

HALLIBURTON

iCem[®] Service

Extraction Oil and Gas

Date: Wednesday, September 06, 2017

MLD #5 Production

Case 1

Job Date: Tuesday, September 05, 2017

Sincerely,

Justin Lansdale

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The Road to Excellence Starts with Safety

Sold To #: 369404		Ship To #: 3800232		Quote #:		Sales Order #: 0904282186					
Customer: EXTRACTION OIL & GAS				Customer Rep: Shayne Hackford							
Well Name: MLD			Well #: 5		API/UWI #: 05-123-44821-00						
Field: WATTENBERG		City (SAP): MEAD		County/Parish: WELD		State: COLORADO					
Legal Description: NW NW-22-4N-68W-804FNL-688FWL											
Contractor: PATTERSON-UTI ENERGY				Rig/Platform Name/Num: PATTERSON 346							
Job BOM: 7523 7523											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HX38199				Srv Supervisor: Bryce Muir							
Job											
Formation Name											
Formation Depth (MD)		Top		Bottom							
Form Type				BHST							
Job depth MD		11530ft		Job Depth TVD		6850 FT					
Water Depth				Wk Ht Above Floor		3 FT					
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	3	9.625	8.921	36		J-55	0	1580	0	1580	
Casing		5.5	4.778	20		P-110	0	11530	0	0	
Open Hole Section			8.5				1580	11540	0	6850	
Tools and Accessories											
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make		
Guide Shoe						Top Plug	5.5	1	KLX		
Float Shoe	5.5	ANTLOPE	1	11530		Bottom Plug					
Float Collar	5.5	ANTLOPE	1	11525		SSR plug set					
Insert Float						Plug Container	5.5	1	HES		
Stage Tool						Centralizers	5.5				
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		6	
149.34 lbm/bbl		BARITE, BULK (100003681)									
35 gal/bbl		FRESH WATER									

0.50 gal/bbl		MUSOL A, 330 GAL TOTE - (790828)							
0.50 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)							
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	1900	sack	13.2	1.57		5	7.54
0.25 %		SCR-100 (100003749)							
7.54 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
3	Displacement	Displacement	254.7	bbl	8.34				
Cement Left In Pipe		Amount	5 ft			Reason		Shoe Joint	
Comment: WE ARRIVED ON LOCATION AT 1800 HOURS ON 09/05/2017. WE SPOTTED IN OUR EQUIPMENT AND RIGGED UP OUR IRON TO THE RED ZONE. THE RIG WAS STILL RUNNING CASING. WE WAITED ON LOCATION UNTIL THE CASING WAS RAN. AT 2015 HOURS WE RIGGED UP THE PLUG CONTAINER AND THE RIG CIRCULATED THROUGH OUR PLUG CONTAINER WHILE WE HELD OUR SAFETY MEETING. AFTER THE MEETING WE STARTED THE CEMENT JOB. WE PUMPED 50 BBLS OF TUNED SPACER. WE THEN PUMPED OUR 531 BBLS OF PRIMARY CEMENT. WE PUMPED THE JOB AT 8 BARREL PER MINUTE MONITORING PRESSURE THROUGHOUT THE JOB. WHEN ALL THE CEMENT WAS PUMPED DOWNHOLE WE SHUTDOWN TO DROP THE TOP PLUG. 5.5” TOP PLUG WAS DROPPED BY BRYCE MUIR. WE BEGAN PUMPING OUR 254.7 BBLS OF FRESH WATER DISPALCEMENT. WE PUMPED DISPLACEMENT AT 10 BPM, BUT SLOWED OUR RATE THE LAST 20 BBLS OF DISPLACEMENT TO 5 BARRELS PER MINUTE. WE GOT GOOD CEMENT TO SURFACE AT 205 BBLS DISPLACEMENT PUMPED FOR A TOTAL OF 49 BBLS OF CEMENT TO SURFACE. WE LANDED THE PLUG AT 254 BBLS PUMPED. PLUG WAS LANDED AT 2150 PSI AND WE PRESSURED UP TO 2830 PSI. WE THEN STARTED PUMPING TO RUPTURE THE DISK TO PUMP OUR 5 BBL WET SHOE. DISK RUPTURED AT 3624 PSI. CHECKED THE FLOATS AND THEY HELD. WE GOT 1½ BBL OF FLUID BACK TO THE RCM.									

1.0 Real-Time Job Summary

1.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comments
Event	1	Call Out	Call Out	9/5/2017	13:00:00	USER	CREW CALLED OUT FOR PRODUCTION JOB. LOAD UP ALL REQUIRED MATERIALS AND EQUIPMENT TO PERFORM JOB.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	9/5/2017	17:15:00	USER	DISCUSS HAZARDS ASSOCIATED WITH DRIVING TRUCKS TO LOCATION. DISCUSS SAFEST ROUTE OF TRAVEL, CONVOY ORDER, AND PROPER PLACES TO PULL OVER IF NEEDED.
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	9/5/2017	17:30:00	USER	
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	9/5/2017	18:00:00	USER	
Event	5	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	9/5/2017	18:05:00	USER	ASSESS LOCATION TO IDENTIFY POTENTIAL HAZARDS. DISCUSS BEST WAY TO SPOT EQUIPMENT. SPOT EQUIPMENT.
Event	6	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	9/5/2017	18:15:00	USER	DISCUSS HAZARDS ASSOCIATED WITH RIGGING UP AND PACKING IRON ON LOCATION.
Event	7	Rig-Up Equipment	Rig-Up Equipment	9/5/2017	18:25:00	USER	
Event	8	Other	Other	9/5/2017	18:50:00	USER	WAIT FOR THE RIG TO FINISH RUNNING CASING.
Event	9	Rig-Up Equipment	Rig-Up Equipment	9/5/2017	20:15:00	USER	RIG UP PLUG CONTAINER AND IRON ON THE RIG FLOOR. RIG CIRCULATED THROUGH OUR PLUG CONTAINER.
Event	10	Pre-Job Safety Meeting	Pre-Job Safety Meeting	9/5/2017	20:30:00	USER	DISCUSS HES SAFETY AND JOB PROCEDURES WITH RIG CREW AND COMPANY MAN. IDENTIFY CLOSEST HOSPITAL, MUSTER AREAS, AND FIRST AID LOCATIONS.

Event	11	Start Job	Start Job	9/5/2017	21:00:56	COM6	
Event	12	Other	Other	9/5/2017	21:01:00	USER	PUMP 3 BBLS FRESH WATER TO FILL PUMPS AND LINES.
Event	13	Test Lines	Test Lines	9/5/2017	21:04:42	COM6	CONDUCT A LOW PRESSURE TEST TO 500 PSI TO TEST RCM PRESSURE KICKOUTS. KICKOUTS FUNCTIONING PROPERLY.
Event	14	Test Lines	Test Lines	9/5/2017	21:05:00	USER	CONDUCT A HIGH PRESSURE TEST TO 4700 PSI TO TEST PUMPS AND LINES.
Event	15	Pump Spacer 1	Pump Spacer 1	9/5/2017	21:12:36	COM6	PUMP 50 BBLS OF SPACER. PUMPED AT 11.5 #/GAL 3.73 CUFT/SK 23.4 GAL/SK. SPACER PUMPED AT 3 BPM AT 350 PSI. WE ADDED THE ADDITIVES ON THE FLY AS WE PUMPED.
Event	16	Check Weight	Check weight	9/5/2017	21:22:52	COM6	SPACER WEIGHT VERIFIED BY PRESSURIZED MUD BALANCE.
Event	17	Pump Cement	Pump Cement	9/5/2017	21:26:43	COM6	PUMPED 531 BBLS OF PRIMARY CEMENT. 1900 SACKS @ 13.2#/GAL 1.57 CUFT/SK 7.54 GAL/SK. CEMENT WAS PUMPED AT 8 BPM WITH A CIRCULATING PRESSURE OF 550 PSI. WE HAD GREAT CIRCULATION.
Event	18	Check Weight	Check weight	9/5/2017	21:28:03	COM6	CEMENT WEIGHT VERIFIED BY PRESSURIZED MUD BALANCE.
Event	19	Check Weight	Check weight	9/5/2017	21:31:57	COM6	CEMENT WEIGHT VERIFIED BY PRESSURIZED MUD BALANCE.
Event	20	Check Weight	Check weight	9/5/2017	21:42:16	COM6	
Event	21	Check Weight	Check weight	9/5/2017	21:44:59	COM6	
Event	22	Check Weight	Check weight	9/5/2017	21:49:44	COM6	CEMENT WEIGHT VERIFIED BY PRESSURIZED MUD BALANCE.
Event	23	Check Weight	Check weight	9/5/2017	22:01:59	COM6	CEMENT WEIGHT VERIFIED BY PRESSURIZED MUD BALANCE.
Event	24	Check Weight	Check weight	9/5/2017	22:09:57	COM6	
Event	25	Check Weight	Check weight	9/5/2017	22:29:35	COM6	CEMENT WEIGHT VERIFIED BY

							PRESSURIZED MUD BALANCE.
Event	26	Shutdown	Shutdown	9/5/2017	22:39:29	COM6	WASH PUMPS AND LINES.
Event	27	Drop Top Plug	Drop Top Plug	9/5/2017	22:40:00	USER	DROP 5.5" TOP LATCH DOWN PLUG. PLUG CONTAINER CAP WAS REMOVED AND PLUG LOADED BY BRYCE MUIR AND KLX HAND.
Event	28	Pump Displacement	Pump Displacement	9/5/2017	22:45:00	COM6	PUMPED 254.7 BBLS OF FRESH WATER DISPLACEMENT. DISPLACEMENT WAS PUMPED AT 10 BPM WITH A CIRCULATING PRESSURE OF 1950 PSI. PRESSURE VARIED DURING THE JOB AS WE PUMPED.
Event	29	Displ Reached Cmnt	Displ Reached Cmnt	9/5/2017	22:53:00	COM6	AFTER PUMPING 45 BBLS OF DISPLACEMENT THE PLUG REACHED CEMENT. CIRCULATING PRESSURE BEGAN TO RISE. WE GOT TUNED SPACER BACK TO SURFACE AT 155 BBLS OF DISPLACEMENT PUMPED. WE GOT ALL 50 BBLS OF TUNED SPACER BACK TO SURFACE AND 49 BBL OF GOOD CEMENT BACK TO SURFACE.
Event	30	Bump Plug	Bump Plug	9/5/2017	23:24:41	COM6	WE LANDED THE PLUG ON CALCULATED DISPLACEMENT. PLUG WAS LANDED AT 2150 PSI AND WE PRESSURED UP TO 2830 PSI. HELD FOR A BRIEF MINUTE.
Event	31	Shutdown	Shutdown	9/5/2017	23:27:28	COM6	
Event	32	Other	Other	9/5/2017	23:28:00	USER	BEGAN TO PUMP TO RUPTURE THE DISK TO PUMP OUR WET SHOE. DISK RUPTURED AT 3624 PSI AND WE PUMPED A 5 BBL WET SHOE.
Event	33	Shutdown	Shutdown	9/5/2017	23:30:00	USER	
Event	34	Check Floats	Check Floats	9/5/2017	23:31:00	USER	FLOATS HELD. WE GOT 1 1/2 BBLS OF WATER BACK TO THE RCM.
Event	35	End Job	End Job	9/5/2017	23:34:09	COM6	
Event	36	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	9/5/2017	23:45:00	USER	DISCUSS HAZARDS ASSOCIATED WITH RIGGING DOWN AND PACKING IRON ON LOCATION.

Event	37	Rig-Down Equipment	Rig-Down Equipment	9/6/2017	00:00:00	USER	
Event	38	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	9/6/2017	01:00:00	USER	DISCUSSED HAZARDS ASSOCIATED WITH DRIVING TRUCKS BACK TO THE SERVICE CENTER AT NIGHT. DISCUSSED DRIVER FATIGUE AND WHAT TO DO IF TOO TIRED TO DRIVE.
Event	39	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	9/6/2017	01:20:00	USER	JOB WAS SAFELY COMPLETED BY BRYCE MUIR AND CREW. THANK YOU AND STAY SAFE.

2.0 Attachments

2.1 Job Chart



