

# HALLIBURTON

iCem<sup>®</sup> 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

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### Disclaimer:

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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 **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**

<b>Sold To #:</b> 324725	<b>Ship To #:</b> 324725	<b>Quote #:</b>	<b>Sales Order #:</b> 0908068562
<b>Customer:</b> BISON OIL & GAS II LLC-EBUS		<b>Customer Rep:</b> Frank Kinney	
<b>Well Name:</b> Grotheer 5-61		<b>Well #:</b> 11B-14-23-3	<b>API/UWI #:</b> 05-123-51442
<b>Field:</b> WATTENBERG	<b>City (SAP):</b> Roggen	<b>County/Parish:</b> WELD	<b>State:</b> COLORADO
<b>Legal Description:</b>			
<b>Contractor:</b> PATTERSON-UTI ENERGY		<b>Rig/Platform Name/Num:</b> PATTERSON 345	
<b>Job BOM:</b> 7523 7523			
<b>Well Type:</b> OIL & GAS WELL			
<b>Sales Person:</b> HALAMERICA\HB47954		<b>Srvc Supervisor:</b> Bradley Hinkle	

Job			
<b>Formation Name</b>			
<b>Formation Depth (MD)</b>	<b>Top</b>		<b>Bottom</b>
<b>Form Type</b>	BHST		
<b>Job depth MD</b>	16226ft	<b>Job Depth TVD</b>	6077ft
<b>Water Depth</b>	<b>Wk Ht Above Floor</b>		
<b>Perforation Depth (MD)</b>	<b>From</b>		<b>To</b>

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 ft <sup>3</sup> /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 #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /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 <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
3	Lead Cement	IsoBond	620	sack	13	1.55	7.22	6	4476
4	Tail Cement	ElastiCem	1490	sack	13.2	1.59	7.78	9	11592
5	Displacement	Fresh Water	360	bbl	8.33	0	0	10	15120
<b>Comment</b> 877bbbls 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

