

# HALLIBURTON

iCem<sup>®</sup> Service

## **EXTRACTION OIL & GAS-EBUS**

**For: Extraction**

**Rinn Valley East N17-20-3N Production**

Job Date: Tuesday, August 28, 2018

Sincerely,

**Ryan Keeran**

## Legal Notice

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### Disclaimer:

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## 1.0 Cementing Job Summary

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### 1.1 Executive Summary

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Halliburton appreciates the opportunity to perform the cementing services on the **Rinn Valley East N17-20-3N** 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 39 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**

*The Road to Excellence Starts with Safety*

<b>Sold To #:</b> 369404		<b>Ship To #:</b> 3892499		<b>Quote #:</b>		<b>Sales Order #:</b> 0905093710					
<b>Customer:</b> EXTRACTION OIL & GAS				<b>Customer Rep:</b> Manuel Parres							
<b>Well Name:</b> RINN VALLEY EAST			<b>Well #:</b> N17-20-3N			<b>API/UWI #:</b> 05-123-47318-00					
<b>Field:</b> WATTENBERG		<b>City (SAP):</b> FIRESTONE		<b>County/Parish:</b> WELD			<b>State:</b> COLORADO				
<b>Legal Description:</b> SW SE-17-2N-68W-898FSL-1771FEL											
<b>Contractor:</b>				<b>Rig/Platform Name/Num:</b> Patterson 901							
<b>Job BOM:</b> 7523 7523											
<b>Well Type:</b> HORIZONTAL OIL											
<b>Sales Person:</b> HALAMERICA/HX38199				<b>Srv Supervisor:</b> Kendall Broom - H194727							
<b>Job</b>											
<b>Formation Name</b>											
<b>Formation Depth (MD)</b>		<b>Top</b>		<b>Bottom</b>							
<b>Form Type</b>				<b>BHST</b>							
<b>Job depth MD</b>		17437ft		<b>Job Depth TVD</b>							
<b>Water Depth</b>				<b>Wk Ht Above Floor</b>							
<b>Perforation Depth (MD)</b>		<b>From</b>		<b>To</b>							
<b>Well Data</b>											
<b>Description</b>	<b>New / Used</b>	<b>Size in</b>	<b>ID in</b>	<b>Weight lbm/ft</b>	<b>Thread</b>	<b>Grade</b>	<b>Top MD ft</b>	<b>Bottom MD ft</b>	<b>Top TVD ft</b>	<b>Bottom TVD ft</b>	
Casing	0	9.625	8.921	36		J-55	0	1622	0		
Casing	0	5.5	4.778	20	BTC	P-110	0	17427	0		
Open Hole Section			8.5				1665	17437			
<b>Tools and Accessories</b>											
<b>Type</b>	<b>Size in</b>	<b>Qty</b>	<b>Make</b>	<b>Depth ft</b>		<b>Type</b>	<b>Size in</b>	<b>Qty</b>	<b>Make</b>		
Guide Shoe	5.5					Top Plug	5.5		HES		
Float Shoe	5.5			17437		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		
<b>Fluid Data</b>											
<b>Stage/Plug #: 1</b>											
<b>Fluid #</b>	<b>Stage Type</b>	<b>Fluid Name</b>			<b>Qty</b>	<b>Qty UoM</b>	<b>Mixing Density lbm/gal</b>	<b>Yield ft3/sack</b>	<b>Mix Fluid Gal</b>	<b>Rate bbl/min</b>	<b>Total Mix Fluid Gal</b>
1	11.5 lb/gal Tuned Spacer III	Tuned Spacer III			50	bbl	11.5	3.73		6	
0.50 gal/bbl		<b>MUSOL(R) A, 5 GAL PAIL (100064220)</b>									
149.34 lbm/bbl		<b>BARITE, BULK (100003681)</b>									

35 gal/bbl		<b>FRESH WATER</b>							
0.50 gal/bbl		<b>DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)</b>							
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	2725	sack	13.2	1.57		8	7.53
0.45 %		<b>SCR-100 (100003749)</b>							
7.53 Gal		<b>FRESH WATER</b>							
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	386	bbl	8.33				
Cement Left In Pipe		Amount	Reason			Shoe Joint			
Mix Water:		pH 7	Mix Water Chloride: 0 ppm			Mix Water Temperature:		72°F °C	
Plug Bumped?		Yes				Floats Held?		Yes	
Cement Returns:		39 bbl							
<b>Comment</b> Got 39 bbl cement back to surface. Burst the shoe and pumped a 5 bbl wet shoe. Checked floats and got 3 bbl back. Floats held.									

## 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	8/28/2018	06:00:00	USER				Called crew out to be on location at 1200
Event	2	Depart Shop for Location	Depart Shop for Location	8/28/2018	10:00:00	USER				Held a safety meeting before leaving for location
Event	3	Arrive At Loc	Arrive At Loc	8/28/2018	11:00:00	USER				Arrive at location and met with the company man
Event	4	Rig-up Lines	Rig-up Lines	8/28/2018	11:30:00	USER				Held a hazard hunt before spotting in trucks and rigging up
Event	5	Safety Meeting	Safety Meeting	8/28/2018	15:30:00	USER	0.00	8.21	-30.00	Held a safety meeting with the rig to discuss the operation and safety
Event	6	Start Job	Start Job	8/28/2018	16:14:58	COM5	0.00	8.29	-13.00	Filled lines with 2 bbls water
Event	7	Test Lines	Test Lines	8/28/2018	16:16:45	COM5	0.00	7.90	141.00	Test lines to 4700 psi, with a 500 psi kick out, and the 5th gear stall.
Event	8	Pump Spacer 1	Pump Spacer 1	8/28/2018	16:25:25	COM5	0.00	8.04	30.00	Pumped 50 bbls Tuned Spacer, 11.5#, 3.73 yield, 23.4 gal/sks. Pumped at 4 bpm and 290 psi. Musol and surfactant were added on the fly.
Event	9	Pump Cement	Pump Cement	8/28/2018	16:38:20	COM5	6.00	12.37	489.00	Pumped 761 bbls Elasticem. 2725 sks, 13.2#, 1.57 yels, 7.53 gal/sks. Pumped at 8 bpm and 574 psi.

Event	10	Check Weight	Check Weight	8/28/2018	16:40:06	COM5	6.00	13.21	494.00	Verified weight with the pressurized scale
Event	11	Check Weight	Check Weight	8/28/2018	16:58:29	COM5	7.10	13.29	513.00	Verified weight with the pressurized scale
Event	12	Check Weight	Check Weight	8/28/2018	17:11:59	COM5	8.00	13.16	586.00	Verified weight with the pressurized scales
Event	13	Check Weight	Check Weight	8/28/2018	17:47:16	COM5	8.10	13.18	597.00	Verified weight with the pressurized scale
Event	14	Check Weight	Check Weight	8/28/2018	18:08:11	COM5	6.50	13.21	467.00	Verified weight with the pressurized scale
Event	15	Start Job	Start Job	8/28/2018	18:15:20	COM5	0.00	15.77	-41.00	Hit the flecs button to shut it off.
Event	16	Check Weight	Check Weight	8/28/2018	18:19:33	COM5	5.60	13.14	201.00	Verified weight with the pressurized scale
Event	17	Shutdown	Shutdown	8/28/2018	18:32:00	COM5	0.00	13.63	61.00	
Event	18	Drop Top Plug	Drop Top Plug	8/28/2018	18:34:59	COM5	0.90	13.51	-31.00	KLX dropped the plug witnessed by the company man
Event	19	Pump Displacement	Pump Displacement	8/28/2018	18:35:02	COM5	0.90	13.34	-24.00	Pumped 386 bbls water displacement. Pumped at 10-4 bpm. Got 39 bbls cement back to surface.
Event	20	Bump Plug	Bump Plug	8/28/2018	19:28:05	COM5	0.00	8.68	2455.00	Bumped the plug and kicked out at 2748 psi. Pressured up the well and burst the shoe at 3605 psi. Pumped 5 bbl wet shoe.
Event	21	End Job	End Job	8/28/2018	19:35:14	COM5	0.00	0.47	-21.00	
Event	22	Rig Down Lines	Rig Down Lines	8/28/2018	19:45:00	USER	1.90	8.11	-2.00	Held a safety meeting before rigging down lines
Event	23	Depart Location	Depart Location	8/28/2018	21:00:00	USER				Held a safety huddle before leaving location



## 3.0 Job Charts

### 3.1 Job Chart

