HALLIBURTON

iCem® Service

HALLIBURTON ENERGY INSTITUTE

United States of America

Date: Wednesday, December 28, 2016

Hester Farms C-36HN

Production

Job Date: Saturday, December 17, 2016

Sincerely,

Justin Lansdale

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1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Hester Farms C-36HN** 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.

20 bbls of cement to surface

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]

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Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 369404	**Ship To #:** 3684138	**Quote #:**	**Sales Order #:** 0903721828
Customer: EXTRACTION OIL & GAS		**Customer Rep:** Shawn	
Well Name: HESTER FARMS	**Well #:** C-36HN		**API/UWI #:** 05-123-42002-00
Field: WATTENBERG	**City (SAP):** EATON	**County/Parish:** WELD	**State:** COLORADO
Legal Description: 31-7N-66W-1619FNL-202FWL			
Contractor: CYCLONE		**Rig/Platform Name/Num:** CYCLONE 37	
Job BOM: 7523			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HX38199		**Srvc Supervisor:** Jacob Nelson	

Job

Formation Name				
Formation Depth (MD)	**Top**		**Bottom**	
Form Type			**BHST**	
Job depth MD	12012ft		**Job Depth TVD**	
Water Depth			**Wk Ht Above Floor**	4'
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	1551	0	1551
Casing		5.5	4.778	20			0	12012	0	
Open Hole Section			8.5				1551	12012	1560	

Tools and Accessories

Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make
Guide Shoe						Top Plug			
Float Shoe	5.5	1	3rd Party	12012		Bottom Plug			
Float Collar	5.5	1	3rd Party	11959		SSR plug set			
Insert Float	5.5					Plug Container	5.5	1	HES
Stage Tool	5.5					Centralizers			

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	3.74			
0.30 gal/bbl		MUSOL A, 330 GAL TOTE - (790828)							
149.34 lbm/bbl		BARITE, BULK (100003681)							
35.40 gal/bbl		FRESH WATER							
0.30 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)							

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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	ElastiCem W/O CBL	ELASTICEM (TM) SYSTEM	150	sack	13.2	1.57			7.48
7.48 Gal		FRESH WATER							
0.90 %		HR-5, 50 LB SK (100005050)							

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	ELASTICEM (TM) SYSTEM	2000	sack	13.2	1.57			7.49
7.49 Gal		FRESH WATER							
0.80 %		HR-5, 50 LB SK (100005050)							

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	MMCR Water	MMCR Water	40	bbl	8.33				
0.50 gal/bbl		MICRO MATRIX CEMENT RETARDER, 5 GAL PAIL (100003781)							

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
5	Displacement	Displacement	224.30	bbl	8.33				

Cement Left In Pipe	Amount	5 ft	Reason		Shoe Joint
Mix Water:	pH 7.0	Mix Water Chloride:	0 ppm	Mix Water Temperature:	38 °F
Cement Temperature:	38 °F	Plug Displaced by:	8.33 lb/gal Fresh water	Disp. Temperature:	38 °F
Plug Bumped?	Yes	Bump Pressure:	2490 psi	Floats Held?	Yes
Cement Returns:	20 bbl	Returns Density:		Returns Temperature:	
Comment Got back 50 bbls of Tuned Spacer and 20 bbls of cement to surface.					

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comments
Event	1	Start Job	Start Job	12/17/2016	14:15:00	COM5	Start recording data.
Event	2	Pump Water	Fill Lines	12/17/2016	14:29:04	USER	Fill lines with 5 bbls of fresh water.
Event	3	Test Lines	Test Lines	12/17/2016	14:32:44	COM5	Pressure tested lines at 4928 psi. Planned was 4500 psi. Test good.
Event	4	Pump Spacer 1	Pump Spacer 1	12/17/2016	14:46:04	COM5	Pumped 50 bbls of Tuned Spacer III at 10.5 ppg. Yield: 3.74, Gal/sk: 23.7. 15 gals of Musol A, 15 gals of Dual Spacer B, and 10 gals of D-Air 3000 added. Density verified with mud scale.

Event	5	Pump Lead Cement	Pump Lead Cement	12/17/2016	15:03:31	COM5	Pumped 150 sks/ 42 bbls of ElastiCem w/o CBL at 13.2 ppg. Yield: 1.57, Gal/sk: 7.48. Density verified with mud scale. Majority of pumping was at 8 bpm but mix rate kept up at 5 bpm. Driverside pumping efficiency was poor due to cold water and Frac valves iced up.
Event	6	Pump Tail Cement	Pump Tail Cement	12/17/2016	15:13:04	COM5	Pumped 2000 sks/ 559 bbls of ElastiCem Tail at 13.2 ppg. Yield: 1.57, Gal/sk: 7.49. Density verified with mud scale. Majority of pumping was at 8 bpm but mix rate kept up at 5 bpm. Driverside pumping efficiency was poor due to cold water and Frac valves iced up.
Event	7	Shutdown	Shutdown	12/17/2016	16:51:24	COM5	Shutdown pumps and bled pressure to load 3rd party dart.
Event	8	Clean Lines	Clean Lines	12/17/2016	16:56:38	COM5	Clean lines out with 10 bbls of clean fresh water to slop tank. 100 lbs of sugar added to water.
Event	9	Drop Top Plug	Drop Top Plug	12/18/2016	17:10:15	COM5	Dropped 3rd party dart. Company man and tool man witnessed dart launch.
Event	10	Pump Displacement	Pump Displacement	12/18/2016	17:12:18	COM5	Pumped 234.3 bbls of fresh water displacement. 20 gallons of MMCR added to the first 40 bbls of displacement. Rig lost all air to control stand. Wasn't able to open driverside measuring tank suction. Had to finish displacement by floating off of the passenger side measuring tank

							with passenger side deck engine with the best efficiency.
Event	11	Spacer Returns to Surface	Spacer Returns to Surface	12/18/2016	17:51:43	USER	Got back 50 bbls of Tuned Spacer and 20 bbls of cement.
Event	12	Bump Plug	Bump Plug	12/18/2016	18:06:09	USER	Bumped plug at 2490 psi.
Event	13	Event	Burst Plug	12/18/2016	18:08:13	USER	Plug disk burst at 3800 psi. Pumped a 5 bbl wet shoe then shutdown.
Event	14	Check Floats	Check Floats	12/18/2016	18:12:24	USER	Floats held and got 2.0 bbls back.
Event	15	End Job	End Job	12/18/2016	18:38:14	COM5	Stop recording data.

2.2 Custom Graph