

# HALLIBURTON

iCem<sup>®</sup> Service

## **NOBLE ENERGY INC - EBUS**

Date: Friday, January 25, 2019

### **Guttersen D29-738 Production**

Job Date: Friday, January 11, 2019

Sincerely,

Adam McKay

*The Road to Excellence Starts with Safety*

<b>Sold To #:</b> 345242		<b>Ship To #:</b> 3908442		<b>Quote #:</b>		<b>Sales Order #:</b> 0905396297	
<b>Customer:</b> NOBLE ENERGY INC-EBUS				<b>Customer Rep:</b> Chris Ewing			
<b>Well Name:</b> GUTTERSEN			<b>Well #:</b> D29-738		<b>API/UWI #:</b> 05-123-48045-00		
<b>Field:</b> WATTENBERG		<b>City (SAP):</b> KEENESBURG		<b>County/Parish:</b> WELD		<b>State:</b> COLORADO	
<b>Legal Description:</b> SE NW-29-3N-64W-2361FNL-2413FWL							
<b>Contractor:</b> H & P DRLG				<b>Rig/Platform Name/Num:</b> H & P 517			
<b>Job BOM:</b> 7523 7523							
<b>Well Type:</b> HORIZONTAL OIL							
<b>Sales Person:</b> HALAMERICA\HB70026				<b>Srvc Supervisor:</b> Nicholas Roles			

**Job**

<b>Formation Name</b>			
<b>Formation Depth (MD)</b>	<b>Top</b>		<b>Bottom</b>
<b>Form Type</b>		<b>BHST</b>	230 degF
<b>Job depth MD</b>	17746ft	<b>Job Depth TVD</b>	
<b>Water Depth</b>		<b>Wk Ht Above Floor</b>	
<b>Perforation Depth (MD)</b>	<b>From</b>		<b>To</b>

**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	1959	0	1959
Casing		5.5	4.778	20			0	17746	0	6620
Open Hole Section			8.5				2377	6496	2377	6496
Open Hole Section			8.5				6496	17746	6496	6620

**Tools and Accessories**

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5			17746	Top Plug	5.5	1	HES
Float Shoe	5.5				Bottom Plug	5.5	2	HES
Float Collar	5.5			17698.6	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		5		
34.70 gal/bbl		<b>FRESH WATER</b>								
0.60 gal/bbl		<b>MUSOL(R) A, 5 GAL PAIL (100064220)</b>								
147.42 lbm/bbl		<b>BARITE, BULK (100003681)</b>								
0.60 gal/bbl		<b>DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)</b>								
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		<b>FRESH WATER</b>								
0.95 %		<b>SCR-100 (100003749)</b>								
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	422	sack	13.2	1.68		8	8.06	
0.55 %		<b>SCR-100 (100003749)</b>								
8.06 Gal		<b>FRESH WATER</b>								
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	1265	sack	13.2	2.04		8	9.75	
9.75 Gal		<b>FRESH WATER</b>								
0.08 %		<b>SCR-100 (100003749)</b>								
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	393	bbl	8.33			10		
Cement Left In Pipe		Amount	48 ft		Reason			Shoe Joint		

Mix Water:	pH 07	Mix Water Chloride:	00 ppm	Mix Water Temperature:	70 °F °C
Cement Temperature:	80 °F °C	Plug Displaced by:	8.33 lb/gal	Disp. Temperature:	70 °F °C
Plug Bumped?	Yes	Bump Pressure:	2530 psi MPa	Floats Held?	Yes
Cement Returns:	0 bbl m3	Returns Density:	## lb/gal kg/m3	Returns Temperature:	## °F °C
<b>Comment</b> Got 5bbls spacer to surface. Estimated TOT-6507', TOL2-3412', CAP-2385'					

## 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	Check Floats	Call Out	1/10/2019	11:00:00	USER				Called out by Service Coordinator for on location 1630.
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	1/10/2019	15:20:00	USER				Held meeting with all personnel in convoy to discuss directions and hazards associated with the drive. All were fit to drive.
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	1/10/2019	15:35:00	USER				Journey management prior to departure.
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	1/10/2019	16:00:00	USER				Upon arrival met with company man to discuss job details and calculations. Performed a site survey and hazard hunt.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	1/10/2019	16:30:00	USER				Discussed rigging up hazards and procedure according to HMS.
Event	6	Other	Other	1/10/2019	16:45:00	USER				Water tested. PH-6.5, Chlorides-0, Sulphates-0, Temp-79.5.
Event	7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	1/10/2019	19:00:00	USER				Held safety meeting with all job associated personnel to discuss the hazards, job procedure, and stop work authority.
Event	8	Start Job	Start Job	1/10/2019	19:31:29	COM13				TD-17760', TP-17745.9' 5.5" 20#, FC-17698.6', TVD-6620', SURF-1959.5' 9.625" 36#, OH-8.5" MUD-9.6# 202 Centek SII centralizers.
Event	9	Test Lines	Test Lines	1/10/2019	19:37:00	COM13	8.32		4493.00	Pumped 5bbls fresh water to fill lines, closed 2" lo torc, performed 500psi k/o function test, followed with 5th gear stall at 1290psi, perform 4500psi test on line. Held pressure, no leaks. Bled off pressure and proceeded to bring pressure to 3000psi on Kelly line, pressure stabilized and held with no leaks.
Event	10	Pump Spacer 1	Pump Spacer 1	1/10/2019	19:47:58	COM13	11.26	4.20	152.00	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 4.0bpm 100psi.
Event	11	Check Weight	Check Weight	1/10/2019	19:48:03	COM13	11.17	4.20	165.00	Verified weight with pressurized mud balance.
Event	12	Check Weight	Check Weight	1/10/2019	20:02:42	COM13	11.75	6.80	524.00	Verified weight with pressurized mud balance.
Event	13	Drop Bottom Plug	Drop Bottom Plug	1/10/2019	20:11:04	COM13				Dropped by HES supervisor, witnessed by company man.

Event	14	Pump Cap Cement	Pump Cap Cement	1/10/2019	20:13:43	COM13	13.36	4.20	249.00	Pumped 140sks or 41.9bbls Elasticem w/o CBL 13.2# 1.68y 8.04g/s at 5.5bpm 360psi.
Event	15	Pump Lead Cement	Pump Lead Cement	1/10/2019	20:22:09	COM13	12.97	5.50	305.00	Pumped 422sks or 126.3bbls Elasticem w/CBL 13.2# 1.68y 8.06g/s at 8.0bpm 575psi.
Event	16	Check Weight	Check Weight	1/10/2019	20:30:09	COM13	13.17	8.10	614.00	Verified weight with pressurized mud balance.
Event	17	Pump Tail Cement	Pump Tail Cement	1/10/2019	20:41:30	COM13	12.94	4.80	273.00	Pumped 1265sks or 459.6bbls 13.2# 2.04y 9.75g/s Neoecem at 8.0bpm 775psi.
Event	18	Check Weight	Check Weight	1/10/2019	20:48:01	COM13	13.13	7.90	727.00	Verified weight with pressurized mud balance.
Event	19	Check Weight	Check Weight	1/10/2019	20:53:16	COM13	13.24	8.10	762.00	Verified weight with pressurized mud balance.
Event	20	Check Weight	Check Weight	1/10/2019	21:23:26	COM13	13.20	8.10	764.00	Verified weight with pressurized mud balance.
Event	21	Shutdown	Shutdown	1/10/2019	21:43:50	COM13				Shutdown, rig blew air through lines to pits, followed with 5bbls fresh water through pumps and lines
Event	22	Drop Top Plug	Drop Top Plug	1/10/2019	21:53:19	COM13				Dropped by HES supervisor, witnessed by company man.
Event	23	Pump Displacement	Pump Displacement	1/10/2019	21:53:22	COM13	8.31	10.10	492.00	Pumped 393.7bbls fresh water with 10g MMCR in first 20bbls, 15g Algicide throughout.
Event	24	Bump Plug	Bump Plug	1/10/2019	22:36:31	COM13	8.27	3.10	1867.00	Slowed down to 3bpm at 360bbls away, final circulating pressure-1900psi, Bump pressure-2420psi. Held for 5min pressure test.
Event	25	Check Floats	Check Floats	1/10/2019	22:43:27	USER				Released pressure and got 4.5bbls fresh water to truck, floats held.
Event	26	End Job	End Job	1/10/2019	22:45:48	COM13				Got 5bbls spacer to surface. Estimated TOL#1-2385', TOL#2-3412',TOT-6507'
Event	27	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	1/10/2019	23:00:00	USER				All HSE personnel present. Red zones and trapped pressure hazards were discussed. Watch for suspended loads and rig down procedures, including hand placement, lifting techniques, and swing radius.
Event	28	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	1/10/2019	23:45:00	USER				All HSE personnel present and fit to drive. Directions and hazards were made known.
Event	29	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	1/11/2019	00:00:00	USER				Pre journey management prior to leaving location.

## 3.0 Attachments

### 3.1 Case 1-Custom Results.png

