

HALLIBURTON

iCem[®] Service

NOBLE ENERGY INC - EBUS

Date: Thursday, September 13, 2018

Emmy State H25-771 Production

Job Date: Tuesday, August 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 H25-771** 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 #: 3883672	Quote #:	Sales Order #: 0905074234
Customer: NOBLE ENERGY INC-EBUS		Customer Rep: CHRIS EWING	
Well Name: EMMY STATE	Well #: H25-771	API/UWI #: 05-123-46975-00	
Field: WATTENBERG	City (SAP): KEENESBURG	County/Parish: WELD	State: COLORADO
Legal Description: SW SW-25-3N-65W-285FSL-1207FWL			
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: Vitali Neverdasov	

Job

Formation Name			
Formation Depth (MD)	Top		Bottom
Form Type			BHST 230 degF
Job depth MD	17290ft		Job Depth TVD 6950
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	1958	0	1958
Casing	0	5.5	4.778	20	LTC	P-110	0	17290	0	6950
Open Hole Section			8.5				1958	6950	0	6950
Open Hole Section			8.5				6930	17306	0	6950

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5				Top Plug	5.5	1	HES
Float Shoe	5.5	1	N/A	17290	Bottom Plug	5.5	1	HES
Float Collar	5.5	1	N/A	17244	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		4		
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	8.04
8.04 Gal		FRESH WATER							
0.90 %		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	410	sack	13.2	1.68		8	8.06
0.50 %		SCR-100 (100003749)							
8.08 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	1217	sack	13.2	2.04		8	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	382.4	bbl	8.33				
Cement Left In Pipe	Amount	46 ft		Reason	Shoe Joint				
Comment : ESTIMATED TOT @ 6452' TOL 2 @ 3445' TOL 1 @ 2418.									

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>	PS Pump Press <i>(psi)</i>	Comments
Event	1	Call Out	Call Out	8/20/2018	15:00:00	USER				For Location @ 20:30
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	8/20/2018	19:30:00	USER				Journey management meeting held prior to departure
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	8/20/2018	19:45:00	USER				Called Journey
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	8/20/2018	20:27:00	USER				21 Miles to location. Discussed numbers and job procedures with Customer. Rig is running casing.
Event	5	Safety Meeting - Pre Rig-Up	Safety Meeting - Pre Rig-Up	8/20/2018	20:45:00	USER				JSA to discuss the hazards of rig-up
Event	6	Casing on Bottom	Casing on Bottom	8/20/2018	22:30:00	USER				Landing joint brought to floor and landed
Event	7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	8/21/2018	00:14:00	USER				With all essential personnel, to discuss the hazards of pumping the job, and pump schedule.
Event	8	Start Job	Start Job	8/21/2018	00:32:34	COM4				
Event	9	Drop Bottom Plug	Drop Bottom Plug	8/21/2018	00:46:27	COM4				DROP 1 ST BUTTOM PLUG
Event	10	Test Lines	Test Lines	8/21/2018	00:54:00	USER	8.81		5310.00	Load line with 2 bbls of water. Test lines @ 5082 psi
Event	11	Drop Bottom Plug	Drop Bottom Plug	8/21/2018	01:10:00	USER				Drop 2ND buttom plug.
Event	12	Pump Spacer	Pump Spacer	8/21/2018	01:13:00	USER	11.53	2.50	217.00	120 bbls tuned spacer @11.5 ppg with SURFACTANS, verified with pressurized scales.
Event	13	Pump Lead Cement	Pump Lead Cement	8/21/2018	01:53:00	USER	13.33	3.90	296.00	Pump First lead 140 sks(41.9 bbls) Elasticem no CBL @ 13.2 ppg, verified with pressurized scales
Event	14	Pump Lead Cement	Pump Lead Cement	8/21/2018	02:05:00	USER	13.31	5.50	466.00	Pump 2ND Lead cement 410 sks (122.7 bbls) Elasticem with CBL @ 13.2 PPG.
Event	15	Pump Tail Cement	Pump Tail Cement	8/21/2018	02:21:00	USER	13.16	6.00	494.00	Pump 1217 sks(442.2 bbls) NeoCem @ 13.2 ppg, verified with pressurized scales.

Event	16	Shutdown	Shutdown	8/21/2018	03:28:00	USER				Finished pumping cement
Event	17	Clean Lines	Clean Lines	8/21/2018	03:32:00	USER				Blow lines with rig air.Wash pumps and lines.
Event	18	Drop Top Plug	Drop Top Plug	8/21/2018	03:43:00	USER				Drop top plug.
Event	19	Pump Displacement - Start	Pump Displacement - Start	8/21/2018	03:47:00	USER	8.04	10.00	601.00	382.4 bbls fresh water. First 20 bbls with MMCR + Biocide. Rest with Biocede. LAST 40 BBLS FRESH WATER.
Event	20	Bump Plug	Bump Plug	8/21/2018	04:30:00	USER	8.37	2.90	2004.00	@500 psi over final circulating pressure of 1855 psi @ 3.0 bpm.
Event	21	Check Floats	Check Floats	8/21/2018	04:37:00	USER				Bleed off pressure. Floats held. 4.5 bbls back
Event	22	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	8/21/2018	04:41:00	USER				JSA to discuss the hazards of rig-down
Event	23	End Job	End Job	8/21/2018	04:51:46	COM4				
Event	24	Rig-Up Equipment	Rig-Up Equipment	8/21/2018	20:50:00	USER				Spot and Rig-up all surface lines and equipmnet up to the Buffer zone
Event	25	Circulate Well	Circulate Well	8/21/2018	22:40:00	USER				Rig is circulating.

3.0 Attachments

3.1 Case 1-Custom Results.png

