

EXXONMOBIL CORPORATION

HOUSTON, Texas

**Well: PCU 296-6A5 (Production)**

**Rig: H&P-239**

## **Post Job Summary**

# **Cement Production Casing**

Prepared for: Jamie Turner

Date Prepared: 8/9/10

Version: 1

Service Supervisor: Ben Anderson

Submitted by: Kyle King

# 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		
Casing	Intermediate Casing	7.00	6.276	26.00	0.0	9,553.0	0.0	9,441.0		
Open Hole	Production Open Hole		6.125		9,553.0	13,749.0	9,441.0	13,637.0	350.00	
Casing	Production Casing	4.50	3.826	15.10	0.0	13,722.0	0.0	13,610.0		88.91

## Pumping Schedule

Fluid #	Fluid Type	Fluid Name	Density lbm/gal	Avg Rate bbl/min	Volume
1	Spacer	Tuned Spacer III	11.00	3.0	40.0 bbl
2	Cement	Primary Cement (Varicem)	12.00	6.0	965.0 sacks
3	Displacement	2% NaCl Water	8.47	6.0	188.5 bbl

# HALLIBURTON

## ***Fluids Pumped***

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	<b>Fluid 1:</b>	Tuned Spacer III		
117.6	Barite		Fluid Density:	11.00 lbm/gal
lbm/bbl			Fluid Volume:	40.00 bbl
			Pump Rate:	3.00 bbl/min
	<b>Fluid 2:</b>	Primary Cement (Varicem)		
0.25 %	Fe-2		Fluid Weight:	12.00 lbm/gal
			Slurry Yield:	2.17 ft <sup>3</sup> /sack
			Total Mixing Fluid:	11.95 Gal
			Volume:	965.0 sacks
			Recorded Volume:	368 bbl
			Calculated Top of Fluid:	6,874.00 ft
			Pump Rate:	6.00 bbl/min
	<b>Fluid 3:</b>	2% NaCl Displacement		
7.15 lbm/bbl	Salt		Fluid Density:	8.47 lbm/gal
			Fluid Volume:	188.5 bbl
			Pump Rate:	6.00 bbl/min

# HALLIBURTON

## Job Summary

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### Job Information

Job Start Date	8/7/2010 4:05:00 PM
Job MD	13,722.0 ft
Job TVD	13,610.0 ft
Height of Plug Container/Swage Above Rig Floor	5.0 ft
Surface Temperature at Time of Job	65 degF
Mud Type	Water Based Mud
Mud Density	9.9 lbm/gal
Mud PV	13 cp
Mud YP	21 lb/100 sqft
Gels	6/12/15
Time Circulated before job	1.00 hour(s)
Mud Volume Circulated	270.00 bbl
Rate at Which Well was Circulated	4.500 bbl/min
Mud loss while Circulating	97.00 bbl
Units of Gas Detected While Circulating	1700 API Gas Units
Pipe Movement During Hole Circulation	Reciprocated
Time From End Mud Circ. to Job Start	25.00 minute
Mud loss during Cement Job	440.00 bbl
Pipe Movement During Cementing	Reciprocated
Calculated Displacement	194.00 bbl
Recorded Displacement	188.5 bbl
Bump Plug	1850.0 psi
Job Displaced by (rig/halco)	Cement Unit HP Pumps
Length of Rat Hole	27.00 ft

### Cementing Equipment

Number of Centralizers Used	164
Pipe Centralization	Through Entire Cement Column
Did Float Equipment Hold?	No
Plug set used?	Yes
Brand of Plug set used?	Weatherford
Did Plugs Bump?	Yes
Calculated Pressure to Bump Plugs	1,960.0 psig

# HALLIBURTON

## Service Supervisor Reports

### Job Log

Date/Time	Chart #	Activity Code	Pump Rate	Volume	Pressure (psig)	Comments
08/07/2010 04:30		Call Out				Crew Called Out, Prepped Trucks For Convoy and Job
08/07/2010 05:20		Pre-Convoy Safety Meeting				Discussed Convoy Procedures, Route, Road Hazards, Wildlife, Traffic, Emergency, and Breakdown Procedures
08/07/2010 06:30		Arrive At Loc				Rig Running Casing
08/07/2010 10:00		Other				Rig is done with casing and is now circulating
08/07/2010 12:00		Other				Rig Down Casing Crew
08/07/2010 14:12		Rig-Up Equipment				Stab Cement Head and Rig Floor up
08/07/2010 15:30		Circulate Well				Rig Circulating through cement head, 4.5 bpm, 720 psi, 1700 gas units
08/07/2010 16:05		Pre-Job Safety Meeting				With halliburton and Rig Crew and Company Man
08/07/2010 16:20		Start Job				Fill Lines
08/07/2010 16:25	3,4,5,6	Pressure Test				250 psi/ 5000 psi, both test were good
08/07/2010 16:43	7	Pump Spacer	3	33	400.0	DEN 11.0# Design 40 bbl Recorded 33 bbl, yld 6.81, wtr 44.66
08/07/2010 16:58	8	Drop Bottom Plug				
08/07/2010 16:59	9	Pump Cement	6	368	425.0	DEN 12.0#, YLD 2.17 cuft/sk, WR 11.95 gal/sk Design (Slurry Volume 373 bbl , Mix Water Volume 275 bbl) Recorded (Slurry Volume 368 bbl, Mix Water Volume 256 bbl)***Recorded Slurry Volume taken from Belly MagMeter
08/07/2010 18:06	10	Clean Lines				Washed Pumps and Lines to Pit
08/07/2010 18:14	11	Pump Displacement	6	188.5	1900.0	2% NaCl Water 7.15 lb/bbl, Design 194 bbl Recorded 188.5 bbl
08/07/2010 18:14	12	Drop Top Plug				

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Date/Time	Chart #	Activity Code	Pump Rate	Volume	Pressure (psig)		Comments
08/07/2010 18:40		Slow Rate	5	165			Slow to 5 bpm with 165 bbl away into displacement
08/07/2010 18:43		Slow Rate	3	180			Slow to 3 bpm with 180 bbl away into displacement
08/07/2010 18:46	13	Bump Plug	3	188.5		1850.0	Design 1960 psi Recorded 1850 psi
08/07/2010 18:51	14	Check Floats					Pressure up to 2700 psi, hold for 5 minutes. Floats Hold, 2 bbl Flow Back
08/07/2010 18:54		End Job					discussed job outcome with crew and customer
08/07/2010 19:00		Pre-Rig Down Safety Meeting					Discussed rig down procedures, safety issues, pinch points, lifting techniques, slips/trips/falls
08/07/2010 19:30		Other					Started to have some flow back after iron was rigged down off of the cement head, left cement head on pipe and rig rigged up their lines to monitor for 2 or 3 hours
08/07/2010 22:50		Pre-Convoy Safety Meeting					Discussed Convoy Procedures, Route, Road Hazards, Wildlife, Traffic, Emergency, and Breakdown Procedures
08/07/2010 23:00		Depart Location for Service Center or Other Site					Thanks For Using Halliburton!!!

**The Road to Excellence Starts with Safety**

<b>Sold To #:</b> 331699	<b>Ship To #:</b> 2792491	<b>Quote #:</b>	<b>Sales Order #:</b> 7540827
<b>Customer:</b> EXXONMOBIL CORPORATION		<b>Customer Rep:</b> Naranjo, German	
<b>Well Name:</b> PCU		<b>Well #:</b> 296-6A5	<b>API/UWI #:</b> 05-103-11478
<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> 239	
<b>Job Purpose:</b> Cement Production Casing			
<b>Well Type:</b> Development Well		<b>Job Type:</b> Cement Production Casing	
<b>Sales Person:</b> TURNER, JAMIE		<b>Srvc Supervisor:</b> ANDERSON, BENJAMIN	<b>MBU ID Emp #:</b> 342843

**Job Personnel**

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
ANDERSON, BENJAMIN L	18.5	342843	KING, KYLE Endres	18.5	465538	MCCONKIE, TRAVIS Terry	18.5	471264
PACE, GARRET L	18.5	475041	SARVER, ZACHARY S	18.5	219539	SPENCER, WESTON Chad	18.5	391271
TEICHERT, RONDO Chad	18.5	476071						

**Equipment**

HES Unit #	Distance-1 way						
10948690	45 mile	10982756	45 mile	11062230	45 mile	11076824	45 mile
11211506	45 mile						

**Job Hours**

Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours
8/7/10	16.5	2.5	-	-	-	-	-	-
<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	
<b>Formation Depth (MD)</b>			<b>On Location</b>	07 - Aug - 2010	04:30	MST	
<b>Form Type</b>		BHST	<b>Job Started</b>	07 - Aug - 2010	06:30	MST	
<b>Job depth MD</b>	13722. ft	<b>Job Depth TVD</b>	13610. ft	<b>Job Completed</b>	07 - Aug - 2010	18:54	MST
<b>Water Depth</b>		<b>Wk Ht Above Floor</b>	5. ft	<b>Departed Loc</b>	07 - Aug - 2010	23:00	MST
<b>Perforation Depth (MD)</b>	<i>From</i>	<i>To</i>					

**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				9553.	13749	9441	13637
Intermediate Casing	Unknown		7.	6.276	26.	HYDRIL - SERIES 500 TYPE 513	P-110	0	9553	0	9441
Production Casing	Unknown		4.5	3.826	15.1	LTC	P-110	0	13722	0	13610

**Fluid Data**

<b>Stage/Plug #: 1</b>									
Fluid #	Stage Type	Fluid Name	Qty	Qty uom	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sk	Mix Fluid Gal/sk	Rate bbl/min	Total Mix Fluid bbl
<b>1</b>	<b>SPACER</b>	<b>TUNED SPACER III - SBM (483826)</b>	<b>40.00</b>	<b>bbbl</b>	<b>11.0</b>	<b>6.81</b>	<b>44.66</b>	<b>3.0</b>	
	36.83 gal/bbl	FRESH WATER							
	117.6 lbm/bbl	BARITE, 100 LB SK (100003680)							
<b>2</b>	<b>Primary Cement</b>	<b>VARICEM (TM) CEMENT (452009)</b>	<b>965.0</b>	<b>sacks</b>	<b>12.0</b>	<b>2.17</b>	<b>11.95</b>	<b>6.0</b>	<b>275</b>
	12.124 Gal	FRESH WATER							
	0.25 %	FE-2 (100001615)							
<b>3</b>	<b>Displacement</b>	<b>2% NaCl Water</b>	<b>188.5</b>	<b>bbbl</b>	<b>8.47</b>			<b>6.0</b>	
	7.15 lbm/bbl	SALT, 100 LB BAG (100003652)							

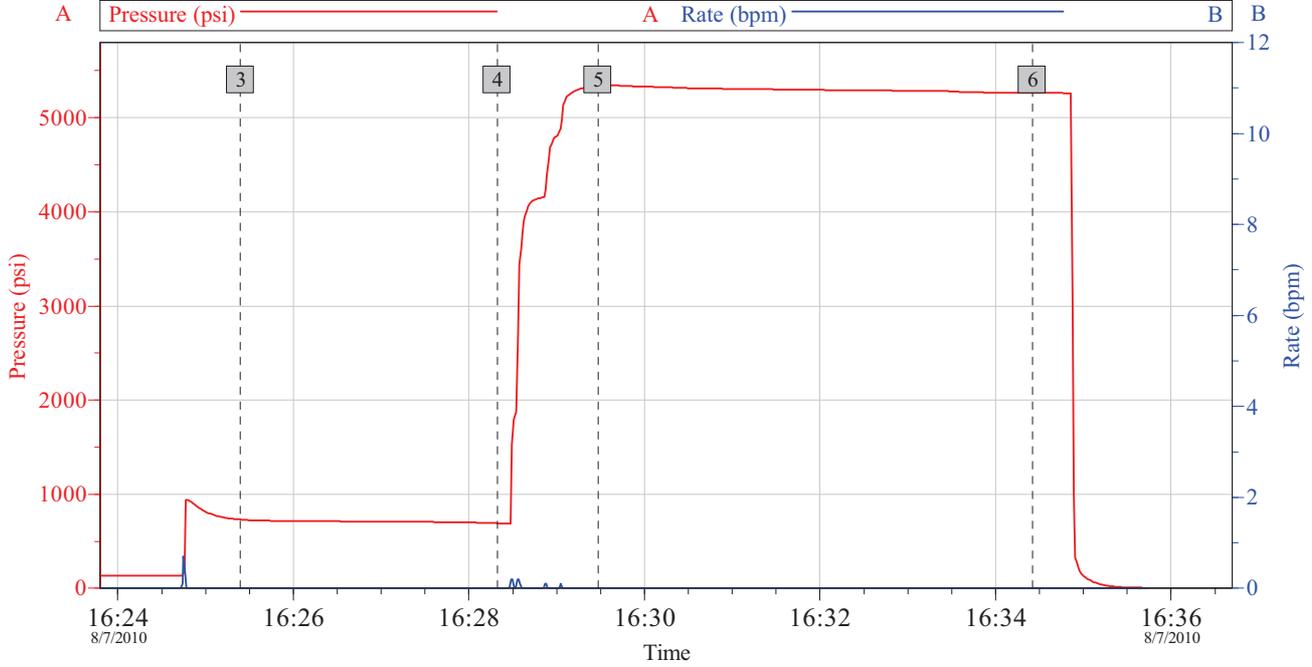
<i>The Information Stated Herein Is Correct</i>	<b>Customer Representative Signature</b>
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# HALLIBURTON

## Data Acquisition

### PCU 296-6A5 Production

#### Pressure Test



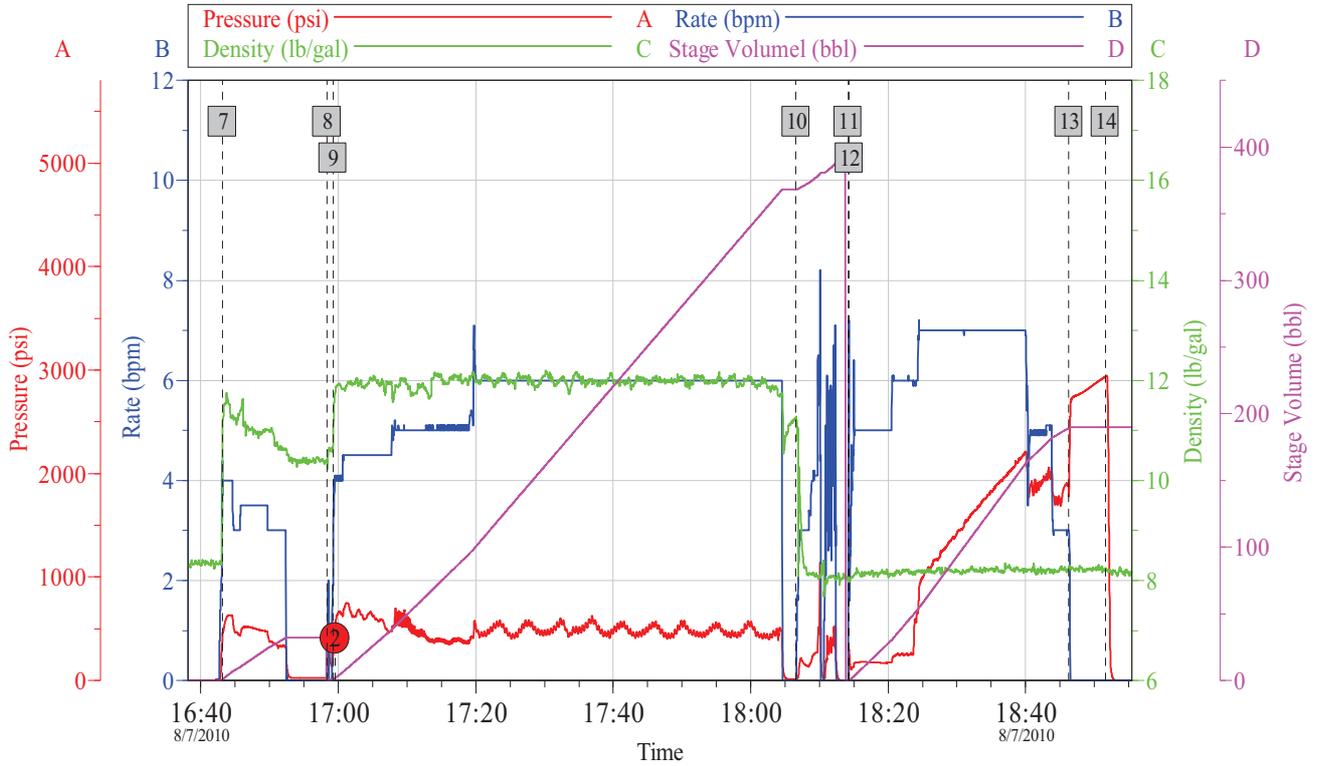
Job Log			
Intersection	psi	Intersection	psi
3 Start Low Pressure Test	16:25:24 730.7	4 End Low Pressure Test	16:28:19 691.2
5 Start High Pressure Test	16:29:28 5338	6 End High Pressure Test	16:34:25 5265

Customer: EXXONMOBIL CORPORATION	Job Date: 07-Aug-2010	Sales Order #: 7540827
Well Description: PCU 296-6A5	UWI: 05-103-11478	Rig: H&P 239

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07-Aug-10 16:35

# HALLIBURTON

## PCU 296-6A5 Production



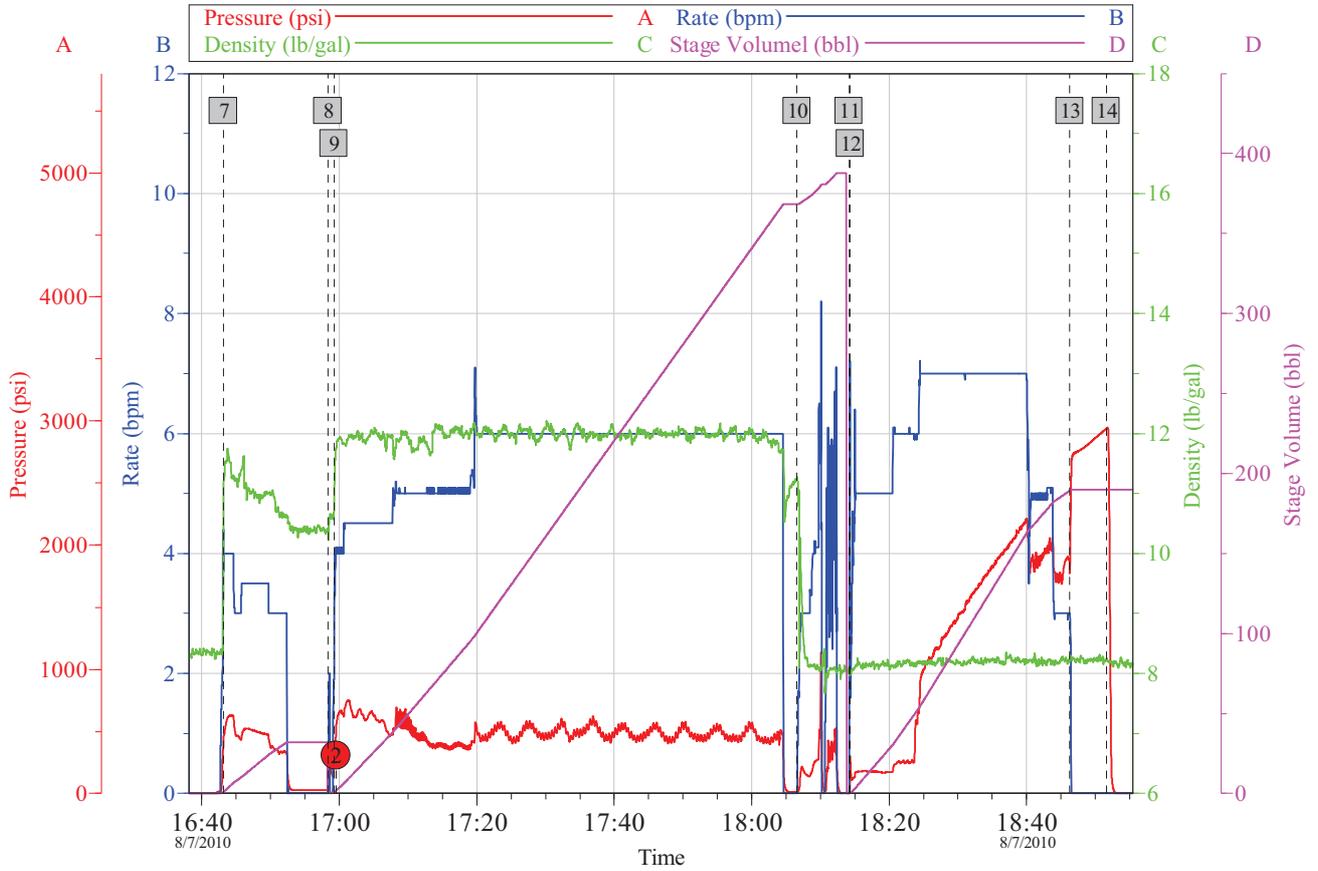
Job Log					
7	TS III 11.0#	16:43:10	8	Drop Bottom Plug	16:58:23
9	Primary Cement 12.0#	16:59:15	10	Clean Lines	18:06:35
11	2% NaCl Displacement	18:14:10	12	Drop Top Plug	18:14:20
13	Bump Plug	18:46:17	14	Check Floats	18:51:36

Customer: EXXONMOBIL CORPORATION	Job Date: 07-Aug-2010	Sales Order #: 7540827
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07-Aug-10 18:59

# HALLIBURTON

## PCU 296-6A5 Production



Customer: EXXONMOBIL CORPORATION	Job Date: 07-Aug-2010	Sales Order #: 7540827
Well Description: PCU 296-6A5	UWI: 05-103-11478	Rig: H&P 239

OptiCem v6.4.9  
07-Aug-10 18:59

# HALLIBURTON

## UCA Graph

