HALLIBURTON

iCem® Service

NOBLE ENERGY INC-EBUS

Ft. Lupton District, Colorado

Bishop A18-715 Surface

Job Date: Wednesday, December 27, 2023

Sincerely,

Meghan Van Zyl

Legal Notice

Disclaimer:

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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 A18-715 - 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 27 bbls of cement were returned to surface. Final pumping pressure was 670psi, followed by a 30-min casing test where floats held bringing 1.5bbl 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 #:	05-123-52074-00
City, County:	Galeton, Weld
SO#:	909060883

Job Times		
	Date (mm/dd/yyyy)	**Time (hh:mm)**
Requested Time On Location:	12/27/2023	06:00
Called Out Time:	12/27/2023	00:00
Arrived On Location:	12/27/2023	05:00
Job Started:	12/27/2023	07:35
Job Completed:	12/27/2023	09:39
Departed Location:	12/27/2023	11:30

	Description	Units	Value
1	Surface temperature at the time of the job	degree F	37
2	Mud type (OBM, WBM, Synthetic, Water, Brine)	-	WBM
3	Mud density	ppg	8.9
4	Casing set depth (shoe)	ft	2066
5	TVD	ft	2066
6	Float collar depth	ft	1990.7
7	Length of rate hole	ft	10
8	Previous casing shoe depth	ft	109
9	Pre-job mud circulation time	hh:mm	00:45
10	Pre-job mud circulation rate	bpm	10.7

11	Pre-job mud circulation volume	bbls	482
12	Mud circulation pressure at start of cement	psi	300
13	Annual flow before the start of job	Y/N	Y
14	Pipe movement during cement job	Y/N	N
15	Calculated displacement	bbls	153
16	Job displaced by	Rig/HES	HES
17	Estimated returns % during job	%	100
18	Fluid returns to surface	Spacer/Cement, bbls	30 / 27
19	Final circulation pressure, rate prior to plug bump	psi @ bpm	670 @ 2
20	Number of Centralizers	-	17
21	Number of bottom plugs	-	0
22	Number of trucks used preparing/during job	-	2
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	62	F	60 - 80 F	Can can pre-mature setting of cement
Chlorides	<160	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				1260
Lead Cement	13.5	179.2	1.79	9.52	562	5350
Tail Cement	14.8	25.4	1.4	6.7	102	683
Top Plug	1					
Displacement Fluid	8.33	153				6426

2.0 Real-Time Job Summary

2.1 Job Event Log

Seq. No.	Activity	Date	Time	Comments
1	Call Out	12/27/2023	00:00:00	CHEVRON BISHOP A18-715 9 5/8" SURFACE CASING JOB - On location 12/27/23 @ 06:00 AM
2	Safety Meeting - Service Center or other Site	12/27/2023	03:00:00	Review Journey Management And Route With Crew Members
3	Depart from Service Center or Other Site	12/27/2023	03:15:00	Depart From Yard
4	Arrive At Loc	12/27/2023	05:00:00	Talk To Company Man (Dave) : TD = 2,076', TP = 2,066', ST = 46.5', OH = 13.5", CSG = 9 5/8" 36#, Previous Casing 16" Set @ 109', WF = WBM @ 8.9#, Test Water = pH – 7, Chlorides - < 160 ppm, 62 F.
5	Safety Meeting - Assessment of Location	12/27/2023	05:15:00	Spot Equipment
6	Pre-Rig Up Safety Meeting	12/27/2023	05:30:00	Review JSA With Crew Members
7	Rig-Up Equipment	12/27/2023	05:40:00	Rigged Up All Iron And Hoses Needed For CMT Job With No Issues Or Incidents.
8	Rig-Up Completed	12/27/2023	06:20:00	Rigged Up All Iron And Hoses Needed For CMT Job With No Issues Or Incidents.
9	Rig-Up Completed	12/27/2023	06:40:00	Rig Up Circulating Swedge and Rig Circulated With Rig Pumps. Rig Circulated From 06:45 AM To 07:30 AM At 450 GPM (10.7 BPM) With 520 psi, Good Returns.
10	Safety Meeting - Pre Job	12/27/2023	07:20:00	Review Job Procedure And JSA With Rig Hands, Co. Man, And HES Members
11	Start Job	12/27/2023	07:35:36	Start Recording Data
12	Test Lines	12/27/2023	07:38:48	Pressure Test Lines to 4000 PSI

13	Pump Spacer 1	12/27/2023	07:42:02	Pumped 30 bbls of Fresh Water Spacer with Uranine 2313-Green Dye. Total gallons 1260. Pump Rate 6 BPM with 250 PSI.
14	Pump Lead Cement	12/27/2023	07:52:15	Pumped 179.2 bbls of SwiftCem @ 13.5 PPG (562 sk, 1.79 ft3, 9.52 gal/sk). Total gallons 5350. Pump Rate 8 BPM with 450 PSI. TOLC=0'
15	Check Weight	12/27/2023	07:55:27	Weight Verified by Mud Scales
16	Pump Tail Cement	12/27/2023	08:19:21	Pumped 25.4 bbls of VariCem @ 14.8 PPG (102 sk, 1.4 ft3, 6.7 gal/sk). Total gallons 683. Pump Rate 6 BPM with 200 PSI. TOTC=1815'
17	Shutdown	12/27/2023	08:25:53	Shutdown Pumping Cement
18	Drop Top Plug	12/27/2023	08:29:00	Drop Top Plug / Verified by Company Representative
19	Pump Displacement	12/27/2023	08:30:40	Pumped 153 bbls of Fresh Water Displacement. Total of 27 bbls of Cement to Surface
20	Bump Plug	12/27/2023	09:02:55	Bump Plug / FCP 670 PSI and took up to 1240 PSI
21	Other	12/27/2023	09:06:48	Start 30 Minute Casing Test. Starting Pressure is 2620 PSI. 25 Minutes into Test Pressure is 2629 PSI. 30 Minutes into Casing Test Pressure is 2630 PSI.
22	Bleed Casing	12/27/2023	09:37:00	Bled Pressure Back To Zero And Got 1.5 bbls Back
23	Check Floats	12/27/2023	09:38:00	Floats Held Good.
24	End Job	12/27/2023	09:39:12	Stop Recording Data
25	Pre-Rig Down Safety Meeting	12/27/2023	10:00:00	Review JSA With HES Crew Members
26	Rig-Down Equipment	12/27/2023	10:10:00	Rig Down Iron, Circulating Swedge, And Hoses Used On Job
27	Rig-Down Completed	12/27/2023	11:00:00	All Equipment Rigged Down With No Issues Or Incidents
28	Safety Meeting - Departing Location	12/27/2023	11:15:00	Review Journey Management And Route With Crew Members
29	Depart Location for Service Center or Other Site	12/27/2023	11:30:00	Depart location

3.0 Attachments

3.1 Real Time iCem Job Chart