

HALLIBURTON

iCem[®] Service

NOBLE ENERGY INC E-BUSINESS

Date: Thursday, February 11, 2016

Wells Ranch AF05-665

Production Casing

Job Date: Tuesday, February 02, 2016

Sincerely,

Julia Nichols

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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Wells Ranch AF05-665** 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 spacer returned to surface.

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 [Ft. Lupton]

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Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 345242		Ship To #: 3688612		Quote #: 0022151742		Sales Order #: 0903097161				
Customer: NOBLE ENERGY INC - EBUS				Customer Rep: Jim Turner						
Well Name: WELLS RANCH			Well #: AF05-665		API/UWI #: 05-123-42134-00					
Field: WATTENBERG		City (SAP): KERSEY		County/Parish: WELD		State: COLORADO				
Legal Description: SW NW-5-5N-62W-2108FNL-605FWL										
Contractor: H & P DRLG				Rig/Platform Name/Num: H & P 321						
Job BOM: 7523										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HB61755				Srvc Supervisor: Kendall Broom						
Job										
Formation Name										
Formation Depth (MD)		Top		Bottom						
Form Type				BHST		230 degF				
Job depth MD		16079ft		Job Depth TVD		6341				
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	1855	0	1855
Casing		5.5	4.778	20			0	16068	0	6341
Open Hole Section			8.5				1855	16079	1855	6341
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe						Top Plug	5.5	1	HES	
Float Shoe	5.5	1		16079		Bottom Plug	5.5	2	HES	
Float Collar	5.5	1		16022		SSR plug set				
Insert Float						Plug Container				
Stage Tool						Centralizers				
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	12.0 lb/gal Tuned Spacer III	Tuned Spacer III	40	bbl	12	3.16	19.6			
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	

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Cementing Job Summary

2	12.0 lb/gal Tuned Spacer III	Tuned Spacer III	40	bbl	12	3.18	20		
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	sack	13.2	1.6		5	7.68
7.68 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
4	ExpandaCem	EXPANDACEM (TM) SYSTEM	567	sack	13.2	1.6		5	7.69
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/mi n	Total Mix Fluid Gal
5	ExpandaCem	EXPANDACEM (TM) SYSTEM	1437	sack	13.5	1.68		5	7.98
7.98 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
6	Displacement	Displacement	355	bbl	8.33				
Cement Left In Pipe		Amount	Reason		Shoe Joint				
Comment		50bbl of Spacer to Surface							

2.0 Real-Time Job Summary

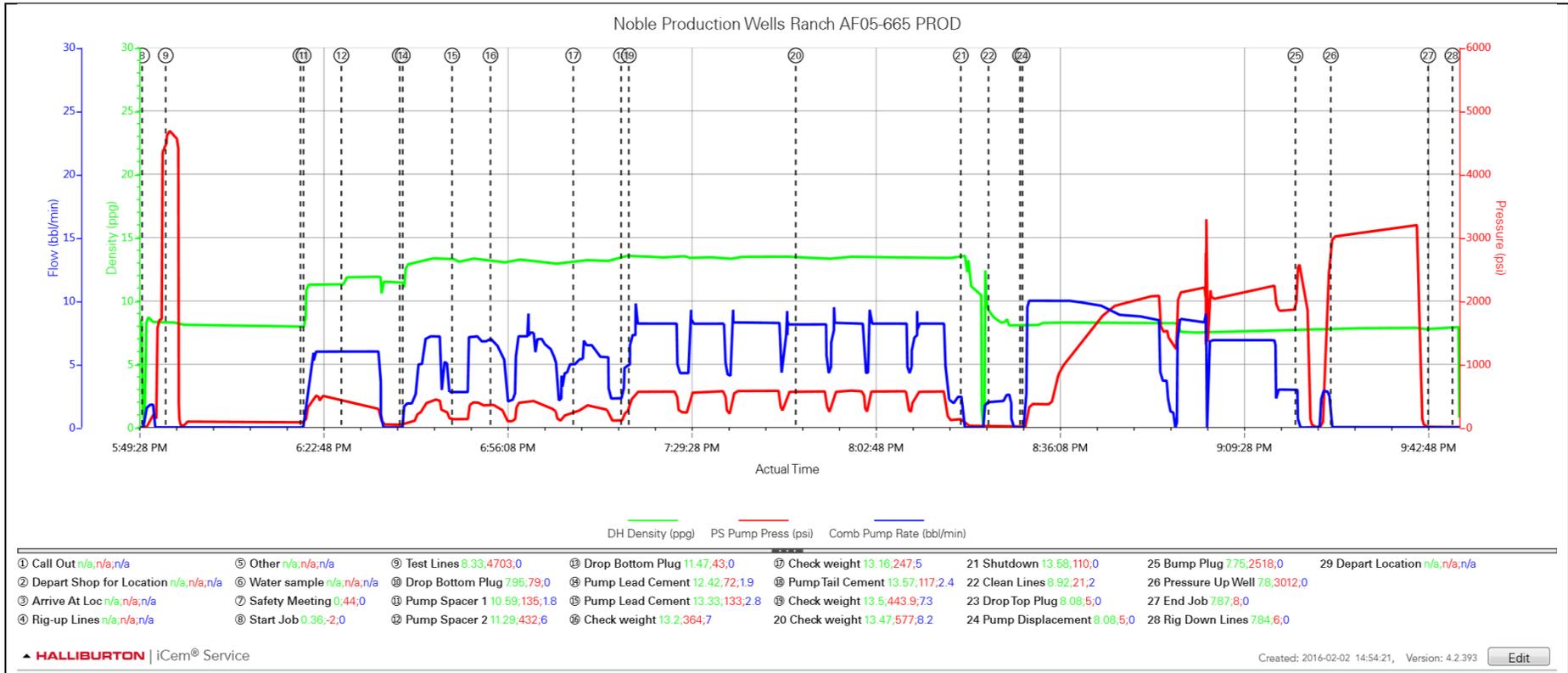
2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	PS Pump Press (psi)	Comb Pump Rate (bbl/min)	Comments
Event	1	Call Out	Call Out	2/2/2016	06:00:00	USER				Called out crew to be on location at 1200
Event	2	Depart Shop for Location	Depart Shop for Location	2/2/2016	11:00:00	USER				Held a safety meeting before leaving for location
Event	3	Arrive At Location	Arrive At Location	2/2/2016	13:00:00	USER				Arrived on location and met with the company man
Event	4	Rig-up Lines	Rig-up Lines	2/2/2016	13:05:00	USER				Held a hazard hunt before rigging up lines
Event	5	Other	Other	2/2/2016	13:05:01	USER				8 1/2" OH - TD - 16079', 5 1/2" 20# Casing Set @ 16068', F.C. @ 16022'. 9 5/8" Surface Casing Set @ 1855'
Event	6	Other	Water sample	2/2/2016	15:00:00	USER				Temp 63, Sulfate <200, PH 8, Chloride 0, Iron 0, Hardness 425
Event	7	Safety Meeting	Safety Meeting	2/2/2016	17:15:00	USER				Held a safety meeting with the rig crew to discuss safety and the operation
Event	8	Start Job	Start Job	2/2/2016	17:50:21	COM4				Filled lines with 2 bbl water
Event	9	Test Lines	Test Lines	2/2/2016	17:54:37	COM4	8.33	4702.00	0.00	Pressure Test Lines to 4705 psi
Event	10	Drop Bottom Plug	Drop Bottom Plug	2/2/2016	18:19:01	COM4				Dropped plug, Loaded into casing witnessed by the company man
Event	11	Pump Spacer 1	Pump Spacer 1	2/2/2016	18:19:34	COM4	12.00	135.00	6.00	Mix and Pump 40 bbls Tuned Spacer III for OBM @ 12.0 lb/gal
Event	12	Pump Spacer 2	Pump Spacer 2	2/2/2016	18:26:25	COM4	12.00	431.00	6.00	Pumped 40 bbl Tuned Spacer III 12.0 #
Event	13	Drop Bottom Plug	Drop Bottom Plug	2/2/2016	18:36:59	COM4				Dropped plug. Loaded into casing witnessed by the company man
Event	14	Pump Lead Cement	Pump Lead Cement	2/2/2016	18:37:32	COM4	13.20	500.00	5.00	Pumped 150 sks ExpandaCem w/o CBL (13.2#, 1.6 yield, 7.68gal/sks) Pumped 42 bbl at 5 bpm and 500 psi
Event	15	Pump Lead Cement	Pump Lead Cement	2/2/2016	18:46:28	COM4	13.20	433.00	5.00	Pumped 567 sks Expandacem 13.2#, 1.6 yield, 7.69 gal/sks. Pumped 161.57 bbl at 7bpm and 390psi

Event	16	Check Weight	Check weight	2/2/2016	18:53:25	COM4	13.20	364.00	7.00	Verified weight with pressurized scales
Event	17	Check Weight	Check weight	2/2/2016	19:08:24	COM4	13.16	247.00	5.00	Verified weight with pressurized scales
Event	18	Pump Tail Cement	Pump Tail Cement	2/2/2016	19:17:04	COM4	13.50	617.00	8.00	Pumped 1437 sks ExpandaCem (13.5#, 1.68 yield, 7.98gal/sks) Pumped 429.96 bbl at 8 bpm and 568 psi
Event	19	Check Weight	Check weight	2/2/2016	19:18:27	COM4	13.50	570.0	8.00	Verified weight with pressurized scales
Event	20	Check Weight	Check weight	2/2/2016	19:48:41	COM4	13.50	576.00	8.20	Verified weight with pressurized scales
Event	21	Shutdown	Shutdown	2/2/2016	20:18:34	COM4				Washed cement head
Event	22	Clean Lines	Clean Lines	2/2/2016	20:23:35	COM4				Blew down lines with rig air and washed up lines
Event	23	Drop Top Plug	Drop Top Plug	2/2/2016	20:29:18	COM4				Dropped plug, loaded in the casing witnessed by the company man
Event	24	Pump Displacement	Pump Displacement	2/2/2016	20:29:44	COM4	8.33	500.00	10.00	Pumped 354 bbl water displacement, first 10 with MMCR. 50 bbls of spacer returned to surface
Event	25	Bump Plug	Bump Plug	2/2/2016	21:19:09	COM4				Final circulating pressure was 1858psi. Pressure brought to 2602psi. Pressure fell off quickly but casing test held. Check Floats 3.5bbl back.
Event	26	Pressure Up Well	Pressure Up Well	2/2/2016	21:25:33	COM4	7.80	3012.00	0.00	3000psi casing test. Pressure held. 5bbl back
Event	27	End Job	End Job	2/2/2016	21:43:11	COM4				
Event	28	Rig Down Lines	Rig Down Lines	2/2/2016	21:47:35	USER				Held safety meeting before rigging down.
Event	29	Depart Location	Depart Location	2/2/2016	22:47:00	USER				Held journey management meeting prior to leaving location.

3.0 Attachments

3.1 Noble Production Wells Ranch AF05-665 PROD-Custom Results.png



Noble Production Wells Ranch AF05-665 PROD

