

HALLIBURTON

iCem® Service

BISON OIL & GAS II LLC-EBUS

Grotheer 5-611B-14-23-5 Production

Job Date: Saturday, August 27, 2022

Sincerely,

Meghan Van Zyl

Legal Notice

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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-14-23-5** 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 50 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 #: 9134516		Quote #:		Sales Order #: 0908070697				
Customer: BISON OIL & GAS II LLC-EBUS					Customer Rep: Sam Mares					
Well Name: GROTHEER 5-61 11B-14-23			Well #: 5			API/UWI #:				
Field:		City (SAP): KERSEY		County/Parish: WELD			State: COLORADO			
Legal Description:										
Contractor: PATTERSON-UTI ENERGY					Rig/Platform Name/Num: PATTERSON 345					
Job BOM: 7523 7523										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HX41066					Srvc Supervisor: Steven Markovich					
Job										
Formation Name										
Formation Depth (MD)		Top				Bottom				
Form Type				BHST						
Job depth MD		16367ft		Job Depth TVD						
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	40			0	1952	0	0
Casing		5.5	4.892	17			0	16367	0	0
Open Hole Section			8.5				1952	16377	0	0
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe	5.5			16367		Top Plug	5.5		HES	
Float Shoe	5.5					Bottom Plug	5.5		HES	
Float Collar	5.5					SSR plug set	5.5		HES	
Insert Float	5.5					Plug Container	5.5		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	Tuned Prime	TUNED PRIME CEMENT SPACER SYS	50	bbl	11.5	3.74	23.65		1775	

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
2	ElastiCem Cap Cement	SBM CEM ELASTICEM™ SYS	470	sack	13	1.66	8.3	8	3901
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	IsoBond Lead Cement	SBM CEM FDP-C1371 SYS	610	sack	13	1.55	7.22	8	4404
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	ElastiCem Tail Cement	SBM CEM ELASTICEM™ SYS	1495	sack	13.2	1.59	7.78	8	11631
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	MMCR Displacement	MMCR Displacement	363	bbl	3			9.24	15246
Comment: 880bbls mix water total used.									

2.0 Real-Time Job Summary

2.1 Job Event Log

Seq No.	Activity	Date	Time	Dwnhole Density (ppg)	Cmb Pump Rate (bbl/min)	Pump A Pressure (psi)	Cmb Stg Total (bbl)	Comments
1	Call Out	8/26/2022	11:00:00					Job called out with an on location time of 1930.
2	Pre-Convoy Safety Meeting	8/26/2022	16:30:00					JSA with HES crew on driving safety and route to rig.
3	Arrive at Location from Service Center	8/26/2022	18:30:00					Arrived on location, rig was still running casing. Approx 4500' to run.
4	Pre-Rig Up Safety Meeting	8/26/2022	18:45:00					JSA and hazard hunt with HES crew.
5	Rig-Up Equipment	8/26/2022	19:00:00					Rig up HES lines and equipment.
6	Pre-Job Safety Meeting	8/26/2022	23:00:00	8.33	0.00	5.83	10.40	JSA with HES and rig crew on job safety and procedure.
7	Start Job	8/27/2022	00:09:31	8.32	0.00	6.11	10.40	TD 16377' TP 16367' FC 16362' 5 1/2" 20# Production Casing, 9 5/8" 36# Surface Casing set at 1952', TVD 6129', Mud# 9.1ppg. Estimated top of Tail Cement 5993', Estimated top of Lead Cement 1878'.
8	Test Lines	8/27/2022	00:12:56	8.30	0.00	157.40	3.09	Set kick outs to 500psi and verify low pressure kick outs. Then increase pressure to 7000psi and hold.
9	Drop Bottom Plug	8/27/2022	00:23:04	8.11	0.00	6.87	3.14	Plug pre loaded into HES head. Plug loaded and dropped in front of company rep.
10	Pump Spacer 1	8/27/2022	00:23:07	8.11	0.00	6.85	0.00	Pump 50bbbls of 11.5ppg 3.74yield Tuned Prime Spacer. Pumped at 5.5bbl/min 390psi.
11	Check Weight	8/27/2022	00:25:54	11.84	2.08	318.92	5.18	Weight verified by pressurized scales.

12	Check Weight	8/27/2022	00:30:05	11.43	5.64	339.76	27.96	Weight verified by pressurized scales.
13	Pump Cap Cement	8/27/2022	00:35:07	12.17	0.00	11.80	0.00	Pump 139bbls (470sks) of 13ppg 1.66 yield Cap Cement. Pumped at 8bbl/min 460psi.
14	Check Weight	8/27/2022	00:46:07	13.03	5.60	288.90	43.45	Weight verified by pressurized scales.
15	Pump Lead Cement	8/27/2022	00:58:31	12.92	5.61	280.71	0.05	Pump 169bbls (610sks) of 13ppg 1.55yield Lead Cement. Pumped at 9bbl/min 800psi.
16	Check Weight	8/27/2022	01:02:16	13.12	7.39	410.15	27.17	Weight verified by pressurized scales.
17	Check Weight	8/27/2022	01:06:47	13.03	5.59	401.87	55.79	Weight verified by pressurized scales.
18	Pump Tail Cement	8/27/2022	01:21:31	12.70	7.96	590.20	0.07	Pump 424bbls (1495sks) of 13.2ppg 1.59yield Tail Cement. Pumped at 9bbl/min 850psi.
19	Check Weight	8/27/2022	01:23:47	13.18	9.13	655.02	20.15	Weight verified by pressurized scales.
20	Check Weight	8/27/2022	01:37:37	13.27	9.42	658.58	148.19	Weight verified by pressurized scales.
21	Check Weight	8/27/2022	01:44:29	13.24	6.49	375.78	198.52	Weight verified by pressurized scales.
22	Check Weight	8/27/2022	02:00:52	13.12	7.99	506.39	328.93	Weight verified by pressurized scales.
23	Shutdown	8/27/2022	02:15:34	13.53	0.00	127.93	437.45	Shutdown and clean pumps and lines.
24	Drop Top Plug	8/27/2022	02:28:31	8.87	0.00	15.02	14.39	Plug pre loaded into HES head. Plug loaded and dropped in front of company rep.
25	Pump Displacement	8/27/2022	02:28:34	8.87	0.00	14.99	0.00	Pump 363bbls of H2O. First 20bbls with MMCR. Pumped at 10bbls/min and slowed rate with pressure increase. Spacer to surface at 263 away, cement to surface at 313 away bringing 50bbls of cement to surface.
26	Bump Plug	8/27/2022	03:06:58	8.39	4.11	2244.01	359.09	Bumped plug at 363bbls away. Final lift pressure was 2244psi. Took pressure 500psi over and held.

27	Other	8/27/2022	03:09:28		0.00	3018.44	359.84	Opened release line to check floats. After 4bbls back floats held.
28	End Job	8/27/2022	03:11:12	8.27	0.00	18.79	359.84	Thank you, Steve Markovich and crew.
29	Safety Meeting	8/27/2022	03:15:00	8.37	10.31	14.49	14.37	Pre rig down JSA with HES crew.
30	Depart Location	8/27/2022	05:30:00					HES crew leaves location.

3.0 Attachments

3.1 Real Time iCem Job Chart

