

HALLIBURTON

iCem[®] Service

BISON OIL AND GAS LLC

Date: Monday, January 15, 2018

Castor 8-59 19-24-12 Production

Job Date: Tuesday, December 12, 2017

Sincerely,
Bryce Hinsch

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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Castor 8-59 19-24-12** 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 15 bbls of cement were brought 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]

The Road to Excellence Starts with Safety

Sold To #: 380957	Ship To #: 3837907	Quote #:	Sales Order #: 0904495405
Customer: BISON OIL & GAS II LLC		Customer Rep: Michael Magness	
Well Name: CASTOR 8-59	Well #: 19-24-12	API/UWI #: 05-123-45842-00	
Field: WILDCAT	City (SAP): RAYMER	County/Parish: WELD	State: COLORADO
Legal Description: NE SE-19-8N-59W-1533FSL-410FEL			
Contractor: ENSIGN DRLG		Rig/Platform Name/Num: ENSIGN 160	
Job BOM: 7523 7523			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA/H139013		Srvc Supervisor: Nicholas Roles	

Job

Formation Name			
Formation Depth (MD)	Top		Bottom
Form Type	BHST		
Job depth MD	13420ft	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	8.921	36			0	1930		1930
Casing		5.5	4.67	23			0	13420	0	13420
Open Hole Section			8.5				1930	13428	1930	13428

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5				Top Plug	5.5	1	HES
Float Shoe	5.5			13420	Bottom Plug	5.5	2	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	12.0 lb/gal Tuned Spacer III	Tuned Spacer III	80	bbl	12	3.16		5		
0.40 gal/bbl		MUSOL(R) A, BULK (100003696)								
34 gal/bbl		FRESH WATER								

176.58 lbm/bbl		BARITE, BULK (100003681)							
0.40 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)							
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	13.2# ElastiCemLead	ELASTICEM (TM) SYSTEM	1050	sack	13.2	1.57		8	7.54
0.20 %		HALAD(R)-344, 50 LB (100003670)							
7.54 Gal		FRESH WATER							
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	13.2# NeoCem Tail	NeoCem TM	840	sack	13.2	2.04		8	9.75
0.07 %		SCR-100 (100003749)							
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	Fresh Water	Fresh Water	297	bbl	9.25			8	
Cement Left In Pipe	Amount	46 ft	Reason				Shoe Joint		
Comment Got 15bbls cement to surface. Estimated TOT-6430'									

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	DS Pump Press <i>(psi)</i>	Comments
Event	1	Call Out	Call Out	12/12/2017	10:00:00	USER				Called out by Service Coordinator for O/L at 1800
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	12/12/2017	13:45:00	USER				Held meeting with all personnel in convoy to discuss directions and hazards associated with drive, all fit to drive.
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	12/12/2017	14:00:00	USER				Journey Management prior to departure
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	12/12/2017	16:00:00	USER				Upon arrival met with company man to discuss job details and calculations, performed hazard hunt and site assessment. Rig had 2000' casing left to run.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	12/12/2017	16:15:00	USER				Discussed rigging up hazards and procedure according to HMS.
Event	6	Other	Other	12/12/2017	17:00:00	USER				Water test- PH-5, Chlor-0, Temp-45. Cement temp-50.
Event	7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	12/12/2017	19:00:00	USER				Held safety meeting with all job associated personnel to discuss job procedure, hazards and stop work authority.
Event	8	Start Job	Start Job	12/12/2017	19:57:09	COM4	8.33	0.00	-3.00	
Event	9	Start Job	Start Job	12/12/2017	20:18:58	COM4	8.34	0.00	-4.00	T

Event	10	Test Lines	Test Lines	12/12/2017	20:23:19	USER	8.36	0.00	39.00	Pumped 5bbls fresh water to fill lines, closed manifold and performed 500psi k/o function test, proceeded to perform 5th gear stall at 1520psi, continued to bring pressure up to 5000psi. Pressure stabilized and held with no leaks
Event	11	Drop Bottom Plug	Drop Bottom Plug	12/12/2017	20:30:52	USER	8.39	0.00	-2.00	Dropped by HES supervisor, witnessed by company man.
Event	12	Pump Spacer 1	Pump Spacer 1	12/12/2017	20:32:29	COM4	8.39	0.00	-2.00	Pumped 80bbls 12# 3.16y 19.5g/s Tuned Spacer III with 35g Musol A, 35g Dual Spacer B and 10g D-Air at 5bpm 420psi.
Event	13	Check Weight	Check weight	12/12/2017	20:40:10	COM4	12.01	5.00	358.00	Weight verified with pressurized mud scales.
Event	14	Drop Bottom Plug	Drop Bottom Plug	12/12/2017	20:53:00	USER	11.80	0.00	34.00	Dropped by HES supervisor, witnessed by company man.
Event	15	Pump Lead Cement	Pump Lead Cement	12/12/2017	20:54:54	COM4	11.79	0.00	34.00	Pumped 1050sks or 294bbls 13.2# 1.57y 7.54g/s Elasticem at 8bpm 900psi.
Event	16	Check Weight	Check weight	12/12/2017	21:01:19	COM4	13.46	7.00	764.00	Weight verified with pressurized mud scales.
Event	17	Check Weight	Check weight	12/12/2017	21:08:01	COM4	13.09	7.60	854.00	Weight verified with pressurized mud scales.
Event	18	Check Weight	Check weight	12/12/2017	21:17:44	COM4	13.29	8.00	971.00	Weight verified with pressurized mud scales.
Event	19	Check Weight	Check weight	12/12/2017	21:22:36	COM4	13.20	7.80	895.00	Weight verified with pressurized mud scales.
Event	20	Pump Tail Cement	Pump Tail Cement	12/12/2017	21:40:15	COM4	13.22	7.90	927.00	Pumped 840sks or 305bbls 13.2# 2.04y 9.75g/s Neocem at 8bpm 1100psi.

Event	21	Check Weight	Check weight	12/12/2017	21:41:55	COM4	13.26	7.90	1126.00	Weight verified with pressurized mud scales.
Event	22	Shutdown	Shutdown	12/12/2017	22:23:55	USER	13.11	0.00	44.00	Shutdown, rig blew down lines and proceeded to pump 5bbls fresh water through pumps and lines to wash up.
Event	23	Drop Top Plug	Drop Top Plug	12/12/2017	22:36:15	COM4				Dropped by HES supervisor, witnessed by company man.
Event	24	Pump Displacement	Pump Displacement	12/12/2017	22:36:19	COM4				Pumped 297bbls fresh water with 20g MMCR in first 20bbls at 10bpm.
Event	25	Bump Plug	Bump Plug	12/12/2017	23:16:07	COM4				Slowed down to 2bpm at 280bbls away, final circulating pressure-1900psi, bump pressure-2400psi.
Event	26	Check Floats	Check Floats	12/12/2017	23:22:01	USER	8.36	0.00	2194.00	Released pressure and got 3bbls back to pump. Floats held.
Event	27	End Job	End Job	12/12/2017	23:24:30	COM4				Got 15bbls cement to surface. Estimated TOT-6430'
Event	28	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	12/12/2017	23:30:00	USER	8.32	0.00	-4.00	Discussed rigging down hazards and procedure according to HMS.
Event	29	Depart Location Safety Meeting	Depart Location Safety Meeting	12/13/2017	01:45:00	USER				Held meeting with all personnel in convoy to discuss directions and hazards associated with drive, all fit to drive.
Event	30	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	12/13/2017	02:00:00	USER				Pre journey management prior to departure.

3.0 Attachments

3.1 Bison Castor 8-59 #19-24-12 Production Job Chart

