

HALLIBURTON

iCem® Service

NOBLE ENERGY INC-EBUS

GUTTERSEN CC32-785

Production Casing

Job Date: Friday, May 20, 2022

Sincerely,

Mike Loughran

Legal Notice

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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 CC32-785 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 per design with an average cement density of 13.12 ppg at 7.06 bbl/min. Cement was displaced with 20 bbl. of treated water with retarder and 319 bbl. of treated freshwater displacement. Plug was landed at 2,214 psi and bumped to 2,968 psi. Pressure was bled off and 4.5 bbl. of fluid was returned to the truck. Approximately 55 bbl. of spacer was returned to surface indicating a top of cement around 1,357'.

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 #: 3932197		Quote #:		Sales Order #: 0907874511				
Customer: NOBLE ENERGY INC-EBUS					Customer Rep: Mike Duncan					
Well Name: GUTTERSEN			Well #: CC32-785			API/UWI #: 05-123-49269-00				
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: Michael Loughran					
Job										
Job depth MD		14,600'			Job Depth TVD		6,667'			
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	1953	0	1953
Casing		5.5	4.892	17			0	14570	0	6667
Open Hole Section			8.5				1953	14611	1953	6667
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Float Shoe	5.5	1	Citadel	14570		Bottom Plug	5.5	4	Citadel	
Float Collar	5.5	1	Citadel	14593		Centralizers	5.5	185	Summit	
Ball Seat	5.5	1	Citadel	14581						

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	0	6	4,248
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	8	1,069
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	9	5,806
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™	848	sack	13.2	2.04	9.79	9	8,302
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	Fresh Water with MMCR	20	bbl	8.33	0	0	12	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 Fresh Water	319	bbl	8.33	0	0	10	13368
Cement Left In Pipe	Amount	Reason			Wet Shoe Joint				
Mix Water:	pH 7	Mix Water Chloride:	0 ppm	Mix Water Temperature:	59 °F				
Plug Bumped?	Yes	Plug Displaced by:	8.33 lb/gal	Disp. Temperature:	59°F				
Cement Returns:	0 bbl.	Bump Pressure:	2550 psi	Floats Held?	Yes				

2.0 Real-Time Job Summary

2.1 Job Event Log

Seq. No.	Activity	Date	Time	Comments
1	Call Out	5/20/2022	11:30:00	CALLOUT 1130 HRS. 5/20/22, REQUESTED ON LOCATION 1730 HRS. 5/20/22
2	Pre-Convoy Safety Meeting	5/20/2022	13:00:00	JDISCUSS ROUTE AND JSA SAFE DRIVING
3	Crew Leave Yard	5/20/2022	14:00:00	CREW LEAVES YARD
4	Arrive At Loc	5/20/2022	15:30:00	MEET WITH CUSTOMER, TD 14611', 5.5" 17# P-110 CASING 14600.3', F/C 14593.2, BALLSEAT 14581.1', 8.5" HOLE, SURFACE CASING 36# J-55 1953", TVD 6667', OBM 9.7 PPG, WATER TEST 59 DEGREES, PH 7, CHLORIDES LESS 200 PPM, MAX PRESSURE 3000 PSI
5	Pre-Rig Up Safety Meeting	5/20/2022	15:50:00	JSA SAFE RIG UP.
6	Rig-Up Equipment	5/20/2022	16:00:00	RIG-UP ALL HES EQUIPMENT AND IRON TO BUFFER ZONE
7	Pre-Job Safety Meeting	5/20/2022	19:04:37	RIG CIRCULATES A MINIMUM OF 1 BOTTOMS UP10 BPM/800 PSI. DISCUSS JOB, HAZARDS OF PRESSURE AND HES EQUIPMENT.
8	Start Job	5/20/2022	19:25:54	BEGIN RECORDING DATA
9	Drop Bottom Plug	5/20/2022	19:26:03	1000 PSI CITADEL BOTTOM PLUG VERIFIED BY JIM
10	Test Lines	5/20/2022	19:28:29	TEST HES LINES TO 5200 PSI
11	Test Lines	5/20/2022	19:36:59	TEST RIGS IBOP TO 1700 PSI
12	Pump Spacer 1	5/20/2022	19:40:47	120 BBLS TUNED PRIME SPACER, 11.5 PPG, 3.88 YIELD, 24.46 GAL/SACK. MIX D-AIR ON FLY
13	Shutdown	5/20/2022	20:05:29	SHUTDOWN

14	Drop Bottom Plug	5/20/2022	20:08:52	1000 PSI CITADEL BOTTOM PLUG VERIFIED BY JIM
15	Pump Cap Cement	5/20/2022	20:12:03	140 SACKS SBM CEM ELASTICEM CAP CEMENT. 39.89 BBLS. 13.2 PPG, 1.6 YIELD, 7.63 GAL/SACK
16	Pump Lead Cement	5/20/2022	20:18:50	723 SACKS SBM CEM ELASTICEM LEAD CEMENT. 13.2 PPG, 1.67 YIELD, 8.03 GAL/SACK.
17	Pump Tail Cement	5/20/2022	20:46:11	848 SACKS NEOCEM TAIL CEMENT. 308.10 BBLS. 13.2 PPG, 2.04 YIELD, 9.79 GAL/SACK
18	Shutdown	5/20/2022	21:32:36	SHUTDOWN
19	Clean Lines	5/20/2022	21:35:22	WASH PUMPS AND LINES UNTIL CLEAR WATER WAS VERIFIED THEN PUMP GREEN DYE MMCR WATER UNTIL DYE WAS VERIFIED AT WASH UP TANK
20	Shutdown	5/20/2022	21:40:13	SHUTDOWN
21	Drop Top Plug	5/20/2022	21:43:03	1500 PSI CITADEL BOTTOM PLUG VERIFIED BY JIM
22	Pump Displacement	5/20/2022	21:43:08	PUMP 3 BBLS MMCR/DYE DISPLACEMENT. USED 1 LB GREEN DYE
23	Shutdown	5/20/2022	21:45:18	SHUTDOWN
24	Drop Top Plug	5/20/2022	21:47:02	DROP 3000 PSI CITADEL BOTTOM PLUG VERIFIED BY JIM
25	Resume	5/20/2022	21:47:27	RESUME PUMPING DISPLACEMENT. PUMP 335.6 BBLS FRESH WATER DISPLACEMENT. 1ST 20 BBLS HAD 10 GALLONS MICRO MATRIX CEMENT RETARDER. REMAINING DISPLACEMENT HAS 10 GALLONS MC-MX 820-6 AND 15 GALLONS BELLACIDE 300 W. TOTAL DISPLACEMENT IS 338.6 BBLS.
26	Slow Rate	5/20/2022	22:22:15	SLOW RATE TO 2 BPM TO BUMP 1500 PSI BOTTOM PLUG. FCP 2250 PSI AT 2 BPM.
27	Bump Plug	5/20/2022	22:34:20	BUMP PRESSURE 2949 PSI, HOLD 5 MINUTES
28	Check Floats	5/20/2022	22:39:22	RELEASE PRESSURE. FLOATS HOLD. 5 BBLS BACK TO PUMP TRUCK.
29	Resume Pumping	5/20/2022	22:45:38	RESUME PUMPING DISPLACEMENT AT 1 BPM
30	Other	5/20/2022	22:51:11	1500 PSI BOTTOM PLUG RUPTURED AT 3425 PSI. PUMP 3 BBLS MMCR WET SHOE.
31	Bump Plug	5/20/2022	22:54:29	FCP 2215 PSI AT 1 BPM. BUMP PRESSURE 2968 PSI. HOLD 5 MINUTES

32	Check Floats	5/20/2022	23:00:28	RELEASE PRESSURE. FLOATS HOLD 4.5 BBLS BACK TO PUMP TRUCK.
33	Other	5/20/2022	23:01:48	START REMAINING 25 MINUTES OF IN FLOW TEST. IN FLOW TEST YIELDED .4 BBLS BACK TO PUMP TRUCK OVER 25 MINUTE PERIOD. 54.5 BBLS SPACER TO SURFACE. PRE JOB-CALCULATIONS FOR CEMENT TOPS WERE CALCULATED WITHOUT 3 BBL WET SHOE. TOCC=974.72', TOLC=1807.49' TOTC=7052.75.
34	End Job	5/20/2022	23:26:21	STOP RECORDING DATA
35	Pre-Rig Down Safety Meeting	5/20/2022	23:30:00	JSA SAFE RIG-DOWN
36	Rig-Down Equipment	5/20/2022	23:35:00	RIG-DOWN ALL HES EQUIPMENT
37	Rig-Down Completed	5/21/2022	00:30:00	RIG DOWN COMPLETED
38	Crew Leave Location	5/21/2022	01:00:00	CREW LEAVE LOCATION

3.0 Attachments

3.1 Job Chart

