

**EXXONMOBIL CORPORATION**

**HOUSTON, Texas**

PCU T78X-12G14

H&P 215

## **Post Job Summary**

# **Cement Production Casing**

Date Prepared: January 4, 2012  
Version: 1

Service Supervisor: DEARING, KEN

Submitted by: Charli A Brown

**HALLIBURTON**

# HALLIBURTON

## Wellbore Geometry

Job Tubulars					MD		TVD		Shoe Joint Length ft
Type	Description	Size in	ID in	Wt lbm/ft	Top ft	Bottom ft	Top ft	Bottom ft	
Casing	Production Casing	4.50	3.826	15.10	0.00	13,156.00	0.00	13,066.00	89.00
Casing	Intermediate Casing	7.00	6.276	26.00	0.00	9,082.00	0.00	8,841.00	80.00
Open Hole Section	Production Open Hole		6.125		9,082.00	13,166.00	8,841.00	13,076.00	

## Pumping Schedule

Fluid #	Fluid Type	Fluid Name	Density lbm/gal	Avg Rate bbl/min	Volume
1	Spacer	TUNED SPACER III	11.00	4.00	80.0 bbl
2	Cement Slurry	Lightweight Lead Cement	12.00	5.50	870.0 sacks
3	Spacer	NaCl Displacement	8.44	5.00	185.0 bbl

## Fluids Pumped

**Stage/Plug # 1    Fluid 1:**    TUNED SPACER III  
TUNED SPACER III - SBM (483826)

Fluid Density: 11.00 lbm/gal  
Fluid Volume: 80.00 bbl  
Pump Rate: 4.00 bbl/min

**Stage/Plug # 1    Fluid 2:**    Lightweight Lead  
Cement  
TUNED LIGHT (TM) SYSTEM  
0.48 lbm SCR-100  
0.5 lbm Econolite  
0.175 lbm WG-17

Fluid Weight: 12.00 lbm/gal  
Slurry Yield: 2.41 ft<sup>3</sup>/sack  
Total Mixing Fluid: 11.97 Gal  
Volume: 870.0 sacks  
Calculated Fill: 3,173.51 ft  
Calculated Top of Fluid: 7,206.00 ft  
Pump Rate: 5.50 bbl/min

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

Fluid Density: 8.44 lbm/gal  
Fluid Volume: 185.00 bbl  
Pump Rate: 5.00 bbl/min

# HALLIBURTON

## Job Summary

### Job Information

Job Start Date	1/3/2012 9:00:00 AM
Job MD	13,156.0 ft
Job TVD	13,156.0 ft
Height of Plug Container/Swage Above Rig Floor	11.0 ft
Surface Temperature at Time of Job	45 degF
Mud Type	Water Based Mud
Name of Mud Company	BAROID DRILLING FLUIDS
Actual Mud Density	9 lbm/gal
Time Circulated before job	4.42 hour(s)
Rate at Which Well was Circulated	3.200 bbl/min
Units of Gas Detected While Circulating	1800 API Gas Units
Pipe Movement During Hole Circulation	Rotated
Time From End Mud Circ. to Job Start	50.00 minute
Pipe Movement During Cementing	Rotated
Calculated Displacement	186.00 bbl
Job Displaced by (rig/halco)	Cement Unit HP Pumps
Annular flow Before Job? (Water/Gas)	Unknown
Annular flow After Job? (Water/Gas)	Unknown
Length of Rat Hole	10.00 ft

### Cementing Equipment

Number of Centralizers Used	315
Pipe Centralization	Through Entire Cement Column
Did Float Equipment Hold?	Yes
Plug set used?	Yes
Did Plugs Bump?	Yes
Calculated Pressure to Bump Plugs	2,400.0 psig
Brand of Stage Cementing Tools Used	Weatherford

## Service Supervisor Reports

### Job Log

Date/Time	Chart #	Activity Code	Pump Rate	Volume	Pressure (psig)	Comments
01/02/2012 21:00		Call Out				CREW CALLED TO BILL BARRETT PROD. PRICKLY PEAR #7A-22D-12-15.
01/02/2012 21:50		Depart Yard Safety Meeting				DISCUSS SAFETY AND HAZARDS OF TRAVEL.
01/02/2012 22:00		Other				LOAD EQUIPMENT AND CHEMICALS FOR JOB.
01/02/2012 22:50		Pre-Convoy Safety Meeting				DISCUSS SAFETY AND HAZARDS OF TRAVEL.
01/02/2012 23:00		Crew Leave Yard				CALL IN JOURNEY MGT.
01/03/2012 03:00		Arrive At Loc				CALL IN JOURNEY MGT.
01/03/2012 03:05		Assessment Of Location Safety Meeting				SIGN IN AT SAFETY SHACK, GET WORK PERMIT SIGNED, WALK LOCATION, DISCUSS SAFETY AND HAZARDS OF LOCATION AND SPOTTING OF EQUIPMENT, RIG RUNNING CASING.
01/03/2012 03:15		Safety Meeting				MEET WITH CO.MAN, GET WELL INFORMATION, DISCUSS WELL CONDITION, DISCUSS SAFETY AND HAZARDS.
01/03/2012 03:25		Safety Huddle				DISCUSS SAFETY AND HAZARDS OF SPOTTING EQUIPMENT..
01/03/2012 03:30		Other				SPOT EQUIPMENT.
01/03/2012 03:50		Rig-Up Equipment				RIG UP IRON AND SUCTION HOSE TO RED ZONE TEST H2O.
01/03/2012 03:55		Safety Meeting - Pre Rig-Up				DISCUSS SAFETY AND HAZARDS OF RIGGING UP.
01/03/2012 04:00		Casing on Bottom				
01/03/2012 04:10		Circulate Well				RIG STARTS CIRCULATING AND CONDITIONING WELL AND MUD.

# HALLIBURTON

Date/Time	Chart #	Activity Code	Pump Rate	Volume	Pressure (psig)	Comments
01/03/2012 06:00		Other				MEET WITH CO.MAN AND TESCO REP., GO OVER CALCULATIONS, DISCUSS JOB PROCEDURES AND PRESSURES, DISCUSS SAFETY AND HAZARDS.
01/03/2012 06:15		Safety Meeting - Pre Rig-Up				DISCUSS SAFETY AND HAZARDS OF RIGGING UP IRON TO RIG FLOOR.
01/03/2012 06:20		Rig-Up Equipment				RIG IRON TO RIG FLOOR.
01/03/2012 08:00		Safety Meeting - Pre Job				SAFETY MEETING WITH RIG CREW AND CO.MAN, DISCUSS JOB PROCEDURE, DISCUSS SAFETY AND HAZARDS OF JOB.
01/03/2012 08:30		Safety Meeting - Pre Rig-Up				DISCUSS SAFETY AND HAZARDS OF RIGGING UP IRON ON RIG FLOOR.
01/03/2012 08:35		Rig-Up Equipment				RIG UP IRON, ON RIG FLOOR AND ONTO ROTATING HEAD.
01/03/2012 09:15		Safety Huddle				ANNOUNCE STARTING OF PUMPING JOB.
01/03/2012 09:17	2	Pump Water				PUMP H2O TO FILL LINES.
01/03/2012 09:22	3	Pressure Test			500.0	LOW PRESSURE TEST.
01/03/2012 09:26		Pressure Test			3800.0	HIGH PRESSURE TEST TO 3500psi AS PER CO.MAN.
01/03/2012 09:37	7	Pump Spacer	4	40	415.0	PUMP 11PPG TUNED SPACER III @ 4BPM
01/03/2012 09:56	8	Pump Spacer	4	5	194.0	START 5BBL H2O SPACER BEHIND AS PER CO.MAN.
01/03/2012 09:58	9	Drop Top Plug				SHUT DOWN FOR 20 MINUTES TO DROP TESCO TOP PLUG
01/03/2012 10:10		Other				START MIXING CEMENT.
01/03/2012 10:19	10	Pump Cement - Start	1	374	60.0	START 12.0# PRIMARY CEMENT 870 SKS (374BBL) YLD:2.41 WR:11.97
01/03/2012 10:22		Other	5.5		380.0	INCREASE RATE.
01/03/2012 12:23	11	Shutdown				END CEMENT-SHUT DOWN.
01/03/2012 12:28		Clean Lines				WASH PUMPS AND LINES TO PIT.

# HALLIBURTON

Date/Time	Chart #	Activity Code	Pump Rate	Volume	Pressure (psig)	Comments
01/03/2012 12:29	12	Drop Top Plug	0.75		2575.0	DROP TESCO TOP PLUG BALL DROP, PRESSURE UP TO 2575PSI PUMPING AT 0.75BPM BEFORE SHEAR AS VERIFIED BY CO.MAN.
01/03/2012 12:30	13	Pump Displacement	5	186	154.0	START PUMPING NACL WATER DISPLACEMENT
01/03/2012 12:39		Displ Reached Cmnt	5		400.0	SEE CEMENT LIFT PRESSURE.
01/03/2012 13:06		Slow Rate	2		1624.0	SLOW RATE TO 2BPM TO BUMP PLUG
01/03/2012 13:08		Bump Plug	2		1763.0	BUMP PLUG @ 1763 PSI
01/03/2012 13:08		Shutdown			2380.0	PRESSURE OVER 680PSI TO 2380PSI-SHUT DOWN.
01/03/2012 13:14		Check Floats				CHECK FLOATS-FLOATS HOLD, 1.5BBLS BACK, WATCH FOR 20min AS PER CO.MAN, BEFORE RIGGING DOWN.
01/03/2012 13:30		Post-Job Safety Meeting (Pre Rig-Down)				GO OVER OBSERVATIONS ABOUT JOB, DISCUSS SAFETY AND HAZARDS OF RIGGING DOWN IRON OFF OF RIG FLOOR.
01/03/2012 13:40		Safety Meeting - Pre Rig-Down				SAFETY MEETING WITH RIG CREW AND TESCO CREW, DISCUSS RIGGING DOWN FLOOR, SAFETY AND HAZARDS.
01/03/2012 13:50		Rig-Down Equipment				RIG CEMENT HEAD AND IRON OFF OF RIG FLOOR.
01/03/2012 13:55		Safety Huddle				DISCUSS SAFETY AND HAZARDS.
01/03/2012 14:00		Other				WASH UP RCM TO PIT.
01/03/2012 14:40		Safety Meeting - Pre Rig-Down				DISCUSS SAFETY AND HAZARDS OF RIGGING DOWN IRON.
01/03/2012 14:45		Rig-Down Equipment				RIG DOWN AND RACK UP IRON AND SUCTION HOSE.
01/03/2012 16:45		Pre-Convoy Safety Meeting				DISCUSS SAFETY AND HAZARDS OF TRAVEL.
01/03/2012 17:00		Crew Leave Location				CALL IN JOURNEY MGT.
01/03/2012 17:00		Other				THANK YOU-KEN, CODY, CRAIG, AND CREW.

# HALLIBURTON

*The Road to Excellence Starts with Safety*

<b>Sold To #:</b> 331699		<b>Ship To #:</b> 2893646		<b>Quote #:</b>		<b>Sales Order #:</b> 9154762	
<b>Customer:</b> EXXONMOBIL CORPORATION				<b>Customer Rep:</b> PERKINS, GAYLON			
<b>Well Name:</b> PCU		<b>Well #:</b> T78X-12G14		<b>API/UWI #:</b>			
<b>Field:</b> PICEANCE CREEK		<b>City (SAP):</b> MEEKER		<b>County/Parish:</b> Rio Blanco		<b>State:</b> Colorado	
<b>Contractor:</b> H&P		<b>Rig/Platform Name/Num:</b> H&P 215					
<b>Job Purpose:</b> Cement Production Casing							
<b>Well Type:</b> Development Well				<b>Job Type:</b> Cement Production Casing			
<b>Sales Person:</b> MCNARY, GEORGE		<b>Srvc Supervisor:</b> DEARING, KEN		<b>MBU ID Emp #:</b> 239372			

Job Personnel								
HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
DEARING, KEN A	14.0	239372	DUBE, MTHOKOZISI	14.0	476241	ESTEP, KENNETH	14.0	214387
FARNSWORTH, SHAY Daryl	14.0	505203	SLAUGH, CODY B	14.0	104465	WILKISON, KEVIN Diverne	14.0	491065

Equipment							
HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way
10741125	90 mile	10829452	90 mile	11062230	90 mile	11076824	90 mile
11263211	90 mile	11410668	90 mile				

Job Hours								
Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours
01-03-2012	14.0	4.5						
<b>TOTAL</b>			Total is the sum of each column separately					

Job				Job Times			
Formation Name					Date	Time	Time Zone
Formation Depth (MD)	Top		Bottom	Called Out	02 - Jan - 2012	21:00	MST
Form Type	BHST			On Location	03 - Jan - 2012	03:00	MST
Job depth MD	13156. ft			Job Started	03 - Jan - 2012	09:00	MST
Water Depth	Wk Ht Above Floor			Job Completed	03 - Jan - 2012	13:30	MST
Perforation Depth (MD)	From		To	Departed Loc	03 - Jan - 2012	17:00	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
Production Open Hole				6.125				9082.	13166.	8841.	13076.
Intermediate Casing	Unknown		7.	6.276	26.	HYDRIL - SERIES 500 TYPE 513	P-110	.	9082.	.	8841.
Production Casing	Unknown		4.5	3.826	15.1	LTC	P-110	.	13156.	.	13066.

Tools and Accessories													
Type	Size	Qty	Make	Depth	Type	Size	Qty	Make	Depth	Type	Size	Qty	Make
Guide Shoe					Packer					Top Plug	4.5	1	TESCO
Float Shoe	4.5	1		13152	Bridge Plug					Bottom Plug	4.5	1	Weather

# HALLIBURTON

Float Collar	4.5	1		13067	Retainer					SSR plug set						
PDC Bit	4.5	1		13156						Plug Container						
Stage Tool										Centralizers	4.5	63				
<b>Miscellaneous Materials</b>																
Gelling Agt			Conc		Surfactant		Conc		Acid Type		Qty		Conc %			
Treatment Fld			Conc		Inhibitor		Conc		Sand Type		Size		Qty			
<b>Fluid Data</b>																
<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 Gal/sk					
1	TUNED SPACER III	TUNED SPACER III - SBM (483826)			80.00	bbl	11.	6.510	42.688	4.0						
	36.92 gal/bbl	FRESH WATER														
	125.625 lbm/bbl	BARITE, 100 LB SK (100003680)														
2	Lightweight Lead Cement	TUNED LIGHT (TM) SYSTEM (452984)			870.0	sacks	12.	2.41	11.97	5.5	11.97					
	0.48 lbm	SCR-100 (100003749)														
	0.5 lbm	ECONOLITE (100001580)														
	0.175 lbm	WG-17, 50 LB SK (100003623)														
	11.97 Gal	FRESH WATER														
3	NaCl Displacement				185.60	bbl	8.45	.0	.0	5.0						
	7.15 lbm/bbl	SALT, 100 LB BAG (100003652)														
<b>Calculated Values</b>		<b>Pressures</b>			<b>Volumes</b>											
Displacement	185.6	Shut In: Instant	2380		Lost Returns	0	Cement Slurry		373.4	Pad						
Top Of Cement	1018	5 Min	2700		Cement Returns	0	Actual Displacement		185.6	Treatment						
Frac Gradient		15 Min			Spacers	0	Load and Breakdown			Total Job						
<b>Rates</b>																
Circulating	4	Mixing	5.5		Displacement	5		Avg. Job		5						
Cement Left In Pipe	Amount	89 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											



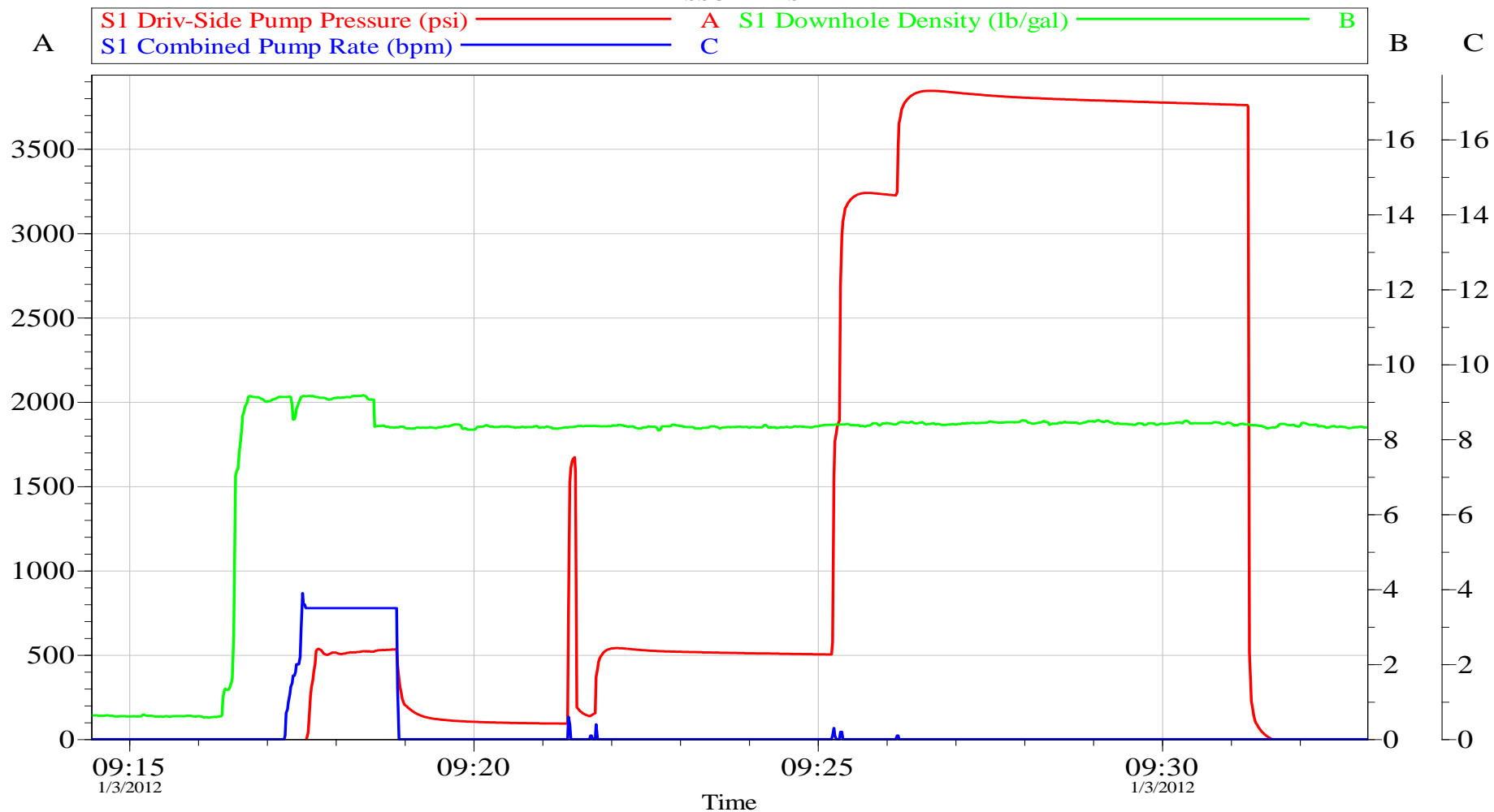
# HALLIBURTON

## Data Acquisition

### EXXONMOBIL CORPORATION

PCU T78X-12G14

PRESSURE TEST



Customer: GAYLON PERKINS

Well Description: Production

SVC LDR: Cody Slauch

Job Date: 03-Jan-2012

UWI: PCU T78X-12G14

SVC SUP: Ken Dearing

Sales Order #: 9154764

ELITE: 11076824

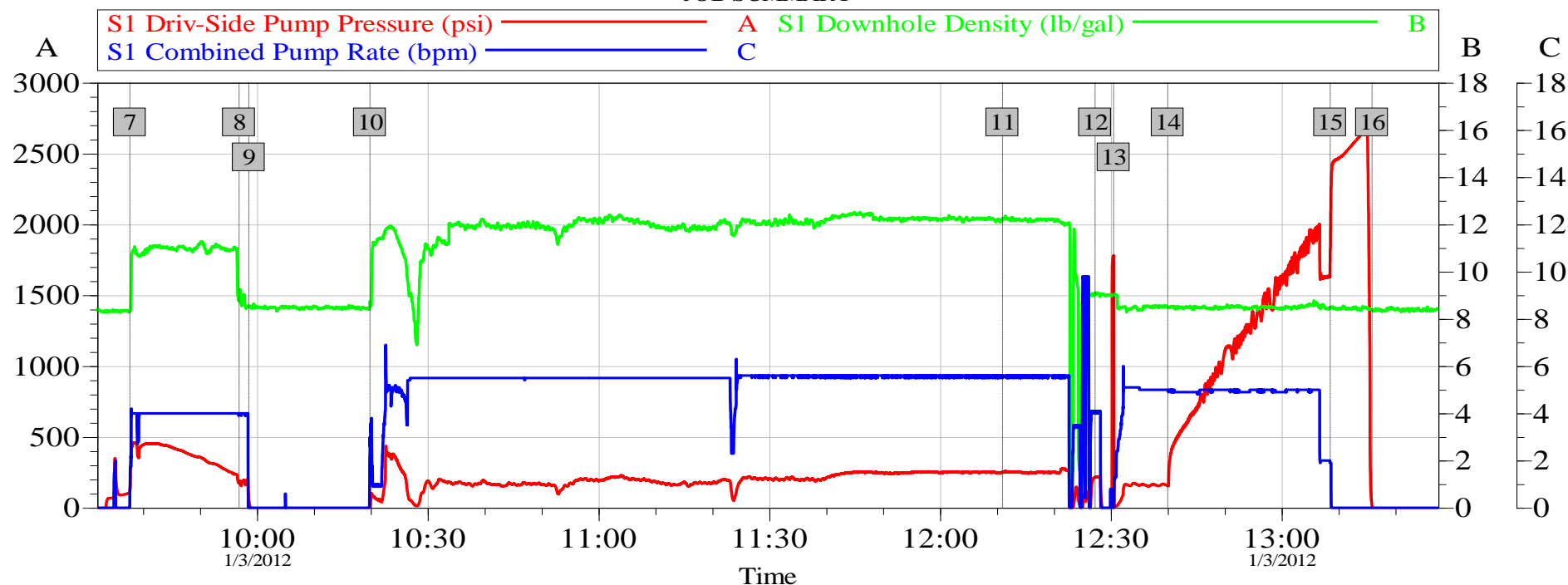
SVC OPR: Ken Estep II

OptiCem v6.4.9  
03-Jan-12 15:09

## EXXONMOBIL CORPORATION

PCU T78X-12G14

JOB SUMMARY



### Global Event Log

Intersection		SDPP		Intersection		SDPP	
7	Pump Tuned Spacer	09:37:40	114.9	8	Pump Water Spacer	09:56:51	186.4
9	Shut Down to Drop Top Plug	09:58:34	57.48	10	Pump Cement	10:19:51	-16.99
11	Shut down Cmt	12:10:57	250.9	12	Drop Top Plug	12:27:14	217.0
13	Pump Displacement	12:30:30	1778	14	Catch Cmt	12:39:59	155.3
15	Bump Plug	13:08:31	1763	16	Check Floats	13:15:53	16.22

Customer: GAYLON PERKINS  
Well Description: Production  
SVC LDR: Cody Slaugh

Job Date: 03-Jan-2012  
UWI: PCU T78X-12G14  
SVC SUP: Ken Dearing

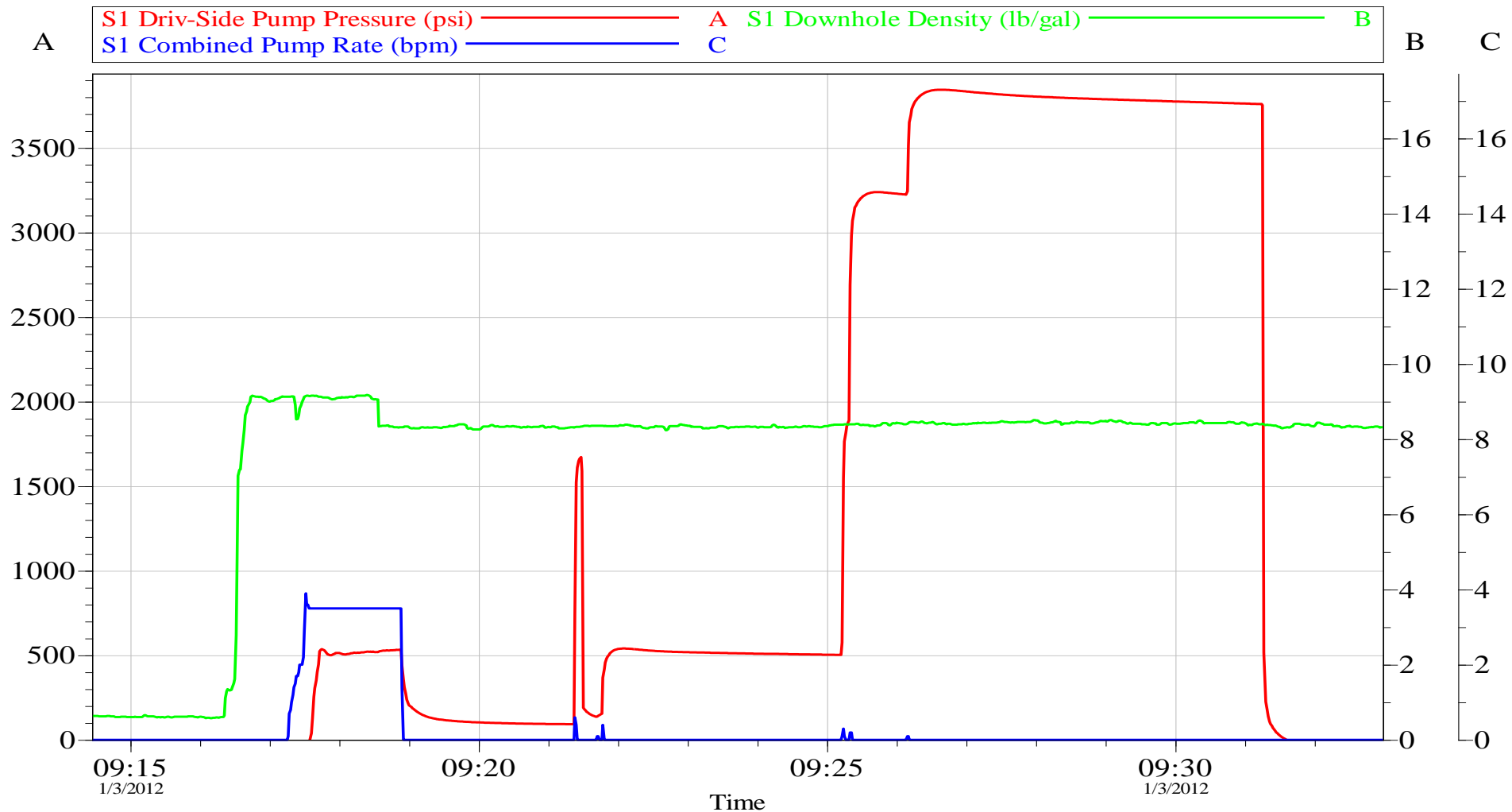
Sales Order #: 9154764  
ELITE: 11076824  
SVC OPR: Ken Estep II

OptiCem v6.4.9  
03-Jan-12 15:03

## EXXONMOBIL CORPORATION

PCU T78X-12G14

PRESSURE TEST



Customer: GAYLON PERKINS  
Well Description: Production  
SVC LDR: Cody Slauch

Job Date: 03-Jan-2012  
UWI: PCU T78X-12G14  
SVC SUP: Ken Dearing

Sales Order #: 9154764  
ELITE: 11076824  
SVC OPR: Ken Estep II

OptiCem v6.4.9  
03-Jan-12 15:09

# HALLIBURTON

## Lab Data

### Cementing Rockies, Vernal

### LAB RESULTS - Primary

#### Job Information

Request/Slurry	199787/1	Rig Name	H&P 215	Date	20/DEC/2011
Submitted By	Charli Brown	Job Type	Production Casing	Bulk Plant	Vernal
Customer	ExxonMobil	Location	Rio Blanco	Well	T78X-12G14

#### Well Information

Casing/Liner Size	4 1/2"	Depth MD	13380 ft	BHST	283 F
Hole Size	6 1/8"	Depth TVD	13290 ft	BHCT	218 F

#### Drilling Fluid Information

Mud Supplier Name	Mud Trade Name	Density	10.4 PPG
-------------------	----------------	---------	----------

#### Cement Information - Primary Design

Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties	
40	%	> Boral Craig Pozmix	Bulk	Dec 21, 2011	S-111006029	Slurry Density	12.00 PPG
						Slurry Yield	2.41 ft3/sk
15	%	> Enhancer 923	Bulk	Dec 21, 2011		Water Requirement	11.97 GPS
3	%	> HGS 8000X (PB)	Bulk	Dec 21, 2011		Total Mix Fluid	11.97 GPS
43	%	> Mountain G	Bulk	Dec 21, 2011	286-10-18-2011		
20	%	> Silicalite - Compacted	Bulk	Dec 21, 2011			
100.00	% BWOC	Cement Blend					
11.97	gal/sack	Field (Fresh) Water	Lab	Oct 17, 2011	10/17/11		
14.147	lb/sk	SSA-1 (Silica Flour) - PB	Bulk	Dec 21, 2011	2011269 AC		
0.500	lb/sk	Econolite (Powder - PB)	Bulk	Dec 21, 2011	JI02611		
0.600	lb/sk	HALAD-344 (PB)	Bulk	Dec 21, 2011	B1-Z70		
0.175	lb/sk	FWCA	Bulk	Dec 21, 2011	210255S6P2		
0.480	lb/sk	SCR-100	Bulk	Dec 21, 2011	D 11-009		
0.500	lb/sk	D-Air 3000	Bulk	Dec 21, 2011	2011215 AC		

#### Operation Test Results Request ID 199787/1

##### Thickening Time, Request Test ID:2019090

Temp (°F)	Pressure (psi)	Reached in (min)	Start BC	30 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)
218	8,797	63	4	03:01	03:02	03:06	03:07

##### Mixability (0 - 5) - 0 is not mixable, Request Test ID:2013016

Mixability rating (0 - 5)

5

##### Free Water, Request Test ID:2013049

Test Temp (°F)	% FW 45 Inc	Conditioning time
180	0	30

# HALLIBURTON

## API Rheology, Request Test ID:2013048

Temp (°F)	600	300	200	100	60	30	6	3	Foam Quality	PV/YP
80	192	112	90	62	52	46	21	16	0	90.4 / 28.4

## API Fluid Loss, Request Test ID:2013050

Test Temp (°F)	Test Pressure (psi)	Test Time (min)	ISO FL (cc/30 min)	Conditioning time (min)
180	1,000	30	108	30

54 ml in 30 minutes calculated value is 108.

## Thickening Time Results

