

HALLIBURTON

iCem[®] Service

BONANZA CREEK ENERGY

For:

Date: Tuesday, January 20, 2015

State Seventy Holes F-J-4HNB

Bonanza State Seventy Holes F-J-4HNB Inter

Sincerely,

Derek Trier

Table of Contents

1.1	Executive Summary	3
1.2	Cementing Job Summary	4
1.3	Planned Pumping Schedule	6
1.4	Job Overview	7
1.5	Water Field Test	8
1.6	Job Event Log	9
2.0	Custom Graphs	11
2.1	Custom Graph	11

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **State Seventy Holes F-J-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	1/19/2015	0900	MST
On Location		1410	MST
Job Started		2221	MST
Job Completed	1/20/2015	0030	MST
Departed Location		0140	MST

1.2 Cementing Job Summary

HALLIBURTON

Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 324725	Ship To #: 3463637	Quote #:	Sales Order #: 0902044589							
Customer: BONANZA CREEK ENERGY		Customer Rep: Bonanza Rep								
Well Name: STATE SEVENTY HOLES	Well #: F-J-4 HNB	API/UWI #: 05-123-39210-00								
Field: WATTENBERG	City (SAP): KERSEY	County/Parish: WELD	State: COLORADO							
Legal Description: NE NW-4-4N-62W-310FNL-1385FWL										
Contractor: FRONTIER DRLG		Rig/Platform Name/Num: FRONTIER 04								
Job BOM: 7522										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HB21661		Srv Supervisor: Nathan McBride								
Job										
Formation Name										
Formation Depth (MD)	Top	Bottom								
Form Type	BHST									
Job depth MD	7152ft	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	410		
Casing		7	6.276	26		P-110	0	7152		
Open Hole Section			8.75				410	7152		
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make		
Guide Shoe	7				Top Plug	7	1	HES		
Float Shoe	7		1	6529	Bottom Plug	7		HES		
Float Collar	7		1		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	Mud Flush III (Powder)	Mud Flush III	24	bbl	8.4			6		
42 gal/bbl		FRESH WATER								

last updated on 1/19/2015 3:47:59 PM

Page 1 of 3

HALLIBURTON

Cementing Job Summary

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	ECONOCHEM (TM) SYSTEM	525	sack	12.5	1.89			10.25
10.25 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	EXPANDACHEM (TM) SYSTEM	220	sack	14.6	1.45			6.06
6.06 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	248.1	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 4110psi**
- 3. Pump Mud Flush Spacer**
 - a. Density = 8.4 lb/gal
 - b. Volume = 24 bbl
 - c. Rate = 5.0 bpm
- 4. Drop Bottom Plug**
- 5. Pump EconoCem (Lead)**
 - a. Density = 12.5 lb/gal
 - b. Yield = 1.89 ft³/sk
 - c. Water Requirement = 10.25 gal/sk
 - d. Volume = 525 sks (176.7 bbls)
 - e. Rate = 5.0 bpm
- 6. Pump ExpandaCem (Tail)**
 - a. Density = 14.6 lb/gal
 - b. Yield = 1.45 ft³/sk
 - c. Water Requirement = 6.06 gal/sk
 - d. Volume = 220 sks (56.8 bbls)
 - e. Rate = 6.0 bpm
- 7. Drop Top Plug**
- 8. Start Displacement**
- 9. Pump Displacement Water**
 - a. Density = 9.4 lb/gal
 - b. Volume = 248.1 bbls
 - c. Rate = 4.5 bpm
- 10. Land Plug – Anticipated Final Circulation Pressure 2500 psi**

Calculated Total Displacement = 248.1 bbls

1.4 Job Overview

		Units	Description
1	Surface temperature at time of job	°F	63
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	WBM
3	Actual mud density	lb/gal	9.2
4	Time circulated before job	HH:MM	
5	Mud volume circulated	Bbls	800
6	Rate at which well was circulated	Bpm	2-6.5
7	Pipe movement during hole circulation	Y/N	N
8	Rig pressure while circulating	Psi	Irratic
9	Time from end mud circulation to start of job	HH:MM	00:15
10	Pipe movement during cementing	Y/N	N
11	Calculated displacement	Bbls	248.1
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	7.5	----	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	58	°F	50-80 °F	High temps will accelerate; Low temps may risk freezing in cold weather

Submitted Respectfully by: _____

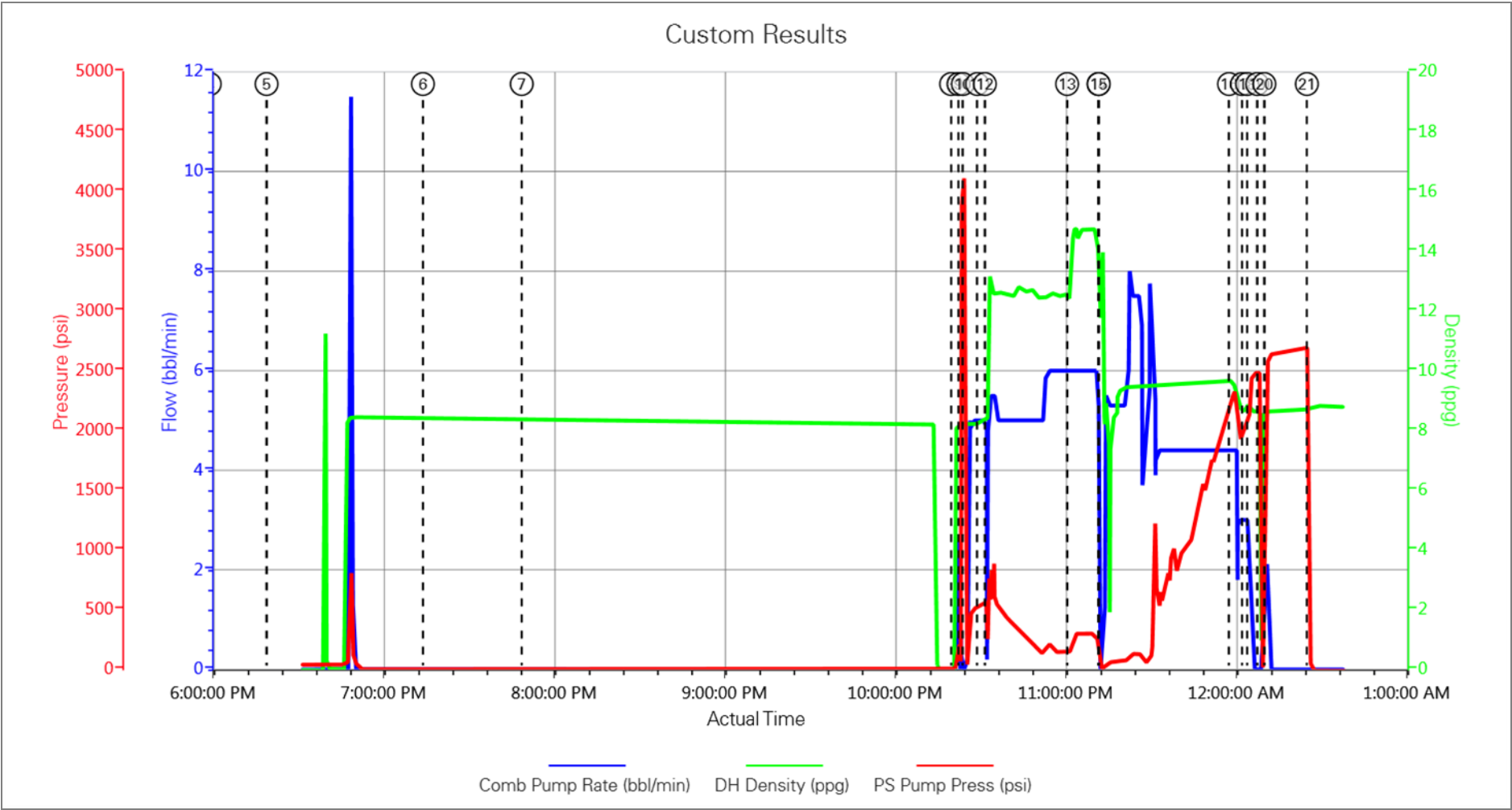
1.6 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comb Pump Rate (bbl/min)	DH Density (ppg)	PS Pump Press (psi)	Comment
Event	1	Arrive at Location from Service Center	Arrive at Location from Service Center	1/19/2015	14:00:00	USER				Requested on Location was 1500 Rig still running casing
Event	2	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	1/19/2015	14:05:00	USER				Hazard Hunt and review location lay out
Event	3	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	1/19/2015	14:10:00	USER				Discuss fluid sources and rig up lay out
Event	4	Casing on Bottom	Casing on Bottom	1/19/2015	18:00:00	USER				
Event	5	Circulate Well	Circulate Well	1/19/2015	18:20:00	USER				
Event	6	Pre-Job Safety Meeting	Pre-Job Safety Meeting	1/19/2015	19:15:00	USER	0.00	8.39	-3.00	With customer and rig crew
Event	7	Circulate Well	Circulate Well	1/19/2015	19:49:45	USER	0.00	8.40	-3.00	Continue circulation till stable 6.5bpm is established. Previous Circulation at 200gpm or over caused annular to pressure up.
Event	8	Start Job	Start Job	1/19/2015	22:20:49	COM7	0.00	-0.11	0.00	Circulation still irratic after 6.5bpm
Event	9	Test Lines	Test Lines	1/19/2015	22:23:24	COM7	0.00	8.27	4103.00	4110
Event	10	Pump Spacer 1	Pump Spacer 1	1/19/2015	22:24:57	COM7	0.00	8.07	30.00	24bbbls Mud Flush
Event	11	Pump Spacer 2	Pump Spacer 2	1/19/2015	22:30:00	COM7	5.00	8.34	529.00	10 FW
Event	12	Pump Lead Cement	Pump Lead Cement	1/19/2015	22:32:41	COM7	5.50	12.84	708.00	
Event	13	Pump Tail Cement	Pump Tail Cement	1/19/2015	23:01:38	COM7	6.00	13.34	191.00	
Event	14	Drop Plug	Drop Plug	1/19/2015	23:12:39	COM7	1.00	12.37	6.00	
Event	15	Pump Displacement	Pump Displacement	1/19/2015	23:12:46	COM7	1.00	14.05	11.00	20bbbls FW 210bbbls Mud 18bbbls FW
Event	16	Spacer Returns to Surface	Spacer Returns to Surface	1/19/2015	23:58:34	USER	4.40	9.70	2289.00	225bbbls Displaced
Event	17	Cement Returns to Surface	Cement Returns to Surface	1/20/2015	00:03:09	USER	3.00	8.92	2048.00	241.8bbbls Displaced 6bbbls to Surface
Event	18	Bump Plug	Bump Plug	1/20/2015	00:04:56	USER	0.00	8.64	2393.00	248bbbls Displaced
Event	19	Check Floats	Check Floats	1/20/2015	00:08:29	USER	0.00	8.67	537.00	Floats Good
Event	20	Comment	Casing Test	1/20/2015	00:11:00	USER	0.00	8.66	2610.00	2500psi for 15 minutes

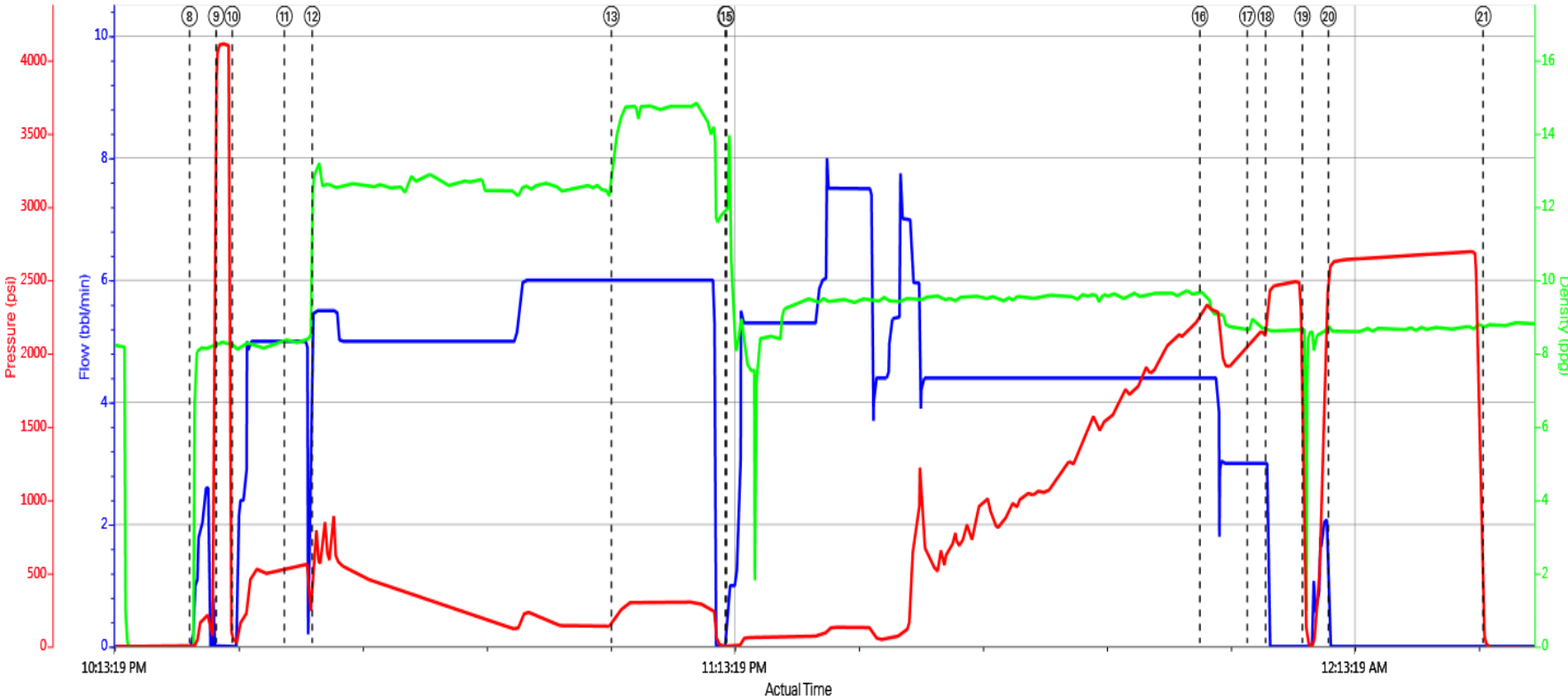
Event	21	End Job	End Job	1/20/2015	00:25:59	COM7	0.00	8.69	26.00	Thanks McBride and Crew
-------	----	---------	---------	-----------	----------	------	------	------	-------	-------------------------

2.0 Custom Graphs

2.1 Custom Graph



Custom Results



Comb Pump Rate (bbl/min) DH Density (ppg) PS Pump Press (psi)

- | | | | | | | |
|--|------------------------------------|---------------------------|----------------------------------|--------------------------------|--|------------------------------|
| ① Arrive at Location from Service Center n/a;n/a;n/a | ④ Casing on Bottom n/a;n/a;n/a | ⑦ Circulate Well 0;8.4;-3 | ⑩ Pump Spacer 1 0;8.07;30 | ⑬ Pump Tail Cement 6;13.34;191 | ⑯ Spacer Returns to Surface 4.4;9.7;2289 | ⑰ Check Floats 0;8.67;537 |
| ② Assessment Of Location Safety Meeting n/a;n/a;n/a | ⑤ Circulate Well n/a;n/a;n/a | ⑧ Start Job 0;-0.11;0 | ⑪ Pump Spacer 2 5;8.34;529 | ⑭ Drop Plug 1;12.37;6 | ⑰ Cement Returns to Surface 3;8.92;2048 | ⑳ 20 Casing Test 0;8.66;2610 |
| ③ Pre-Rig Up Safety Meeting n/a;n/a;n/a | ⑥ Pre-Job Safety Meeting 0;8.39;-3 | ⑨ Test Lines 0;8.27;4103 | ⑫ Pump Lead Cement 5.5;12.84;708 | ⑮ Pump Displacement 1;14.05;11 | ⑰ Bump Plug 0;8.64;2393 | ㉑ 21 End Job 0;8.69;26 |

