

HALLIBURTON

iCem[®] Service

NOBLE ENERGY INC-EBUS

Ft. Lupton District, CO

Noble Beebe Draw Fed H15-764 Production

Job Date: Wednesday, June 12, 2024

Sincerely,

Chris Yeung

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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Beebe Draw Fed H15-764 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 7.21 bbl/min. Cement was displaced with 20 bbl. of treated water with retarder and 334 bbl. of treated freshwater displacement. Plug was landed at 2,570 psi and bumped to 3,070 psi. Pressure was held for 30 min casing test. With 59 bbls of spacer returning to surface, the estimated TOC is 1304'.

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 #:	05-123-48847-00
City, County:	Gilcrest, WELD
SO#:	909396753

Job Times		
	Date (mm/dd/yyyy)	Time (hh:mm)
Requested Time On Location:	6/11/24	1530
Called Out Time:	6/11/24	1000
Arrived On Location:	6/11/24	1500
Job Started:	6/11/24	2002
Job Completed:	6/11/24	2259
Departed Location:	6/11/24	2355

	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	10.5
4	Casing set depth (shoe)	ft	15,295
5	TVD	ft	7,008
6	Float collar depth	ft	15,287.59
7	Length of rate hole	ft	20
8	Previous casing shoe depth	ft	1,927
9	Pre-job mud circulation time	hh:mm	2.5
10	Pre-job mud circulation rate	bpm	11

11	Pre-job mud circulation volume	bbls	800
12	Mud circulation pressure at start of cement	psi	1000
13	Annual flow before the start of job	Y/N	Y
14	Pipe movement during cement job	Y/N	Y
15	Calculated displacement	bbls	354
16	Job displaced by	Rig/HES	HES
17	Estimated returns % during job	%	95
18	Fluid returns to surface	Spacer/Cement, bbls	59 Spacer
19	Final circulation pressure, rate prior to plug bump	psi @ bpm	2570
20	Number of Centralizers	-	
21	Number of bottom plugs	-	2
22	Number of trucks used preparing/during job	-	10
23	Add hours? If Yes, put #	Y/N and hours	NO
24	NPT? If Yes, put #	Y/N and hours	NO

1.3 Water Field Test

	Recorded Value	Unit	Acceptable Limit	Potential Problems if Values Exceed the Limit
pH	7		6.0 - 8.0	Chemicals in water can cause severe retardation
Temperature	65	F	60 - 80 F	Can can pre-mature setting of cement
Chlorides	1200	ppm	3000 ppm	Can shorten thickening time

1.4 Actual Pump Schedule

	Density (ppg)	Volume (bbls)	Yield (ft ³ /sk)	Water Requirement (gal/sk)	Bulk Sacks (sks)	Total Water (gals)
Spacer Fluid	12	120	2.24	13.65		4105
Cap Cement	13.2	39.645	1.59	7.98	140	1117
Lead Cement	13.2	228.594	1.68	7.92	764	6050
Tail Cement	13.2	308.462	2.04	9.84	849	8354
Top Plug						
Displacement Fluid	8.33	354.6				

2.0 Real-Time Job Summary

2.1 Job Event Log

Seq No.	Activity	Date	Time	Comments
1	Call Out	6/11/2024	10:00:00	Call out
2	Pre-Convoy Safety Meeting	6/11/2024	13:00:00	Pre-Convoy Safety Meeting
3	Crew Leave Yard	6/11/2024	13:10:00	Crew Leave Yard
4	Arrive at Location from Service Center	6/11/2024	15:00:00	Arrive at Location from Service Center
5	Pre-Rig Up Safety Meeting	6/11/2024	15:15:00	Pre-Rig Up Safety Meeting, Be aware of your surroundings, Use two spotters one in front and one in back of vehicle, Utilize hearing protection, Have good communication and make sure Line of Fire is clear before swinging hammer Identify points were hand/finger can get crushed
6	Rig-Up Equipment	6/11/2024	18:45:00	Rig Up equipment as far as possible, Rig running casing
7	Safety Meeting - Pre Job	6/11/2024	19:45:00	Safety Meeting-Pre job, Eyes on task Use impact gloves Have good communication to identify pinch points between steel hoses, iron and drill pipe and while making up the hammer unions. Identify points were hand/finger can get crushed

8	Start Job	6/11/2024	20:02:08	Start of cement Job. Begin recording chart.
9	Drop Bottom Plug	6/11/2024	20:02:37	Dropped bottom plug with Zach and driller.
10	Test Lines	6/11/2024	20:05:06	Sent 3BBLs of fresh water down hole to fill lines for pressure test. Tested HES lines to 6500PSI.
11	Pump Spacer 1	6/11/2024	20:10:22	Pumped 120BBLs of 12PPG Tuned Prime Spacer. Pumped at a rate of 6.5BPM with a pressure of 1000PSI. Pre job calculated 58.9BBLs of spacer to surface.
12	Shutdown	6/11/2024	20:32:14	Shut down to drop second bottom plug.
13	Drop Bottom Plug	6/11/2024	20:35:06	Dropped 2nd bottom plug with Zach and driller.
14	Pump Cap Cement	6/11/2024	20:37:09	Pumped 140s / 39.6BBLs of 13.2PPG Econocem Cap cement. Pumped at a rate of 7BPM with a pressure of 1100PSI. Pre job calculated TOC cement 1,304.202FT.
15	Pump Lead Cement	6/11/2024	20:44:22	Pumped 764s / 228.594BBLs of 13.2PPG Elasticem Lead cement. Pumped at a rate of 8BPM with a pressure of 1150PSI. Pre job calculated TOL cement was at 2,131.863FT.
16	Pump Tail Cement	6/11/2024	21:15:02	Pumped 849s / 308.462BBLs of 13.2PPG Neocem Tail cement. Pumped at a rate of 8.2BPM with a pressure of 1550PSI. Pre job calculated TOT cement was at 7,734.657ft.
17	Other	6/11/2024	22:01:43	Started to wash up down hole with 10BBLs of fresh water.
18	Shutdown	6/11/2024	22:05:00	Shutdown to drop top plug.
19	Drop Top Plug	6/11/2024	22:07:05	Dropped top plug with Zach and driller.
20	Pump Displacement	6/11/2024	22:07:08	Pumped 354BBLs of fresh water displacement. Added MMCR and MCMX throughout.
21	Bump Plug	6/11/2024	22:51:19	Plug bumped. FCP - 2570PSI. BMP - 3070PSI.
22	Pressure Up Well	6/11/2024	22:53:31	Pressured up to burst disk. Burst Pressure - 4450PSI. Pumped a 5BBL Wet shoe. 3.5BBLs back from floats. Did a 30 minute in flow test. .5BBLs back after 30 minutes.
23	End Job	6/11/2024	22:59:51	END JOB. 59BBLs of spacer to surface.

24	Pre-Rig Down Safety Meeting	6/11/2024	23:30:00	Pre-Rig Down Safety Meeting
25	Rig-Down Equipment	6/11/2024	23:35:00	Rig-Down Equipment
26	Depart Location Safety Meeting	6/11/2024	23:52:00	Depart Location Safety Meeting, Verify all equipment has been thoroughly pre-tripped. All safety and quality issues should be resolved before proceeding.
27	Crew Leave Location	6/11/2024	23:58:00	Crew leave location

3.0 Attachments

3.1 Noble Beebe Draw Fed H15-764 Production.png

