

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS-EBUS

For: Hans Cary

Date: Friday, September 07, 2018

Rinn Vally East N17-20-15C

Job Date: Wednesday, August 22, 2018

Sincerely,

Nick Roles and Crew

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 cement 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 50 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

Sold To #: 369404		Ship To #: 3888576		Quote #:		Sales Order #: 0905079237				
Customer: EXTRACTION OIL & GAS				Customer Rep: Hans Cary						
Well Name: RINN VALLEY EAST			Well #: N17-20-15C		API/UWI #: 05-123-47175-00					
Field: WATTENBERG		City (SAP): FIRESTONE		County/Parish: WELD		State: COLORADO				
Legal Description: SE SE-18-2N-68W-202FSL-589FEL										
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		17551ft		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	1613	0	1613
Casing	0	5.5	4.778	20	BTC	P-110	0	17551	0	7528
Open Hole Section			8.5				1613	17565	1613	7528
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe	5.5			17551		Top Plug	5.5	1	KLX	
Float Shoe	5.5					Bottom Plug	5.5		HES	
Float Collar	5.5			17546		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		5		
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)							
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
2	ElastiCem	ELASTICEM (TM) SYSTEM	2800	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 ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
3	Displacement	Displacement	389	bbl	8.33			8	
Cement Left In Pipe		Amount	0 ft		Reason			Wet Shoe	
Mix Water:		pH 06	Mix Water Chloride:		00ppm		Mix Water Temperature:		67 °F °C
Cement Temperature:		## °F °C	Plug Displaced by:		8.33 lb/gal		Disp. Temperature:		67 °F °C
Plug Bumped?		Yes	Bump Pressure:		3300 psi MPa		Floats Held?		Yes
Cement Returns:		50bbl	Returns Density:		## lb/gal kg/m ³		Returns Temperature:		## °F °C
Comment Got 50bbls 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)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	Call Out	8/21/2018	19:00:00	USER					Called out by Service Coordinator for O/L at 0100
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	8/21/2018	21:45:00	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	8/21/2018	22:00:00	USER					Journey Management prior to departure
Event	4	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	8/21/2018	22:45:00	USER					Discussed rigging up hazards and procedure according to HMS.
Event	5	Arrive at Location from Service Center	Arrive at Location from Service Center	8/21/2018	23:00:00	USER					Upon arrival met with company man to discuss job details and calculations, performed hazard hunt and site assessment.
Event	6	Other	Other	8/22/2018	01:00:00	USER					Water test- PH-6, Chlor-0, Temp-65.
Event	7	Safety Meeting - Pre Job	Safety Meeting - Pre Job	8/22/2018	02:45:00	USER	8.40	0.00	-2.00	0.00	Held safety meeting with all job associated personnel to discuss job procedure, hazards and stop work authority.
Event	8	Start Job	Start Job	8/22/2018	03:05:22	COM4	8.41	0.00	-2.00	0.00	TD-17565', TP-17551' 5.5" 20#, WSSub-17546', TVD-7528', OH-8.5", SURF-1613' 9.625" 36#, MUD-10.2#
Event	9	Test Lines	Test Lines	8/22/2018	03:11:53	COM4	8.50	0.00	79.00	4.40	Pumped 5bbls fresh water

											to fill lines at 3bpm 249psi, shut manifold, and performed 500psi k/o function test, followed with 5th gear stall at 1220psi, proceeded to bring pressure to 4500psi, held well and no leaks.
Event	10	Pump Spacer 1	Pump Spacer 1	8/22/2018	03:16:33	COM4	8.48	1.40	19.00	0.00	Pumped 50bbbls of 11.5# 3.74y 23.7g/s Tuned Spacer III with 25g Musol A, 25g Dual Spacer B and 10g D-air at 5bpm 550psi.
Event	11	Pump Lead Cement	Pump Lead Cement	8/22/2018	03:27:26	COM4	13.56	5.50	592.00	50.10	Pumped 2800sks or 783bbbls of 13.2# 1.57y 7.53g/s Elasticem at 8bpm 645psi.
Event	12	Check Weight	Check Weight	8/22/2018	03:28:39	COM4	13.80	5.50	579.00	6.70	Weight verified with pressurized mud scales.
Event	13	Check Weight	Check Weight	8/22/2018	03:45:27	COM4	13.21	6.60	477.00	99.80	Weight verified with pressurized mud scales.
Event	14	Shutdown	Shutdown	8/22/2018	04:07:26	COM4	13.11	4.40	203.00	247.50	Pump was cavitating badly and after attempts of trying to get to level out we shut down to try to reprime pumps into displacement tank.
Event	15	Other	Other	8/22/2018	04:09:51	COM4	13.40	0.00	40.00	259.40	Began cement down hole
Event	16	Standby - Other - see comments	Standby - Other - see comments	8/22/2018	04:21:23	USER	12.98	6.40	439.00	335.90	cement was packing off and needed to get back to weight.
Event	17	Standby - Other - see comments	Standby - Other - see comments	8/22/2018	04:55:17	USER	13.64	5.70	497.00	556.90	cement was packing off and needed to get back to weight.
Event	18	Check Weight	Check Weight	8/22/2018	05:17:11	COM4	13.05	7.60	664.00	704.90	Weight verified with pressurized mud scales.

Event	19	Drop Top Plug	Drop Top Plug	8/22/2018	05:41:49	COM4	7.99	0.00	3.00	872.20	Dropped by KLX tool hand, witnessed by company man and HES supervisor.
Event	20	Pump Displacement	Pump Displacement	8/22/2018	05:41:58	COM4	7.99	0.00	3.00	0.00	Pumped 389bbbls fresh water at 8bpm.
Event	21	Bump Plug	Bump Plug	8/22/2018	06:32:43	COM4	8.08	0.00	3331.00	391.50	Slowed down at 370bbbls away to 5bpm, final circulating pressure-2800psi. Bump pressure-3300psi
Event	22	Pressure Up Well	Pressure Up Well	8/22/2018	06:33:29	COM4	8.08	0.00	3350.00	391.50	Pressured up well at 2bpm to sheer at 4200psi, followed with 5bbbls fresh water at 4bpm 2867psi.
Event	23	Check Floats	Check Floats	8/22/2018	06:36:13	USER	8.04	0.00	2300.00	397.80	Released pressure and got 3bbbls back. Floats held.
Event	24	End Job	End Job	8/22/2018	06:37:38	COM4	8.01	0.00	-5.00	0.00	Got 50bbbls cement to surface.
Event	25	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	8/22/2018	06:40:00	USER	8.01	0.00	-5.00	0.00	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	8/22/2018	08:15:00	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	8/22/2018	08:45:00	USER					Pre journey management prior to departure.

3.0 Attachments

3.1 Rinn Vally East N17-20-15C-Custom Results.png

