

# HALLIBURTON

iCem<sup>®</sup> Service

**NOBLE ENERGY INC**

Date: Friday, September 22, 2017

**Hullabaloo State Y21-775 Production**

Job Date: Thursday, September 21, 2017

Sincerely,

Adam McKay

## Legal Notice

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## 1.0 Cementing Job Summary

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### 1.1 Executive Summary

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Halliburton appreciates the opportunity to perform the cementing services on the **Hullabaloo State Y21-775** 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 #: 3819713		Quote #:		Sales Order #: 0904306965					
Customer: NOBLE ENERGY INC - EBUS				Customer Rep:							
Well Name: HULLABALOO STATE			Well #: Y21-775			API/UWI #: 05-123-45241-00					
Field: WATTENBERG		City (SAP): KEENESBURG		County/Parish: WELD			State: COLORADO				
Legal Description: NW NW-16-2N-64W-445FNL-917FWL											
Contractor: H & P DRLG				Rig/Platform Name/Num: H & P 517							
Job BOM: 7523 7523											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HB70026				Srcv Supervisor: Matthew Schaefer							
<b>Job</b>											
Formation Name											
Formation Depth (MD)		Top			Bottom						
Form Type					BHST			230 degF			
Job depth MD		17203ft			Job Depth TVD						
Water Depth					Wk Ht Above Floor			4'			
Perforation Depth (MD)		From			To						
<b>Well Data</b>											
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	2033	0	2033	
Casing	0	5.5	4.778	20	BUTTRESS	P-110	0	17213	0	6885	
Open Hole Section			8.5				2033	6885	0	6885	
Open Hole Section			8.5				6885	17213	0	6885	
<b>Fluid Data</b>											
Stage/Plug #: 1											
Fluid #	Stage Type	Fluid Name			Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	11.5 lb/gal Tuned Spacer III w/ Chems	Tuned Spacer III			80	bbl	11.5	3.78			
34.70 gal/bbl		FRESH WATER									
0.60 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)									
147.42 lbm/bbl		BARITE, BULK (100003681)									
0.60 gal/bbl		MUSOL A, 330 GAL TOTE - (790828)									
<b>Fluid Data</b>											
Fluid #	Stage Type	Fluid Name			Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /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
0.70 %		SCR-100 (100003749)									
7.53 Gal		FRESH WATER									

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*Cementing Job Summary*

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
3	ElastiCem w/ SCBL	ELASTICEM (TM) SYSTEM	559	sack	13.2	1.6		6	7.69
7.69 Gal		FRESH WATER							
0.35 %		SCR-100 (100003749)							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
4	NeoCem NT1	NeoCem TM	1184	sack	13.2	2.04		6	9.75
9.71 Gal		FRESH WATER							
0.07 %		SCR-100 (100003749)							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
5	Displacement	Displacement	379	bbl	8.33				
<b>Cement Left In Pipe</b>	<b>Amount</b>	<b>Reason</b>						<b>Shoe Joint</b>	
<b>Mix Water:</b>	pH 7.6	<b>Mix Water Chloride:</b>	00 ppm			<b>Mix Water Temperature:</b>	65 °F		
<b>Cement Temperature:</b>		<b>Plug Displaced by:</b>	8.4PPG			<b>Disp. Temperature:</b>			
<b>Plug Bumped?</b>	Yes	<b>Bump Pressure:</b>	2000 psi			<b>Floats Held?</b>	Yes		
<b>Cement Returns:</b>		<b>Returns Density:</b>				<b>Returns Temperature:</b>			
<b>Comment</b> PUMPED 80BBL TUNED SPACER @11.5PPG, 42BBL CAP CEMENT @13.2PPG, 159BBL LEAD CEMENT @13.2PPG, 430BBL TAIL CEMENT @13.2PPG, 379BBL H2O DISPLACEMENT. NO SPACER TO SURFACE. PLUG BUMPED. FLOATS HELD, 4.5BBL BACK									

## 2.0 Real-Time Job Summary

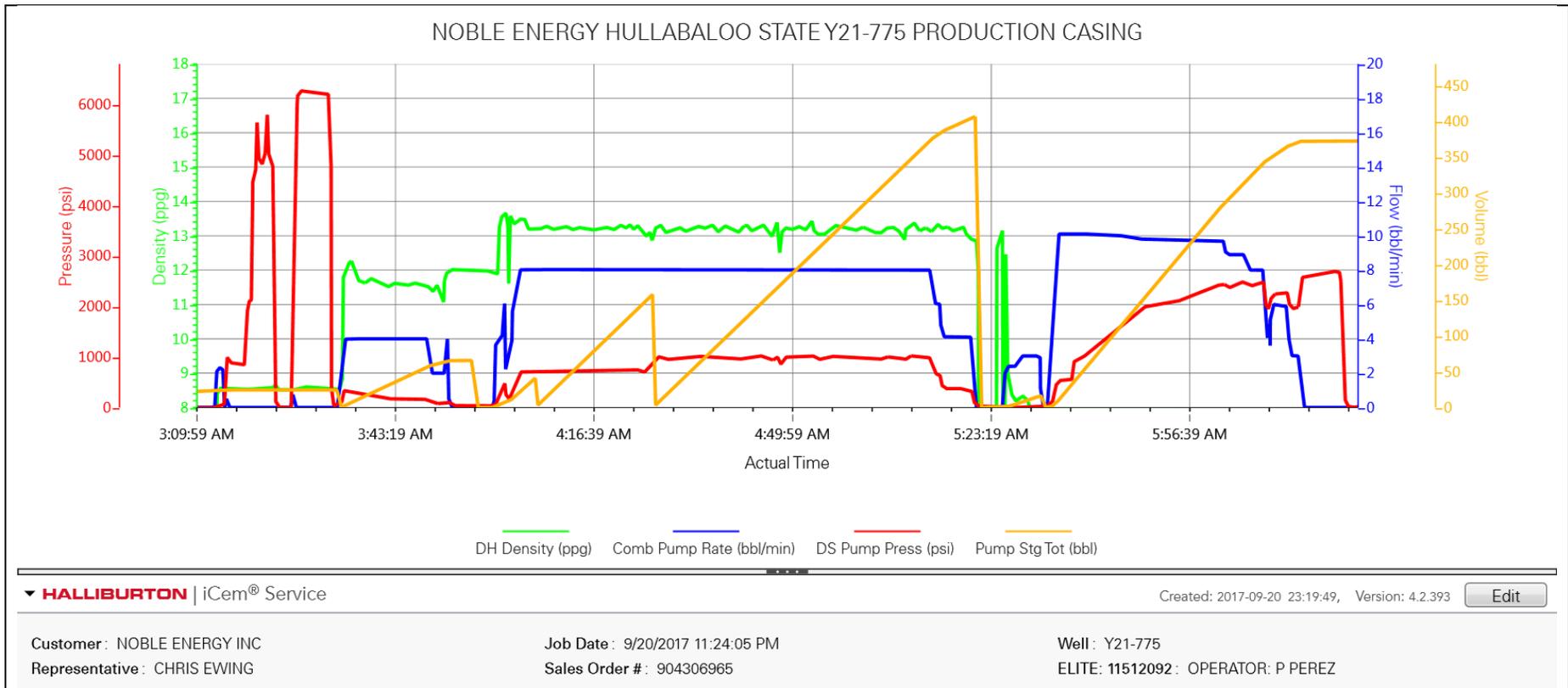
### 2.1 Job Event Log

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	9/20/2017	17:30:00	USER				
Event	2	Safety Meeting - Service Center or other Site	Safety Meeting - Service Center or other Site	9/20/2017	21:10:00	USER				PRE-JOURNEY: DISCUSS TRAVEL HAZARDS, DRIVING AT NIGHT, WILDLIFE, OTHER DRIVERS, FIT-FOR-DUTY.
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	9/20/2017	21:20:00	USER				
Event	4	Arrive At Loc	Arrive At Loc	9/20/2017	21:50:00	USER				
Event	5	Safety Meeting - Assessment of Location	Safety Meeting - Assessment of Location	9/20/2017	21:55:00	USER				ASSESS LOCATION FOR HAZARDS, ESTABLISH RIG-UP PLAN, GET WELL INFO FROM COMPANY REP.
Event	6	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	9/20/2017	22:10:00	USER				DISCUSS RIG-UP HAZARDS WITH HES CREW. FOOTING, COMMUNICATION, PINCH POINTS, LINE-OF-FIRE, HEAVY LOADS, SUSPENDED LOADS, RED-ZONE AWARENESS, DARK AREAS AROUND EQUIPMENT
Event	7	Rig-Up Equipment	Rig-Up Equipment	9/20/2017	22:15:00	USER				
Event	8	Standby Rig	Standby Rig	9/20/2017	22:30:00	USER				RIG FILL CASING AND CIRCULATE WELL
Event	9	Safety Meeting - Pre Job	Safety Meeting - Pre Job	9/21/2017	02:45:00	USER				DISCUSS HAZARDS WITH HES/RIG CREW. HIGH PRESSURE IRON, V-DOOR, LOW-PRESSURE VESSELS, TRIPPING HAZARDS, FIRE PLAN, ESCAPE PLAN (MUSTER AREA), FIRST AID, EMERGENCY PLAN.
Event	10	Start Job	Start Job	9/21/2017	03:07:58	COM4				
Event	11	Pump thru All Lines	Pump thru All Lines	9/21/2017	03:12:40	USER				FILL LINES W/ 3BBL H2O
Event	12	Pressure Test	Pressure Test	9/21/2017	03:15:02	USER	8.60		6273.00	500PSI -- 2MIN, 6000PSI -- 5MIN
Event	13	Drop Bottom Plug	Drop Bottom Plug	9/21/2017	03:33:29	USER				DROP 1ST BOTTOM PLUG -- COMPANY REP WITNESSED
Event	14	Pump Spacer	Pump Spacer	9/21/2017	03:34:47	USER	12.04	4.00	349.00	80BBL TUNED SPACER @ 11.5PPG
Event	15	Shutdown	Shutdown	9/21/2017	03:53:14	USER				

Event	16	Drop Bottom Plug	Drop Bottom Plug	9/21/2017	03:56:38	USER					DROP 2ND BOTTOM PLUG -- COMPANY REP WITNESS
Event	17	Pump Cap Cement	Pump Cap Cement	9/21/2017	03:59:38	USER	13.55	4.20	304.00		42BBL CAP CEMENT @ 13.2PPG; 150SKS, 1.57FT/SK, 7.53G/SK
Event	18	Pump Lead Cement	Pump Lead Cement	9/21/2017	04:07:23	USER	13.21	8.00	704.00		159BBL LEAD CEMENT @ 13.2PPG; 559SKS, 1.6FT/SK, 7.69G/SK
Event	19	Pump Tail Cement	Pump Tail Cement	9/21/2017	04:27:38	USER	13.36	8.00	1011.00		430BBL TAIL CEMENT @ 13.2PPG; 1184SKS, 2.04FT/SK, 9.71G/SK
Event	20	Shutdown	Shutdown	9/21/2017	05:21:27	USER					WASH PUMPS AND LINES
Event	21	Drop Top Plug	Drop Top Plug	9/21/2017	05:32:13	USER					DROP TOP PLUG -- CUSTOMER WITNESSED
Event	22	Pump Displacement	Pump Displacement	9/21/2017	05:33:15	USER	7.95	10.10	533.00		379BBL H2O DISPLACEMENT --- 20BBL W/ 10GAL MMCR, REMAINDER WITH 20GAL BIOCID
Event	23	Bump Plug	Bump Plug	9/21/2017	06:14:49	USER					BUMPED PLUG @ 2000--2600PSI
Event	24	Check Floats	Check Floats	9/21/2017	06:22:42	USER					FLOATS HELD, 4.5BBL BACK
Event	25	End Job	End Job	9/21/2017	06:24:00	COM4					
Event	26	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	9/21/2017	06:30:00	USER					DISCUSS RIG-DOWN HAZARDS WITH HES CREW. FOOTING, COMMUNICATION, PINCH POINTS, LINE-OF-FIRE, HEAVY LOADS, SUSPENDED LOADS, RED-ZONE AWARENESS, FATIGUE
Event	27	Rig-Down Equipment	Rig-Down Equipment	9/21/2017	06:35:00	USER					
Event	28	Safety Meeting - Departing Location	Safety Meeting - Departing Location	9/21/2017	07:45:00	USER					
Event	29	Depart Location	Depart Location	9/21/2017	08:00:00	USER					

3.0 Attachments

3.1 NOBLE ENERGY PRODUCTION CASING-Custom Results (1).png



3.2 NOBLE ENERGY PRODUCTION CASING-Custom Results.png

