

EXXONMOBIL CORPORATION
HOUSTON, Texas

PCU 197-34A9

H&P 325

Post Job Summary

Cement Production Casing

Date Prepared: September 13, 2010
Version: 1

Service Supervisor: Cody Davis
Submitted by: Simukayi Mutasa

HALLIBURTON

HALLIBURTON

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	8,507.00	0.00	8,441.00		80.00
Open Hole Section	Production Open Hole		6.125		8,507.00	12,534.00	8,441.00	12,469.00	350.00	
Casing	Production Casing	4.50	3.826	15.10	0.00	12,519.00	0.00	12,453.00		80.00

Pumping Schedule

Fluid Name	Surface Density lbm/gal	Avg Rate bbl/min	Surface Volume
TUNED SPACER III	10.00	6.00	40.0 bbl
Lightweight Tail Cement	12.00	6.00	945.63 sacks
NaCl Displacement	8.44	6.00	176.80 bbl

Fluids Pumped

Stage/Plug # 1 Fluid 1: TUNED SPACER III
TUNED SPACER III - SBM (483826)
3 lbm/bbl Fe-2
59.8 lbm/bbl Barite

Fluid Density: 10.00 lbm/gal
Fluid Volume: 40.00 bbl
Pump Rate: 6.00 bbl/min

Stage/Plug # 1 Fluid 2: Lightweight Tail Cement
VARICEM (TM) CEMENT
0.28 % Fe-2

Fluid Weight: 12.00 lbm/gal
Slurry Yield: 2.17 ft³/sack
Total Mixing Fluid: 11.95 Gal
Surface Volume: 945.631 sacks
Sacks: 945.631 sacks
Calculated Fill: 6,513.00 ft
Calculated Top of Fluid: 6,159.00 ft
Pump Rate: 6.00 bbl/min

Stage/Plug # 1 Fluid 3: NaCl Displacement
DISPLACEMENT WATER
7.15 lbm/bbl Salt

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

Job Summary

Job Information

Job Start Date	9/7/2010
Job MD	12,535.0 ft
Job TVD	12,469.0 ft
Height of Plug Container/Swage Above Rig Floor	3.0 ft
Surface Temperature at Time of Job	60 degF
Mud Type	Water Based Mud
Name of Mud Company	BAROID
Actual Mud Density	10 lbm/gal
Mud PV	16.0 cp
Mud YP	24 lbf/100ft ²
Mud loss while running Casing	100.00 bbl
Time Circulated before job	2.00 hour(s)
Mud Volume Circulated	324.00 bbl
Rate at Which Well was Circulated	2.700 bbl/min
Mud loss while Circulating	50.00 bbl
Units of Gas Detected While Circulating	1500 API Gas Units
Pipe Movement During Hole Circulation	Reciprocated
Time From End Mud Circ. to Job Start	60.00 minute
Mud loss during Cement Job	282.00 bbl
Pipe Movement During Cementing	Reciprocated
Calculated Displacement	176.83 bbl
Job Displaced by (rig/halco)	Cement Unit HP Pumps
Annular flow Before Job? (Water/Gas)	Unknown
Annular flow After Job? (Water/Gas)	No
Length of Rat Hole	10.00 ft

Cementing Equipment

Number of Centralizers Used	145
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	2,291.0 psig

Service Supervisor Reports

Job Log

Date/Time	Activity Code	Pump Rate	Cum Vol	Pressure (psig)	Comments
09/07/2010 09:00	Call Out				CREW CALLED OUT TO LOCATION
09/07/2010 10:30	Safety Meeting - Service Center or other Site				SAFETY MEETING WITH CREW ABOUT TRAVEL TO LOCATION
09/07/2010 11:00	Crew Leave Yard				CREW LEAVES YARD FOR LOCATION
09/07/2010 15:00	Arrive At Loc				CREW ARRIVES ON LOCATION, RIG HAS 1 JOIN OF CASING LEFT TO RUN, THE RIG IS WASHING DOWN THE REMAINING CASING
09/07/2010 15:15	Assessment Of Location Safety Meeting				CREW WALKS AROUND LOCATION TO IDENTIFY RISKS
09/07/2010 15:45	Pre-Rig Up Safety Meeting				SAFETY MEETING WITH CREW ABOUT SPOTTING TRUCKS AND THE USE OF SPOTTERS
09/07/2010 16:15	Rig-Up Equipment				START SPOTTING EQUIPMENT. START RIGGING UP IRON TO RED ZONE.
09/07/2010 17:30	Rig-Up Completed				RIG UP TO RED ZONE COMPLETED SAFELY WITH NO INJURIES. WAIT ON RIG TO RUN 60 JOINTS OF CASING
09/07/2010 20:15	Other				RIG RUN 4.5" HYDRIL CASING FROM 1209 TO 12402 FT
09/07/2010 20:45	Other				RIG WASH AND REAM FROM 12402 TO 12520 FT
09/07/2010 21:00	Other	2.2		1250.0	RIG CIRCULATE AT 12520 FT WITH MAX GAS 1587 UNITS
09/08/2010 01:15	Other				RIG LAY DOWN WASH DOWN JOINT AND RUN LANDING JOINT
09/08/2010 02:00	Other				RIG CIRCULATE BOTTOMS UP WITH MAX GAS 1450 UNITS. RIG RAISE MUD WEIGHT FROM 9.6 LB/GAL TO 9.8 LB/GAL
09/08/2010 06:00	Other				RIG DOWN CRT. ANNULAR BOP CLOSED MONITOR WELL AT CHOKE BLEED OFF PRESSURE
09/08/2010 06:15	Other				RIG UP CEMENT HEAD LET RIG CIRCULATE
09/08/2010 06:45	Other				RIG UP LONG CASING BAILS AND ELEVATORS
09/08/2010 07:15	Safety Meeting				HOLD CEMENT JSA WITH HALLIBURTON AND RIG CREW. RIG CIRCULATE BOTTOMS UP WITH MAX GAS 1500 UNITS WITH 12 TO 25 FT FLARE. CIRCULATE 25 TO 30 SPM.
09/08/2010 09:00	Start Job				FILL LINES WITH 3 BBL OF WATER.
09/08/2010 09:02	Pressure Test			421.0	START LOW PRESSURE TEST AT 421 PSI.
09/08/2010 09:05	Pressure Test			410.0	END LOW PRESSURE AT 410 PSI. LOST 11 PSI IN 3 MINUTES. COMPANY MAN APPROVES LOW PRESSURE TEST
09/08/2010 09:24	Pressure Test			5645.0	START HIGH PRESSURE TEST AT 5645 PSI
09/08/2010 09:29	Pressure Test			5524.0	END HIGH PRESSURE TEST AT 5524 PSI. LOST 121 PSI IN 5 MINUTES. COMPANY MAN APPROVES HIGH PRESSURE TEST
09/08/2010 09:33	Pump Spacer	4	40	657.0	RECORDED 42 BBL OF TUNED SPACER III, 10 LB/GAL, 7.019 CF/SK. 48.07 GAL/SK. DESIGN VOLUME WAS 40 BBL.
09/08/2010 09:44	Drop Bottom Plug				SHUTDOWN TO DROP BOTTOM PLUG
09/08/2010 09:53	Pump Tail Cement	7	363	888.0	RECORDED 373 BBL OF VARICEM TAIL CEMENT, 12 LB/GAL, 2.17 CF/SK, 11.95 GAL/SK. DESIGN VOLUME WAS 363 BBL. RECORDED 232 BBL OF CEMENT MIX WATER. DESIGN CEMENT MIX WATER VOLUME WAS 267 BBL
09/08/2010 10:38	Slow Rate	5	363	424.0	RETURNS BEGIN SLOWING DOWN. REDUCE RATE. MAX GAS AT 1650 UNITS.
09/08/2010 10:54	Drop Top Plug				SHUTDOWN TO DROP TOP PLUG

HALLIBURTON

Date/Time	Activity Code	Pump Rate	Cum Vol	Pressure (psig)	Comments
09/08/2010 10:58	Pump Displacement				STARTED PUMPING 2% NACL WATER FOR DISPLACEMENT AT 8 BBL/MIN.
09/08/2010 11:00	Displ Reached Cmmt	8	176	354.0	DISPLACEMENT CAUGHT CEMENT IN 12 BBL.
09/08/2010 11:03	Slow Rate	5	176	887.0	SLOW RATE AFTER DISPLACEMENT CAUGHT CEMENT.
09/08/2010 11:30	Bump Plug	3	176	2235.0	BUMPED PLUG AT 2235 PSI AND 173 BBL AWAY. PRESSURED UP TO CHECK FLOATS. DESIGN DISPLACEMENT VOLUME WAS 176 BBL AND PRESSURE WAS 2023 PSI.
09/08/2010 11:32	Check Floats	0		3203.0	FLOATS HELD WITH 2 BBL BACK.
09/08/2010 11:35	End Job				WASH UP LINES AND PUMPS.
09/08/2010 11:45	Safety Meeting - Pre Rig-Down				TALKED ABOUT RIGGING DOWN SAFELY. TALKED ABOUT PINCH POINTS AND PROPER LIFTING TECHNIQUES.
09/08/2010 12:15	Rig-Down Equipment				RIGGED DOWN PRODUCT LINES, IRON, PLUG CONTAINER.
09/08/2010 13:30	Depart Location Safety Meeting				TALKED ABOUT FATIGUE AND WILDLIFE.
09/08/2010 14:30	Depart Location for Service Center or Other Site				TALKED ABOUT PLACES TO PULL OVER AND SLEEP.

The Road to Excellence Starts with Safety

Sold To #: 331699		Ship To #: 2773297		Quote #:		Sales Order #: 7608654	
Customer: EXXONMOBIL CORPORATION				Customer Rep: Willson, John			
Well Name: PCU			Well #: 197-34A9			API/UWI #: 05-103-11536	
Field: PICEANCE CREEK		City (SAP): MEEKER		County/Parish: Rio Blanco		State: Colorado	
Legal Description: Section 34 Township 1S Range 97W							
Contractor: H&P			Rig/Platform Name/Num: H & P325				
Job Purpose: Cement Production Casing							
Well Type: Development Well			Job Type: Cement Production Casing				
Sales Person: TURNER, JAMIE			Srvc Supervisor: DAVIS, CODY			MBU ID Emp #: 446891	

Job Personnel

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
ANGLIN, JOSHUA B		462343	BURROWS, DARREN Michael		475039	DAVIS, CODY R		446891
DEAN, MARK Christophe		454214	REYNOLDS, COREY W		212159	SHIFLETT, JESSE Amos		469551
WILLIAMS, CAMERON Kent		438405						

Equipment

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way

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	07 - Sep - 2010	09:00 MST
Form Type		BHST			On Location	07 - Sep - 2010	13:30 MST
Job depth MD	12535. ft	Job Depth TVD	12469. ft		Job Started	07 - Sep - 2010	00:00 MST
Water Depth		Wk Ht Above Floor	3. 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
Production Open Hole				6.125				8507.	12534.	8441.	12469.
Intermediate Casing	Unknown		7.	6.276	26.	HYDRIL - SERIES 500 TYPE 513	P-110	.	8507.	.	8441.
Production Casing	Unknown		4.5	3.826	15.1	LTC	P-110	.	12519.	.	12453.

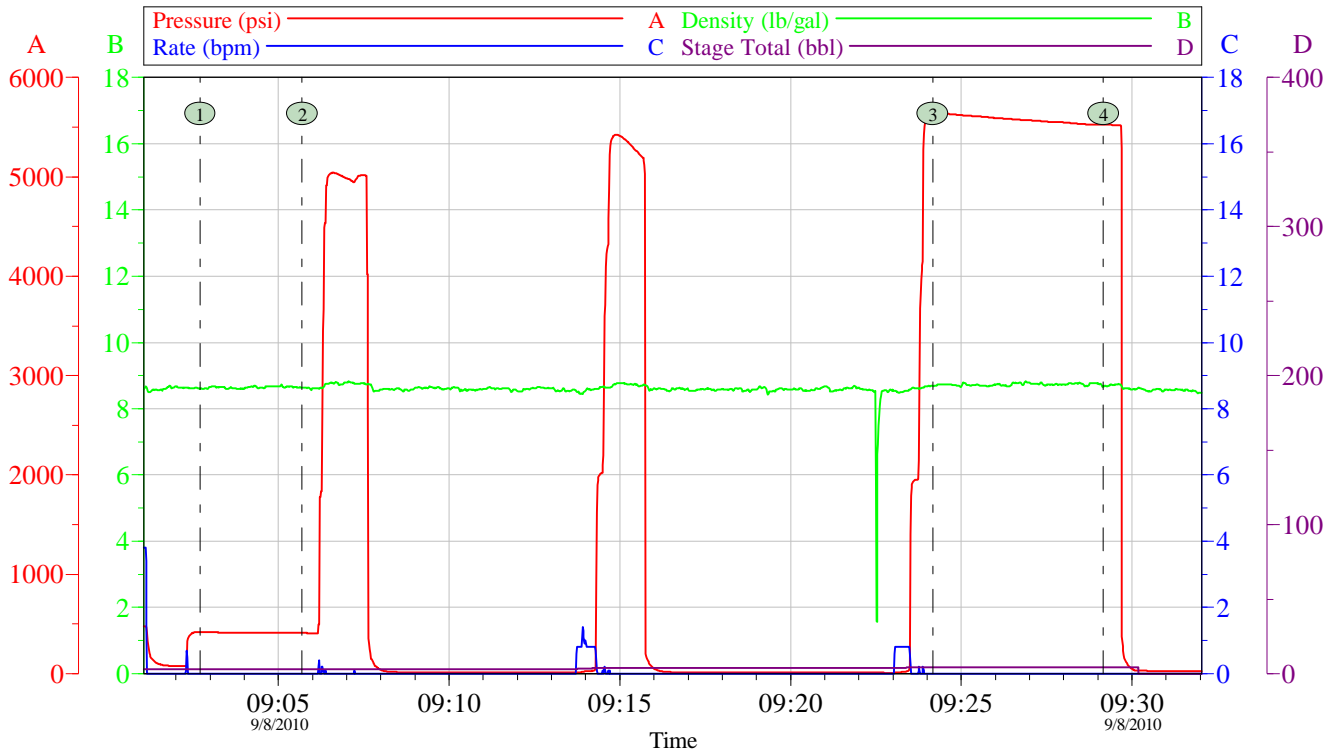
Tools and Accessories

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)			40.00	bbl	10.	.0	.0	6.0		
	38.32 gal/bbl	FRESH WATER										
	3 lbm/bbl	FE-2 (100001615)										
	59.8 lbm/bbl	BARITE, 100 LB SK (100003680)										
2	Lightweight Tail Cement	VARICEM (TM) CEMENT (452009)			945.631	sacks	12.	2.17	11.95	6.0	11.95	
	11.95 Gal	FRESH WATER										
	0.28 %	FE-2 (100001615)										
3	NaCl Displacement				178.0	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							

Data Acquisition

XOM PCU 197-34A9 4.5" Production Casing Cement Job Pressure Test



psi		psi	
① Start Low Pressure Test	09:02:43 421.0	② End Low Pressure Test	09:05:42 410.0
③ Start High Pressure Test	09:24:10 5645	④ End High Pressure Test	09:29:10 5524

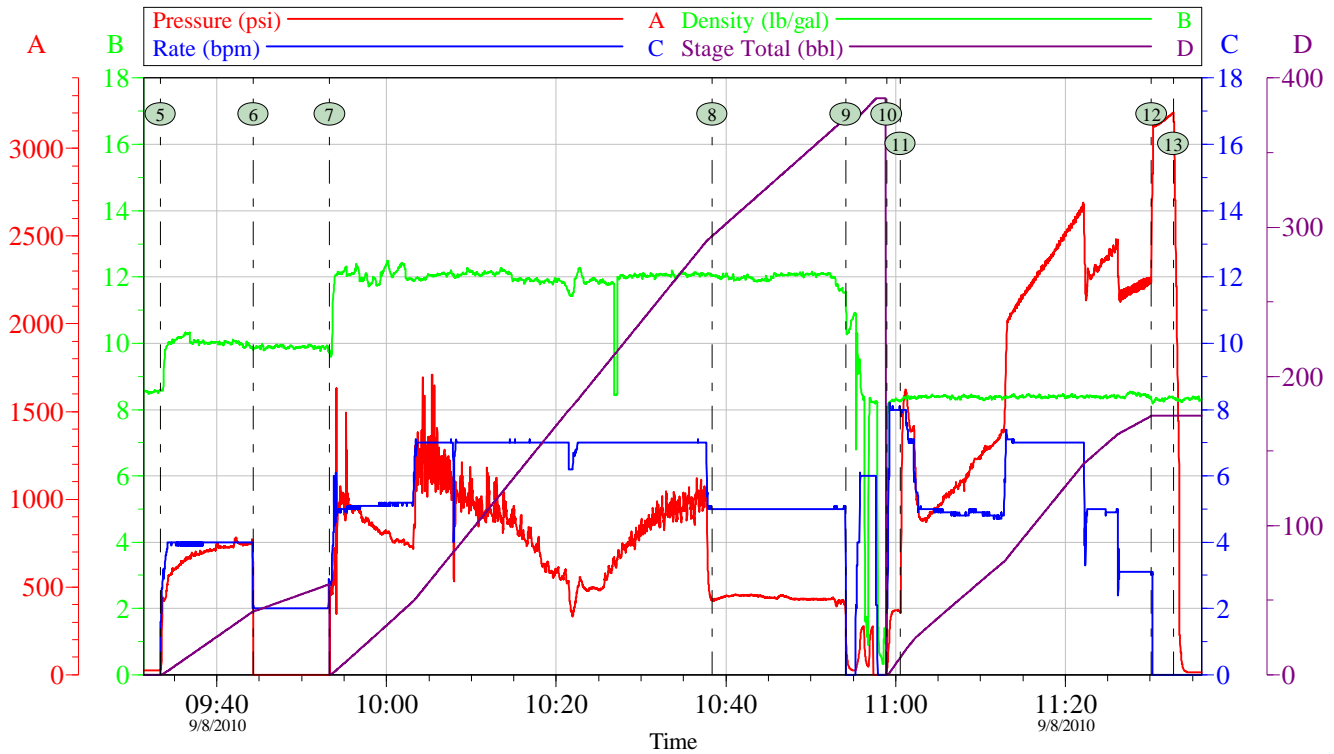
Customer: EXXONMOBIL	Job Date: 08-Sep-2010	Sales Order #: 7608654
Well Description: PCU 197-34A9	UWI: 05-103-11536	

OptiCem v6.4.9
08-Sep-10 12:47

HALLIBURTON

XOM PCU 197-34A9 4.5" Production Casing Cement Job

Job Chart



5 Pump Spacer	09:33:22	6 Drop Bottom Plug	09:44:18	7 Pump Cement	09:53:17
8 Gas 1650/Returns Slowing	10:38:23	9 Drop Top Plug	10:54:07	10 Pump Displacement	10:58:56
11 Caught Cement	11:00:33	12 Bump Plug	11:30:09	13 Check Floats	11:32:44

Customer: EXXONMOBIL
Well Description: PCU 197-34A9

Job Date: 08-Sep-2010
UWI: 05-103-11536

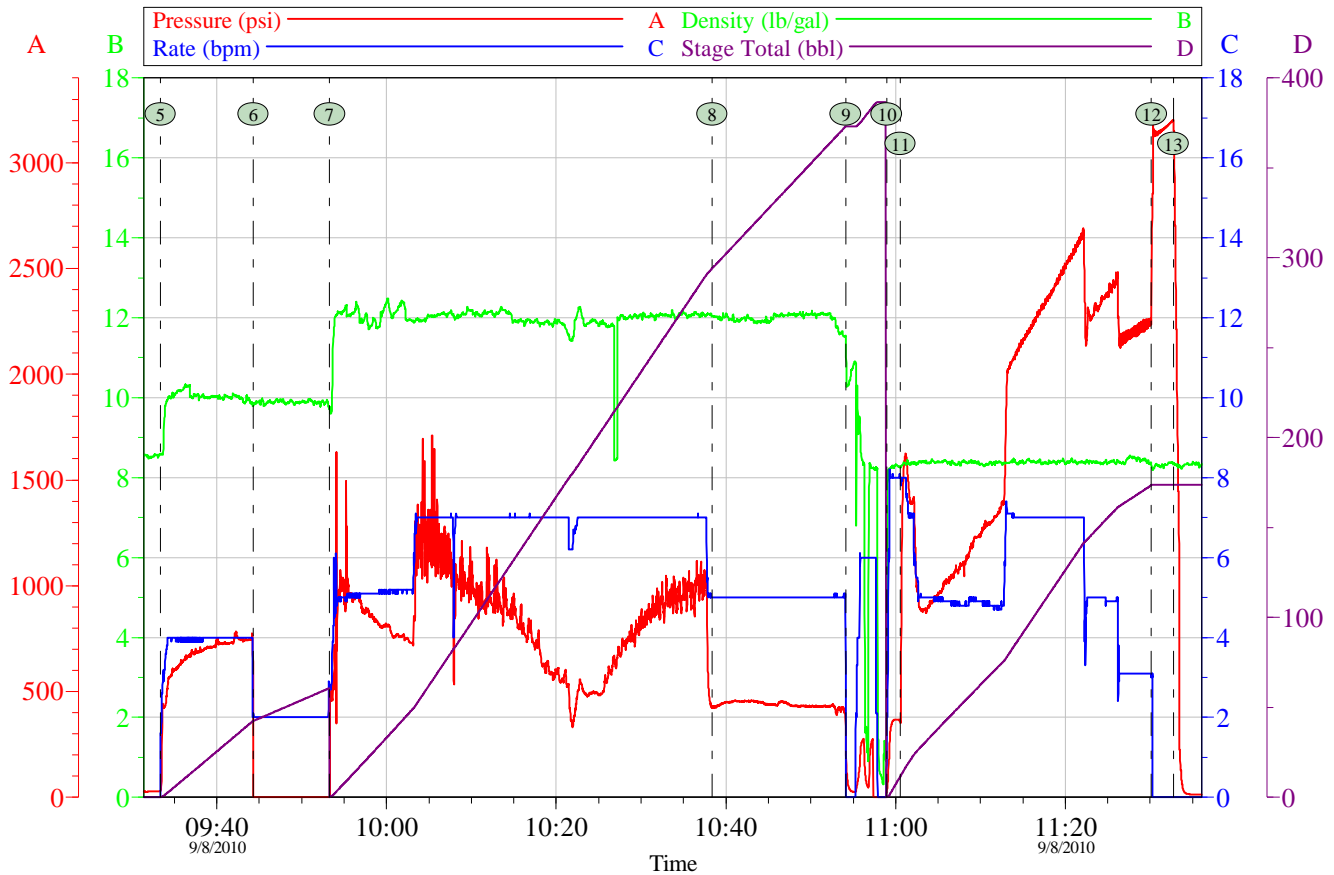
Sales Order #: 7608654

OptiCem v6.4.9
08-Sep-10 12:48

HALLIBURTON

XOM PCU 197-34A9 4.5" Production Casing Cement Job

Job Chart



Customer: EXXONMOBIL
Well Description: PCU 197-34A9

Job Date: 08-Sep-2010
UWI: 05-103-11536

Sales Order #: 7608654

OptiCem v6.4.9
08-Sep-10 12:48

HALLIBURTON

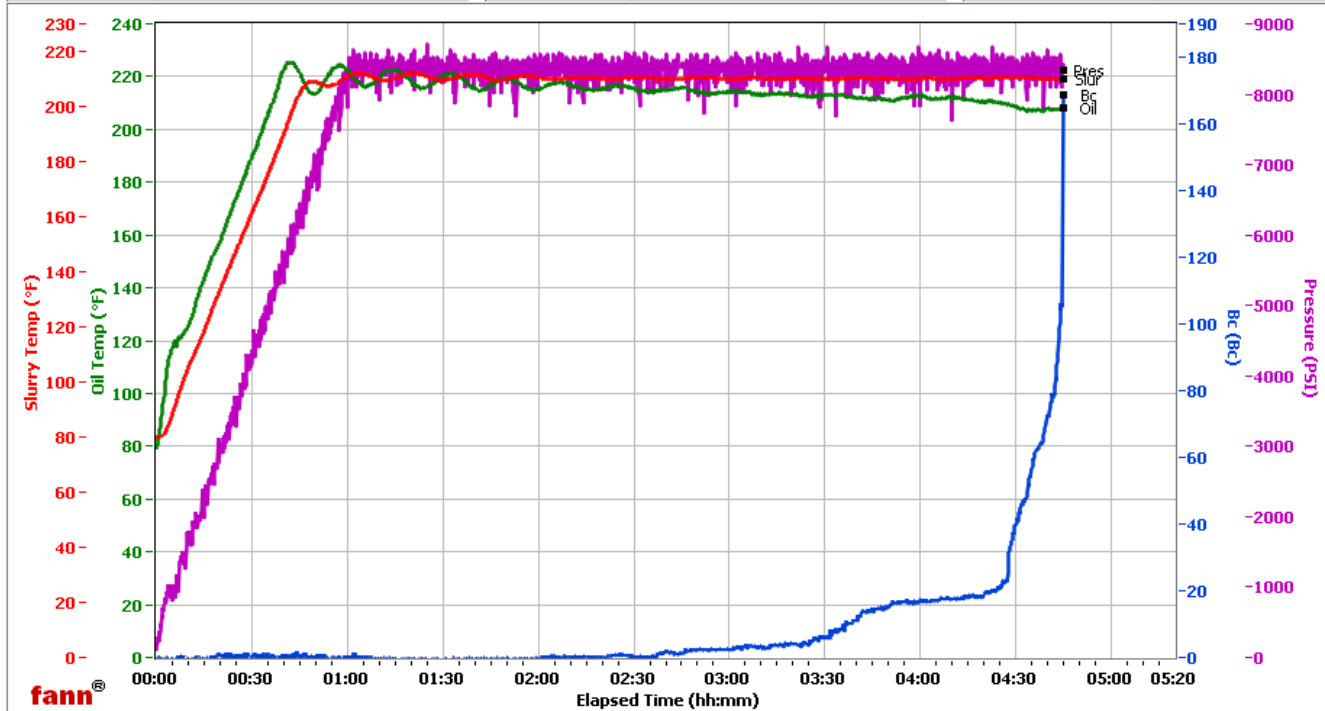
Lab Data

WRCR

Fields	Values
Project Name	ExxonMobil 95009-1
Test ID	95009-1
Request ID	HPHT #1
Tested by	JRP
Customer	ExxonMobil
Well No	PCU 197-34A9
Rig	H8P 325
Casing/Liner Size	4.5

Fields	Values
Job Type	Production Tail
Cement Type	TXI
Cement Weight	Light Weight
Test Date	08/31/10
Test Time	10:58 PM
Temp. Units	degF
Pressure Units	PSI

Events	Results
30.00 Bc	04h:27m
40.00 Bc	04h:30m
50.00 Bc	04h:33m
70.00 Bc	04h:39m
100.00 Bc	04h:43m
200.00 Bc	NaN
03h:00m	2.58
06h:00m	NaN



Data File O:\HPHT Data Files WRCR\WRCR Consistometer #1\ExxonMobil 95009-1.tdms

Comments TXI, 0.28% Fe-2, 12.001 Den, 2.17 Yld

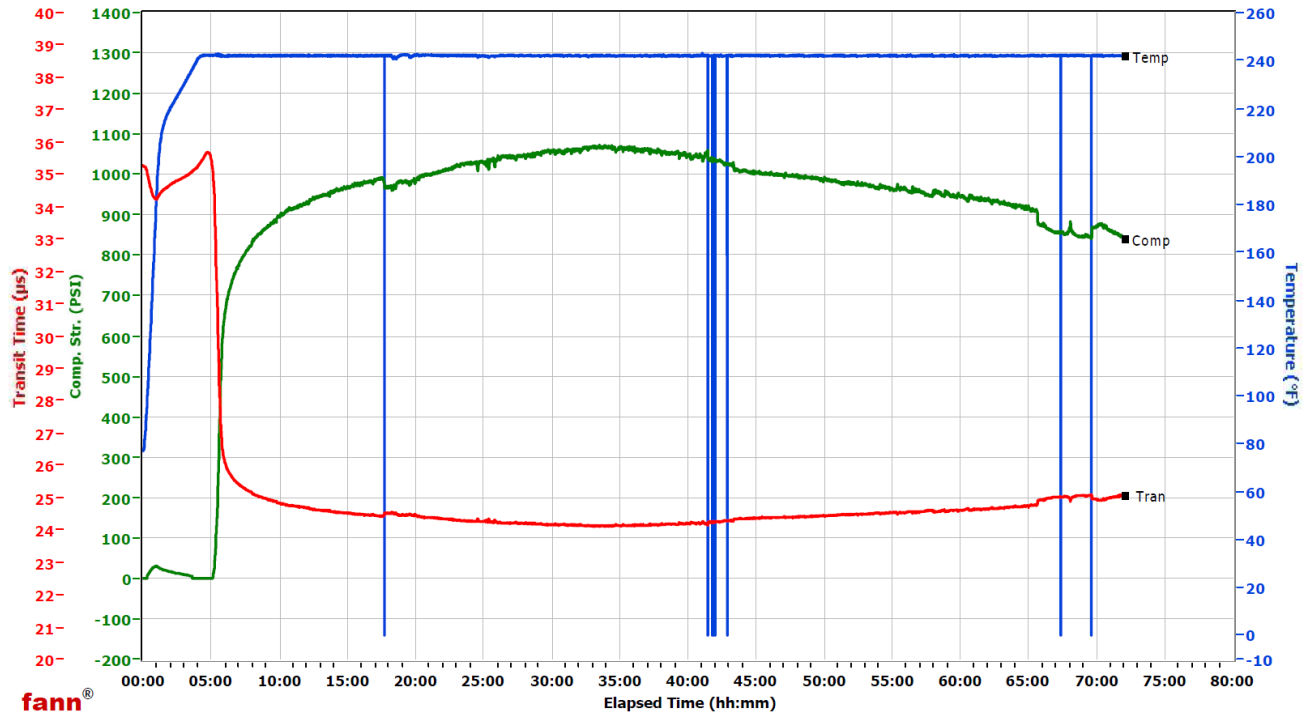
HALLIBURTON

White River City Ranch

Fields	Values
Project Name	ExxonMobil 95009-1
Test ID	95009-1
Request ID	UCA #3
Tested by	JRP
Customer	ExxonMobil
Well No	PCU 197-24A9
Rig	H&P 325
Casing/Liner Size	4.5
Job Type	Production Tail

Fields	Values
Cement Type	TXI
Cement Weight	Light Weight
Comments	TXI 0.28 Fe-2 12.001 Den, 2.17 Yld
Test Date	8/31/2010
Test Time	4:04 PM
Temp. Units	degF
Pressure Units	PSI

Events	Results
50.00 PSI	05h:18m
100.00 PSI	05h:23m
500.00 PSI	05h:44m
1000.00 PSI	47h:12m
12h:00m	927.70
24h:00m	1024.18
48h:00m	996.37
72h:00m	843.16



Data File C:\UCA Data\95009-1.tdms