

# HALLIBURTON

iCem<sup>®</sup> Service

## **BISON OIL & GAS II LLC-EBUS**

**Grotheer 5-61 11A-2-1 Production**

Job Date: Wednesday, August 10, 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 11A-2-1** 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 53 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> 9048971		<b>Quote #:</b>		<b>Sales Order #:</b> 0908030939				
<b>Customer:</b> BISON OIL & GAS II LLC-EBUS				<b>Customer Rep:</b> Chris Peterson						
<b>Well Name:</b> GROTHEER 5-61			<b>Well #:</b> 11A-2-1			<b>API/UWI #:</b> 05-123-51223-00				
<b>Field:</b> WATTENBERG		<b>City (SAP):</b> KERSEY		<b>County/Parish:</b> WELD			<b>State:</b> COLORADO			
<b>Legal Description:</b> SW SW-11-5N-61W-460FSL-1125FWL										
<b>Contractor:</b> ENSIGN DRLG				<b>Rig/Platform Name/Num:</b> ENSIGN 140						
<b>Job BOM:</b> 7523 7523										
<b>Well Type:</b> HORIZONTAL OIL										
<b>Sales Person:</b> HALAMERICA\HX41066				<b>Srvc Supervisor:</b> Brandon Parker						
<b>Job</b>										
<b>Formation Name</b>										
<b>Formation Depth (MD)</b>		<b>Top</b>				<b>Bottom</b>				
<b>Form Type</b>						<b>BHST</b>				
<b>Job depth MD</b>		16349ft				<b>Job Depth TVD</b>		6144		
<b>Water Depth</b>						<b>Wk Ht Above Floor</b>		5		
<b>Perforation Depth (MD)</b>		<b>From</b>				<b>To</b>				
<b>Well Data</b>										
<b>Description</b>	<b>New / Used</b>	<b>Size in</b>	<b>ID in</b>	<b>Weight lbm/ft</b>	<b>Thread</b>	<b>Grade</b>	<b>Top MD ft</b>	<b>Bottom MD ft</b>	<b>Top TVD ft</b>	<b>Bottom TVD ft</b>
Casing		9.625	8.921	36			0	1967	0	1967
Casing		5.5	4.892	17			0	16348	0	6144
Open Hole Section			8.5				1967	16348	1967	6144
<b>Tools and Accessories</b>										
<b>Type</b>	<b>Size in</b>	<b>Qty</b>	<b>Make</b>	<b>Depth ft</b>		<b>Type</b>	<b>Size in</b>	<b>Qty</b>	<b>Make</b>	
<b>Guide Shoe</b>	5.5					<b>Top Plug</b>	5.5	1	citadel	
<b>Float Shoe</b>	5.5	1	Citadel	16349		<b>Bottom Plug</b>	5.5	1	citadel	
<b>Float Collar</b>	5.5	1	Citadel	16344		<b>SSR plug set</b>	5.5		HES	
<b>Insert Float</b>	5.5					<b>Plug Container</b>	5.5	1	HES	
<b>Stage Tool</b>	5.5					<b>Centralizers</b>	5.5			
<b>Fluid Data</b>										
<b>Stage/Plug #: 1</b>										
<b>Fluid #</b>	<b>Stage Type</b>	<b>Fluid Name</b>	<b>Qty</b>	<b>Qty UoM</b>	<b>Mixing Density lbm/gal</b>	<b>Yield ft<sup>3</sup>/sack</b>	<b>Mix Fluid Gal</b>	<b>Rate bbl/min</b>	<b>Total Mix Fluid Gal</b>	
1	Tuned Prime Cement Spacer	TUNED PRIME CEMENT SPACER SYS	50	bbl	11.5	3.74	23.65	6	1775	

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
2	ElastiCem	SBM CEM ELASTICEM™ SYS	565	sack	13	1.66	8.3	8	4690
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
3	IsoBond	SBM CEM FDP-C1371 SYS	540	sack	13	1.55	7.22	8	3899
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
4	ElastiCem	SBM CEM ELASTICEM™ SYS	1475	sack	13.2	1.59	7.78	8	11476
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
5	MMCR Displacement	MMCR Displacement	20	bbl	8.33			10	840
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
6	Displacement	Displacement	359	bbl	8.33			9	15078
<b>Comment</b> 899bbbls 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	8/9/2022	10:30:00					crew called out to 5.5" production casing for Bison on location time 19:00
2	Pre-Convoy Safety Meeting	8/9/2022	14:50:00					meeting with crew to discuss safety/hazards associated with traveling
3	Depart from Service Center or Other Site	8/9/2022	15:00:00					
4	Arrive at Location from Service Center	8/9/2022	17:00:00					met with Mr. Jose Torres with Civitas and went over job numbers, water sources and iron placement
5	Assessment Of Location Safety Meeting	8/9/2022	17:01:00					hazard hunt, check location, bulk and water volumes, temp 85, ph 6, chlo 0, td 16348, tp 16348, fc 16343.8, sj 5, oh 8.5", sp 1697, 9.625 36# surface casing, 5.5" 17# production casing, mw, 9.7, fe Citadel, top and bottom plug Citadel, kop 5590, eob 6491, tvd 6144
6	Safety Meeting - Pre Rig-Up	8/9/2022	17:45:00					meeting with hes personnel to discuss safety/hazards associated with rigging up
7	Rig-Up Equipment	8/9/2022	17:50:00					rig in 100 percent, elite primmed and ready to go
8	General Standby Start	8/9/2022	19:30:00	8.36	0.00	-17.74	0.00	hes went into standby mode while rig ran casing
9	Other	8/9/2022	21:10:00					
10	Rig-Up Equipment	8/9/2022	21:15:00					hose and double on cat walk, to hoist to rig floor

11	Casing on Bottom	8/9/2022	21:20:00					rig landed casing, TRK casing crew on location
12	Other	8/9/2022	21:24:00					stabbed hes plug container
13	Circulate Well	8/9/2022	21:32:00					rig circulated at 8bpm, 560psi and pumped 13000strokes
14	Standby - Other - see comments	8/9/2022	22:15:00					HES went into standby mode while rig circulated well
15	Pre-Job Safety Meeting	8/9/2022	23:30:00	8.42	0.00	-17.81	0.00	meeting with all personnel on location to discuss safety/hazards associated with job, also covered job procedures. all personnel signed jsa
16	Break Circulation	8/9/2022	23:42:00	8.41	0.00	-16.64	0.00	ko rig pumps, run hose to hes stand pipe
17	Start Job	8/9/2022	23:47:34	8.41	0.00	-15.96	0.00	start recording real time data
18	Drop Bottom Plug	8/9/2022	23:49:20	8.48	0.00	20.14	0.00	plug pre loaded prior to filling lines with FW, loaded by Mr. Ryan Buford and witnessed by HES supervisor. bottom plug departed plug container
19	Pump Water - End	8/9/2022	23:49:37	8.48	0.81	25.17	0.01	pumped 3bbbls of fw at 3bpm and top psi was 170
20	Test Lines	8/9/2022	23:51:36	8.60	0.01	2054.34	0.05	test eko, 5th gear stall and as operator was bringing psi up to 5k the hes double chickens started leaking. bled off psi replaced double chickens
21	Test Lines	8/9/2022	23:59:26	8.33	0.19	-16.78	0.08	tested lines to 5012
22	Pump Spacer 1	8/10/2022	00:14:34	8.30	1.67	-6.79	0.04	pumped 50bbbls of tuned prime spacer, 11.5ppg, yield 3.74, 23.65 gal/sk pumped at 6bpm and average psi was 250. weight confirmed using pressurized mud scales. calculated all 50bbbls of spacer to surface well
23	Pump Cap Cement	8/10/2022	00:22:14	11.52	6.00	193.58	0.15	pumped 167bbbls of cap cmt, 565sks, 13.0ppg, yield 1.66, 8.30 gal/sk pumped at 8bpm and average psi was 400. weight confirmed using pressurized mud scales. calculated



489.03ft below surface shoe(19.95bbls), calculated 53bbls of cap to surface well. MW 4690, 70BC 6:46

24	Other	8/10/2022	00:39:32	13.08	8.05	419.57	138.54	slowed rate from 8 to 6bpm to assure silo was empty
25	Pump Lead Cement	8/10/2022	00:44:11	12.85	6.33	228.16	168.48	pumped 149bbls of lead cmt(latex), 540 sks, 13ppg, 1.55 yield, 7.22 gal/sk pumped at 8bpm and average psi was 500. weight confirmed using pressurized mud scales. calculated top of lead cmt at 2456.03ft. MW 3899, 70BC 6:05hrs
26	Other	8/10/2022	01:00:32	12.89	8.00	469.83	132.44	slow rate to assure silo was empty. 9bpm to 6bpm
27	Pump Tail Cement	8/10/2022	01:03:00	12.86	6.34	346.17	148.08	pumped 417.7bbls of tail cmt, 1475sks, 13.2ppg, yield 1.59, 7.78 gal/sk pumped at 8bpm and average psi 400. weight confirmed using pressurized mud scales. calculated top of tail cmt at 61141ft. MW 11476, 70BC 4:24hrs
28	Other	8/10/2022	01:09:00	13.27	7.96	453.39	45.28	112bbls into tail cmt seen the bottom plug rupture at 937psi
29	Other	8/10/2022	01:18:00	13.12	7.29	346.33	117.50	slow rate to assure fist tail silo was empty. 9bpm to 6bpm
30	Slow Rate	8/10/2022	01:52:53	13.10	7.96	421.54	396.61	slow rate on last silo of tail to 5bpm to assure silo was mt, density was maintained at 13.2ppg and lines were clear of cmt. final pai 160
31	Shutdown	8/10/2022	02:00:00	13.10	0.07	89.79	435.09	done pumping cmt
32	Other	8/10/2022	02:04:40	13.27	1.73	3.15	0.06	clean lines and pumps to 4sided tank below shakers. pumped 25bbls . load top plug
33	Shutdown	8/10/2022	02:14:28	8.15	3.44	68.50	28.57	
34	Drop Top Plug	8/10/2022	02:16:31	8.12	0.00	-10.56	0.00	top plug preloaded while hes was cleaning lines and pumps. loaded by Mr. Ryan Buford, witnessed by HES supervisor. (plug left plug container)
35	Pump Displacement	8/10/2022	02:16:41	7.80	0.80	3.25	0.01	FC set at 16343.8 X .0232(5.5"17# factor)= 379.2bbls. 10 gallons MMCR first 20bbls

36	Other	8/10/2022	02:55:00	8.35	4.06	2437.08	364.00	slow rate from 8bpm 2720 psi to 4bpm 2150psi at 360bbls
37	Bump Plug	8/10/2022	03:00:07	8.37	0.00	2552.47	384.06	plug bumped at calculated 379.2bbls, psi 2200ko pumps at 2700. psi climbed to 2850
38	Other	8/10/2022	03:03:27	8.37	0.00	2825.33	0.00	Citadel floats held 4bbls back to the pump trk
39	Other	8/10/2022	03:05:00	8.27	0.00	-18.58	0.00	Rattle HTs
40	End Job	8/10/2022	03:05:20	8.31	0.00	-18.64	0.00	
41	Other	8/10/2022	03:08:00	8.19	0.00	-16.21	0.00	pumped 35bbls of sugar water through the rigs stack (100lbs)
42	Spacer Returns to Surface	8/10/2022	03:09:23	8.23	5.21	163.42	6.83	50bbls tuned prime to surface
43	Cement Returns to Surface	8/10/2022	03:09:33	8.20	9.47	185.56	8.27	53bbls of cap cmt to surface
44	Pre-Rig Down Safety Meeting	8/10/2022	03:10:00	8.27	9.62	182.86	12.42	meeting to discuss safety/hazards associated with rigging down
45	Rig-Down Equipment	8/10/2022	03:11:00	8.20	0.00	-9.17	13.27	
46	Shutdown	8/10/2022	03:11:11	8.20	0.00	-11.41	13.27	
47	Depart Location for Service Center or Other Site	8/10/2022	04:30:00					
48	Other	8/10/2022	04:31:00					Thank You for Choosing Halliburton Cement. Parker and Crew. (970)397-4969

3.0 Attachments

3.1 Real Time iCem Job Chart

