

HALLIBURTON

iCem[®] Service

NOBLE ENERGY INC-EBUS

Date: Monday, November 26, 2018

Independence D30-743 Production

Job Date: Thursday, November 22, 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 **Independence D30-743** 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 #: 3899606		Quote #:		Sales Order #: 0905288683	
Customer: NOBLE ENERGY INC-EBUS				Customer Rep: Thomas Churvut			
Well Name: INDEPENDENCE			Well #: D30-743		API/UWI #: 05-123-47590-00		
Field: WATTENBERG		City (SAP): LA SALLE		County/Parish: WELD		State: COLORADO	
Legal Description: NE NE-19-3N-64W-300FNL-1157FEL							
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: Prince Perez			

Job

Formation Depth (MD)	Top	0'	Bottom	17,885'
			BHST	230 degF
Job depth MD	17,868'		Job Depth TVD	6,875'
			Wk Ht Above Floor	4'

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	1929	0	1929
Casing		5.5	4.778	20			0	17868	0	6875
Open Hole Section			8.5				1929	17885	1929	6875
Open Hole Section			8.5				1929	17885	1929	6875

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5	1		17,868	Top Plug	5.5	1	HES
					Bottom Plug	5.5	2	HES
Float Collar	5.5	1		17,820.7'	Plug Container	5.5	1	HES
					Centralizers	5.5	201	SYNTEC

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	Spacer	Tuned Spacer III	120	bbl	11.5	3.78	23.5	6	4,189

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	Cap	ELASTICEM (TM) SYSTEM	140	sack	13.2	1.68	8.04	6	1,126	
3	Lead	ELASTICEM (TM) SYSTEM	418	sack	13.2	1.68	8.06	6	3,369	
4	Tail	NeoCem TM	1,275	sack	13.2	2.04	9.75	8	12,431	
5	Displacement	Fresh Water	395.6	bbl	8.34					
Cement Left In Pipe										
Amount		47 ft			Reason			Shoe Joint		
Mix Water:pH 7		Mix Water Chloride:<300 ppm			Mix Water Temperature:71 °F					
Cement Temperature:84 °F		Plug Displaced by:8.34 lb/gal			Disp. Temperature:100 °F					
Plug Bumped?Yes		Bump Pressure:1,869 psi			Floats Held?Yes					
Cement Returns:0 bbl		Returns Density:9.2 lb/gal			Returns Temperature:## °F					
Comment										
Pumped 120 bbls of Tuned Spacer III with 72 gallons of Musol A, 72 gallons of Dual B, and 20 gallons of D Air.										
Pumped 41.89 bbls of Cap cement.										
Pumped 125.07 bbls of Elasticem w/SCBL.										
Pumped 463.24 bbls of NeoCem.										
Pumped 395.6 bbls of Displacement with MMCR in the first 20 bbls and Aldacide throughout.										
No spacer back.										
4.5 bbls back on the floats.										

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Comments
Event	1	Call Out	Call Out	11/21/2018	15:00:00	USER				CREW CALLED OUT AT 15:00, REQUESTED ON LOCATION 20:00. CREW PICKED UP CEMENT, CHEMICALS, AND PLUG CONTAINER FROM FT. LUPTON, CO. BULK 660 10025030, 10867415, AND PUMP 11189145.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	11/21/2018	19:20:00	USER				CREW DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.
Event	3	Crew Leave Shop	Crew Leave Shop	11/21/2018	19:30:00	USER				STARTED JOURNEY MANAGEMENT.
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	11/21/2018	20:00:00	USER				END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING- 9.625" 36 LB/FT @ 1,929', 5.5" CASING: 20 LB/FT TOTAL 17,867.7', 8 1/2" HOLE, TD 17,885', 47' SHOE TRAC, TVD- 6,875'. PUMP FRESH WATER DISPLACEMENT. CASING LANDED @ 23:00 11/21/2018.
Event	5	Safety Meeting - Assessment of Location	Safety Meeting - Assessment of Location	11/21/2018	20:10:00	USER				HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	11/21/2018	20:20:00	USER				RIG UP BULK AND MIXING EQUIPMENT.
Event	7	Rig-Up Completed	Rig-Up Completed	11/21/2018	22:50:00	USER				
Event	8	Pre-Job Safety Meeting	Pre-Job Safety Meeting	11/22/2018	00:00:00	USER				MEETING WITH HALLIBURTON AND RIG PERSONNEL. COMMUNICATED POTENTIAL SAFETY HAZARDS AND JOB DETAILS.
Event	9	Start Job	Start Job	11/22/2018	00:38:16	COM4				BEGIN RECORDING JOB DATA.
Event	10	Test Lines	Test Lines	11/22/2018	00:47:02	COM4	8.34		4657.00	PRESSURE TESTED IRON TO 4,500 PSI. KICKOUTS SET @ 500 PSI, KICKED OUT @ 1,000 PSI, 5TH GEAR STALL OUT @ 1,850 PSI. 4,500 PRESSURE TEST KICKED OUT @ 4,500 PSI
Event	11	Test Lines	Test Lines	11/22/2018	00:54:22	COM4	8.34		3587.00	TESTED AGAINST THE IBOP TO 3,500 PSI FOR 2 MIN.
Event	12	Pump Spacer 1	Pump Spacer 1	11/22/2018	01:02:34	COM4	11.20	1.80	40.00	PUMP 120 BBLs OF TUNED SPACER III @ 11.5 LB/GAL, 3.78 CUFT/SK, 23.5 GALL/SK. 20 GALS D-AIR, 75 GALS DUAL B, 75 GALS OF MUSOL A. 8.8 BBLs CALCULATED TO RETURN TO SURFACE.

DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBLs/MIN @ 725 PSI.

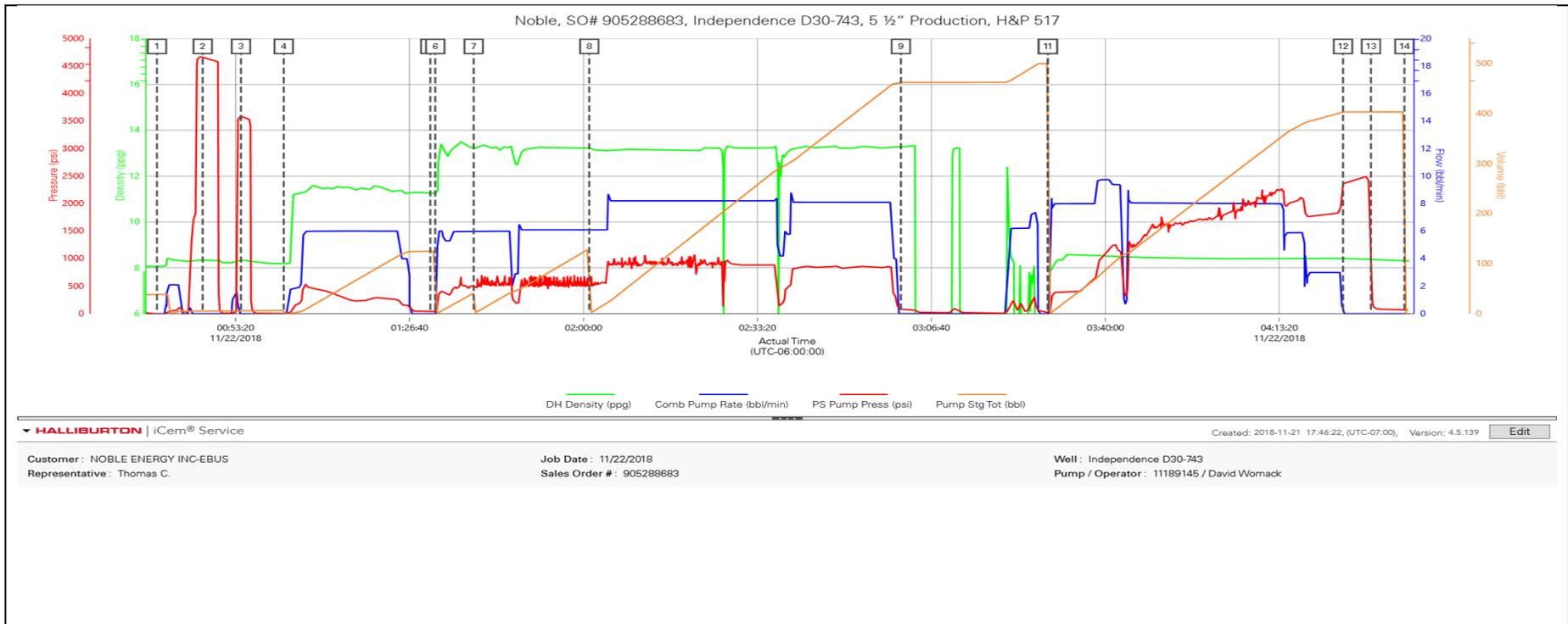
Event	13	Drop Bottom Plug	Drop Bottom Plug	11/22/2018	01:30:39	COM4				PLUG LEFT CONTAINER, VERIFIED BY CO. MAN.
Event	14	Pump Cement	Pump Cement	11/22/2018	01:31:36	COM4	12.73	5.30	338.00	PUMPED 140 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.68 FT3/SK, 8.04 GAL/SK. 41.89 BBLs. HOC CALCULATED @ 1,026.7', TOC CALCULATED @ 2,447.2' DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 6 BBLs/MIN @ 450 PSI
Event	15	Pump Lead Cement	Pump Lead Cement	11/22/2018	01:38:58	COM4	13.25	6.00	500.00	PUMPED 418 SKS OF ELASTICEM W/SCBL @ 13.2 LB/GAL, 1.68 FT3/SK, 8.06 GAL/SK. 125.07 BBLs, HOL CALCULATED @ 3,065.4', TOL CALCULATED @ 3,473.9'. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 6 BBLs/MIN @ 500 PSI
Event	16	Pump Tail Cement	Pump Tail Cement	11/22/2018	02:01:07	COM4	13.28	6.10	538.00	PUMP 1,275 SKS OF NEOCEM @ 13.2 LB/GAL, 2.04 FT3/SK, 9.75 GAL/SK, 463.24 BBLs. HOT CALCULATED @ 11,328.43', TOT CALCULATED @ 6,539.3'. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBLs/MIN @ 910 PSI.
Event	17	Shutdown	Shutdown	11/22/2018	03:00:50	USER				SHUTDOWN TO WASH LINES.
Event	18	Drop Top Plug	Drop Top Plug	11/22/2018	03:28:58	COM4				PLUG LEFT CONTAINER, VERIFIED BY CO. MAN.
Event	19	Pump Displacement	Pump Displacement	11/22/2018	03:29:00	COM4	8.00	8.00	390.00	BEGIN CALCULATED DISPLACEMENT OF 395.6 BBLs WITH FRESH WATER. MMCR IN THE FIRST 20 BBLs AND ALDACCIDE THROUGHOUT. PUMP RATE 8 BPM @ 2,140 PSI. SLOW RATE TO 3 BPM @ 375 BBLs INTO DISPLACEMENT.
Event	20	Bump Plug	Bump Plug	11/22/2018	04:25:33	COM4	8.41	3.00	1834.00	PLUG BUMPED AT CALCULATED DISPLACEMENT. 1,869 PSI PRESSURED 500 PSI OVER BUMP. SHUTDOWN FOR 5 MINUTES.
Event	21	Check Floats	Check Floats	11/22/2018	04:30:54	USER				RELEASED PRESSURE, FLOATS HELD, 4.5 BBLs BACK.
Event	22	End Job	End Job	11/22/2018	04:37:19	COM4				STOP RECORDING JOB DATA.
Event	23	Post-Job Safety Meeting (Pre Rig-Down)	Post-Job Safety Meeting (Pre Rig-Down)	11/22/2018	04:40:00	USER				DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event	24	Rig-Down Equipment	Rig-Down Equipment	11/22/2018	04:50:00	USER				RIG DOWN BULK AND MIXING EQUIPMENT.
Event	25	Rig-Down Completed	Rig-Down Completed	11/22/2018	06:10:00	USER				
Event	26	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	11/22/2018	06:20:00	USER				CREW DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.

Event	27	Crew Leave Location	Crew Leave Location	11/22/2018	06:30:00	USER
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STOP RECORDING JOB DATA.

3.0 Attachments

3.1 Noble Independence D30-743-Custom Results.png



3.2 Noble Independence D30-743-Events.png

Description	Actual Time (UTC-06:00:00)	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)
1 Start Job	00:38:16	8.06	0.00	-6.00	38.20
2 Test Lines	00:47:02	8.34	0.00	4657.00	5.10
3 Test Lines	00:54:22	8.34	0.00	3587.00	6.60
4 Pump Spacer 1	01:02:34	8.19	0.00	3.00	0.00
5 Drop Bottom Plug	01:30:39	11.26	0.00	40.00	124.90
6 Pump Cement	01:31:36	11.24	0.00	40.00	0.00
7 Pump Lead Cement	01:38:58	13.25	6.00	500.00	0.10
8 Pump Tail Cement	02:01:07	13.28	6.10	538.00	0.10
9 Shutdown	03:00:50	13.32	0.00	79.00	462.40
10 Drop Top Plug	03:28:58	-0.15	0.00	21.00	500.30
11 Pump Displacement	03:29:00	-0.15	0.00	21.00	500.30
12 Bump Plug	04:25:33	8.42	0.00	2369.00	403.40
13 Check Floats	04:30:54	8.32	0.00	1023.00	403.40
14 End Job	04:37:19	8.31	0.00	70.00	0.00