

# HALLIBURTON

iCem<sup>®</sup> Service

## Post Job Report

**BONANZA CREEK ENERGY**

**For:**

Date: Friday, August 29, 2014

**STATE SEVENTY HOLES A11-E14-6HNC**

Intermediate

Sincerely,

**Joseph Fantasia**

## 1.1 Executive Summary

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Halliburton appreciates the opportunity to perform the cementing services on the **STATE SEVENTY HOLES A11-E14-6HNC** cement **Intermediate** casing job. A pre-job safety meeting was held before the job where details of the job were discussed, potential safety hazards were reviewed, and environmental compliance procedures were outlined.

Halliburton maintains a continuous quality improvement process and appreciates any comments or suggestions that you may have. Halliburton again thanks you for the opportunity to perform service work on this well. We hope to be your solutions provider for future projects.

Respectfully,

**Halliburton [Fort Lupton]**

**Job Times**

	Date	Time	Time Zone
<b>Requested Time On Location</b>	8-28-14	1900	
<b>Called Out</b>	8-28-14	1400	
<b>On Location</b>	8-28-14	1840	
<b>Job Started</b>	8-28-	2300	

	14		
<b>Job Completed</b>	8-29-14	0200	
<b>Departed Location</b>	8-29-14	0300	

## 1.2 Cementing Job Summary

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## HALLIBURTON

## Cementing Job Summary

*The Road to Excellence Starts with Safety*

Sold To #: 324725	Ship To #: 3545497	Quote #:	Sales Order #: 0901612363
Customer: BONANZA CREEK ENERGY		Customer Rep: SAM MORES	
Well Name: STATE SEVENTY HOLES	Well #: A11-E14-6HNC	API/UWI #: 05-123-39859-00	
Field: WATTENBERG	City (SAP): KERSEY	County/Parish: WELD	State: COLORADO
Legal Description: 6-4N-62W-808FNL-1679FWL			
Contractor:		Rig/Platform Name/Num: Cade 26	
Job BOM: 7522			
Well Type: DIRECTIONAL OIL			
Sales Person: HALAMERICA/HX46524		Srv Supervisor: Joseph Fantasia	
Job			

Formation Name			
Formation Depth (MD)	Top	Bottom	
Form Type	BHST		
Job depth MD	7028ft	Job Depth TVD	
Water Depth		Wk Ht Above Floor	
Perforation Depth (MD)	From	To	

Well Data										
Description	New / Used	Size in	ID in	Weight lbm/ft	Thread	Grade	Top MD ft	Bottom MD ft	Top TVD ft	Bottom TVD ft
Casing		9.625	8.921	36			0	467	0	0
Casing		7	6.276	26			0	7028	0	0
Open Hole Section			8.75				467	7041	0	0

Tools and Accessories									
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make
Guide Shoe	7	1		7028		Top Plug	7	1	HES
Float Shoe	7	1				Bottom Plug	7	1	HES
Float Collar	7	1		6986		SSR plug set	7	1	HES
Insert Float	7	1				Plug Container	7	1	HES
Stage Tool	7	1				Centralizers	7	1	HES

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> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal	
1	Mud Flush III (Powder)	Mud Flush III	20	bbl	8.4		3	6		
42 gal/bbl		FRESH WATER								

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## Cementing Job Summary

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
2	Lead Cement	ECONOCEM (TM) SYSTEM	530	sack	12.5	1.89		6	10.23
10.23 Gal		FRESH WATER							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
3	Tail Cement	EXPANDACEM (TM) SYSTEM	290	sack	14.6	1.45		6	6.04
6.04 Gal		FRESH WATER							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
4	Displacement	WATER BASED MUD	0	bbl	9.50			7	
Cement Left In Pipe		Amount	40 ft		Reason		Shoe Joint		
Comment 40 BBLS CEMENT TO SURFACE. 10 BBLS FRESH WATER PUMPED BEFORE AND AFTER MUD FLUSH.									

## 1.3 Planned Pumping Schedule

### 1.3 Pump Schedule

Description	Stage No.	Density (ppg)	Rate (bbl/min)	Yield (ft <sup>3</sup> /sack)	Water Req. (gal/sack)	Volume (bbl)	Bulk Cement (sacks)	Duration (min)
Bonanza Creek Intermediate Mud	1	10.00	6.00			0.00		0.00
Bottom Plug								
Mud Flush	2	8.40	8.00			20.00		2.50
Bonanza Creek Intermediate Lead 12.5 ppg EconoCem	3	12.50	8.00	1.8900	10.260	178.41	530.00	22.30
Bonanza Creek Intermediate Tail 14.6 ppg	4-1	14.60	8.00	1.4600	6.070	75.41	290.00	9.43
Shutdown	4-2			1.4600	6.070		0.00	10.00
Top Plug/Start Displacement								
Bonanza Creek Intermediate Mud	5	10.00	8.00			237.00		29.62
Bonanza Creek Intermediate Mud	6	10.00	3.00			31.15		10.38
Total:						541.97		84.23

\*Pump schedule may include additional rows for displacement if "Automatic Rate Adjustment" was enabled and ECDs approached the fracture gradient.

## 1.4 Job Overview

		Units	Description
1	Surface temperature at time of job	°F	65
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	WBM
3	Actual mud density	lb/gal	9.5

4	Actual mud Plastic Viscosity (PV)	cP	16
5	Actual mud Yield Point (YP)	lb <sub>f</sub> /100ft <sup>2</sup>	12
6	Actual mud 30 min Gel Strength	lb <sub>f</sub> /100ft <sup>2</sup>	
7	Time circulated before job	HH:MM	01:30
8	Mud volume circulated	Bbls	
9	Rate at which well was circulated	Bpm	3.2
10	Pipe movement during hole circulation	Y/N	N
11	Rig pressure while circulating	Psi	395
12	Time from end mud circulation to start of job	HH:MM	00:30
13	Pipe movement during cementing	Y/N	N
14	Calculated displacement	Bbls	267
15	Job displaced by	Rig/HES	HES
16	Annular flow before job	Y/N	N
17	Annular flow after job	Y/N	N
18	Length of rat hole	Ft	13
19	Units of gas detected while circulating	Units	
20	Was lost circulation experienced at any time?	Y/N	N



## 1.5 Water Field Test

Item	Recorded Test Value	Units	Max. Acceptable Limit	Potential Problems in Exceeding Limit
pH	7	----	6.0 - 8.0	Chemicals in the water can cause severe retardation
Chlorides	0	ppm	3000 ppm	Can shorten thickening time of cement
Sulfates	>200	ppm	1500 ppm	Will greatly decrease the strength of cement
Total Hardness		ppm	500 mg/L	High concentrations will accelerate the set of the cement
Calcium		ppm	500 ppm	High concentrations will accelerate the set of the cement
Total Alkalinity		ppm	1000 ppm	Cement is greatly retarded to the point where it may not set up at all (typically occurs @ pH ≥ 8.3).
Bicarbonates		ppm	1000 ppm	Cement is greatly retarded to the point where it may not set up at all
Potassium		ppm	5000 ppm	High concentrations will shorten the pump time of cement (indicates the presence of chlorides, therefore if Potassium levels are measured as high, so should the chlorides)
Iron	0	ppm	300 ppm	High concentrations will accelerate the set of the cement
Temperature	60	°F	50-80 °F	High temps will accelerate; Low temps may risk freezing in cold weather

**Submitted Respectfully by:**           JOSEPH FANTASIA

## 1.6 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Combined Pump Rate (bbl/min)	Downhole Density (ppg)	Pass-Side Pump Pressure (psi)	Comment
Event	1	Arrive at Location from Service Center	Arrive at Location from Service Center	8/28/2014	16:40:00	USER				PERFORM SITE ASSESSMENT AND PRE RIG UP SAFETY MEETING. RIG RUNNING LAST 24 JOINTS OF CASING.
Event	2	Start Job	Start Job	8/28/2014	22:36:09	COM4	0.00	11.46	5.00	
Event	3	Test Lines	Test Lines	8/28/2014	22:44:00	COM4	0.00	8.30	50.00	PRESSURE TEST LINES TO 4000 PSI
Event	4	Pump Spacer 1	Pump Spacer 1	8/28/2014	22:44:13	COM4	0.00	8.33	104.00	PUMP 10 BBLS FRESH WATER SUPPLIED BY RIG.
Event	5	Pump Spacer 2	Pump Spacer 2	8/28/2014	22:47:22	COM4	4.10	8.32	491.00	PUMP 20 BBLS MUD FLUSH MIXED WITH WATER SUPPLIED BY RIG.
Event	6	Pump Spacer 1	Pump Spacer 1	8/28/2014	22:55:36	COM4	3.50	8.25	461.00	PUMP 10 BBLS FRESH WATER SUPPLIED BY RIG.
Event	7	Pump Lead Cement	Pump Lead Cement	8/28/2014	23:05:57	COM4	0.30	8.29	231.00	PUMP 178 BBLS ECONOCEM (530 SACKS) MIXED AT 12.5 PPG. DENSITY VERIFIED BY SCALES. SLURRY HAND MIXED DUE TO INCONSISTENT DENSITY USING ADC.
Event	8	Pump Tail Cement	Pump Tail Cement	8/28/2014	23:43:00	COM4	1.80	12.97	5.00	PUMP 74 BBLS EXPANDACEM (290 SACKS) AT 14.6 PPG. DENSITY VERIFIED BY SCALES. SLURRY HAND MIXED DUE TO INCONSISTENT DENSITY USING ADC.
Event	9	Shutdown	Shutdown	8/29/2014	00:05:37	COM4	0.00	13.21	-10.00	
Event	10	Drop Top Plug	Drop Top Plug	8/29/2014	00:05:59	COM4	0.00	13.21	-10.00	

Event	11	Pump Displacement	Pump Displacement	8/29/2014	00:06:04	COM4	0.00	13.21	-10.00	PUMP 267 BBLS OF WBM SUPPLIED BY RIG. GOOD RETURNS THROUGHOUT. 40 BBLS CEMENT TO SURFACE.
Event	12	Bump Plug	Bump Plug	8/29/2014	00:57:07	COM4	2.90	9.15	1989.00	BUMP PLUG AT 1714 PSI AND BROUGHT PRESSURE 500 PSI OVER. HELD FOR 5 MINUTES.
Event	13	Check Floats	Check Floats	8/29/2014	01:02:25	USER	0.00	9.27	2717.00	FLOATS HELD. 2.5 BBLS BACK.
Event	14	Test Lines	Test Lines	8/29/2014	01:05:22	COM4	0.00	9.16	2500.00	PRESSURE TEST CASING TO 2500 PSI FOR 15 MINUTES.
Event	15	Check Floats	Check Floats	8/29/2014	01:21:41	USER	0.00	9.14	2573.00	FLOATS HELD. 2.5 BBLS BACK.
Event	16	End Job	End Job	8/29/2014	01:27:19	COM4	0.00	9.23	4.00	

## 2.0 Custom Graphs

### 2.1 Custom Graph



