HALLIBURTON

iCem® Service

BONANZA CREEK ENERGY

Date: Tuesday, September 23, 2014

State Seventy Holes

State Seventy Holes F-J-6HNB

Sincerely,
Joshua Prudhomme

Table of Contents

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **F-J-6HNB** 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 Brighton

Job Times

	Date	Time	Time Zone
Called Out	09/23	07:30	MST
On Location	09/23	12:00	MST
Job Started	09/23	16:55	MST
Job Completed	09/23	19:30	MST
Departed Location	09/23	20:30	MST

1.2 Cementing Job Summary

Sold To #: 324725	**Ship To #:** 3545459	**Quote #:**	**Sales Order #:** 0901685507
Customer: BONANZA CREEK ENERGY		**Customer Rep:** Bonanza Rep	
Well Name: STATE SEVENTY HOLES	**Well #:** F-J-HNB		**API/UWI #:** 05-123-39860-00
Field: WATTENBERG	**City (SAP):** KERSEY	**County/Parish:** WELD	**State:** COLORADO
Legal Description: 6-4N-62W-828FNL-1678FWL			
Contractor:		**Rig/Platform Name/Num:** Cade 26	
Job BOM: 7522			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HB21661		**Srvc Supervisor:** Nathan McBride	

Job

Formation Name				
Formation Depth (MD)	**Top**		**Bottom**	
Form Type			**BHST**	
Job depth MD	7000ft		**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	467
Casing		7	6.276	26		P-110	0	7000	0	7000
Open Hole Section			8.75				467	7000	442	7000

Tools and Accessories

Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make
Guide Shoe	7			7000		Top Plug	7		HES
Float Shoe	7					Bottom Plug	7		HES
Float Collar	7					SSR plug set	7		HES
Insert Float	7					Plug Container	7		HES
Stage Tool	7					Centralizers	7		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 ft3/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	Mud Flush III (Powder)	Mud Flush III	20	bbl	8.4			6	
42 gal/bbl		FRESH WATER							

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
2	Lead Cement	ECONOCEM (TM) SYSTEM	530	sack	12.5	1.89		5	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/min	Total Mix Fluid Gal
3	Tail Cement	EXPANDACEM (TM) SYSTEM	260	sack	14.6	1.45		5	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/min	Total Mix Fluid Gal
4	Displacement	Displacement	257	bbl	8.33				

Cement Left In Pipe	Amount	42 ft	Reason	Shoe Joint
Comment				

1.3 Planned Pumping Schedule

1. **Fill Lines with Water**
    a. Density = 8.33ppg
    b. Volume = 2bbl
2. **Pressure Test Lines to 4180psi**
3. **Pump Mud Flush Spacer**
    a. Density = 8.4 lb/gal
    b. Volume = 20 bbl
    c. Rate = 5 bpm
4. **Pump Fresh Water Spacer**
    a. Density = 8.3 lb/gal
    b. Volume = 10 bbl
    c. Rate = 5 bpm
5. **Pump EconoCem (Lead)**
    a. Density = 12.5ppg
    b. Yield = 1.89cuft/sk
    c. Water Requirement = 10.23
    d. Volume = 530 sks (178.4 bbls)
    e. Rate = 5bpm
6. **Pump ExpandaCem(Tail)**
    a. Density = 14.6ppg
    b. Yield = 1.45cuft/sk
    c. Water Requirement = 6.04
    d. Volume = 260sks (67.2bbls)
    e. Rate = 5bpm
7. **Drop Top Plug**
8. **Start Displacement**
9. **Pump Displacement Water**
    a. Density = 8.33lb/gal
    b. Volume = 257bbls
    c. Rate = 5bpm
10. Land Plug – Anticipated Final Circulation Pressure 2000psi

Calculated Total Displacement = 257 bbls

1.4 Job Overview

		Units	Description
1	Surface temperature at time of job	°F	70
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	WBM
3	Actual mud density	lb/gal	9.6
4	Time circulated before job	HH:MM	0200
5	Mud volume circulated	Bbls	340
6	Rate at which well was circulated	Bpm	3
7	Pipe movement during hole circulation	Y/N	None
8	Rig pressure while circulating	Psi	380
9	Time from end mud circulation to start of job	HH:MM	0010
10	Pipe movement during cementing	Y/N	None
11	Calculated displacement	Bbls	257
12	Job displaced by	Rig/HES	HES
13	Annular before job)?	Y/N	No
14	Annular flow after job	Y/N	No
15	Length of rat hole	Ft	10
16	Units of gas detected while circulating	Units	
17	Was lost circulation experienced at any time ?	Y/N	No

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	500	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	Pass	ppm	300 ppm	High concentrations will accelerate the set of the cement
Temperature	68	^{o}F	50-80 ^{o}F	High temps will accelerate; Low temps may risk freezing in cold weather

Submitted Respectfully by: _____

1.6 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comb Pump Rate *(bbl/min)*	DH Density *(ppg)*	PS Pump Press *(psi)*	Recirc Density *(ppg)*	Mix Water Rate *(bbl/min)*	Comment
Event	1	Other	Arrive at Location	9/23/2014	12:00:00	USER						Rig Still Running Pipe Requested on location 1200
Event	2	Other	Assessement of Location	9/23/2014	12:05:00	USER						Hazard Hunt discuss 3rd party activities
Event	3	Other	Pre Rig Up Safety Meeting	9/23/2014	12:10:00	USER						Discuss fluid sources and rig up lay out
Event	4	Other	Casing on Bottom	9/23/2014	14:20:00	USER						
Event	5	Other	Circulate Well	9/23/2014	14:30:00	USER						4bpm
Event	6	Other	Rig Up Equipment	9/23/2014	15:30:00	USER						Wait Till Casing Crew Clears Redzone
Event	7	Other	Rig Up Completed	9/23/2014	16:20:00	USER	0.00	8.53	0.00	8.33	0.00	
Event	8	Other	Pre Job Safety Meeting	9/23/2014	16:30:00	USER	0.00	8.46	0.00	8.33	0.00	
Event	9	Start Job	Start Job	9/23/2014	16:53:46	COM6	0.00	0.18	2.00	7.96	0.00	
Event	10	Test Lines	Test Lines	9/23/2014	17:03:44	COM6	0.00	8.52	3934.00	7.95	0.00	4180
Event	11	Pump Spacer 1	Mud Flush	9/23/2014	17:07:20	COM6	1.40	8.15	223.00	7.90	0.00	20bbls
Event	12	Pump Spacer 2	Fresh Water 10bbls	9/23/2014	17:11:36	COM6	4.90	8.41	393.00	7.92	0.00	
Event	13	Pump Lead Cement	Pump Lead Cement	9/23/2014	17:16:45	COM6	1.40	8.48	129.00	12.47	3.81	178.4bbls @ 12.5ppg
Event	14	Pump Tail Cement	Pump Tail Cement	9/23/2014	17:45:37	COM6	5.60	14.66	187.00	14.40	2.02	67bbls @ 14.6ppg
Event	15	Drop Top Plug	Drop Top Plug	9/23/2014	18:01:09	COM6	1.00	13.18	5.00	0.00	0.00	
Event	16	Pump Displacement	Pump Displacement	9/23/2014	18:01:20	COM6	1.00	14.54	17.00	0.00	0.00	20bbls FW 220bbls Mud 17bbls Fresh Water
Event	17	Bump Plug	Bump Plug	9/23/2014	18:53:04	USER	1.80	8.62	2397.00	0.00	0.00	4bbls Cement to Surface
Event	18	Other	Check Floats	9/23/2014	18:56:03	USER	0.00	8.60	139.00	0.00	0.00	Floats Good
Event	19	Other	Casing Test	9/23/2014	19:00:21	USER	0.00	8.44	2511.00	0.00	0.00	2500psi 30 minutes
Event	20	End Job	End Job	9/23/2014	19:35:37	COM6						

2.0 Custom Graphs

2.1 Custom Graph