

HALLIBURTON

iCem[®] Service

GREAT WESTERN OPERATING CO LLC-EBUS

RAINDANCE FC 23-249HN

Production Casing

Job Date: Saturday, September 11, 2021

API: 05-123-51582

Sincerely,

KYLE BATH

Legal Notice

Disclaimer:

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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the Raindance FC 23-249HN production casing. 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 76 bbl. of spacer 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 #: 346459		Ship To #: 9081071		Quote #: 0022871852		Sales Order #: 0907368198				
Customer: GREAT WESTERN OPERATING CO LLC-EBUS				Customer Rep: Great Western Rep						
Well Name: RAINDANCE FC 23-249HN,WELD			Well #: 9081071			API/UWI #:				
Field:		City (SAP): WINDSOR		County/Parish: Weld			State: COLORADO			
Legal Description:										
Contractor: PRECISION DRLG					Rig/Platform Name/Num: PRECISION 462					
Job BOM: 7523										
Well Type: OIL & GAS WELL										
Sales Person: HALAMERICA\HB41307					Srvc Supervisor: Kyle Bath					
Job										
Job depth MD		20928ft			Job Depth TVD		5982ft			
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	8.835	40			0	2053		
Casing		5.5	4.778	20		HCP110	0	20928	0	5982
Open Hole Section			8.5				2053	20928		5982
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Float Shoe	5.5	1	Citadel	20928		Top Plug	5.5	1	Citadel	
						Bottom Plug	5.5	1	Citadel	
						Centralizers	5.5	147	OMD	

147 Centralizers: 2031.85, 2074.62, 2118.04, 2161.45, 2204.86, 2248.28, 2291.71, 2335.21, 2378.06, 2421.57, 2464.98, 2508.48, 2551.87, 2595.28, 2638.68, 2682.17, 2727.38, 2772.57, 2817.8, 2861.22, 2904.61, 2948.05, 2993.02, 3038.27, 3083.49, 3121.68, 3164.04, 3207.44, 3250.86, 3294.38, 3335.76, 3379.18, 3421.96, 3464.35, 3507.89, 3551.29, 3594.69, 3638.29, 3680.77, 3724.28, 3764.5, 3807.92, 3850.86, 3894.26, 3937.85, 3981.32, 4023.82, 4067.38, 4110.51, 4154.01, 4197.36, 4240.7, 4281.38, 4324.78, 4368.37, 4411.85, 4453.07, 4496.59, 4540.08, 4583.57, 4627.11, 4670.55, 4714.09, 4757.29, 4800.71, 4844.22, 4887.73, 4931.19, 4974.67, 5018.03, 5061.57, 5105.08, 5148.39, 5191.91, 5235.23, 5278.68, 5322.38, 5365.6, 5409.06, 5452.59, 5496.01, 5539.66, 5582.46, 5625.86, 5669.39, 5713.08, 5753.83, 5797.34, 5840.85, 5884.14, 5927.64, 5971.13, 6012.69, 6056.15, 6099.61, 6142.73, 6186.16, 6228.72, 6272.26, 6315.8, 6358.36, 6401.78, 6444.54, 6487.33, 6527.32, 6570.85, 6614.21, 6657.14, 6700.58, 6744.13, 6786.93, 6830.31, 6873.8, 6917.41, 6960.87, 7015.57, 7059.07, 7102.55, 7145.5, 7188.9, 7230.28, 7272.21, 7314.69, 7358.17, 7400.98, 7443.44, 7486.21, 7529.73, 7572.9, 7616.37, 7659.9, 7703.31, 7746.73, 7788.85, 7832.45, 7875.92, 7930.69, 7974.2, 8017.69, 8059.33, 8102.91, 8146.32, 8189.19, 8232.79, 8276.37, 8319.86, 8391.3

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	Diesel	Diesel	40	bbl	7.4				0
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	GWOG Spacer	110	bbl	12				
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	Water	Water	40	bbl	8.33				1680
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	Cement	ElastiCem	2315	sack	13.5	1.92	8.9	10	20604
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 w/Retarder	20	bbl	8.48				840
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
6	Displacement	3% Treated KCl Water	424	bbl	8.48				17605
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
7	Displacement	Fresh Water	20	bbl	8.33				840
Cement Left In Pipe	Amount	5 ft			Reason	Shoe Joint			
Mix Water:	pH 7	Mix Water Chloride:	0 ppm			Mix Water Temperature:	72 °F		
Plug Bumped?	Yes	Plug Displaced by:	8.33 lb/gal Fresh Water			Disp. Temperature:	72 °F		
Cement Returns:	0 bbl.	Bump Pressure:	2293 psi			Floats Held?	Yes		

2.0 Real-Time Job Summary

2.1 Job Event Log

Seq. No.	Activity	Date	Time	Cmb Rate (bbl/min)	Pmp Stg Total (bbl)	Dwnhole Density (ppg)	Pump A Pressure (psi)	DS Pump Press (psi)	Comments
1	Call Out	9/10/2021	08:30:00						CREW CALLED OUT, REQUESTED ON LOCATION 15:30-16:30
2	Depart Yard Safety Meeting	9/10/2021	11:45:00						PRE CONVOY SAFETY MEETING WITH ALL HES EE
3	Crew Leave Yard	9/10/2021	12:00:00						CREW DEPART YARD FOR LOCATION
4	Arrive At Loc	9/10/2021	16:15:00						ARRIVE ON LOCATION, RECIEVED NUMBERS FROM CO REP, TD 20933, TP 20928, FC 20923, CSG 5.5 20#, PREV CSG 9 5/8 40# @ 2053, HOLE 8.5, MUD 11.5, TVD 5982, 147 CENTALIZERS, WATER TEST, TEMP 72, CHLORIDES 0, PH 7
5	Assessment Of Location Safety Meeting	9/10/2021	16:30:00						SAFETY MEETING WITH ALL HES EE TO ASSESS ALL HAZARDS
6	Safety Meeting - Pre Rig-Up	9/10/2021	16:45:00						PRE RIG UP SAFETY MEETING WITH ALL HES EE
7	Safety Meeting - Pre Job	9/11/2021	00:30:00			8.30	-14.23	63.00	PRE JOB SAFETY MEETING WITH RIG CREW AND CO REP
8	Start Job	9/11/2021	01:57:34			8.32	4.29	-2.00	START RECORDING DATA
9	Drop Bottom Plug	9/11/2021	01:58:00			8.34	4.55	-2.00	LAUNCH BOTTOM PLUG

10	Test Lines	9/11/2021	02:01:01			8.30	187.43	148.00	TEST LINES, TRUCK 1 TEST TO 7500 PSI, TRUCK 2 TEST TO 4700 PSI
11	Pump Cement	9/11/2021	02:11:57	4.93	4.05	12.06	722.54	563.00	MIX AND PUMP 2315 SKS 791.6 BBLS CEMENT 13.5 PPG, 1.92 FT3/SK, 8.9 GAL/SK 12 BPM 2300 PSI, ESTIMATED TOC 1589'
12	Check Weight	9/11/2021	02:17:55	12.19	59.97	13.55	2300.81	2284.00	VERIFY WEIGHT ON PRESSURIZED MUD SCALES
13	Check Weight	9/11/2021	02:20:17	12.56	88.83	13.66	2498.34	2186.00	VERIFY WEIGHT ON PRESSURIZED MUD SCALES
14	Check Weight	9/11/2021	02:43:00	13.29	388.53	13.55	2738.01	2450.00	VERIFY WEIGHT ON PRESSURIZED MUD SCALES
15	Shutdown	9/11/2021	03:05:19	9.00	661.83	13.05	1858.12	2675.00	SHUTDOWN AND WASH UP PUMP 1
16	Shutdown	9/11/2021	03:21:56			7.96	17.40	148.00	SHUTDOWN TO WASH UP PUMP 2
17	Drop Top Plug	9/11/2021	03:27:17			7.97	16.52	9.00	LAUNCH TOP PLUG
18	Pump Displacement	9/11/2021	03:27:20			7.97	16.45	9.00	PUMP 464 BBLS KCL AND BIOCIDES DISPLACEMENT, FIRST 20 BBLS W MMCR, 12 BPM 3940 PSI, RECIEVED 76 BBLS SPACER, 8 BBLS INTERFACE TO SURFACE
19	Shutdown	9/11/2021	04:15:10	3.98	463.08	8.26	2376.46	2342.00	TRUCK 2 SHUTDOWN
20	Bump Plug	9/11/2021	04:16:09			8.31	3141.13	3223.00	BUMPED PLUG AT 2293 PSI TOOK TO 3178 PSI
21	Check Floats	9/11/2021	04:19:34			8.23	2234.53	2111.00	FLOATS HELD TOOK 3.9 BBLS BACK
22	End Job	9/11/2021	04:21:40			8.07	26.53	1.00	STOP RECORDING DATA
23	Safety Meeting - Pre Rig-Down	9/11/2021	04:29:00			8.08	12.68	1.00	PRE RIG DOWN SAFETY MEETING WITH ALL HES EE

24	Depart Location Safety Meeting	9/11/2021	05:55:00	PRE DEPARTURE SAFETY MEETING WITH ALL HES EE
25	Crew Leave Location	9/11/2021	06:30:00	THANK YOU FOR USING HALLIBURTON, KYLE BATH AND CREW

3.0 Attachments

3.1 Job Chart

