

**EXXONMOBIL CORPORATION**

**HOUSTON, Texas**

PCU T78X-12G14

**H&P 215**

## **Post Job Summary**

### **Cement Intermediate Casing**

Date Prepared: December 22, 2011  
Version: 1

Service Supervisor: ANDERSON, BENJAMIN

Submitted by: Charli A Brown

**HALLIBURTON**

# HALLIBURTON

## Wellbore Geometry

Job Tubulars					MD		TVD		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	3,887.00	0.00	3,805.00	80.00
Open Hole Section	Intermediate Open Hole		9.875		3,887.00	9,140.00	3,805.00	9,050.00	0.00
Casing	Intermediate Casing	7.00	6.276	26.00	0.00	9,140.00	0.00	9,050.00	80.00

## Pumping Schedule

Fluid #	Fluid Type	Fluid Name	Density lbm/gal	Avg Rate bbl/min	Volume
1	Spacer	TUNED SPACER III	10.00	4.00	80.0 bbl
2	Cement Slurry	New Vernal Tuned Light	11.00	6.00	1330.0 sacks
3	Spacer	Drilling Mud	0.00	6.00	345.0 bbl

## Fluids Pumped

**Stage/Plug # 1    Fluid 1:**    TUNED SPACER III  
TUNED SPACER III - SBM (483826)  
64.3875 Barite  
lbm/bbl

Fluid Density: 10.00 lbm/gal  
Fluid Volume: 80.00 bbl  
Pump Rate: 4.00 bbl/min

**Stage/Plug # 1    Fluid 2:**    New Vernal Tuned  
Light  
TUNED LIGHT (TM) SYSTEM  
0.95 lbm HR-601  
0.2 % Econolite

Fluid Weight: 11.00 lbm/gal  
Slurry Yield: 2.25 ft<sup>3</sup>/sack  
Total Mixing Fluid: 10.05 Gal  
Volume: 1330.0 sacks  
Sacks: 1330.0 sacks  
Calculated Fill: 5,963.20 ft  
Calculated Top of Fluid: 3,993.80 ft  
Pump Rate: 6.00 bbl/min

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

Fluid Density: 9.40 lbm/gal  
Fluid Volume: 345.00 bbl  
Pump Rate: 6.00 bbl/min

# HALLIBURTON

## Job Summary

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### Job Information

Job Start Date	12/18/2011 1:30:00 PM
Job MD	9,092.0 ft
Job TVD	9,092.0 ft
Height of Plug Container/Swage Above Rig Floor	4.0 ft
Surface Temperature at Time of Job	37 degF
Mud Type	Water Based Mud
Actual Mud Density	9 lbm/gal
Time Circulated before job	2.00 hour(s)
Rate at Which Well was Circulated	10.700 bbl/min
Pipe Movement During Hole Circulation	Rotated
Pipe Movement During Cementing	Rotated
Calculated Displacement	345.00 bbl
Job Displaced by (rig/halco)	Cement Unit HP Pumps
Annular flow Before Job? (Water/Gas)	Unknown
Annular flow After Job? (Water/Gas)	Unknown
Length of Rat Hole	10.00 ft

### Cementing Equipment

Number of Centralizers Used	81
Brand of Float Equipment Used	Weatherford
Did Float Equipment Hold?	Yes
Plug set used?	Yes
Did Plugs Bump?	Yes
Calculated Pressure to Bump Plugs	942.0 psig

# HALLIBURTON

## Service Supervisor Reports

### Job Log

Date/Time	Activity Code	Pump Rate	Volume	Pressure (psig)	Comments
12/17/2011 23:00	Call Out				CREW CALLED OUT, GOT TRUCKS PREPPED FOR CONVOY AND JOB
12/18/2011 02:20	Pre-Convoy Safety Meeting				DISCUSSED CONVOY PROCEDURES, ROUTE, STOPS, WILDLIFE, ROAD HAZARDS, WEATHER CONDITIONS, TRAFFIC, EMERGENCY, AND BREAKDOWN PROCEDURES
12/18/2011 05:00	Arrive At Loc				RIG IS RUNNING CASING
12/18/2011 05:15	Pre-Rig Up Safety Meeting				DISCUSSED RIG UP PROCEDURES, RED ZONES, LIFTING, HAMMERING, PINCH POINTS, AND SLIPS/TRIPS/FALLS
12/18/2011 05:30	Rig-Up Equipment				RIGGED UP SAFELY AND TO BOTH HALLIBURTON AND EXXON STANDARDS
12/18/2011 10:00	Other				RIG HAS CASING ON BOTTOM AND IS CIRCULATING
12/18/2011 13:00	Other				RIG IS DONE CIRCULATING AND IS TURNING JOB OVER TO HALLIBURTON, RIG CIRCULATED @ 10.7 BBLS/MIN
12/18/2011 13:30	Pre-Job Safety Meeting				DISCUSSED JOB PROCEDURES, RIG ISSUES, SAFETY ISSUES, HAZARDS WITH PRESSURE, EMERGENCY, AND EVACUATION PROCEDURES
12/18/2011 13:59	Test Lines			250.0	LOW PRESSURE TEST IS GOOD
12/18/2011 14:03	Test Lines			4000.0	HIGH PRESSURE TEST IS GOOD
12/18/2011 14:19	Pump Spacer	4	80	322.0	PUMPED TUNED SPACER @ 10 PPG, DESIGN CALLED FOR 80 BBLS
12/18/2011 14:40	Pump Cement	6	533	533.0	MIXED @ 11.0 PPG, 1330 SKS, YLD 2.22, WTR 9.68
12/18/2011 16:08	Shutdown				SHUTDOWN TO DROP PLUG AND CLEAN LINES
12/18/2011 16:10	Drop Top Plug				PLUG LEFT THE CEMENT HEAD
12/18/2011 16:11	Pump Displacement	6	345	715.0	PUMPED WATER BASED MUD @ 9.4 PPG

# HALLIBURTON

Date/Time	Activity Code	Pump Rate	Volume	Pressure (psig)	Comments
12/18/2011 17:10	Bump Plug	2		1183	BUMPED @ 1183 PSI AND TOOK PRESSURE 500 PSI OVER AS PER COMPANY MAN
12/18/2011 17:16	Check Floats				FLOATS HELD, GOT 2 BBLS BACK MAINTAINED FULL RETURNS THRU OUT WHOLE JOB, NO CEMENT BACK TO SURFACE
12/18/2011 17:20	Post-Job Safety Meeting (Pre Rig-Down)				DISCUSSED JOB OUTCOME AND DISCUSSED RIG DOWN PROCEDURES, RED ZONES, LIFTING, HAMMERING, PINCH POINTS, AND SLIPS/TRIPS/FALLS
12/18/2011 17:40	Rig-Down Equipment				RIGGED DOWN SAFELY AND TO BOTH HALLIBURTON AND EXXON STANDARDS
12/18/2011 19:30	Pre-Convoy Safety Meeting				DISCUSSED CONVOY PROCEDURES, ROUTE, STOPS, WILDLIFE, ROAD HAZARDS, WEATHER CONDITIONS, TRAFFIC, EMERGENCY, AND BREAKDOWN PROCEDURES
12/18/2011 19:45	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> 2893646		<b>Quote #:</b>		<b>Sales Order #:</b> 9132729	
<b>Customer:</b> EXXONMOBIL CORPORATION				<b>Customer Rep:</b>			
<b>Well Name:</b> PCU			<b>Well #:</b> T78X-12G14			<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>Contractor:</b> H&P			<b>Rig/Platform Name/Num:</b> 215				
<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> 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	13.5	342843	BONE, JEFFERSON Eldon	13.5	491216	PETERSON, JIMMY J	13.5	458945
SHIFLETT, JESSE Amos	13.5	469551	WILKISON, KEVIN Diverne	13.5	491065			

### Equipment

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way
10741125	45 mile	10948690	45 mile	10991611	45 mile	11023106	45 mile
11041164	45 mile	11062230	45 mile	11076824	45 mile	11338213	45 mile
11410668	45 mile						

### Job Hours

Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours
18-DEC-2011	13.5	3.5						
<b>TOTAL</b>	Total is the sum of each column separately							

### Job

### Job Times

Formation Name					Date	Time	Time Zone
Formation Depth (MD)	Top		Bottom		Called Out	17 - Dec - 2011	23:00 MST
Form Type	BHST				On Location	18 - Dec - 2011	05:00 MST
Job depth MD	9092. ft	Job Depth TVD	9092. ft	Job Started	18 - Dec - 2011	13:30	MST
Water Depth		Wk Ht Above Floor	4. ft	Job Completed	18 - Dec - 2011	17:20	MST
Perforation Depth (MD)	From		To	Departed Loc	18 - Dec - 2011	19:45	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				3887.	9140.	3805.	9050.
Intermediate Casing	Unknown		7.	6.276	26.	HYDRIL - SERIES 500 TYPE 513	P-110	.	9140.	.	9050.
Surface Casing	Unknown		10.75	9.95	45.5	BTC	J-55	.	3887.	.	3805.

### Tools and Accessories

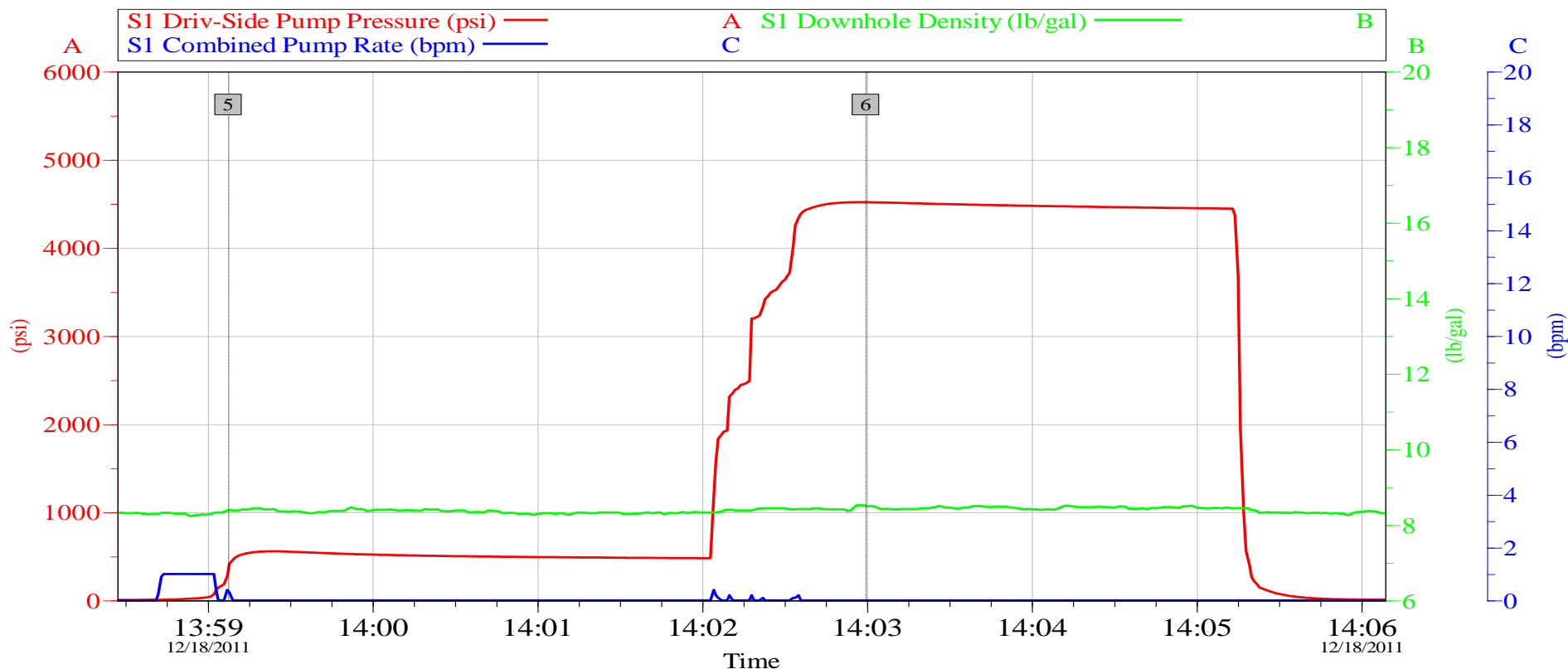
Type	Size	Qty	Make	Depth	Type	Size	Qty	Make	Depth	Type	Size	Qty	Make
Guide Shoe					Packer					Top Plug			
Float Shoe					Bridge Plug					Bottom Plug			
Float Collar					Retainer					SSR plug set			
Insert Float										Plug Container			
Stage Tool										Centralizers			

### Miscellaneous Materials

Gelling Agt		Conc		Surfactant		Conc		Acid Type		Qty		Conc	%
Treatment Fld		Conc		Inhibitor		Conc		Sand Type		Size		Qty	
<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	TUNED SPACER III	TUNED SPACER III - SBM (483826)			80.00	bbl	10.	5.989	40.863	6.0			
38.32 gal/bbl		FRESH WATER											
64.3875 lbm/bbl		BARITE, 100 LB SK (100003680)											
2	New Vernal Tuned Light	TUNED LIGHT (TM) SYSTEM (452984)			1330.0	sacks	11.	2.22	9.68	6.0	9.68		
0.95 lbm		HR-601, 50 LB BAG (101328348)											
0.2 %		ECONOLITE (100001580)											
10.047 Gal		FRESH WATER											
3	Drilling Mud				345.00	bbl	.	.0	.0	.0			
<b>Calculated Values</b>		<b>Pressures</b>			<b>Volumes</b>								
Displacement	345	Shut In: Instant			Lost Returns	0	Cement Slurry	526	Pad				
Top Of Cement		5 Min			Cement Returns	0	Actual Displacement	345	Treatment				
Frac Gradient		15 Min			Spacers	80	Load and Breakdown		Total Job	951			
<b>Rates</b>													
Circulating	10.7	Mixing	6		Displacement	6		Avg. Job	7.6				
Cement Left In Pipe	Amount	95.45 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								

## Data Acquisition

### EXXONMOBIL PCU WELL T78X-12G14 - INTERMEDIATE PRESSURE TEST CHART



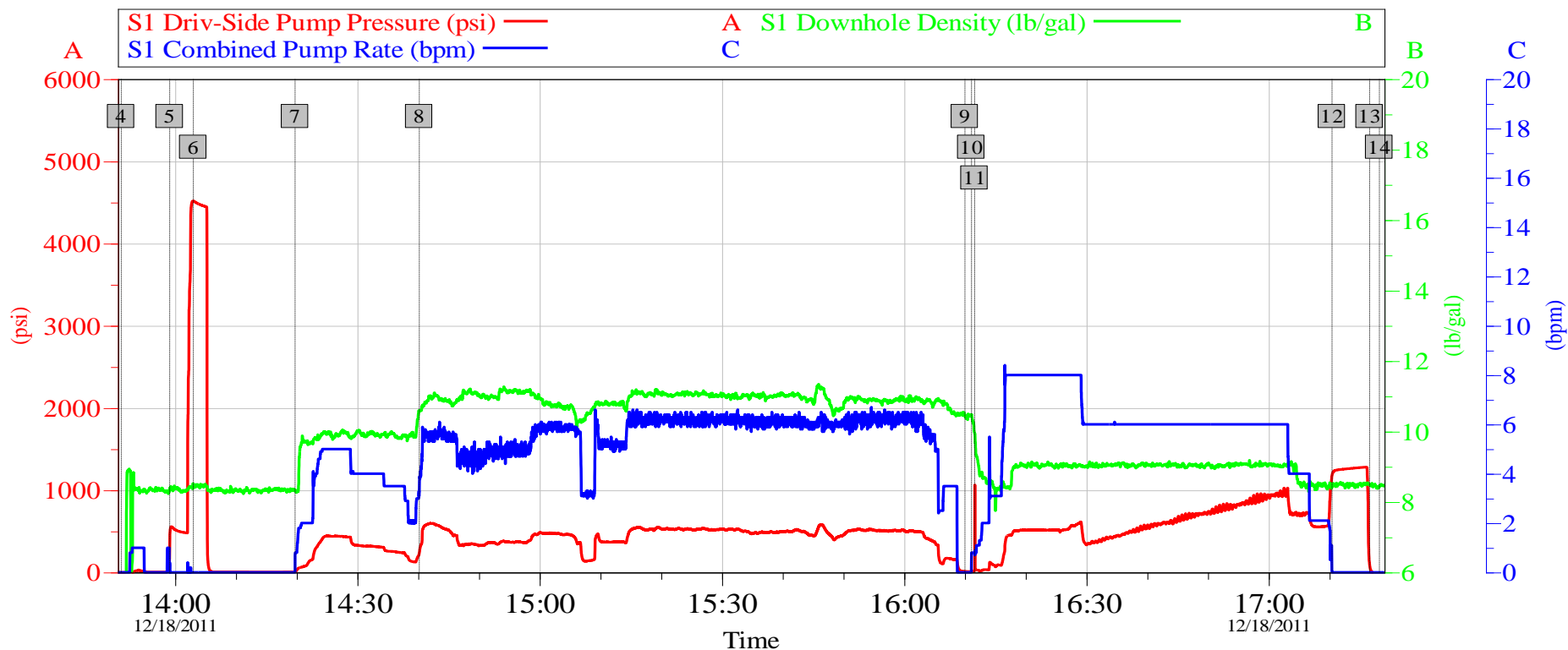
Global Event Log			
Intersection		SDPP	Intersection
5	Low Pressure Test 13:59:08	364.2	6
	High Pressure Test 14:03:00	4518	

Customer:	Job Date: 18-Dec-2011	Sales Order #: 9132729
Well Description:	UWI:	

HALLIBURTON  
 OptiCem v6.2.3  
 18-Dec-11 15:27



## EXXONMOBIL PCU WELL T78X-12G14 - INTERMEDIATE JOB SUMMARY CHART



### Global Event Log

Intersection	SDPP	Intersection	SDPP	Intersection	SDPP
4 Start Job	13:51:08 1.000	5 Low Pressure Test	13:59:08 364.2	6 High Pressure Test	14:03:00 4518
7 Pump Tuned Spacer	14:19:46 7.000	8 Pump Cement	14:40:12 236.5	9 Drop Top Plug	16:10:00 13.00
10 Pump Displacement	16:11:05 11.68	11 Displacement Caught Ball	16:11:37 31.08	12 Bump Plug	17:10:27 1183
13 Check Floats	17:16:38 89.43	14 End Job	17:18:14 -1.000		

Customer:  
Well Description:

Job Date: 18-Dec-2011  
UWI:

Sales Order #: 9132729

HALLIBURTON  
OptiCem v6.2.3  
18-Dec-11 18:26

#### Cementing Rockies, Vernal

#### Job Information

<b>Request/Slurry</b>	198143/1	<b>Rig Name</b>	H&P 215	<b>Date</b>	14/DEC/2011
<b>Submitted By</b>	Thomas Stumpf	<b>Job Type</b>	Intermediate Casing	<b>Bulk Plant</b>	Vernal
<b>Customer</b>	ExxonMobil	<b>Location</b>	Rio Blanco	<b>Well</b>	T78X-12G14

#### Well Information

<b>Casing/Liner Size</b>	7"	<b>Depth MD</b>	9140 ft	<b>BHST</b>	215 F
<b>Hole Size</b>	9 7/8"	<b>Depth TVD</b>	9050 ft	<b>BHCT</b>	149 F

#### Cement Information - Primary Design

Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties		
		<b>Tuned Light</b>				Slurry Density	11.00	PPG
36.88	%	> Boral Craig Pozmix	Bulk	Dec 14, 2011	S111006029	Slurry Yield	2.22	ft3/sk
11	%	> HGS 6000 (PB)	Bulk	Dec 14, 2011	077212	Water Requirement	9.68	GPS
53.19	%	> Holcim Type II/V	Bulk	Dec 14, 2011	805,569,460	Water Source	Field (Fresh) Water	
13	%	> Silicalite - Compacted	Bulk	Dec 14, 2011				
100.00	% BWOC	Cement Blend	Bulk	Dec 14, 2011				
0.200	lb/sk	Econolite (Powder - PB)	Bulk	Dec 14, 2011	J102611			
0.950	lb/sk	HR-601	Bulk	Dec 14, 2011	HR09Y-24S3SM			
0.500	lb/sk	D-Air 3000	Bulk	Dec 14, 2011	2011215AC			
9.68	gal/sack	Field (Fresh) Water	Lab	Sep 14, 2011	9/14/11			

#### Operation Test Results Request ID 198143/1

#### Thickening Time, Request Test ID:1995393

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)
149	5,635	46	13	03:48	04:02	04:10	04:12

#### Mixability (0 - 5) - 0 is not mixable, Request Test ID:1993956

Mixability rating (0 - 5)

5

#### Free Water, Request Test ID:1995495

Test Temp (°F)	% FW 45 Inc	Conditioning time
149	0.6	20

#### API Rheology, Request Test ID:1995493

Temp (°F)	600	300	200	100	60	30	6	3	Cond Time (min)	Foam Quality	PV/YP
80	41	23	21	18	18	18	18	13	0	0	7.5 / 16.9

#### API Fluid Loss, Request Test ID:1995494

Test Temp (°F)	Test Pressure (psi)	Test Time (min)	Meas. Vol (< 30 min, cc)	Extr. ISO FL (cc/30 min)	Conditioning time (min)
149	1,000	1.25	44	431	20

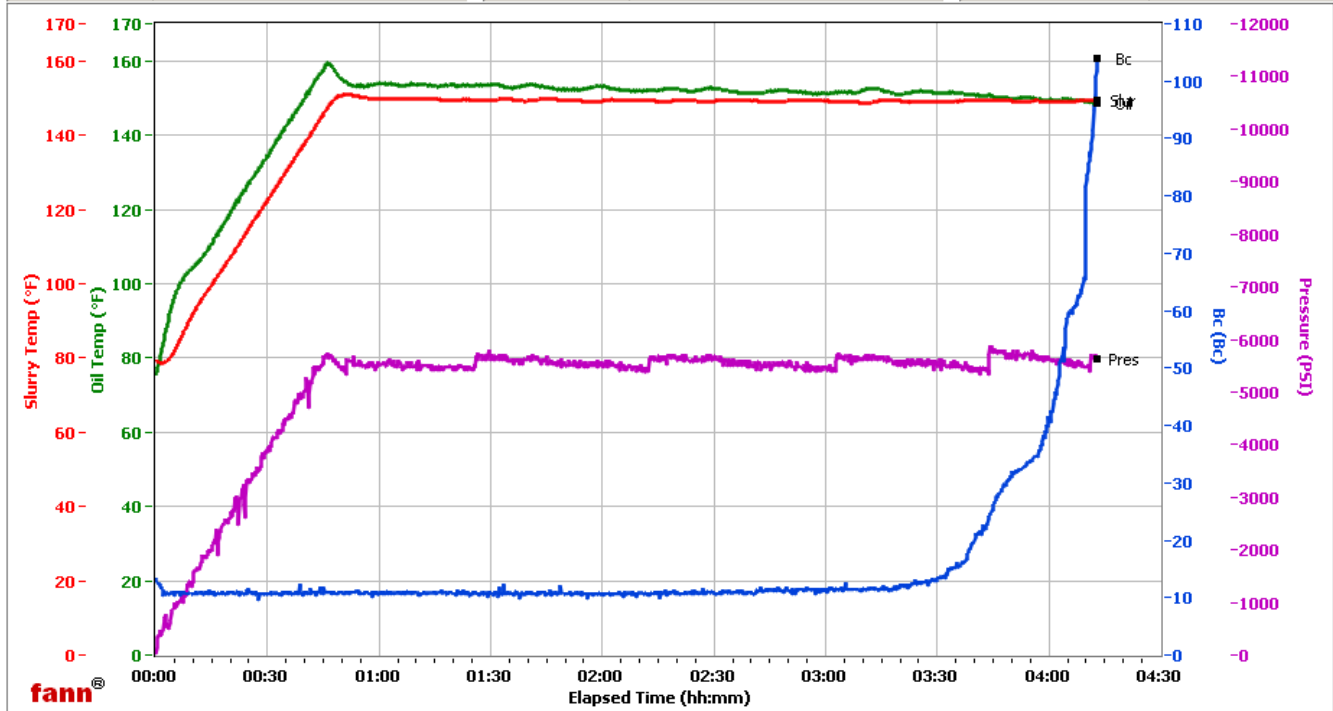
# HALLIBURTON

## Vernal

Fields	Values
Project Name	Exxon
Test ID	198143-1b
Request ID	hpht2
Tested by	Donna
Customer	Exxon
Well No	t78x-12g14
Rig	H&P 215
Casing/Liner Size	7

Fields	Values
Job Type	Intermediate Primary
Cement Type	II/V
Cement Weight	Light Weight
Test Date	12/14/11
Test Time	11:36 PM
Temp. Units	degF
Pressure Units	PSI

Events	Results
30.00 Bc	03h:48m
50.00 Bc	04h:02m
60.00 Bc	04h:06m
70.00 Bc	04h:10m
100.00 Bc	04h:12m
200.00 Bc	NaN
03h:00m	11.19
06h:00m	NaN



Data File Z:\HPHT Data Files\Vernal Consistometer #2\Exxon 198143-1b.tdms

Comments 10.999 den, 2.22yd