

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS-EBUS

Date: Friday, September 08, 2017

MLD 3 Production

Job Date: Wednesday, August 30, 2017

Sincerely,

Julia Nichols

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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **MLD 3** 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 barrels 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 [Ft. Lupton]

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Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 389404		Ship To #: 3800436		Quote #:		Sales Order #: 0904265621				
Customer: EXTRACTION OIL & GAS				Customer Rep: Shane						
Well Name: MLD			Well #: 3		API/UWI #: 05-123-44813-00					
Field: WATTENBERG		City (SAP): MEAD		County/Parish: WELD		State: COLORADO				
Legal Description: NW NW-22-4N-88W-805FNL-744FWL										
Contractor: PATTERSON-UTI ENERGY				Rig/Platform Name/Num: PATTERSON 346						
Job BOM: 7523 7523										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HX38199				Srvc Supervisor: Bryan Kraft						
Job										
Formation Name										
Formation Depth (MD)		Top			Bottom					
Form Type					BHST					
Job depth MD		11985ft			Job Depth TVD		7100ft			
Water Depth					Wk Ht Above Floor		4ft			
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	3	9.625	8.921	36		J-55	0	1580	0	1580
Casing		5.5	4.778	20		P-110	0	11985	0	7100
Open Hole Section			8.5				1580	11995	1580	7100
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe						Top Plug	5.5	1	KLX	
Float Shoe	5.5	1	KLX	11985		Bottom Plug				
Float Collar	5.5	1	KLX	1980		SSR plug set				
Insert Float						Plug Container	5.5	1	HES	
Stage Tool						Centralizers				

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Cementing Job Summary

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/mi n	Total Mix Fluid Gal
1	Spacer	TUNED SPACER III	50	bbbl	11.5	3.73	23.4	3	1761
		149.34 lbm/bbl	BARITE, BULK (100003681)						
		35 gal/bbl	FRESH WATER						
		0.50 gal/bbl	MUSOL A, 330 GAL TOTE - (790828)						
		0.50 gal/bbl	DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)						
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	Cement	ELASTICEM (TM) SYSTEM	1974	sack	13.2	1.57	7.54	8	14884
		0.30 %	SCR-100 (100003749)						
		7.54 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	FRESH WATER	265	bbbl	8.34			8	11130
Cement Left In Pipe	Amount	5 ft			Reason			Shoe Joint	
Mix Water:	Ph 6.0	Mix Water Chloride:	<100 ppm			Mix Water Temperature:	53 °F		
Cement Temperature:	N/A	Plug Displaced by:	8.3 lb/gal Fresh Water			Disp. Temperature:	53 °F		
Plug Bumped?	Yes	Bump Pressure:	2400psi			Floats Held?	Yes		
Cement Returns:	50 bbl	Returns Density:	N/A			Returns Temperature:	N/A		
Comment The plug bumped @ calculated displacement @ 2400 PSI, shutdown @ 2800 PSI. Pressured up to rupture disc, disc ruptured @ 3850 PSI. Pumped 5 BBLS for a wet shoe. Cement returned to surface @ 215 BBLS into displacement. Total of 50 BBLS cement returned to surface.									

2.0 Real-Time Job Summary

2.1 Job Event Log

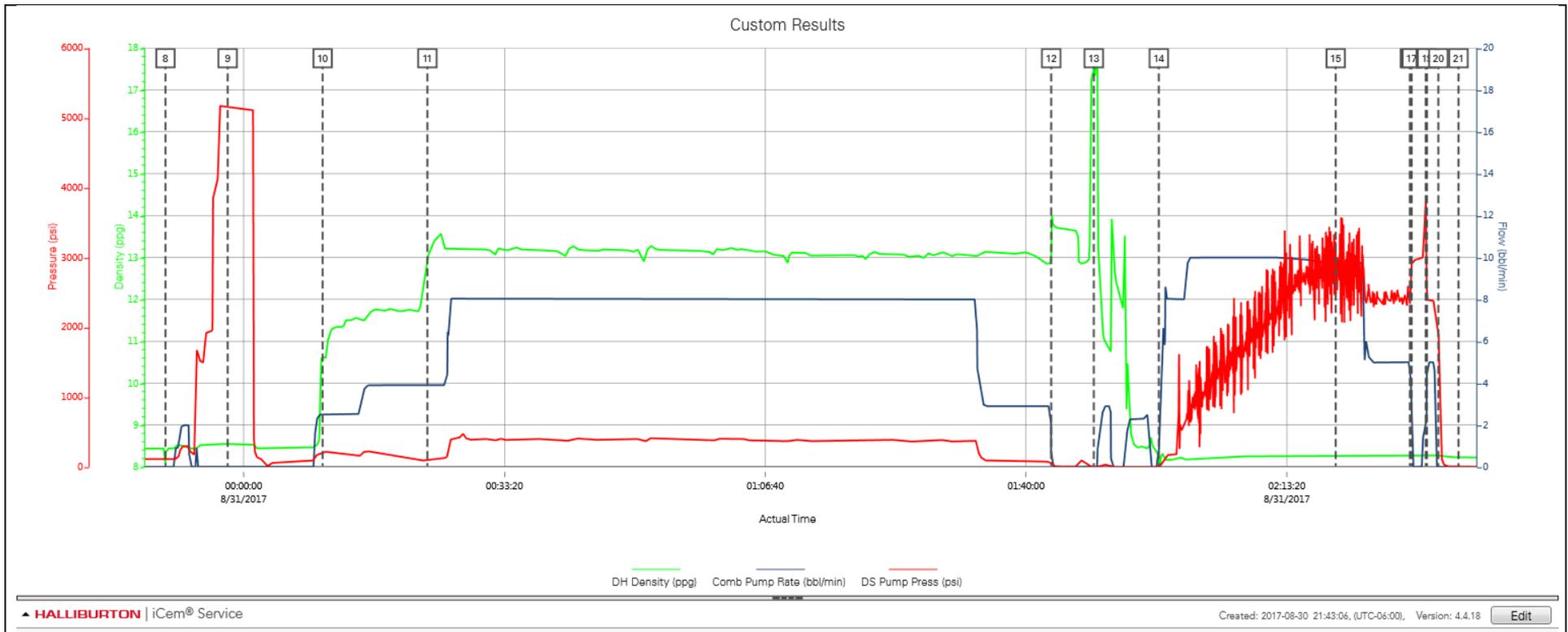
Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	DS Pump Press <i>(psi)</i>	Comments
Event	1	Call Out	Call Out	8/30/2017	15:00:00	USER				CREW CALLED OUT AT 15:00 8/30/2017, REQUESTED ON LOCATION 21:00 8/30/2017. CREW PICKED UP CEMENT, CHEMICALS (25 GAL MUSOL A, 25 GAL DUAL SPACER B, 20 GAL D-AIR), AND PLUG CONTAINER FROM FORT LUPTON,CO. BULK 660: 12644849/12649238, PUMP 11897034/11645460.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	8/30/2017	19:15:00	USER				DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.
Event	3	Crew Leave Yard	Crew Leave Yard	8/30/2017	19:30:00	USER				STARTED JOURNEY MANAGEMENT.
Event	4	Arrive At Loc	Arrive At Loc	8/30/2017	20:30:00	USER				M
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	8/30/2017	20:45:00	USER				HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	8/30/2017	20:55:00	USER				CREW STAGED EQUIPMENT AND RIGGED UP BULK, IRON, AND WATER HOSES TO PERFORM JOB.
Event	7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	8/30/2017	23:00:00	USER	8.44	0.00	111.00	MEETING WITH HALLIBURTON AND RIG PERSONNEL. COMMUNICATED POTENTIAL SAFETY HAZARDS AND JOB DETAILS.
Event	8	Start Job	Start Job	8/30/2017	23:50:00	COM5	8.04	0.00	110.00	BEGIN RECORDING JOB DATA.
Event	9	Test Lines	Test Lines	8/30/2017	23:57:57	USER	8.55	0.00	5144.00	PRESSURE TESTED IRON TO 5000 PSI. KICKOUTS SET @ 500 PSI, KICKED OUT @ 1750 PSI, 5TH GEAR STALL OUT @ 2100 PSI.
Event	10	Pump Spacer	Pump Tuned Spacer @ 11.5 ppg	8/31/2017	00:10:05	USER	10.66	2.50	215.00	PUMP 50 BBLS OF TUNED SPACER @ 11.5 LB/GAL, 3.73 YIELD, 23.4 GAL/SKS, ADDED 25 GAL MUSOL A, 25 GAL DUAL SPACER B, AND 20 GAL D-AIR, DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	11	Pump Cement	Pump Cement @ 13.2 ppg	8/31/2017	00:23:29	USER	12.97	3.90	104.00	PUMP 1974 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.57 YIELD, 7.54 GAL/SK, 552 BBLS, TOC @ SURFACE', DENSITY

VERIFIED BY PRESSURIZED MUD SCALES.

Event	12	Shutdown	Shutdown	8/31/2017	01:43:13	USER	13.09	0.10	59.00	SHUTDOWN TO WASH PUMPS AND LINES/ DROP TOP PLUG.
Event	13	Drop Top Plug	Drop Top Plug	8/31/2017	01:48:39	USER	17.49	0.00	-3.00	PLUG LEFT CONTAINER, VERIFIED BY CO. MAN AND TOOL HAND.
Event	14	Pump Displacement	Pump Fresh Water Displacement	8/31/2017	01:56:58	USER	8.27	0.80	-2.00	BEGIN CALCULATED DISPLACEMENT OF 265 BBLS WITH FRESH WATER.
Event	15	Cement Returns to Surface	Cement Returns to Surface	8/31/2017	02:19:34	USER	8.23	9.70	3216.00	CEMENT TO SURFACE @ 215 BBLS INTO DISPLACEMENT. CALCULATED AMOUNT OF 50 BBLS OF CEMENT TO SURFACE.
Event	16	Bump Plug	Bump Plug	8/31/2017	02:29:03	USER	8.26	5.00	2314.00	PLUG BUMPED AT CALCULATED DISPLACEMENT. PRESSURED 400 PSI OVER FINAL CIRCULATING PRESSURE OF 2400 PSI.
Event	17	Shutdown	Shutdown	8/31/2017	02:29:16	USER	8.26	0.00	2898.00	SHUTDOWN FOR 1 MINUTE @ 2800 PSI.
Event	18	Pressure Up	Pressure Up	8/31/2017	02:31:04	USER	8.27	2.00	3694.00	PRESSURE UP TO RUPTURE DISC. DISC RUPTURED @ 3850 PSI.
Event	19	Pump Displacement	Pump Wet Shoe	8/31/2017	02:31:14	USER	8.26	5.00	2579.00	PUMP 5 BBLS FRESH WATER FOR WET SHOE.
Event	20	Check Floats	Check Floats	8/31/2017	02:32:42	USER	8.28	0.00	1912.00	RELEASED PRESSURE, FLOATS HELD, 2 BBLS BACK.
Event	21	End Job	End Job	8/31/2017	02:35:16	COM5				STOP RECORDING JOB DATA.
Event	22	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	8/31/2017	02:40:00	USER	8.22	0.00	-2.00	DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event	23	Rig-Down Completed	Rig-Down Completed	8/31/2017	03:45:00	USER				ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL, AND LOCATION WAS CLEAN.
Event	24	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	8/31/2017	04:15:00	USER				DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW.
Event	25	Crew Leave Location	Crew Leave Location	8/31/2017	04:30:00	USER				THANK YOU FOR USING HALLIBURTON - BRYAN KRAFT AND CREW.

3.0 Attachments

3.1 Custom Results – Job Chart with Events



3.2 Custom Results – Job Chart without Events

