

# HALLIBURTON

iCem<sup>®</sup> Service

**NOBLE ENERGY INC-EBUS**

Ft. Lupton District, CO

**Guttersen Y12-763 Production**

Job Date: Tuesday, April 23, 2024

Sincerely,  
**Chris Yeung**

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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 **Guttersen Y12-763 - Production**. 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 13.05 ppg at 6.62 bbl/min. Cement was displaced with 20 bbl. of treated water with retarder and 406 bbl. of treated freshwater displacement. Plug was landed at 2,555 psi and bumped to 3,090 psi. Pressure was held for 30 min casing test. With 58 bbls of spacer returning to surface, the estimated TOC is 914'.

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 Rockies Cement Team**

## 1.2 Job Overview

Job Details	
API #:	05-123-52446
City, County:	Keensburg, WELD
SO#:	909295566

Job Times		
	Date (mm/dd/yyyy)	Time (hh:mm)
Requested Time On Location:	4/22/24	1715
Called Out Time:	4/22/24	1200
Arrived On Location:	4/22/24	1700
Job Started:	4/22/24	2023
Job Completed:	4/23/24	0018
Departed Location:	4/23/24	0130

	Description	Units	Value
1	Surface temperature at the time of the job	degree F	65
2	Mud type (OBM, WBM, Synthetic, Water, Brine)	-	OBM
3	Mud density	ppg	10.6
4	Casing set depth (shoe)	ft	17,548.5
5	TVD	ft	6,800
6	Float collar depth	ft	17,541.6
7	Length of rate hole	ft	18.5
8	Previous casing shoe depth	ft	2,070
9	Pre-job mud circulation time	hh:mm	2:00
10	Pre-job mud circulation rate	bpm	10

11	Pre-job mud circulation volume	bbls	750
12	Mud circulation pressure at start of cement	psi	1200
13	Annual flow before the start of job	Y/N	Y
14	Pipe movement during cement job	Y/N	Y
15	Calculated displacement	bbls	406
16	Job displaced by	Rig/HES	HES
17	Estimated returns % during job	%	95
18	Fluid returns to surface	Spacer/Cement, bbls	58 Spacer
19	Final circulation pressure, rate prior to plug bump	psi @ bpm	2555
20	Number of Centralizers	-	
21	Number of bottom plugs	-	2
22	Number of trucks used preparing/during job	-	9
23	Add hours? If Yes, put #	Y/N and hours	N
24	NPT? If Yes, put #	Y/N and hours	N

### 1.3 Water Field Test

	Recorded Value	Unit	Acceptable Limit	Potential Problems if Values Exceed the Limit
<b>pH</b>	7		6.0 - 8.0	Chemicals in water can cause severe retardation
<b>Temperature</b>	65	F	60 - 80 F	Can can pre-mature setting of cement
<b>Chlorides</b>	1800	ppm	3000 ppm	Can shorten thickening time

### 1.4 Actual Pump Schedule

#### Stage 1

	Density (ppg)	Volume (bbls)	Yield (ft3/sk)	Water Requirement (gal/sk)	Bulk Sacks (sks)	Total Water (gals)
<b>Spacer Fluid</b>	11.5	120	2.31	14.19		4138
<b>Cap Cement</b>	13.2	39.6	1.59	7.98	140	1117
<b>Lead Cement</b>	13.2	229.4	1.68	7.92	767	6074
<b>Tail Cement</b>	13.2	399.5	1.98	9.51	1133	10774
<b>Top Plug</b>						
<b>Displacement Fluid</b>	8.33	406				

2.0 Real-Time Job Summary

2.1 Job Event Log

Seq No.	Activity	Date	Time	Comments
1	Start Job	4/22/2024	20:23:38	Start of job. Begin recording.
2	Test Lines	4/22/2024	20:25:11	Filled lines with fresh water and pressure tested HES lines to 6500PSI. Then tested Rig's ibop to 1800PSI.
3	Drop Bottom Plug	4/22/2024	20:31:35	Dropped bottom plug with driller and Co man.
4	Pump Spacer 1	4/22/2024	20:31:38	Pumped 120BBLS of 11.5PPG Tuned Prime spacer. Pumped at a rate of 6.5BPM with a pressure of 1150PSI. Pre job calculated 57.9BBLS of spacer to surface.
5	Shutdown	4/22/2024	20:52:54	Shutdown to drop 2nd bottom plug
6	Drop Bottom Plug	4/22/2024	20:53:35	Dropped 2nd bottom plug with drilled and Jeremy
7	Pump Cap Cement	4/22/2024	20:54:01	Pumped 140s / 39.645BBLS of 13.2PPG Econocem Cap cement. Pumped at a rate of 6BPM with a pressure of 800PSI. Pre job calculated TOC cement was at 914.41FT.
8	Pump Lead Cement	4/22/2024	21:03:49	Pumped 767s / 229.492BBLS of 13.2PPG Elasticem Lead cement. Pumped at a rate of 8BPM with a pressure of 1000PSI. Pre job calculated TOL cement was at 1,886.101ft.
9	Pump Tail Cement	4/22/2024	21:36:33	Pumped 1133s / 399.538BBLS of 13.2PPG Neocem tail cement. Pumped at a rate of 7BPM with a pressure around 1700PSI. Pre job calculated TOT cement was at 7,510.904ft.
10	Shutdown	4/22/2024	22:41:25	Shutdown to drop top plug.
11	Drop Top Plug	4/22/2024	22:42:52	Dropped top plug with Jeremy and Driller.
12	Pump Displacement	4/22/2024	22:42:53	Pumped 406BBLS of fresh water displacement. First 20BBLS with MMCR. Remaining displacement had MCMX corrosion inhibitor and Bellacide.

13	Bump Plug	4/22/2024	23:38:21	Plug bumped. FCP - 2555PSI. BMP Pressure - 3090PSI.
14	Pressure Up Well	4/22/2024	23:40:06	Pressured up to rupture disc. Burst at 4470PSI. Pumped a 5BBL wet shoe. 4.5BBLs from floats.
15	Other	4/22/2024	23:47:35	Start of 30 min inflow test. .5BBL back after 30 mins.
16	End Job	4/23/2024	00:18:12	END OF JOB. 58BBLs of spacer to surface.

3.0 Attachments

3.1 CHEVRON Guttersen Y12-763-CHEVRON Guttersen Y12-763.png

