

HALLIBURTON

iCem[®] Service

NOBLE ENERGY INC-EBUS

Date: Wednesday, October 03, 2018

Emmy State H25-718 Production

Job Date: Sunday, September 09, 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 H25-718** 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 #: 3883630	Quote #:	Sales Order #: 0905122839
Customer: NOBLE ENERGY INC-EBUS		Customer Rep: John Drahota and Tommy Charvat	
Well Name: EMMY STATE		Well #: H25-718	API/UWI #: 05-123-46967-00
Field: WATTENBERG	City (SAP): KEENESBURG	County/Parish: WELD	State: COLORADO
Legal Description: SW SE-25-3N-65W-285FSL-1715FEL			
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: Nicholas Roles	

Job

Form Type		BHST	230 degF
Job depth MD	17336ft	Job Depth TVD	6922ft
Water Depth		Wk Ht Above Floor	3ft
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	1933	0	1933
Casing		5.5	4.778	20			0	17336	0	6576
Open Hole Section			8.5				2492	6576	2492	6576
Open Hole Section			8.5				6576	17344	6576	6922

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5			17336	Top Plug	5.5	1	HES
Float Shoe	5.5				Bottom Plug	5.5	2	HES
Float Collar	5.5			17288	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	3.73		6.5	
	36.09 gal/bbl	FRESH WATER							
	0.60 gal/bbl	MUSOL(R) A, 5 GAL PAIL (100064220)							
	149.34 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	1.67		7	8.02
8.02 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	417	sack	13.2	1.68		8	8.06
0.40 %		SCR-100 (100003749)							
8.06 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	1211	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	383	bbl	8.33			10	
Cement Left In Pipe									
Amount		48 ft			Reason			Shoe Joint	
Mix Water:pH 06		Mix Water Chloride: 0 ppm			Mix Water Temperature:			69 °F °C	
Cement Temperature:## °F °C		Plug Displaced by: 8.33 lb/gal k			Disp. Temperature:			69 °F °C	
Plug Bumped?Yes		Bump Pressure: 2260 MPa			Floats Held?Yes				
Spacer Returns:5bbl m3		Returns Density: ## lb/gal kg/m3			Returns Temperature:## °F °C				
Comment Got 5bbls spacer to surface. Estimated TOL#1-2492', TOL#2-3512',TOT-6576'									

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	9/9/2018	01:30:00	USER				Called out by Service Coordinator for O/L at 0700
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	9/9/2018	04:45:00	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	9/9/2018	05:00:00	USER				Journey Management prior to departure
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	9/9/2018	06:00:00	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	9/9/2018	06:15:00	USER				Discussed rigging up hazards and procedure according to HMS.
Event	6	Other	Other	9/9/2018	06:45:00	USER				Water test- PH-6, Chlor-0, Temp-70.
Event	7	Safety Meeting - Pre Job	Safety Meeting - Pre Job	9/9/2018	16:00:00	USER				Held safety meeting with all job associated personnel to discuss job procedure, hazards and stop work authority.
Event	8	Start Job	Start Job	9/9/2018	16:22:15	COM4				TD-17344', TP-17336' 5.5" 20#, FC-17288', TVD-6922', SURF-1933' 9.625" 36#, OH-8.5" MUD-9.4#
Event	9	Drop Bottom Plug	Drop Bottom Plug	9/9/2018	16:24:40	USER				
Event	10	Test Lines	Test Lines	9/9/2018	16:28:50	COM4	8.44		4268.00	Pumped 5bbls fresh water to fill lines, closed 2" lo torc, performed 500psi k/o function test, followed with 5th gear stall at 1480psi, 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	9/9/2018	16:39:37	COM4	11.64	3.60	440.00	Pumped 120bbls Tuned Spacer III 11.5# 3.73y 23.3g/s with 70g Musol A, 70g Dual Spacer B and 20g D-Air at 6.5bpm 300psi.
Event	12	Drop Bottom Plug	Drop Bottom Plug	9/9/2018	16:59:24	COM4				Dropped by HES supervisor, witnessed by company man.
Event	13	Pump Lead Cement	Pump Lead Cement	9/9/2018	17:04:36	COM4	13.34	0.00	48.00	Pumped 140sks or 42bbls Elasticem w/o CBL 13.2# 1.67y 8.02g/s at 8bpm 500psi.

Event	14	Check Weight	Check Weight	9/9/2018	17:09:26	COM4	13.75	3.60	219.00	Weight verified with pressurized mud scales.
Event	15	Pump Lead Cement	Pump Lead Cement	9/9/2018	17:13:28	COM4	13.15	7.70	450.00	Pumped 417sks or 125bbls Elasticem w/CBL 13.2# 1.68y 8.06g/s at 8bpm 650psi.
Event	16	Pump Tail Cement	Pump Tail Cement	9/9/2018	17:32:14	COM4	13.02	6.50	228.00	Pumped 1211sks or 440bbls 13.2# 2.04y 9.75g/s Neocem at 8bpm 700psi.
Event	17	Check Weight	Check Weight	9/9/2018	17:33:29	COM4	13.02	6.80	439.00	Weight verified with pressurized mud scales.
Event	18	Check Weight	Check Weight	9/9/2018	17:57:31	COM4	13.18	8.00	670.00	Weight verified with pressurized mud scales.
Event	19	Shutdown	Shutdown	9/9/2018	18:29:54	USER				Shutdown, rig blew air through lines to pits, followed with 5bbls fresh water through pumps and lines.
Event	20	Drop Top Plug	Drop Top Plug	9/9/2018	18:41:17	COM4				Dropped by HES supervisor, witnessed by company man.
Event	21	Pump Displacement	Pump Displacement	9/9/2018	18:41:34	COM4	8.33	10.20	361.00	Pumped 383bbls fresh water with 10g MMCR in first 20bbls, 20g Algicide throughout.
Event	22	Bump Plug	Bump Plug	9/9/2018	19:26:48	COM4	8.45	3.30	1802.00	Slowed down to 3bpm at 355bbls away, final circulating pressure-1760psi, Bump pressure-2260psi.
Event	23	Check Floats	Check Floats	9/9/2018	19:33:56	USER				Released pressure and got 4bbls fresh water to truck, floats held.
Event	24	End Job	End Job	9/9/2018	19:37:17	COM4				Got 5bbls spacer to surface. Estimated TOL#1-2492', TOL#2-3512',TOT-6576'
Event	25	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	9/9/2018	19:40:00	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	26	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	9/9/2018	20:45:00	USER				All HSE present and fit to drive. Aware of directions and hazards.
Event	27	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	9/9/2018	21:00:00	USER				Pre journey managment prior to departure.

3.0 Attachments

3.1 Emmy State H25-718-Custom Results.png

