

HALLIBURTON

iCem[®] Service

FIFTH CREEK ENERGY

Date: Wednesday, June 21, 2017

Critter Creek 562-1527H Production

Job Date: Sunday, June 18, 2017

Sincerely,
Bryce Hinsch

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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Critter Creek 562-1527H** 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.

No spacer or cement returns were seen at 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]

Sold To #: 375970		Ship To #: 3708478		Quote #: 0022303983		Sales Order #: 0904028371				
Customer: FIFTH CREEK ENERGY OPERATING				Customer Rep: Craig Jones/Don Shambles						
Well Name: CRITTER CREEK			Well #: 562-1527H		API/UWI #: 05-123-42507-00					
Field: HEREFORD		City (SAP): KEOTA		County/Parish: WELD		State: COLORADO				
Legal Description: SW SE-15-11N-63W-650FSL-2187FEL										
Contractor: CADE DRLG				Rig/Platform Name/Num: CADE 23						
Job BOM: 7523 7523										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HX38199				Srv Supervisor: Bryan Kraft						
Job										
Formation Name										
Formation Depth (MD)		Top		Bottom						
Form Type					BHST					
Job depth MD		17876ft			Job Depth TVD	7950ft				
Water Depth					Wk Ht Above Floor	15ft				
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		9.625	8.921	36		J-55	0	1525	0	1525
Casing		5.5	4.892	17		HCP110	0	17876	0	7950
Open Hole Section			8.5				1525	17882	1525	7950
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe						Top Plug	5.5	1	WF	
Float Shoe	5.5	1	WF	17876		Bottom Plug				
Float Collar	5.5	1	WF	17828		SSR plug set				
Insert Float						Plug Container	5.5	1	WF	
Stage Tool						Centralizers				

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	Spacer	TUNED SPACER III	40	bbl	11.5	3.78	23.7	3	1408
147.42 lbm/bbl		BARITE, BULK (100003681)							
36.09 gal/bbl		FRESH WATER							
0.50 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)							
0.50 gal/bbl		MUSOL A, 330 GAL TOTE - (790828)							
0.25 gal/bbl		D-AIR , 5 GAL PAIL (101004777)							
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	Lead Cement	ELASTICEM (TM) SYSTEM	1080	sack	13.2	1.57	7.54	8	8143
7.54 Gal		FRESH WATER							
0.35 %		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	Tail Cement	NeoCem TM	1310	sack	13.2	2.04	9.75	8	12773
0.1250 lbm		POLY-E-FLAKE (101216940)							
9.71 Gal		FRESH WATER							
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
4	Displacement	MMCR & FRESH WATER	40	bbl	8.33			10	1680

0.50 gal/bbl		MICRO MATRIX CEMENT RETARDER, 5 GAL PAIL (100003781)							
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
5	Displacement	FRESH WATER	374	bbl	8.33			10	15708
Cement Left In Pipe		Amount	48 ft		Reason			Shoe Joint	
Mix Water:		pH 6.5	Mix Water Chloride:		<100 ppm		Mix Water Temperature:		55 °F
Cement Temperature:		N/A	Plug Displaced by:		8.3 lb/gal Fresh Water		Disp. Temperature:		55 °F
Plug Bumped?		Yes	Bump Pressure:		2150 psi		Floats Held?		Yes
Cement Returns:		0 bbl	Returns Density:		N/A		Returns Temperature:		N/A
Comment Plug bumped @ calculated displacement, floats held, 4 BBLS back to the truck, 0 BBLS of spacer or cement returned to surface. A slight interface of water and OBM at the end of displacement, but no definitive spacer.									

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	DH Density (1) (ppg)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	Call Out	6/17/2017	15:00:00	USER				CREW CALLED OUT AT 15:00 6/17/2017, REQUESTED ON LOCATION 00:00 6/18/2017. CREW PICKED UP CEMENT, CHEMICALS (20 GAL MUSOL A, 20 GAL DUAL SPACER B, 10 GAL D-AIR, 20 GAL MMCR, 7 LBS SCR-100), 100 LBS OF SUGAR, MANIFOLD AND PLUG CONTAINER FROM FORT LUPTON, CO. BULK 660: 11071589/10025030, PUMP ELITE: 11644701/11645460.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	6/17/2017	20:20:00	USER				DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.
Event	3	Crew Leave Yard	Crew Leave Yard	6/17/2017	20:30:00	USER				STARTED JOURNEY MANAGEMENT.
Event	4	Arrive at Location from Service Center	Arrive at Location	6/17/2017	22:30:00	USER				END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING: 36# 9.625" @ 1525', CASING: 17# 5.5" HCP110 @ 17975.49', 47.93' SHOE JOINT, 8.5" OPEN HOLE, TVD @ 7950', 9.4 PPG WELL FLUID, FRESH WATER DISPLACEMENT. CASING LANDED @ 00:00

										6/18/2017.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	6/17/2017	22:45:00	USER				HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	6/17/2017	23:00:00	USER				CREW STAGED EQUIPMENT AND RIGGED UP BULK, IRON, AND WATER HOSES TO PERFORM JOB.
Event	7	Safety Meeting - Pre Job	Safety Meeting - Pre Job	6/18/2017	07:15:00	USER				MEETING WITH HALLIBURTON AND RIG PERSONNEL. COMMUNICATED POTENTIAL SAFETY HAZARDS AND JOB DETAILS.
Event	8	Start Job	Start Job	6/18/2017	07:30:59	COM5		0.44	0.10	BEGIN RECORDING JOB DATA.
Event	9	Pressure Test	Pressure Test	6/18/2017	07:35:51	USER				PRESSURE TESTED IRON TO 5000 PSI. KICKOUTS SET @ 500 PSI, KICKED OUT @ 1300 PSI, 5TH GEAR STALL OUT @ 1800 PSI.
Event	10	Pump Spacer	Pump Tuned Spacer @ 11.5 ppg	6/18/2017	07:54:18	USER		11.60	3.10	PUMP 40 BBLS OF TUNED SPACER @ 11.5 LB/GAL, ADDED 20 GAL MUSOL A, 20 GAL DUAL SPACER B, 10 GAL D-AIR, DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	11	Pump Lead Cement	Pump Lead Cement @ 13.2 ppg	6/18/2017	08:09:59	COM5		13.48	2.20	PUMP 1080 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.57 YIELD, 7.54 GAL/SK, 302 BBLS, TOL @ SURFACE', ADDED 7 LBS SCR-100 TO THE FIRST 80 SKS OF LEAD FROM THE BULK TRUCK,

									DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	12	Pump Tail Cement	Pump Tail Cement @ 13.2 ppg	6/18/2017	08:54:32	COM5	13.19	7.30	PUMP 1310 SKS OF NEOCERAM @ 13.2 LB/GAL, 2.04 YIELD, 9.75 GAL/SK, 476 BBLs, TOT @ 6236', DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	13	Shutdown	Shutdown	6/18/2017	09:56:33	COM5	1.43	475.50	SHUTDOWN TO WASH PUMPS/LINES AND DROP TOP PLUG.
Event	14	Clean Lines	Clean Lines	6/18/2017	09:58:07	COM5	-0.06	475.50	WASH PUMPS AND LINES CLEAN OF CEMENT.
Event	15	Drop Top Plug	Drop Top Plug	6/18/2017	10:05:24	COM5	8.07	489.40	PLUG LEFT CONTAINER, VERIFIED BY WEATHERFORD TOOL HAND.
Event	16	Pump Displacement	Pump Fresh Water Displacement	6/18/2017	10:06:07	COM5	7.96	0.20	BEGIN CALCULATED DISPLACEMENT OF 413 BBLs WITH FRESH WATER.
Event	17	Bump Plug	Bump Plug	6/18/2017	10:52:14	COM5	8.40	422.40	PLUG BUMPED AT CALCULATED DISPLACEMENT. PRESSURED 500 PSI OVER FINAL CIRCULATING PRESSURE OF 2150 PSI. DID NOT SEE ANY SPACER TO SURFACE. THERE WAS A SLIGHT INTERFACE OF WATER AND OBM AT THE END OF DISPLACEMENT.
Event	18	Shutdown	Shutdown	6/18/2017	10:52:27	USER	8.42	423.10	SHUTDOWN FOR 5 MINUTES @ 2750 PSI.
Event	19	Check Floats	Check Floats	6/18/2017	10:58:59	USER	8.46	423.10	RELEASED PRESSURE, FLOATS HELD, 4 BBLs BACK.
Event	20	End Job	End Job	6/18/2017	11:01:39	COM5			STOP RECORDING JOB DATA.

Event	21	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	6/18/2017	11:05:00	USER	8.41	6.30	DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event	22	Rig-Down Completed	Rig-Down Completed	6/18/2017	12:00:00	USER			ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL, AND LOCATION WAS CLEAN.
Event	23	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	6/18/2017	12:15:00	USER			DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW.
Event	24	Depart Location	Depart Location	6/18/2017	12:30:00	USER			THANK YOU FOR USING HALLIBURTON - BRYAN KRAFT AND CREW.

3.0 Attachments

3.1 Fifth Creek Production Critter Creek 562-1527H Job Chart

