

HALLIBURTON

iCem[®] Service

PDC ENERGY-EBUS

United States of America, COLORADO

For: Chris McMillen/ Dave Freeburg

Date: Sunday, August 05, 2018

J Clark 6N

WELD, J Clark 6N

PDC Energy Production J Clark 6N

Ensign 152

Sincerely,

Thomas Haas and Crew

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The Road to Excellence Starts with Safety

Sold To #: 304535	Ship To #: 3870600	Quote #: 0022473413	Sales Order #: 0905044267
Customer: PDC ENERGY-EBUS		Customer Rep: Chris McMillen/Dave Freeburg	
Well Name: J CLARK		Well #: 6N	API/UWI #: 05-123-46690-00
Field: WATTENBERG	City (SAP): GREELEY	County/Parish: WELD	State: COLORADO
Legal Description: NW NE-14-5N-65W-550FNL-2099FEL			
Contractor: ENSIGN DRLG		Rig/Platform Name/Num: ENSIGN 152	
Job BOM: 7523 7523			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HX38199		Srvc Supervisor: Thomas Haas	

Job

Formation Name			
Formation Depth (MD)	Top		Bottom
Form Type	BHST		
Job depth MD	12181ft	Job Depth TVD	6800'
Water Depth		Wk Ht Above Floor	6'
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			0	1675	0	1675
Casing	0	5.5	4.778	20			0	12181	0	6800
Open Hole Section			8.5				1675	6700	1675	6700
Open Hole Section			8.5				6700	12183	6700	6800

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5				Top Plug	5.5	1	W.F.
Float Shoe	5.5	1	W.F.	12181	Bottom Plug	5.5	1	W.F.
Wet Shoe Sub	5.5	1	W.F.	12147	SSR plug set	5.5		
Insert Float	5.5				Plug Container	5.5	1	HES
Stage Tool	5.5				Centralizers	5.5		

Fluid Data

Stage/Plug #: 1										
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	
1	Mud Flush III (Powder)	Mud Flush III	50	bbl	8.4					
0.10 gal/bbl		D-AIR 3000L, 5 GAL PAIL (101007444)								

42 gal/bbl		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	
2	11.1 lb/gal Tuned Spacer III	Tuned Spacer III	100	bbbl	11.1	4.5	29.4	5	3668	
33.11 gal/bbl		FRESH WATER								
124.04 lbm/bbl		BARITE, BULK (100003681)								
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	ElastiCem	HALCEM (TM) SYSTEM	820	sack	15.6	1.18	5.16	6	4231	
0.35 %		HR-5, 50 LB SK (100005050)								
5.16 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	ElastiCem	ELASTICEM (TM) SYSTEM	792	sack	14.4	1.7	7.32	8	5783	
0.35 %		HR-5, 50 LB SK (100005050)								
7.32 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	MMCR Displacement	MMCR Displacement	30	bbbl	8.34					
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 ft3/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal	
6	Displacement fluid		220	bbbl	8.34					
Cement Left In Pipe		Amount	0	Reason	WET SHOE			Shoe Joint		
Mix Water:	pH 7	Mix Water Chloride:	<300 ppm			Mix Water Temperature:	69°F			
Cement Temperature:	N/A	Plug Displaced by:	8.33 lb/gal F.W.			Disp. Temperature:	N/A			
Plug Bumped?	Yes	Bump Pressure:	2680 psi			Floats Held?	Yes			
Cement Returns:	N/A	Returns Density:	N/A			Returns Temperature:	N/A			

Comment Plug bumped @ calculated displacement @ 2680 PSI. Sleeve opened @ 4120 PSI, Pumped 5 BBL wet shoe, Floats Held, 2 BBLS back to the truck. Total of 50 BBLS of Mudflush and 2 BBLS of Spacer to surface.

1.0 Real-Time Job Summary

1.1 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	8/5/2018	05:00:00	USER					CREW CALLED OUT AT 5:00 8/5/2018, REQUESTED ON LOCATION 11:00 8/5/2018. CREW PICKED UP CEMENT, CHEMICALS (10 GAL D-AIR, 15 GAL MMCR), 100 LBS SUGAR, AND PLUG CONTAINER FROM FORT LUPTON, CO. BULK 660: 11255351/11689672 Bulk 660: 12498388/10867415 PUMP ELITE: 11644701/11360070
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	8/5/2018	09:30:00	USER					DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW
Event	3	Crew Leave Yard	Crew Leave Yard	8/5/2018	09:45:00	USER					STARTED JOURNEY MANAGEMENT.
Event	4	Arrive At Loc	Arrive At Loc	8/5/2018	10:45:00	USER					END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING: 9.625" 36# @ 1675', CASING: 5.5" 20# @ 12181', 34' SHOE JOINT, 8.5" OPEN HOLE, TVD @ 6800', 10.7 PPG WELL FLUID, FRESH WATER DISPLACEMENT.

Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	8/5/2018	11:00:00	USER						HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	8/5/2018	11:15:00	USER						CREW STAGED EQUIPMENT AND RIGGED UP BULK, IRON, AND WATER HOSES TO PERFORM JOB.
Event	7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	8/5/2018	13:30:00	USER	8.41	0.00	175.00	16.00		MEETING WITH HALLIBURTON AND RIG PERSONNEL. COMMUNICATED POTENTIAL SAFETY HAZARDS AND JOB DETAILS.
Event	8	Start Job	Start Job	8/5/2018	13:43:05	COM4	8.41	0.00	178.00	0.00		BEGIN JOB DATA RECORDING.
Event	9	Test Lines	Test Lines	8/5/2018	13:48:04	COM4	8.12	0.00	599.00	4.00		PRESSURE TESTED IRON TO 5000 PSI. KICKOUTS SET @ 500 PSI, KICKED OUT @400 PSI, 5TH GEAR STALL OUT @ 2150 PSI.
Event	10	Pump Spacer 1	Pump Mud Flush	8/5/2018	13:54:19	COM4	8.20	0.00	177.00	0.00		PUMP 50 BBLS OF MUD FLUSH SPACER @ 8.34 LB/GAL. ADDED 5 GAL D-AIR.
Event	11	Pump Spacer 2	Pump Spacer	8/5/2018	14:11:01	COM4	10.93	3.80	724.00	57.60		PUMP 100 BBLS OF TUNED SPACER @ 11.1 LB/GAL, 4.5 YIELD, 29.4 GAL/SKS, DENSITY VERIFIED BY PRESSURIZED MUD SCALES. ADDED 5 GAL D-AIR.
Event	12	Shutdown	Shutdown	8/5/2018	14:30:03	USER	10.54	0.90	564.00	92.70		SHUTDOWN TO MIX UP LEAD SLURRY.

Event	13	Pump Lead Cement	Pump Lead Cement	8/5/2018	14:37:19	COM4	11.05	3.60	480.00	94.60	PUMP 820 SKS OF HALCEM @ 15.6 LB/GAL, 1.18 YIELD, 5.16 GAL/SK, 172 BBLS, TOLC @ 2095', DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	14	Pump Tail Cement	Pump Tail Cement	8/5/2018	15:14:31	COM4	14.59	6.10	325.00	193.30	PUMP 790 SKS OF ELASTICEM @ 14.4 LB/GAL, 1.7 YIELD, 7.32 GAL/SK, 239 BBLS, TOTC @ 6318', DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	15	Shutdown	Shutdown	8/5/2018	15:50:01	COM4	14.77	0.00	57.00	256.90	SHUTDOWN TO CLEAN PUMPS, LINES AND TO DROP TOP PLUG.
Event	16	Drop Top Plug	Drop Top Plug	8/5/2018	16:06:58	COM4	8.19	0.00	-15.00	268.50	PLUG LEFT PLUG CONTAINER, VERIFIED BY COMPANY MAN.
Event	17	Pump Displacement	Pump Displacement	8/5/2018	16:07:03	COM4	8.21	0.00	-13.00	268.50	BEGIN CALCULATED DISPLACEMENT OF 270 BBLS WITH FRESH WATER, 15 GAL MMCR AND BIOCIDES IN FIRST 30 BBL, BIOCIDES AND KCL THROUGHOUT REST OF DISPLACEMENT.
Event	18	Bump Plug	Bump Plug	8/5/2018	17:01:03	COM4	8.28	0.00	3020.00	277.70	PLUG BUMPED AT CALCULATED DISPLACEMENT, 50 BBL MUDFLUSH AND 2 BBL SPACER TO SURFACE.
Event	19	Other	Shift Wet Shoe Sleeve	8/5/2018	17:01:56	COM4	8.29	0.00	3102.00	277.70	PRESSURE UP TO SHIFT WET SHOE SLEEVE, SLEEVE SHIFTED AT 4120 PSI.
Event	20	Check Floats	Check Floats	8/5/2018	17:05:28	USER	8.29	4.00	2656.00	285.10	RELEASED PRESSURE TO THE TRUCK, FLOATS HELD, 2 BBL BACK.
Event	21	End Job	End Job	8/5/2018	17:07:27	COM4	8.61	0.00	-3.00	0.00	END JOB DATA RECORDING.

Event	22	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	8/5/2018	17:15:00	USER	8.46	0.00	-5.00	0.00	DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event	23	Rig-Down Completed	Rig-Down Completed	8/5/2018	18:00:00	USER					ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL.
Event	24	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	8/5/2018	18:15:00	USER					DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW.
Event	25	Crew Leave Location	Crew Leave Location	8/5/2018	18:30:00	USER					THANK YOU FOR USING HALLIBURTON - THOMAS HAAS AND CREW.