

EXXONMOBIL CORPORATION
HOUSTON, Texas

PCU 197-36A7

H&P 326

Post Job Summary

Cement Multiple Stages

Date Prepared: October 27, 2010
Version: 1

Service Supervisor: Andrew Ashby
Submitted by: Simukayi Mutasa

HALLIBURTON

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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		
Open Hole Section	Surface Open Hole		14.750		0.00	1,597.00	0.00	1,564.00	75.00	
Open Hole Section	Surface Open Hole		14.750		1,597.00	4,046.00	1,564.00	3,928.00	25.00	
Casing	Surface Casing	10.75	9.950	45.50	0.00	4,046.00	0.00	3,928.00		80.00
Cement Stage Tool	Multiple Stage Cementer		.000		1,597.00	1,597.00				0.00

Pumping Schedule

Stage #	Fluid #	Fluid Type	Fluid Name	Surface Density	Avg Rate bbl/min	Surface Volume
1	1	Spacer	FreshWater Ahead	8.33	6.00	70.0 bbl
1	2	Cement	First Stage Lead Cement	12.70	6.00	770.0 sacks
1	3	Cement	First Stage Tail Cement	15.80	6.00	350.0 sacks
1	4	Spacer	Drilling Fluid / Mud	8.90	6.00	374.0 bbl
2	1	Spacer	Freshwater Ahead	8.33	6.00	50.0 bbl
2	2	Cement	2 nd Stage Lead Cement	12.70	6.00	835.0 sacks
2	3	Spacer	Drilling Fluid / Mud	8.90	6.00	156.7 bbl
2	4	Cement	TOP OUT	15.80	2.00	50.0 sacks

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Fluids Pumped

Stage/Plug # 1 **Fluid 1:** FreshWater Ahead
SPACER

Fluid Density: 8.33 lbm/gal
Fluid Volume: 70.00 bbl
Pump Rate: 6.00 bbl/min

Stage/Plug # 1 **Fluid 2:** First Stage Lead
Cement
ECONOCEM (TM) SYSTEM
0.6 % HR-7
0.25 lbm Poly-E-Flake

Fluid Weight: 12.70 lbm/gal
Slurry Yield: 1.87 ft³/sack
Total Mixing Fluid: 9.89 Gal
Surface Volume: 770.0 sacks
Sacks: 770.0 sacks
Calculated Fill: 2,074.82 ft
Calculated Top of Fluid: 1,597.00 ft
Pump Rate: 6.00 bbl/min

Stage/Plug # 1 **Fluid 3:** First Stage Tail Cement
HALCEM (TM) SYSTEM
0.25 % HR-800
0.25 lbm Poly-E-Flake

Fluid Weight: 15.80 lbm/gal
Slurry Yield: 1.15 ft³/sack
Total Mixing Fluid: 4.95 Gal
Surface Volume: 350.0 sacks
Sacks: 350.0 sacks
Calculated Fill: 516.18 ft
Calculated Top of Fluid: 3,671.82 ft
Pump Rate: 6.00 bbl/min

Stage/Plug # 1 **Fluid 4:** Drilling Fluid / Mud
DISPLACEMENT MUD

Fluid Density: 8.90 lbm/gal
Fluid Volume: 374.00 bbl
Pump Rate: 6.00 bbl/min

Stage/Plug # 2 **Fluid 1:** Freshwater Ahead
SPACER

Fluid Density: 8.33 lbm/gal
Fluid Volume: 50.00 bbl
Pump Rate: 6.00 bbl/min

Stage/Plug # 2 **Fluid 2:** Second Stage Lead
Cement
ECONOCEM (TM) SYSTEM
0.25 lbm Poly-E-Flake

Fluid Weight: 12.70 lbm/gal
Slurry Yield: 1.87 ft³/sack
Total Mixing Fluid: 9.92 Gal
Surface Volume: 835.0 sacks
Sacks: 835.0 sacks
Calculated Fill: 1,597.00 ft
Calculated Top of Fluid: 0.00 ft
Pump Rate: 6.00 bbl/min

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Stage/Plug # 2 Fluid 3: Drilling Fluid / Mud
DISPLACEMENT MUD

Fluid Density: 8.90 lbm/gal
Pump Rate: 6.00 bbl/min

Stage/Plug # 2 Fluid 4: TOP OUT
TOP OUT

94 lbm Premium Cement
2 % Calcium Chloride

Fluid Weight: 15.80 lbm/gal
Slurry Yield: 1.17 ft³/sack
Total Mixing Fluid: 5.02 Gal
Surface Volume: 50.0 sacks
Sacks: 50.0 sacks
Pump Rate: 2.00 bbl/min

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Job Summary

Job Information

Job Start Date	9/30/2010 3:00:00 PM
Job MD	4,046.0 ft
Job TVD	3,928.0 ft
Height of Plug Container/Swage Above Rig Floor	3.0 ft
Mud Type	Water Based Mud
Name of Mud Company	BAROID
Actual Mud Density	9 lbm/gal
Rate at Which Well was Circulated	12.800 bbl/min
Pipe Movement During Hole Circulation	Reciprocated
Time From End Mud Circ. to Job Start	120.00 minute
Pipe Movement During Cementing	Reciprocated
Calculated Displacement	378.50 bbl
Job Displaced by (rig/halco)	Cement Unit HP Pumps
Length of Rat Hole	15.00 ft

Cementing Equipment

Pipe Centralization	Through Entire Cement Column
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	652.4 psig
Brand of Stage Cementing Tools Used	Weatherford GEMOCO
Did Stage Cementing Tool Open Properly?	Yes

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Service Supervisor Reports

Job Log

Date/Time	Chart #	Activity Code	Pump Rate	Cum Vol	Pressure (psig)	Comments
09/29/2010 23:00		Call Out				Called out early for job because of DOT hours. Plug Container #D1237
09/29/2010 23:50		Pre-Convoy Safety Meeting				Met w/cerw to discuss the route, convoy order, and hazards of travel to location
09/30/2010 00:00		Depart from Service Center or Other Site				Entered into Journey Management.
09/30/2010 03:00		Arrive At Loc				Ended Journey Management. Crew running casing - full rack to go.
09/30/2010 08:00		Pre-Rig Up Safety Meeting				Met w/crew to discuss the safety and hazards of rig-up on this location.
09/30/2010 08:05		Rig-Up Equipment				Rig-up Iron to red zone, rig-up water line, product line and mud line.
09/30/2010 10:00		Other				Rig is circulating.
09/30/2010 12:00		Pre-Rig Up Safety Meeting				Met w/crew & Rig crew up in the doghouse to discuss rigging up the standpipe and floor
09/30/2010 13:20		Rig-Up Equipment				Finished rigging up all the iron
09/30/2010 15:00		Other				***** 1ST STAGE *****
09/30/2010 15:00		Pre-Job Safety Meeting				Met w/crew, Co Rep., Rig Crew & Weatherford hands to discuss the job procedure, potential hazards, and safety precautions involved with pumping this job.
09/30/2010 15:37		Other	2.5	3	100.0	Fill Lines
09/30/2010 15:40		Test Lines			310.0	250 psi Low Pressure Test
09/30/2010 15:45		Test Lines			5458.0	5000 psi High Pressure Test
09/30/2010 15:48		Pump Water	7	70	400.0	70 bbl Fresh Water Spacer
09/30/2010 15:59		Pump 1st Stage Lead Slurry	6.5	256.4	471.0	770 sks EconoCem @ 12.7 ppg, 1.88 cuft/sk, 9.98 gps
09/30/2010 16:37		Pump 1st Stage Tail Slurry	3.5	71.7	263.0	350 sks HalCem @ 15.8 ppg, 1.15 cuft/sk, 10.0 gps
09/30/2010 16:56		Shutdown				Shutdown & pump 5 bbls bad cmt to pit
09/30/2010 17:00		Drop Top Plug				Drop plug
09/30/2010 17:05		Pump Displacement - Start				Displacement with a combination of Fresh Water & Mud at different intervals
09/30/2010 17:05		Pump Water	8	20	358.0	Fresh Water to clean Pump
09/30/2010 17:08		Pump Well Fluid	7	190	346.0	9.1 ppg Mud
09/30/2010 17:26		Slow Rate	4		160.0	Slow Rate for plug to pass through DV Tool
09/30/2010 17:31		Other	6		270.0	Increase Rate once plug is past tool
09/30/2010 17:39		Pump Water	6	60	220.0	
09/30/2010 17:49		Pump Well Fluid	6	90	380.0	
09/30/2010 18:04		Pump Water	4	19	697.0	
09/30/2010 18:08		Pump Displacement - End				Final Circulating Pressure = 725 psi
09/30/2010 18:08		Bump Plug			1330.0	373.5 bbls away, Pressure 500 over per Co. Rep & Tool Guy

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Date/Time	Chart #	Activity Code	Pump Rate	Cum Vol	Pressure (psig)	Comments
09/30/2010 18:12		Check Floats				Floats held, got 2 bbls back
09/30/2010 18:18		Drop Opening Device For Multiple Stage Cementer				Wait 20 min before pressuring up per Co. Rep.
09/30/2010 18:41		Pump Well Fluid	1.5	10		Pressure Up on Opening Tool
09/30/2010 18:43		Other	5			Increase Speed - circulate Mud through DV Tool
09/30/2010 18:44		Shutdown				Turn Well back over to the rig to circulate - Wait until second Stage
09/30/2010 21:00		Other				***** 2ND STAGE *****
09/30/2010 21:15		Pre-Job Safety Meeting				Met w/crew, Co Rep., Rig Crew & Weatherford hands to discuss the job procedure, potential hazards, and safety precautions involved with pumping the second stage.
09/30/2010 21:30		Pump Water	5	50	159.0	50 bbls Fresh Water Spacer
09/30/2010 21:40		Pump 2nd Stage Lead Slurry	5	278	288.0	835 sks EconoCem 12.7 ppg, 1.87 cuft/sk, 10.0 gps
09/30/2010 22:31		Shutdown				Shutdown to drop plug
09/30/2010 22:34		Drop Top Plug				
09/30/2010 22:35		Pump Displacement - Start		156.7		Displacement = 20 bbls Water, 120 bbls mud & 16.7 bbls Water
09/30/2010 22:35		Pump Water	6	20	70.0	Wash on top of plug
09/30/2010 22:40		Pump Well Fluid	6	120	209.0	Pump Mud Displacement
09/30/2010 22:51		Slow Rate	5		367.0	Cement Returns to Surface
09/30/2010 22:58		Slow Rate	3		324.0	Slow Rate to allow wellbore to drink while getting cement returns
09/30/2010 23:13		Pump Water	4	16	382.0	Wash out Lines
09/30/2010 23:17		Pump Displacement - End				Final Circulating Pressure = 465 psi
09/30/2010 23:18		Bump Plug			1777.0	Bump 1200 psi over per Tool Guy (Weatherford)
09/30/2010 23:20		Check Floats				Floats held, 1.75 bbls back
09/30/2010 23:22		Bump Plug				Bump Plug again per Tool Guy (Weatherford) - 1800 psi
09/30/2010 23:24		Check Floats				Floats held - 1.5 bbls back
09/30/2010 23:30		Pre-Rig Down Safety Meeting				Met w/crew to discuss rigging down floor and standpipe, rigging up to the cellar, and the hazards involved.
09/30/2010 23:45		Rig-Down Equipment				Rig-down floor, standpipe, and rig-up to the backside in the cellar.
10/01/2010 01:30		Other				***** TOP OUT *****
10/01/2010 01:30		Pre-Job Safety Meeting				Met w/crew, Co. Rep., and rig crew to discuss the job procedure, potential hazards and safety measures.
10/01/2010 01:46		Other				Mix Calcium Chloride 2% in mix water, then mix cement.
10/01/2010 01:51		Pump Cap Cement	1	8	19.0	50 sks G Neat @ 15.8 ppg, 1.17 cuft/sk, 5.02 gps
10/01/2010 02:00		Other	2		30.0	Lost prime, increase rate to re-prime pumps & pump last few bbls away.
10/01/2010 02:03		Shutdown				Finished w/Top Out - Wait to see if we will pump more.
10/01/2010 03:00		End Job				Co. Rep. said we were finished - Rig down & go Home.
10/01/2010 03:05		Post-Job Safety Meeting (Pre Rig-Down)				Met w/crew to discuss rigging down and the hazards involved.
10/01/2010 03:15		Rig-Down Equipment				Rig-down water lines, mud line, product line, and iron.

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Date/Time	Chart #	Activity Code	Pump Rate	Cum Vol	Pressure (psig)	Comments
10/01/2010 04:30		Depart Location Safety Meeting				Met w/crew to discuss fit for duty, DOT hours, convoy, route, and road/traffic & wildlife.
10/01/2010 05:00		Depart Location for Service Center or Other Site				Entered into Journey Management.
10/01/2010 05:00		Other				Thanks for using Halliburton!!!!

The Road to Excellence Starts with Safety

Sold To #: 331699		Ship To #: 2807230		Quote #:		Sales Order #: 7664241	
Customer: EXXONMOBIL CORPORATION				Customer Rep: Kelly, Whitnee			
Well Name: PCU			Well #: 197-36A7			API/UWI #: 05-103-11186-00	
Field: PICEANCE CREEK		City (SAP): MEEKER		County/Parish: Rio Blanco		State: Colorado	
Legal Description: Section 36 Township 1S Range 97W							
Contractor: H&P			Rig/Platform Name/Num: 326				
Job Purpose: Cement Multiple Stages							
Well Type: Development Well			Job Type: Cement Multiple Stages				
Sales Person: TURNER, JAMIE			Srvc Supervisor: ASHBY, ANDREW			MBU ID Emp #: 450544	

Job Personnel

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
ASHBY, ANDREW A		450544	ELDREDGE, VANCE E.		477303	ESTEP, KENNETH		121420
FUCHS, BENJAMIN Reinhard		470584	PACE, GARRET L		475041	SMITH, KC Hyrum		462378

Equipment

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way
10572545	45 mile	10867527	45 mile	10948685	45 mile	10994445	45 mile
11019277	45 mile	11127525	45 mile	11189139	45 mile	11211506	45 mile
6616	45 mile	6647	45 mile	D1237	45 mile	N1981	45 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

Formation Name	Top	Bottom	Called Out	Date	Time	Time Zone
Formation Depth (MD)			On Location	29 - Sep - 2010	23:00	MST
Form Type		BHST	Job Started	30 - Sep - 2010	05:00	MST
Job depth MD	4046. ft	Job Depth TVD	Job Started	30 - Sep - 2010	15:00	MST
Water Depth		Wk Ht Above Floor	Job Completed	01 - Oct - 2010	02:00	MST
Perforation Depth (MD)	From	To	Departed Loc	01 - Oct - 2010	05:00	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
Multiple Stage Cementer	Used			.				1597.	1597.		
Surface Open Hole				14.75				.	1597.	.	1564.
Surface Open Hole				14.75				1597.	4046.	1564.	3928.
Surface Casing	Unknown		10.75	9.95	45.5	BTC	J-55	.	4046.	.	3928.

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			

Summit
Version:

Wednesday, October 27, 2010 15:33:00

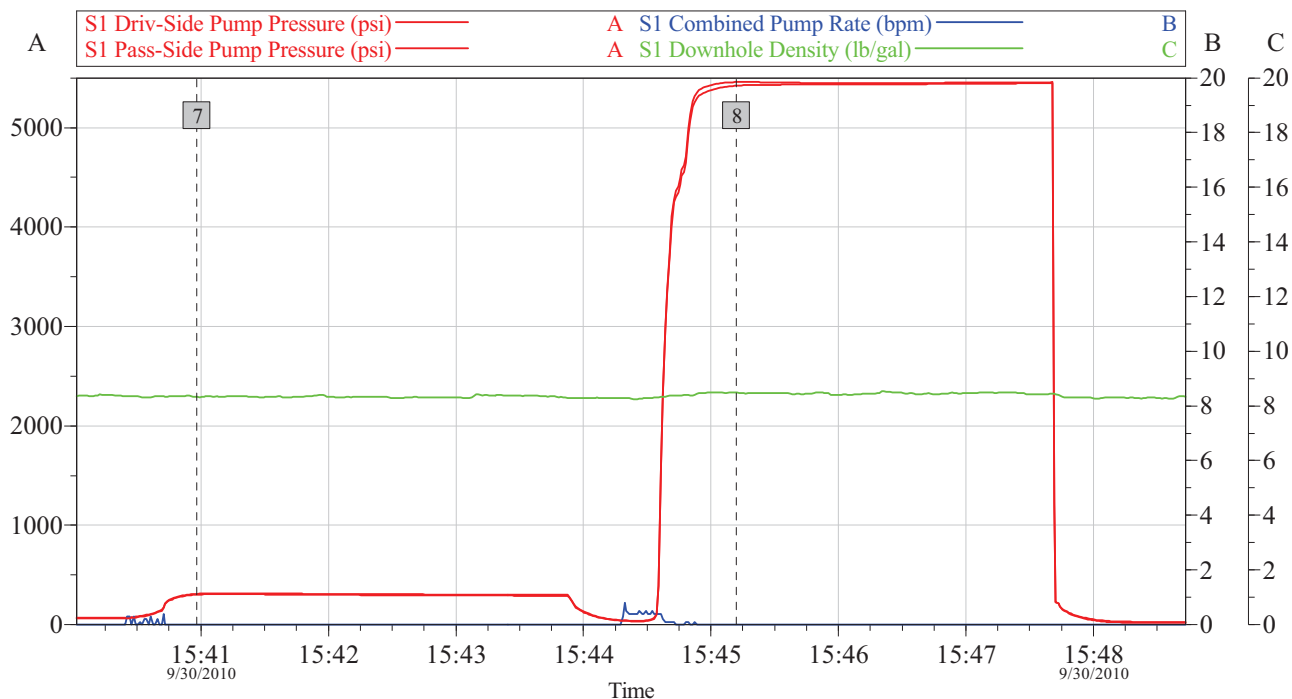
Insert Float										Plug Container			
Stage Tool										Centralizers			
Miscellaneous Materials													
Gelling Agt		Conc		Surfactant		Conc		Acid Type		Qty		Conc	%
Treatment Fld		Conc		Inhibitor		Conc		Sand Type		Size		Qty	
Fluid Data													
Stage/Plug #: 1													
Fluid #	Stage Type	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	FreshWater Ahead				70.00	bbl	8.33	.0	.0	6.0			
2	First Stage Lead Cement	ECONOCEM (TM) SYSTEM (452992)			770.0	sacks	12.7	1.87	9.89	6.0	9.89		
	0.6 %	HR-7 (100005055)											
	0.25 lbm	POLY-E-FLAKE (101216940)											
	9.889 Gal	FRESH WATER											
3	First Stage Tail Cement	HALCEM (TM) SYSTEM (452986)			350.0	sacks	15.8	1.15	4.95	6.0	4.95		
	0.25 %	HR-800, 50 LB SACK (101619742)											
	0.25 lbm	POLY-E-FLAKE (101216940)											
	4.948 Gal	FRESH WATER											
4	Drilling Fluid / Mud				374.00	bbl	8.9	.0	.0	6.0			
Stage/Plug #: 2													
Fluid #	Stage Type	Fluid Name			Qty	Qty uom	Mixing Density uom	Yield uom	Mix Fluid uom	Rate uom	Total Mix Fluid uom		
1	Freshwater Ahead				50.00	bbl	8.33	.0	.0	6.0			
2	Second Stage Lead Cement	ECONOCEM (TM) SYSTEM (452992)			835.0	sacks	12.7	1.87	9.92	6.0	9.92		
	0.25 lbm	POLY-E-FLAKE (101216940)											
	9.915 Gal	FRESH WATER											
3	Drilling Fluid / Mud					bbl	8.9	.0	.0	6.0			
4	TOP OUT	CMT - PREMIUM - CLASS G, 94 LB SK (100003685)			50.0	sacks	15.8	1.17	5.02	2.0	5.02		
	94 lbm	CMT - PREMIUM - CLASS G REG OR TYPE V, BULK (100003685)											
	2 %	CALCIUM CHLORIDE - HI TEST PELLET (100005053)											
	5.019 Gal	FRESH WATER											
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								

HALLIBURTON

Data Acquisition

ExxonMobil - PCU# 197-36A7

Pressure Test



Global Event Log

Intersection	PSI	RATE	Intersection	PSI	RATE
7 Low PSI Test	15:40:58	309.9 0.000	8 High PSI Test	15:45:12	5458 0.000

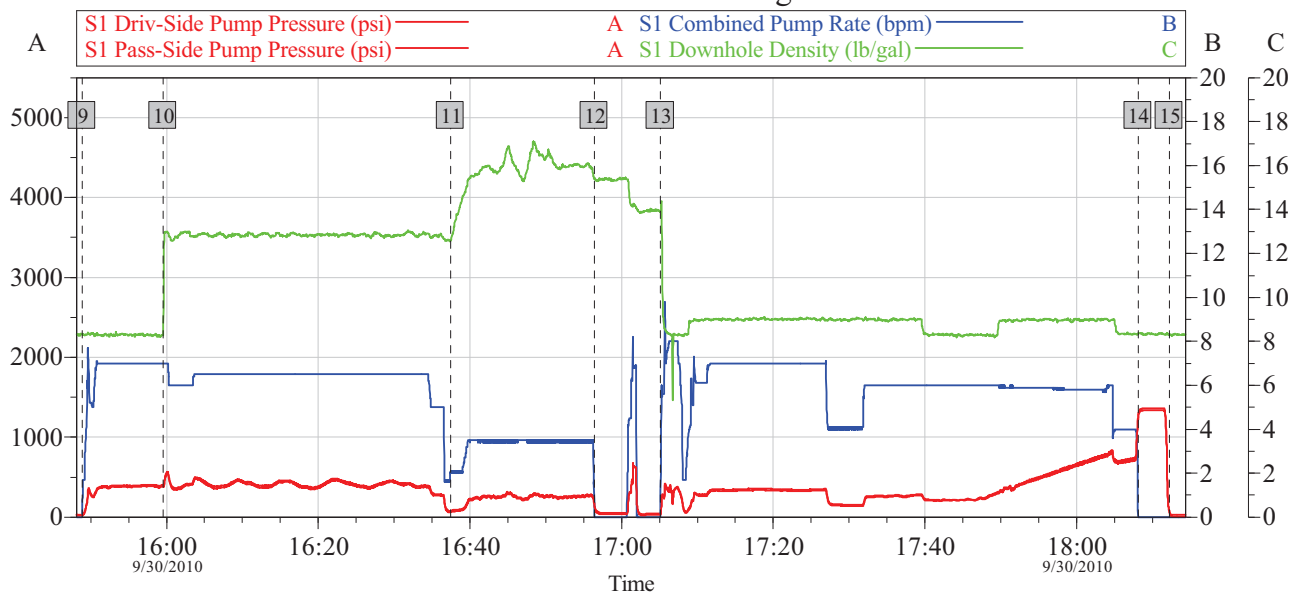
Customer: EXXONMOBIL CORPORATION	Job Date: 30-Sep-2010	Sales Order #: 7664241
Well Description: PCU 197-36A7	UWI: 05-103-11186	

OptiCem v6.4.9
30-Sep-10 19:20

HALLIBURTON

ExxonMobil - PCU# 197-36A7

10.75" Surface - 1st Stage



Global Event Log									
Intersection			PSI	RATE	Intersection			PSI	RATE
9	Pump Water Spacer	15:48:53	26.00	0.477	10	Pump Lead Cement	15:59:33	402.0	7.000
11	Pump Tail Cement	16:37:28	81.11	2.100	12	Shutdown	16:56:25	158.7	0.000
13	Pump Displacement	17:05:08	45.13	0.054	14	Bump Plug	18:08:06	1235	0.193
15	Check Floats	18:12:15	71.90	0.000					

Customer: EXXONMOBIL CORPORATION
Well Description: PCU 197-36A7

Job Date: 30-Sep-2010
UWI: 05-103-11186

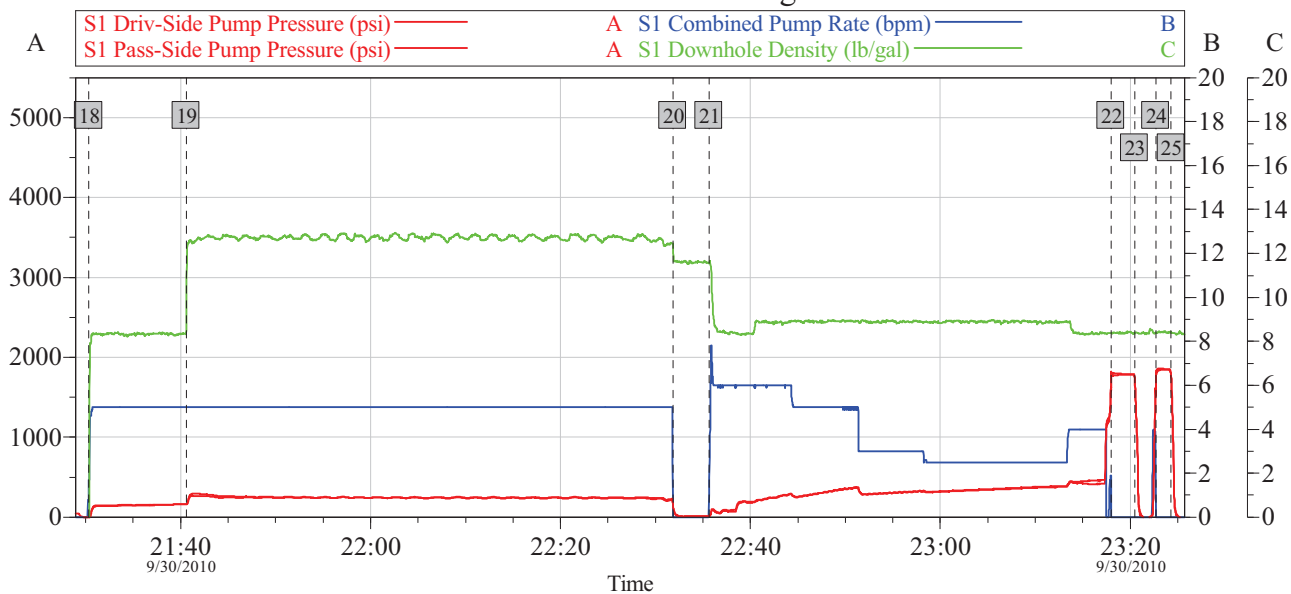
Sales Order #: 7664241

OptiCem v6.4.9
30-Sep-10 19:18

HALLIBURTON

ExxonMobil - PCU# 197-36A7

10.75" Surface - 2nd Stage



Global Event Log									
Intersection			PSI	RATE	Intersection			PSI	RATE
18	Pump Spacer 1	21:30:21	1.000	1.700	19	Pump Lead Cement	21:40:35	159.3	5.000
20	Shutdown	22:31:51	133.8	0.083	21	Pump Displacement	22:35:39	8.083	1.325
22	Bump Plug	23:17:59	1785	0.000	23	Check Floats	23:20:28	1738	0.000
24	Re-Bump Plug	23:22:41	1752	0.000	25	Check Floats	23:24:18	1761	0.000

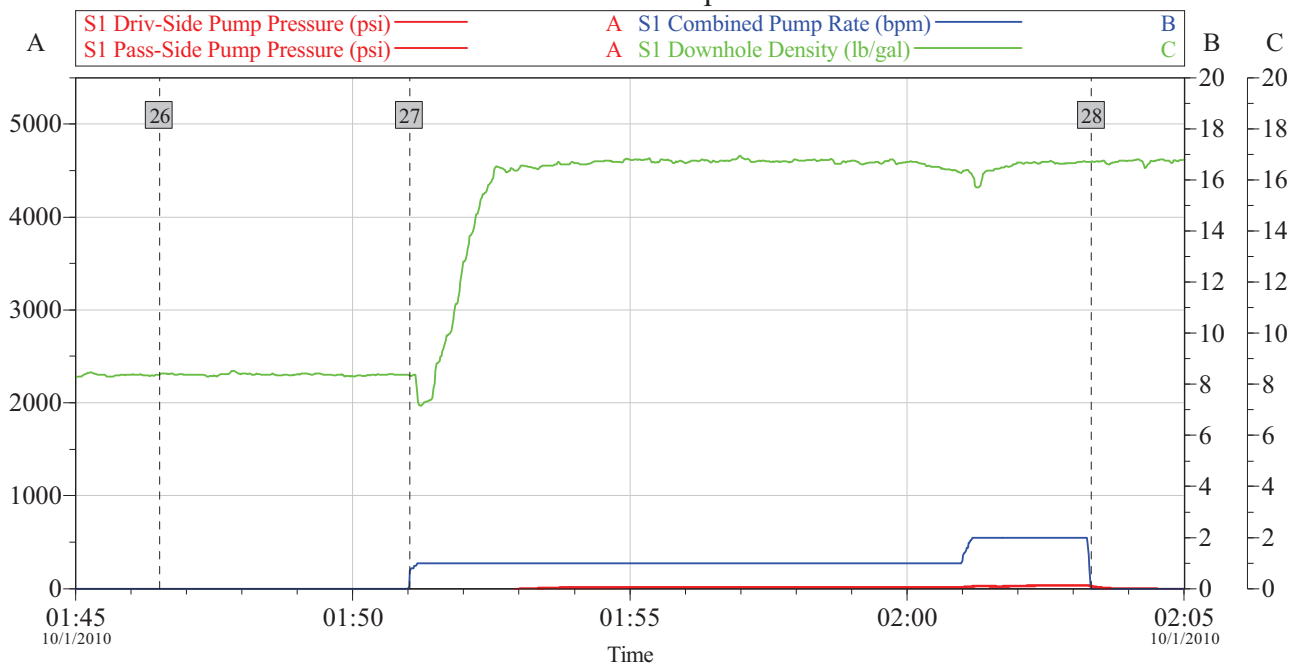
Customer: EXXONMOBIL CORPORATION	Job Date: 30-Sep-2010	Sales Order #: 7664241
Well Description: PCU 197-36A7	UWI: 05-103-11186	

OptiCem v6.4.9
01-Oct-10 00:46

HALLIBURTON

ExxonMobil - PCU# 197-36A7

10.75" Surface - Top Out #1



Global Event Log									
Intersection			PSI	RATE	Intersection			PSI	RATE
26	Mix Cement	01:46:31	-9.000	0.000	27	Pump Cap Cement	01:51:02	-8.000	0.494
28	Shutdown	02:03:20	32.03	0.001					

Customer: EXXONMOBIL CORPORATION	Job Date: 30-Sep-2010	Sales Order #: 7664241
Well Description: PCU 197-36A7	UWI: 05-103-11186	

OptiCem v6.4.9
01-Oct-10 02:25