

HALLIBURTON

iCem[®] Service

HIGHLANDS NATURAL RESOURCES

Wildhorse 5-64 15-16-1BHZ SURFACE

Job Date: Sunday, August 13, 2017

Sincerely,

Bryan Kraft

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The Road to Excellence Starts with Safety

Sold To #: 378724		Ship To #: 3791375		Quote #: 0022337418		Sales Order #: 0904216279					
Customer: HIGHLANDS NATURAL RESOURCES				Customer Rep: Stacy Wimmer							
Well Name: WILDHORSE			Well #: 5-64 15-16-1BHZ			API/UWI #: 05-005-07267-00					
Field: WILDCAT		City (SAP): AURORA		County/Parish: ARAPAHOE		State: COLORADO					
Legal Description: NE SE-15-5S-64W-2460FSL-440FEL											
Contractor:				Rig/Platform Name/Num: True 33							
Job BOM: 7521 7521											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HB41307				Srvc Supervisor: Bryan Kraft							
Job											
Formation Name											
Formation Depth (MD)		Top		Bottom							
Form Type				BHST							
Job depth MD		2180ft		Job Depth TVD		2180ft					
Water Depth				Wk Ht Above Floor		8ft					
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	LTC	J-55	0	2180	0	2180	
Open Hole Section			13.5				0	2185	0	2185	
Tools and Accessories											
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make		
Guide Shoe						Top Plug	9.625	1	HES		
Float Shoe	9.625	1	HES	2179.47		Bottom Plug					
Float Collar	9.625	1	HES	2134.05'		SSR plug set					
Insert Float						Plug Container	9.625	1	HES		
Stage Tool						Centralizers	9.625	25	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	Spacer	FRESH WATER			10	bbl	8.33			3	420

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	Spacer	RED DYED FRESH WATER	10	bbl	8.33			3	420

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	Lead Cement	SWIFTCЕМ (TM) SYSTEM	435	sack	12.0	2.48	14.41	8	6269
14.41 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	Tail Cement	SWIFTCЕМ (TM) SYSTEM	565	sack	13.5	1.763	9.02	7	5097
9.01 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
5	Displacement	FRESH WATER	165	bbl	8.33			7	6930

[illegible]

Cement Left In Pipe	Amount	45 ft	Reason	Shoe Joint
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Mix Water: pH 6.0	Mix Water Chloride: <100 ppm	Mix Water Temperature: 55 °F
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Cement Temperature:	N/A	Plug Displaced by:	8.3 lb/gal Fresh Water	Disp. Temperature:	55 °F
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Plug Bumped?	Yes	Bump Pressure:	610 psi	Floats Held?	Yes
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Cement Returns:	170 bbls	Returns Density:	N/A	Returns Temperature:	N/A
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Comment Plug bumped @ 157 BBLs into displacement @ 610 PSI, shutdown @ 850 PSI. The floats held and received 1 BBL back to the truck. Cement returned to surface @ 182 BBLs into tail cement. Total of 170 BBLs of cement returned to surface.

1.0 Real-Time Job Summary

1.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Downhole Density (ppg)	Combined Pump Rate (bbl/min)	Driv-Side Pump Pressure (psi)	Pass-Side Pump Pressure (psi)	Comments
Event	7	Test Lines	Test Lines	8/13/2017	20:38:02	RTD Import	8.51	0.00	1721.91	1735.54	PRESSURE TEST LINES TO 2500 PSI.
Event	12	Pump Spacer 1	Pump Spacer 1*	8/13/2017	20:41:53	RTD Import	8.49	0.00	-8.23	-15.43	PUMP 10 BBLS FRESH WATER
Event	13	Pump Spacer 2	Pump Spacer2*	8/13/2017	20:45:34	RTD Import	8.50	3.10	34.38	26.08	PUMP 10 BBLS WATER WITH 2 LBS RED DYE ADDED AS TRACER
Event	47	Pump Lead Cement	Pump Lead Cement	8/13/2017	20:57:27	USER	11.87	2.47	21.12	15.70	PUMP 192 BBLS (435 SKS) SWIFTCM MIXED AT 12 PPG USING SUPPLIED WATER. DENSITY VERIFIED BY SCALE
Event	1078	Pump Tail Cement	Pump Tail Cement*	8/13/2017	21:25:52	RTD Import	13.40	8.95	202.00	182.68	PUMP 177 BBLS (565 SKS) SWIFTCM MIXED AT 13 PPG USING SUPPLIED WATER. DENSITY VERIFIED BY SCALE
Event	1220	Mud Cup Sample	Mud Cup Sample Pulled	8/13/2017	21:29:29	RTD Import	13.40	8.08	160.33	170.42	Mud Cup Sample Pulled
Event	2219	Shutdown	Shutdown	8/13/2017	21:55:26	USER	13.60	3.80	63.74	36.46	
Event	2281	Drop Top Plug	Drop Top Plug	8/13/2017	21:59:17	RTD Import	14.73	0.00	16.39	-3.17	Drop Top Plug
Event	2282	Pump Displacement	Pump Displacement*	8/13/2017	21:59:23	RTD Import	14.73	0.00	14.49	-4.11	DISPLACE USING 157 BBLS WATER. APPROX 170 BBLS CEMENT TO SURFACE.
Event	2295	Bump Plug	Bump Plug	8/13/2017	22:35:19	RTD Import	8.39	0.00	862.05	857.22	PLUG LANDED AT 610 PSI AND PRESSURE BROUGHT TO 850 PSI AND HELD.

Event	2297	Check Floats	Check Floats	8/13/2017	22:40:10	USER	8.38	0.00	820.38	817.60	FLOATS HELD. 1 BBL BACK TO TRUCK.
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2.0 Job Chart

2.1 Job Chart

