

HALLIBURTON

iCem® Service

NOBLE ENERGY INC-EBUS

GUTTERSEN CC32-755

Production Casing

Job Date: Thursday, June 02, 2022

Sincerely,

Brad Hinkle and Crew

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 Gutteresen CC32-755 production casing. 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.

Job was pumped with an average cement density of 13.16 ppg at 7.03 bbl/min. Cement was displaced with 20 bbl. of treated water with retarder and 290 bbl. of treated freshwater displacement, 50 bbl. short of total displacement due to operator error. The plug was not landed, final circulating pressure was 2001 psi. Approximately 50 bbl. of spacer was returned to surface indicating a top of cement around 1,461'.

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 Fort Lupton

The Road to Excellence Starts with Safety

Sold To #: 345242		Ship To #: 3932196		Quote #:		Sales Order #: 0907896242				
Customer: NOBLE ENERGY INC-EBUS					Customer Rep: Charles Collver					
Well Name: GUTTERSEN			Well #: CC32-755			API/UWI #: 05-123-49266-00				
Field: WATTENBERG		City (SAP): KERSEY		County/Parish: WELD			State: COLORADO			
Contractor: H & P DRLG				Rig/Platform Name/Num: H & P 517						
Job BOM: 7523										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HX41066					Srvc Supervisor: Bradley Hinkle					
Job										
Job depth MD		14679ft			Job Depth TVD		6620ft			
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	1982	0	1982
Casing		5.5	4.892	17			0	14679	0	6620
Open Hole Section			8.5				1982	14694	1982	6620
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Float Shoe	5.5	1	Citadel	14679		1500 Bottom Plug	5.5	1	Citadel	
Float Collar	5.5	1	Citadel	14659		3K Bottom Plug	5.5	1	Citadel	
						Bottom Plug	5.5	2	Citadel	

Fluid Data									
Stage #: 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 Prime Spacer	120	bbl	11.5	3.88	24.45	6	4245
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 Cement	ElastiCem™	140	sack	13.2	1.6	7.63	6	1068
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	Lead Cement	ElastiCem™	723	sack	13.2	1.67	8.03	8	5805
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	Tail Cement	NeoCem™	852	sack	13.2	2.04	9.79	8	8341
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	MMCR Water	20	bbl	8.33	0	0	8	830
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
6	Displacement	Treated Water	270	bbl	8.33	0	0	9	11310
Cement Left In Pipe	Amount	2186 ft			Reason	Incorrect Displacement			
Mix Water:	pH 7	Mix Water Chloride:	0 ppm		Mix Water Temperature:	52 °F			
Plug Bumped?	No	Plug Displaced by:	8.33 lb/gal Treated Water		Disp. Temperature:	52 °F			
Cement Returns:	0 bbl.	Bump Pressure:	Did not bump.		Floats Held?	Yes			
Comment: 50 bbl. Spacer to surface.									

2.0 Real-Time Job Summary

2.1 Job Event Log

Seq. No.	Activity	Date	Time	Comments
1	Call Out	6/1/2022	17:00:00	Crew called for an on location of 2300. Crew was Bradley Hinkle, Christian Richards, Geoffrey Miller, Marcus Boston and Brandon Fernandez.
2	Depart Shop for Location	6/1/2022	18:00:00	Pre-journey safety meeting. Discuss directions, ranch rules and fit for duty status. Crew staged for job due to DOT hours of service.
3	Arrive at Location from Service Center	6/1/2022	22:00:00	Sign-in, check-in, perform a site assessment and pre-rig up safety meeting.
4	Other	6/1/2022	22:05:00	TD: 14694 TP: 14679 FC:14676 LC: 14662 - 5.5" 17# casing inside an 8.5" OH. TVD: 6620. 9.625" 36# surface casing set at 1982. Mud weight: 9.7 ppg.
5	Safety Meeting - Pre Job	6/2/2022	01:00:00	
6	Start Job	6/2/2022	01:33:09	
7	Start Job	6/2/2022	01:43:20	
8	Test Lines	6/2/2022	01:46:01	Pressure test lines to 5300 psi with a 500 psi electronic kick-out test.
9	Shutdown	6/2/2022	01:56:15	Bleed off valve was leaking upon trying to pump to fill rig standpipe. I notified the customer.
10	Standby Other	6/2/2022	01:57:24	Pressure release valve was not closing all the way causing flow to circulate back to truck. A different valve was not available. Since the bottom plug had already been sent, the customer was unwilling to wait on a replacement valve by claiming saying they could not circulate. Took nut off of valve and closed with a pipe wrench and verified it was operational.
11	Drop Bottom Plug	6/2/2022	02:32:47	Bottom plug loaded into casing. Witnessed by customer.

12	Pump Spacer 1	6/2/2022	02:32:56	Pump 120 bbl. Tuned Prime Spacer mixed at 11.5 ppg. Density verified by pressurized scales. Recirc and downhole were aerated causing the total volume pumped to read higher, however, mix water gallons were good for volume. Due to aeration, the spacer was mixed at a slower rate to maintain density.
13	Drop Bottom Plug	6/2/2022	03:17:51	Bottom plug loaded into casing.
14	Pump Cap Cement	6/2/2022	03:29:33	Pump 40 bbl. (140 sacks, 1.6 yield, 7.63 gal/sk) ElastiCem w/out S-CBL at 13.2 ppg. Density verified by pressurized scales.
15	Pump Lead Cement	6/2/2022	03:35:12	Pump 215 bbl. (723 sacks, 1.67 yield, 8.03 gal/sk) ElastiCem w/ S-CBL mixed at 13.2 ppg. Density verified by pressurized scales. Volume totals did not reset back to zero indicating a higher volume pumped.
16	Check Weight	6/2/2022	03:53:06	Cement weighed at 13.15 ppg.
17	Pump Tail Cement	6/2/2022	04:10:55	Pump 309 bbl. (852 sacks, 2.04 yield, 9.79 gal/sk) NeoCem mixed at 13.2 ppg. Density verified by pressurized scales.
18	Check Weight	6/2/2022	04:13:17	Cement weighed at 13.2 ppg.
19	Check Weight	6/2/2022	04:37:33	Cement weighed at 13.2 ppg.
21	Shutdown	6/2/2022	05:03:08	
22	Shutdown	6/2/2022	05:03:38	I-BOP did not cycle open and pressure was released. Confirmed valve was open and washed pumps and lines until clean. Load MMCR and green dye into tank and pump 4 bbl. until green dye was observed at wash-up tank.
23	Drop Top Plug	6/2/2022	05:20:35	1500 psi rupture plug dropped by customer.
24	Pump Displacement	6/2/2022	05:20:44	Pump 3 bbl. MMCR water and shutdown.
25	Drop Top Plug	6/2/2022	05:23:40	3000 psi rupture plug dropped by customer.
26	Resume Pumping	6/2/2022	05:24:00	Resume pumping displacement with 20 bbl. total of MMCR pumped. Good returns throughout. 50 bbl. spacer to surface. Estimated top of cap cement at 1461 feet. Estimated top of lead at 2382 feet. Estimated top of tail cement at 7611 feet.
27	Standby Other	6/2/2022	06:12:42	Attempted to isolate passenger pump and pump was not shutdown causing a spike in the pump, but not downhole.
28	Shutdown	6/2/2022	06:16:59	Bleed off valve began leaking and shut down to assess the problem
29	Resume Pumping	6/2/2022	06:35:07	Pump 2 bbl. to attempt to bump plug.

30	Resume Pumping	6/2/2022	06:37:55	DSR informed to pump 2 bbl. to bump, shutdown when bump didn't occur.
31	Resume Pumping	6/2/2022	06:55:00	DSR informed to pump 6 bbl. and shutdown after no bump. Phone calls were made to Chevron.
32	Resume Pumping	6/2/2022	07:19:12	DSR informed to pump 10 bbl. and did not bump. Shutdown and phone calls were made.
33	Check Floats	6/2/2022	07:30:51	After having discussions with the DSR, we believe that only 330 bbl. had been pumped based off of displacement tank tally and water left in upright tank. The decision was made to release pressure and check floats to not cause any damage to cement integrity. 3 bbl. back. In-flow thermal expansion test began for 30 minutes. 2 bbl. back during this test.
34	Pre-Rig Down Safety Meeting	6/2/2022	07:35:00	Pre-rig down safety meeting.
35	Depart Location for Service Center or Other Site	6/2/2022	09:00:00	Pre-journey safety meeting. Discuss ranch rules, directions and fit for duty status.

3.0 Attachments

3.1 Job Chart

