

EXXONMOBIL CORPORATION

HOUSTON, Texas

PCU 296-6B1

H&P 215

Post Job Summary

Cement Production Casing

Prepared for: George McNary
Date Prepared: January 30, 2011
Version: 1

Service Supervisor: MCKEE, RALPH

Submitted by: Joshua Anglin

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Wellbore Geometry

Job Tubulars					MD		TVD		Excess	Shoe Joint Length
Type	Description	Size in	ID in	Wt lbm/ft	Top ft	Bottom ft	Top ft	Bottom ft	%	ft
Casing	Intermediate Casing	7.00	6.276	26.00	0.00	9,963.00	0.00	9,852.00		80.00
Open Hole Section	Production Open Hole		6.125		9,963.00	13,990.00	9,852.00	13,877.00	350.00	
Casing	Production Casing	4.50	3.826	15.10	0.00	13,975.00	0.00	13,862.00		80.00

Pumping Schedule

Stage /Plug #	Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Avg Rate bbl/min	Surface Volume	Downhole Volume
1	1	Spacer	TUNED SPACER III	11.00	6.00	80.0 bbl	80.0 bbl
1	2	Cement Slurry	Lightweight Tail Cement	12.00	6.00	925.0 sacks	925.0 sacks
1	3	Spacer	NaCl Displacement	8.44	6.00	188.0 bbl	188.0 bbl

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Fluids Pumped

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

Fluid Density: 11.00 lbm/gal
Fluid Volume: 80.00 bbl
Pump Rate: 6.00 bbl/min

Stage/Plug # 1 Fluid 2: Lightweight Tail
Cement
VARICEM (TM) CEMENT
0.25 % Fe-2

Fluid Weight: 12.00 lbm/gal
Slurry Yield: 2.18 ft³/sack
Total Mixing Fluid: 12.12 Gal
Surface Volume: 925.0 sacks
Sacks: 925.0 sacks
Calculated Fill: 3,569.49 ft
Calculated Top of Fluid: 10,331.51 ft
Estimated Top of Fluid:
Pump Rate: 6.00 bbl/min

Stage/Plug # 1 Fluid 3: NaCl Displacement
DUMMY MUD / FLUSH / SPACER SBC MATERIAL
7.15 lbm/bbl Salt

Fluid Density: 8.44 lbm/gal
Fluid Volume: 188.00 bbl
Pump Rate: 6.00 bbl/min

Job Summary

Job Information

Job Start Date	1/23/2011 5:10:00 AM
Job MD	13,990.0 ft
Job TVD	13,877.0 ft
Mud Type	Water Based Mud
Actual Mud Density	9 lbm/gal
Calculated Displacement	198.00 bbl
Job Displaced by (rig/halco)	Cement Unit HP Pumps
Annular flow Before Job? (Water/Gas)	Unknown
Annular flow After Job? (Water/Gas)	Unknown

Cementing Equipment

Pipe Centralization	Through Entire Cement Column
Did Float Equipment Hold?	Unknown
Plug set used?	Unknown
Did Plugs Bump?	Unknown
Did Stage Cementing Tool Open Properly?	Unknown

Service Supervisor Reports

Job Log

Date/Time	Chart #	Activity Code	Pump Rate	Cum Vol	Pump		Pressure (psig)		Comments
01/22/2011 09:30		Call Out							Crew called out for job.
01/22/2011 10:00		Pre-Convoy Safety Meeting							Met with crew to discuss the hazards of travel, convoy order, and route to destination.
01/22/2011 10:30		Depart from Service Center or Other Site							Entered into Journey Management.
01/22/2011 11:45		Arrive at Location from Service Center							Ended Journey Management.
01/22/2011 13:00		Other							Met with company man to get numbers and verify information.
01/22/2011 13:05		Other							RIG RUNNING CASING ABOUT 4000` TO GO
01/22/2011 13:15		Assessment Of Location Safety Meeting							Walked around location with crew to identify material locations (water, mud, etc), potential hazards for spotting equipment, and discussed equipment placement.
01/22/2011 13:30		Other							Spot Equipment
01/22/2011 13:45		Pre-Rig Up Safety Meeting							Discuss Safety and hazards.
01/22/2011 14:00		Rig-Up Equipment							Rig iron on the ground.
01/23/2011 04:30		Pre-Job Safety Meeting							DISCUSS JOB SAFETY CONSIDERATIONS, PUMPING SCHEDULE, JOB CONTINGENCIES
01/23/2011 05:10		Other	2						FILL LINES (WATER)
01/23/2011 05:14		Pressure Test						325.0	LOW PSI TEST
01/23/2011 05:17		Pressure Test						5200.0	HIGH PSI TEST

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Date/Time	Chart #	Activity Code	Pump Rate	Cum Vol	Pump		Pressure (psig)	Comments
01/23/2011 05:28		Pump Spacer	6				1000.0	TUNED SPACER
01/23/2011 05:48		Pump Cement	8				920.0	925 SKS. VARICEM @ 12.0 #, 2.18 Y, 12.12 GPS.
01/23/2011 06:45		Shutdown						DROP TOP PLUG
01/23/2011 06:51		Pump Displacement - Start	8.4				250.0	WATER
01/23/2011 06:54		Displ Reached Cmmt	8.4	27			1200.0	
01/23/2011 07:16		Slow Rate	3				2450.0	DROPPED PSI TO 1715
01/23/2011 07:24		Bump Plug	3				2000.0	PRESSURED UP TO 3800 PSI
01/23/2011 07:29		Check Floats					3800.0	FLOATS HELD / 2 BBL. BACK
01/23/2011 07:39		End Job						
01/23/2011 07:45		Post-Job Safety Meeting (Pre Rig-Down)						
01/23/2011 07:55		Rig-Down Equipment						
01/23/2011 10:15		Safety Meeting - Departing Location						
01/23/2011 10:30		Crew Leave Location						
01/23/2011 10:31		Other						Thanks for using Halliburton!!!

The Road to Excellence Starts with Safety

Sold To #: 331699	Ship To #: 2826412	Quote #:	Sales Order #: 7898262
Customer: EXXONMOBIL CORPORATION	Customer Rep:		
Well Name: PCU	Well #: 296-6B1	API/UWI #: 05103185140000	
Field:	City (SAP): MEEKER	County/Parish: Rio Blanco	State: Colorado
Legal Description: Section 6 Township 2S Range 96W			
Contractor: H&P	Rig/Platform Name/Num: 215		
Job Purpose: Cement Production Casing			
Well Type: Development Well	Job Type: Cement Production Casing		
Sales Person: MCNARY, GEORGE	Srvc Supervisor: MCKEE, RALPH	MBU ID Emp #: 259268	

Job Personnel

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
ESTEP, KENNETH		214387	LAWTON, SCOTT O		482816	MCKEE, RALPH R		259268
TEICHERT, RONDO Chad		476071						

Equipment

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way
10713216	140 mile	10714600C	140 mile	11061777	140 mile	11127544	140 mile
11259879	140 mile	11288856	140 mile	11410668	140 mile	6441	140 mile
6603	140 mile						

Job Hours

Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours
TOTAL			Total is the sum of each column separately					

Job

Job Times

Formation Name	Formation Depth (MD)	Top	Bottom	Form Type	Job depth MD	Job Depth TVD	Water Depth	Perforation Depth (MD)	From	To	Called Out	Date	Time	Time Zone
				BHST	13990. ft	13877. ft						22 - Jan - 2011	09:30	MST
				302 degF							On Location	22 - Jan - 2011	11:30	MST
											Job Started	23 - Jan - 2011	05:10	MST
											Job Completed	23 - Jan - 2011	07:40	MST
											Departed Loc	23 - Jan - 2011	10:30	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				9963.	13990.	9852.	13877.
Intermediate Casing	Unknown		7.	6.276	26.	HYDRIL - SERIES 500 TYPE 513	P-110	.	9963.	.	9852.
Production Casing	Unknown		4.5	3.826	15.1	LTC	P-110	.	13975.	.	13862.

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 ³ /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	11.	7.88	51.88	6.0		
36.83 gal/bbl		FRESH WATER										
117.6 lbm/bbl		BARITE, BULK (100003681)										
2	Lightweight Tail Cement	VARICEM (TM) CEMENT (452009)			925.0	sacks	12.	2.18	12.12	6.0	12.12	
12.124 Gal		FRESH WATER										
0.25 %		FE-2 (100001615)										
3	NaCl Displacement				188.00	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							

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Lab Data

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Cementing Rockies, Meeker

LAB RESULTS - Lead

Job Information

Request/Slurry	121673/1	Rig Name	H&P 215	Date	11/JAN/2011
Submitted By	Isaac Whorl	Job Type	Production Casing	Bulk Plant	Meeker
Customer	ExxonMobil	Location	Rio Blanco	Well	PCU 296-6B1

Well Information

Casing/Liner Size	4 1/2"	Depth MD	13990 ft	BHST	302 F
Hole Size	6 1/8"	Depth TVD	13877 ft	BHCT	237 F

Cement Information - Lead Design

Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties		
		Tuned Light				Slurry Density	10.50	PPG
19.5	%	> HGS 10000 (PB)	Bulk	Jan 11, 2011		Slurry Yield	2.37	ft3/sk
13	%	> Silicalite - Compacted	Bulk	Jan 11, 2011		Water Requirement	10.12	GPS
90	%	> TXI Lightweight	Bulk	Jan 11, 2011				
100.00	% BWOC	Cement Blend						
0.100	lb/sk	CFR-3	Bulk	Jan 11, 2011	06111006			
0.600	lb/sk	D-Air 3000	Bulk	Jan 11, 2011	2010327AC	Water Source	Field (Fresh) Water	
0.700	lb/sk	HALAD-344 (PB)	Bulk	Jan 11, 2011	BO-272			
0.600	lb/sk	HR-601	Bulk	Jan 11, 2011	HR01X-22S36W	Water Chloride	N/A	ppm
10.12	gal/sack	Field (Fresh) Water	Lab	Jan 13, 2011	01-13-11			

Operation Test Results Request ID 121673/1

UCA Comp. Strength, Request Test ID:1242390, Historical Data

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)
269	3,000	03:41	03:55	915	925	921	924	72

Thickening Time, Request Test ID:1243577, Historical Data

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)
237	6,704	40	3	02:50	02:51	02:53	02:55	03:01

Free Water, Request Test ID:1242392, Historical Data

Test Temp (°F)	% FW 45 Inc
180	0
no settling or channeling	

API Rheology, Request Test ID:1242391, Historical Data

Temp (°F)	600	300	200	100	60	30	6	3	Cond Time (min)	PV/YP
80	85	63	45	27	19	12	6	4	0	58.3 / 6

API Fluid Loss, Request Test ID:1242393, Historical Data

Test Temp (°F)	Test Pressure (psi)	Test Time (min)	Meas. Vol (< 30 min, cc)	Extr. ISO FL (cc/30 min)
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180

1,000

16.08

40

109

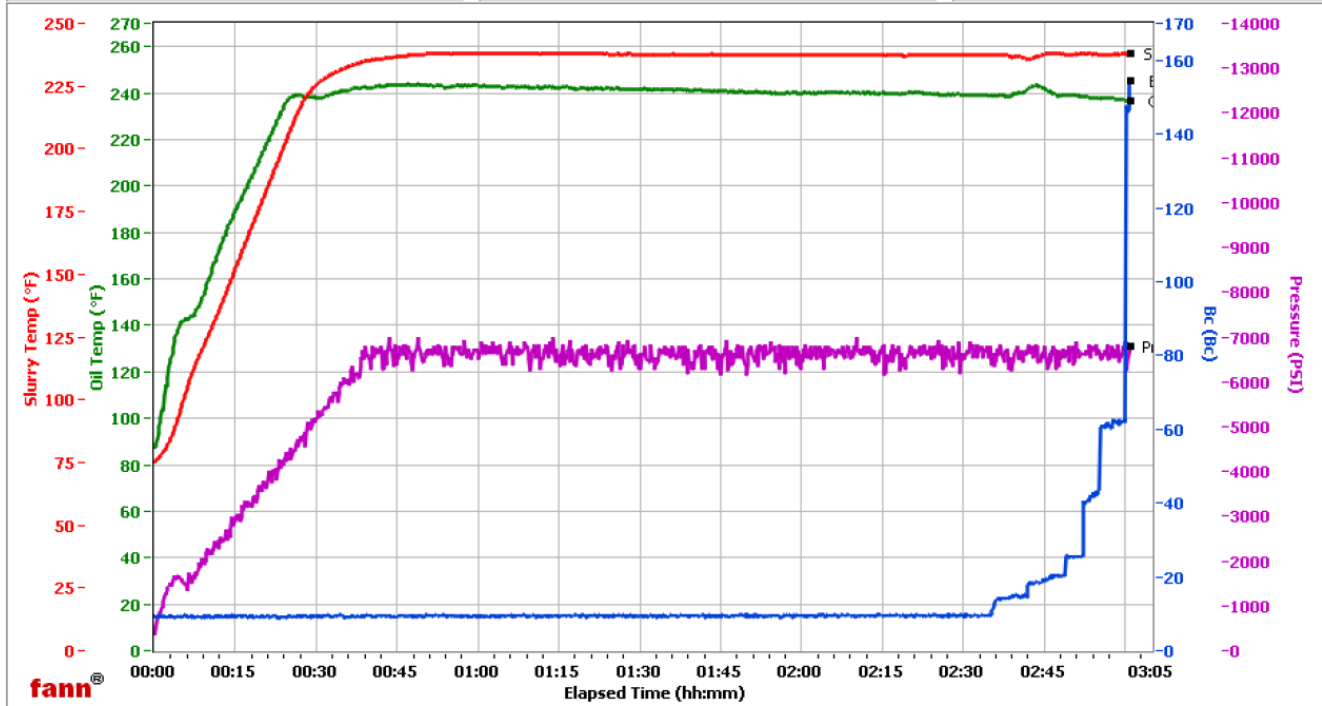
40 mls in 16.08 min = 109 API

WRCR

Fields	Values
Project Name	ExxonMobil 121673-1E
Test ID	121673-1E
Request ID	HPHT 1
Tested by	ac
Customer	ExxonMobil
Well No	PCU 296-6B1
Rig	H&P 215
Casing/Liner Size	

Fields	Values
Job Type	Prod Lead
Cement Type	TXI
Cement Weight	Light Weight
Test Date	01/14/11
Test Time	05:21 AM
Temp. Units	degF
Pressure Units	PSI

Events	Results
30.00 Bc	02h:52m
40.00 Bc	02h:52m
50.00 Bc	02h:55m
70.00 Bc	03h:00m
100.00 Bc	03h:00m
200.00 Bc	NaN
03h:00m	61.73
06h:00m	NaN



Data File O:\HPHT Data Files WRCR\WRCR Consistometer #1\ExxonMobil 121673-1E.tdms

Comments 90% TXI, 0.60% HR-601, 2.37 Yield, 10.499 Den

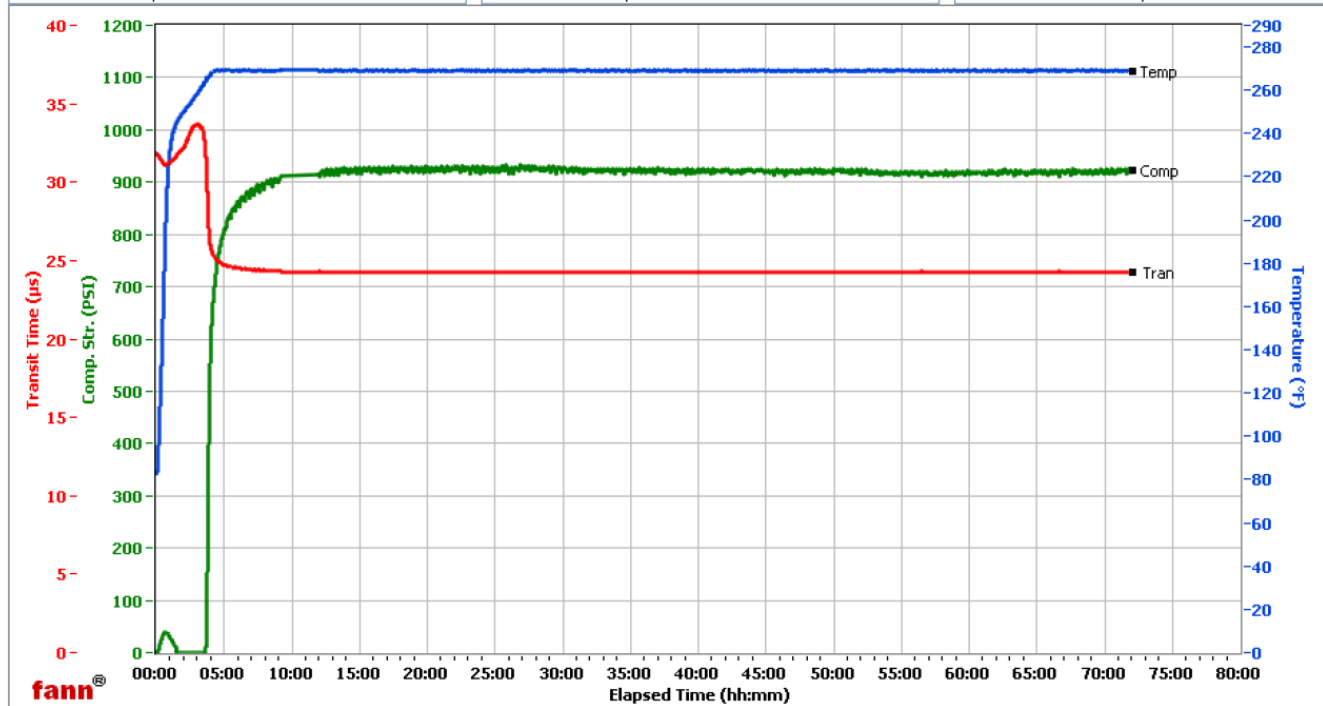
HALLIBURTON

WRCR

Fields	Values
Project Name	EXXONMOBIL 121673-1
Test ID	121673-1
Request ID	1
Tested by	RR
Customer	ExxonMobil
Well No	PCU 296-6B1
Rig	H&P 215
Casing/Liner Size	

Fields	Values
Job Type	PROD LEAD
Cement Type	TUNED LIGHT
Cement Weight	Light Weight
Test Date	1/12/2011
Test Time	9:55 AM
Temp. Units	degF
Pressure Units	PSI

Events	Results
50.00 PSI	03h:41m
100.00 PSI	03h:43m
500.00 PSI	03h:55m
1000.00 PSI	NaN
12h:00m	915.02
24h:00m	925.38
48h:00m	920.62
72h:00m	924.08



Data File C:\UCA Data\121673-1.tdms

Comments TUNED LIGHT, HR-601 .600%, DENSITY 10.5, YIELD 2.37 YARD

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Cementing Rockies, Meeker

LAB RESULTS - Tail

Job Information

Request/Slurry	121674/1	Rig Name	H&P 215	Date	11/JAN/2011
Submitted By	Isaac Whorl	Job Type	Production Casing	Bulk Plant	Meeker
Customer	ExxonMobil	Location	Rio Blanco	Well	PCU 296-6B1

Well Information

Casing/Liner Size	4 1/2"	Depth MD	13990 ft	BHST	302 F
Hole Size	6 1/8"	Depth TVD	13877 ft	BHCT	237 F

Cement Information - Tail Design

Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties		
		VariCem				Slurry Density	12.00	PPG
						Slurry Yield	2.17	ft3/sk
100.00	% BWOC	TXI Lightweight	Bulk	Jan 11, 2011		Water Requirement	11.95	GPS
25.000	% BWOC	Silicalite - Compacted	Bulk	Jan 11, 2011	OG170719-2			
0.600	% BWOC	HALAD-344 (PB)	Bulk	Jan 11, 2011	BO-272			
0.600	% BWOC	D-Air 3000	Bulk	Jan 11, 2011	2010327AC			
0.100	% BWOC	Econolite (Powder - PB)	Bulk	Jan 11, 2011	U100110			
0.250	% BWOC	Fe-2 (citric acid)	Bulk	Jan 11, 2011	GS9L28AK 5R	Water Source	Field (Fresh) Water	
11.95	gal/sack	Field (Fresh) Water	Lab	Dec 10, 2010	12-10-10	Water Chloride	N/A	ppm

Operation Test Results Request ID 121674/1

UCA Comp. Strength, Request Test ID:1242400, Historical Data

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)
269	3,000	03:07	03:26	1,093	1,235	1,343	1,391	72

Thickening Time, Request Test ID:1242397, Historical Data

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)
237	6,704	40	4	03:25	03:25	03:26	03:26	03:28

Free Water, Request Test ID:1242402, Historical Data

Test Temp (°F)	% FW 45 Inc
180	0.1

slight trace, with no settling or channeling

API Rheology, Request Test ID:1242401, Historical Data

Temp (°F)	600	300	200	100	60	30	6	3	Cond Time (min)	PV/YP
80	46	28	12	14	11	8	5	4	0	19.5 / 5.5

API Fluid Loss, Request Test ID:1242403, Historical Data

Test Temp (°F)	Test Pressure (psi)	Test Time (min)	Meas. Vol (< 30 min, cc)	Extr. ISO FL (cc/30 min)
180	1,000	11.86	50	159

50 mls in 11.86 = 159 API

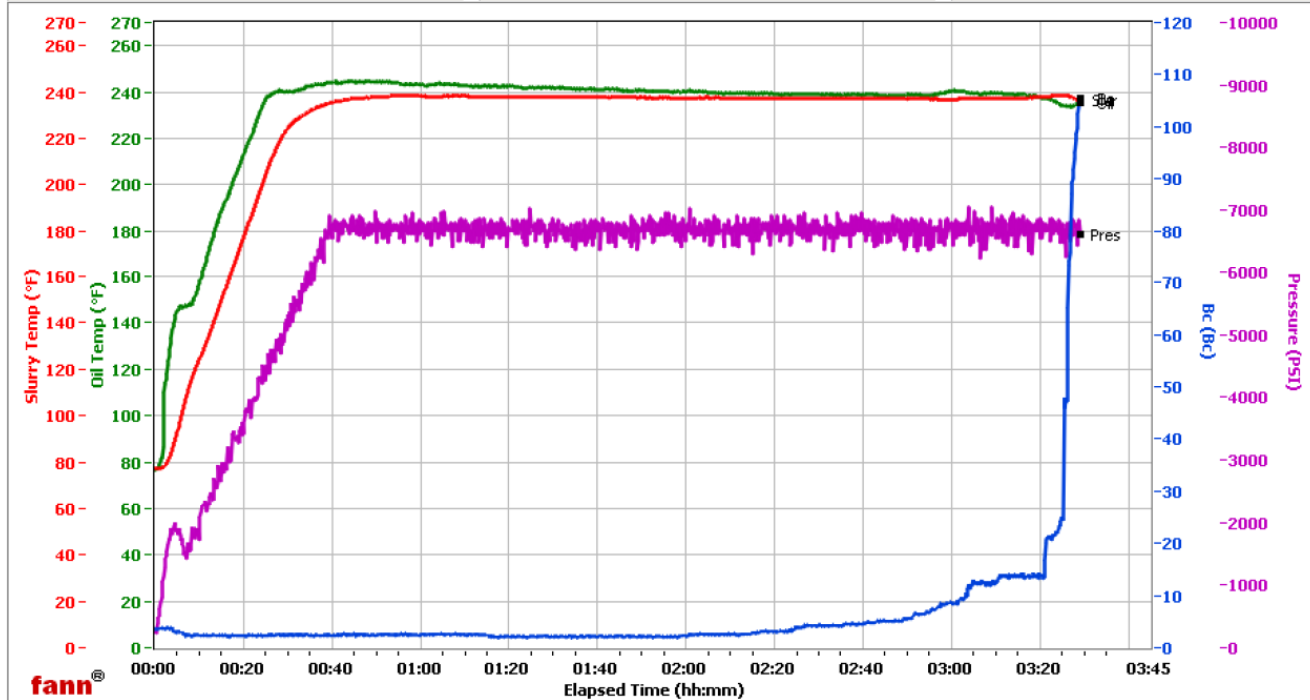
HALLIBURTON

WRCR

Fields	Values
Project Name	EXXONMOBIL 121674-1
Test ID	121674-1
Request ID	4
Tested by	RR
Customer	EXXONMOBIL
Well No	PCU 296-6B1
Rig	H%P 215
Casing/Liner Size	

Fields	Values
Job Type	PROD TAIL
Cement Type	TXI
Cement Weight	Light Weight
Test Date	01/01/70
Test Time	01:24 AM
Temp. Units	degF
Pressure Units	PSI

Events	Results
30.00 Bc	03h:25m
40.00 Bc	03h:25m
50.00 Bc	03h:26m
70.00 Bc	03h:26m
100.00 Bc	03h:28m
200.00 Bc	NaN
03h:00m	8.66
06h:00m	NaN



Data File O:\HPHT Data Files WRCR\WRCR Consistometer #4\EXXONMOBIL 121674-1.tdms

Comments TXI, FE-2 .25%, DENSITY 12.0, YIELD 2.17 YARD

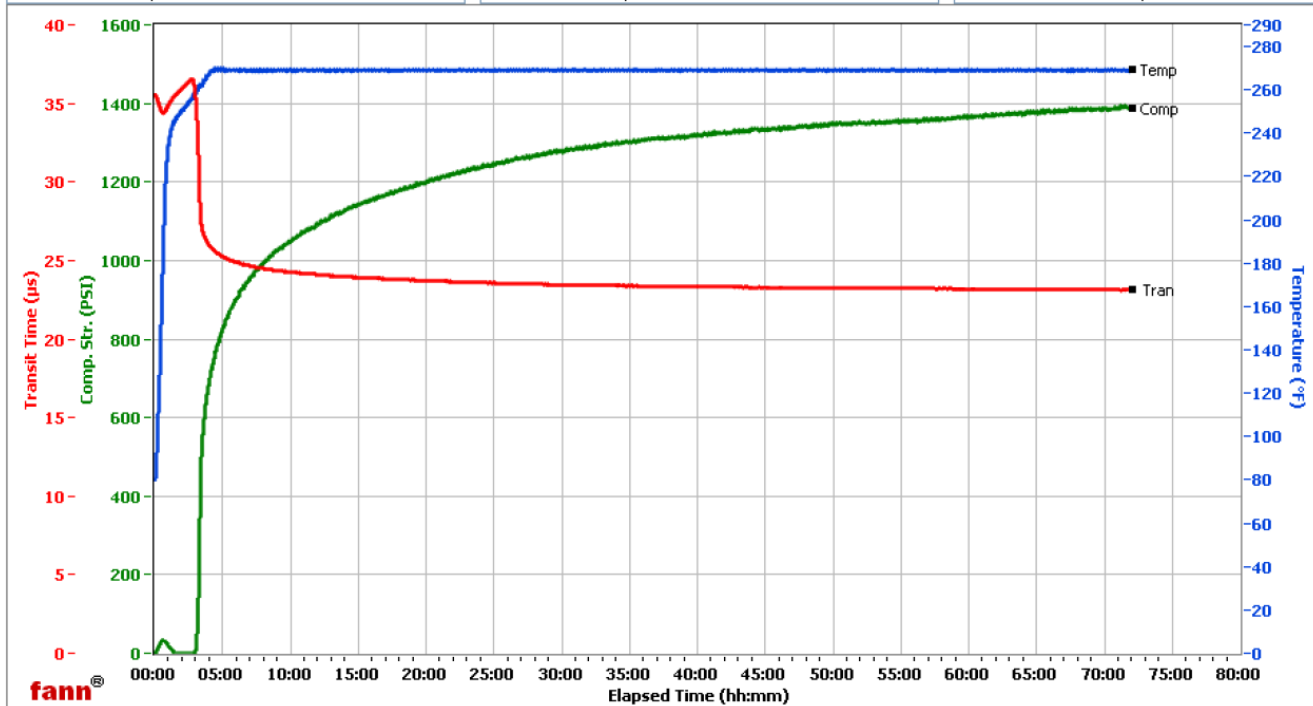
HALLIBURTON

WRCR

Fields	Values
Project Name	EXXONMOBIL 121674-1
Test ID	121674-1
Request ID	
Tested by	RR
Customer	ExxonMobil
Well No	PCU 296-6B1
Rig	H&P 215
Casing/Liner Size	

Fields	Values
Job Type	PROD TAIL
Cement Type	TXI
Cement Weight	Light Weight
Test Date	1/12/2011
Test Time	10:14 AM
Temp. Units	degF
Pressure Units	PSI

Events	Results
50.00 PSI	03h:07m
100.00 PSI	03h:11m
500.00 PSI	03h:26m
1000.00 PSI	08h:18m
12h:00m	1093.44
24h:00m	1234.82
48h:00m	1342.97
72h:00m	1390.52

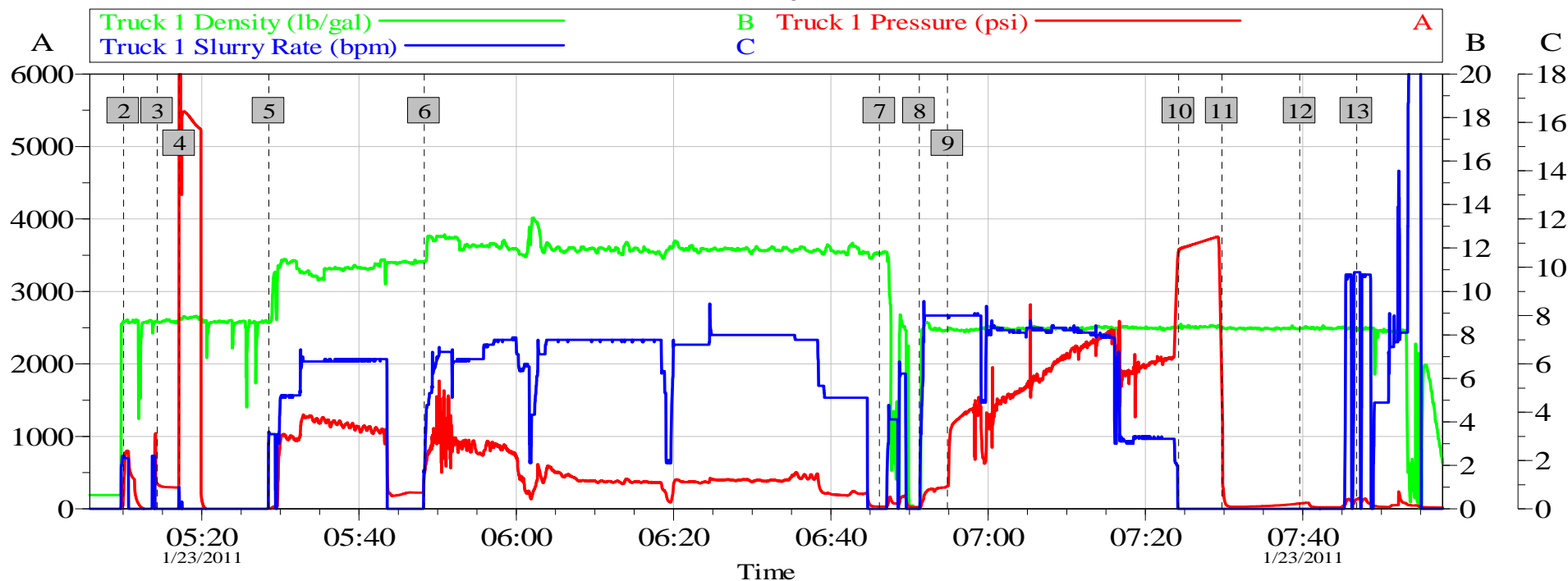


Data File C:\UCA Data\121674-1.tdms

Comments TXI, FE-2 .250%, DENSITY 12.0, YIELD 2.17 YARD

EXXONMOBIL PRODUCTION PCU 296-6B1

1-22-2011



Global Event Log

2	FILL LINES	05:10:03	3	LOW PSI TEST	05:14:21	4	HIGH PSI TEST	05:17:09
5	Pump Spacer 1	05:28:31	6	Pump Cement	05:48:17	7	Drop Plug	06:46:11
8	Pump Displacement	06:51:15	9	CAUGHT PSI	06:54:50	10	LAND PLUG	07:24:13
11	CHECK FLOATS	07:29:44	12	END JOB	07:39:37	13	WASH RCM	07:46:51

Customer: EXXON
Well Description: PCU 296-6B1

Job Date: 22-Jan-2011
UWI:

Sales Order #: 7898262

OptiCem v6.4.10
23-Jan-11 08:41