

# HALLIBURTON

iCem® Service

## **NOBLE ENERGY INC-EBUS**

### **Guttersen DD17-725**

Production Casing

Job Date: Friday, October 21, 2022

Sincerely,

**Mike Loughran**

## 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 Gutteresen DD17-725 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.

Approximately 71 bbl. of cement were returned to surface.

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*

<b>Sold To #:</b> 345242		<b>Ship To #:</b> 3928760		<b>Quote #:</b>		<b>Sales Order #:</b> 0908185099				
<b>Customer:</b> NOBLE ENERGY INC-EBUS					<b>Customer Rep:</b> Steve Record					
<b>Well Name:</b> GUTTERSEN			<b>Well #:</b> DD17-725			<b>API/UWI #:</b> 05-123-49065-00				
<b>Field:</b> WATTENBERG		<b>City (SAP):</b> ROGGEN		<b>County/Parish:</b> WELD			<b>State:</b> COLORADO			
<b>Contractor:</b> PATTERSON-UTI ENERGY				<b>Rig/Platform Name/Num:</b> PATTERSON 268						
<b>Job BOM:</b> 7523										
<b>Well Type:</b> HORIZONTAL OIL										
<b>Sales Person:</b> HALAMERICA\HX41066					<b>Srvc Supervisor:</b> Michael Loughran					
<b>Job</b>										
<b>Job depth MD</b>		17482ft			<b>Job Depth TVD</b>		6667ft			
<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			0	1938	0	1938
Casing		5.5	4.892	17			0	17482	0	6667
Open Hole Section			8.5				1938	17497	1938	6667
<b>Tools and Accessories</b>										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Float Shoe	5.5	1	Citadel	17482		Bottom Plug	5.5	4	Citadel	
Ball Seat	5.5	1	Citadel	17463		Centralizers	5.5	216	Summit	

Fluid Data									
<b>Stage #: 1</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
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	EconoCem™	140	sack	13.2	1.58	7.99	8	1118
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™	727	sack	13.2	1.67	8.03	8	5838
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™	1171	sack	13.2	2.04	9.79	8	11464
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	Treated Fresh Water	406	bbl	8.33			9	
<b>Cement Left In Pipe</b>									
<b>Amount</b>	0 ft			<b>Reason</b>				Shoe Joint	
<b>Mix Water:</b>	pH 7		<b>Mix Water Chloride:</b>	0 ppm		<b>Mix Water Temperature:</b>	58 °F		
<b>Plug Bumped?</b>	Yes		<b>Plug Displaced by:</b>	8.33 lb/gal Treated Water		<b>Disp. Temperature:</b>	58 °F		
<b>Cement Returns:</b>	0 bbl.		<b>Bump Pressure:</b>	2436 psi		<b>Floats Held?</b>	Yes		

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Seq. No.	Activity	Date	Time	Comments
1	Call Out	10/20/2022	13:00:00	CALLOUT 1300 HRS ON 10/20/2022. REQUESTED ON LOCATION 1900 HRS 10/20/2022
2	Pre-Convoy Safety Meeting	10/20/2022	15:30:00	DISCUSS ROUTE AND JSA SAFE DRIVING
3	Crew Leave Yard	10/20/2022	16:00:00	CREW LEAVES YARD
4	Arrive At Loc	10/20/2022	17:15:00	MEET WITH CUSTOMER, TD 17497', 5.5" 17# P-110 CASING 17482.4', BALL SEAT 17462.9', 8.5" HOLE, SURFACE CASING 36# J-55 1938', TVD 6667', OBM 9.8 PPG, 216 CENTRALIZERS FROM 17399' TO 941', WATER TEST 58 DEGREES, PH 7, CHLORIDES LESS 200 PPM, MAX PRESSURE 3000 PSI
5	Pre-Rig Up Safety Meeting	10/20/2022	18:00:00	JSA SAFE RIG UP
6	Rig-Up Equipment	10/20/2022	18:10:00	RIG-UP ALL HES EQUIPMENT AND IRON TO BUFFER ZONE
7	Pre-Job Safety Meeting	10/20/2022	21:40:11	DISCUSS JOB PROCEDURE. DISCUSS HAZARDS OF JOB AND HES EQUIPMENT
8	Start Job	10/20/2022	21:59:51	BEGIN RECORDING DATA. RIG CIRCULATES BOTTOMS UP 9.5 BPM/1000 PSI
9	Start Job	10/20/2022	22:24:38	BEGIN RECORDING DATA
10	Drop Bottom Plug	10/20/2022	22:24:46	CITADEL 1000 PSI BOTTOM PLUG VERIFIED BY STEVE
11	Test Lines	10/20/2022	22:28:02	TEST HES LINES TO 5000 PSI. TEST RIG MANUAL VALVE 2300 PSI
12	Pump Spacer 1	10/20/2022	22:36:25	120 BBLS TUNED PRIME SPACER. 11.5 PPG, 3.88 YIELD, 24.45 GAL/SACK. MIX D-AIR ON FLY
13	Shutdown	10/20/2022	22:54:08	SHUTDOWN

14	Drop Bottom Plug	10/20/2022	22:56:30	CITADEL 1000 PSI BOTTOM PLUG VERIFIED BY STEVE
15	Pump Cap Cement	10/20/2022	23:00:15	140 SACKS ECONOCEM CAP CEMENT. 39.40 BBLS. 13.2 PPG, 1.58 YIELD, 7.99 GAL/SACK. TOCC=882' PRE-JOB CALCULATIONS
16	Pump Lead Cement	10/20/2022	23:07:15	727 SACKS ELASTICEM W/SCBL LEAD CEMENT. 216.23 BBLS. 13.2 PPG, 1.67 YIELD, 8.03 GAL/SACK. TOLC=1738' PRE-JOB CALCULATIONS
17	Pump Tail Cement	10/20/2022	23:34:14	PUMP 1171 SACKS NEOCEM TAIL CEMENT. 425.45 BBLS. 13.2 PPG, 2.04 YIELD, 9.79 GAL/SACK. TOTC=7003' PRE-JOB CALCULATIONS
18	Shutdown	10/21/2022	00:26:34	SHUTDOWN
19	Clean Lines	10/21/2022	00:31:46	CLEAN PUMPS AND LINES. APPROX 25 BBLS
20	Shutdown	10/21/2022	00:41:04	SHUTDOWN
21	Other	10/21/2022	00:41:34	PUMP MMCR/GREEN DYE UNTIL VISUAL AT WASH UP TANK. CLOSE RIG IBOP
22	Shutdown	10/21/2022	00:43:33	SHUTDOWN
23	Drop Bottom Plug	10/21/2022	00:45:28	CITADEL 1500 PSI BOTTOM PLUG VERIFIED BY STEVE
24	Pump Displacement	10/21/2022	00:47:53	10 GALLONS MMCR ADDED TO 20 BBLS TOTAL. PUMP 3 BBL WET SHOE
25	Shutdown	10/21/2022	00:49:07	SHUTDOWN
26	Drop Top Plug	10/21/2022	00:53:02	CITADEL 3000 PSI TOP PLUG VERIFIED BY STEVE.
27	Resume	10/21/2022	00:54:47	RESUME PUMPING 17 BBLS MMCR DISPLACEMENT. REMAINING DISPLACEMENT HAS 10 GALLONS MCMX 820-6 AND 20 GALLONS BELLACIDE 300W.
28	Slow Rate	10/21/2022	01:44:48	SLOW RATE TO 2 BPM AT 380 BBLS INTO DISPLACEMENT
29	Bump Plug	10/21/2022	01:52:56	FCP 2436 PSI/2 BPM, BUMP 2950 PSI. HOLD 5 MINUTES
30	Check Floats	10/21/2022	01:59:30	FLOATS HOLD. 5.5 BBLS BACK

31	Pressure Up Well	10/21/2022	02:05:12	PRESSURE UP WELL TO RUPTURE DISC. DISC RUPTURES AT 4087 PSI. PUMP 3 BBL MMCR WETSHOE AT 1 BPM
32	Bump Plug	10/21/2022	02:14:03	FCP 2480/1 BPM, BUMP 2900 PSI. HOLD 5 MINUTES
33	Check Floats	10/21/2022	02:20:35	FLOATS HOLD, 5.5 BBLS. BACK TO PUMP TRUCK. 71 BBLS. SPACER TO SURFACE
34	Other	10/21/2022	02:23:06	START 30 MINUTE IN-FLOW TEST
35	End Job	10/21/2022	02:53:39	STOP RECORDING DATA/FLUSH RIG STACK W/25 BBLS. AND 100 LBS SUGAR
36	Pre-Rig Down Safety Meeting	10/21/2022	03:25:03	JSA SAFE RIG-DOWN
37	Rig-Down Equipment	10/21/2022	03:30:00	RIG-DOWN ALL HES EQUIPMENT
38	Rig-Down Completed	10/21/2022	04:00:00	RIG DOWN COMPLETED
39	Crew Leave Location	10/21/2022	04:45:00	CREW DEPARTS LOCATION

3.0 Attachments

3.1 Job Chart

