

**QUICKSILVER RESOURCES INC-EBUSINESS  
DO NOT MAIL-801 CHERRY ST  
FORT WORTH, Texas**

K-DIAMOND  
K-DIAMOND 32-10

DHS/DHS/14

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

Prepared for: Dustin Damme  
Date Prepared: 10/30/12  
Version: 1

Service Supervisor: ASHBY, ANDREW

Submitted by: Chris Cicirello

**HALLIBURTON**

# HALLIBURTON

## Wellbore Geometry

Job Tubulars					MD		TVD		Excess	Shoe Joint Length
Type	Description	Size in	ID in	Wt lbm/ft	Top ft	Bottom ft	Top ft	Bottom ft	%	ft
Casing	Intermediate Casing	7.00	6.276	26.00	0.00	6,412.00				40.00
Open Hole Section	Production Open Hole		7.875		6,412.00	9,140.00				0.00
Casing	Production Casing	5.50	4.892	17.00	0.00	9,127.63				15.63

## Pumping Schedule

Stage /Plug #	Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Avg Rate bbl/min	Surface Volume	Downhole Volume
1	1	Spacer	TUNED SPACER III	10.00	0.00	20.0 bbl	20.0 bbl
1	2	Spacer	Mud Recovery Spacer	10.00	0.00	150.0 bbl	150.0 bbl
1	3	Spacer	MUD FLUSH III	8.40	0.00	10.0 bbl	10.0 bbl
1	4	Cement Slurry	LifeCem	13.50		485.0 sacks	485.0 sacks
1	5	Spacer	KCl Displacement	8.40	5.00	212.0 bbl	212.0 bbl

# HALLIBURTON

## Service Supervisor Reports

### Job Log

Date/Time	Activity Code	Pump Rate	Cum Vol	Pressure (psig)	Comments
10/27/2012 14:30	Call Out				Crew Called out for Job. Requested on location @ 21:00.
10/27/2012 16:15	Pre-Convoy Safety Meeting				Met w/crew to discuss safety and hazards of travel to location
10/27/2012 16:30	Depart from Service Center or Other Site				Entered into Journey Management.
10/27/2012 19:30	Arrive At Loc				Ended Journey Management. (5540 ft of 9128 ft of casing ran)
10/27/2012 19:35	Assessment Of Location Safety Meeting				Met w/crew to discuss hazards of site, location of materials and safety precautions.
10/27/2012 19:40	Other				Spot Equipment
10/27/2012 19:55	Pre-Rig Up Safety Meeting				Met w/crew to discuss the best way to rig up, safety and hazards involved.
10/27/2012 20:00	Rig-Up Equipment				Rig up Ground & Standpipe
10/28/2012 02:00	Pre-Job Safety Meeting				Met w/Rig Crew, Co. Rep, and our crew to discuss job procedures, contingencies, and safety measures.
10/28/2012 02:15	Rig-Up Equipment				Rig-up the rig floor.
10/28/2012 02:30	Other	2	3	180.0	Fill Lines with fresh water for pressure test
10/28/2012 02:34	Test Lines			4991.0	Pressure test iron to 5000 psi - lost 70 psi over 3 min
10/28/2012 02:39	Pump Spacer	4	20	240.0	18 sks Tuned Spacer III @ 10.0 lb/gal, 6.24 cuft/sk, 41.81 gal/sk
10/28/2012 02:43	Slow Rate	2.5		175.0	Slow rate while bringing Mud Recovery online
10/28/2012 02:47	Shutdown				Not getting mud recovery from transports, shutdown to fix problem.
10/28/2012 02:50	Pump Spacer 1	6	150	295.0	Pump Mud Recovery Spacer out of two transports.
10/28/2012 03:13	Slow Rate	3		98.0	Slow rate while mixing Mud Flush III.
10/28/2012 03:17	Pump Spacer 2	4	10	67.0	Pump Mud Flush III
10/28/2012 03:20	Shutdown				Shutdown / Take off Swedge / Drop Bottom Plug / put swedge back on.
10/28/2012 03:34	Pump Cement	4	150	226.0	485 sks LifeCement @ 13.5 lb/gal, 1.73 gal/sk, 7.42 gal/sk
10/28/2012 04:06	Shutdown				Shutdown / Drop Top Plug - witnessed by Co. Rep.
10/28/2012 04:09	Clean Lines				Wash Pump & lines to the pit
10/28/2012 04:17	Pump Displacement	7	211	161.0	Displacement = 2% KCL
10/28/2012 04:23	Slow Rate	6		130.0	Slow Rate to keep up with displacement.
10/28/2012 04:38	Displ Reached Cmmt	6		133.0	Displacement caught pressure
10/28/2012 04:49	Slow Rate	3		907.0	Slow rate to bump plug.
10/28/2012 04:54	Bump Plug	3		1657.0	Bump plug 500 psi over final circulating pressure (1018 psi)..
10/28/2012 04:56	Check Floats			1691.0	Floats held - 1.5 bbls back. No cement to surface.
10/28/2012 05:00	End Job				Job Complete

# HALLIBURTON

Date/Time	Activity Code	Pump Rate	Cum Vol	Pressure (psig)	Comments
10/28/2012 05:05	Post-Job Safety Meeting (Pre Rig-Down)				Met w/crew to discuss rigging down safely.
10/28/2012 05:10	Rig-Down Equipment				Rig everything down.
10/28/2012 06:50	Pre-Convoy Safety Meeting				Met w/crew to discuss fit-for-duty, safety and hazards of travel back.
10/28/2012 07:00	Depart Location for Service Center or Other Site				Entered into Journey Management.
10/28/2012 07:00	Other				Thanks for using Halliburton!!!

## The Road to Excellence Starts with Safety

Sold To #: 346707	Ship To #: 2954766	Quote #:	Sales Order #: 9907438
Customer: QUICKSILVER RESOURCES INC-EBUSINESS		Customer Rep: Damme, Dustin	
Well Name: K-DIAMOND		Well #: 32-10	API/UWI #: 05-081-07692
Field:	City (SAP): CRAIG	County/Parish: Moffat	State: Colorado
Contractor: DHS		Rig/Platform Name/Num: DHS 14	
Job Purpose: Cement Production Casing			
Well Type: Exploratory / Wildcat		Job Type: Cement Production Casing	
Sales Person: SCOTT, KYLE	Srvc Supervisor: ASHBY, ANDREW		MBU ID Emp #: 450544

### Job Personnel

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
ASHBY, ANDREW A	11.5	450544	BUSHMAN, JOSH M	11.5	530613	ESTEP, KENNETH	11.5	214387
GAMBLES, BRAYDEN Kade	11.5	469413	SMITH, BRET George	11.5	529662			

### Equipment

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way
10991611	120 mile	11127525	120 mile	11189139	120 mile	11338213	120 mile
11338217	120 mile	11410668	120 mile	11526494	120 mile	D1652	120 mile

### Job Hours

Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours
10/27/12	6.5	0.0	10/28/12	7.0	2.5			
TOTAL			Total is the sum of each column separately					

### Job

Formation Name	Formation Depth (MD)	Top	Bottom	Form Type	Job depth MD	Job Depth TVD	Water Depth	Perforation Depth (MD)	From	To
				BHST	9140. ft	9140. ft	5. ft			

### Well Data

Description	New / Used	Size in	ID in	Weight lbm/ft	Grade	Top MD ft	Bottom MD ft	Top TVD ft	Bottom TVD ft
Production Open Hole			7.875			6412.	9140.		
Intermediate Casing	Unknown	7.	6.276	26.	L-80	.	6412.		
Production Casing	Unknown	5.5	4.892	17.	P-110	.	9127.6		

### Sales/Rental/3<sup>rd</sup> Party (HES)

Description	Qty	Qty uom	Depth	Supplier
PLUG,CMTG,BOT,5 1/2,HWE,4.38 MIN/5.09 MA	1	EA		
PLUG,CMTG,TOP,5 1/2,HWE,4.38 MIN/5.09 MA	1	EA		

### Tools and Accessories

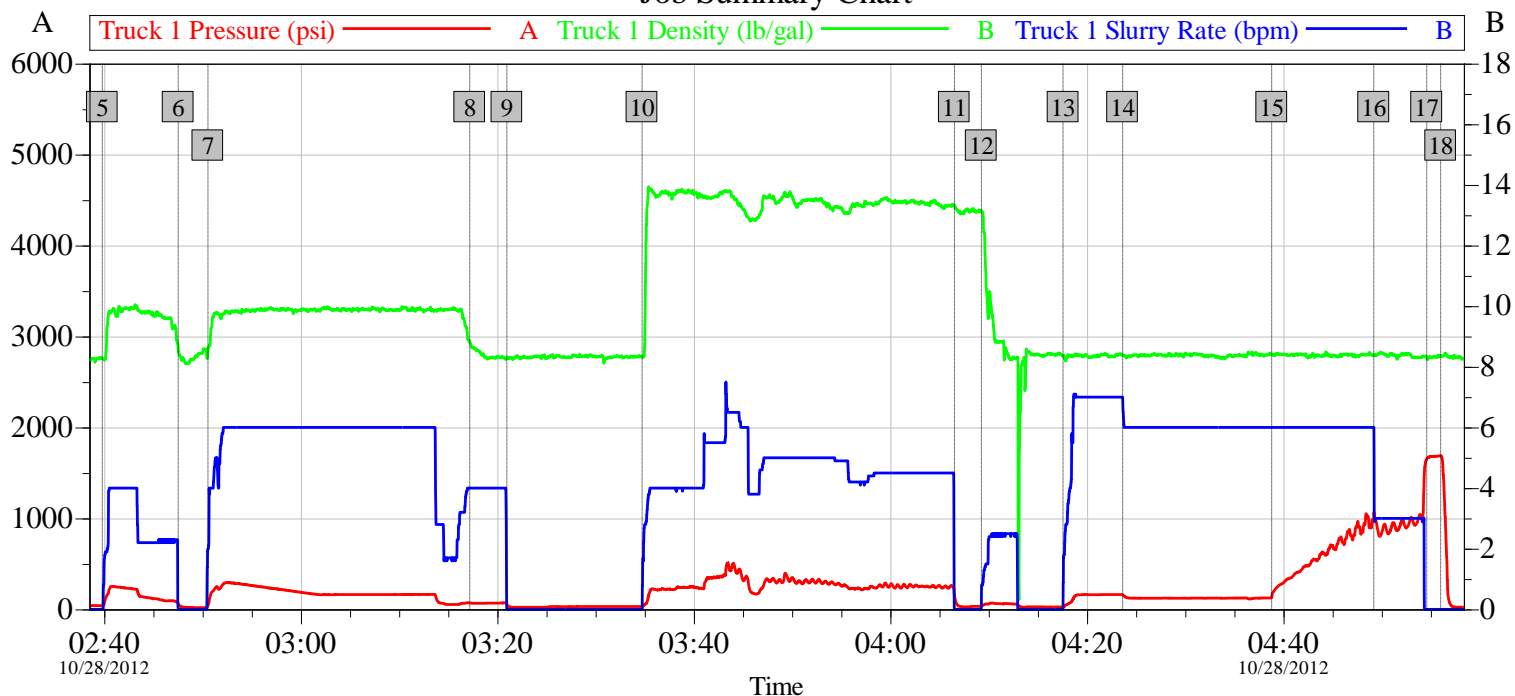
Type	Size	Qty	Make	Depth	Type	Size	Qty	Make	Depth	Type	Size	Qty	Make
Guide Shoe					Packer					Top Plug			
Float Shoe					Bridge Plug					Bottom Plug			
Float Collar					Retainer					SSR plug set			
Insert Float										Plug Container			
Stage Tool										Centralizers			

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	TUNED SPACER III	TUNED SPACER III - SBM (483826)			20.00	bbl	10.	6.24	42.72	.0		
	38.44 gal/bbl	FRESH WATER										
	0.4 gal/bbl	MUSOL(R) A, BULK (100003696)										
	0.4 gal/bbl	SEM-7, 55 GAL DRUM (100001626)										
	63.5 lbm/bbl	BARITE, 100 LB SK (100003680)										
2	Mud Recovery Spacer				150.00	bbl	10.	.0	.0	.0		
	47.5 lbm/bbl	BARITE, BULK (100003681)										
	12.5 lbm/bbl	HALLIBURTON GEL, 50 LB SK (100064040)										
	0.05 gal/bbl	ANHIB II (100003821)										
3	MUD FLUSH III	MUD FLUSH III - SBM (528788)			10.00	bbl	8.4	.0	.0	.0		
4	LifeCem	LIFECM (TM) CEMENT (532084)			485.0	sacks	13.5	1.73	7.42		7.42	
	0.5 %	HALAD(R)-344, 50 LB (100003670)										
	0.2 %	HR-601, 50 LB BAG (101328348)										
	1 %	MICROBOND M, 50 LB SK (100012233)										
	22.86 %	SAND-SSA-1 - SILICA FLOUR - 200 MESH, BULK (100003691)										
	0.125 lbm	POLY-E-FLAKE (101216940)										
	7.42 Gal	FRESH WATER										
5	KCl Displacement				212.00	bbl	8.4	.0	.0	5.0		
	7.15 lbm/bbl	POTASSIUM CHLORIDE 7% (100001585)										
	42 gal/bbl	WATER - FRESH - GAL (24047)										
Calculated Values		Pressures			Volumes							
Displacement	211	Shut In: Instant			Lost Returns	0	Cement Slurry	150	Pad			
Top Of Cement	5100	5 Min			Cement Returns	0	Actual Displacement	211	Treatment			
Frac Gradient		15 Min			Spacers	180	Load and Breakdown		Total Job	541		
Rates												
Circulating	5	Mixing			4	Displacement	6	Avg. Job	5			
Cement Left In Pipe	Amount	40 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							



### QuickSilver - K-Diamond# 32-10 - Production

#### Job Summary Chart



#### Global Event Log

5	Pump Tuned Spacer	02:39:48	6	Shutdown	02:47:31	7	Pump Mud Recovery	02:50:33
8	Pump Mud Flush III	03:17:11	9	Shutdown / Drop Plug	03:20:58	10	Pump Cement	03:34:44
11	Shutdown / Drop Plug	04:06:31	12	Clean Lines	04:09:15	13	Pump Displacement	04:17:34
14	Slow Rate	04:23:38	15	Displ Reached Cmmt	04:38:48	16	Slow Rate	04:49:11
17	Bump Plug	04:54:35	18	Check Floats	04:56:00			

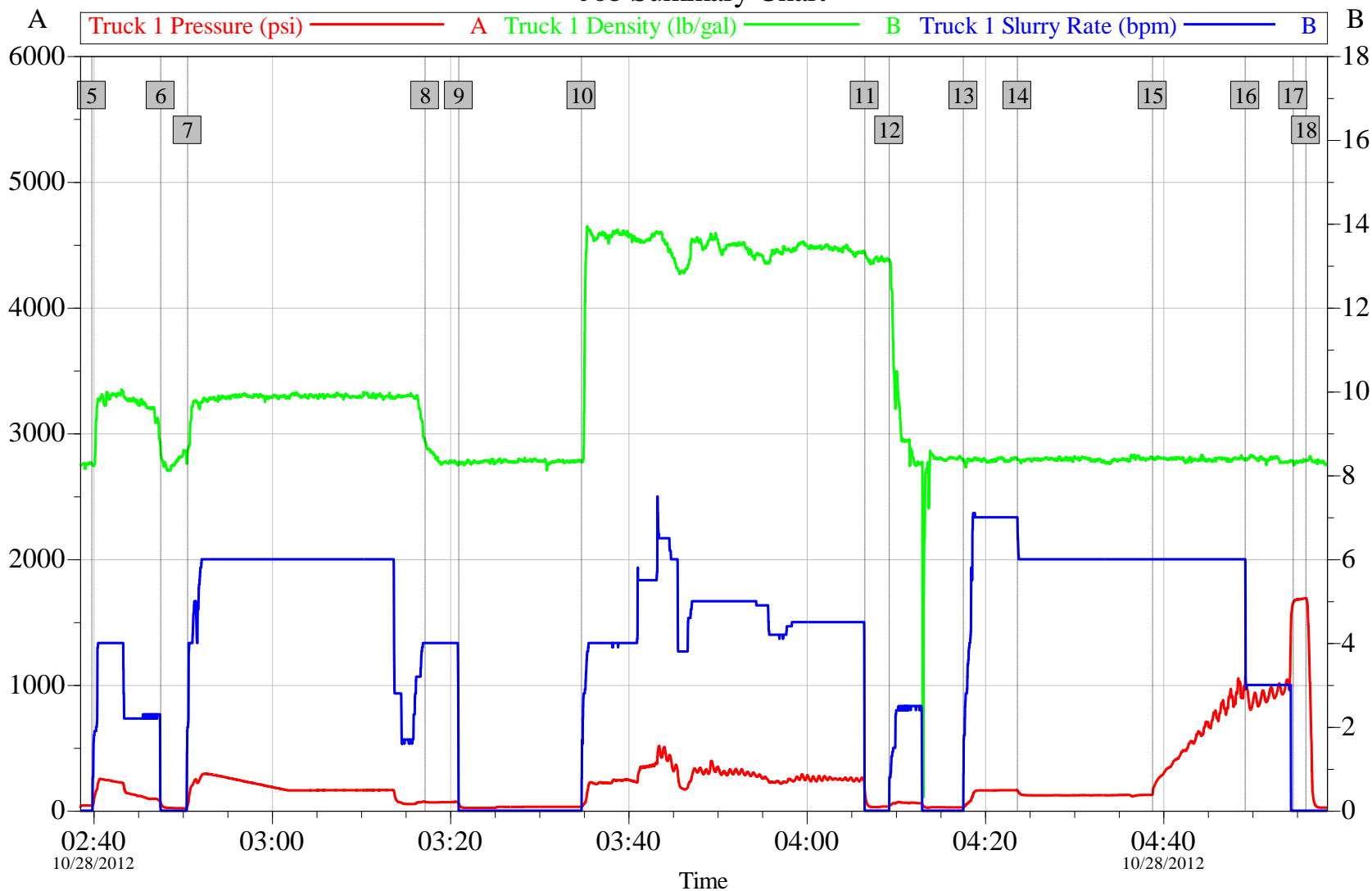
Customer:	QuickSilver Resources, Inc.	Job Date:	28-Oct-2012	Sales Order #:	9907438
Job Description:	5.5" Production	UWI:	05-081-07692	Elite #:	11189139
Service Supervisor:	Andrew Ashby	Service Operator:	Brayden Gambles	Service Leader:	n/a

OptiCem v6.4.9  
28-Oct-12 05:48



## QuickSilver - K-Diamond# 32-10 - Production

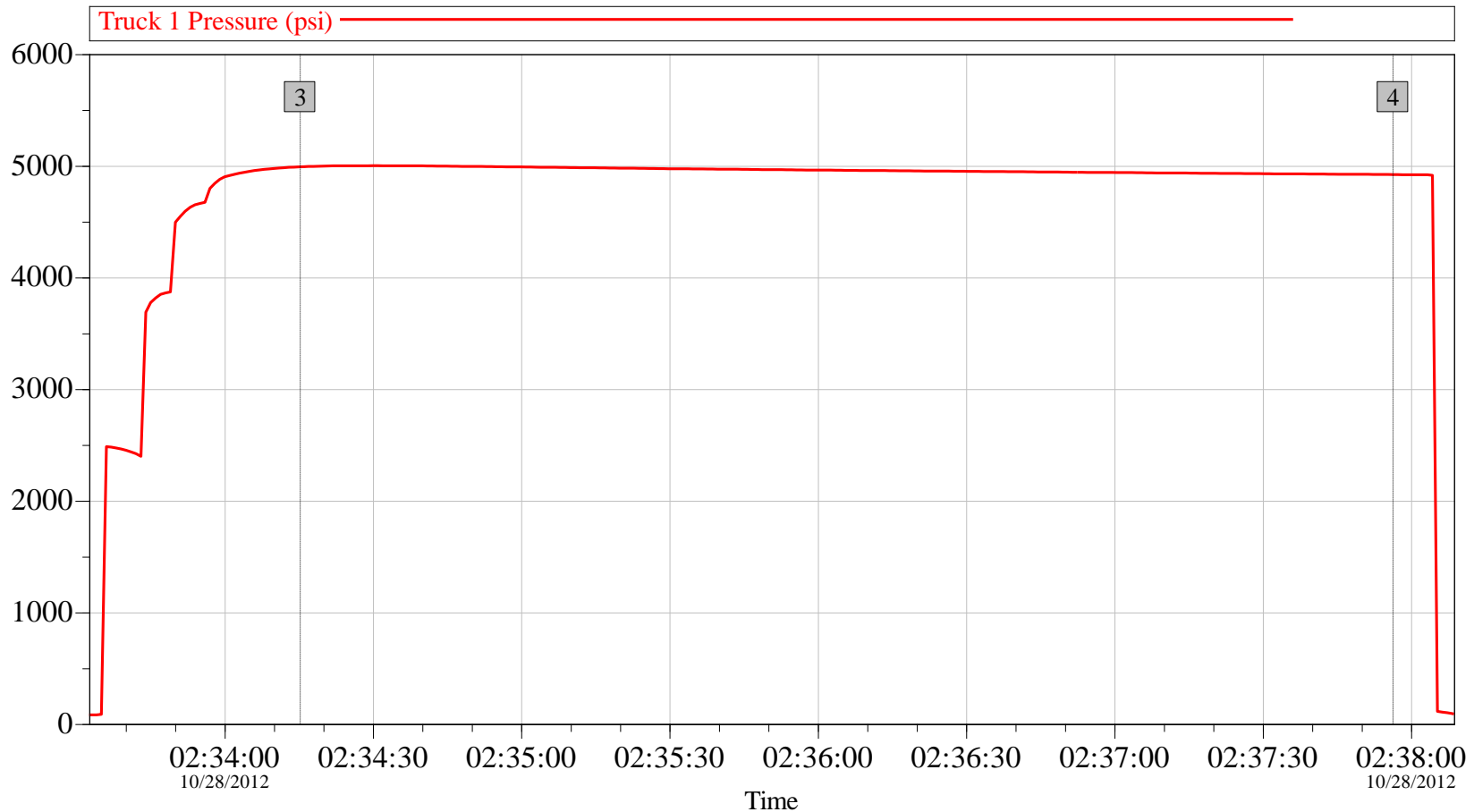
### Job Summary Chart



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Service Supervisor:	Andrew Ashby	Service Operator:	Brayden Gambles	Service Leader:	n/a

OptiCem v6.4.9  
28-Oct-12 05:49

## QuickSilver - K-Diamond# 32-10 - Production Pressure Test



Global Event Log					
Intersection		PSI	Intersection		PSI
3	Start Pressure Test	02:34:15	4991	4	End Pressure Test
				02:37:56	4921

Customer:	QuickSilver Resources, Inc.	Job Date:	28-Oct-2012	Sales Order #:	9907438
Job Description:	5.5" Production	UWI:	05-081-07692	Elite #:	11189139
Service Supervisor:	Andrew Ashby	Service Operator:	Brayden Gambles	Service Leader:	n/a

OptiCem v6.4.9  
28-Oct-12 05:18

### HALLIBURTON

Cementing Rockies, Vernal

LAB RESULTS - Lead

#### Job Information

Request/Slurry	281365/1	Rig Name	DHS Drilling #14	Date	OCT/23/2012
Submitted By	Thomas Burrows	Job Type	Production Casing	Bulk Plant	Vernal
Customer	Quicksilver Resources Inc.	Location	Moffat	Well	K-DIAMOND 32-10

#### Well Information

Casing/Liner Size	4 1/2"	Depth MD	10500 ft	BHST	227 F
Hole Size	6 1/8"	Depth TVD	10500 ft	BHCT	174 F

#### Cement Information - Lead Design

Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties	
100.00	% BWOC	Cement Blend				Slurry Density	13.50 PPG
7.42	gal/sack	Field (Fresh) Water	Lab	Oct 23, 2012	10-23-2012	Slurry Yield	1.73 ft <sup>3</sup> /sk
0.200	% BWOC	HR-601	Bulk	Oct 23, 2012	HR08B-17 S3RK	Water Requirement	7.42 GPS
0.125	lb/sk	Pol-E-Flake	Bulk	Oct 23, 2012	4-10-2012	Total Mix Fluid	7.42 GPS
						Water Source	Field (Fresh) Water

#### Operation Test Results Request ID 281365/1

##### Thickening Time, Request Test ID:3048652

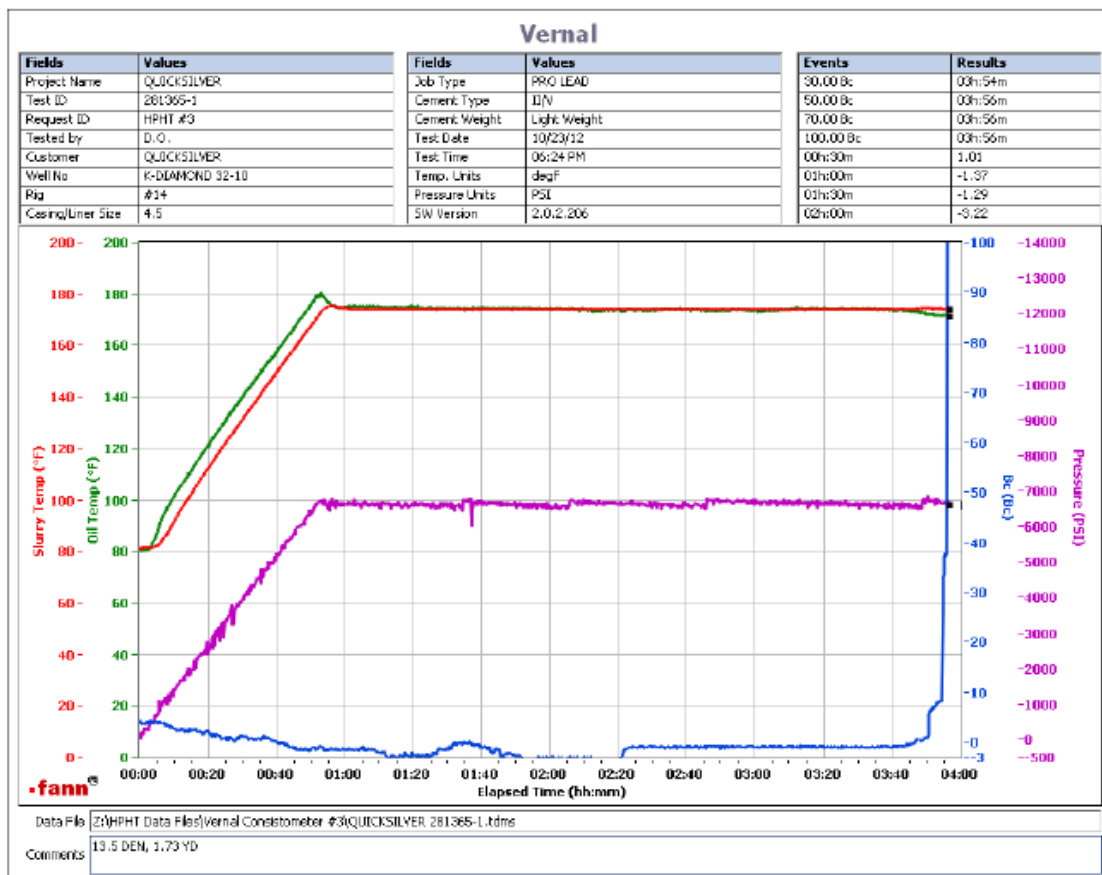
Temp (°F)	Pressure (psi)	Reached in (min)	Start B/C	30 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)
174	6,650	52	8	03:54	03:56	03:56	03:56

##### Mixability (0 - 5) - 0 is not mixable, Request Test ID:3048576

Mixability rating (0 - 5)

5

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## API Rheology, Request Test ID:3048653

Temp (°F)	600	300	200	100	60	30	6	3	PV/YP
80	114	61	42	24	17	11	5	4	58.5 / 5.1

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