

HALLIBURTON

iCem[®] Service

NOBLE ENERGY INC E-BUSINESS

Date: Monday, October 16, 2017

Hullabaloo State Y21-763 Production

Job Date: Friday, October 06, 2017

Sincerely,

Adam McKay

Legal Notice

Disclaimer:

All information in this report is provided subject to the terms and conditions which govern the services provided by Halliburton. Halliburton personnel use their best efforts in gathering information and their best judgment in interpreting it, but any interpretation, research, analysis or recommendation furnished by Halliburton are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and empirical relationships and assumptions are not infallible, and with respect to which professionals in the industry may differ. Accordingly, HALLIBURTON IS UNABLE TO GUARANTEE THE ACCURACY OF ANY CHART INTERPRETATION, RESEARCH ANALYSIS, OR JOB RECOMMENDATION and any interpretation or recommendation is not for use of or reliance upon by any third party. The customer has full responsibility for any of its decisions which are based on the information provided in this report.

Table of Contents

1.0 Cementing Job Summary 4

 1.1 Executive Summary4

2.0 Real-Time Job Summary 7

 2.1 Job Event Log7

3.0 Attachments..... 10

 3.1 Case 1-Custom Results.png.....10

 3.2 Case 1-Custom Results (1).png11

1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Hullabaloo State Y21-763** 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]

HALLIBURTON

Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 345242		Ship To #: 3819562		Quote #:		Sales Order #: 0904332375				
Customer: NOBLE ENERGY INC - EBUS				Customer Rep: John Drahoth						
Well Name: HULLABALOO STATE			Well #: Y21-763			API/UWI #: 05-123-45236-00				
Field: WATTENBERG		City (SAP): KEENESBURG		County/Parish: WELD			State: COLORADO			
Legal Description: NE NW-16-2N-64W-445FNL-2580FWL										
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		17477ft		Job Depth TVD		7129ft				
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		J-55	0	2020	0	2020
Casing	0	5.5	4.778	20	BUTTRESS	P-110	0	17135	0	7129
Open Hole Section			8.5				2020	6970	0	6970
Open Hole Section			8.5				6970	17477	6970	7129
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 w/ Chems	Tuned Spacer III W/ Chems	80	bbl	11.5	3.78		4		
Stage/Plug #: 2										
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 Cap	ELASTICEM (TM) SYSTEM	150	sack	13.2	1.57		6	7.53	
Stage/Plug #: 3										
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	600	sack	13.2	1.6		8	7.69	

iCem® Service

(v. 4.4.18)

Created: Monday, October 16, 2017

HALLIBURTON

Cementing Job Summary

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	1184	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	386.1	bbl	8.33			8	
Cement Left In Pipe		Amount	50ft		Reason			Shoe Joint	
Comment Full returns throughout the job. No Cement to surface. Estimated top of Spacer 98', top of Cap 1768', top of Lead 2,752', and top of Tail 6,943'. Floats held. Got 4.5 bbls. of fluid back to the truck.									

2.0 Real-Time Job Summary

2.1 Job Event Log

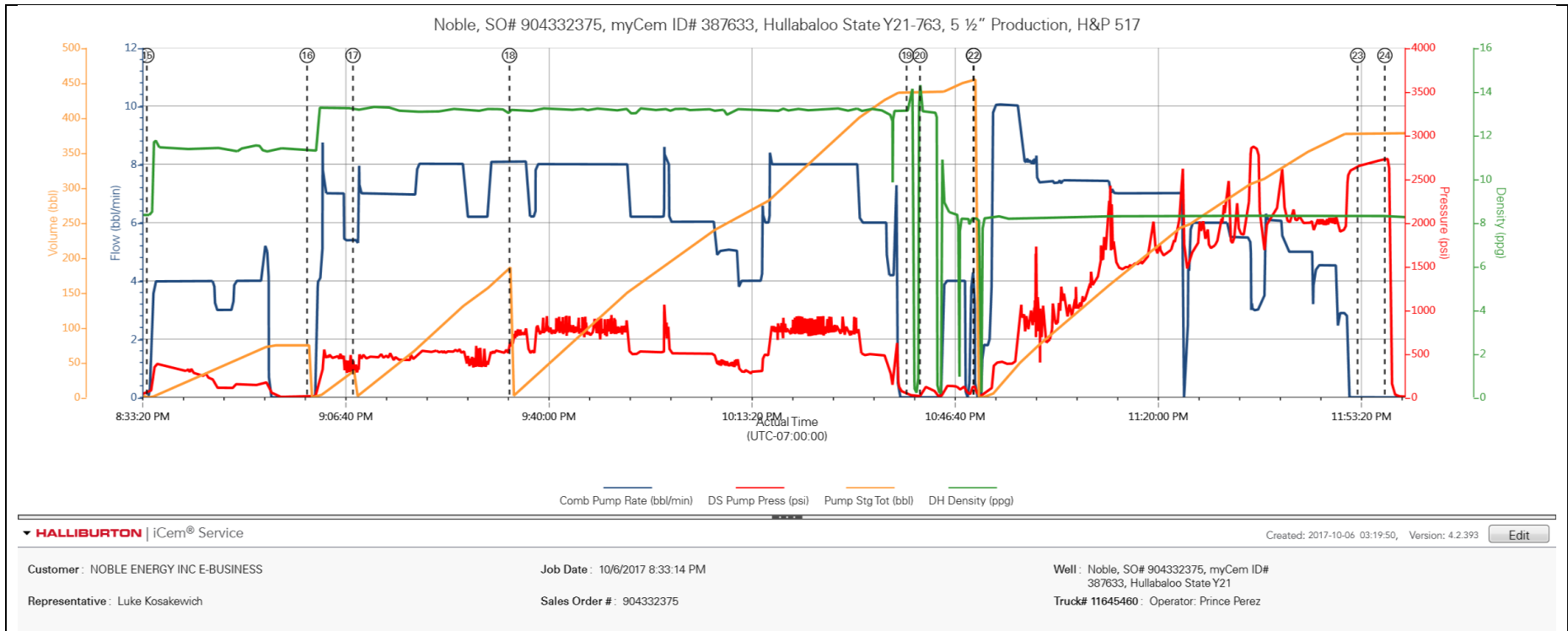
Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comb Pump Rate (bbl/min)	DS Pump Press (psi)	DH Density (ppg)	Comments
Event	1	Call Out	Call Out	10/6/2017	01:15:00	USER				Crew was called out at 01:00 for an on location time of 07:00.
Event	2	Depart Location Safety Meeting	Depart Location Safety Meeting	10/6/2017	01:30:00	USER				Held a pre journey safety meeting with the crew.
Event	3	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	10/6/2017	01:40:00	USER				Started journey management with dispatch and left location.
Event	4	Depart Location Safety Meeting	Depart Location Safety Meeting	10/6/2017	05:05:00	USER				Held a pre journey safety meeting and JSA with the crew.
Event	5	Depart Shop for Location	Depart Shop for Location	10/6/2017	05:15:00	USER				Started journey management with dispatch and left the yard.
Event	6	Arrive at Location from Service Center	Arrive at Location from Service Center	10/6/2017	06:05:00	USER				Crew performed a site assessment and hazard hunt on location. Checked in with the customer and discussed the job procedures, rig up and well bore schematics to calculate the job. The rig was running casing.
Event	7	Other	Other	10/6/2017	06:10:00	USER				Well bore: MD: 17,477', TP: 5.5" 20# set at 17,135', FC: 17,085', TVD: 7,129', SC: 9.625" 36# set at 2,020', OH: 8.5", Mud # 9.5, Water test: PH: 7.2, Chlorides: 0, Temp: 45 degrees.
Event	8	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	10/6/2017	06:20:00	USER				Held a pre rig up safety meeting and JSA with the crew.
Event	9	Rig-Up Equipment	Rig-Up Equipment	10/6/2017	10:00:00	USER				The crew rigged up all lines, hoses and equipment for the job.
Event	10	Safety Meeting	Safety Meeting	10/6/2017	20:00:00	USER				Held a pre job safety meeting and JSA with all personnel on location.
Event	11	Drop Bottom Plug	Drop Bottom Plug	10/6/2017	20:18:00	USER				Dropped the bottom plug which was witnessed by the customer.

Event	12	Start Job	Start Job	10/6/2017	20:19:21	COM4				Pumped 3 bbls. of fresh water to fill lines.
Event	13	Test Lines	Test Lines	10/6/2017	20:29:38	COM4	4200	8.35		Pressure tested lines to 4,000 psi. with a 500 psi. electronic kick out test. Pressure test did not chart but was holding pressure at 4,200 psi. Held for 3 minutes.
Event	14	Pump Spacer 1	Pump Spacer 1	10/6/2017	20:33:29	COM4	4.00	370.00	11.49	Pumped 80 bbls. of Tuned Spacer III with surfactants mixed at 11.5 ppg.,Yield: 3.73 ft3/sks, 23.5 gal/sks. Density was verified by pressurized scales.
Event	15	Drop Bottom Plug	Drop Bottom Plug	10/6/2017	20:34:25	COM4				Dropped the bottom plug which was witnessed by the customer.
Event	16	Pump Lead Cement	Pump Lead Cement	10/6/2017	21:00:43	COM4	7.00	484.00	13.23	Pumped 42 bbls. (150 sks.) of Elasticem W/O Super CBL mixed at 13.2 ppg.,Yield: 1.57 ft3/sks, 7.53 gal/sks. Density was verified by pressurized scales.
Event	17	Pump Lead Cement	Pump Lead Cement	10/6/2017	21:08:15	COM4	5.40	372.00	13.20	Pumped 170 bbls. (600 sks.) of Elasticem W/ Super CBL mixed at 13.2 ppg.,Yield: 1.6 ft3/sks, 7.69 gal/sks. Density was verified by pressurized scales.
Event	18	Pump Tail Cement	Pump Tail Cement	10/6/2017	21:33:56	COM4	8.10	573.00	13.09	Pumped 430 bbls. (1184 sks.) of Neocem mixed at 13.5 ppg. Yield: 2.04 ft3/sks, 9.75 gal/sks. Density was verified by pressurized scales.
Event	19	Shutdown	Shutdown	10/6/2017	22:39:06	COM4				Shutdown and the rig blew the iron down to the wash up pit.
Event	20	Clean Lines	Clean Lines	10/6/2017	22:41:18	COM4				Washed pumps and lines until clean.
Event	21	Drop Top Plug	Drop Top Plug	10/6/2017	22:50:04	COM4				Dropped the top plug which was witnessed by the customer.
Event	22	Pump Displacement	Pump Displacement	10/6/2017	22:50:07	COM4	10.10	406.00	8.30	Pumped 378.9 bbls. of fresh water with MMCR in the first 20 bbls. and Biocide throughout the rest of displacement.
Event	23	Bump Plug	Bump Plug	10/6/2017	23:53:07	COM4	2.90	1918.00	8.30	Bumped the plug 500 psi. over 2,000 psi. Finale pressure was 2,500 psi. at 3 bpm. Held for 5 minute. Got no spacer or cement back to surface. Estimated top of Spacer98', top of cap cement is 1,768', top of lead is 2,752', and top of tail is 6,943'.
Event	24	Other	Other	10/6/2017	23:57:35	COM4				Beld off pressure to check floats. Floats held. Got 4.5 bbls. back to surface.
Event	25	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	10/7/2017	00:10:00	USER				Held a pre rig down safety meeting and JSA.

Event	26	Rig-Down Equipment	Rig-Down Equipment	10/7/2017	00:15:00	USER	Rigged down all lines, hoses and equipment.
Event	27	Depart Location Safety Meeting	Depart Location Safety Meeting	10/7/2017	02:20:00	USER	Held a pre journey safety meeting with the crew.
Event	28	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	10/7/2017	02:30:00	USER	Started journey management with dispatch and left location.

3.0 Attachments

3.1 Case 1-Custom Results.png



3.2 Case 1-Custom Results (1).png

