

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS-EBUS

Rinn Valley East N17-20-11N Production

Sincerely,
Meghan Jacobs

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 **Rinn Valley East N17-20-11N** 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 60bbbls of cement 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 #: 3888634	Quote #:	Sales Order #: 0905032617							
Customer: EXTRACTION OIL & GAS		Customer Rep: Shayne Hackford								
Well Name: RINN VALLEY EAST	Well #: N17-20-11N	API/UWI #: 05-123-47176-00								
Field: WATTENBERG	City (SAP): FIRESTONE	County/Parish: WELD	State: COLORADO							
Legal Description: SE SE-18-2N-68W-198FSL-477FEL										
Contractor: PATTERSON-UTI ENERGY		Rig/Platform Name/Num: PATTERSON 346								
Job BOM: 7523 7523										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HX38199		Srv Supervisor: Nicholas Roles								
Job										
Formation Name										
Formation Depth (MD)	Top	Bottom								
Form Type	BHST									
Job depth MD	17873ft	Job Depth TVD	7350							
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	0	9.625	8.921	36		J-55	0	1658	0	1658
Casing	0	5.5	4.778	20	BTC	P-110	0	17873	0	7350
Open Hole Section			8.5				1658	17880	1658	7350
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe	5.5			17873		Top Plug	5.5		HES	
Float Shoe	5.5					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 ft3/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	3.73		6		
Stage/Plug #: 2										
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	ELASTICEM (TM) SYSTEM	2850	sack	13.2	1.57		8	7.53	

last updated on 8/6/2018 12:58:58 PM

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(v. 4.5.139)

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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/min	Total Mix Fluid Gal
3	Displacement	Displacement	396	bbl	8.33			10	
Cement Left In Pipe		Amount	0 ft		Reason			Wet Shoe	
Mix Water:pH 07		Mix Water Chloride:0 ppm			Mix Water Temperature:67 °F				
Cement Temperature:## °F °C		Plug Displaced by:8.33 lb/gal			Disp. Temperature:67 °F				
Plug Bumped?Yes		Bump Pressure:3100 psi			Floats Held?Yes				
Cement Returns:60 bbl		Returns Density:## lb/gal kg/m3			Returns Temperature:## °F °C				
Comment Got 60bbls Cement to surface.									

2.0 Real-Time Job Summary

2.1 Job Event Log

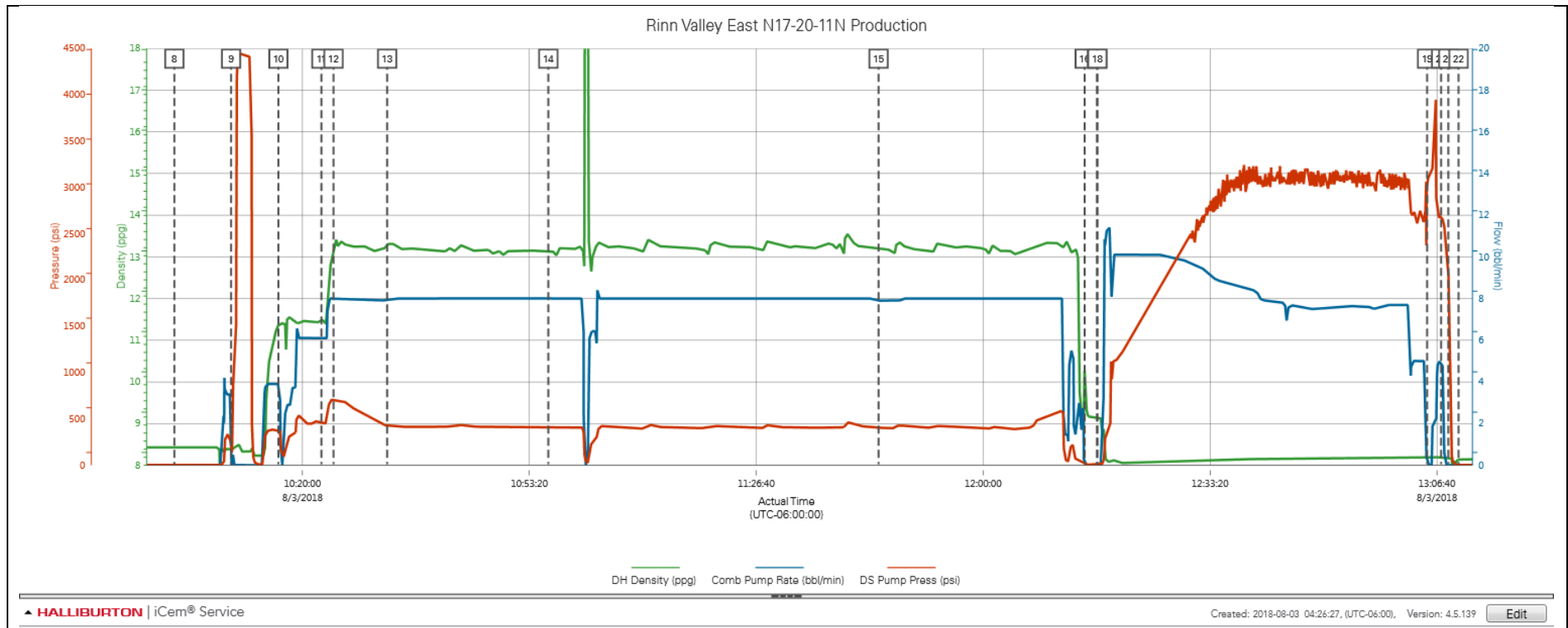
Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	DS Pump Press (psi)	Comments
Event	1	Call Out	Call Out	8/3/2018	00:00:00	USER				Called out by Service Coordinator for O/L at 0600
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	8/3/2018	03:15:00	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	8/3/2018	03:30:00	USER				Journey Management prior to departure
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	8/3/2018	04:00:00	USER				Upon arrival met with company man to discuss job details and calculations, performed hazard hunt and site assessment.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	8/3/2018	04:30:00	USER				Discussed rigging up hazards and procedure according to HMS.
Event	6	Other	Other	8/3/2018	04:45:00	USER				Water test- PH-6, Chlor-0, Temp-85.
Event	7	Safety Meeting - Pre Job	Safety Meeting - Pre Job	8/3/2018	09:30:00	USER	8.43	0.00	5.00	Held safety meeting with all job associated personnel to discuss job procedure, hazards and stop work authority.
Event	8	Start Job	Start Job	8/3/2018	10:01:10	COM4	8.43	0.00	4.00	TD-17880', OH-8.5", TP-17873' 5.5" 20#, TVD-7350', SURF-1658' 9.625" 36#, MUD 10#
Event	9	Test Lines	Test Lines	8/3/2018	10:09:31	COM4	8.38	0.00	183.00	Pumped 5bbls fresh water to fill lines at 4bpm 320psi, shut manifold, and performed 500psi k/o function test, followed with 5th gear stall at 1800psi, proceeded to bring pressure to 4500psi, held well and no leaks.
Event	10	Pump Spacer 1	Pump Spacer 1	8/3/2018	10:16:28	COM4	11.37	3.90	403.00	Pumped 50bbls of 11.5# 3.78y 23.8g/s Tuned Spacer III with 25g Musol A, 25g Dual Spacer B and 10g D-air at 6bpm 447psi.
Event	11	Check Weight	Check Weight	8/3/2018	10:22:47	COM4	11.50	6.10	465.00	Weight verified with pressurized mud scales.
Event	12	Pump Lead Cement	Pump Lead Cement	8/3/2018	10:24:33	COM4	13.16	8.00	706.00	Pumped 2850sk or 797bbls of 13.2# 1.57y 7.53g/s

Elasticem at 8bpm 470psi.

Event	13	Check Weight	Check Weight	8/3/2018	10:32:26	COM4	13.29	7.90	426.00	Weight verified with pressurized mud scales.
Event	14	Check Weight	Check Weight	8/3/2018	10:56:07	COM4	13.14	8.00	413.00	Weight verified with pressurized mud scales.
Event	15	Check Weight	Check Weight	8/3/2018	11:44:38	COM4	13.16	7.90	401.00	Weight verified with pressurized mud scales.
Event	16	Shutdown	Shutdown	8/3/2018	12:14:54	COM4	10.22	0.00	10.00	Pumped 2bbls fresh water ahead of plug to clean lines.
Event	17	Drop Top Plug	Drop Top Plug	8/3/2018	12:16:43	COM4	9.13	0.00	6.00	Dropped by KLX tool hand, witnessed by company man and HES supervisor.
Event	18	Pump Displacement	Pump Displacement	8/3/2018	12:16:47	COM4	9.13	0.00	6.00	Pumped 396bbls fresh water at 8bpm.
Event	19	Bump Plug	Bump Plug	8/3/2018	13:05:13	COM4	8.19	0.00	3125.00	Slowed down at 370bbls away to 5bpm, final circulating pressure-2700psi. Bump pressure-3150psi.
Event	20	Pressure Up Well	Pressure Up Well	8/3/2018	13:07:17	COM4	8.18	4.80	2663.00	Pressured up to burst plug at 3950psi, continued to pump 5bbls at 5bpm 2650psi.
Event	21	Check Floats	Check Floats	8/3/2018	13:08:20	USER	8.17	0.00	2081.00	Released pressure and got 3bbls back. Floats held.
Event	22	End Job	End Job	8/3/2018	13:09:50	COM4	8.15	0.00	0.00	Got 60bbls Cement to surface.
Event	23	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	8/3/2018	13:15:00	USER	8.16	10.90	273.00	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	24	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	8/3/2018	14:45:00	USER				All HSE present and fit to drive. Aware of directions and hazards.
Event	25	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	8/3/2018	15:00:00	USER				Pre journey management prior to departure.

3.0 Attachments

3.1 Rinn Valley East N17-20-11N Production – Job Chart with Events



3.2 Rinn Valley East N17-20-11N Production – Job Chart without Events

