

HALLIBURTON

iCem[®] Service

BISON OIL & GAS II -EBUS

Ross 8-60 18-7-7 Production

Job Date: Wednesday, May 25, 2022

Sincerely,

Meghan Van Zyl

Legal Notice

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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Ross 8-60 18-7-7** 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 52 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 #: 0907881618				
Customer: Bison Oil & Gas II				Customer Rep: Chris Peterson						
Well Name: Ross 8-60			Well #: 18-7-7			API/UWI #: 05-123-51397				
Field:		City (SAP): Briggsdale		County/Parish: WELD			State: COLORADO			
Legal Description:										
Contractor: ENSIGN DRLG				Rig/Platform Name/Num: ENSIGN 140						
Job BOM: 7523 7523										
Well Type: OIL & GAS WELL										
Sales Person: HALAMERICA\HB47954				Srvc Supervisor: Brandon Parker						
Job										
Formation Name										
Formation Depth (MD)		Top			Bottom					
Form Type		BHST								
Job depth MD		15710ft			Job Depth TVD		5790			
Water Depth					Wk Ht Above Floor		4			
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	1967	0	1967
Casing		5.5	4.892	17			0	15700	0	5790
Open Hole Section			8.5				1967	15710	1967	5790
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	15700		Bottom Plug	5.5	1	Citadel	
Float Collar	5.5	1	citadel	15695		SSR plug set	5.5		HES	
Insert Float	5.5					Plug Container	5.5	1	HES	
Stage Tool	5.5					Centralizers	5.5	222	Septer	
Fluid Data										
Stage/Plug #: 1										
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	
1	Tuned Prime Cement Spacer	TUNED PRIME CEMENT SPACER SYS	50	bbl	11.5	3.74	1775	6	23.65	

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal	
2	ElastiCem	SBM CEM ELASTICEM™ SYS	167bbls	565sack	13	1.66	4689	8	8.3	
3	IsoBond	SBM CEM FDP-C1371 SYS	153.2bbls	555sack	13	1.55	4007	9	7.22	
4	ElastiCem	SBM CEM ELASTICEM™ SYS	386.5	1365sack	13.2	1.59	10592	9	7.76	
5	MMCR Displacement	MMCR Displacement	364	bbl	8.33	0	15288	9	8.33	
Cement Left In Pipe		Amount	5 ft		Reason			Shoe Joint		
Mix Water:		pH 6	Mix Water Chloride:		0 ppm		Mix Water Temperature:			66f
Cement Temperature:			Plug Displaced by:		8.33 MMCR		Disp. Temperature:			
Plug Bumped?		Yes	Bump Pressure:		2300 to 2800		Floats Held?			Yes
Cement Returns:		52	Returns Density:		13		Returns Temperature:			
Comment 50bbls spacer and 52bbls of cap cmt to surface. Floats held 4bbls back to the pump. 865bbls 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	5/25/2022	05:30:00					crew called out to 5.5" production casing for Bison on location time 13:30
2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	5/25/2022	10:15:00					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	5/25/2022	10:30:00					cementer left yard, crew was on location
4	Arrive at Location from Service Center	Arrive at Location from Service Center	5/25/2022	11:56:00					met with Mr. Chris Peterson with Civitas and went over job numbers, water sources and iron placement
5	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	5/25/2022	11:57:00					hazard hunt, check location, bulk and water volumes, temp 66, ph 6, chlo 0, td 15710, tp 15700, fc 15695, sj 5, oh 8.5", sp 1693, 9.625 36# surface casing, 5.5" 20# production casing, mw, 9.3, fe Citadel, top and bottom plug Citadel, cnt 275, kop 6000, eob 7085, tvd 6395
6	Safety Meeting - Pre Rig-Up	Safety Meeting - Pre Rig-Up	5/25/2022	12:00:00					meeting with hes personnel to discuss safety/hazards associated with rigging up
7	Rig-Up Equipment	Rig-Up Equipment	5/25/2022	12:05:00					
8	General Standby Start	General Standby Start	5/25/2022	13:00:00					hes went into standby mode while rig ran casing

9	Other	End Standby	5/25/2022	14:25:00						
10	Rig-Up Equipment	Rig-Up Equipment	5/25/2022	14:26:00						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	5/25/2022	14:28:00						rig landed casing, TRK casing crew on location
12	Other	Stab HES Plug Container	5/25/2022	14:30:00						stabbed hes plug container
13	Circulate Well	Circulate Well	5/25/2022	14:39:00						rig circulated at 12.4bpm, 1153psi and pumped 12500strokes
14	Pre-Job Safety Meeting	Pre-Job Safety Meeting	5/25/2022	15:50:00	8.45	0.00	0.25	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	5/25/2022	15:57:00	8.45	0.00	-0.36	0.00		ko rig pumps, run hose to hes stand pipe
16	Start Job	Start Job	5/25/2022	16:04:40	8.44	0.00	6.77	0.00		start recording real time data
17	Drop Bottom Plug	Drop Bottom Plug	5/25/2022	16:05:21	0.12	0.00	6.31	0.00		plug pre loaded prior to filling lines with FW, loaded by Mr.Chris Peterson and witnessed by HES supervisor. bottom plug departed plug container
18	Pump Water - End	Fill Lines FW	5/25/2022	16:05:34	0.12	0.00	5.81	0.00		pumped 3bbbls of fw at 3bpm and top psi was 140
19	Test Lines	Test Lines	5/25/2022	16:08:24	8.11	0.00	762.27	3.08		test eko ko at 900, 5th gear stall 1760 and hight test 5390
20	Pump Spacer 1	Pump Tuned Prime	5/25/2022	16:19:15	8.18	0.00	10.96	0.00		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
21	Pump Cap Cement	Pump Cap Cement	5/25/2022	16:28:38	11.40	4.54	89.53	51.36		pumped 165bbbls of cap cmt, 565sks, 13.0ppg, yield 1.66, 8.30 gal/sk pumped at 8bpm and average psi was 500. weight confirmed using pressurized mud

scales. calculated 507.51ft below surface
 shoe(20.7bbbls), calculated 52bbbls of cap to surface
 well. MW 4690, 70BC 5:57

22	Other	Slow Rate	5/25/2022	16:52:50	12.90	8.16	533.72	174.90	slowed rate from 8 to 6bpm to assure silo was empty
23	Pump Lead Cement	Pump Lead Cement	5/25/2022	16:54:32	12.78	6.27	320.09	185.68	pumped 153.2bbbls of lead cmt(latex), 555 sks, 13ppg, 1.55 yield, 7.22 gal/sk pumped at 9bpm and average psi was 700. weight confirmed using pressurized mud scales. calculated top of lead cmt at 2474.51ft. MW 4007, 70BC 6:24hrs
24	Other	Slow Rate	5/25/2022	17:12:57	12.85	6.02	626.73	146.54	slow rate to assure silo was empty. 9bpm to 6bpm
25	Pump Tail Cement	Pump Tail Cement	5/25/2022	17:17:20	12.96	6.03	352.79	1.72	pumped 386.5bbbls of tail cmt, 1365sks, 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 6229.41ft. MW 10592, 70BC 5:20hrs
26	Other	Other	5/25/2022	17:20:15	13.41	9.19	887.77	20.88	rupture disc on bottom plug. 390bbbls psi 1231
27	Check Weight	Check Weight	5/25/2022	17:53:07	13.42	8.99	597.72	304.41	
28	Other	Slow Rate	5/25/2022	18:07:57	13.17	6.15	396.48	428.79	slow rate to assure silo was empty
29	Shutdown	Shutdown	5/25/2022	18:12:08	12.79	0.00	53.00	0.00	done pumping cmt
30	Other	Clean lines	5/25/2022	18:17:17	0.46	1.44	37.33	0.09	clean lines and pumps to 4sided tank below shakers. pumped 18bbbls . load top plug
31	Shutdown	Shutdown	5/25/2022	18:22:26	0.75	0.00	26.89	17.00	
32	Drop Top Plug	Drop Top Plug	5/25/2022	18:23:32	8.21	0.00	9.32	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)

33	Pump Displacement	Pump Displacement	5/25/2022	18:24:00	8.23	0.00	9.70	0.00	FC set at 15695 X .0232(5.5"17# factor)= 364bbbls. 10 gallons MMCR first 20bbbls
34	Other	Slow Rate	5/25/2022	19:05:12	8.43	8.74	2905.77	358.09	slow rate from 9bpm 2900 psi to 4bpm 2300psi
35	Bump Plug	Bump Plug	5/25/2022	19:11:54	8.44	0.10	2597.74	382.78	plug bumped at calculated 364bbbls, psi 2300ko pumps at 2800. psi climbed to 3070
36	Other	Check Floats	5/25/2022	19:14:46	8.46	0.00	2983.98	0.00	Citadel floats held 4bbbls back to the pump trk
37	End Job	End Job	5/25/2022	19:15:46	1.56	0.00	55.62	0.00	job complete
38	Other	Clean Pump	5/25/2022	19:24:00	-0.02	0.00	0.52	0.00	Rattle HTs
39	Other	Other	5/25/2022	19:30:00	4.04	0.00	-0.19	0.00	pumped 20bbbls of sugar water through the rigs stack (100lbs)
40	Shutdown	Shutdown	5/25/2022	19:40:00	8.36	0.00	6.16	0.00	
41	Spacer Returns to Surface	Spacer Returns to Surface	5/25/2022	19:40:11	8.36	0.00	6.36	0.00	50bbbls tuned prime to surface
42	Cement Returns to Surface	Cement Returns to Surface	5/25/2022	19:40:12	8.36	0.00	6.36	0.00	52bbbls of cap cmt to surface
43	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	5/25/2022	19:42:00	8.38	3.94	345.95	2.59	meeting to discuss safety/hazards associated with rigging down
44	Rig-Down Equipment	Rig-Down Equipment	5/25/2022	19:43:00	8.32	0.00	-1.22	3.56	
45	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	5/25/2022	21:00:00					
46	Other	Other	5/25/2022	21:01:00					Thank You for Choosing Halliburton Cement. Parker and Crew. (970)397-4969

3.0 Attachments

3.1 Real Time iCem Job Chart

