

HALLIBURTON

iCem[®] Service

BONANZA CREEK ENERGY RESOURCES, LLC

Date: Sunday, January 11, 2015

State Seventy Holes F21-J24-4HNB

Case 1

Sincerely,
Joshua Prudhomme

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1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **State Seventy Holes F21-J24-4HNB** 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	1/11/2015	03:00:00	MTN
On Location	1/11/2015	06:30:00	MTN
Job Started	1/11/2015	11:07:00	MTN
Job Completed	1/11/2015	12:46:50	MTN

1.2 Cementing Job Summary

Sold To #: 324725		Ship To #: 3463649		Quote #:		Sales Order #: 0902024687					
Customer: BONANZA CREEK ENERGY				Customer Rep: KENNY							
Well Name: STATE SEVENTY HOLES		Well #: F21-J24-4 HNB		API/UWI #: 05-123-39212-00							
Field: WATTENBERG		City (SAP): KERSEY		County/Parish: WELD		State: COLORADO					
Legal Description: NE NW-4-4N-62W-330FNL-1384FWL											
Contractor: FRONTIER DRLG				Rig/Platform Name/Num: FRONTIER 04							
Job BOM: 7522											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HB60191				Srvc Supervisor: Brandon Nielson							
Job											
Formation Name											
Formation Depth (MD)		Top		Bottom							
Form Type				BHST							
Job depth MD		6578ft		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	447	0	0	
Casing		7	6.276	26		P-110	0	6578	0	0	
Open Hole Section			8.75				447	6589	0	0	
Tools and Accessories											
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make		
Guide Shoe	7			6578		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 ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	Fresh Water Spacer	Mud Flush III			24	bbl	8.33			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	10.3
10.30 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	230	sack	14.6	1.46		5	6.07
6.07 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	249.7	bbl	8.33				
Cement Left In Pipe		Amount	39 ft		Reason			Shoe Joint	

1.3 Planned Pumping Schedule

- 1. Fill Lines with Water**
 - a. Density = 8.33 lb/gal
 - b. Volume = 2 bbl
- 2. Pressure Test Lines to 4000psi**
- 3. Pump Mud Flush Spacer**
 - a. Density = 8.4 lb/gal
 - b. Volume = 24 bbl
 - c. Rate = 5 bpm
- 4. Pump EconoCem (Lead)**
 - a. Density = 12.5 lb/gal
 - b. Yield = 1.89 ft³/sk
 - c. Water Requirement = 10.3 gal/sk
 - d. Volume = 530 sks (170.4 bbls)
 - e. Rate = 5 bpm
- 5. Pump ExpandaCem (Tail)**
 - a. Density = 14.6 lb/gal
 - b. Yield = 1.46 ft³/sk
 - c. Water Requirement = 6.07 gal/sk
 - d. Volume = 230 sks (59.8 bbls)
 - e. Rate = X bpm
- 6. Drop Top Plug**
- 7. Start Displacement**
- 8. Pump Displacement Water**
 - a. Density = 8.33 lb/gal
 - b. Volume = 249.7 bbls
 - c. Rate = 6 bpm
- 9. Land Plug – Anticipated Final Circulation Pressure 1670 psi**

Calculated Total Displacement = 249.7 bbls

1.4 Job Overview

		Units	Description
1	Surface temperature at time of job	°F	35
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	WBM
3	Actual mud density	lb/gal	9.3
4	Time circulated before job	HH:MM	1:00
5	Mud volume circulated	Bbls	
6	Rate at which well was circulated	Bpm	
7	Pipe movement during hole circulation	Y/N	N
8	Rig pressure while circulating	Psi	
9	Time from end mud circulation to start of job	HH:MM	0:20
10	Pipe movement during cementing	Y/N	N
11	Calculated displacement	Bbls	249.7
12	Job displaced by	Rig/HES	HES
13	Annular before job)?	Y/N	N
14	Annular flow after job	Y/N	N
15	Length of rat hole	Ft	11
16	Units of gas detected while circulating	Units	
17	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	42.3	°F	50-80 °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	Combined Pump Rate (bbl/min)	Downhole Density (ppg)	Pass-Side Pump Pressure (psi)	Comment
Event	1	Call Out	Call Out	1/11/2015	03:00:00	USER				
Event	2	Crew Leave Yard	Crew Leave Yard	1/11/2015	05:00:00	USER				
Event	3	Arrive At Loc	Arrive At Loc	1/11/2015	06:30:00	USER				REQUESTED ON LOCATION AT 0700
Event	4	Rig-Up Completed	Rig-Up Completed	1/11/2015	09:50:00	USER				
Event	5	Rig-up Lines	Rig-up Lines	1/11/2015	10:25:00	USER	0.00	6.56	148.00	
Event	6	Pre-Job Safety Meeting	Pre-Job Safety Meeting	1/11/2015	10:30:00	USER	0.00	6.52	-1.00	JSA WITH ALL INVOLVED PERSONS
Event	7	Start Job	Start Job	1/11/2015	11:07:00	COM5	0.00	16.13	2.00	
Event	8	Test Lines	Test Lines	1/11/2015	11:15:32	COM5	0.00	16.11	43.00	TESTED LINES TO 4000 PSI NO VISIBLE LEAKS
Event	9	Pump Spacer 1	Pump Spacer 1	1/11/2015	11:18:50	COM5	0.00	16.09	15.00	24 BBL FRESH WATER PUMPED AT 3.5 BPM AND 244 PSI
Event	10	Pump Lead Cement	Pump Lead Cement	1/11/2015	11:25:57	COM5	3.50	8.28	247.00	530 SKS OR 178.4 BBL ECONOCHEM MIXED @ 12.5 PPG WITH FRESH WATER. PUMPED AT 8 BPM AND 310 PSI
Event	11	Pump Tail Cement	Pump Tail Cement	1/11/2015	11:49:17	COM5	5.50	13.64	243.00	230 SKS OR 59.8 BBL EXPANDACHEM MIXED @ 14.6 PPG WITH FRESH WATER. PUMPED AT 5.5 BPM AND 325 PSI.
Event	12	Shutdown	Shutdown	1/11/2015	12:02:53	COM5	0.00	13.10	17.00	
Event	13	Drop Top Plug	Drop Top Plug	1/11/2015	12:04:33	COM5	0.00	13.13	8.00	PLUG PRE LOADED WITNESSED BY COMPANY REP.
Event	14	Pump Displacement	Pump Displacement	1/11/2015	12:04:39	COM5	0.00	13.12	8.00	249.7 BBL FRESH WATER. CEMENT RETURNED TO SURFACE 225 BBL INTO LEAVING US WITH 25 BBL BACK. GOOD RETURNS THROUGHOUT.
Event	15	Bump Plug	Bump Plug	1/11/2015	12:43:05	COM5	0.00	8.68	2343.00	PLUG LANDED AT 1670 PSI, BROUGHT UP TO 2380 AND HELD FOR 3 MINUTES. RELEASED PRESSURE AND CHECKED FLOATS WITH 2 BBL BACK, FLOATS HELD.
Event	16	End Job	End Job	1/11/2015	12:46:50	COM5	0.00	8.62	7.00	

2.0 Custom Graphs

2.1 Custom Graph

