

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS-EBUS

MLD 8 Production

Job Date: Thursday, September 21, 2017

Sincerely,

Fort Lupton District Cement

Legal Notice

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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 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.

47 bbls of cement to surface

5 bbls of wet shoe pumped

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

The Road to Excellence Starts with Safety

Sold To #: 369404		Ship To #: 3800233		Quote #:		Sales Order #: 0904310471					
Customer: EXTRACTION OIL & GAS				Customer Rep: Todd							
Well Name: MLD			Well #: 8		API/UWI #: 05-123-44818-00						
Field: WATTENBERG		City (SAP): BERTHOUD		County/Parish: WELD		State: COLORADO					
Legal Description: NW NW-22-4N-68W-802FNL-604FWL											
Contractor: PATTERSON-UTI ENERGY				Rig/Platform Name/Num: PATTERSON 346							
Job BOM: 7523 7523											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HX38199				Srv Supervisor: Nicholas Peterson							
Job											
Formation Name											
Formation Depth (MD)		Top	1,589'	Bottom		11,784'					
Form Type				BHST							
Job depth MD		11,272'		Job Depth TVD							
Water Depth				Wk Ht Above Floor		5'					
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	1590	0	1590	
Casing		5.5	4.778	20		P-110	0	11272	0	0	
Open Hole Section			8.5				1590	11284	1590	6962	
Tools and Accessories											
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make		
Guide Shoe	5.5	1	KLX	11272		Top Plug	5.5	1	KLX		
Float Shoe						Bottom Plug					
Float Collar						SSR plug set					
Insert Float						Plug Container	5.5	1	HES		
Stage Tool						Centralizers	5.5				
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	3.73	23.4	3	1,170
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/min	Total Mix Fluid Gal
2	Cement	ELASTICEM (TM) SYSTEM	1855	sack	13.2	1.57	7.53	7	13,968
0.35 %		SCR-100 (100003749)							
7.50 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	Displacement	Fresh Water	250	bbl	8.34		42	10	10,500
Cement Left In Pipe		Amount	5 ft		Reason			Shoe Joint	
Mix Water:		pH 7.0	Mix Water Chloride:		0 ppm		Mix Water Temperature:		60 °F
Cement Temperature:		## °F	Plug Displaced by:		8.33 lb/gal		Disp. Temperature:		60 °F
Plug Bumped?		Yes	Bump Pressure:		2844 psi		Floats Held?		Yes
Cement Returns:		47 bbl	Returns Density:		11.5/13.2 lb/gal		Returns Temperature:		## °F
Comment: Pumped 50 bbls Tuned Spacer, 518 bbls Cement, 6 bbls fresh water to clean lines, 250 bbls displacement. Cement returns to surface 203 bbls into displacement.									

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	Call Out	9/20/2017	18:30:00	USER					CREW CALLED OUT AT 18:30, REQUESTED ON LOCATION 00:30. CREW PICKED UP CEMENT, CHEMICALS, AND PLUG CONTAINER FROM FT. LUPTON, CO. BULK 660 E-8, AND PUMP 11189145.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	9/20/2017	23:00:00	USER					CREW DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.
Event	3	Crew Leave Yard	Crew Leave Yard	9/20/2017	23:30:00	USER					STARTED JOURNEY MANAGEMENT.
Event	4	Arrive At Loc	Arrive At Loc	9/21/2017	00:30:00	USER					END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING- 9.625" 36 LB/FT @ 1,589', 5.5" CASING: 20 LB/FT TOTAL 11,272', 8.5" HOLE, TD 11,284', 5.0' SHOE TRAC, TVD- 6,962'. PUMP FRESH WATER DISPLACEMENT. CASING LANDED @ 03:00 09/21/2017. RIG CIRCULATED BOTTOMS UP.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	9/21/2017	00:45:00	USER					HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP, AND WEATHER.

Event	6	Rig-Up Equipment	Rig-Up Equipment	9/21/2017	01:00:00	USER					CREW STAGED EQUIPMENT AND RIGGED UP BULK, IRON AND WATER HOSES TO PERFORM JOB.
Event	7	Rig-Up Completed	Rig-Up Completed	9/21/2017	02:00:00	USER					WAITED ON RIG TO FINISH RUNNING CASING.
Event	8	Pre-Job Safety Meeting	Pre-Job Safety Meeting	9/21/2017	04:00:00	USER	8.41	0.00	2.00	16.70	SAFETY MEETING WITH HALLIBURTON, AND RIG PERSONNEL. CREW COMMUNICATED POTENTIAL SAFETY HAZARDS, AND JOB DETAILS.
Event	9	Other	Other	9/21/2017	04:38:13	COM5	8.49	0.00	3.00	18.10	PRIME LINES WITH WATER BEFORE PRESSURE TEST
Event	10	Test Lines	Test Lines	9/21/2017	04:42:46	COM5	8.29	0.00	943.00	21.10	PRESSURE TESTED IRON TO 4800 PSI. KICKOUTS SET @ 500 PSI, KICKED OUT @ 1050 PSI, 5TH GEAR STALL OUT @ 1940 PSI.
Event	11	Start Job	Start Job	9/21/2017	04:47:00	COM5	8.35	0.00	4872.00	21.10	BEGIN RECORDING JOB DATA.
Event	12	Check Weight	Check weight	9/21/2017	04:49:01	COM5	8.34	0.00	4844.00	21.10	
Event	13	Pump Spacer 1	Pump Spacer 1	9/21/2017	04:51:42	COM5	8.27	0.00	4.00	21.10	PUMP 50 BBLS OF TUNED SPACER @ 11.5 LB/GAL, 10 GALLONS D-AIR, 25 GALS MUSOL, 25 GALS DUAL SPACER-B. DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	14	Pump Lead Cement	Pump Lead Cement	9/21/2017	05:14:00	COM5	13.49	8.00	729.00	55.30	PUMP 1855 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.57 FT3/SK, 7.53 GAL/SK, 518.70 BBLS. HOT CALCULATED @ 11,272', TOT CALCULATED @ SURFACE. CALCULATED TO

											GET 48 BBLS CEMENT BACK TO SURFACE. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 7 BBLS/MIN @ 560 PSI.
Event	15	Shutdown	Shutdown	9/21/2017	06:32:34	COM5	14.31	0.00	-4.00	497.90	WASH PUMPS AND LINES WITH 6 BBLS FRESH WATER, RIG BLEW DOWN STAND PIPE AND GROUND IRON WITH AIR TO CLEAR LINES OF CEMENT
Event	16	Drop Top Plug	Drop Top Plug	9/21/2017	06:54:11	COM5	7.92	0.00	-15.00	535.90	PLUG LEFT CONTAINER, VERIFIED BY CO. MAN.
Event	17	Pump Displacement	Pump Displacement	9/21/2017	06:56:22	COM5	8.27	9.90	502.00	8.00	BEGIN CALCULATED DISPLACEMENT OF 250 BBLS WITH FRESH WATER. CEMENT TO SURFACE 203 BBLS AWAY, 47 BBLS CEMENT TO SURFACE. PUMP RATE 10 BBLS/MIN @ 2200 PSI.
Event	18	Bump Plug	Bump Plug	9/21/2017	07:23:00	COM5	8.27	0.00	2844.00	248.80	PLUG BUMPED AT CALCULATED DISPLACEMENT. 2,340 PSI PRESSURED 500 PSI OVER BUMP.
Event	19	Pressure Up	Pressure Up	9/21/2017	07:25:56	USER	8.26	4.40	2183.00	250.60	PLUG LANDED PRESSURED UP TO RUPTURE DISC. DISC RUPTURED @ 3,825 PSI.
Event	20	Check Floats	Check Floats	9/21/2017	07:27:57	USER	8.24	0.00	144.00	254.70	FLOATS HELD GOT 1.5 BBLS BACK.
Event	21	End Job	End Job	9/21/2017	07:29:31	COM5					STOP RECORDING JOB DATA.
Event	22	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	9/21/2017	07:35:00	USER	8.22	0.00	-11.00	0.00	DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON

AND HOSES.											
Event	23	Rig-Down Equipment	Rig-Down Equipment	9/21/2017	07:45:00	USER	8.22	1.60	-10.00	11.00	RIG DOWN BULK AND MIXING EQUIPMENT.
Event	24	Rig-Down Completed	Rig-Down Completed	9/21/2017	09:00:00	USER					ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL, AND LOCATION WAS CLEAN.
Event	25	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	9/21/2017	09:15:00	USER					CREW DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW.
Event	26	Crew Leave Location	Crew Leave Location	9/21/2017	09:30:00	USER					THANK YOU FOR USING HALLIBURTON – NICK PETERSON AND CREW.

3.0 Job Chart

3.1 Job Chart

