

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS

Date: Friday, September 08, 2017

HFE 8 Production

Job Date: Sunday, August 20, 2017

Sincerely,

Bryce Hinsch

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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **HFE 8** 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.

Approximately 50 bbls of cement were returned 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 #: 3800434		Quote #:		Sales Order #: 0904240089				
Customer: EXTRACTION OIL & GAS				Customer Rep:						
Well Name: HFE		Well #: 8		API/UWI #: 05-123-44771-00						
Field: WATTENBERG		City (SAP): MEAD		County/Parish: WELD		State: COLORADO				
Legal Description: SW SW-22-4N-68W-1125FSL-1075FWL										
Contractor: CYCLONE				Rig/Platform Name/Num: CYCLONE 37						
Job BOM: 7523 7523										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HX38199				Srvc Supervisor:						
Job										
Formation Name										
Formation Depth (MD)		Top 1500		Bottom		11745				
Form Type				BHST						
Job depth MD		11745ft		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	1590	0	1590
Casing		5.5	4.778	20			0	11745	0	6910
Open Hole Section			8.5				1590	11775	1590	6910
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe	5.5			11775		Top Plug	5.5		HES	
Float Shoe	5.5			11745		Bottom Plug	5.5		HES	
Float Collar	5.5			11743		SSR plug set	5.5		HES	
Insert Float	5.5					Plug Container	5.5	1	HES	
Stage Tool	5.5					Centralizers	5.5		HES	
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	11.5 lb/gal Tuned Spacer III	Tuned Spacer III	50	bbl	11.5	3.73		5		
0.50 gal/bbl		MUSOL A, 330 GAL TOTE - (790828)								
149.34 lbm/bbl		BARITE, BULK (100003681)								
35 gal/bbl		FRESH WATER								
0.50 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)								

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(v. 4.4.18)

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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/mi n	Total Mix Fluid Gal
2	ElastiCem	ELASTICEM (TM) SYSTEM	1950	sack	13.2	1.57		8	7.53
7.53 Gal		FRESH WATER							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
3	Displacement	Displacement	260	bbl	8.33			8.5	
Cement Left in Pipe		Amount	5 ft		Reason			Shoe Joint	
Mix Water:pH 7		Mix Water:200 ppm		Mix Water Temperature:		65°F °C			
Cement Temperature:## °F °C		Plug Displaced by:		8.33 lb/gal kg/m3		Disp. Temperature:## °F °C			
Plug Bumped?Yes		Bump Pressure:#### psi MPa		Floats Held?Yes					
Cement Returns:50 bbl m3		Returns Density:## lb/gal kg/m3		Returns Temperature:## °F °C					
Comment BUMPED PLUG @ CACULATED DISPLACEMENT, BURSTED PLUG @ 4093 PSI, FLOATS HELD WITH 1 ½ BBLS BACK, 50 BBLS OF SPACER AND 50 BBLS OF CEMENT RETURNS TO SURFACE									

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comb Pump Rate (bbl/min)	DH Density (ppg)	DS Pump Press (psi)	Comments
Event	1	Call Out	Call Out	8/20/2017	09:00:00	USER				CALLED OUT FROM FT LUMPTON CO.
Event	2	Depart from Service Center or Other Site	Depart from Service Center or Other Site	8/20/2017	11:30:00	USER				LEAVE YARD AFTER SAFTEY MEETING
Event	3	Arrive at Location from Service Center	Arrive at Location from Service Center	8/20/2017	12:40:00	USER				ARRIVED ON LOCATION AND TALKED TO COMPANY MAN ABOUT JOB FIGURES AND THE SPOTTING OF OUR EQUIPMENT
Event	4	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	8/20/2017	12:50:00	USER				ASSESSED LOCATION AN TOOK WATER SAMPLE
Event	5	Rig-Up Equipment	Rig-Up Equipment	8/20/2017	13:00:00	USER				SPOTTED EQUIPMENT AND RIGGED UP TO FLOOR RIG IS RUNNING CASING
Event	6	Other	Other	8/20/2017	13:10:00	USER				Water test=pH: _7___, Cl: _200___, temp _65___degrees Tannin-Lignin: _NEG.____; Sulfate: _250____
Event	7	Other	Other	8/20/2017	13:30:00	USER				Rig Circulation: ____ bbls Circulation Rate: _15___ bbl/min Mud Density _9.2__ lb/gal Mud YP/PV: _____
Event	8	Other	Other	8/20/2017	13:45:00	USER				Spacer: 50____ bbl TOS_0____ Lead Cement: __545___ bbl, _1950___ sks, TOC_0____ Tail Cement:

										____ bbl, ____ sks, TOC____ Displacement: _260____ bblCMT left in Pipe__1/2____ Reason____SHOE____
Event	9	Other	Other	8/20/2017	14:00:00	USER				TD: _11775____, TP _11745____, SJ: _2____, OH: _8.5____, Casing: Size/Weight/Grade: __5.5/ 20# P110_____ Previous Casing Shoe: __1500____
Event	10	Start Job	Start Job	8/20/2017	14:50:44	COM4	0.00	8.49	3.00	
Event	11	Rig-Up Completed	Rig-Up Completed	8/20/2017	15:00:00	USER	0.00	8.58	0.00	RIG UP COMPLETE SAFETY MEETING WITH RIG HANDS AND HALLIBURTON ABOUT THE DANGERS OF OUR EQUIPMENT AND WENT OVER JOB FIGURES. READY TO TEST LINES
Event	12	Test Lines	Test Lines	8/20/2017	15:43:22	COM4	0.00	8.36	59.00	FLOOD LINES W/ 2 BBLS, LOW TEST TO 500 PSI, HIGH TEST TO 6000 PSI
Event	13	Pump Spacer 1	Pump Spacer 1	8/20/2017	15:46:10	COM4	0.00	8.40	7.00	TUNED SPACER W/ SURFACTANTS, 50 BBLS @ 11.5#, 50 BBLS, PUMPED @ 5 BPM @ 292 PSI
Event	14	Pump Lead Cement	Pump Lead Cement	8/20/2017	15:55:55	COM4	6.60	12.61	346.00	ELASTICEM, 1950 SKS @ 13.2#, YEILD @ 1.57, GAL/SK@ 7.53, 3061.5 FT3, 545 BBLS, 350 BBLS OF WATER TO MIX, HOC- 11745, TOC-0, PUMPED @ 8 BPM @ 650 PSI
Event	15	Drop Top Plug	Drop Top Plug	8/20/2017	17:18:29	COM4	0.00	8.20	3.00	3RD PARTY PLUG
Event	16	Pump Displacement	Pump Displacement	8/20/2017	17:19:53	COM4	8.00	8.22	362.00	FRESH WATER 260 BBLS,

PUMPED @ 10 BPM @ 3200
PSI SLOWED DOWN TO 8.5
BPM @ 180 GONE BECAUSE
OF PRESSURE @ 2900 PSI,
SLOWED RATE LAST 20 BBLS
TO 5 BPM @ 2400 PSI

Event	17	Bump Plug	Bump Plug	8/20/2017	17:47:34	COM4	4.50	8.32	2826.00	500 OVER, BUMPED @ 2420 TOOK TO 3006 PSI
Event	18	Other	Other	8/20/2017	17:49:15	USER	1.70	8.43	2431.00	RUPTURE PLUG TO 4093 PSI, WITH THEN PUMPED 5 BBLS OF WATER FOR WET SHOE SYSTEM, @ 2440 PSI
Event	19	Check Floats	Check Floats	8/20/2017	17:50:25	USER	4.90	8.31	2427.00	FLOATS HELD GOT 1 1/2 BBL BACK AND COMPANY MAN IS HAPPY
Event	20	End Job	End Job	8/20/2017	17:52:56	COM4				
Event	21	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig- Down	8/20/2017	18:00:00	USER				SAFETY MEETING OVER RIGGING DOWN
Event	22	Rig-Down Equipment	Rig-Down Equipment	8/20/2017	18:20:00	USER				RIG DOWN EQUIPMENT AND HOSES
Event	23	Rig-Down Completed	Rig-Down Completed	8/20/2017	19:00:00	USER				RIG DOWN COMPLETE
Event	24	Safety Meeting - Departing Location	Safety Meeting - Departing Location	8/20/2017	19:30:00	USER				SAFETY MEETING OVER DEPARTURE AND JOURNEY HOME
Event	25	Depart Location for Home	Depart Location for Home	8/20/2017	19:45:00	USER				LEAVE LOCATION

3.0 Attachments

3.1 Extraction HFE 8 Production Job Chart

