

HALLIBURTON

iCem[®] Service

NOBLE ENERGY INC-EBUS

Date: Wednesday, October 03, 2018

Emmy State H25-724 Production

Job Date: Friday, September 21, 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 H25-724** 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 #: 3883735		Quote #:		Sales Order #: 0905145665				
Customer: NOBLE ENERGY INC-EBUS				Customer Rep: Gary Stapleton						
Well Name: EMMY STATE			Well #: H25-724		API/UWI #: 05-123-46969-00					
Field: WATTENBERG		City (SAP): KEENESBURG		County/Parish: WELD		State: COLORADO				
Legal Description: SW SE-25-3N-65W-285FSL-1737FEL										
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		17338ft		Job Depth TVD		6961ft				
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	1966	0	1966
Casing		5.5	4.778	20			0	17323	0	6961
Open Hole Section			8.5				2599	6743	2599	6743
Open Hole Section			8.5				6743	17338	6743	6961
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	HES	17323		Bottom Plug	5.5	1	HES	
Float Collar	5.5	1	HES	17276		SSR plug set				
Insert Float						Plug Container	5.5	1	HES	
Stage Tool						Centralizers				
Fluid Data										
Stage/Plug #: 1										
Fluid #	Stage Type	Fluid Name		Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /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		5	

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	425	sack	13.2	1.68		6	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	1218	sack	13.2	2.04		7	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	Fresh Water W MMCR first 20 bbls. and BioCide throughout	383	bbl	8.33			10		
Cement Left In Pipe		Amount	47 ft		Reason			Shoe Joint		
Mix Water:		pH 7	Mix Water Chloride:			0 ppm		Mix Water Temperature:		68 °F
Plug Bumped?		Yes	Bump Pressure:			1800 psi		Floats Held?		Yes
Comment There were full returns throughout the job. Bumped the plug 1,300 psi. over 1,800 psi. at 3 bpm and held for a minutes. Finale pressure was 3,200 psi. Circulated 10 bbls. of interface and no spacer or cement to surface. Bled off pressure to check floats. Floats held. Got 6 bbls. back to the truck Estimated TOT is 6,743', TOL 3,626', TOC 2,599', TOS 0'.										

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	9/20/2018	23:00:00	USER				Crew was called out at 23:00 for an on location time of 05:00.
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	9/21/2018	02:45:00	USER				Crew held a pre journey safety meeting and JSA.
Event	3	Depart Shop for Location	Depart Shop for Location	9/21/2018	03:15:00	USER				Started journey management with dispatch and left location.
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	9/21/2018	04:00:00	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	9/21/2018	04:05:00	USER				Well bore: MD: 17,338', TP: 5.5" 20# set at 17,322.9', FC: 17,275.6', TVD: 6,961', SC: 9.625" 36# set at 1,965.3'. OH: 8.5". Mud # 9.6 ppg. Water test: PH: 7, Chlorides: 0, Temp: 68 Degrees.
Event	6	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	9/21/2018	04:10:00	USER				The crew held a pre rig up safety meeting and JSA.
Event	7	Rig-Up Equipment	Rig-Up Equipment	9/21/2018	04:15:00	USER				The crew rigged up all lines, hoses and equipment for the job.
Event	8	Safety Meeting	Safety Meeting	9/21/2018	06:25:00	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	9/21/2018	06:46:40	COM5				Pumped 3 bbls. of fresh water at 3 bpm. to fill lines and establish circulation.
Event	10	Test Lines	Test Lines	9/21/2018	06:52:35	COM5	4945.00		8.82	Pressure tested lines to 4,900 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	9/21/2018	07:10:23	USER				Halliburton loaded and dropped the bottom plug which, was witnessed by the customer.
Event	12	Pump Spacer	Pump Spacer	9/21/2018	07:10:32	USER	114.00	2.10	11.69	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	9/21/2018	07:39:10	COM5				Shutdown to drop bottom plug.
Event	14	Drop Bottom Plug	Drop Bottom Plug	9/21/2018	07:39:36	COM5				Halliburton loaded and dropped the bottom plug which, was witnessed by the customer.
Event	15	Pump Lead Cement	Pump Lead Cement	9/21/2018	07:46:52	COM5	309.00	4.10	13.55	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	9/21/2018	07:58:33	COM5	321.00	4.10	13.31	Pumped 127 bbls. (425 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	9/21/2018	08:23:04	COM5	360.00	5.00	13.30	Pumped 443 bbls. (1218 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	9/21/2018	09:26:43	USER				Shutdown and washed up pumps and lines until clean.
Event	19	Drop Top Plug	Drop Top Plug	9/21/2018	09:46:09	COM5				Loaded and dropped the top plug, which was witnessed by the customer.
Event	20	Pump Displacement	Pump Displacement	9/21/2018	09:46:13	COM5	419.00	9.90	7.78	Pumped 383 bbls. of fresh water with MMCR in the first 20 bbls. and Biocide was added throughout the rest of displacement.
Event	21	Displ Reached Cement	Displ Reached Cement	9/21/2018	09:51:56	COM5	1016.00	9.90	7.75	Pressured on cement.
Event	22	Bump Plug	Bump Plug	9/21/2018	10:26:27	COM5	1723.00	3.00	7.82	Bumped the plug 1,300 psi. over 1,800 at 3 bpm. Final pressure was 3,200 psi. There was no spacer or cement to surface. We circulated 10 bbls. of interface to surface.
Event	23	Check Floats	Check Floats	9/21/2018	10:32:34	USER				Bled off pressure to check floats. Floats held. Got 6 bbls. of fluid back to the truck.
Event	24	End Job	End Job	9/21/2018	10:35:00	COM5				Washed and blew down all pums, lines, and hoses.
Event	25	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	9/21/2018	10:40:00	USER				Halliburton cement crew held a pre rig down safety meeting and JSA.
Event	26	Rig-Down Equipment	Rig-Down Equipment	9/21/2018	10:45:00	USER				Rigged down all lines, hoses and equipment.
Event	27	Safety Meeting - Departing Location	Safety Meeting - Departing Location	9/21/2018	12:45:00	USER				Started journey management with dispatch and left location.

Event	28	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	9/21/2018	13:00:00	USER	Held a pre journey safety meeting with the crew.
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3.0 Attachments

3.1 Case 1-Custom Results.png

