HALLIBURTON

iCem® Service

EXTRACTION OIL & GAS-EBUS

Date: Tuesday, August 07, 2018

Rinn Valley East N17-20-13C Production

Job Date: Monday, July 23, 2018

Sincerely,

Julia Nichols

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 N17-20-13C** 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 55 barrels 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]

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Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 369404	**Ship To #:** 3888635	**Quote #:**	**Sales Order #:** 0905004655
Customer: EXTRACTION OIL & GAS		**Customer Rep:** Hans Cary	
Well Name: RINN VALLEY EAST	**Well #:** N17-20-13C		**API/UWI #:** 05-123-47177-00
Field: WATTENBERG	**City (SAP):** FIRESTONE	**County/Parish:** WELD	**State:** COLORADO
Legal Description: SE SE-18-2N-68W-201FSL-561FEL			
Contractor: PATTERSON-UTI ENERGY		**Rig/Platform Name/Num:** PATTERSON 346	
Job BOM: 7523 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	17781ft	**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	0	9.625	8.921	36		J-55	0	1602	0	1602
Casing	0	5.5	4.778	20	BTC	P-110	0	17781	0	7418
Open Hole Section			8.5				1602	17796	1602	7418

Tools and Accessories

Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make
Guide Shoe	5.5			17781		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	
149.34 lbm/bbl		BARITE, BULK (100003681)							
35 gal/bbl		FRESH WATER							
0.50 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)							
0.50 gal/bbl		MUSOL(R) A, 5 GAL PAIL (100064220)							

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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
2	ElastiCem	ELASTICEM (TM) SYSTEM	2830	sack	13.2	1.57		8	7.53
7.53 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/min	Total Mix Fluid Gal
3	Displacement	Displacement	394	bbl	8.33			8	

Cement Left In Pipe	Amount	4 ft	Reason		Shoe Joint
Mix Water:	pH 06	Mix Water Chloride:	05 ppm	Mix Water Temperature:	65°F °C
Cement Temperature:	## °F °C	Plug Displaced by:	8.33 lb/gal	Disp. Temperature:	#65°F °C
Plug Bumped?	Yes	Bump Pressure:	3280 psi MPa	Floats Held?	Yes
Cement Returns:	55 bbl m3	Returns Density:	lb/gal kg/m3	Returns Temperature:	## °F °C

Comment Got 55bbls Cement to surface.

2.0 Real-Time Job Summary

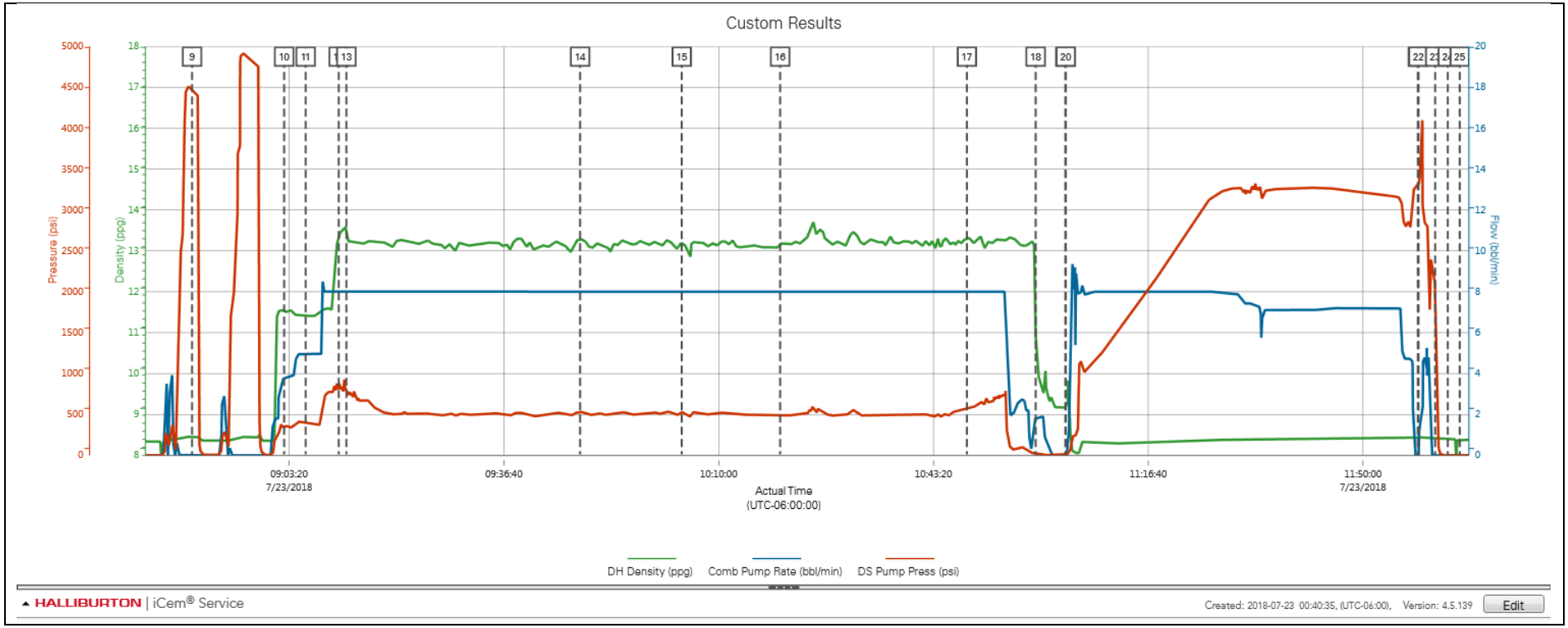
2.1 Job Event Log

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	7/22/2018	18:00:00	USER				Called out by Service Coordinator for O/L at 0030
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	7/22/2018	22:15:00	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	7/22/2018	22:30:00	USER				Journey Management prior to departure
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	7/22/2018	23:30:00	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	7/22/2018	23:45:00	USER				Discussed rigging up hazards and procedure according to HMS.
Event	6	Other	Other	7/23/2018	00:30:00	USER				Water test- PH-6, Chlor-0, Temp-85.
Event	7	Safety Meeting - Pre Job	Safety Meeting - Pre Job	7/23/2018	04:00:00	USER				Held safety meeting with all job associated personnel to discuss job procedure, hazards and stop work authority.
Event	8	Start Job	Start Job	7/23/2018	08:25:39	COM4	8.34	0.00	2.00	TD-17796', OH-8.5", TP-17781' 5.5" 20#, TVD-7418', SURF-1602' 9.625" 36#, MUD 10#
Event	9	Test Lines	Test Lines	7/23/2018	08:48:16	COM4	8.45	0.00	4476.00	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	7/23/2018	09:02:33	COM4	11.49	3.80	372.00	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 5bpm 400psi.
Event	11	Check Weight	Check Weight	7/23/2018	09:05:54	COM4	11.41	4.90	395.00	Weight verified with pressurized mud scales.
Event	12	Pump Lead Cement	Pump Lead Cement	7/23/2018	09:11:01	COM4	13.36	8.00	803.00	Pumped 2830sks or 791bbls of 13.2# 1.57y 7.53g/s Elasticem at 8bpm 498psi.

Event	13	Check Weight	Check Weight	7/23/2018	09:12:13	COM4	13.25	8.00	745.00	Weight verified with pressurized mud scales.
Event	14	Check Weight	Check Weight	7/23/2018	09:48:30	COM4	13.30	8.00	527.00	Weight verified with pressurized mud scales.
Event	15	Check Weight	Check Weight	7/23/2018	10:04:16	COM4	13.23	8.00	543.00	Weight verified with pressurized mud scales.
Event	16	Check Weight	Check Weight	7/23/2018	10:19:32	COM4	13.19	8.00	478.00	Weight verified with pressurized mud scales.
Event	17	Check Weight	Check Weight	7/23/2018	10:48:31	COM4	13.31	8.00	556.00	Weight verified with pressurized mud scales.
Event	18	Clean Lines	Clean Lines	7/23/2018	10:59:12	USER	10.85	1.80	43.00	Pumped 3bbls fresh water ahead of plug.
Event	19	Drop Top Plug	Drop Top Plug	7/23/2018	11:03:48	COM4	9.17	0.00	6.00	Dropped by KLX tool hand, witnessed by company man and HES supervisor.
Event	20	Pump Displacement	Pump Displacement	7/23/2018	11:03:52	COM4	9.17	0.00	6.00	Pumped 394bbls fresh water at 8bpm.
Event	21	Bump Plug	Bump Plug	7/23/2018	11:58:30	COM4	8.41	0.00	3309.00	Slowed down at 370bbls away to 5bpm, final circulating pressure-2800psi. Bump pressure-3280psi.
Event	22	Pressure Up Well	Pressure Up Well	7/23/2018	11:58:36	COM4	8.41	0.00	3316.00	Pressured up to burst plug at 4100psi, continued to pump 5bbls at 5bpm 2830psi.
Event	23	Check Floats	Check Floats	7/23/2018	12:01:12	USER	8.42	0.00	1945.00	Released pressure and got 3bbls back. Floats held.
Event	24	End Job	End Job	7/23/2018	12:03:09	COM4	8.40	0.00	-1.00	Got 55bbls Cement to surface.
Event	25	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	7/23/2018	12:05:00	USER	8.39	0.00	-3.00	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	26	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	7/23/2018	13:45:00	USER				All HSE present and fit to drive. Aware of directions and hazards.
Event	27	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	7/23/2018	14:00:00	USER				Pre journey managment prior to departure.

3.0 Attachments

3.1 Custom Results – Job Chart with Events



3.2 Custom Results – Job Chart without Events