

# HALLIBURTON

iCem<sup>®</sup> Service

## **NOBLE ENERGY INC-EBUS**

Date: Wednesday, October 03, 2018

## **Emmy H25-711 Production**

Job Date: Sunday, September 16, 2018

Sincerely,

Adam McKay

## Legal Notice

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### Disclaimer:

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## 1.0 Cementing Job Summary

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### 1.1 Executive Summary

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Halliburton appreciates the opportunity to perform the cementing services on the **Emmy H25-711** 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*

<b>Sold To #:</b> 345242		<b>Ship To #:</b> 3883734		<b>Quote #:</b>		<b>Sales Order #:</b> 0905130589	
<b>Customer:</b> NOBLE ENERGY INC-EBUS				<b>Customer Rep:</b> John Drahota			
<b>Well Name:</b> EMMY			<b>Well #:</b> H25-711		<b>API/UWI #:</b> 05-123-46968-00		
<b>Field:</b> WATTENBERG		<b>City (SAP):</b> KEENESBURG		<b>County/Parish:</b> WELD		<b>State:</b> COLORADO	
<b>Legal Description:</b> SW SE-25-3N-65W-285FSL-1693FEL							
<b>Contractor:</b> H & P DRLG				<b>Rig/Platform Name/Num:</b> H & P 517			
<b>Job BOM:</b> 7523 7523							
<b>Well Type:</b> HORIZONTAL OIL							
<b>Sales Person:</b> HALAMERICA\HB70026				<b>Srv Supervisor:</b> Nicholas Roles			
<b>Job</b>							

<b>Formation Name</b>			
<b>Formation Depth (MD)</b>	<b>Top</b>		<b>Bottom</b>
<b>Form Type</b>		<b>BHST</b>	230 degF
<b>Job depth MD</b>	17513ft	<b>Job Depth TVD</b>	6588ft
<b>Water Depth</b>		<b>Wk Ht Above Floor</b>	4ft
<b>Perforation Depth (MD)</b>	<b>From</b>		<b>To</b>

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	1935	0	1935
Casing		5.5	4.778	20			0	17513	0	6588
Open Hole Section			8.5				2462	6605	2462	6588
Open Hole Section			8.5				6605	17528	0	0

Tools and Accessories									
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make
Guide Shoe	5.5			17513		Top Plug	5.5	1	HES
Float Shoe	5.5					Bottom Plug	5.5	2	HES
Float Collar	5.5			17463		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		7	

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

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		5	8.04

8.06 Gal	<b>FRESH WATER</b>
0.95 %	<b>SCR-100 (100003749)</b>

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	425	sack	13.2	1.68		8	8.06

0.50 %	<b>SCR-100 (100003749)</b>
8.08 Gal	<b>FRESH WATER</b>

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	1228	sack	13.2	2.04		8	9.75

9.75 Gal	<b>FRESH WATER</b>
0.08 %	<b>SCR-100 (100003749)</b>

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	387	bbl	8.33			10	

Cement Left In Pipe	<b>Amount</b>	50 ft	<b>Reason</b>	Shoe Joint	
Mix Water:	pH 06	<b>Mix Water Chloride:</b>	00 ppm	Mix Water Temperature:	72 °F °C
Cement Temperature:	## °F °C	<b>Plug Displaced by:</b>	8.33 lb/gal	Disp. Temperature:	72 °F °C
Plug Bumped?	Yes	<b>Bump Pressure:</b>	#### psi MPa	Floats Held?	Yes
Cement Returns:	## bbl m3	<b>Returns Density:</b>	## lb/gal kg/m3	Returns Temperature:	## °F °C

**Comment** Got 0bbbls spacer to surface. Estimated TOL#1-2632', TOL#2-3662', TOT-6775'

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	DS Pump Press <i>(psi)</i>	Comments
Event	1	Call Out	Call Out	9/16/2018	00:00:00	USER				Called out by Service Coordinator for O/L at 0600
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	9/16/2018	03:45:00	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	9/16/2018	04:00:00	USER				Journey Management prior to departure
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	9/16/2018	05:00:00	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	9/16/2018	05:15:00	USER				Discussed rigging up hazards and procedure according to HMS.
Event	6	Other	Other	9/16/2018	06:00:00	USER				Water test- PH-6, Chlor-0, Temp-68.
Event	7	Safety Meeting - Pre Job	Safety Meeting - Pre Job	9/16/2018	13:15:00	USER				Held safety meeting with all job associated personnel to discuss job procedure, hazards and stop work authority.
Event	8	Start Job	Start Job	9/16/2018	13:40:00	COM4				TD-17528', TP-17513' 5.5" 20#, FC-17463', TVD-6588', SURF-1935' 9.625" 36#, OH-8.5" MUD-9.4#
Event	9	Drop Bottom Plug	Drop Bottom Plug	9/16/2018	13:46:56	USER				Dropped by HES supervisor, witnessed by company man.
Event	10	Test Lines	Test Lines	9/16/2018	13:49:43	COM4	8.47		4597.00	Pumped 5bbls fresh water to fill lines, closed 2" lo torc, performed 500psi k/o function test, followed with 5th gear stall at 1590psi, perform 4500psi test on line. Held pressure, no leaks. proceeded to bring pressure to 3000psi on Kelley line, pressure stabilized and held with no leaks.
Event	11	Pump Spacer 1	Pump Spacer 1	9/16/2018	13:56:31	COM4	11.78	4.00	209.00	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 7bpm 340psi.
Event	12	Drop Bottom Plug	Drop Bottom Plug	9/16/2018	14:17:07	COM4				Dropped by HES supervisor, witnessed by company man.
Event	13	Pump Lead Cement	Pump Lead Cement	9/16/2018	14:17:15	COM4	12.99	4.00	41.00	Pumped 140sks or 42bbls Elasticem w/o CBL 13.2# 1.68y 8.04g/s at 5bpm 290psi.

Event	14	Check Weight	Check Weight	9/16/2018	14:20:46	COM4	13.20	4.30	240.00	Weight verified with pressurized mud scales.
Event	15	Pump Lead Cement	Pump Lead Cement	9/16/2018	14:26:09	COM4	13.18	6.60	314.00	Pumped 425sks or 127bbls Elasticem w/CBL 13.2# 1.68y 8.06g/s at 8bpm 450psi.
Event	16	Check Weight	Check Weight	9/16/2018	14:27:52	COM4	13.24	6.60	309.00	Weight verified with pressurized mud scales.
Event	17	Check Weight	Check Weight	9/16/2018	14:40:38	COM4	13.18	8.00	378.00	Weight verified with pressurized mud scales.
Event	18	Pump Tail Cement	Pump Tail Cement	9/16/2018	14:45:21	COM4	13.13	8.00	457.00	Pumped 1228sks or 446bbls 13.2# 2.04y 9.75g/s Neocem at 8bpm 600psi.
Event	19	Check Weight	Check Weight	9/16/2018	14:55:24	COM4	13.25	8.00	538.00	Weight verified with pressurized mud scales.
Event	20	Check Weight	Check Weight	9/16/2018	15:16:22	COM4	13.25	8.20	560.00	Weight verified with pressurized mud scales.
Event	21	Shutdown	Shutdown	9/16/2018	15:49:46	COM4				Shutdown, rig blew air through lines to pits, followed with 5bbls fresh water through pumps and lines.
Event	22	Drop Top Plug	Drop Top Plug	9/16/2018	15:50:18	COM4				Dropped by HES supervisor, witnessed by company man.
Event	23	Pump Displacement	Pump Displacement	9/16/2018	15:50:22	COM4	8.34	10.80	332.00	Pumped 387bbls fresh water with 10g MMCR in first 20bbls, 20g Algicide throughout.
Event	24	Bump Plug	Bump Plug	9/16/2018	16:35:09	COM4	8.38	2.90	1621.00	Slowed down to 3bpm at 355bbls away, final circulating pressure-1700psi, Bump pressure-2200psi. Held for 5min pressure test.
Event	25	Check Floats	Check Floats	9/16/2018	16:40:56	USER				Released pressure and got 4bbls fresh water to truck, floats held.
Event	26	End Job	End Job	9/16/2018	16:42:39	COM4				Got 0bbls spacer to surface. Estimated TOL#1-2632', TOL#2-3662', TOT-6775'
Event	27	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	9/16/2018	16:45:00	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	28	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	9/16/2018	18:15:00	USER				All HSE present and fit to drive. Aware of directions and hazards.
Event	29	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	9/16/2018	18:30:00	USER				Pre journey managment prior to departure.

3.0 Attachments

3.1 Emmy H25-711 -Custom Results.png

