

HALLIBURTON

iCem[®] Service

NOBLE ENERGY INC-EBUS

Date: Tuesday, July 31, 2018

Hurley H26-743 Production

Job Date: Wednesday, July 25, 2018

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 **Hurley H26-743** 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]

The Road to Excellence Starts with Safety

Sold To #: 345242		Ship To #: 3877109		Quote #:		Sales Order #: 0905011432					
Customer: NOBLE ENERGY INC-EBUS						Customer Rep: Chris Ewing					
Well Name: HURLEY				Well #: H26-743		API/UWI #: 05-123-46761-00					
Field: WATTENBERG		City (SAP): KEENESBURG		County/Parish: WELD		State: COLORADO					
Legal Description: SE NE-26-3N-65W-2234FNL-1064FEL											
Contractor: H & P DRLG					Rig/Platform Name/Num: H & P 517						
Job BOM: 7523 7523											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HB70026					Srvc Supervisor: Nicholas Roles						
Job											
Formation Name											
Formation Depth (MD)		Top		Bottom							
Form Type				BHST		230 degF					
Job depth MD		16116ft		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	1946	0	1946	
Casing		5.5	4.778	20			0	16212	0	7350	
Open Hole Section			8.5				2485	7339	1946	7339	
Open Hole Section			8.5				7339	16227	7339	7350	
Tools and Accessories											
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make		
Guide Shoe	5.5			16212		Top Plug	5.5	1	HES		
Float Shoe	5.5					Bottom Plug	5.5	2	HES		
Float Collar	5.5			16116		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	11.5 lb/gal Tuned Spacer III	Tuned Spacer III			120	bbl	11.5	3.78		6	

36.09 gal/bbl	FRESH WATER
0.60 gal/bbl	MUSOL(R) A, 5 GAL PAIL (100064220)
147.42 lbm/bbl	BARITE, BULK (100003681)
0.60 gal/bbl	DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)

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	140	sack	13.2	1.68		6	8.05

8.04 Gal	FRESH WATER
0.85 %	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
3	ElastiCem w/ SCBL	ELASTICEM (TM) SYSTEM	522	sack	13.2	1.68		7	8.06

0.40 %	SCR-100 (100003749)
8.06 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	1003	sack	13.2	2.04		7	9.75

9.75 Gal	FRESH WATER
0.08 %	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	Displacement	Displacement	357	bbl	8.33			7.5	

Cement Left In Pipe	Amount	94 ft		Reason	Shoe Joint
Mix Water:	pH 06	Mix Water Chloride:	0 ppm	Mix Water Temperature:	64 °F °C
Cement Temperature:	## °F °C	Plug Displaced by:	8.33 lb/gal	Disp. Temperature:	64 °F °C
Plug Bumped?	Yes	Bump Pressure:	2600psi	Floats Held?	Yes
Cement Returns:	## bbl m3	Returns Density:	## lb/gal	Returns Temperature:	## °F °C

Comment Got 25bbbls spacer to surface. Estimated TOL#1-1995', TOL#2-3025',TOT-6849'

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	DS Pump Press (psi)	Comments
Event	1	Call Out	Call Out	7/24/2018	14:00:00	USER				Called out by Service Coordinator for O/L at 2000
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	7/24/2018	18:00:00	USER				Held meeting with all personnel in convoy to discuss directions and hazards associated with drive, all fit to drive.
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	7/24/2018	18:15:00	USER				Journey Management prior to departure
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	7/24/2018	19:00:00	USER				Upon arrival met with company man to discuss job details and calculations, performed hazard hunt and site assessment.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	7/24/2018	19:15:00	USER				Discussed rigging up hazards and procedure according to HMS.
Event	6	Other	Other	7/24/2018	19:30:00	USER				Water test- PH-6, Chlor-0, Temp-85.
Event	7	Safety Meeting - Pre Job	Safety Meeting - Pre Job	7/24/2018	22:00:00	USER				Held safety meeting with all job associated personnel to discuss job procedure, hazards and stop work authority.
Event	8	Start Job	Start Job	7/25/2018	01:42:07	COM4				TD-16227', TP-16212' 5.5" 20#, FC-16116', TVD-7350', SURF-1946' 9.625" 36#, OH-8.5" MUD-9.4#
Event	9	Drop Bottom Plug	Drop Bottom Plug	7/25/2018	01:42:30	COM4				Dropped by HES supervisor, witnessed by company man.
Event	10	Test Lines	Test Lines	7/25/2018	01:44:13	COM4	8.32		4452.00	Pumped 5bbls fresh water to fill lines, closed 2" lo torc, performed 500psi k/o function test, followed with 5th gear stall at 1480psi, perform 4500psi test on line. Held pressure, no leaks. proceeded to bring pressure to 2500psi on Kelley line, pressure stabilized and held with no leaks.
Event	11	Pump Spacer 1	Pump Spacer 1	7/25/2018	01:55:12	COM4	11.73	5.80	1100.00	Pumped 120bbls Tuned Spacer III 11.5# 3.78y 23.5g/s with 70g Musol A, 70g Dual Spacer B and 20g D-Air at 6bpm 1050psi.
Event	12	Check Weight	Check Weight	7/25/2018	02:00:00	COM4	11.53	5.80	1058.00	Weight verified with pressurized mud scales.
Event	13	Drop Bottom Plug	Drop Bottom Plug	7/25/2018	02:15:38	COM4				Dropped by HES supervisor, witnessed by company man.
Event	14	Pump Lead Cement	Pump Lead Cement	7/25/2018	02:18:21	COM4	13.36	5.50	434.00	Pumped 140sks or 42bbls Elasticem w/o CBL 13.2# 1.68y 8.05g/s at

6bpm 650psi.

Event	15	Check Weight	Check Weight	7/25/2018	02:23:40	COM4	13.23	6.00	569.00	Weight verified with pressurized mud scales.
Event	16	Pump Lead Cement	Pump Lead Cement	7/25/2018	02:26:35	COM4	13.16	6.60	634.00	Pumped 522sks or 156bbls Elasticem w/CBL 13.2# 1.68y 8.05g/s at 7bpm 650psi.
Event	17	Check Weight	Check Weight	7/25/2018	02:30:00	COM4	13.19	6.60	631.00	Weight verified with pressurized mud scales.
Event	18	Pump Tail Cement	Pump Tail Cement	7/25/2018	02:50:22	COM4	13.10	6.90	641.00	Pumped 1003sks or 364bbls 13.2# 2.04y 9.75g/s Neocem at 8bpm 780psi.
Event	19	Check Weight	Check Weight	7/25/2018	02:52:08	COM4	13.12	6.90	775.00	Weight verified with pressurized mud scales.
Event	20	Check Weight	Check Weight	7/25/2018	03:18:03	COM4	13.14	6.90	837.00	Weight verified with pressurized mud scales.
Event	21	Check Weight	Check Weight	7/25/2018	03:31:29	COM4	13.20	6.90	754.00	Weight verified with pressurized mud scales.
Event	22	Shutdown	Shutdown	7/25/2018	03:53:51	COM4				Shutdown, rig blew air through lines to pits, followed with 5bbls fresh water through pumps and lines.
Event	23	Drop Top Plug	Drop Top Plug	7/25/2018	03:53:55	COM4				Dropped by HES supervisor, witnessed by company man.
Event	24	Pump Displacement	Pump Displacement	7/25/2018	03:54:50	COM4	8.08	8.10	379.00	Pumped 357bbls fresh water with 10g MMCR in first 20bbls, 15g Algicide throughout.
Event	25	Bump Plug	Bump Plug	7/25/2018	04:48:42	COM4	8.44	3.00	2116.00	Slowed down to 3bpm at 335bbls away, final circulating pressure-2050psi, Bump pressure-2600psi.
Event	26	Check Floats	Check Floats	7/25/2018	04:54:15	USER				Released pressure and got 4bbls fresh water to truck, floats held.
Event	27	End Job	End Job	7/25/2018	04:56:37	COM4				Got 25bbls spacer to surface. Estimated TOL#1-1995', TOL#2-3025',TOT-6849'
Event	28	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	7/25/2018	05:00:00	USER				All HSE present. Discussed red zone areas and trapped pressure hazards. Watch for suspended loads and rig down procedures, including hand placement, lifting techniques, and swing radius.
Event	29	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	7/25/2018	06:45:00	USER				All HSE present and fit to drive. Aware of directions and hazards.
Event	30	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	7/25/2018	07:00:00	USER				Pre journey managment prior to departure.

3.0 Attachments

3.1 Hurley H26-743-Custom Results.png

