HALLIBURTON

iCem® Service

BILL BARRETT CORPORATION E-BILL

For:

Date: Friday, September 26, 2014

BILL BARRETT ANSCHUTZ EQUUS FARMS 4-62-16-0560BH

Intermediate

Sincerely,

Bradley Hinkle

Table of Contents

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **ANSCHUTZ EQUUS FARMS 4-62-16-0560BH** 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
Called Out	9/26/14	0700	
On Location	9/26/14	1700	
Job Started	9/26/14	2029	
Job Completed	9/26/14	2330	
Departed Location	9/26/14	0030	

1.2 Cementing Job Summary

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Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 343492	**Ship To #:** 3367785	**Quote #:**	**Sales Order #:** 0901688977
Customer: BILL BARRETT CORPORATION E-BILL		**Customer Rep:** Robert Schultz	
Well Name: ANSCHUTZ EQUUS FARMS	**Well #:** 4-62-16-0560B H		**API/UWI #:** 05-123-39130-00
Field: WILDCAT	**City (SAP):** KERSEY	**County/Parish:** WELD	**State:** COLORADO
Legal Description: NE NE-16-4N-62W-250FNL-1137FEL			
Contractor:		**Rig/Platform Name/Num:** Nabors M-37	
Job BOM: 7522			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HB21661		**Srvc Supervisor:** Brad Hinkle	

Job

Formation Name					
Formation Depth (MD)	**Top**		**Bottom**		
Form Type			**BHST**		
Job depth MD	6737ft		**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		J-55	0	817		0
Open Hole Section			13.5				0	825		
Casing		7	6.276	26		HCP110	0	6737		0
Open Hole Section			8.75				817	6757	0	0
Open Hole Section			8.75				817	6757	0	0

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	7	1		6737	Top Plug	7	1	HES
Float Shoe	7	1			Bottom Plug	7	1	HES
Float Collar	7	1			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 ft3/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	11.5 lb/gal Tuned Spacer III	Tuned Spacer III	50	bbl	11.5	7.17	36.0	4	
148.73 lbm/bbl		BARITE, BULK (100003681)							
36.09 gal/bbl		FRESH WATER							

last updated on 9/26/2014 11:42:46 PM

Page 1 of 3

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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/min	Total Mix Fluid Gal
2	Lead Cement	ECONOCEM (TM) SYSTEM	400	sack	12.5	1.89		7	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	FRACCEM (TM) SYSTEM	185	sack	13.5	1.74		6	8.27
8.27 Gal		FRESH WATER							
47 lbm		CMT - PREMIUM - CLASS G REG OR TYPE V, BULK (100003685)							

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	Fresh Water	255	bbl	8.33			6	

Cement Left In Pipe	Amount	47 ft	Reason	Shoe Joint

Comment 47 BBLS SPACER TO SURFACE

1.3 Planned Pumping Schedule

Squeeze Job Information

1.3 Pump Schedule

Description	Stage No.	Density (ppg)	Rate (bbl/min)	Yield (ft^3/sack)	Water Req. (gal/sack)	Volume (bbl)	Bulk Cement (sacks)	Duration (min)
BBC Mud	1	10.00	6.00			0.00		0.00
TSIII - 2149049	2	11.50	6.00			50.00		8.33
BBC Lead	3	12.50	6.00	1.9685	10.671	140.24	400.00	23.37
Bill Barrett Tail 13.5 ppg FracCem	4	13.50	6.00	1.7400	8.280	57.33	185.00	9.56
Top Plug/Start Displacement								
BBC Int Mud	5-1	10.50	6.00			233.00		38.83
BBC Int Mud	5-2	10.50	3.00			23.90		7.97
					Total:	**504.47**		**88.06**

**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	75
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	WBM
3	Actual mud density	lb/gal	10
4	Time circulated before job	HH:MM	01:00
5	Mud volume circulated	Bbls	
6	Rate at which well was circulated	Bpm	
7	Pipe movement during hole circulation	Y/N	Y
8	Rig pressure while circulating	Psi	
9	Time from end mud circulation to start of job	HH:MM	00:30
10	Pipe movement during cementing	Y/N	N
11	Calculated displacement	Bbls	255
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	20
16	Units of gas detected while circulating	Units	0
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	68	^{o}F	50-80 ^{o}F	High temps will accelerate; Low temps may risk freezing in cold weather

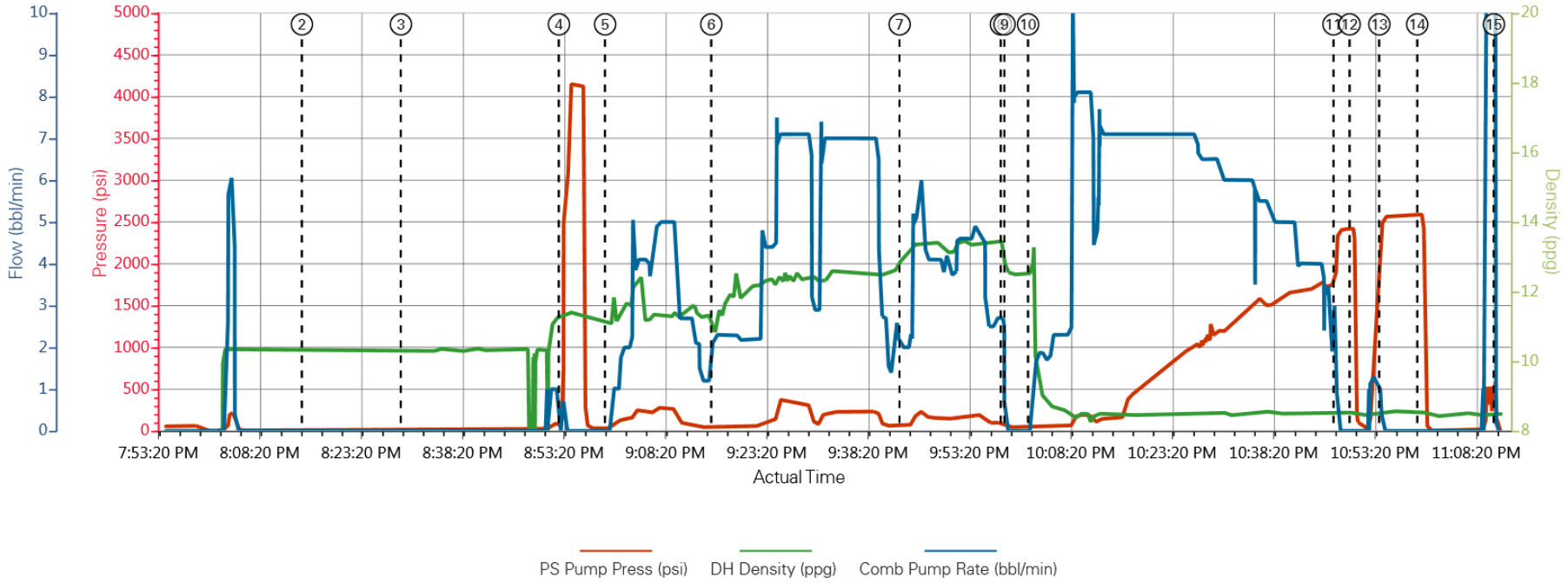
Submitted Respectfully by: ___BRAD HINKLE_____

1.6 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Combined Pump Rate *(bbl/min)*	Pass-Side Pump Pressure *(psi)*	Downhole Density *(ppg)*	Comment
Event	1	Arrive at Location from Service Center	Arrive at Location from Service Center	9/26/2014	17:00:00	USER				PERFORM SITE ASSESSMENT AND PRE RIG UP SAFETY MEETING. RIG RUNNING CASING.
Event	2	Safety Meeting	Safety Meeting	9/26/2014	20:15:00	USER	0.00	12.00	10.33	PRE JOB SAFETY MEETING WITH ALL PERSONNEL ON LOCATION.
Event	3	Start Job	Start Job	9/26/2014	20:29:38	COM12	0.00	19.00	10.36	
Event	4	Test Lines	Test Lines	9/26/2014	20:53:01	COM12	0.00	62.00	11.27	PRESSURE TEST LINES TO 4180 PSI.
Event	5	Pump Spacer 1	Pump Spacer 1	9/26/2014	20:59:51	COM12	0.00	31.00	11.17	PUMP 50 BBLS TUNED SPACER MIXED AT 11.5 PPG USING SUPPLIED WATER. RED DYE ADDED IN FINAL 3 BBLS. DENSITY VERIFIED BY SCALES.
Event	6	Pump Lead Cement	Pump Lead Cement	9/26/2014	21:15:33	COM12	2.30	53.00	10.81	PUMP 134 BBLS ECONOCEM (400 SACKS) MIXED AT 12.5 PPG USING SUPPLIED WATER. DENSITY VERIFIED BY SCALES.
Event	7	Pump Tail Cement	Pump Tail Cement	9/26/2014	21:43:25	COM12	2.00	67.00	12.96	PUMP 57 BBLS FRACCEM (185 SACKS) MIXED AT 13.5 PPG USING SUPPLIED WATER. DENSITY VERIFIED BY SCALES.
Event	8	Shutdown	Shutdown	9/26/2014	21:58:24	COM12	0.00	80.00	12.98	
Event	9	Drop Top Plug	Drop Top Plug	9/26/2014	21:58:56	COM12	0.00	46.00	12.55	TOP PLUG PRELOADED.
Event	10	Pump Displacement	Pump Displacement	9/26/2014	22:02:25	COM12	0.00	45.00	12.53	PUMP 255 BBLS FRESH WATER. GOOD RETURNS THROUGHOUT. 47 BBLS SPACER TO SURFACE.

Event	11	Bump Plug	Bump Plug	9/26/2014	22:47:36	COM12	0.00	2313.00	8.54	BUMP PLUG AT 1750 PSI. PRESSURE BROUGHT TO 2280 PSI AND HELD FOR 2 MINUTES.
Event	12	Check Floats	Check Floats	9/26/2014	22:50:00	USER	0.00	2424.00	8.54	2.5 BBLS BACK. FLOATS HELD.
Event	13	Test Lines	Test Lines	9/26/2014	22:54:23	COM12	0.00	2526.00	8.50	PRESSURE TEST CASING TO 2500 PSI FOR 5 MINUTES.
Event	14	Check Floats	Check Floats	9/26/2014	23:00:00	USER	0.00	2592.00	8.52	2.5 BBLS BACK. FLOATS HELD.
Event	15	End Job	End Job	9/26/2014	23:11:20	COM12	0.00	64.00	8.48	

Job Graph



① Arrive at Location from Service Center n/a;n/a;n/a
② Safety Meeting 12;10.33;0
③ Start Job 19;10.36;0
④ Test Lines 62;11.27;0
⑤ Pump Spacer 1 31;11.17;0
⑥ Pump Lead Cement 53;10.81;2.3
⑦ Pump Tail Cement 67;12.96;2
⑧ Shutdown 80;12.98;0
⑨ Drop Top Plug 46;12.55;0
⑩ Pump Displacement 45;12.53;0
⑪ Bump Plug 2313;8.54;0
⑫ Check Floats 2424;8.54;0
⑬ Test Lines 2526;8.5;0
⑭ Check Floats 2592;8.52;0
⑮ End Job 64;8.48;0

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