

HALLIBURTON

Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 345242		Ship To #: 3722558		Quote #:		Sales Order #: 0904205685					
Customer: NOBLE ENERGY INC - EBUS				Customer Rep: .							
Well Name: MINUTEMEN FEDERAL			Well #: LC21-620			API/UWI #: 05-123-42789-00					
Field: WILDCAT		City (SAP): KEOTA		County/Parish: WELD		State: COLORADO					
Legal Description: SW SW-22-9N-59W-862FSL-400FWL											
Contractor: Noble						Rig/Platform Name/Num: H&P 524					
Job BOM: 7523 7523											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HB70026						Srcv Supervisor: Nathaniel Moore					
Job											
Job Tubulars/Tools											
Description	Size in	Weight lbm/ft	ID in	Thread	Grade	Top MD ft	Btm MD ft	Top TVD ft	Btm TVD ft	Shoe Jnt ft	% Excess
9 5/8" Surface Casing	9.625	36	8.921			0	1930	0	1930		
8 1/2" Open Hole			8.5			1930	11082	0	6054		5
5 1/2" Production Casing	5.5	20	4.778		P-110	0	11072	0	6054	45	
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)									
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
3	ElastiCem w/ SCBL	ELASTICEM (TM) SYSTEM			450	sack	13.2	1.6		6	7.69
0.25 %		SCR-100 (100003749)									

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7.69 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
4	NeoCem NT1	NeoCem TM	566	sack	13.2	2.04		5	9.75
9.75 Gal		FRESH WATER							
0.04 %		SCR-100 (100003749)							
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
5	MMCR Displacement	MMCR Displacement	20	bbl	8.33				
0.50 gal/bbl		MICRO MATRIX CEMENT RETARDER, 5 GAL PAIL (100003781)							
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
6	Displacement	Displacement	244.5	bbl	8.33				
Cement Left In Pipe	Amount				Reason	Shoe Joint			

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DS Pump Press <i>(psi)</i>	DH Density <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	Comments
Event	1	Call Out	Call Out	8/2/2017	21:30:00	USER				OL time 0330. Verify equipment and materials.
Event	2	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	8/3/2017	02:30:00	USER				Sign in with customer. Wait on casing to spot equipment. TD 11082' 8.5" hole. TP 11072' 5.5" 20#. Float collar 11029'. Surface 1930' 9.625" 36#. TVD 6054'. MW 9.2 ppg. Water tested PH 7 Chlorides <200 Sulfates <200 temp 65.
Event	3	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	8/3/2017	05:30:01	USER				Spot in and rig up equipment.
Event	4	Pre-Job Safety Meeting	Pre-Job Safety Meeting	8/3/2017	08:00:00	USER				Discuss job procedure with HES and rig crew
Event	5	Start Job	Start Job	8/3/2017	08:24:34	COM1				Drop 1st bottom plug/Fill lines 3 bbl water.
Event	6	Test Lines	Test Lines	8/3/2017	08:30:30	COM1	4528.00	8.83		500 psi kickout test and 4500 psi pressure test.
Event	7	Pump Spacer 1	Pump Spacer 1	8/3/2017	08:34:52	COM1	192.00	12.02	3.60	80 bbl tuned spacer with surfactants. 11.5 ppg
Event	8	Drop Bottom Plug	Drop Bottom Plug	8/3/2017	08:53:14	COM1				
Event	9	Pump Lead Cement	Pump Lead Cement	8/3/2017	08:58:33	COM1	605.00	13.55	7.00	150 sks/42 bbl ElastiCem without CBL 13.2 ppg 1.57 ft3/sk 7.69 gal/k
Event	10	Check Weight	Check weight	8/3/2017	09:00:51	COM1	592.00	13.28	7.00	13.2 ppg verified with pressurized scales.
Event	11	Pump Lead Cement	Pump Lead Cement	8/3/2017	09:04:42	COM1	547.00	13.08	7.00	450 sks/128 bbl ElastiCem with CBL 13.2 ppg 1.6 ft3/sk 7.69 gal/sk
Event	12	Check Weight	Check weight	8/3/2017	09:13:43	COM1	647.00	13.14	8.00	13.2 ppg
Event	13	Pump Tail Cement	Pump Tail Cement	8/3/2017	09:22:21	COM1	536.00	13.19	6.00	566 sks/206 bbl NeoCem Tail 13.2 ppg 2.04 ft3/sk 9.75 gal/sk
Event	14	Check Weight	Check weight	8/3/2017	09:24:54	COM1	829.00	13.12	8.00	13.2 ppg
Event	15	Shutdown	Shutdown	8/3/2017	09:50:20	COM1				Wash pumps and lines and blow down with rig air.
Event	16	Drop Top Plug	Drop Top Plug	8/3/2017	09:59:06	COM1				Witnessed by company rep
Event	17	Pump Displacement	Pump Displacement	8/3/2017	09:59:09	COM1	316.00	7.99	8.00	244.5 bbl water displacement with MMCR in first 20 bbl and Biocide throughout.

Event	18	Bump Plug	Bump Plug	8/3/2017	10:29:18	COM1	1896.00	8.01	3.50	1850 psi final pump pressure. Pressured up to 2350 psi. Estimated tops of cements: Tail: 6032'. 2nd lead: 2895' 1st lead: 1875' Spacer: 205'.
Event	19	Other	Check floats	8/3/2017	10:31:53	COM1				3.5 bbl back. Floats held
Event	20	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	8/3/2017	10:35:00	USER				
Event	21	Depart Location Safety Meeting	Depart Location Safety Meeting	8/3/2017	12:00:00	USER				