

HALLIBURTON

iCem[®] Service

BISON OIL & GAS II LLC-EBUS

Grotheer 5-61 11B-14-23-3 Production

Job Date: Tuesday, August 23, 2022

Sincerely,

Meghan Van Zyl

Legal Notice

Disclaimer:

All information in this report is provided subject to the terms and conditions which govern the services provided by Halliburton. Halliburton personnel use their best efforts in gathering information and their best judgment in interpreting it, but any interpretation, research, analysis or recommendation furnished by Halliburton are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and empirical relationships and assumptions are not infallible, and with respect to which professionals in the industry may differ. iCem 3D Displacement results are used to understand how fluids intermix during a cement job. Simulation and 3D displacement results are not intended as and should not be used as a replacement for bond logs in determining top of cement. Current 3D model calculations are known to model more volume than the input volume for standard cases due to known calculation improvements required. For rotational cases, the modeled volume will be impacted by the same calculations impacting the standard cases, as well as additional constraints imposed to make the calculation time required operationally feasible. Therefore, until further notice, 3D displacement results should not be used for replacement of a bond log, or used as an identifier of top of cement. HALLIBURTON IS UNABLE TO GUARANTEE THE ACCURACY OF ANY CHART INTERPRETATION, RESEARCH ANALYSIS, OR JOB RECOMMENDATION and any interpretation or recommendation is not for use of or reliance upon by any third party. The customer has full responsibility for any of its decisions which are based on the information provided in this report.

Table of Contents

Cementing Job Summary 4

 Executive Summary 4

Real-Time Job Summary 7

 Job Event Log..... 7

Attachments..... 10

 Real Time iCem Job Chart 10

1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Grotheer 5-61 11B-14-23-3** cement **Production** casing job. 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 55 bbls 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

Sold To #: 324725		Ship To #: 324725		Quote #:		Sales Order #: 0908068562				
Customer: BISON OIL & GAS II LLC-EBUS					Customer Rep: Frank Kinney					
Well Name: Grotheer 5-61			Well #: 11B-14-23-3			API/UWI #: 05-123-51442				
Field: WATTENBERG		City (SAP): Roggen		County/Parish: WELD			State: COLORADO			
Legal Description:										
Contractor: PATTERSON-UTI ENERGY					Rig/Platform Name/Num: PATTERSON 345					
Job BOM: 7523 7523										
Well Type: OIL & GAS WELL										
Sales Person: HALAMERICA\HB47954					Srv Supervisor: Bradley Hinkle					
Job										
Formation Name										
Formation Depth (MD)		Top				Bottom				
Form Type						BHST				
Job depth MD		16226ft				Job Depth TVD		6077ft		
Water Depth						Wk Ht Above Floor				
Perforation Depth (MD)		From				To				
Well Data										
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	8.835	36			0	1902	0	1902
Casing		5.5	4.778	20			0	16226	0	6077
Open Hole Section			8.5				1902	16236	1902	6077
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe	5.5					Top Plug	5.5	1	Citadel	
Float Shoe	5.5	1	Citadel	16226		Bottom Plug	5.5	1	Citadel	
Float Collar	5.5	1	Citadel	16221		SSR plug set	5.5		HES	
Insert Float	5.5					Plug Container	5.5	1	HES	
Stage Tool	5.5					Centralizers	5.5		HES	
Fluid Data										
Stage/Plug #: 1										
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	50	bbl	11.5	3.74	23.65	8	1775	
Fluid #										
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	ElastiCem	465	sack	13	1.66	8.3	8	3859	

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
3	Lead Cement	IsoBond	620	sack	13	1.55	7.22	6	4476
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
4	Tail Cement	ElastiCem	1490	sack	13.2	1.59	7.78	9	11592
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
5	Displacement	Fresh Water	360	bbl	8.33	0	0	10	15120
Comment 877bbls mix water total used.									

2.0 Real-Time Job Summary

2.1 Job Event Log

Seq No.	Activity	Date	Time	Pump A Pressure (psi)	Density (ppg)	Cmb Pump Rate (bbl/min)	Cmb Stg Total (bbl)	Comments
1	Call Out	8/23/2022	02:00:00					Crew called for and on location time of 0730. Crew was finishing reset in Kremmling, CO. Crew was Bradley Hinkle, Cody Stalcar and Daniel Sandoval.
2	Depart Shop for Location	8/23/2022	05:45:00					Pre-journey safety meeting.
3	Arrive at Location from Service Center	8/23/2022	07:05:00					Supervisor arrived and checked-in with the customer. Pump and job truck arrived at 1040.
4	Other	8/23/2022	07:10:00					TD: 16236 TP: 16226 FC: 16221 - 5.5" 20 # casing inside an 8.5" OH. 9.625" 36# surface casing set at 1902. Mud weight: 9.2#.
5	Safety Meeting - Pre Job	8/23/2022	10:30:00					Pre-job safety meeting with all personnel on location. Discuss safety protocols and job procedure.
6	Start Job	8/23/2022	11:50:44	-19.72	0.00	0.00	0.00	Pump 3 bbls fresh water.
7	Drop Bottom Plug	8/23/2022	11:51:12	169.34	0.00	3.50	1.18	Drop bottom plug and verified by customer.
8	Test Lines	8/23/2022	11:52:19	117.46	0.00	0.00	3.29	Pressure test lines to 4750 psi with a 500 psi electronic kick-out test.
9	Pump Spacer 1	8/23/2022	12:04:23	43.30	11.34	0.00	0.00	Pump 50 bbls Tuned Prime Spacer mixed at 11.5 ppg. Density verified by pressurized scales. Total mix water at 1775 gallons.
10	Check Weight	8/23/2022	12:09:50	482.20	11.51	7.60	33.02	Spacer weighed at 11.5 ppg.

11	Pump Cap Cement	8/23/2022	12:11:34	134.99	13.79	4.26	0.04	Pump 137 bbls (465 sacks, 1.66 yield, 8.3 gal/sk) ElastiCem mixed at 13 ppg. Density verified by pressurized scales. Total mix water at 3859 gallons.
12	Check Weight	8/23/2022	12:17:11	588.61	13.27	9.30	43.37	
13	Pump Lead Cement	8/23/2022	12:28:26	236.23	13.05	5.68	0.09	Pump 171 bbls (620 sacks, 1.55 yield, 7.22 gal/sk) IsoBond mixed at 13 ppg. Density verified by pressurized scales. Total mix water at 4476 gallons.
14	Other	8/23/2022	12:29:46	86.85	12.46	1.98	8.90	Mix water throttling valve stuck open. Shutdown as cement got light in pre-mix tub. Proceeded to mix on hand.
15	Check Weight	8/23/2022	12:37:19	348.01	13.32	5.34	33.78	Cement weighed 12.85 ppg.
16	Check Weight	8/23/2022	12:41:23	563.03	13.14	7.64	61.98	Cement weighed 13 ppg.
17	Check Weight	8/23/2022	12:47:37	326.39	13.27	5.36	93.42	
18	Pump Tail Cement	8/23/2022	12:57:43	678.41	13.34	8.14	0.14	Pump 422 bbls (1490 sacks, 1.59 yield, 7.78 gal/sk) ElastiCem mixed at 13.2 ppg. Density verified by pressurized scales. Total mix water at 11592 gallons.
19	Check Weight	8/23/2022	13:02:05	209.88	13.36	5.38	29.72	Downhole reading 12.8 ppg. Cement weighed at 13 ppg and calibrated downhole.
20	Check Weight	8/23/2022	13:04:22	213.69	13.48	5.40	41.91	Cement weighed at 13.2 ppg.
21	Check Weight	8/23/2022	13:15:48	518.05	13.49	9.12	139.56	Cement weighed at 13.2 ppg.
22	Check Weight	8/23/2022	13:40:45	509.04	13.46	9.24	369.88	Cement weighed at 13.2 ppg.
23	Shutdown	8/23/2022	13:52:06	169.08	13.48	0.29	465.59	Shutdown and wash pumps and lines until clean.
24	Drop Top Plug	8/23/2022	14:01:02	-15.65	13.48	0.00	15.20	Drop top plug and verified by customer.
25	Pump Displacement	8/23/2022	14:01:07	-16.46	13.48	0.00	0.00	Pump 360 bbls (first 20 with MMCR) fresh water. Good returns throughout. 50 bbls spacer and 55 bbls cement to surface. Estimated top of lead cement at 1714 feet.

Estimated top of tail cement at 5883 feet. Total water at 15120 gallons. Chart didn't accurately graph density on water.

26	Bump Plug	8/23/2022	14:40:56	2649.08	13.48	0.00	362.90	Final circulating pressure at 2192 psi with a bump plug at 2635 psi. Final pressure before release at 2756 psi.
27	Check Floats	8/23/2022	14:43:00	816.14	13.48	0.00	362.90	Floats held. 3.5 bbls back.
28	End Job	8/23/2022	14:43:38	-6.33	13.48	0.00	362.90	Pump 30 bbls sugar water through stack until verified by rig as clean.
29	Pre-Rig Down Safety Meeting	8/23/2022	14:47:00					Pre-rig down safety meeting.
30	Depart Location for Service Center or Other Site	8/23/2022	15:30:00					Pre-journey safety meeting. Discuss traffic, DOT blitz and fit for duty status.

3.0 Attachments

3.1 Real Time iCem Job Chart

