

# HALLIBURTON

iCem<sup>®</sup> Service

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

**Ross 8-60 18-7-1 Production**

Job Date: Friday, June 17, 2022

Sincerely,

**Meghan Van Zyl**

## Legal Notice

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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 **Ross 8-60 18-7-1** 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 6 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> 0907929850				
<b>Customer:</b> BISON OIL & GAS II LLC - EBUS					<b>Customer Rep:</b> Ron Buford					
<b>Well Name:</b> Ross 8-60			<b>Well #:</b> 18-7-1			<b>API/UWI #:</b> 05-123-51392				
<b>Field:</b>		<b>City (SAP):</b> Briggsdale		<b>County/Parish:</b> WELD			<b>State:</b> COLORADO			
<b>Legal Description:</b>										
<b>Contractor:</b> ENSIGN DRLG					<b>Rig/Platform Name/Num:</b> ENSIGN 140					
<b>Job BOM:</b> 7523 7523										
<b>Well Type:</b> OIL & GAS WELL										
<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>		15782ft		<b>Job Depth TVD</b>		6420				
<b>Water Depth</b>				<b>Wk Ht Above Floor</b>		4				
<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	1970	0	1970
Casing		5.5	4.892	17			0	15780	0	6420
Open Hole Section			8.5				1970	15780	1970	6420
<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>	
Guide Shoe	5.5					Top Plug	5.5	1	Citadel	
Float Shoe	5.5	1	Citadel	15780		Bottom Plug	5.5	1	Citadel	
Float Collar	5.5	1	Citadel	15775		SSR plug set	5.5		HES	
Air Lock	5.5			6073		Plug Container	5.5	1	HES	
Stage Tool	5.5					Centralizers	5.5	220	septer	
<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 ft3/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	1771	6	23.65

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	ElastiCem	SBM CEM ELASTICEM™ SYS	167bbls	565sack	13	1.66	4690	9	8.3
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
3	IsoBond	SBM CEM FDP-C1371 SYS	151.8bbls	550sack	13	1.55	3971	9	7.22
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
4	ElastiCem	SBM CEM ELASTICEM™ SYS	393.6bbls	1390sack	13.2	1.59	10786	9	7.76
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
5	MMCR Displacement	MMCR Displacement	20	bbl	8.33	0	840	10	
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
6	Displacement	Displacement	346	bbl	8.33		14532	9	
Cement Left In Pipe		Amount	5 ft		Reason			Shoe Joint	
Mix Water:		pH 6	Mix Water Chloride:		0 ppm		Mix Water Temperature:		80f
Cement Temperature:			Plug Displaced by:		8.33 mmcr		Disp. Temperature:		
Plug Bumped?		Yes	Bump Pressure:		2100		Floats Held?		Yes
Cement Returns:		6	Returns Density:		13		Returns Temperature:		
Comment 50bbls spacer to surface, 6bbls of cap cmt to surface. Citadel floats held 4bbls back. 871bbls mix water total used.									

## 2.0 Real-Time Job Summary

## 2.1 Job Event Log

Seq No.	Activity	Graph Label	Date	Time	Dwnhole Density (ppg)	Cmb Pump Rate (bbl/min)	Pump A Pressure (psi)	Cmb Stg Total (bbl)	Comments
1	Call Out	Call Out	6/17/2022	08:30:00					crew called out to 5.5" production casing for Bison on location time 14:30
2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	6/17/2022	11:45:00					meeting with crew to discuss safety/hazards associated with traveling
3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	6/17/2022	12:00:00					convoy to location as a crew
4	Arrive at Location from Service Center	Arrive at Location from Service Center	6/17/2022	14:00:00					met with Mr. Jose Torres with Civitas and went over job numbers, water sources and iron placement
5	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	6/17/2022	14:01:00					hazard hunt, check location, bulk and water volumes, temp 80, ph 6, chlo 0, td 15782, tp 15780, fc 15775, sj 5, oh 8.5", sp 1970, 9.625 36# surface casing, 5.5" 17# production casing, mw, 10, fe Citadel, top and bottom plug Citadel, cnt 220, kop 6180, eob 7250, tvd 6420, airlock 6073, Innovex Toe Sleeve 15760.6 & 15746
6	Safety Meeting - Pre Rig-Up	Safety Meeting - Pre Rig-Up	6/17/2022	14:10:00					meeting with hes personnel to discuss safety/hazards associated with rigging up

7	Rig-Up Equipment	Rig-Up Equipment	6/17/2022	14:15:00					rig in water, bulk and iron to red zone. prime pumping unit
8	General Standby Start	General Standby Start	6/17/2022	16:00:00					hes went into standby mode while rig ran casing
9	Other	End Standby	6/17/2022	18:30:00					
10	Rig-Up Equipment	Rig-Up Equipment	6/17/2022	18:32:00					hose and double on cat walk, wait for casing trk to move to finish rigging in iron to cat walk.
11	Casing on Bottom	Casing on Bottom	6/17/2022	18:50:00					rig landed casing, TRK casing crew on location
12	Other	Stab HES Plug Container	6/17/2022	18:53:00					stabbed hes plug container
13	Circulate Well	Circulate Well	6/17/2022	18:58:00					rig circulated at 12bpm, 1257psi and pumped 11678strokes
14	Pre-Job Safety Meeting	Pre-Job Safety Meeting	6/17/2022	20:24:00	8.35	0.00	-2.40	0.00	meeting with all personnel on location to discuss safety/hazards associated with job, also covered job procedures. all personnel signed jsa
15	Break Circulation	KO Mud Pumps	6/17/2022	20:37:00	8.35	0.00	-3.82	0.00	ko rig pumps, hook hes hose to plug container
16	Start Job	Start Job	6/17/2022	20:44:00	8.35	0.00	-2.60	0.00	start recording real time data
17	Drop Bottom Plug	Drop Bottom Plug	6/17/2022	20:45:07	8.40	0.00	1.65	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
18	Pump Water - End	Fill Lines FW	6/17/2022	20:45:11	8.40	0.00	1.69	0.00	pumped 4bbls of fw at 3bpm and top psi was 370. dh was autocalibrated to 8.33
19	Test Lines	Test Lines	6/17/2022	20:48:20	8.31	0.00	162.43	0.00	test eko ko, 5th gear stall and high test 6010 psi fell back at 1psi/5seconds. psi test a PASS



20	Pump Spacer 1	Pump Tuned Prime	6/17/2022	20:56:35	8.29	0.13	14.74	0.07	pumped 50bbls of tuned prime spacer, 11.5ppg, yield 3.74, 23.65 gal/sk pumped at 6bpm and average psi was 400. weight confirmed using pressurized mud scales. calculated all 50bbls of spacer to surface well
21	Pump Cap Cement	Pump Cap Cement	6/17/2022	21:06:31	11.45	4.81	389.78	40.61	pumped 167bbls of cap cmt, 565sks, 13.0ppg, yield 1.66, 8.30 gal/sk pumped at 9bpm and average psi was 900. weight confirmed using pressurized mud scales. calculated 444.82ft below surface shoe(18.15bbls), calculated 54.5bbls of cap to surface well. MW 4690, 70BC 6:36hrs
22	Check Weight	Check Weight	6/17/2022	21:10:47	13.06	8.28	1062.32	24.68	
23	Check Weight	Check Weight	6/17/2022	21:19:59	13.03	8.89	896.92	105.48	
24	Other	Slow Rate	6/17/2022	21:26:18	13.07	9.15	904.90	162.99	slowed rate from 9 to 6bpm to assure cap silo was empty
25	Pump Lead Cement	Pump Lead Cement	6/17/2022	21:29:46	12.89	6.06	384.88	184.75	pumped 151.8bbls of lead cmt(latex), 550 sks, 13ppg, 1.55 yield, 7.22 gal/sk pumped at 9bpm and average psi was 1300. weight confirmed using pressurized mud scales. calculated top of lead cmt at 2414.82ft. MW 3971, 70BC 5:00hrs
26	Other	Slow Rate	6/17/2022	21:46:01	12.93	7.71	1116.88	136.55	slow rate to assure lead silo was empty. 9bpm to 6bpm
27	Pump Tail Cement	Pump Tail Cement	6/17/2022	21:50:52	12.97	7.03	680.42	2.05	pumped 393.6bbls of tail cmt, 1390sks, 13.2ppg, yield 1.59, 7.76 gal/sk pumped at 9bpm and average psi 550. weight confirmed using pressurized mud scales. calculated top of tail cmt at 6135.40ft. MW 10786, 70BC 4:43hrs

28	Other	Other	6/17/2022	21:52:11	13.31	7.96	762.42	12.73	bottom plug
29	Check Weight	Check Weight	6/17/2022	21:58:23	13.29	9.14	924.56	68.11	
30	Other	Slow Rate	6/17/2022	22:08:35	13.22	7.47	804.78	161.29	slow rate from 9bpm to 5bpm assure tai silo was empty
31	Check Weight	Check Weight	6/17/2022	22:12:39	13.29	9.29	854.07	194.14	
32	Check Weight	Check Weight	6/17/2022	22:21:54	13.10	9.17	875.02	279.31	
33	Slow Rate	Slow Rate	6/17/2022	22:39:01	13.05	5.60	491.73	427.16	slow rate from 9bpm to 5bpm to assure tail silo is empty and also to blow lines down to the pump
34	Shutdown	Shutdown	6/17/2022	22:40:35	12.56	4.28	238.38	432.36	done pumping cmt
35	Other	Clean lines	6/17/2022	22:45:11	14.69	0.74	11.95	0.01	clean lines and pumps to 4sided tank below shakers. pumped 20bbbls . load top plug
36	Shutdown	Shutdown	6/17/2022	22:53:40	8.11	1.30	50.73	19.97	
37	Drop Top Plug	Drop Top Plug	6/17/2022	22:56:17	8.03	0.00	6.26	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)
38	Pump Displacement	Pump Displacement	6/17/2022	22:56:24	8.03	0.88	6.23	0.02	FC set at 15775 X .0232(5.5"17# factor)= 366bbbls. 10 gallons MMCR first 20bbbls
39	Other	Slow Rate	6/17/2022	23:35:17	8.11	7.65	2951.22	364.61	slow rate from 9.5bpm 2970 psi to 4bpm 2160psi
40	Bump Plug	Bump Plug	6/17/2022	23:40:21	8.09	3.86	2478.96	384.52	plug bumped at calculated 366bbbls, psi 2270ko pumps at 2700. psi climbed to 2820
41	Other	Check Floats	6/17/2022	23:44:21	8.10	0.00	2771.05	0.00	Citadel floats held 4bbbls back to the pump trk
42	End Job	End Job	6/17/2022	23:46:06	7.89	0.00	1.24	0.00	job complete

43	Other	Clean Pump	6/17/2022	23:51:00	7.86	6.21	53.78	1.09	Rattle HTs
44	Start Job	Start Job	6/17/2022	23:58:49	7.85	0.00	0.23	30.92	start recording flushing stack
45	Other	Other	6/17/2022	23:59:00	7.85	0.00	-0.25	30.92	pumped 30bbls of sugar water through the rigs stack (100lbs)
46	Shutdown	Shutdown	6/18/2022	00:10:13	5.65	0.00	4.46	0.00	
47	Spacer Returns to Surface	Spacer Returns to Surface	6/18/2022	00:11:00	-0.53	0.00	-1.77	0.00	50bbls tuned prime to surface
48	Cement Returns to Surface	Cement Returns to Surface	6/18/2022	00:11:23					6bbls of cap cmt to surface
49	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	6/18/2022	00:12:00					meeting to discuss safety/hazards associated with rigging down
50	Rig-Down Equipment	Rig-Down Equipment	6/18/2022	00:15:00					
51	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	6/18/2022	01:30:00					
52	Other	Other	6/18/2022	01:31:00					Thank You for Choosing Halliburton Cement. Parker and Crew. (970)397-4969

3.0 Attachments

3.1 Real Time iCem Job Chart

