

**XTO ENERGY INC EBUSINESS  
DO NOT MAIL - 382 ROAD 3100  
AZTEC, New Mexico**

PCU T78X-12G13

H&P 215

## **Post Job Summary** **Cement Production Casing**

Date Prepared: February 3, 2012  
Version: 1

Service Supervisor: DEAN, MARK

Submitted by: Charli A Brown

**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		
Casing	Intermediate Casing	7.00	6.276	26.00	0.00	9,175.00	0.00	9,053.00		80.00
Open Hole Section	Production Open Hole		6.125		9,175.00	13,465.00	9,053.00	13,340.00	350	
Casing	Production Casing	4.50	3.826	15.10	0.00	13,465.00	0.00	13,340.00		89.00

## Pumping Schedule

Fluid #	Fluid Type	Fluid Name	Density lbm/gal	Avg Rate bbl/min	Volume
1	Spacer	TUNED SPACER III	11.00	2.00	80.0 bbl
2	Cement Slurry	Lightweight Lead Cement	12.00	4.00	875.0 sacks
3	Spacer	NaCl Displacement	8.44	8.00	188.0 bbl

## Fluids Pumped

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

Fluid Density: 11.00 lbm/gal  
Fluid Volume: 80.00 bbl  
Pump Rate: 2.00 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: 875.0 sacks  
Sacks: 875.0 sacks  
Calculated Fill: 3,173.51 ft  
Calculated Top of Fluid: 7,206.00 ft  
Pump Rate: 4.00 bbl/min

**Stage/Plug # 1    Fluid 3:**    NaCl Displacement  
DUMMY MUD / FLUSH / SPACER SBC MATERIAL  
7.15 lbm/bbl Salt

Fluid Density: 8.44 lbm/gal  
Fluid Volume: 188.00 bbl  
Pump Rate: 8.00 bbl/min

# HALLIBURTON

## Job Summary

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### Job Information

<b>Job Start Date</b>	2/1/2012 9:50:00 PM
<b>Job MD</b>	13,334.0 ft
<b>Job TVD</b>	13,340.0 ft
<b>Height of Plug Container/Swage Above Rig Floor</b>	5.0 ft
<b>Surface Temperature at Time of Job</b>	25 degF
<b>Mud Type</b>	Water Based Mud
<b>Actual Mud Density</b>	10 lbm/gal
<b>Time Circulated before job</b>	2.50 hour(s)
<b>Mud Volume Circulated</b>	180.00 bbl
<b>Rate at Which Well was Circulated</b>	4.00 bbl/min
<b>Pipe Movement During Hole Circulation</b>	None
<b>Time From End Mud Circ. to Job Start</b>	45.00 minute
<b>Pipe Movement During Cementing</b>	Rotated
<b>Calculated Displacement</b>	188.00 bbl
<b>Job Displaced by (rig/halco)</b>	Cement Unit HP Pumps
<b>Length of Rat Hole</b>	20.00 ft

### Cementing Equipment

<b>Pipe Centralization</b>	Bottom Joints (1 TO 10) and Through Production Int
<b>Number of Centralizers</b>	4
<b>Did Float Equipment Hold?</b>	Yes
<b>Plug set used?</b>	Yes
<b>Did Plugs Bump?</b>	Yes
<b>Calculated Pressure to Bump Plugs</b>	2,523.0 psig

# HALLIBURTON

## Service Supervisor Reports

### Job Log

Date/Time	Chart #	Activity Code	Pump Rate	Volume	Pressure (psig)	Comments
01/31/2012 22:00		Call Out				CREW CALLED OUT, GOT TRUCKS PREPPED FOR CONVOY AND JOB
02/01/2012 00:00		Pre-Convoy Safety Meeting				DISCUSSED CONVOY PROCEDURES, ROUTE, STOPS, ROAD HAZARDS, WILDLIFE, TRAFFIC, EMERGENCY, AND BREAKDOWN PROCEDURES
02/01/2012 03:00		Arrive At Loc				RIG IS RUNNING CASING
02/01/2012 03:30		Pre-Rig Up Safety Meeting				DISCUSSED RIG UP PROCEDURES, RED ZONES, LIFTING, HAMMERING, PINCH POINTS, AND SLIPS/TRIPS/FALLS
02/01/2012 03:45		Rig-Up Equipment				RIGGED UP SAFELY AND TO BOTH HALLIBURTON AND XTO ENERGY STANDARDS
02/01/2012 19:00		Other				RIG IS DONE RUNNING CASING AND IS CIRCULATING
02/01/2012 20:00		Pre-Job Safety Meeting				DISCUSSED JOB PROCEDURES, RIG ISSUES, SAFETY ISSUES, HAZARDS WITH PRESSURE, EMERGENCY, AND EVACUATION PROCEDURES
02/01/2012 21:08		Other				PLUGGED OFF MIXING TUB, SWAPPED TO PIT TO FIX PROBLEM
02/01/2012 21:52		Test Lines			3720.0	HIGH PRESSURE TEST TO 3720PSI, KICKOUTS SET AT 3800PSI

# HALLIBURTON

Date/Time	Chart #	Activity Code	Pump Rate	Volume	Pressure (psig)	Comments
02/01/2012 21:54		Drop Plug				TESCO HAND DROPPED PLUG, COMPANY MAN, AND CEMENTER WITNESSED PLUG LEAVING
02/01/2012 22:15	4	Start Job				STARTING CEMENT JOB
02/01/2012 22:17	5	Pump Water	2	10	120.0	PUMP WATER SPACER
02/01/2012 22:22	6	Pump Spacer	4	75	266.0	PUMP TUNED SPACER @ 11.0 PPG, 63 SKS, YLD 7.130, WTR 46.847
02/01/2012 22:43	7	Pump Cement	2	376	132.0	MIXED @12.0 PPG, 875 SKS, YLD 2.41, WTR 12.0
02/01/2012 22:50		Other				SWITCHED TO DENSITY HEIGHT MODE, UNABLE TO MAINTAIN DENSITY AND W/S RATIO IN VOLUMETRIC MODE
02/01/2012 22:54		Other	4	376	200.0	INCREASED RATE TO 4BPM WILL CONTINUE AT THIS RATE, DENSITY AND W/S RATIO MAINTAINING WITHIN DESIGN PARAMETERS
02/01/2012 23:40	8	Other	4	376	225.0	SWAPPED SILOS
02/02/2012 00:39		Shutdown				SHUTDOWN TO DROP PLUG AND CLEAN PUMPS AND LINES
02/02/2012 00:39		Clean Lines				CLEANED PUMPS AND LINES TO THE PITS
02/02/2012 00:44		Drop Ball				TESCO HAND DROPPED BALL, COMPANY MAN, HALLIBURTON SERVICE LEADER WITNESSED BALL LEAVING
02/02/2012 00:45	10	Pump Displacement	0.75		50.0	PUMP FRESH WATER @8.33 WITH SALT WATER ADDITIVES
02/02/2012 00:46		Other			2695.0	BALL SHEARED PINS, PLUG IS AWAY
02/02/2012 00:48		Other	8	188	380.0	INCREASED RATE TO 8BPM
02/02/2012 00:56		Slow Rate	6	188	1700.0	DECREASED RATE TO 6BPM
02/02/2012 01:11		Slow Rate	3	188	2200.0	DECREASED RATE TO 3BPM

# HALLIBURTON

Date/Time	Chart #	Activity Code	Pump Rate	Volume	Pressure (psig)	Comments
02/02/2012 01:17		Slow Rate	2	188	2000.0	DECREASED RATE TO 2BPM TO LAND PLUG
02/02/2012 01:22		Bump Plug		187	1850.0	BUMPED WITH 187BBLS GONE @ 1850PSI AND TOOK PRESSURE 500 PSI OVER AS PER COMPANY MAN
02/02/2012 01:24		Check Floats				FLOATS HELD, GOT 2BBLS BACK, MAINTAINED RETURNS THRU OUT THE WHOLE JOB ROTATED AT 30RPM FOR ENTIRE CEMENT JOB
02/02/2012 01:35		Post-Job Safety Meeting (Pre Rig-Down)				DISCUSSED RIG DOWN PROCEDURES, RED ZONES, LIFTING, HAMMERING, PINCH POINTS, AND SLIPS/TRIPS/FALLS
02/02/2012 01:40		Rig-Down Equipment				RIGGED DOWN SAFELY AND TO BOTH HALLIBURTON AND XTO ENERGY STANDARDS
02/02/2012 03:30		Pre-Convoy Safety Meeting				DISCUSSED CONVOY PROCEDURES, ROUTE, STOPS, ROAD HAZARDS, WILDLIFE, TRAFFIC, EMERGENCY, AND BREAKDOWN PROCEDURES
02/02/2012 03:45		Depart Location for Service Center or Other Site				THANKS FOR USING HALLIBURTON!!!

## The Road to Excellence Starts with Safety

<b>Sold To #:</b> 353810		<b>Ship To #:</b> 2900878		<b>Quote #:</b>		<b>Sales Order #:</b> 9227073	
<b>Customer:</b> XTO ENERGY INC EBUSINESS				<b>Customer Rep:</b>			
<b>Well Name:</b> PCU			<b>Well #:</b> T78X-12G13			<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> DEAN, MARK			<b>MBU ID Emp #:</b> 454214	

### Job Personnel

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
ANDERSON, BENJAMIN L	24.8	342843	BEREECE, TERRY Lee	0.0	222819	BROWN, CHARLI Anne	0.0	490285
DEAN, MARK Christophe	0.0	454214	HUNTER, SAMUEL David	0.0	479669	LAWTON, SCOTT C	0.0	482816
SHIFLETT, JESSE Amos	0.0	469551						

### Equipment

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way
10948690	45 mile	11062230	45 mile	11076824	45 mile	11139326	45 mile
11398321	45 mile						

### 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					Called Out	Date	Time	Time Zone
Formation Depth (MD)	Top		Bottom			31 - Jan - 2012	22:00	MST
Form Type		BHST			On Location	01 - Feb - 2012	03:00	MST
Job depth MD	13334. ft	Job Depth TVD	13340. ft		Job Started	01 - Feb - 2012	21:50	MST
Water Depth		Wk Ht Above Floor	5. ft		Job Completed	02 - Feb - 2012	01:24	MST
Perforation Depth (MD)	From		To		Departed Loc	02 - Feb - 2012	03:45	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
Production Open Hole				6.125				9175.	13465.	9053.	13340.
Intermediate Casing	Unknown		7.	6.276	26.	HYDRIL - SERIES 500 TYPE 513	P-110	.	9175.	.	9053.
Production Casing	Unknown		4.5	3.826	15.1	LTC	P-110	.	13465.	.	13340.

### 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			

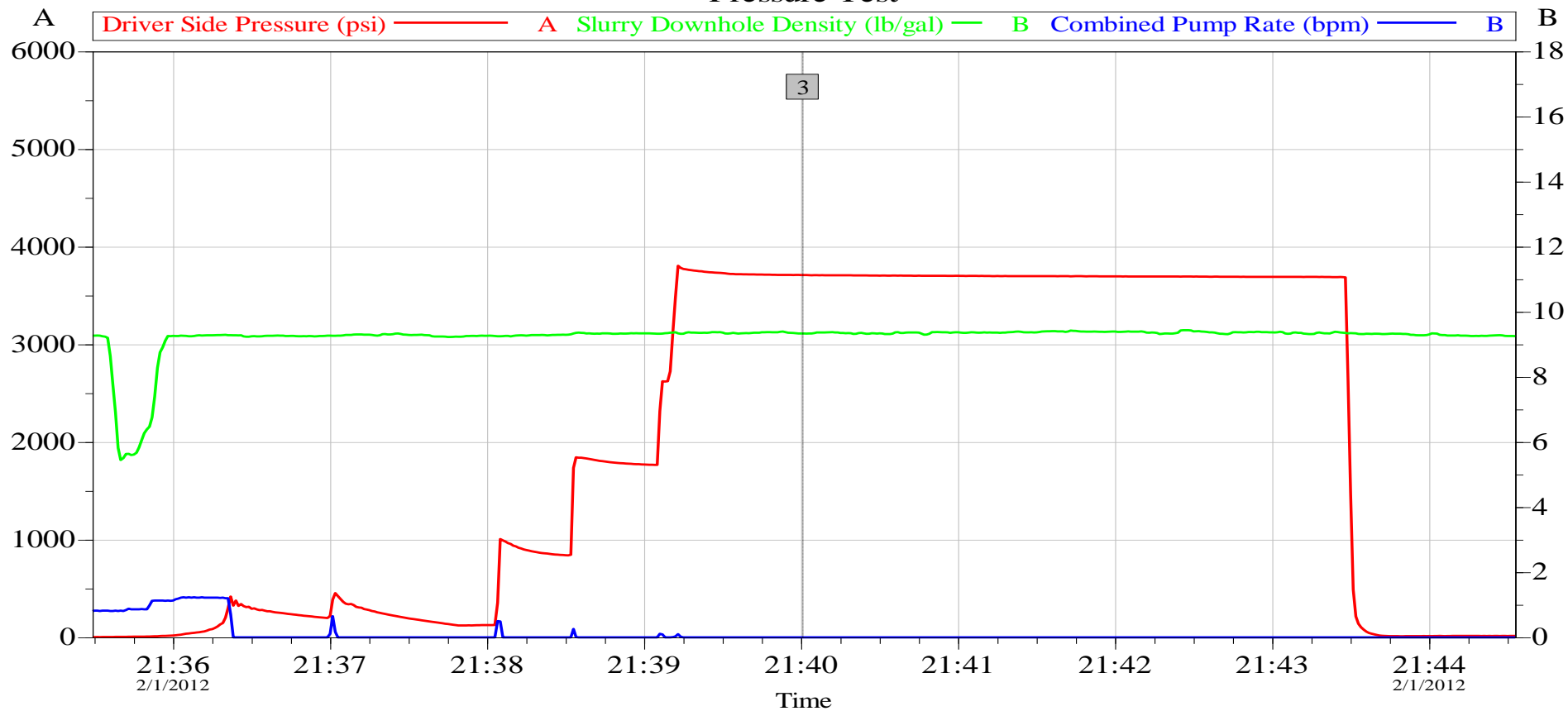
Miscellaneous Materials												
Gelling Agt		Conc		Surfactant		Conc		Acid Type		Qty		Conc %
Treatment Fld		Conc		Inhibitor		Conc		Sand Type		Size		Qty
Fluid Data												
Stage/Plug #: 1												
Fluid #	Stage Type	Fluid Name			Qty	Qty uom	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sk	Mix Fluid Gal/sk	Rate bbl/min	Total Mix Fluid Gal/sk	
1	TUNED SPACER III	TUNED SPACER III - SBM (483826)			80.00	bbl	11.	7.13	46.85	6.0		
46.85 gal/bbl		FRESH WATER										
122.38 lbm/bbl		BARITE, 100 LB SK (100003680)										
2	Lightweight Lead Cement	TUNED LIGHT (TM) SYSTEM (452984)			875.0	sacks	12.	2.41	11.97	6.0	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				188.00	bbl	8.44	.0	.0	6.0		
7.15 lbm/bbl		SALT, 100 LB BAG (100003652)										
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	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							



## Data Acquisition

### XTO Energy Services PCU T78X-12G13 Production

#### Pressure Test



#### Global Event Log

3 Pressure Test 21:40:01

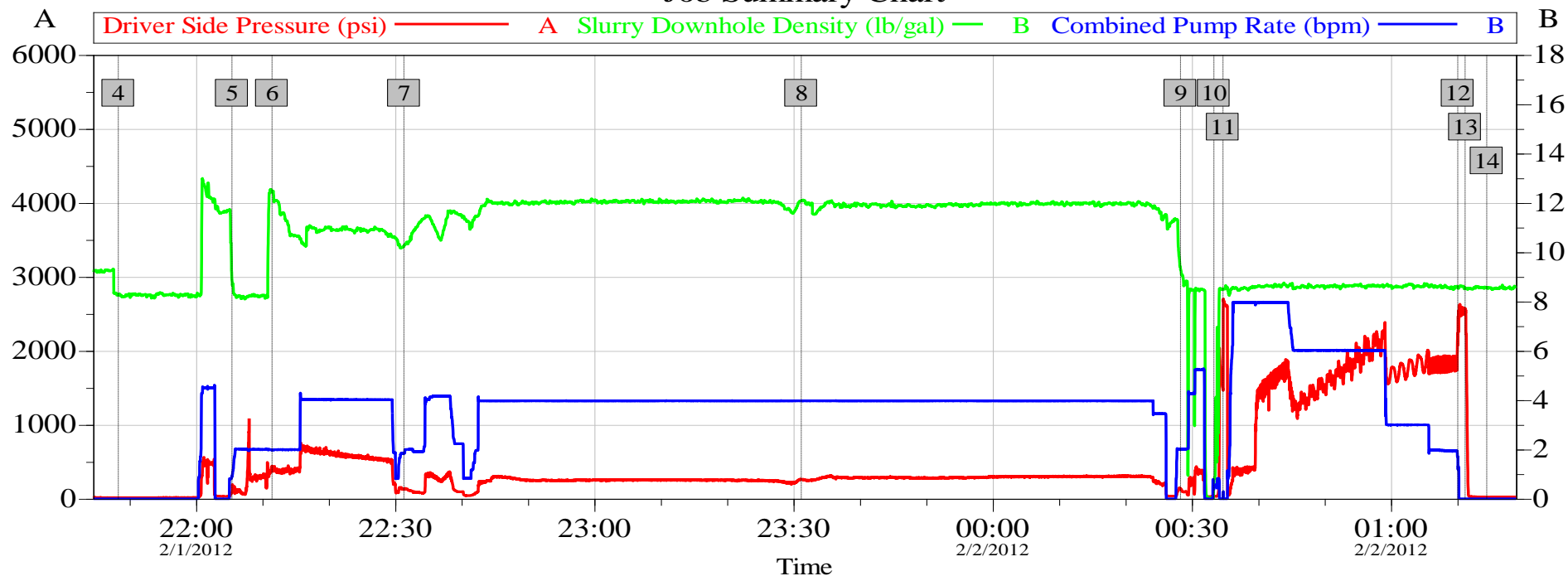
Customer: XTO Energy Services  
Well Description: 4.5" Production Rotated  
Service Supervisor: Mark Dean

Job Date: 01-Feb-2012  
UWI:  
Service Operator: Jesse Shiflett

Sales Order #: 9227073  
Elite #: 11076824  
Service Leader: Terry Bereece

OptiCem v6.4.9  
02-Feb-12 02:42

## XTO Energy Services PCU T78X-12G13 Production Job Summary Chart



### Global Event Log

4	Start Job	2/1/2012 21:48:18	5	Pump Water	2/1/2012 22:05:24
6	Pump Spacer 1	2/1/2012 22:11:27	7	Pump Cement	2/1/2012 22:31:19
8	Swap Silos	2/1/2012 23:31:10	9	Clean Lines	2/2/2012 00:28:17
10	Pump Displacement	2/2/2012 00:33:19	11	Sheared Pins Plug Launched	2/2/2012 00:34:40
12	Bump Plug	2/2/2012 01:10:03	13	Check Floats	2/2/2012 01:11:09
14	Job Complete	2/2/2012 01:14:25			

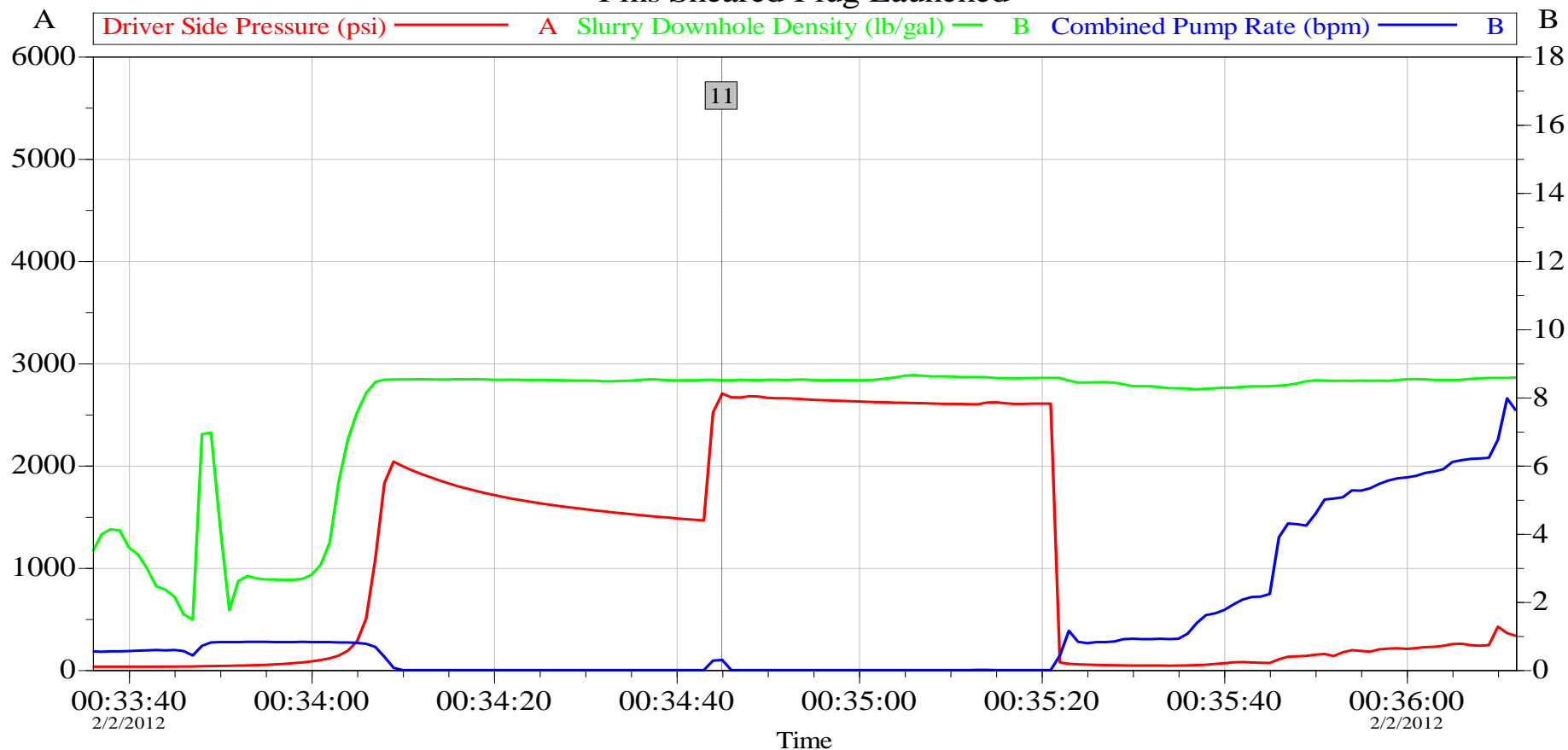
Customer: XTO Energy Services  
Well Description: 4.5" Production Rotated  
Service Supervisor: Mark Dean

Job Date: 01-Feb-2012  
UWI:  
Service Operator: Jesse Shiflett

Sales Order #: 9227073  
Elite #: 11076824  
Service Leader: Terry Bereece

OptiCem v6.4.9  
02-Feb-12 02:41

## XTO Energy Service PCU T78X-12G13 Production Pins Sheared Plug Launched



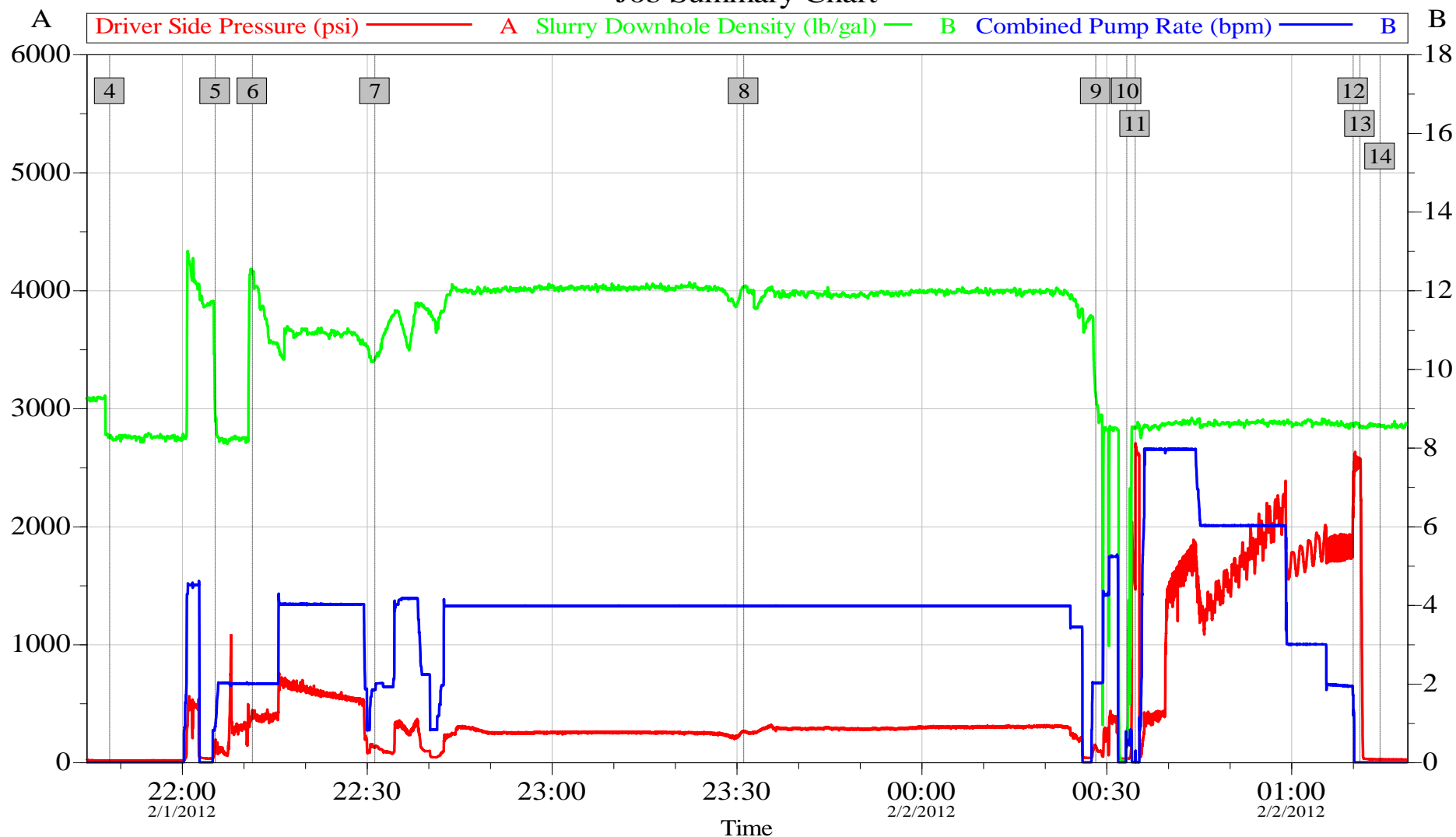
Global Event Log		
Intersection		PSI
11	Sheared Pins Plug Launched 00:34:45	2695

Customer: Halliburton	Job Date: 01-Feb-2012	Sales Order #: 20:35:21
Well Description: RTD	UWI:	

OptiCem v6.4.9  
02-Feb-12 02:47

## XTO Energy Services PCU T78X-12G13 Production

### Job Summary Chart



Customer: XTO Energy Services  
Well Description: 4.5" Production Rotated  
Service Supervisor: Mark Dean

Job Date: 01-Feb-2012  
UWI:  
Service Operator: Jesse Shiflett

Sales Order #: 9227073  
Elite #: 11076824  
Service Leader: Terry Bereece

OptiCem v6.4.9  
02-Feb-12 02:41

# HALLIBURTON

## Lab Data

### LAB RESULTS - Lead

#### Cementing Rockies, Vernal

#### Job Information

Request/Slurry	208289/1	Rig Name		Date	23/JAN/2012
Submitted By	Thomas Stumpf	Job Type	Production Casing	Bulk Plant	Vernal
Customer	XTO	Location	Rio Blanco	Well	PCU T78X-12G13

#### Well Information

Casing/Liner Size	4 1/2"	Depth MD	13465 ft	BHST	282 F
Hole Size	6 1/8"	Depth TVD	13340 ft	BHCT	219 F

#### Drilling Fluid Information

Mud Supplier Name		Mud Trade Name		Density	10.0 PPG
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#### Cement Information - Lead Design

Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties		
40	%	> Boral Craig Pozmix	Bulk	Jan 23, 2012	S-111006029	Slurry Density	12.00	PPG
						Slurry Yield	2.41	ft3/sk
15	%	> Enhancer 923	Bulk	Jan 23, 2012		Water Requirement	12	GPS
3	%	> HGS 8000X (PB)	Bulk	Jan 23, 2012		Total Mix Fluid	12	GPS
43	%	> Mountain G	Bulk	Jan 23, 2012	286 10-18-2011			
100.00	% BWOC	Cement Blend						
20.000	lb/sk	Silicalite - Compacted	Bulk	Jan 23, 2012	OG180926-2			
0.480	lb/sk	SCR-100	Bulk	Jan 23, 2012	11-004			
14.147	lb/sk	SSA-1 (Silica Flour) - PB	Bulk	Jan 23, 2012	2011269AC			
0.600	lb/sk	HALAD-344 (PB)	Bulk	Jan 23, 2012	B1-337			
0.500	lb/sk	D-Air 5000	Bulk	Jan 23, 2012	2011319AC			
0.500	lb/sk	Econolite (Powder - PB)	Bulk	Jan 23, 2012	213035			
0.175	lb/sk	FWCA	Bulk	Jan 23, 2012	210855S6P4			
12.00	gal/sack	Fresh Water	Lab	May 29, 2011	5-29-2011			

#### Operation Test Results Request ID 208289/1

#### Thickening Time, Request Test ID:2110889

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)
219	7,207	38	6	02:18	02:19	02:23	02:24

#### Mixability (0 - 5) - 0 is not mixable, Request Test ID:2110890

Mixability rating (0 - 5)

5

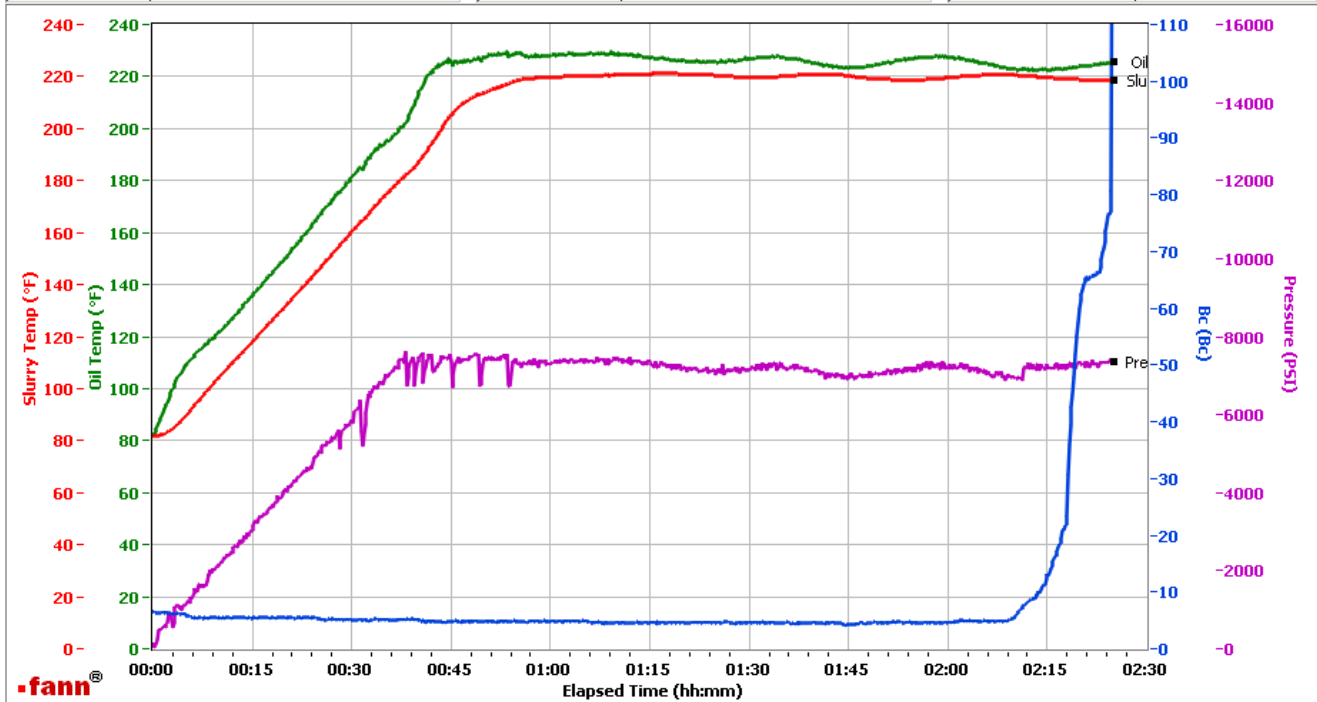
# HALLIBURTON

## Vernal

Fields	Values
Project Name	XTO
Test ID	208289-1
Request ID	HPHT #2
Tested by	D.O.
Customer	XTO
Well No	PCU T78X-12G13
Rig	
Casing/Liner Size	5.5

Fields	Values
Job Type	pro lead
Cement Type	G
Cement Weight	Light Weight
Test Date	01/23/12
Test Time	11:04 PM
Temp. Units	degF
Pressure Units	PSI

Events	Results
30.00 Bc	02h:18m
50.00 Bc	02h:19m
60.00 Bc	02h:19m
70.00 Bc	02h:23m
100.00 Bc	02h:24m
200.00 Bc	NaN
03h:00m	NaN
06h:00m	NaN



Data File Z:\HPHT Data Files\Vernal Consistometer #2\XTO 208289-1.tdms

Comments 12den, 2.41 yd