

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS-EBUS

MLD 4 Production

Job Date: Saturday, September 02, 2017

Sincerely,

Fort Lupton District Cement

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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 4** 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.

50 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 #: 3800448		Quote #:		Sales Order #: 0904274267				
Customer: EXTRACTION OIL & GAS				Customer Rep: Shane Hackford						
Well Name: MLD			Well #: 4		API/UWI #: 05-123-44815-00					
Field: WATTENBERG		City (SAP): MEAD		County/Parish: WELD		State: COLORADO				
Legal Description: NW NW-22-4N-68W-806FNL-772FWL										
Contractor: PATTERSON-UTI ENERGY				Rig/Platform Name/Num: PATTERSON 346						
Job BOM: 7523 7523										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HX38199				Srv Supervisor: Steven Markovich						
Job										
Formation Name										
Formation Depth (MD)		Top		Bottom						
Form Type				BHST						
Job depth MD		11560ft		Job Depth TVD						
Water Depth				Wk Ht Above Floor						
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	11560	0	0
Open Hole Section			8.5				1580	11570	1580	6900
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe	5.5			11555		Top Plug	5.5		HES	
Float Shoe	5.5					Bottom Plug	5.5		HES	
Float Collar	5.5					SSR plug set	5.5		HES	
Insert Float	5.5					Plug Container	5.5		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 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		6		
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	ElastiCem	ELASTICEM (TM) SYSTEM	1900	sack	13.2	1.57		5	7.5
0.30 %		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	Displacement	255	bbl	8.34				
Comment Spacer to surface at 155bbls away, cement to surface at 205bbls away brining 50bbls of cement to surface. Bumped plug at 255bbls. Final lifting pressure was 2491psi. Took 500psi over and held. Kicked in pumps at 1.5bbl/min to burst plug. Plug burst at 3803psi then pumped 5bbl wet shoe.									

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	DS Pump Press (psi)	Comb Pump Rate (bbl/min)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	Call Out	9/2/2017	14:00:00	USER					Job called out with an on location time of 20:00
Event	2	Arrive At Loc	Arrive At Loc	9/2/2017	19:45:00	USER					Arrived on location rig still running casing approx 1570'
Event	3	Safety Meeting - Assessment of Location	Safety Meeting - Assessment of Location	9/2/2017	19:50:00	USER					JSA and hazard hunt with HES crew.
Event	4	Rig-Up Equipment	Rig-Up Equipment	9/2/2017	20:10:00	USER					Rigged up HES lines and equipment.
Event	5	Start Job	Start Job	9/2/2017	21:36:43	COM4	8.33	-45.00	0.00	14.20	TD 11570' TP 11560" FC 11555' 5 1/2" 20# Production casing 8 1/2" Openhole 9 5/8 36# Surface casing 1580'.
Event	6	Test Lines	Test Lines	9/2/2017	21:39:42	COM4	8.30	23.00	0.00	1.10	500psi kick out test then bring up to 4500psi and hold
Event	7	Check Weight	Check weight	9/2/2017	21:49:36	COM4	8.32	-37.00	0.00	1.10	Weight verified by pressurized scales.
Event	8	Pump Spacer 1	Pump Spacer 1	9/2/2017	21:51:37	COM4	8.32	-35.00	1.80	0.10	Pump 50bbls of 11.5ppg 3.73yield Tuned Spacer. Added 25 gallons of Musol-A and Dual Spacer-B on the fly. Pumped at 5bbl/min
Event	9	Check Weight	Check weight	9/2/2017	21:53:27	COM4	11.30	153.00	3.00	5.20	Weight verified by pressurized scales.
Event	10	Pump Lead Cement	Pump Lead Cement	9/2/2017	22:03:59	COM4	13.16	83.00	5.00	0.00	Pump 531bbls (1900sks) of 13.2ppg 1.57yield Cement. Pumped at 8bbl/min 515psi

Event	11	Check Weight	Check weight	9/2/2017	22:04:15	COM4	13.65	250.00	5.40	1.50	Weight verified by pressurized scales.
Event	12	Check Weight	Check weight	9/2/2017	22:08:10	COM4	13.27	405.00	7.00	28.40	Weight verified by pressurized scales.
Event	13	Check Weight	Check weight	9/2/2017	22:14:20	COM4	13.08	332.00	7.00	71.40	Weight verified by pressurized scales.
Event	14	Check Weight	Check weight	9/2/2017	22:50:28	COM4	13.11	393.00	8.00	358.80	Weight verified by pressurized scales.
Event	15	Check Weight	Check weight	9/2/2017	22:57:03	COM4	13.24	412.00	8.00	411.20	Weight verified by pressurized scales.
Event	16	Shutdown	Shutdown	9/2/2017	23:16:32	COM4	13.45	19.00	0.00	534.20	Shutdown and clean pumps and lines
Event	17	Drop Top Plug	Drop Top Plug	9/2/2017	23:30:20	COM4	8.08	-38.00	0.00	543.50	Plug loaded into HES head by tool hand. Plug drop verified by company rep.
Event	18	Pump Displacement	Pump Displacement	9/2/2017	23:30:25	COM4	8.11	-38.00	0.00	0.00	Pump 255bbls of fresh water. Pumped at 10bbl/min and slowed down with pressure increase. Spacer to surface at 155bbls away Cement to surface at 205bbls away brining 50bbls of cement to surface.
Event	19	Bump Plug	Bump Plug	9/2/2017	23:59:36	COM4	8.41	2492.00	5.10	254.10	Bumped plug at 255bbls away. Final lift pressure was 2491psi. Took 500ps over and held.
Event	20	Other	Other	9/3/2017	00:00:52	COM4	8.42	2920.00	0.00	254.60	Pressure held and was at 2925psi. Kicked pumps in at 1.5bbl/min to burst plug.
Event	21	Other	Other	9/3/2017	00:01:32	USER	8.45	3778.00	1.20	255.40	Plug burst at 3803psi increased rate to 4.5bbl/min and pumped 5 bbl wet shoe. Checked

											floats, after 1.5bbls back to the truck the floats held.
Event	22	End Job	End Job	9/3/2017	00:07:20	COM4	8.34	-40.00	0.00	260.60	Thank you Steve Markovich and Crew

3.0 Job Chart

3.1 Job Chart

