

EXXONMOBIL CORPORATION
HOUSTON, Texas

PCU 197-36A5 Surface

H&P 326

Post Job Summary

Cement Multiple Stages

Date Prepared: August 19, 2010
Version: 1

Service Supervisor: Jack Moore
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	1,569.00	0.00	1,564.00	75.00	
Open Hole Section	Surface Open Hole		14.750		0.00	3,769.00	0.00	3,764.00	25.00	
Casing	Surface Casing	10.75	9.950	45.50	0.00	3,769.00	0.00	3,764.00		95.26
Cement Stage Tool	Multiple Stage Cementer		.000		1,569.00	1,569.00				0.00

Pumping Schedule

Stage #	Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Avg Rate bbl/min	Surface Volume
1	1	Spacer	FreshWater Ahead	8.33	6.00	50.0 bbl
1	2	Cement Slurry	First Stage Lead Cement	12.70	6.00	740.0 sacks
1	3	Cement Slurry	First Stage Tail Cement	15.80	6.00	350.0 sacks
1	4	Spacer	Drilling Fluid / Mud	8.90	6.00	351.0 bbl
2	1	Spacer	Freshwater Ahead	8.33	6.00	50.0 bbl
2	2	Cement Slurry	Second Stage Lead Cement	12.70	6.00	820.0 sacks
2	3	Spacer	Drilling Fluid / Mud	8.90	6.00	149.0 bbl
2	4	Cement Slurry	Top Out	15.80	2.00	210.0 sacks

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Fluids Pumped

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

Fluid Density: 8.33 lbm/gal
Fluid Volume: 50.00 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: 1.88 ft³/sack
Total Mixing Fluid: 9.96 Gal
Surface Volume: 740.0 sacks
Sacks: 740.0 sacks
Calculated Fill: 1,988.82 ft
Calculated Top of Fluid: 1,569.00 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: 3,557.82 ft
Pump Rate: 6.00 bbl/min

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

Fluid Density: 8.90 lbm/gal
Fluid Volume: 351.00 bbl
Pump Rate: 6.00 bbl/min

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

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: 9.98 Gal
Surface Volume: 820.0 sacks
Sacks: 820.0 sacks
Calculated Fill: 1,569.00 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
Drilling Mud

Fluid Density: 8.90 lbm/gal
Fluid Volume: 149.00 bbl
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: 1.16 ft³/sack
Total Mixing Fluid: 5.01 Gal
Surface Volume: 210.0 sacks
Sacks: 210.0 sacks
Pump Rate: 2.00 bbl/min

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Job Summary

Job Information

Job Start Date	8/7/2010 6:00:00 AM
Job MD	3,769.0 ft
Job TVD	3,764.0 ft
Height of Plug Container/Swage Above Rig Floor	4.0 ft
Mud Type	Water Based Mud
Name of Mud Company	Baroid
Actual Mud Density	9.10 lbm/gal
Pipe Movement During Hole Circulation	Reciprocated
Pipe Movement During Cementing	Reciprocated
Calculated Displacement	150.90 bbl
Amount of Cement Returns	89.00 bbl
Job Displaced by (rig/halco)	Cement Unit HP Pumps
Annular flow Before Job? (Water/Gas)	No
Annular flow After Job? (Water/Gas)	No

Cementing Equipment

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
Brand of Stage Cementing Tools Used	Weatherford
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
08/06/2010 01:09		Depart Yard Safety Meeting				DISCUSSED DRIVING IN EVENING SUN, POSSIBLE CHANGING ROAD AND WEATHER CONDITIONS, POSSIBILITY OF ANIMALS ON THE ROAD AND POSSIBILITY OF HEAVY TRAFFIC IN SOME AREAS
08/06/2010 18:00		Call Out				REQUESTED ON LOCATION @ 0230
08/06/2010 20:00		Crew Leave Yard				
08/07/2010 00:30		Arrive At Loc				RIG RUNNING CASING
08/07/2010 01:00		Assessment Of Location Safety Meeting				IDENTIFIED POSSIBLE HAZARDS INCLUDING STANDING WATER IN SOME AREAS, HIGH NOISE LEVELS IN SOME AREAS, POOR LIGHTING IN SOME AREAS AND UNEVEN WALKING SURFACES
08/07/2010 01:30		Pre-Rig Up Safety Meeting				DISCUSSED HAMMER SAFETY, USE OF EXXON APPROVED GLOVES, RED ZONE, FORKLIFT ACTIVITY, ROUTE OF IRON AND HOSES
08/07/2010 01:45		Rig-Up Equipment				
08/07/2010 01:50		Other				CASING ON BOTTOM, RIG CIRCULATE
08/07/2010 03:00		Rig-Up Completed				RIGGED UP TO BASE OF RIG, WAIT TO LAY DOWN CRT AND PICK UP ELEVATORS AND BAILS TO COMPLETE RIG UP TO RIG FLOOR
08/07/2010 04:40		Other				RIG BREAK DOWN CRT, PICK UP BAILS AND ELEVATORS
08/07/2010 05:30		Rig-Up Equipment				PICK UP STAND PIPE AND FINISH RIG UP ON RIG FLOOR
08/07/2010 06:20		Pre-Job Safety Meeting				
08/07/2010 06:45		Pressure Test			259.0	LOW PRESSURE TEST
08/07/2010 06:50		Pressure Test			5490.0	HIGH PRESSURE TEST
08/07/2010 06:55		Pump Spacer	6	50	320.0	50 BBL FRESH WATER
08/07/2010 07:03		Pump Lead Cement	8	247	739.0	START LEAD CEMENT, 740 SKS ECONOCER WITH 0.6% HR-7, 0.25# POL-E-FLAKE MIXED @ 12.7#/GAL, 1.88 CUFT/SK, 9.96 GAL/SK
08/07/2010 07:36		Pump Tail Cement	5	72	146.0	START TAIL CEMENT, 350 SKS HALCEM WITH 0.25% HR-800, 0.25# POL-E-FLAKE/SK MIXED @ 15.8#/GAL, 1.15 CUFT/SK, 4.95 GAL/SK
08/07/2010 07:52		Pump Cement - End	5		398.0	FINISH CEMENT, SHUT DOWN
08/07/2010 07:55		Other				DROP WIPER PLUG
08/07/2010 07:59		Pump Displacement - Start	8		374.0	START DISPLACEMENT, 20 BBL WATER, 160 BBL MUD, 70 BBL WATER, 101 BBL MUD
08/07/2010 08:18		Other	4		259.0	SLOW RATE THROUGH DV TOOL
08/07/2010 08:23		Other	8		383.0	INCREASE RATE
08/07/2010 08:35		Displ Reached Cmmt	8		496.0	CAUGHT PLUG
08/07/2010 08:46		Other	3.2		585.0	SLOW RATE
08/07/2010 09:16		Other	5.3		513.0	OPEN DV, PUMP 20 BBL MUD
08/07/2010 09:20		Other	5.3		196.0	SHUT DOWN, RIG CIRCULATE

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Date/Time	Chart #	Activity Code	Pump Rate	Cum Vol	Pressure (psig)	Comments
08/07/2010 09:52		Other	3.2		649.0	PRESSURE AND RATE
08/07/2010 09:52		Bump Plug	3.2		1200.0	HOLDING
08/07/2010 09:52		Check Floats				FLOAT HELD, 1.75 BBL BACK
08/07/2010 09:52		Other				DROP DV OPENING PLUG
08/07/2010 11:44		Pre-Job Safety Meeting				
08/07/2010 13:30		Pump Spacer	5.7	50	168.0	50 BBL FRESH WATER SPACER
08/07/2010 13:40		Pump Lead Cement	7		531.0	820 SKS ECONOCEM WITH 0.25# POL-E-FLAKE/SK MIXED @ 12.7#/GAL, 1.87 CUFT/SK, 9.98 GAL/SK
08/07/2010 14:18		Pump Cement - End	7	273	460.0	FINISH CEMENT, SHUT DOWN
08/07/2010 14:20		Other				DROP DV CLOSING PLUG
08/07/2010 14:23		Pump Displacement - Start	7.6		429.0	START DISPLACEMENT, 20 BBL FRESH WATER, 129 BBL DRILLING MUD
08/07/2010 14:28		Displ Reached Cmmt	8		268.0	CAUGHT PLUG
08/07/2010 14:33		Cement Returns to Surface	8		644.0	CEMENT TO SURFACE
08/07/2010 14:42		Other	5		442.0	SLOW RATE
08/07/2010 14:44		Other	5		489.0	PRESSURE AND RATE
08/07/2010 14:44		Bump Plug	5		2187.0	PLUG DOWN, DV CLOSED, CIRCULATED 89 BBL CEMENT
08/07/2010 14:47		Check Floats				DV HELD, 1.75 BBL BACK
08/07/2010 15:59		Other	1.9			START FIRST TOP OUT
08/07/2010 16:06		Other	2			CEMENT CIRCULATED
08/07/2010 16:12		Other	2			FINISH FIRST TOP OUT, MIXED 150 SKS HALCEM WITH 2% CALCIUM CHLORIDE, MIXED @ 15.8#/GAL, 1.16 CUFT/SK, 5.0 GAL/SK
08/07/2010 17:34		Other	2			START SECOND TOP OUT
08/07/2010 17:39		Other	2			FINISH SECOND TOP OUT, MIXED 60 SKS HALCEM WITH 2% CALCIUM CHLORIDE, MIXED @ 15.8#/GAL, 1.16 CUFT/SK, 5.0 GAL/SK, HOLE CIRCULATED AND STOOD FULL
08/07/2010 17:45		Job Complete				MIXED TOTAL OF 210 SKS TOP OUT CEMENT
08/07/2010 18:00		Pre-Rig Down Safety Meeting				
08/07/2010 18:05		Rig-Down Equipment				
08/07/2010 18:45		Rig-Down Completed				
08/07/2010 19:00		Depart Location Safety Meeting				
08/07/2010 19:15		Depart Location for Service Center or Other Site				



Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 331699	Ship To #: 2795936	Quote #:	Sales Order #: 7544328
Customer: EXXONMOBIL CORPORATION		Customer Rep: Kelly, Whitnee	
Well Name: PCU		Well #: 197-36A5	API/UWI #: 05103111840000
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: MOORE, JACK	MBU ID Emp #: 434804

Job Personnel

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
DE OLIVEIRA, GABRIEL Antonio		466988	ELDREDGE, VANCE E.		477303	MCGHIE, SETH Bunker		470775
MOORE, JACK Owen		434804	PARTRIDGE, BRENT W		471227	SPENCER, WESTON Chad		391271

Equipment

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way
10624106	45 mile	10713216	45 mile	10948687	45 mile	10994447	45 mile
11360879	45 mile	11410666	45 mile	11512092	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						Job Times			
Formation Name							Date	Time	Time Zone
Formation Depth (MD)	Top			Bottom		Called Out	06 - Aug - 2010	18:00	MST
Form Type			BHST			On Location	07 - Aug - 2010	00:30	MST
Job depth MD	3769. ft		Job Depth TVD	3764. ft		Job Started	07 - Aug - 2010	06:00	MST
Water Depth			Wk Ht Above Floor	4. ft		Job Completed	07 - Aug - 2010	18:00	MST
Perforation Depth (MD)	From			To		Departed Loc	07 - Aug - 2010	19:15	MST

Well Data

<i>Description</i>	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			.				1569.	1569.		
Surface Open Hole				14.75				.	1569.	.	1564.
Surface Open Hole				14.75				.	3769.	.	3764.
Surface Casing	Unknown		10.75	9.95	45.5	BTC	J-55	.	3769.	.	3764.

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			

Summit
Version:

Thursday, August 19, 2010 11:17:00

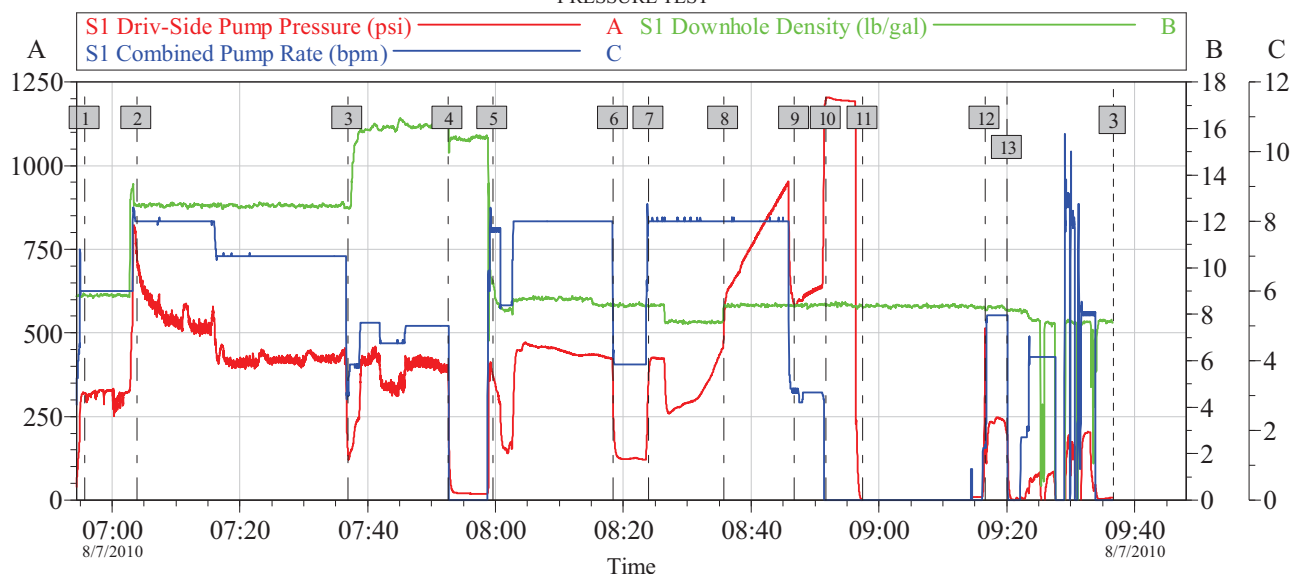
Miscellaneous Materials												
Gelling Agt		Conc		Surfactant		Conc		Acid Type		Qty		Conc %
Treatment Fld		Conc		Inhibitor		Conc		Sand Type		Size		Qty
Fluid Data												
Stage/Plug #: 1												
Fluid #	Stage Type	Fluid Name			Qty	Qty uom	Mixing Density lbm/gal	Yield ft ³ /sk	Mix Fluid Gal/sk	Rate bbl/min	Total Mix Fluid Gal/sk	
1	Fresh Water Ahead				50.00	bbl	8.33	.0	.0	6.0		
2	First Stage Lead Cement	ECONOCEM (TM) SYSTEM (452992)			740.0	sacks	12.7	1.88	9.96	6.0	9.96	
0.6 %		HR-7 (100005055)										
0.25 lbm		POLY-E-FLAKE (101216940)										
9.957 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				351.00	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)			820.0	sacks	12.7	1.87	9.98	6.0	9.98	
0.25 lbm		POLY-E-FLAKE (101216940)										
9.982 Gal		FRESH WATER										
3	Drilling Fluid / Mud				149.00	bbl	8.9	.0	.0	6.0		
4	Top Out	CMT - PREMIUM - CLASS G, 94 LB SK (100003685)			210.0	sacks	15.8	1.16	5.01	2.0	5.01	
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	95.26 ft	Reason	Shoe Joint							
Frac Ring # 1 @		ID		Frac ring # 2 @		ID		Frac Ring # 3 @		ID		Frac Ring # 4 @
The Information Stated Herein Is Correct					Customer Representative Signature							

HALLIBURTON

Data Acquisition

HALLIBURTON

EXXONMOBIL PCU 197-36A5
10 3/4" TWO STAGE SURFACE
PRESSURE TEST



Local Event Log									
Intersection			PSI	RATE	Intersection			PSI	RATE
1	START 50 BBL WATER	06:55:43	320.7	6.000	2	START LEAD CEMENT	07:03:52	739.3	8.000
3	START TAIL CEMENT	07:36:53	146.5	3.037	4	FINISH CEMENT	07:52:34	398.0	5.000
5	START DISPLACEMENT	07:59:33	374.8	7.800	6	SLOW RATE	08:18:25	259.6	4.296
7	INCREASE RATE	08:23:59	383.7	8.000	8	CAUGHT PLUG	08:35:42	496.7	8.000
9	SLOW RATE	08:46:44	585.0	3.188	10	PLUG DOWN	08:51:43	1200	0.000
11	CHECK FLOAT	08:57:28	-1.000	0.000	12	OPEN DV	09:16:37	417.9	1.500
13	SHUT DOWN	09:20:03	196.6	5.300					

Customer: EXXONMOBIL
Well Description: PCU 197-36A5

Job Date: 07-Aug-2010
RIG H&P 326

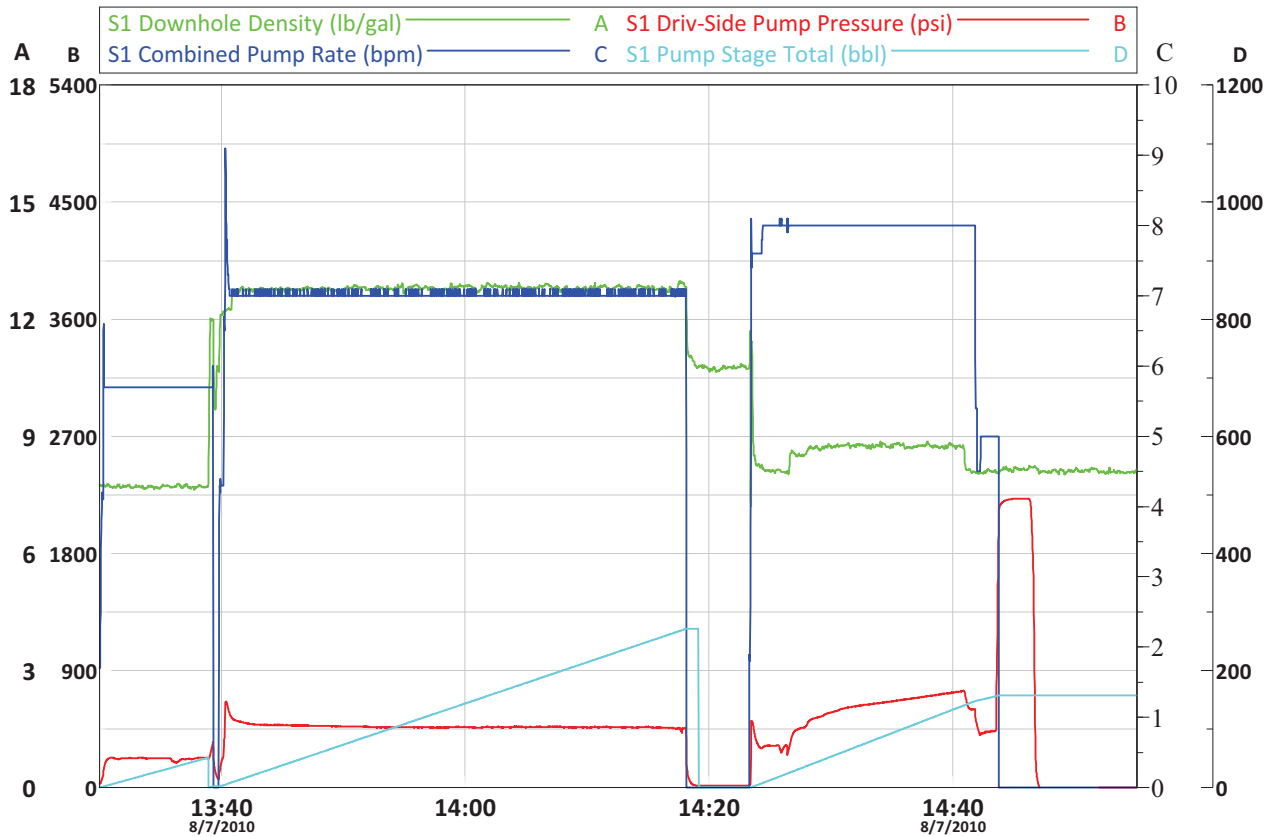
Sales Order #: 7544327

OptiCem v6.4.0
07-Aug-10 09:48

HALLIBURTON

Exxon Mobil

PCU 197-36A5 Surface



Customer: EXXONMOBIL
Well Description: PCU 197-36A5

Job Date: 07-Aug-2010
UWI: 05103111840000

Sales Order #: 7544327
Rig: H&P 326

OptiCem v6.4.9
19-Aug-10 11:16