

# HALLIBURTON

iCem<sup>®</sup> Service

## **NOBLE ENERGY INC-EBUS**

Date: Wednesday, October 03, 2018

## **Emmy State H25-731 Production**

Job Date: Wednesday, September 26, 2018

Sincerely,

Adam McKay

## Legal Notice

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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 State H25-731** 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*

iCem® Service

(v. 4.5.139)

Created: Wednesday, October 03, 2018

Sold To #: 345242		Ship To #: 3883670		Quote #:		Sales Order #: 0905156791					
Customer: NOBLE ENERGY INC-EBUS				Customer Rep: Gary Stapleton							
Well Name: EMMY STATE			Well #: H25-731		API/UWI #: 05-123-46971-00						
Field: WATTENBERG		City (SAP): KEENESBURG		County/Parish: WELD		State: COLORADO					
Legal Description: SW SE-25-3N-65W-285FSL-1760FEL											
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: Luke Kosakewich							
Job											
Formation Name											
Formation Depth (MD)		Top		Bottom							
Form Type				BHST		230 degF					
Job depth MD		17293ft		Job Depth TVD		6898					
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	1938	0	1938	
Casing		5.5	4.778	20			0	17280	0	6898	
Open Hole Section			8.5				2604	6637	2604	6637	
Open Hole Section			8.5				6637	17293	6637	6898	
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		17279.8		Bottom Plug	5.5	1	HES		
Float Collar	5.5	1		17232.5		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 ft3/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	11.5 lb/gal Tuned Spacer III	Tuned Spacer III W SURFACTANT			120	bbl	11.5	3.78		6	

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	8.04
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	410	sack	13.2	1.68		8	8.06
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	1215	sack	13.2	2.04		8	9.75
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	382.2	bbl	8.33			10	
Cement Left In Pipe		Amount	48 ft		Reason			Shoe Joint	
Mix Water:		pH 7	Mix Water Chloride:		0 ppm		Mix Water Temperature:		62 °F
Plug Bumped?		Yes	Bump Pressure:		1,700 psi		Floats Held?		Yes
<b>Comment</b> There were full returns throughout the job. Halliburton bumped the plug 500 psi. over 1,700 psi. at 3 bpm. Finale pressure was 2,300 psi. We held pressure for a minute. Pressure held. We circulated no spacer or cement to surface. We checked floats. Floats held. Got 4.5 bbls. of fluid back to the truck. Estimated tops based on the assumption that TOS is 0' are TOT; 6,637', TOL; 3,631', TOC; 2,604'.									

## 2.0 Real-Time Job Summary

## 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DS Pump Press (psi)	Comb Pump Rate (bbl/min)	DH Density (ppg)	Comments
Event	1	Call Out	Call Out	9/25/2018	20:00:00	USER				Crew was called out at 20:00 for an on location time of 02:00.
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	9/26/2018	00:15:00	USER				Crew held a pre journey safety meeting and JSA.
Event	3	Depart Shop for Location	Depart Shop for Location	9/26/2018	00:30:00	USER				Started journey management with dispatch and left location.
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	9/26/2018	01:30:00	USER				Crew performed a site assessment, safety meeting and hazard hunt on location. Checked in with the customer and discussed the job procedures, rig up and well bore schematics. The rig was running casing.
Event	5	Other	Other	9/26/2018	01:35:00	USER				Well bore: MD: 17,293', TP: 5.5" 20# set at 17,279.8', FC: 17,232.5', TVD: 6,898', SC: 9.625" 36# set at 1,937.8'. OH: 8.5". Mud # 9.5 ppg. Water test: PH: 7, Chlorides: 0, Temp: 62 Degrees.
Event	6	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	9/26/2018	01:40:00	USER				The crew held a pre rig up safety meeting and JSA.
Event	7	Rig-Up Equipment	Rig-Up Equipment	9/26/2018	01:45:00	USER				The crew rigged up all lines, hoses and equipment for the job.
Event	8	Safety Meeting	Safety Meeting	9/26/2018	04:50:00	USER				Halliburton cement crew held a pre cement job safety meeting and JSA with third party personnel and rig crew.
Event	9	Start Job	Start Job	9/26/2018	05:09:13	COM5				Pumped 3 bbls. of fresh water at 3 bpm. to fill lines and establish circulation.
Event	10	Test Lines	Test Lines	9/26/2018	05:13:48	COM5	5095.00		8.29	Pressure tested lines to 6,500 psi. with a 500 psi. electronic kick out test. Pressure tested lbop to 3,000 psi. with a 500 psi. electronic kick out test.
Event	11	Drop Bottom Plug	Drop Bottom Plug	9/26/2018	05:23:16	COM5				Halliburton loaded and dropped the bottom plug which, was witnessed by the customer.
Event	12	Pump Spacer 1	Pump Spacer 1	9/26/2018	05:23:22	COM5	126.00	3.00	11.34	Pumped 120 bbls. of Tuned Spacer III with surfactants mixed at 11.5

ppg., Yield: 3.78 ft3/sks, 23.5 gal/sks. Density was verified by pressurized scales.

Event	13	Shutdown	Shutdown	9/26/2018	05:46:05	USER				Loaded the second bottom plug that was witnessed by the customer.
Event	14	Drop Bottom Plug	Drop Bottom Plug	9/26/2018	05:48:43	COM5				Dropped the bottom plug which, was witnessed by the customer.
Event	15	Pump Lead Cement	Pump Lead Cement	9/26/2018	05:50:57	COM5	530.00	6.10	13.41	Pumped 42 bbls. (140 sks.) of Elasticem W/O Super CBL mixed at 13.2 ppg., Yield: 1.68 ft3/sks, 8.04 gal/sks. Density was verified by pressurized scales.
Event	16	Pump Lead Cement	Pump Lead Cement	9/26/2018	05:58:52	COM5	557.00	6.10	13.44	Pumped 123 bbls. (410 sks.) of Elasticem mixed at 13.2 ppg., Yield: 1.68 ft3/sks, 8.06 gal/sks. Density was verified by pressurized scales.
Event	17	Pump Tail Cement	Pump Tail Cement	9/26/2018	06:17:37	COM5	516.00	6.00	13.12	Pumped 441 bbls. (1215 sks.) of Neocem mixed at 13.2 ppg. Yield: 2.04 ft3/sks, 9.75 gal/sks. Density was verified by pressurized scales.
Event	18	Shutdown	Shutdown	9/26/2018	07:13:48	COM5				Washed pumps and lines until clean and dry.
Event	19	Drop Top Plug	Drop Top Plug	9/26/2018	07:25:42	COM5				Dropped the top plug, which was witnessed by the customer.
Event	20	Pump Displacement	Pump Displacement	9/26/2018	07:25:49	COM5	495.00	10.10	7.76	Pumped 382.2 bbls. of fresh water with MMCR in the first 20 bbls. and Biocide was added throughout the rest of displacement.
Event	21	Bump Plug	Bump Plug	9/26/2018	08:06:00	COM5	1738.00	3.10	7.86	Halliburton bumped the plug 500 psi. over 1,700 psi. at 3 bpm. Finale pressure was 2,300 psi. We held pressure for a minute. Pressure held. We circulated no spacer or cement to surface. Estimated tops based on the assumption that TOS is 0' are TOT; 6,637', TOL; 3,631', TOC; 2,604'.
Event	22	Check Floats	Check Floats	9/26/2018	08:11:42	USER				Bled off pressure to check floats. Floats held. We got 4.5 bbls. of fresh water back to the truck.
Event	23	End Job	End Job	9/26/2018	08:14:50	COM5				Washed and blew down lines, pumps, and hoses until clean and dry.
Event	24	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	9/26/2018	08:17:00	USER				Halliburton cement crew held a pre rig down safety meeting and JSA.
Event	25	Rig-Down Equipment	Rig-Down Equipment	9/26/2018	08:22:00	USER				Rigged down all lines, hoses and equipment.
Event	26	Safety Meeting - Departing Location	Safety Meeting - Departing Location	9/26/2018	10:20:00	USER				Held a pre journey safety meeting with the crew.
Event	27	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	9/26/2018	10:30:00	USER				Started journey management with dispatch and left location.



3.0 Attachments

3.1 Noble, SO# 905156791, Emmy State H25-731, 5 1/2" Production.png

