

# HALLIBURTON

iCem<sup>®</sup> Service

## EXTRACTION OIL & GAS

Date: Monday, March 28, 2016

### **Bybee #5**

Production

Job Date: Monday, March 14, 2016

Sincerely,

**Lauren Roberts**

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## 1.0 Cementing Job Summary

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### 1.1 Executive Summary

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Halliburton appreciates the opportunity to perform the cementing services on the **Bybee #5** cement **Production** 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.

**All spacer and cement mixed within range. Lost returns 180 bbl. into a 276.5 bbl. displacement and never got them back.**

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 [Ft. Lupton]**

**HALLIBURTON**

**Cementing Job Summary**

*The Road to Excellence Starts with Safety*

Sold To #: 369404		Ship To #: 3677760		Quote #:		Sales Order #: 0903181991				
Customer: EXTRACTION OIL & GAS				Customer Rep: HUGH MCGRAW						
Well Name: BYBEE			Well #: 5		API/UWI #: 05-123-41803-00					
Field: WATTENBERG		City (SAP): FIRESTONE		County/Parish: WELD		State: COLORADO				
Legal Description: NE SE-14-2N-68W-2268FSL-1192FEL										
Contractor: PATTERSON-UTI ENERGY				Rig/Platform Name/Num: PATTERSON 346						
Job BOM: 7523										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HX38199				Srcv Supervisor: Christopher Pickell						
<b>Job</b>										
Formation Name										
Formation Depth (MD)		Top		Bottom						
Form Type				BHST						
Job depth MD		12515ft		Job Depth TVD		7350ft				
Water Depth				Wk Ht Above Floor		4ft				
Perforation Depth (MD)		From		To						
<b>Well Data</b>										
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	1597		
Casing		5.5	4.778	20			0	12515		7350
Open Hole Section			7.875				1597	12515		7350
<b>Tools and Accessories</b>										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe	5.5					Top Plug	5.5	1	KLX	
Float Shoe	5.5	1	KLX	12515		Bottom Plug	5.5			
Float Collar	5.5	1	KLX	12510		SSR plug set	5.5			
Insert Float	5.5					Plug Container	5.5	1	HES	
Stage Tool	5.5					Centralizers	5.5			
<b>Fluid Data</b>										
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	11.5 lb/gal Tuned Spacer III	Tuned Spacer III	50	bbl	11.5	3.74	24.8	4		
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	
2	ElastiCem Lead	ELASTICEM (TM) SYSTEM	150	sack	13.2	1.57	7.51	8		

**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	
3	ElastiCem Tail Cement	ELASTICEM (TM) SYSTEM	1450	sack	13.2	1.57	7.51	8		
4	Fresh Water Displacement	Fresh Water Displacement	276.5	bbl	8.33			10-1		
<b>Cement Left In Pipe</b>		<b>Amount</b>	5 ft		<b>Reason</b>			Shoe Joint		
<b>Comment</b> All spacer and cement mixed within range. Lost returns 180 bbl into a 276.5 bbl displacement and never got them back.										

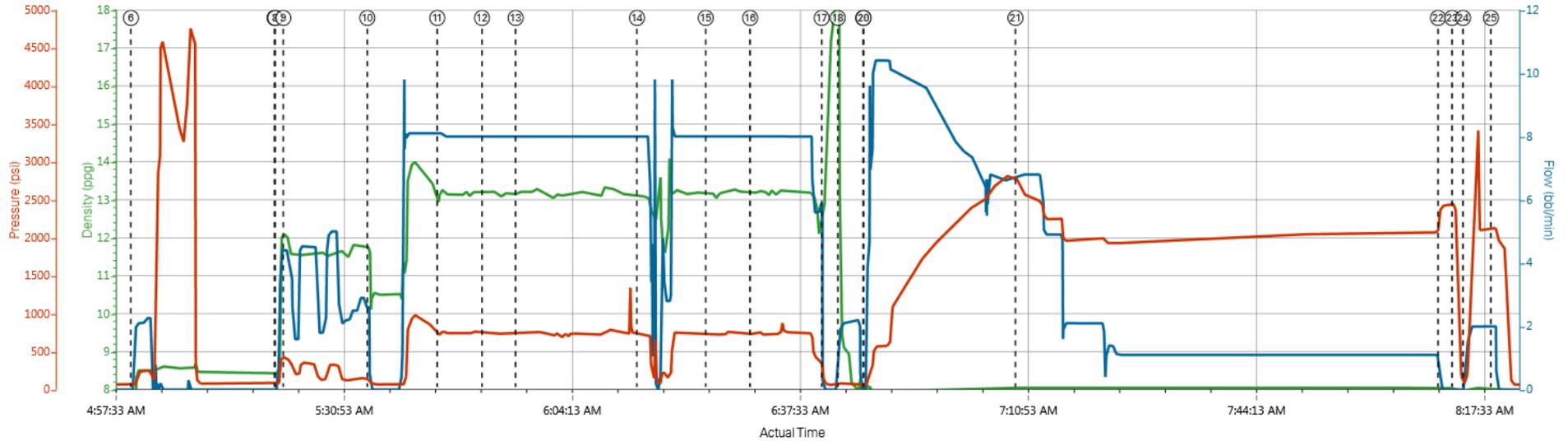
## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Downhole Density <i>(ppg)</i>	Combined Pump Rate <i>(bbl/min)</i>	Pass-Side Pump Pressure <i>(psi)</i>	Comments
Event	1	Call Out	Call Out	3/13/2016	20:30:00	USER				Crew called out at 20:30 to be on location at 02:30. Crew was Chris Pickell, Nick Roles, Jeff Polinsky, Derrick Adams, Lauren Roberts
Event	2	Safety Meeting - Service Center or other Site	Safety Meeting - Service Center or other Site	3/14/2016	01:00:00	USER				Safety meeting held for journey, equipment double checked. Left the yard for Patterson 346
Event	3	Arrive At Loc	Arrive At Location	3/14/2016	01:30:00	USER				Arrive on location 1 hour early. Rig had 75 joints of casing left to run
Event	4	Other	Well Data	3/14/2016	01:35:00	USER				TD 12515' 7 7/8" OPEN HOLE. TP 12515 5 1/2" 20#. LC 12510'. TVD 7350'. SURFACE 9 5/8" 36# 1597'. OBM 9.5 PPG
Event	5	Safety Meeting - Pre Rig-Up	Safety Meeting - Pre Rig-Up	3/14/2016	01:40:00	USER				Safety meeting held for rig up. Hazard hunt performed. Rig up planned and executed
Event	6	Start Job	Start Job	3/14/2016	05:00:05	COM6				
Event	7	Test Lines	Test Lines	3/14/2016	05:21:05	COM6	8.43	0.00	4500.00	Pressure tested lines to 4500 psi
Event	8	Pump Spacer 1	Pump Spacer 1	3/14/2016	05:21:11	COM6	8.43	0.00	77.00	Pump 50 bbl of Tuned Spacer 11.5 ppg 3.87 yield 28.4 gal/sk
Event	9	Check Weight	Check weight	3/14/2016	05:22:22	COM6	12.05	4.40	417.00	Spacer scaled at 11.55 ppg
Event	10	Pump Lead Cement	Pump Lead Cement	3/14/2016	05:34:38	COM6	11.78	0.00	120.00	Pump 150 sks of Lead ElastiCem cement 42 bbl 13.2 ppg 1.57 yield 7.51 gal/sk
Event	11	Pump Tail Cement	Pump Tail Cement	3/14/2016	05:44:52	COM6	13.22	8.10	742.00	Pump 1450 sks of Tail ElastiCem cement 42 bbl 13.2 ppg 1.57 yield 7.51 gal/sk
Event	12	Check Weight	Check weight	3/14/2016	05:51:24	COM6	13.19	8.00	775.00	Cement scaled at 13.2 ppg
Event	13	Check Weight	Check weight	3/14/2016	05:56:19	COM6	13.18	8.00	736.00	Cement scaled at 13.2 ppg
Event	14	Check Weight	Check weight	3/14/2016	06:14:03	COM6	13.12	8.00	737.00	Cement scaled at 13.3 ppg
Event	15	Check Weight	Check weight	3/14/2016	06:24:06	COM6	13.16	8.00	740.00	Cement scaled at 13.3 ppg

Event	16	Check Weight	Check weight	3/14/2016	06:30:35	COM6	13.19	8.00	750.00	Cement scaled at 13.2 ppg
Event	17	Shutdown	Shutdown	3/14/2016	06:41:03	COM6				
Event	18	Clean Lines	Clean Lines	3/14/2016	06:43:24	USER	12.00	1.90	88.00	Lines blown down from rig floor to wash up tank. Then washed pumps and lines to the wash up tank
Event	19	Drop Top Plug	Drop Top Plug	3/14/2016	06:47:07	COM6	8.16	0.00	58.00	Top burst plug loaded by tool hand while shutdown
Event	20	Pump Displacement	Pump Displacement	3/14/2016	06:47:10	COM6	8.22	0.00	58.00	Pump displacement using water
Event	21	Other	Lost Returns	3/14/2016	07:09:22	USER	8.05	6.70	2748.00	With 180 bbl away out of 276.5 of displacement returns dropped to roughly 2 bbl/min. By 200 bbl away the completely stopped. Pump rate was dropped to 2 bbl/min then 1 bbl/min until the end of displacement. Circulation was never re-established.
Event	22	Bump Plug	Bump Plug	3/14/2016	08:11:07	COM6	8.05	0.00	2386.00	Plug landed with 276.5 bbl away with 2072 psi shutting down with 2384 psi
Event	23	Check Floats	Check Floats	3/14/2016	08:13:10	USER	8.04	0.00	2451.00	Pressure was held for 2 minutes then released. Floats held. 3 bbl back to the tanks
Event	24	Pump Displacement	Pump displacement	3/14/2016	08:14:47	USER	7.96	0.60	72.00	Pump the 3 bbl from checking floats back into the well along with another 1 bbl to burst rupture plug. Then pump another 5 bbl of water into the well for an intentional wet shoe for frac. sleeves. Plug burst with 3433 psi
Event	25	Release Casing Pressure	Release Casing Pressure	3/14/2016	08:18:51	USER	8.03	2.00	2133.00	Pressure held at 2130
Event	26	Safety Meeting - Pre Rig-Up	Safety Meeting - Pre Rig-Up	3/14/2016	08:24:42	USER	7.95	0.00	59.00	Safety meeting held for rig down. Washed up pump to wash up tank. Then rigged down all equipment
Event	27	End Job	End Job	3/14/2016	08:45:01	COM6	-0.46	0.00	53.00	No spacer or cement to surface. Did maintain good pressure throughout the entirety of displacement
Event	28	Safety Meeting - Departing Location	Safety Meeting - Departing Location	3/14/2016	09:30:00	USER				Safety meeting held for journey. Left location for the yard

## EXTRACTION BYBEE #5 PRODUCTION



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

jmp Tail Cement 13.22:8.1:742    ⑥ Check weight 13.18:8.736    ⑩ Check weight 13.16:8.740    ⑭ Shutdown 12.84:0.102    ⑰ Drop Top Plug 8.16:0.58    21 Lost Returns 8.05:6.7:2748    23 Check Floats 8.04:0.2451    25 Release Casing Pressure 8.03:2.2133    27 End Job -0.46:0.53  
 neck weight 13.19:8.775    ⑧ Check weight 13.12:8.737    ⑫ Check weight 13.19:8.750    ⑮ Clean Lines 12.1:9.88    20 Pump Displacement 8.22:0.58    22 Bump Plug 8.05:0.2386    24 Pump displacement 7.96:0.6:72    26 Safety Meeting - Pre Rig-Up 7.95:0.59    28 Safety Meeting - Departing Lc

EXTRACTION BYBEE #5 PRODUCTION

