

**EXXONMOBIL CORPORATION**  
**HOUSTON, Texas**

PCU 296-6A3 Surface

H&P 239

## **Post Job Summary**

# **Cement Multiple Stages**

Date Prepared: October 1, 2010  
Version: 1

Service Supervisor: Cody Davis  
Submitted by: Simukayi Mutasa

**HALLIBURTON**

# HALLIBURTON

## 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	1,591.00	0.00	1,571.00	75.00	
Open Hole Section	Surface Open Hole		14.750		1,591.00	4,403.00	1,571.00	4,329.00	25.00	
Casing	Surface Casing	10.75	9.950	45.50	0.00	4,403.00	0.00	4,329.00		80.00
Cement Stage Tool	Multiple Stage Cementer		.000		0.00	1,591.00				0.00

## Pumping Schedule

Stage #	Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Surface Volume
1	1	Spacer	FreshWater Ahead	8.33	50.0 bbl
1	2	Cement Slurry	First Stage Lead Cement	12.70	850.0 sacks
1	3	Cement Slurry	First Stage Tail Cement	15.80	350.0 sacks
1	4	Spacer	Drilling Fluid / Mud	8.90	405.0 bbl
2	1	Spacer	Freshwater Ahead	8.33	50.0 bbl
2	2	Cement Slurry	Second Stage Lead Cement	12.70	800.0 sacks
2	3	Spacer	Drilling Fluid / Mud	8.90	149.0 bbl

# HALLIBURTON

## Fluids Pumped

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

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: 1.87 ft<sup>3</sup>/sack  
Total Mixing Fluid: 9.89 Gal  
Surface Volume: 850.0 sacks  
Sacks: 850.0 sacks  
Calculated Fill: 2,425.00 ft  
Calculated Top of Fluid: 1,591.00 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 ft<sup>3</sup>/sack  
Total Mixing Fluid: 4.95 Gal  
Surface Volume: 350.0 sacks  
Sacks: 350.0 sacks  
Calculated Fill: 516.00 ft  
Calculated Top of Fluid: 4,016.00 ft  
Pump Rate: 6.00 bbl/min

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

Fluid Density: 8.90 lbm/gal  
Fluid Volume: 405.00 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 ft<sup>3</sup>/sack  
Total Mixing Fluid: 9.92 Gal  
Surface Volume: 800.0 sacks  
Sacks: 800.0 sacks  
Calculated Fill: 1,591.00 ft  
Calculated Top of Fluid: 0.00 ft  
Pump Rate: 6.00 bbl/min

# HALLIBURTON

**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 ft<sup>3</sup>/sack  
Total Mixing Fluid: 5.01 Gal  
Pump Rate: 2.00 bbl/min

# HALLIBURTON

## Job Summary

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### Job Information

<b>Job Start Date</b>	9/25/2010 6:00:00 AM
<b>Job MD</b>	4,403.0 ft
<b>Job TVD</b>	4,329.0 ft
<b>Height of Plug Container/Swage Above Rig Floor</b>	3.0 ft
<b>Surface Temperature at Time of Job</b>	55 degF
<b>Mud Type</b>	Water Based Mud
<b>Actual Mud Density</b>	9 lbm/gal
<b>Time Circulated before job</b>	4.00 hour(s)
<b>Pipe Movement During Hole Circulation</b>	Reciprocated
<b>Time From End Mud Circ. to Job Start</b>	15.00 minute
<b>Pipe Movement During Cementing</b>	Reciprocated
<b>Calculated Displacement</b>	148.80 bbl
<b>Amount of Cement Returns</b>	85.00 bbl
<b>Job Displaced by (rig/halco)</b>	Cement Unit HP Pumps
<b>Annular flow Before Job? (Water/Gas)</b>	Unknown
<b>Annular flow After Job? (Water/Gas)</b>	Unknown

### Cementing Equipment

<b>Pipe Centralization</b>	Through Entire Cement Column
<b>Brand of Float Equipment Used</b>	Weatherford
<b>Did Float Equipment Hold?</b>	Yes
<b>Plug set used?</b>	Yes
<b>Brand of Plug set used?</b>	Weatherford
<b>Did Plugs Bump?</b>	Yes
<b>Calculated Pressure to Bump Plugs</b>	400.0 psig
<b>Brand of Stage Cementing Tools Used</b>	Weatherford
<b>Did Stage Cementing Tool Open Properly?</b>	Yes

# HALLIBURTON

## Service Supervisor Reports

### Job Log

Date/Time	Chart #	Activity Code	Pump Rate	Cum Vol	Pressure (psig)	Comments
09/24/2010 04:35		Safety Meeting - Pre Rig-Up				PICH POINTS RED ZONES LINE OF FIRE
09/24/2010 04:45		Rig-Up Equipment				
09/24/2010 05:15		Rig-Up Completed				
09/24/2010 14:00		Call Out				
09/24/2010 17:00		Depart Yard Safety Meeting				JOURNEY MANAGMENT
09/24/2010 17:30		Crew Leave Yard				
09/24/2010 20:30		Arrive at Location from Service Center				RIG RUNNING CASING
09/24/2010 20:35		Safety Meeting - Assessment of Location				OVER HEAD LINES RED ZONES
09/24/2010 20:45		Other				MEET W/ CO MAN AND GO OVER NUMBERS
09/24/2010 20:55		Other				SPOT TRUCKS USING TWO SPOTTERS
09/24/2010 21:00		Safety Meeting - Pre Rig-Up				PINCH POINTS RED ZONES LINE OF FIRE
09/24/2010 21:05		Rig-Up Equipment				
09/24/2010 22:30		Rig-Up Completed				
09/24/2010 22:45		Other				WAIT ON RIG TO RUN CASING
09/25/2010 06:00		Safety Meeting - Pre Job				GO OVER JOG PROCESS
09/25/2010 06:20		Pump Water				2BBLS TO FILL LINES
09/25/2010 06:25		Pressure Test			5000.0	250PSI AND TO 5000PSI
09/25/2010 06:30		Pump Water	5		246.0	50BBLS
09/25/2010 06:49		Pump Lead Cement	7		460.0	PUMP 283.1BBLS 12.7# 1.87YIELD 9.89GAL/SK 850SKS
09/25/2010 07:30		Pump Tail Cement	5		300.0	PUMP 71.1BBLS 15.8# 1.15YIELD 4.95GA/SK 350SKS
09/25/2010 07:43		Shutdown				
09/25/2010 07:49		Drop Top Plug				
09/25/2010 07:51		Pump Displacement - Start	7		370.0	PUMP 413.4BBLS MUD DISPLACEMENT
09/25/2010 08:12		Slow Rate	3		124.0	SLOW TO GO THROUGH TOOL 140-160BBLS GONE
09/25/2010 08:19		Other	6		255.0	UP RATE 160BBLS GONE
09/25/2010 08:56		Slow Rate	4		694.0	380BBLS GONE
09/25/2010 09:00		Slow Rate	2		700.0	400BBLS GONE
09/25/2010 09:02		Bump Plug	2		740.0	TOTAL DISPLACEMENT 405BBLS PRESSURE OVER 500 TO 1200PSI
09/25/2010 09:11		Check Floats				2.5BBLS BACK
09/25/2010 09:18		Other				DROP BOMB AND WAIT 10MINS

# HALLIBURTON

Date/Time	Chart #	Activity Code	Pump Rate	Cum Vol	Pressure (psig)	Comments
09/25/2010 09:29		Other	2		640.0	OPEN TOOL AT 640PSI CIRCULATE 20BBLS MUD AND TURN OVER TO RIG AND WAIT 4-6HOURS
09/25/2010 13:00		Safety Meeting - Pre Job				GO OVER JOB PROCESS
09/25/2010 13:08		Pump Water	5		160.0	50BBLS H2O
09/25/2010 13:18		Pump Cement	6		368.0	266.4BBLS 12.7# 1.87YIELD 9.89GAL/SK 800SKS
09/25/2010 13:55		Shutdown				
09/25/2010 13:56		Clean Lines				
09/25/2010 14:01		Drop Top Plug				
09/25/2010 14:03		Pump Displacement - Start	7		222.0	PUMP MUD DISPLACEMENT
09/25/2010 14:13		Slow Rate	5		370.0	60BBLS GONE
09/25/2010 14:15		Cement Returns to Surface	5		365.0	70BBLS GONE
09/25/2010 14:27		Slow Rate	4.5		560.0	130BBLS GONE
09/25/2010 14:31		Bump Plug	4.5		400.0	PRESSURE OVER TO 1900PSI
09/25/2010 14:31		Other				TOOL CLOSES
09/25/2010 14:35		Check Floats				2BBLS BACK
09/25/2010 14:45		Safety Meeting - Pre Rig-Down				PINCH POINTS RED ZONES LINE OF FIRE
09/25/2010 14:55		Rig-Down Equipment				
09/25/2010 16:30		Rig-Down Completed				
09/25/2010 16:40		Safety Meeting - Departing Location				JOURNEY MANAGMENT
09/25/2010 16:45		Depart Location for Service Center or Other Site				

*The Road to Excellence Starts with Safety*

<b>Sold To #:</b> 331699	<b>Ship To #:</b> 2791690	<b>Quote #:</b>	<b>Sales Order #:</b> 7652659
<b>Customer:</b> EXXONMOBIL CORPORATION		<b>Customer Rep:</b> Naranjo, German	
<b>Well Name:</b> PCU		<b>Well #:</b> 296-6A3	<b>API/UWI #:</b> 05-103-11481
<b>Field:</b> PICEANCE CREEK	<b>City (SAP):</b> MEEKER	<b>County/Parish:</b> Rio Blanco	<b>State:</b> Colorado
<b>Legal Description:</b> Section 6 Township 2S Range 96W			
<b>Contractor:</b> H&P		<b>Rig/Platform Name/Num:</b> H&P239	
<b>Job Purpose:</b> Cement Multiple Stages			
<b>Well Type:</b> Development Well		<b>Job Type:</b> Cement Multiple Stages	
<b>Sales Person:</b> TURNER, JAMIE		<b>Srvc Supervisor:</b> DAVIS, CODY	<b>MBU ID Emp #:</b> 446891

**Job Personnel**

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
DAVIS, CODY R		446891	MCKEE, SCOTT Burt		470316	SHIFLETT, JESSE Amos		469551
SPENCER, WESTON Chad		391271	WILLIAMS, CAMERON Kent		438405			

**Equipment**

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
<b>TOTAL</b>			<i>Total is the sum of each column separately</i>					

**Job**

**Job Times**

Formation Name	Top	Bottom	Called Out	Date	Time	Time Zone
Formation Depth (MD)			On Location	24 - Sep - 2010	14:00	MST
Form Type		BHST	Job Started	24 - Sep - 2010	20:30	MST
Job depth MD	4403. ft	Job Depth TVD	Job Completed	25 - Sep - 2010	06:00	MST
Water Depth		Wk Ht Above Floor	Job Completed	25 - Sep - 2010	14:35	MST
Perforation Depth (MD)	From	To	Departed Loc	25 - Sep - 2010	16:45	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			.				.	1591.		
Surface Open Hole				14.75				.	1591.	.	1571.
Surface Open Hole				14.75				1591.	4403.	1571.	4329.
Surface Casing	Unknown		10.75	9.95	45.5	BTC	J-55	.	4403.	.	4329.

**Tools and Accessories**

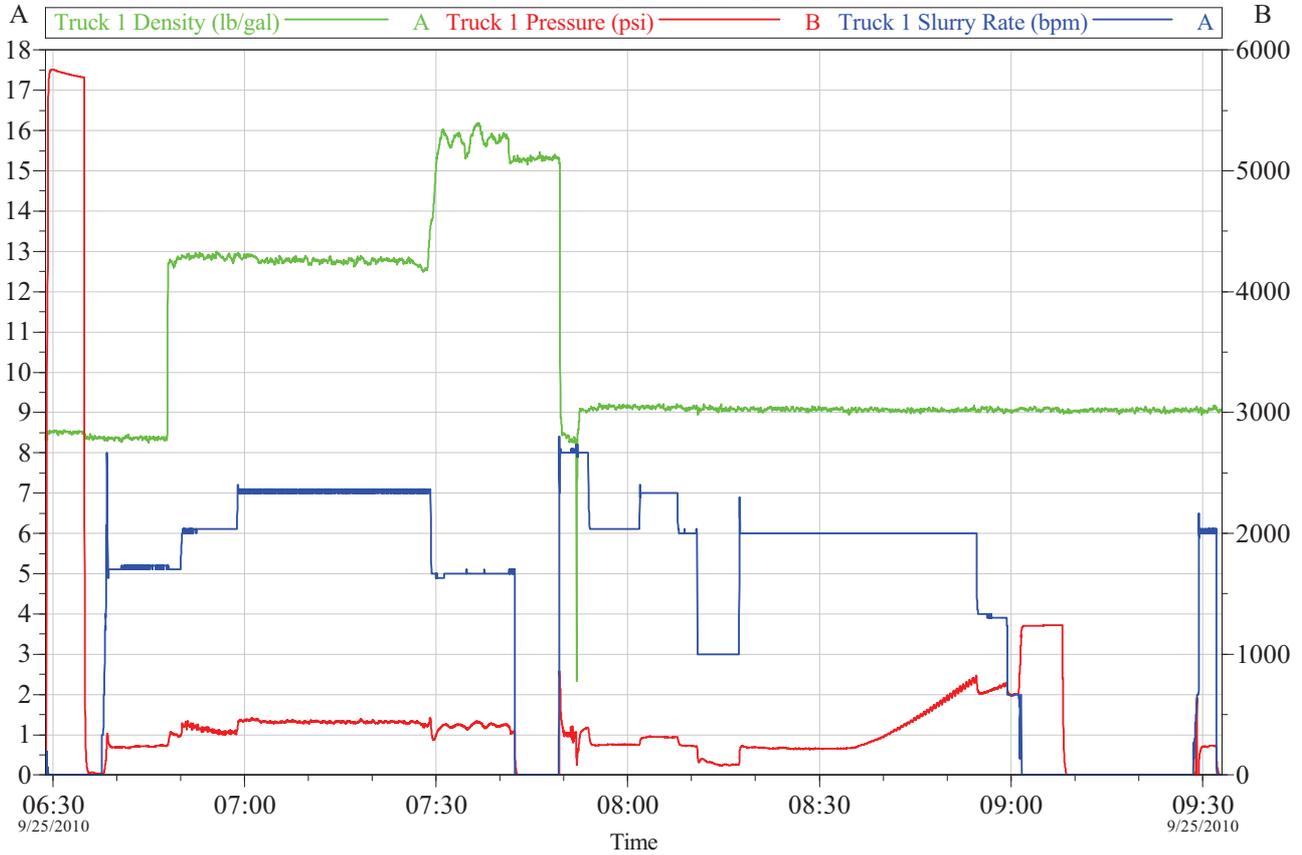
Type	Size	Qty	Make	Depth	Type	Size	Qty	Make	Depth	Type	Size	Qty	Make
Guide Shoe					Packer					Top Plug			
Float Shoe					Bridge Plug					Bottom Plug			
Float Collar					Retainer					SSR plug set			
Insert Float										Plug Container			
Stage Tool										Centralizers			

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 ft3/sk	Mix Fluid Gal/sk	Rate bbl/min	Total Mix Fluid Gal/sk			
1	FreshWater Ahead				50.00	bbl	8.33	.0	.0	6.0				
2	First Stage Lead Cement	ECONOCEM (TM) SYSTEM (452992)			850.0	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				405.00	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)			800.0	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				149.00	bbl	8.9	.0	.0	6.0				
4	Top Out	CMT - PREMIUM - CLASS G, 94 LB SK (100003685)				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 PELLETT (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					<b>Customer Representative Signature</b>									

# HALLIBURTON

## Data Acquisition

EXXON 239 10.75 SUREFACE  
WELL PCU 296-6A3



Customer: EXXONMOBIL CORPORATION	Job Date: 24-Sep-2010	Sales Order #: 7652651
Well Description: PCU 296-6A3	UWI: 05-103-11481	

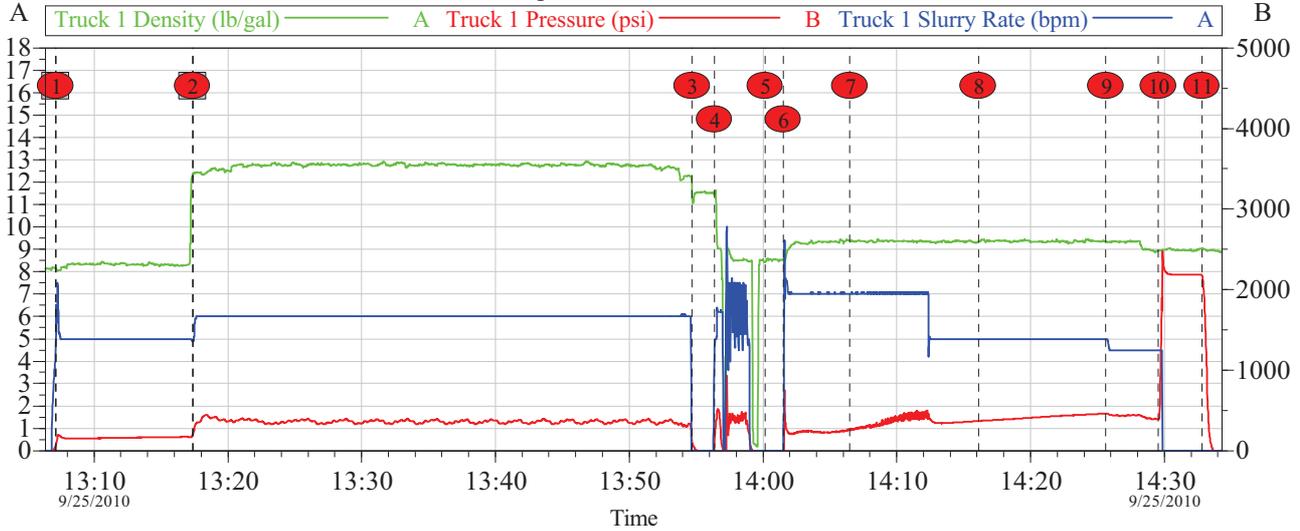
OptiCem v6.4.8  
25-Sep-10 09:54

# HALLIBURTON

*ExxonMobil PCU 296-6A3*

*10.75 Two Stage Surface*

*September 25th, 2010*



### Local Event Log

1 Pump 50 bbls of Fresh Water Spacer	13:07:08	2 Pump 246 bbls of Cement @ 12.7 ppg	13:17:21
3 Shutdown	13:54:41	4 Clean Lines	13:56:22
5 Drop Top Plug	14:00:09	6 Pump 148 bbls of Displacement	14:01:31
7 Displacement Reached Cement	14:06:30	8 Cement Returns to Surface	14:16:06
9 Slow Rate to Land Closing Plug	14:25:38	10 Land Plug and Close Tool	14:29:33
11 Bleed Pressure off to Check that Tool is Closed	14:32:48		

Customer: EXXONMOBIL CORPORATION  
Well Description: PCU 296-6A3

Job Date: 25-Sep-2010  
UWI: 05-103-11481

Sales Order #: 7652651

OptiCem v6.4.8  
25-Sep-10 15:11