

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS-EBUS

For: Shayne Hackford

Date: Thursday, August 30, 2018

Rinn Valley East N17-20-10C

Job Date: Friday, August 10, 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 #: 3888540	Quote #:	Sales Order #: 0905048777
Customer: EXTRACTION OIL & GAS		Customer Rep: Shayne Hackford	
Well Name: RINN VALLEY EAST		Well #: N17-20-10C	API/UWI #: 05-123-47179-00
Field: WATTENBERG	City (SAP): FIRESTONE	County/Parish: WELD	State: COLORADO
Legal Description: SE SE-18-2N-68W-197FSL-499FEL			
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	18130ft		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	1654	0	1654
Casing	0	5.5	4.778	20	BTC	P-110	0	18130	0	7520
Open Hole Section			8.5				1654	18145	1654	7520

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5			18130	Top Plug	5.5	1	KLX
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		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 ft3/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal	
2	ElastiCem	ELASTICEM (TM) SYSTEM	2875	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	402	bbl	8.33			10		
Cement Left In Pipe	Amount	0 ft			Reason			Wet Shoe		
Mix Water:	pH 06	Mix Water Chloride:	0ppm		Mix Water Temperature:			70 °F		
Cement Temperature:	## °F	Plug Displaced by:	8.33lb/gal		Disp. Temperature:			70 °F		
Plug Bumped?	Yes	Bump Pressure:	psi		Floats Held?			Yes		
Cement Returns:	50 bbl	Returns Density:	## lb/gal kg/m3		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 <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	DS Pump Press <i>(psi)</i>	Pump Stg Tot <i>(bbl)</i>	Comments
Event	1	Call Out	Call Out	8/10/2018	01:00:00	USER					Called out by Service Coordinator for O/L at 0630
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	8/10/2018	03:00:00	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	8/10/2018	03:30:00	USER					Journey Management prior to departure
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	8/10/2018	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	8/10/2018	10:00:00	USER					Discussed rigging up hazards and procedure according to HMS.
Event	6	Other	Other	8/10/2018	11:00:00	USER					Water test- PH-6, Chlor-0, Temp-70.
Event	7	Safety Meeting - Pre Job	Safety Meeting - Pre Job	8/10/2018	14:45:00	USER	8.27	0.00	-2.00	16.80	Held safety meeting with all job associated personnel to discuss job procedure, hazards and stop work authority.
Event	8	Start Job	Start Job	8/10/2018	15:08:03	COM4	8.27	0.00	-2.00	0.00	TD-18145', TP-18130' 5.5" 20#, WSSub-18125', TVD-7520', OH-8.5", SURF-1654' 9.625" 36#, MUD-10.3#
Event	9	Test Lines	Test Lines	8/10/2018	15:26:17	COM4	8.41	0.00	127.00	3.70	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	8/10/2018	15:31:58	COM4	12.05	4.00	307.00	5.60	Pumped 50bbls 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 Cement	Pump Cement	8/10/2018	15:41:14	COM4	13.10	5.10	272.00	44.60	Pumped 2875sks or 804bbls of 13.2# 1.57y 7.53g/s Elasticem at 8bpm 355psi.
Event	12	Check Weight	Check Weight	8/10/2018	15:43:31	COM4	13.56	6.10	372.00	13.60	Weight verified with pressurized mud scales.
Event	13	Check Weight	Check Weight	8/10/2018	16:25:31	COM4	13.07	8.10	324.00	349.30	Weight verified with pressurized mud scales.
Event	14	Check Weight	Check Weight	8/10/2018	17:19:37	COM4	13.23	8.10	338.00	785.30	Weight verified with pressurized mud scales.
Event	15	Shutdown	Shutdown	8/10/2018	17:35:45	COM4	8.79	0.00	-6.00	886.30	Pumped 3bbls fresh water after cement, before plug.
Event	16	Drop Top Plug	Drop Top Plug	8/10/2018	17:35:49	COM4	8.78	0.00	-6.00	886.30	Dropped by KLX tool hand, witnessed by company man and HES supervisor.
Event	17	Pump Displacement	Pump Displacement	8/10/2018	17:35:54	COM4	8.78	0.00	-6.00	0.00	Pumped 402bbls fresh water at 10bpm.
Event	18	Bump Plug	Bump Plug	8/10/2018	18:25:05	COM4	8.34	0.00	3267.00	405.10	Slowed down at 380bbls away to 5bpm, final circulating pressure-2700psi. Bump pressure-3900psi
Event	19	Pressure Up Well	Pressure Up Well	8/10/2018	18:27:38	COM4	8.33	0.00	2251.00	411.40	Pressured up well at 2bpm

											to shear at 3900psi, followed with 5bbls fresh water at 5bpm 2720psi.
Event	20	Check Floats	Check Floats	8/10/2018	18:27:45	USER	8.34	0.00	2212.00	411.40	Released pressure and got 3bbls back. Floats held.
Event	21	End Job	End Job	8/10/2018	18:29:18	COM4	8.36	0.00	-6.00	0.00	Got 50bbls cement to surface.
Event	22	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	8/10/2018	18:45:00	USER	8.39	0.00	-2.00	24.40	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	23	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	8/10/2018	19:45:00	USER					All HSE present and fit to drive. Aware of directions and hazards.
Event	24	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	8/10/2018	20:00:00	USER					Pre journey management prior to departure.

3.0 Attachments

3.1 Rinn Valley East N17-20-10C-Custom Results.png

