

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS

Date: Monday, April 24, 2017

TC Aims 2-9-11 Production
Job Date: Friday, April 14, 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 **TC Aims 2-9-11** cement **production** 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 82 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 [Ft. Lupton]

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Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 369404		Ship To #: 3762969		Quote #:		Sales Order #: 0903963389					
Customer: EXTRACTION OIL & GAS				Customer Rep: Kalyn Holgate							
Well Name: TC AIMS		Well #: 2-9-11		API/UWI #: 05-123-43747-00							
Field: WATTENBERG		City (SAP): GREELEY		County/Parish: WELD		State: COLORADO					
Legal Description: SE NE-8-5N-66W-2574FNL-1192FEL											
Contractor: PATTERSON-UTI ENERGY				Rig/Platform Name/Num: PATTERSON341							
Job BOM: 7523											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HX38199				Srvc Supervisor: Nicholas Roles							
Job											
Formation Name											
Formation Depth (MD)		Top		Bottom							
Form Type											
BHST											
Job depth MD		20230ft		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	1587	0	1587	
Casing		5.5	4.67	23			0	20230	0	7059	
Open Hole Section			8.5				1587	20245	1587	7059	
Tools and Accessories											
Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make			
Guide Shoe	5.5				Top Plug	5.5		HES			
Float Shoe	5.5			20230	Bottom Plug	5.5		HES			
Float Collar	5.5				SSR plug set	5.5		HES			
Insert Float	5.5				Plug Container	5.5	1	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 ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	11.5 lb/gal Tuned Spacer III	Tuned Spacer III			50	bbl	11.5	3.74		6	
0.30 gal/bbl		MUSOL A, 330 GAL TOTE - (790828)									
149.34 lbm/bbl		BARITE, BULK (100003681)									
36.09 gal/bbl		FRESH WATER									
0.30 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)									

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Cementing Job Summary

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 Lead	ELASTICEM (TM) SYSTEM	3090	sack	13.2	1.57		8	7.53
7.50 Gal		FRESH WATER							
0.45 %		SCR-100 (100003749)							
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	ElastiCem Tail	ELASTICEM (TM) SYSTEM	160	sack	13.2	1.57		8	7.49
7.49 Gal		FRESH WATER							
0.80 %		HR-5, 50 LB SK (100005050)							
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	Displacement	Displacement	426.7	bbl	8.33			8	
Cement Left In Pipe		Amount	Reason		Wet shoe				
		0 ft							
Comment Got 82bbls cement back. Floats did not hold, left plug container closed in with 2000psi on pressure gage.									

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comb Pump Rate (bbl/min)	DH Density (ppg)	DS Pump Press (psi)	Comments
Event	1	Call Out	Call Out	4/13/2017	20:00:00	USER				Crew call out for o/l at 0400
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	4/13/2017	20:45:00	USER				All crew aware of hazards and directions. All fit to drive.
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	4/13/2017	21:00:00	USER				Started journey management.
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	4/13/2017	22:00:00	USER				Met with company man to discuss job details and procedure. Performed hazard hunt and site assessment. Rig had 4000' casing left to run.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	4/13/2017	22:15:00	USER				All hse present. Discussed bulk and iron placement and all red zone areas. Caution taped high pressure zones.
Event	6	Other	Other	4/14/2017	00:00:01	USER				Water Test- PH-6 Chlo-0 Temp-60 Cement temp-70
Event	7	Safety Meeting - Pre Job	Safety Meeting - Pre Job	4/14/2017	08:46:41	USER	0.00	8.52	19.00	Discussed job associated hazards, contingencies and job procedure with all job associated personel.
Event	8	Start Job	Start Job	4/14/2017	09:03:16	COM1				TD-20245', TP-20230' 5.5" 23#, FC-20225.6', TVD-7059', OH-8.5", SURF-1587' 9.625" 36#, MUD-9.3#
Event	9	Test Lines	Test Lines	4/14/2017	09:05:52	COM1	0.00	8.31	56.00	Pumped 5bbls fresh water to fill lines at 2bpm 250psi,

										shut manifold, and performed 500psi k/o function test, proceeded to bring pressure to 4800psi, held well and no leaks.
Event	10	Pump Spacer 1	Pump Spacer 1	4/14/2017	09:11:39	COM1				Pumped 50bbls of 11.5# 3.74y 23.7g/s Tuned Spacer III with 15g Musol A, 15g Dual Spacer B and 10g D-air at 6bpm 650psi.
Event	11	Pump Lead Cement	Pump Lead Cement	4/14/2017	09:21:22	COM1				Pumped 3090sks or 864bbls of 13.2# 1.57y 7.53g/s Elasticem Lead
Event	12	Check Weight	Check Weight	4/14/2017	09:25:31	COM1				Weight verified with pressurized mud scales.
Event	13	Check Weight	Check Weight	4/14/2017	09:44:31	COM1				Weight verified with pressurized mud scales.
Event	14	Check Weight	Check Weight	4/14/2017	10:12:49	USER	7.90	13.20	499.00	Weight verified with pressurized mud scales.
Event	15	Check Weight	Check Weight	4/14/2017	11:05:35	COM1	7.90	13.28	496.00	Weight verified with pressurized mud scales.
Event	16	Pump Tail Cement	Pump Tail Cement	4/14/2017	11:19:11	COM1	7.90	13.09	494.00	Pumped 160sks or 44.7bbls of 13.2# 1.5y 7.49g/s Elasticem Tail
Event	17	Shutdown	Shutdown	4/14/2017	11:28:02	COM1	0.00	14.47	65.00	Shutdown, rig blew down lines with air to pits, followed with 5bbls fresh water through pumps and lines.
Event	18	Drop Top Plug	Drop Top Plug	4/14/2017	11:35:17	COM1	0.00	8.35	25.00	Dropped by KLX tool hand, witnessed by company man and HES supervisor.
Event	19	Pump Displacement	Pump Displacement	4/14/2017	11:35:22	COM1	0.00	8.35	23.00	Pumped 426.7bbls fresh water at 10bpm 2971psi

Event	20	Displ Reached Cement	Displ Reached Cement	4/14/2017	11:39:24	COM1	9.90	8.35	824.00	
Event	21	Bump Plug	Bump Plug	4/14/2017	12:27:24	COM1	0.00	8.40	3104.00	Slowed down at 417bbls away to 5bpm. Final Circulating Pressure- 2449psi. Bump Pressure- 3000psi.
Event	22	Pressure Up Well	Pressure Up Well	4/14/2017	12:28:08	USER	1.80	8.42	3651.00	Pressured up at 2bpm to burst at 3670psi. Continued to pump at 5bpm 2205psi for 5bbl wet shoe.
Event	23	Check Floats	Check Floats	4/14/2017	12:29:32	COM1	5.00	8.41	2379.00	Released pressure on well and got back 7bbls to truck and no sign they were slowing down. Closed release line and pressure rose from 200psi to 1890psi in less than a minute.
Event	24	Other	Other	4/14/2017	12:31:34	COM1	0.00	8.43	1314.00	Pumped 7bbls back to well and pressure came up to 1930psi. Released pressure and got 4bbls back to truck and looked alot slower returns but didnt stop, proceeded to shut in well.
Event	25	Other	Other	4/14/2017	12:35:34	COM1	0.00	8.42	1710.00	Pumped the 4bbls back into well and tried on more time and pressure came up to 2250psi. Released pressure and floats were rushing back worse than previous check.
Event	26	Pressure Up Well	Pressure Up Well	4/14/2017	12:42:43	USER	2.20	8.43	1748.00	Pumped the 4bbls back into well and shut in plug container with 2000psi. Rig had a 1502 pressure gage to monitor.
Event	27	End Job	End Job	4/14/2017	12:50:00	COM1	0.00	8.39	19.00	Got 82bbls cement to

										surface.
Event	28	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	4/14/2017	13:00:00	USER	2.80	8.34	39.00	All HSE present. Discussed red zone areas and trapped pressure hazards. Watch for suspended loads and rig down procedures, including hand placement, lifting techniques, and swing radius.
Event	29	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	4/14/2017	13:30:00	USER				All HSE present and fit to drive. Aware of directions and hazards.
Event	30	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	4/14/2017	14:00:00	USER				Pre journey management prior to departure.

3.0 Attachments

3.1 Patterson 341 TC Aims 2-9-11 Production Job Chart.png

