

HALLIBURTON

iCem[®] Service

NOBLE ENERGY INC-EBUS

Date: Friday, October 19, 2018

Emmy State H25-738 Production

Job Date: Monday, October 01, 2018

Sincerely,

Adam McKay

Legal Notice

Disclaimer:

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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Emmy State H25-738** 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 #: 3883608		Quote #:		Sales Order #: 0905174556					
Customer: NOBLE ENERGY INC-EBUS						Customer Rep: Tommy Chanat					
Well Name: EMMY STATE				Well #: H25-738		API/UWI #: 05-123-46972-00					
Field: WATTENBERG		City (SAP): KEENESBURG		County/Parish: WELD		State: COLORADO					
Legal Description: SW SE-25-3N-65W-285FSL-1782FEL											
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: Prince Perez						
Job											
Formation Depth (MD)		Top	0		Bottom		17,283'				
				BHST		230 degF					
Job depth MD		17,259'		Job Depth TVD		6,973'					
Water Depth				Wk Ht Above Floor		3'					
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	1933	0	1933	
Casing		5.5	4.778	20			0	17259	0	6973	
Open Hole Section			8.5				1933	17283	1933	6973	
Open Hole Section			8.5				1933	17283	1933	6973	
Tools and Accessories											
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make		
Guide Shoe	5.5	1		17259		Top Plug	5.5	1	HES		
Float Shoe	5.5	1				Bottom Plug	5.5	2	HES		
Float Collar	5.5	1		17,211					HES		
						Plug Container	5.5	1	HES		
						Centralizers	5.5	297	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	Spacer	Tuned Spacer III			120	bbl	11.5	3.78	23.5	6	4,189

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	Cap Cement	ELASTICEM (TM) SYSTEM	140	sack	13.2	1.68	8.04	6	1,126
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	Lead	ELASTICEM (TM) SYSTEM	418	sack	13.2	1.68	8.06	8	3,369
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	Tail	NeoCem TM	1,205	sack	13.2	2.04	9.75	8	11,749
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	Water	382	bbl	8.33				
Cement Left In Pipe		Amount	48 ft		Reason			Shoe Joint	
Mix Water:	pH 8	Mix Water Chloride:	<300 ppm			Mix Water Temperature:	53 °F		
Cement Temperature:	## °F	Plug Displaced by:	8.33 lb/gal			Disp. Temperature:	53 °F		
Plug Bumped?	Yes	Bump Pressure:	2,750 psi			Floats Held?	Yes		
Cement Returns:	0 bbls	Returns Density:	9.6 lb/gal			Returns Temperature:	##		
Comment									
Pumped 120 bbsl of Tuned Spacer III with 75 gallons of Musol, 75 gallons of Dual B, and 20 gallons of D-Air.									
Pumped 42 bbls of Elasticem Cap Cement.									
Pumped 125 bbls of Elasticem w/SCBL.									
Pumped 438 bbls of Neocem.									
Pumped 382 bbls of Displacement with MMCR in the first 20 bbls and 20 gallons of Aldacide throughout.									
No Spacer back.									
5.5 bbls back on the floats.									

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)	PS Pump Press (psi)	Comments
Event	1	Call Out	Call Out	10/1/2018	00:00:00	USER				CREW CALLED OUT AT 00:00, REQUESTED ON LOCATION 06:00. CREW PICKED UP CEMENT, CHEMICALS, AND PLUG CONTAINER FROM FT. LUPTON, CO. BULK 660 10867096, 10025027, AND PUMP 11189145.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	10/1/2018	05:20:00	USER				CREW DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.
Event	3	Crew Leave Shop	Crew Leave Shop	10/1/2018	05:30:00	USER				STARTED JOURNEY MANAGEMENT.
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	10/1/2018	06:10:00	USER				END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING- 9.625" 36 LB/FT @ 1,933', 5.5" CASING: 20 LB/FT TOTAL 17,258.9', 8 1/2" HOLE, TD 17,283', 47.9' SHOE TRAC, TVD- 6,973'. PUMP FRESH WATER DISPLACEMENT. CASING LANDED @ 06:15 10/1/2018.
Event	5	Safety Meeting - Assessment of Location	Safety Meeting - Assessment of Location	10/1/2018	06:20:00	USER				HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	10/1/2018	06:30:00	USER				RIG UP BULK AND MIXING EQUIPMENT.
Event	7	Rig-Up Completed	Rig-Up Completed	10/1/2018	07:50:00	USER				
Event	8	Pre-Job Safety Meeting	Pre-Job Safety Meeting	10/1/2018	08:00:00	USER				MEETING WITH HALLIBURTON AND RIG PERSONNEL. COMMUNICATED POTENTIAL SAFETY HAZARDS AND JOB DETAILS.
Event	9	Start Job	Start Job	10/1/2018	08:33:42	COM4				BEGIN RECORDING JOB DATA.
Event	10	Test Lines	Test Lines	10/1/2018	08:40:12	COM4	8.21	0.00	2543.00	PRESSURE TESTED THE RIGS IBOP TO 2,500 PSI. HELD FOR 2 MINUTES AND BLED OFF PRESSURE.
Event	11	Test Lines	Test Lines	10/1/2018	08:45:08	COM4	8.25	0.00	4775.00	PRESSURE TESTED IRON TO 4,700 PSI. KICKOUTS SET @ 500 PSI, KICKED OUT @ 1,190 PSI, 5TH GEAR STALL OUT @ 1,729 PSI. 4,700 PRESSURE TEST KICKED OUT @ 4,620 PSI
Event	12	Pump Spacer 1	Pump Spacer 1	10/1/2018	08:50:25	COM4	11.42	4.20	542.00	PUMP 120 BBLS OF TUNED SPACER III @ 11.5 LB/GAL, 3.78 CUFT/SK, 23.5 GALL/SK. 20 GALS D-AIR, 75 GALS DUAL B, 75 GALS

OF MUSOL A. 5.82 BBLS CALCULATED TO RETURN TO SURFACE.
DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 6
BBLS/MIN @ 400 PSI.

Event	13	Drop Bottom Plug	Drop Bottom Plug	10/1/2018	09:23:26	COM4				PLUG LEFT CONTAINER, VERIFIED BY CO. MAN.
Event	14	Pump Cap Cement	Pump Cap Cement	10/1/2018	09:33:42	COM4	13.28	5.80	520.00	PUMPED 140 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.68 FT3/SK, 8.04 GAL/SK. 41.89 BBLS. HOC CALCULATED @ 1,026.7', TOC CALCULATED @ 2,462.1' DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 6 BBLS/MIN @ 520 PSI
Event	15	Pump Lead Cement	Pump Lead Cement	10/1/2018	09:41:32	COM4	13.10	5.80	469.00	PUMPED 418 SKS OF ELASTICEM W/SCBL @ 13.2 LB/GAL, 1.68 FT3/SK, 8.06 GAL/SK. 125.07 BBLS, HOL CALCULATED @ 3,065.4', TOL CALCULATED @ 3,488.8'. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBLS/MIN @ 810 PSI
Event	16	Pump Tail Cement	Pump Tail Cement	10/1/2018	10:03:11	COM4	13.24	8.00	1041.00	PUMP 1,205 SKS OF NEOCEM @ 13.2 LB/GAL, 2.04 FT3/SK, 9.75 GAL/SK, 437.81 BBLS. HOT CALCULATED @ 10,704.7', TOT CALCULATED @ 6,554,2'. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBLS/MIN @ 1,080 PSI.
Event	17	Shutdown	Shutdown	10/1/2018	10:56:55	COM4				SHUTDOWN TO WASH LINES.
Event	18	Drop Top Plug	Drop Top Plug	10/1/2018	11:15:29	COM4				PLUG LEFT CONTAINER, VERIFIED BY CO. MAN.
Event	19	Pump Displacement	Pump Displacement	10/1/2018	11:16:45	COM4	8.14	5.00	200.00	BEGIN CALCULATED DISPLACEMENT OF 382.08 BBLS WITH FRESH WATER. MMCR IN THE FIRST 20 BBLS AND 20 GALLONS OF ALDACIDE THROUGHOUT. PUMP RATE 10 BPM @ 2,250 PSI
Event	20	Bump Plug	Bump Plug	10/1/2018	12:01:48	COM4	8.20	2.80	2048.00	PLUG BUMPED AT CALCULATED DISPLACEMENT. 1,750 PSI PRESSURED 500 PSI OVER BUMP.
Event	21	Check Floats	Check Floats	10/1/2018	12:06:58	USER				RELEASED PRESSURE, 5.5 BBLS BACK.
Event	22	End Job	End Job	10/1/2018	12:10:36	COM4				STOP RECORDING JOB DATA.
Event	23	Post-Job Safety Meeting (Pre Rig-Down)	Post-Job Safety Meeting (Pre Rig-Down)	10/1/2018	12:20:00	USER				DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event	24	Rig-Down Equipment	Rig-Down Equipment	10/1/2018	12:30:00	USER				RIG DOWN BULK AND MIXING EQUIPMENT.
Event	25	Rig-Down Completed	Rig-Down Completed	10/1/2018	13:30:00	USER				
Event	26	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	10/1/2018	14:20:00	USER				CREW DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW.

Event	27	Crew Leave Location	Crew Leave Location	10/1/2018	14:30:00	USER
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THANK YOU FOR USING HALLIBURTON – PRINCE PEREZ AND
CREW.

3.0 Attachments

3.1 Noble Emmy State H25-738-Custom Results.png

Description	Actual Time (UTC-06:00:00)	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)	
1 Start Job	08:33:42	8.15	0.00	5.00	0.00	
2 Test Lines	08:40:12	8.21	0.00	2543.00	5.30	
3 Test Lines	08:45:08	8.25	0.00	4775.00	5.30	
4 Pump Spacer 1	08:50:25	11.42	4.20	542.00	0.00	
5 Drop Bottom Plug	09:23:26	11.95	0.00	77.00	160.20	
6 Pump Cap Cement	09:33:42	12.00	0.00	59.00	0.00	
7 Pump Lead Cement	09:41:32	13.10	5.80	469.00	41.20	
8 Pump Tail Cement	10:03:11	13.24	8.00	1041.00	167.60	
9 Shutdown	10:56:55	10.77	0.00	74.00	412.10	
10 Drop Top Plug	11:15:29	8.10	0.00	22.00	0.00	
11 Pump Displacement	11:16:45	8.13	0.00	22.00	0.00	
12 Bump Plug	12:01:48	8.20	0.00	3249.00	388.40	
13 Check Floats	12:06:58	8.15	0.00	399.00	388.40	
14 End Job	12:10:36	8.14	0.00	20.00	0.00	

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3.2 Noble Emmy State H25-738-Custom Results (1).png

