

HALLIBURTON

iCem[®] Service

NOBLE ENERGY INC

Date: Monday, August 14, 2017

Wells Ranch AF07-625 Production

Job Date: Monday, August 07, 2017

Sincerely,

Adam McKay

Legal Notice

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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 AF07-625** 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.

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 #: 3782514		Quote #:		Sales Order #: 0904214742				
Customer: NOBLE ENERGY INC - EBUS				Customer Rep:						
Well Name: WELLS RANCH			Well #: AF07-625			API/UWI #: 05-123-44238-00				
Field: WATTENBERG		City (SAP): KERSEY		County/Parish: WELD		State: COLORADO				
Legal Description: SE SE-8-5N-62W-1237FSL-175FEL										
Contractor: H & P DRLG				Rig/Platform Name/Num: H & P 517						
Job BOM: 7523 7523										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HB70026				Srv Supervisor:						
Job										
Formation Name										
Formation Depth (MD)		Top		Bottom						
Form Type				BHST						
Job depth MD		15932ft		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		J-55	0	1934	0	1934
Casing	0	5.5	4.778	20	BUTRESS	P-110	0	15967	0	0
Open Hole Section			8.5				1934	6487	1936	6487
Open Hole Section			8.5				6487	15967	0	0
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 w/ Chems	Tuned Spacer III	80	bbl	11.5	3.78				
35.10 gal/bbl		FRESH WATER								
0.60 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)								
147.42 lbm/bbl		BARITE, BULK (100003681)								
0.60 gal/bbl		MUSOL A, 330 GAL TOTE - (790828)								
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	150	sack	13.2	1.57		6	7.53	
7.52 Gal		FRESH WATER								

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Cementing Job Summary

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	ElastiCem w/ SCBL	ELASTICEM (TM) SYSTEM	496	sack	13.2	1.61		6	7.7
7.71 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	1082	sack	13.2	2.04		6	9.75
9.75 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
5	Displacement	Displacement	352	bbl	8.33				
Cement Left In Pipe		Amount	Reason			Shoe Joint			
Mix Water:		pH 7.6	Mix Water Chloride: 00 ppm			Mix Water Temperature:		65 °F °C	
Cement Temperature:		## °F °C	Plug Displaced by: 8.3 lb/gal			Disp. Temperature:		65 °F °C	
Plug Bumped?		Yes	Bump Pressure: 1950 psi			Floats Held?		Yes	
Cement Returns:		0	Returns Density:			Returns Temperature:			
Comment									

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comb Pump Rate (bbl/min)	DS Pump Press (psi)	DH Density (ppg)	Comments
Event	1	Call Out	Call Out	8/6/2017	15:00:00	USER				HES CREW CALLED OUT AT ON REQUESTED ON LOCATION AT 21:00
Event	2	Safety Meeting	Depart Yard Safety Meeting	8/6/2017	19:00:00	USER				HES CREW DISCUSSED THE HAZARDS OF DRIVING TO LOCATION
Event	3	Other	Depart from Service Center or Other Site	8/6/2017	19:15:00	USER				DEPART FROM YARD TO LOCATION
Event	4	Comment	Arrive At Loc	8/6/2017	21:15:00	USER				ARRIVE AT LOCATION
Event	5	Safety Meeting	Assessment Of Location Safety Meeting	8/6/2017	21:20:00	USER				HES CREW DISCUSSED HOW TO SAFELY SPOT EQUIPMENT
Event	6	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	8/6/2017	22:00:00	USER				HES CREW DISCUSSED THE HAZARDS OF RIGGING UP EQUIPMENT
Event	7	Rig-Up Equipment	Rig-Up Equipment	8/6/2017	22:15:00	USER				RIG-UP ALL IRON AND WATER LINES
Event	8	Safety Meeting	Pre-Job Safety Meeting	8/7/2017	01:30:00	USER				HES AND RIG CREW DISCUSSED THE HAZARDS OF RIGGING UP THE RIG FLOOR AND PUMPING THE JOB
Event	9	Comment	Rig-Up Complete	8/7/2017	01:45:00	USER				RIG-UP OF LINES ON GROUND AND FLOOR COMPLETE
Event	10	Start Job	Start Job	8/7/2017	02:02:47	COM4				PUMP 2BBL H2O AHEAD TO FILL LINES
Event	11	Test Lines	Test Lines	8/7/2017	02:16:02	COM4	0.00	4326.00	8.43	TEST LINES TO 4000PSI
Event	12	Drop Bottom Plug	Drop Bottom Plug	8/7/2017	02:24:21	USER				DROP 1ST BOTTOM PLUG (HES)
Event	13	Pump Spacer 1	Pump Spacer 1	8/7/2017	02:25:15	COM4	4.20	44700	10.96	80BBL TUNED SPACER @ 11.5PPG
Event	14	Drop Bottom Plug	Drop Bottom Plug	8/7/2017	02:44:31	COM4				DROP 2ND BOTTOM PLUG (HES)
Event	15	Pump Lead Cement	Pump Lead Cement	8/7/2017	02:49:36	USER	5.00	321.00	13.08	42BBL CAP CEMENT @ 13.2PPG; 150SKS, 1.57CUFT/SK, 7.53 G/SK, *** TOC: 1861'***
Event	16	Pump Lead Cement	Pump Lead Cement	8/7/2017	02:53:57	USER	7.90	567.00	13.28	142BBL LEAD CEMENT @ 13.2PPG; 1.6CUFT/SK, 7.7G/SK,

TOC: 2878'

Event	17	Pump Tail Cement	Pump Tail Cement	8/7/2017	03:19:16	COM4	6.80	511.00	13.27	393BBLS TAIL CEMENT @ 13.2PPG; 1082SKS, 2.04CUFT/SK, 9.75G/SK. *** TOC: 6359'***
Event	18	Shutdown	Shutdown	8/7/2017	04:14:45	USER				
Event	19	Clean Lines	Clean Lines	8/7/2017	04:16:26	USER				
Event	20	Drop Top Plug	Drop Top Plug	8/7/2017	04:22:14	USER				HES PLUG
Event	21	Pump Displacement	Pump Displacement	8/7/2017	04:23:36	USER	10.00	519.00	8.64	351.9BBL H2O DISPLACEMENT
Event	22	Slow Rate	Slow Rate	8/7/2017	04:58:49	USER	3.00	1970.00	8.37	SLOW RATE TO 3BBL/MIN TO BUMP PLUG
Event	23	Bump Plug	Bump Plug	8/7/2017	05:04:46	USER	3.00	1927.00	8.38	BUMPED PLUG. 1950 -- 2580 PSI
Event	24	Check Floats	Check Floats	8/7/2017	05:08:35	USER				FLOATS HELD; 4BBL BACK
Event	25	End Job	End Job	8/7/2017	05:10:00	COM4				
Event	26	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	8/7/2017	05:15:00	USER				DISCUSSED RIG-DOWN DANGERS WITH HES AND RIG CREW. ESTABLISHED RIG-DOWN PLAN AND ROLES.
Event	27	Rig-Down Equipment	Rig-Down Equipment	8/7/2017	05:25:00	USER				
Event	28	Rig-Up Completed	Rig-Up Completed	8/7/2017	06:20:00	USER				
Event	29	Safety Meeting - Departing Location	Safety Meeting - Departing Location	8/7/2017	06:50:00	USER				DISCUSSED TRAVEL SAFETY WITH HES CREW. DETERMINED DRIVER FIT FOR DUTY STATUSES
Event	30	Depart Location	Depart Location	8/7/2017	07:00:00	USER				*****THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES!*****

3.0 Attachments

3.1 Case 1-Custom Results.png

