

EXXONMOBIL CORPORATION
HOUSTON, Texas

FRU 197-33B9

H&P 321

Post Job Summary

Cement Production Casing

Date Prepared: August 4, 2010
Version: 1

Service Supervisor: Ken Dearing
Submitted by: Simukayi Mutasa

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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	10.75" Casing	10.75	9.950	45.50	0.00	3,940.00	0.00	3,829.00		80.00
Open Hole Section	8 3/4" Hole		8.750		3,940.00	12,300.00	3,829.00	12,173.00	150.00	
Casing	4.5" Casing	4.50	3.826	15.10	0.00	12,290.00	0.00	12,163.00		89.65

Pumping Schedule

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Avg Rate bbl/min	Surface Volume
1	Tracer	PolyFlake Tracer	9.60	8.50	50 barrels
2	Spacer	Mud	9.60	8.50	374 barrels
3	Spacer	Tuned Spacer III™	11.00	6.00	70 barrels
4	Cement	Varicem™ Cement	12.00	7.00	2900 sacks
5	Water	NaCl Displacement	8.50	8.00	174 barrels

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Fluids Pumped

Stage # 1 **Fluid 1:** PolyFlake Tracer
Tracer
1 ppb Poly-E-Flake

Fluid Density: 9.60 lbm/gal
Pump Rate: 8.50 bbl/min

Stage # 1 **Fluid 2:** Mud
Mud Spacer

Fluid Density: 9.60 lbm/gal
Pump Rate: 8.50 bbl/min

Stage # 1 **Fluid 3:** TUNED SPACER III
TUNED SPACER III - SBM (483826)
0.1 gal/bbl D-AIR 3000L
117.6 lbm/bbl Barite

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

Stage # 1 **Fluid 4:** Primary Cement
VARICEM (TM) CEMENT
0.33 % Fe-2

Fluid Weight: 12.00 lbm/gal
Slurry Yield: 2.17 ft³/sack
Total Mixing Fluid: 11.95 Gal
Calculated Fill: 8,611.00 ft
Calculated Top of Fluid: 4,138.00 ft
Pump Rate: 7.00 bbl/min

Stage # 1 **Fluid 5:** NaCl Displacement
Salt Water
7.15 ppb Salt

Fluid Density: 8.50 lbm/gal
Pump Rate: 8.00 bbl/min

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Job Summary

Job Information

Job Start Date	8/4/2010
Job MD	12,300.0 ft
Job TVD	12,173.0 ft
Height of Plug Container/Swage Above Rig Floor	6.0 ft
Surface Temperature at Time of Job	80 degF
Mud Type	Water Based Mud
Name of Mud Company	Baroid
Actual Mud Density	9.60 lbm/gal
Mud Viscosity	17.0 cp
Mud Yield Point	26.0 lbf/100ft ²
Mud Gel Strength	8/14/16
Mud loss while running Casing	1,200.00 bbl
Time Circulated before job	5.08 hour(s)
Mud Volume Circulated	4,400.00 bbl
Rate at Which Well was Circulated	8.500 bbl/min
Mud loss while Circulating	-190.00 bbl (Gained Mud)
Units of Gas Detected While Circulating	1200 API Gas Units
Pipe Movement During Hole Circulation	Reciprocated
Time From End Mud Circ. to Job Start	16.00 minute
Mud loss during Cement Job	60.00 bbl
Pipe Movement During Cementing	Reciprocated
Calculated Displacement	174.00 bbl
Job Displaced by (rig/halco)	Cement Unit HP Pumps
Length of Rat Hole	10.00 ft

Cementing Equipment

Number of Centralizers Used	140
Pipe Centralization	Through Entire Cement Column
Brand of Float Equipment Used	Weatherford
Did Float Equipment Hold?	Yes
Plug set used?	Yes
Brand of Plug set used?	Weatherford
Did Plugs Bump?	Yes
Calculated Pressure to Bump Plugs	1,900.0 psig
Brand of Stage Cementing Tools Used	Weatherford

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Service Supervisor Reports

Job Log

Date/Time	Chart #	Activity Code	Pump Rate	Cum Vol	Pressure (psig)	Comments
08/03/2010 12:00		Call Out				CREW CALLED OUT, REQUESTED ON LOCATION @ 18:00
08/03/2010 14:00		Depart from Service Center or Other Site				CEMENTING CREW LEFT HALLIBURTON YARD IN VERNAL
08/03/2010 18:00		Arrive At Loc				RIG STILL RUNNING CASING - 30 JOINTS TO GO
08/03/2010 18:45		Pre-Rig Up Safety Meeting				DISCUSSED PINCH POINTS, TRIP HAZARDS, PROPER HYDRATION
08/03/2010 19:00		Rig-Up Equipment				RIGGED UP BULK LINES, IRON UP TO STANDPIPE
08/03/2010 22:46		Rig-Up Equipment				RIG UP REST OF IRON TO BASE OF RIG INCLUDING STANDPIPE
08/04/2010 01:45		Casing on Bottom				RIG CIRCULATING THROUGH CRT
08/04/2010 02:11		Pre-Rig Up Safety Meeting				
08/04/2010 02:25		Rig-Up Equipment				RIG UP EQUIPMENT ON RIG FLOOR
08/04/2010 06:55		Rig-Up Equipment				MUD PUMPS OFF, RIGGING UP PLUG CONTAINER
08/04/2010 08:15		Pre-Job Safety Meeting				DISCUSSED JOB AND SAFETY PROCEDURES
08/04/2010 08:23		Pump Tracer	7	50	500.0	RIG PUMPING 50 BBLs POL-E FLAKE
08/04/2010 08:27		Pump Spacer	7	373		RIG PUMPING 373.4 BBLs MUD SPACER
08/04/2010 09:22		Other				MUD PUMPS OFF, SWITCH TO CEMENT LINES TO PRESSURE TEST
08/04/2010 09:34		Pressure Test			5200.0	LOW PRESSURE TEST TO 340 PSI - PASSED. HIGH PRESSURE TEST TO 5200 PSI - PASSED
08/04/2010 09:38		Pump Spacer	6	70	860.0	BEGIN PUMPING 70 BARRELS TUNED SPACER III AT 11 LB/GAL. CALCULATED WATER REQUIREMENT: 61 BARRELS - PUMPED 66 BARRELS ACTUAL WITH 55 BARRELS MIX WATER
08/04/2010 09:50		Shutdown				SWAP BULK LINES FROM SPACER TRUCK TO CEMENT LINES
08/04/2010 09:54		Pump Cement	7	1121	760.0	BEGIN PUMPING 2900 SACKS OF 12 LB/GAL VARICEM CEMENT. CALCULATED YIELD: 2.17 FT ³ /SK, CALCULATED WATER REQUIREMENT: 11.95 GAL/SK, CALCULATED MIX WATER: 825 BARRELS, THICKENING TIME: 100 BC @ 7:00
08/04/2010 11:04		Returns To Surface	7	488	613.0	POL E FLAKE RETURNS TO SURFACE WITH 488 BBLs CEMENT GONE. THEORETICAL TRACER RETURNS AFTER 425 BBLs ON GAUGE HOLE
08/04/2010 12:46		Shutdown	0	1165		SHUTDOWN, WASH LINES TO PIT
08/04/2010 12:51		Pump Displacement	8	174	500.0	PUMP 174 BARRELS SALT WATER DISPLACEMENT
08/04/2010 12:56		Displ Reached Cmmt	8	23	1500.0	CAUGHT PRESSURE WITH 23 BARRELS CEMENT GONE
08/04/2010 13:11		Slow Rate	6	152	2318.0	SLOW DISPLACEMENT RATE TO 6 BARRELS/MINUTE WITH 152 BARRELS DISPLACEMENT GONE
08/04/2010 13:13		Slow Rate	4	164	2049.0	SLOW DISPLACEMENT RATE TO 4 BPM WITH 164 BBLs DISPLACEMENT GONE
08/04/2010 13:13		Slow Rate	2	170	1809.0	SLOW DISPLACEMENT RATE TO 2 BPM WITH 10 BBLs DISPLACEMENT GONE
08/04/2010 13:16		Bump Plug	2	172.5	1856.0	BUMP PLUGS AFTER 172.5 BBLs DISPLACEMENT GONE - CALCULATED DISPLACEMENT = 173.5
08/04/2010 13:18		Check Floats			2500.0	FLOATS HELD - 1.5 BBLs BACK

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Date/Time	Chart #	Activity Code	Pump Rate	Cum Vol	Pressure (psig)	Comments
08/04/2010 13:30		Post-Job Safety Meeting (Pre Rig-Down)				

Observations

Significant Points

Tracer returned to surface after 488 barrels of cement were gone, but cement never returned due to a reduced return rate near the end of the job.

Cement placement time was 3 hours 20 minutes at 7 bpm.

Hail storm with severe lightning started halfway through the job, several radios began to malfunction, job was not adversely affected.

Areas for Improvement

Contingency plan for communicating during severe weather conditions with smaller crews.

The Road to Excellence Starts with Safety

Sold To #: 331699		Ship To #: 2778601		Quote #:		Sales Order #: 7519937	
Customer: EXXONMOBIL CORPORATION				Customer Rep: SMITH, CHARLIE			
Well Name: FRU			Well #: 197-33B9			API/UWI #: 05-103-11422	
Field: PICEANCE CREEK		City (SAP): MEEKER		County/Parish: Rio Blanco		State: Colorado	
Legal Description: Section 33 Township 1S Range 97W							
Contractor: H&P			Rig/Platform Name/Num: H&P321				
Job Purpose: Cement Production Casing							
Well Type: Development Well			Job Type: Cement Production Casing				
Sales Person: TURNER, JAMIE			Srvc Supervisor: DEARING, KEN			MBU ID Emp #: 239372	

Job Personnel

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
BERECEE, TERRY Lee		222819	DEAN, MARK Christophe		454214	DEARING, KEN A		239372
HAMMOND, QUINN R		472403	MUTASA, SIMUKAYI Taiziveyi		464970	PACE, JEREMY J		452201
REYNOLDS, COREY W		212159	TEICHERT, RONDO		476071	WALTON, SHELDON Kent		471754

Equipment

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way
10574660C	120 mile	10741129	120 mile	10784082	120 mile	10829452	120 mile
10872435	120 mile	10897817	120 mile	10977066	120 mile	10994445	120 mile
11077856	120 mile	11211506	120 mile	11263210	120 mile	11305584	120 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					Date				Time	Time Zone		
Formation Depth (MD)		Top	Bottom		Called Out				03 - Aug - 2010	10:30	MST	
Form Type		BHST			270 degF			On Location		03 - Aug - 2010	18:00	MST
Job depth MD		12300. ft		Job Depth TVD		12173. ft <th colspan="2">Job Started</th> <td>03 - Aug - 2010</td> <td>00:00</td> <td>MST</td>		Job Started		03 - Aug - 2010	00:00	MST
Water Depth		Wk Ht Above Floor			6. ft			Job Completed				
Perforation Depth (MD)		From	To		Departed Loc							

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
8 3/4" Hole				8.75				3940.	12300.	3829.	12173.
10.75" Casing	Unknown		10.75	9.95	45.5		J-55	.	3940.	.	3829.
4.5" Casing	New		4.5	3.826	15.1		P-110	.	12290.	.	12163.

Tools and Accessories

Type	Size	Qty	Make	Depth	Type	Size	Qty	Make	Depth	Type	Size	Qty	Make
Guide Shoe					Packer					Top Plug		1	WFT
Float Shoe		1	WFT		Bridge Plug					Bottom Plug		1	WFT
Float Collar		1	WFT		Retainer					SSR plug set			
Insert Float										Plug Container		1	HAL

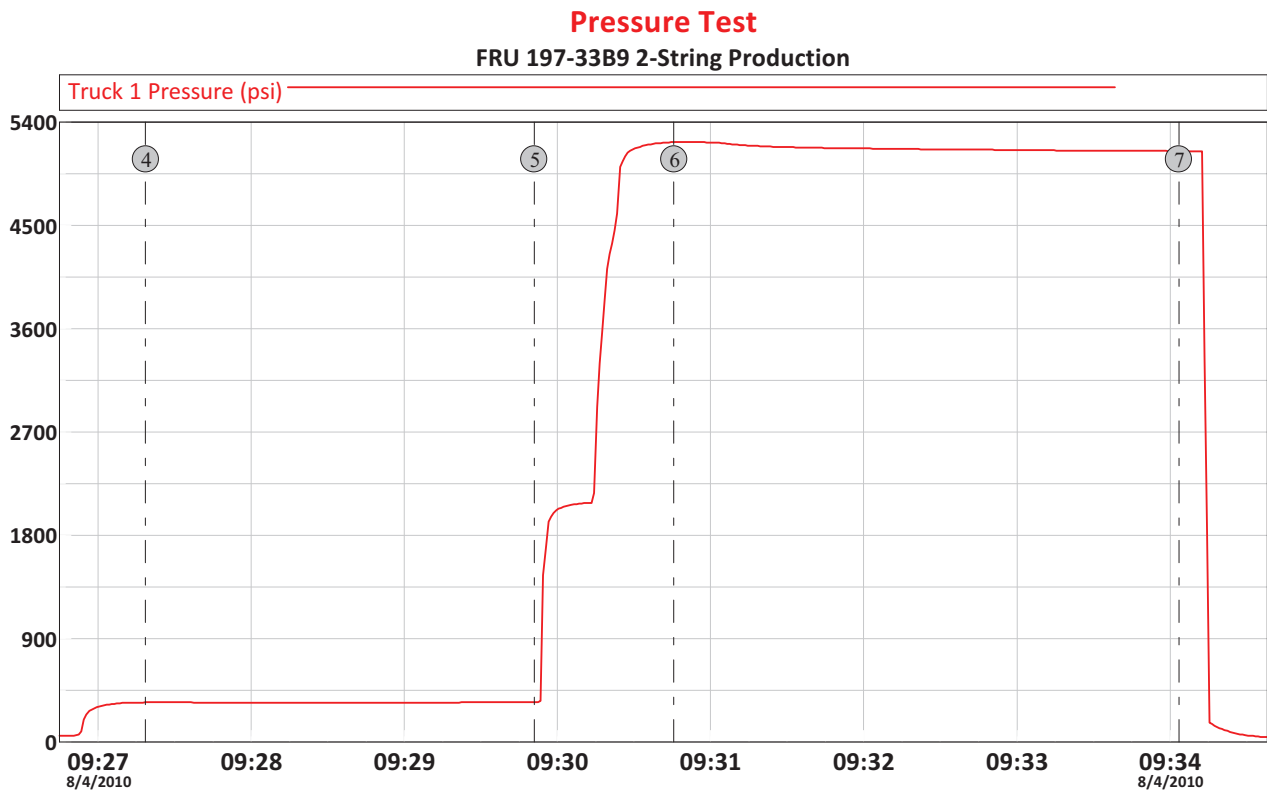
Summit
Version:

Wednesday, August 04, 2010 21:24:00

Stage Tool									Centralizers		140	
Fluid Data												
Stage/Plug #: 1												
Fluid #	Stage Type	Fluid Name	Qty	Qty uom	Mixing Density lbm/gal	Yield ft3/sk	Mix Fluid Gal/sk	Rate bbl/min	Total Mix Fluid Gal/sk			
1	PolyFlake Tracer		50.0	bbl	9.6	.0	.0	8.5				
	1 ppb	POLY-E-FLAKE (101216940)										
2	Mud		374.0	bbl	9.6	.0	.0	8.5				
3	TUNED SPACER III	TUNED SPACER III - SBM (483826)	70.0	bbl	11.	6.4	42.2	6.0				
	36.83 gal/bbl	FRESH WATER										
	0.1 gal/bbl	D-AIR 3000L, 5 GAL PAIL (101007444)										
	117.6 lbm/bbl	BARITE, 100 LB SK (100003680)										
4	Primary Cement	VARICEM (TM) CEMENT (452009)	2900.0	sacks	12.	2.17	11.95	7.0	11.95			
	11.95 Gal	FRESH WATER										
	0.33 %	FE-2 (100001615)										
5	NaCl Displacement		174.0	bbl	8.5	.0	.0	8.0				
	7.15 ppb	SALT, 100 LB BAG (100003652)										
The Information Stated Herein Is Correct					Customer Representative Signature							

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Data Acquisition



④ Begin Low Pressure Test 09:27:19 346.0 ⑤ End Low Pressure Test 09:29:51 346.0
⑥ Begin High Pressure Test 09:30:46 5226 ⑦ End High Pressure Test 09:34:03 5148

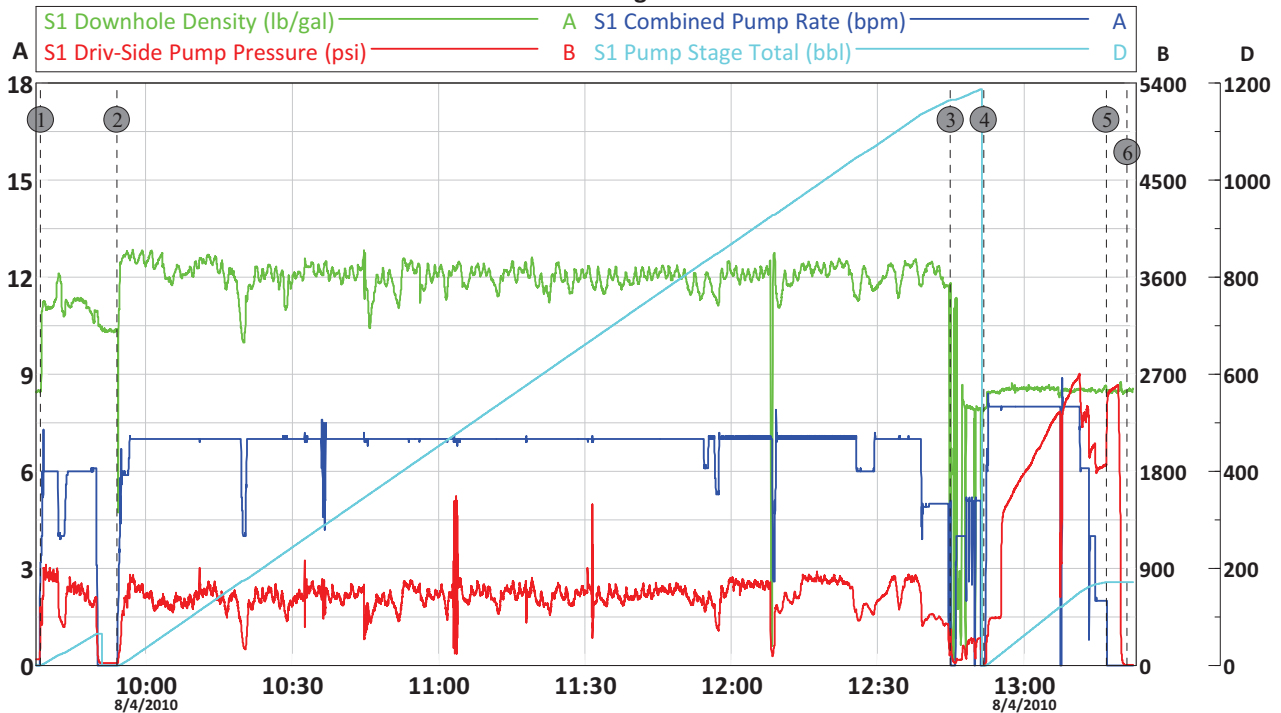
Customer: ExxonMobil	Job Date: August 3rd, 2010	Sales Order #: 7519937
Well Description: FRU 197-33B9	UWI: 05-103-11422	Rig: H&P 321

OptiCem v6.4.9
04-Aug-10 09:35

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ExxonMobil

FRU 197-33B3 2-String Production



① 70 bbl Tuned Spacer III 09:38:28 503.7 ② 2900 sk Varicem 09:54:07 22.00 ③ Wash Lines, Drop Plug 12:44:55 311.2
 ④ 174 bbl NaCl Water 12:51:46 15.00 ⑤ Bump Plugs 13:16:50 1856 ⑥ End Job 13:21:08 6.000

Customer:	ExxonMobil	Job Date:	August 3, 2010	Sales Order #:	7519937
Well Description:	FRU 197-33B9	UWI:	05-103-11422	Rig:	H&P 321

OptiCem v6.4.9
04-Aug-10 13:57

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Lab Data

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Cementing Rockies, Meeker

Primary Cement

Job Information

Request/Slurry	78026	Rig Name	H&P 321	Date	July 26th 2010
Submitted By	Isaac Whorl	Job Type	Production Casing	Bulk Plant	Meeker
Customer	ExxonMobil	Location	Rio Blanco	Well	FRU 197-33B9

Well Information

Casing/Liner Size	4 1/2"	Depth MD	12300 ft	BHST	270 F
Hole Size	8 3/4"	Depth TVD	12173 ft	BHCT	210 F

Drilling Fluid Information

Mud Company	Baroid	Type	WBM	Density	9.6 PPG	PV/YP	17/26
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Cement Information - Primary Design

Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties		
		VariCem				Slurry Density	12.00	PPG
						Slurry Yield	2.17	FT3
						Water Requirement	11.95	GPS
100.00	% BWOC	TXI Lightweight	Bulk	Jul 27, 2010				
25.00	% BWOC	Silicalite - Compacted	Bulk	Jul 27, 2010	07-21-10			
0.60	% BWOC	HALAD-344 (PB)	Bulk	Jul 27, 2010	ZMOF0 040AO			
0.60	% BWOC	D-Air 3000	Bulk	Jul 27, 2010	2010163 AC			
0.10	% BWOC	Econolite (Powder - PB)	Bulk	Jul 27, 2010	U020210			
0.33	% BWOC	Fe-2 (citric acid)	Bulk	Jul 27, 2010	9121663	Water Source	Field (Fresh) Water	
132.94	L/100kg	Field (Fresh) Water	Lab	Jul 25, 2010	07-25- 2010	Water Chloride	N/A	ppm

Operation Test Results Request ID 78026

UCA Comp. Strength

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)
242	3,000	06:04	06:30	1144	1279	1350	1424	72

Thickening Time

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)
210	7,557	35	0	06:00	06:46	06:48	06:53	07:00

Mixability (0 - 5) - 0 is not mixable

Mixability rating (0 - 5)

5

Free Water

Test Temp (°F)	% FW 45 Inc
180	0

API Rheology

Temp (°F)	600	300	200	100	60	30	6	3	Cond Time (min)	PV/YP
80	51	29	22	14	10	7	4	4	0	25.4 / 4.6

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API Fluid Loss

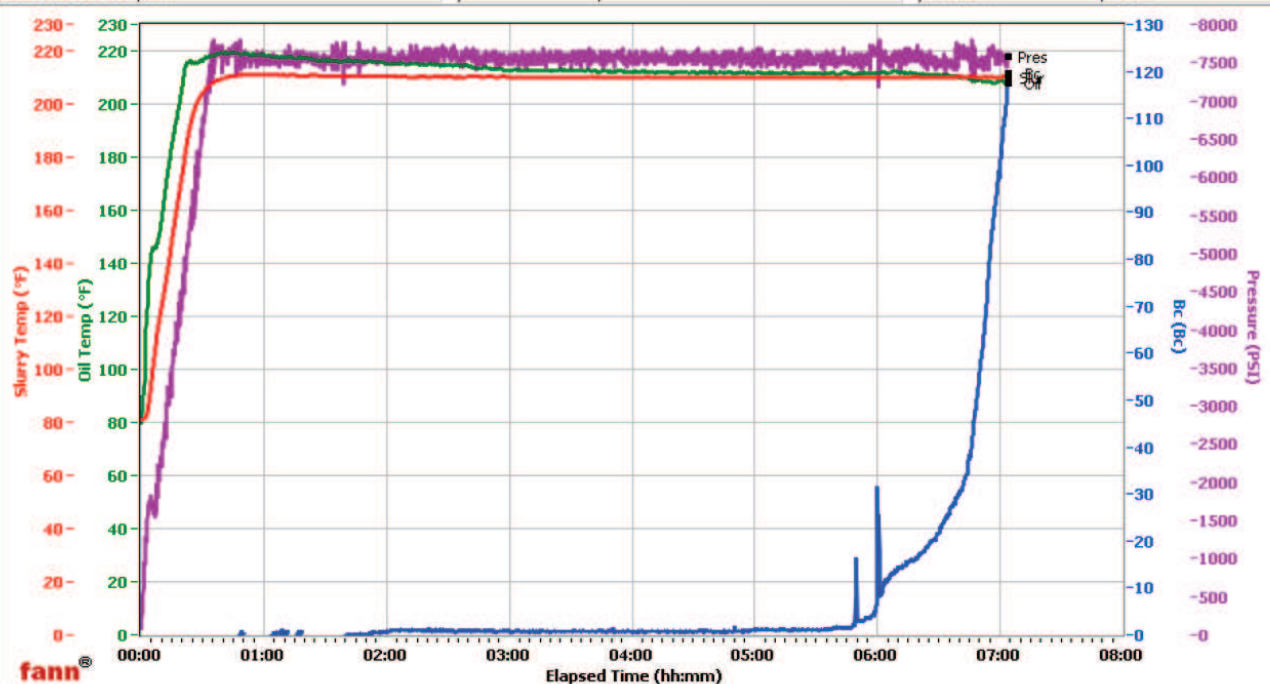
Test Temp (°F)	Test Pressure (psi)	Test Time (min)	Meas. Vol (<30 min, cc)	Extr. ISO FL (cc/30 min)
180	1,000	20.21	55	134

WRCR

Fields	Values
Project Name	ExxonMobil 78026-3
Test ID	78026-3
Request ID	HPHT 3
Tested by	ac
Customer	ExxonMobil
Well No	FRU 197-389
Rig	H&P 321
Casing/Liner Size	4.5

Fields	Values
Job Type	Production Primary
Cement Type	TXI
Cement Weight	Light Weight
Test Date	07/27/10
Test Time	04:53 PM
Temp. Units	degF
Pressure Units	PSI

Events	Results
30.00 Bc	06h:00m
40.00 Bc	06h:46m
50.00 Bc	06h:48m
70.00 Bc	06h:53m
100.00 Bc	07h:00m
200.00 Bc	NaN
03h:00m	0.64
06h:00m	31.42



Data File O:\HPHT Data Files WRCR\WRCR Consistometer #3\ExxonMobil 78026-3.tdms

Comments 100% TXI, 0.330 Fe-2 2.17 Yield, 12.001 Den

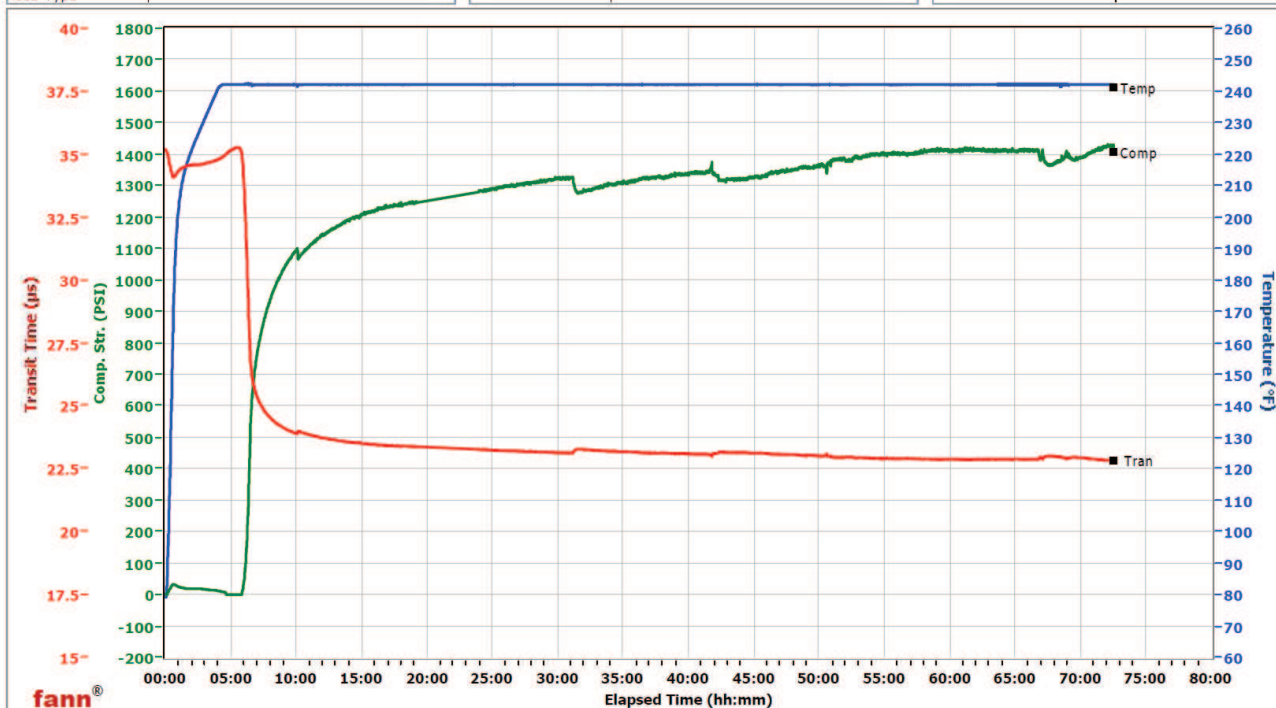
HALLIBURTON

White River City Ranch

Fields	Values
Project Name	ExxonMobil 78026-2
Test ID	78026-2
Request ID	UCA 2
Tested by	ac
Customer	ExxonMobil
Well No	FRU 197-33B9
Rig	H&P 321
Casing/Liner Size	
Job Type	

Fields	Values
Cement Type	TXI
Cement Weight	Light Weight
Comments	100% TXI, 0.350 Fe-2, 2.17 Yield, 12.001 De
Test Date	7/24/2010
Test Time	3:00 PM
Temp. Units	degF
Pressure Units	PSI

Events	Results
50.00 PSI	06h:04m
100.00 PSI	06h:10m
500.00 PSI	06h:30m
1000.00 PSI	08h:39m
12h:00m	1143.98
24h:00m	1279.52
48h:00m	1350.20
72h:00m	1424.47



Data File C:\UCA Data\78026-2.tdms