

HALLIBURTON

Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 345242		Ship To #: 3688578		Quote #: 0022151742		Sales Order #: 0903107645					
Customer: NOBLE ENERGY INC - EBUS				Customer Rep: Jim Turner							
Well Name: WELLS RANCH			Well #: AF05-655		API/UWI #: 05-123-42140-00						
Field: WATTENBERG		City (SAP): KERSEY		County/Parish: WELD		State: COLORADO					
Legal Description: SW NW-5-5N-62W-2183FNL-603FWL											
Contractor: H & P DRLG				Rig/Platform Name/Num: H & P 321							
Job BOM: 7523											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HB61755				Srvc Supervisor: Benjamin Fuchs							
Job											
Formation Name											
Formation Depth (MD)		Top		Bottom							
Form Type				BHST		230 degF					
Job depth MD		16024ft		Job Depth TVD							
Water Depth				Wk Ht Above Floor		7ft					
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	1889	0	1889	
Casing		5.5	4.778	20			0	16024	0	6498	
Open Hole Section			8.5				1889	16034	1889	6498	
Tools and Accessories											
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make		
Guide Shoe	5.5			16024		Top Plug	5.5	1	HES		
Float Shoe	5.5	1				Bottom Plug	5.5	2	HES		
Float Collar	5.5	1				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	12.0 lb/gal Tuned Spacer III	Tuned Spacer III			40	bbl	12	3.16	19.6		
34.60 gal/bbl		FRESH WATER									
176.58 lbm/bbl		BARITE, BULK (100003681)									
0.30 gal/bbl		MUSOL A, 330 GAL TOTE - (790828)									
0.30 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)									

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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	12.0 lb/gal Tuned Spacer III	Tuned Spacer III	40	bbl	12	3.16	20			
176.58 lbm/bbl			BARITE, BULK (100003681)							
35.35 gal/bbl			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	ExpandaCem w/o SCBL	EXPANDACEM (TM) SYSTEM	150 42	sack bbls	13.2	1.57		5	7.53	
7.53 Gal			FRESH WATER							
0.50 %			SCR-100 (100003749)							
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	
4	ExpandaCem	EXPANDACEM (TM) SYSTEM	493 138	sack bbls	13.2	1.571		5	7.54	
0.50 %			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	
5	ExpandaCem	EXPANDACEM (TM) SYSTEM	1497 448	sack bbls	13.5	1.681		5	8	
8 Gal			FRESH WATER							
0.40 %			HR-5, 50 LB SK (100005050)							
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	
6	Displacement	Displacement	353	bbl	8.33					
Cement Left In Pipe		Amount	46 ft		Reason			Shoe Joint		
Mix Water:		pH 6	Mix Water Chloride:		0 ppm		Mix Water Temperature:			80 °F
Cement Temperature:		85 °F °C	Plug Displaced by:		Halliburton		Disp. Temperature:			40 °F
Plug Bumped?		Yes	Bump Pressure:		2431 psi		Floats Held?			Yes
Cement Returns:		0 bbl	Returns Density:		12.7 lb/gal		Returns Temperature:			## °F °C
Comment 63 bbls spacer to surface. Performed 15 min casing test @ 3000 psi. 5.25 bbls back when floats were checked.										

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Downhole Density (ppg)	Combined Pump Rate (bbl/min)	Pass-Side Pump Pressure (psi)	Comments
Event	1	Call Out	Call Out	2/9/2016	08:00:00	USER				
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	2/9/2016	12:30:00	USER				Discuss all travel related safety issues with crew.
Event	3	Depart Yard Safety Meeting	Depart From Yard	2/9/2016	12:45:00	USER				
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	2/9/2016	14:15:00	USER				
Event	5	Safety Meeting - Assessment of Location	Safety Meeting - Assessment of Location	2/9/2016	14:20:00	USER				Discuss all job site related safety issues and equipment layout with crew.
Event	6	Other	Spot Equipment	2/9/2016	14:30:00	USER				Use spotters and good communication.
Event	7	Safety Meeting - Pre Rig-Up	Safety Meeting - Pre Rig-Up	2/9/2016	14:50:00	USER				Discuss all rig up related safety issues with crew.
Event	8	Rig-Up Equipment	Rig-Up Equipment	2/9/2016	15:00:00	USER				
Event	9	Safety Meeting - Pre Job	Safety Meeting - Pre Job	2/9/2016	16:30:00	USER				Discuss all job related safety issues and pump schedule with crew and rig crew.
Event	10	Start Job	Start Job	2/9/2016	17:08:09	COM1				
Event	11	Other	Fill Lines	2/9/2016	17:08:33	COM1				3 bbls water
Event	12	Test Lines	Test Lines	2/9/2016	17:09:41	COM1				Test lines to 4500 psi.
Event	13	Drop Plug	Drop Bottom Plug 1	2/9/2016	17:18:42	USER				Customer verified plug was dropped.
Event	14	Pump Spacer 1	Pump TS-III Spacer w/Surfactants	2/9/2016	17:19:12	COM1	12.00	5.00	315.00	40 bbls Tuned Spacer III (12 ppg 3.16 cuft/sk 19.6 gal/sk) with 12 gal Dual Spacer B and 12 gal Musol A
Event	15	Pump Spacer 1	Pump TS-III Spacer	2/9/2016	17:30:16	COM1	12.00	5.00	372.00	40 bbls Tuned Spacer III (12 ppg 3.16 cuft/sk 19.6 gal/sk)
Event	16	Drop Plug	Drop Bottom Plug 2	2/9/2016	17:37:56	USER				Customer verified plug was dropped.

Event	17	Check Weight	Check weight	2/9/2016	17:40:01	COM1				13.2 ppg
Event	18	Pump Lead Cement	Pump Lead Cement	2/9/2016	17:41:41	COM1	13.20	7.90	410.00	180 bbls 13.2 ppg 1.57 cuft/sk 7.54 gal/sk 643 sks
Event	19	Shutdown	Shutdown Cmt Delivery Issue	2/9/2016	17:56:35	USER	12.96	0.00	120.00	Bulk delivery issues caused a momentary shutdown.
Event	20	Pump Tail Cement	Pump Tail Cement	2/9/2016	18:14:59	COM1	13.50	7.90	354.00	448 bbls 13.5 ppg 1.68 cuft/sk 8 gal/sk 1497 sks
Event	21	Check Weight	Check weight	2/9/2016	18:17:52	COM1				13.5 ppg
Event	22	Check Weight	Check weight	2/9/2016	18:35:35	COM1				13.5 ppg
Event	23	Check Weight	Check weight	2/9/2016	18:56:05	COM1				13.5 ppg
Event	24	Shutdown	Shutdown	2/9/2016	19:27:58	COM1				
Event	25	Clean Lines	Clean Lines	2/9/2016	19:34:13	COM1				
Event	26	Drop Top Plug	Drop Top Plug	2/9/2016	19:41:37	COM1				
Event	27	Pump Displacement	Pump Displacement	2/9/2016	19:42:00	COM1	8.33	10.00	515.00	353 bbls water total displacement. 5 gal MMCR in the first 10 bbls of water.
Event	28	Other	Water issue	2/9/2016	20:14:36	COM1				Had to finish displacement with the rig tank. Swapping hoses caused a temporary drop in rate.
Event	29	Slow Rate	Slow Rate	2/9/2016	20:38:24	USER	8.33	4.00	1466.00	Last 10 bbls slowed to 4bpm.
Event	30	Bump Plug	Bump Plug	2/9/2016	20:41:11	COM1	8.33	0.00	2431.00	2431 psi
Event	31	Pressure Up Well	15 min Casing Test	2/9/2016	20:47:24	COM1				3000 psi
Event	32	Other	Check Floats	2/9/2016	21:00:37	COM1				2796 psi
Event	33	End Job	End Job	2/9/2016	21:08:08	COM1				
Event	34	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	2/9/2016	21:20:21	USER				Discuss all rig down related safety issues with crew.
Event	35	Rig Down Lines	Rig Down Lines	2/9/2016	21:30:00	USER				
Event	36	Safety Meeting - Departing Location	Safety Meeting - Departing Location	2/9/2016	22:45:00	USER				Discuss all travel related safety issues with crew.
Event	37	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	2/9/2016	23:00:00	USER				Thank you for your business! Benjamin Fuchs