% HR-601 Dens: 11ppg, Yd: 2.21

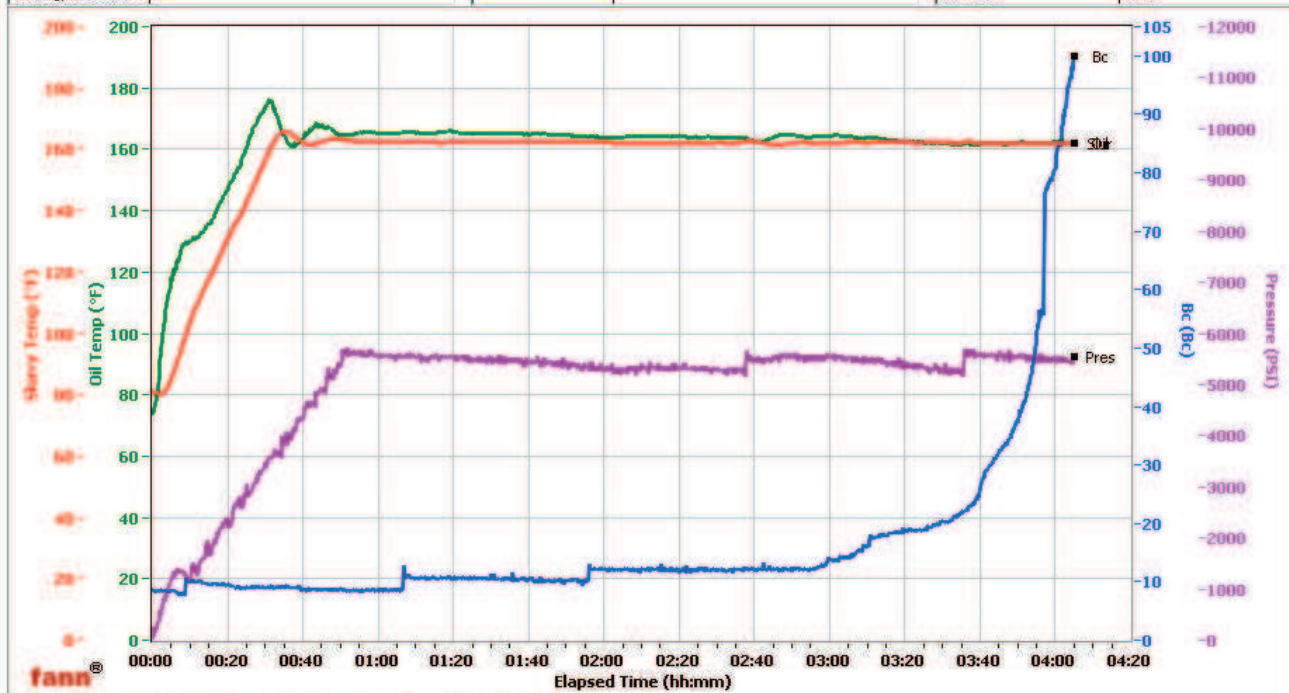
# HALLIBURTON

## Vernal

Fields	Values
Project Name	ExxonMobil 106043-1
Test ID	106043-1
Request ID	HPHT #2
Tested by	CD
Customer	ExxonMobil
Well No	PCU 296-5A3
Rig	H&P 321
Casing/Liner Size	7

Fields	Values
Job Type	Intermediate
Cement Type	V
Cement Weight	Light Weight
Test Date	10/21/10
Test Time	09:04 PM
Temp. Units	degF
Pressure Units	PSI

Events	Results
30.00 Bc	03h:42m
50.00 Bc	03h:54m
60.00 Bc	03h:57m
70.00 Bc	03h:57m
100.00 Bc	04h:05m
200.00 Bc	NaN
03h:00m	13.80
06h:00m	NaN



Data File O:\HPHT Data Files\Vernal Consistometer #2\ExxonMobil-106043-1.tdms

Comments Tuned Light, 0.75#/sk, Density - 10.9, yield - 2.21