

HALLIBURTON

iCem[®] Service

NOBLE ENERGY INC-EBUS

Ft. Lupton District, CO

Bishop A06-712 Surface

Job Date: Wednesday, February 07, 2024

Sincerely,
Chris Yeung

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 Bishop **A06-712 - Surface**. 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 40 bbls of cement were returned to surface. Final pumping pressure was 630psi, followed by a 30-min casing test where floats held bringing 2.0 bbls back to the truck.

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 #:	05-123-52066
City, County:	Eaton, WELD
SO#:	909141005

Job Times		
	Date (mm/dd/yyyy)	Time (hh:mm)
Requested Time On Location:	2/7/24	1300
Called Out Time:	2/7/24	0700
Arrived On Location:	2/7/24	1100
Job Started:	2/7/24	1426
Job Completed:	2/7/24	1630
Departed Location:	2/7/24	1800

	Description	Units	Value
1	Surface temperature at the time of the job	degree F	60
2	Mud type (OBM, WBM, Synthetic, Water, Brine)	-	Water
3	Mud density	ppg	8.33
4	Casing set depth (shoe)	ft	2,066
5	TVD	ft	2,056
6	Float collar depth	ft	2,009.5
7	Length of rate hole	ft	10FT
8	Previous casing shoe depth	ft	
9	Pre-job mud circulation time	hh:mm	1:00
10	Pre-job mud circulation rate	bpm	3

11	Pre-job mud circulation volume	bbls	350
12	Mud circulation pressure at start of cement	psi	350
13	Annual flow before the start of job	Y/N	Y
14	Pipe movement during cement job	Y/N	N
15	Calculated displacement	bbls	155
16	Job displaced by	Rig/HES	HES
17	Estimated returns % during job	%	95
18	Fluid returns to surface	Spacer/Cement, bbls	42
19	Final circulation pressure, rate prior to plug bump	psi @ bpm	630
20	Number of Centralizers	-	
21	Number of bottom plugs	-	1
22	Number of trucks used preparing/during job	-	5
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
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	800	ppm	3000 ppm	Can shorten thickening time

1.4 Actual Pump Schedule

	Density (ppg)	Volume (bbls)	Yield (ft3/sk)	Water Requirement (gal/sk)	Bulk Sacks (sks)	Total Water (gals)
Spacer Fluid	8.33	30				
Lead Cement	13.5	197.655	1.79	9.52	620	5902
Tail Cement	14.8	25.432	1.4	6.7	102	684
Top Plug	1					
Displacement Fluid	8.33					

2.0 Real-Time Job Summary

2.1 Job Event Log

Seq No.	Activity	Date	Time	Comments
1	Call Out	2/7/2024	07:00:00	Call out
2	Pre-Convoy Safety Meeting	2/7/2024	09:00:00	Pre-Convoy Safety Meeting
3	Crew Leave Yard	2/7/2024	09:10:00	Crew Leave Yard
4	Arrive at Location from Service Center	2/7/2024	11:00:00	Arrive at Location from Service Center
5	Pre-Rig Up Safety Meeting	2/7/2024	12:00:00	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 where hand/finger can get crushed
6	Rig-Up Equipment	2/7/2024	12:05:00	Rig Up equipment as far as possible, Rig running casing
7	Pre-Rig Down Safety Meeting	2/7/2024	13:30:44	Pre-Rig Down Safety Meeting
8	Rig-Down Equipment	2/7/2024	13:30:47	Rig-Down Equipment

9	Depart Location Safety Meeting	2/7/2024	13:30:50	Depart Location Safety Meeting, Verify all equipment has been thoroughly pre-tripped. All safety and quality issues should be resolved before proceeding.
10	Crew Leave Location	2/7/2024	13:30:52	Crew leave location
11	Safety Meeting - Pre Job	2/7/2024	14:15:00	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 where hand/finger can get crushed
12	Start Job	2/7/2024	14:25:56	Begin Recording.
13	Test Lines	2/7/2024	14:27:59	Tested HES lines to 4000PSI.
14	Pump Spacer 1	2/7/2024	14:32:14	Pumped 30BBLs of Green Dye Water spacer. Pumped 5.5BPM with a pressure of 120PSI.
15	Pump Lead Cement	2/7/2024	14:38:32	Pumped 620s / 197.655Bbls of 13.5PPG SwiftCem Lead Cement. Pumped at a rate of 8BPM with a pressure of 270PSI. Pre job calculated 43BBLs of cement to surface.
16	Pump Tail Cement	2/7/2024	15:05:26	Pumped 102s / 25.432BBLs of 14.8PPG Varicem Tail Cement. Pumped at a rate of 7.5BPM with a pressure of 320PSI. Pre job calculated TOT cement was at 1763.679FT
17	Shutdown	2/7/2024	15:11:28	Shutdown to load Plug.
18	Drop Top Plug	2/7/2024	15:18:24	Dropped top plug with John.
19	Pump Displacement	2/7/2024	15:18:26	pumped 155BBLs of fresh water displacement.
20	Bump Plug	2/7/2024	15:55:07	Plug bumped . FCP - 630PSI. BMP - 1170PSI
21	Pressure Up Well	2/7/2024	15:55:51	Pressured up well to 2600PSI.
22	Other	2/7/2024	15:58:14	At the beginning of the 30 minute test our pressure started at 2604PSI.
23	Other	2/7/2024	16:28:31	25 minute mark - 2561PSI

30 minute mark 2548PSI.

24	End Job	2/7/2024	16:29:25	Check floats. 2BBLs back. Floats held. 40BBLS of cement to surface. End Recording.
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3.0 Attachments

3.1 picture.png

