

HALLIBURTON

Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 345242		Ship To #: 3722559		Quote #:		Sales Order #: 0904217394					
Customer: NOBLE ENERGY INC - EBUS				Customer Rep: Tim Simpkins							
Well Name: MINUTEMEN FEDERAL			Well #: LC21-625		API/UWI #: 05-123-42788-00						
Field: WILDCAT		City (SAP): KEOTA		County/Parish: WELD		State: COLORADO					
Legal Description: SW SW-22-9N-59W-900FSL-399FWL											
Contractor: Noble				Rig/Platform Name/Num: H&P 524							
Job BOM: 7523 7523											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HB70026				Srcv Supervisor: Steven Markovich							
Job											
Formation Name											
Formation Depth (MD)		Top			Bottom						
Form Type					BHST		230 degF				
Job depth MD		11073ft			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		9.625	8.921	36			0	1933	0	1933	
Casing	0	5.5	4.778	20		P-110	0	11117	0	6124	
Open Hole Section			8.5				6350	11083	0	0	
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			80	bbl	11.5	3.78		5	
34.60 gal/bbl		FRESH WATER									
0.60 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)									
0.60 gal/bbl		MUSOL A, 330 GAL TOTE - (790828)									
147.42 lbm/bbl		BARITE, BULK (100003681)									
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
2	ElastiCem	ELASTICEM (TM) SYSTEM			150	sack	13.2	1.57		6	7.54
7.54 Gal		FRESH WATER									
0.25 %		SCR-100 (100003749)									

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)	Comments
Event	1	Call Out	Call Out	8/6/2017	11:00:00	USER				Job called out t 11:00 with an on location time of 18:00
Event	2	Arrive At Loc	Arrive At Loc	8/6/2017	17:00:00	USER				Arrived on location, rig still running casing approx 2400"
Event	3	Safety Meeting - Assessment of Location	Safety Meeting - Assessment of Location	8/6/2017	17:15:00	USER				JSA and Hazard hunt with HES crew
Event	4	Rig-Up Equipment	Rig-Up Equipment	8/6/2017	17:30:00	USER				Rigged up HES equipment and lines.
Event	5	Start Job	Start Job	8/6/2017	20:13:48	COM4				TD 11083' TP 11073' FC 11033.4' 5 1/2" 20# csg 8 1/2" open hole 9 5/8" 36# surface csg 1933'. Estimated Top of Tail Cement 6051' Estimated top of Lead Cement 2- 2859' Estimated top of Lead Cement 1846' Estimated top of Spacer 175'
Event	6	Test Lines	Test Lines	8/6/2017	20:17:03	COM4	8.44	4434.00	0.00	Set kick outs to 500psi for kick out test, then bring up pressure to 4500psi and hold for 3 mins.
Event	7	Check Weight	Check weight	8/6/2017	20:25:28	COM4				Weight verified by pressurized scales.
Event	8	Drop Bottom Plug	Drop Bottom Plug	8/6/2017	20:26:52	USER				Drop bottom plug. Plug loaded into CRT by company rep.
Event	9	Pump Spacer 1	Pump Spacer 1	8/6/2017	20:27:04	COM4	11.50	156.00	2.90	Pump 80bbbls of 11.5ppg 3.78yield Tuned Spacer. Added 48 gallons of Dual Spacer B and Musol A on the fly. Pumped at 5bbl/min 175psi.
Event	10	Drop Bottom Plug	Drop Bottom Plug	8/6/2017	20:48:53	USER				Drop bottom plug. Plug loaded into CRT by company rep.
Event	11	Pump Lead Cement	Pump Lead Cement	8/6/2017	20:51:23	COM4	13.47	628.00	8.00	Pump 41.94bbbls (150sks) of 13.2ppg 1.57yield Lead Cement. Pumped at 8bbl/min 550psi.
Event	12	Check Weight	Check weight	8/6/2017	20:52:55	COM4	13.35	236.00	4.40	Weight verified by pressurized scales.
Event	13	Check Weight	Check weight	8/6/2017	20:56:46	COM4	13.29	624.00	8.00	Weight verified by pressurized scales.
Event	14	Pump Cement	Pump Cement	8/6/2017	20:59:30	COM4	13.31	631.00	8.00	Pump 130.23bbbls (457sks) of 13.2ppg 1.6yield Lead Cement 2. Pumped at 8bbl/min 750psi.
Event	15	Pump Tail Cement	Pump Tail Cement	8/6/2017	21:14:58	COM4	13.41	698.00	8.00	Pump 205.28bbbls (565sks) of 13.2ppg 2.04yield Tail cement. Pumped

at 8bbl/min 700psi.

Event	16	Check Weight	Check weight	8/6/2017	21:15:38	COM4	13.31	761.00	8.00	Weight verified by pressurized scales.
Event	17	Shutdown	Shutdown	8/6/2017	21:41:37	COM4				Shutdown
Event	18	Clean Lines	Clean Lines	8/6/2017	21:50:31	COM4				Clean pumps and lines
Event	19	Drop Top Plug	Drop Top Plug	8/6/2017	21:54:26	COM4				Drop Top plug. Plug loaded into CRT by company rep.
Event	20	Pump Displacement	Pump Displacement	8/6/2017	21:54:47	COM4	8.33	462.00	10.00	Pump 243bbls of H2O. First 20bbls with MMCR then 223bbls with Biocide. Pumped at 9bbl/min ad slowed down last 20bbls to 3 bbl/min to bump plug.
Event	21	Bump Plug	Bump Plug	8/6/2017	22:24:18	COM4	8.35	1777.00	2.80	Bumped plug at 243bbls away, final lift pressure was 1676psi. Took pressure 500psi over and held for 5 min.
Event	22	End Job	End Job	8/6/2017	22:31:50	COM4				Thank you Steve Markovich and Crew