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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Buddy 7-16HZ** 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.

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 #: 300466		Ship To #: 3917333		Quote #: 0022582137		Sales Order #: 0905706289					
Customer: ANADARKO PETROLEUM CORP-EBUS				Customer Rep: STEVE							
Well Name: BUDDY			Well #: 7-16HZ			API/UWI #: 05-123-48459-00					
Field: WATTENBERG		City (SAP): IONE		County/Parish: WELD		State: COLORADO					
Legal Description: NE NE-7-1N-67W-818FNL-975FEL											
Contractor: PRECISION DRLG				Rig/Platform Name/Num: PRECISION 464							
Job BOM: 7523 7523											
Well Type: HORIZONTAL GAS											
Sales Person: HALAMERICA\HX41066				Srvc Supervisor: Lance Carpenter							
Job											
Formation Name											
Formation Depth (MD)		Top				Bottom					
Form Type						BHST					
Job depth MD		18292ft		Job Depth TVD		7603					
Water Depth				Wk Ht Above Floor		4					
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	1852	0	1852	
Casing		5.5	4.892	17	LTC	HCP110	0	18284	0	7603	
Open Hole Section			7.875				1860	18292	1852	7603	
Tools and Accessories											
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make		
Guide Shoe	5.5			1852		Top Plug	5.5	1			
Float Shoe	5.5					Bottom Plug	5.5	1			
Float Collar	5.5					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 ft3/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	FDP-C1337-18	SBM FDP-C1337-18 CEMENT SPACER SYS			80	bbl	10.5	6.17	39.6		
1 lbm/bbl		FE-2 (100001615)									
0.75 gal/bbl		MUSOL(R) A, 5 GAL PAIL (100064220)									

90.94 lbm/bbl		BARITE, BULK (100003681)							
0.75 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)							
0.25 gal/bbl		D-AIR 3000L, 5 GAL PAIL (101007444)							
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	Gasstop B1	GASSTOP (TM) SYSTEM	640	sack	13.2	1.56	7.72	6	7.72
0.10 Gal		D-AIR 3000L, 5 GAL PAIL (101007444)							
0.90 %		SCR-100 (100003749)							
5.12 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	EconoCem	ECONOCEM (TM) SYSTEM	1110	sack	13.5	1.68	7.99	6	7.99
0.10 %		SA-1015, 50 LB SACK (102077046)							
8 Gal		FRESH WATER							
0.31 %		HR-5, 50 LB SK (100005050)							
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	Biocide Water and MMCR	Biocide Water and MMCR	20	bbl	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
5	Biocide Water	Biocide Water	404	bbl	8.34				
Cement Left In Pipe		Amount	4 ft		Reason			Shoe Joint	
Mix Water:	Ph7	Mix Water Chloride:	200ppm			Mix Water Temperature:	65°F °C		
Cement Temperature:	## °F °C	Plug Displaced by:	## lb/gal kg/m3 XXXX			Disp. Temperature:	## °F °C		
Plug Bumped?	Yes	Bump Pressure:	2120 psi MPa			Floats Held?	Yes		
Cement Returns:	## bbl m3	Returns Density:	## lb/gal kg/m3			Returns Temperature:	## °F °C		

Comment

JOB WENT WELL, CEMENT WAS WEIGHED AND VERRIFIED ON SCALES THROUGHOUT JOB, PUMPED 424 BBLS OF DISPLACEMENT WATER WITH MMCR IN THE FIRST 20BBLS AND BIOCIDES THROUGHOUT, CAUGHT PRESSURE AT 61 BBLS AWAY, SLOWED RATE TO 3BPM AT 395BBLS AWAY, BUMPED PLUG AND TOOK 500PSI OVER FINAL CIRCULATING PRESSURE 2120PSI. HELD FOR 5 MINS, OPENED UP WET SHOE SUB AT 4550PSI AND PUMPED 3 BBL WET SHOE. CHECKED FLOATS AND GOT 3.5 BBLS BACK.

TOP OF TAIL 7526'

TOP OF LEAD 1832'

TOP OF SPACER 162'

2.0 Real-Time Job Summary

2.1 Job Event Log

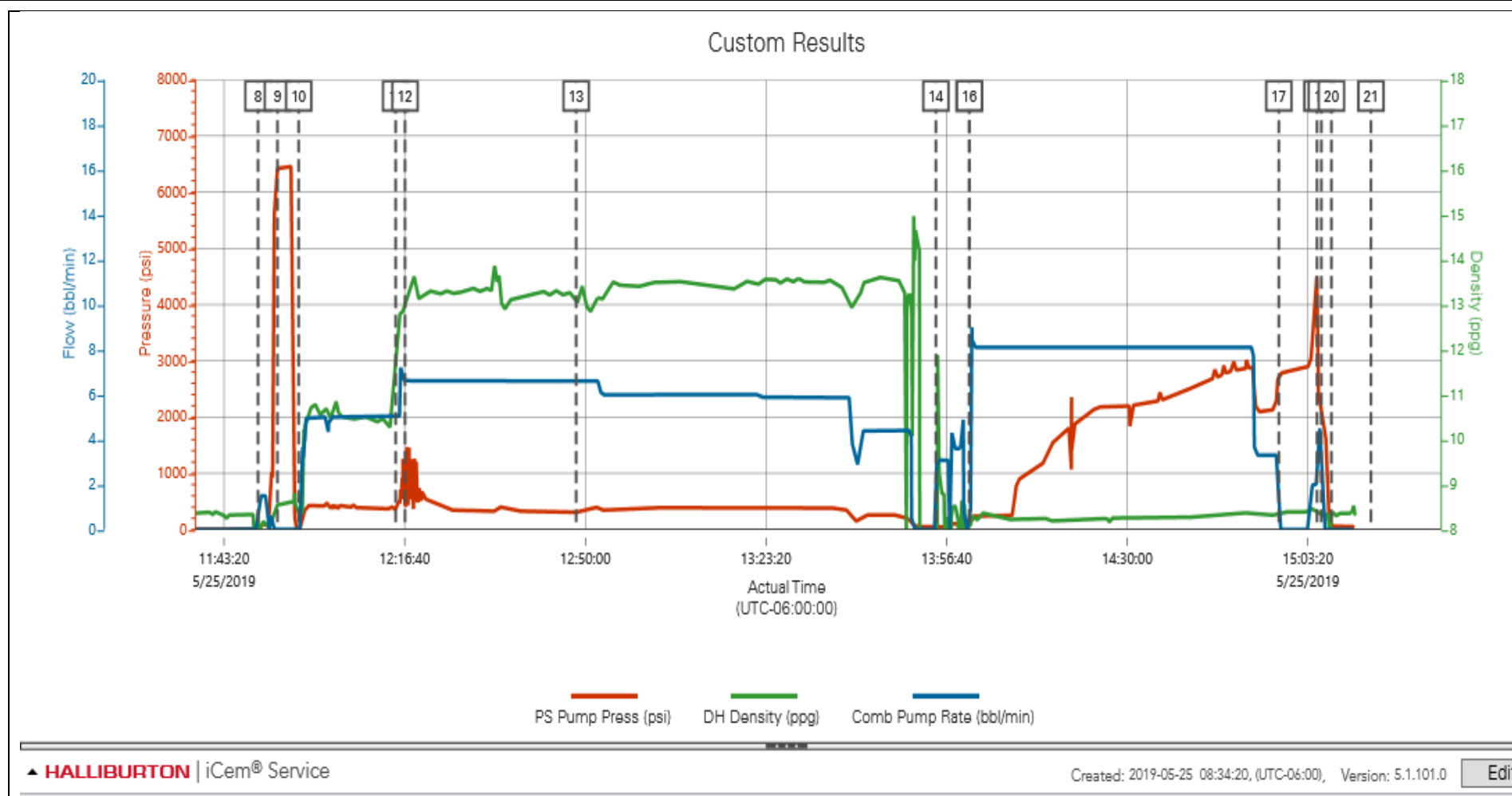
Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comments
Event	1	Check Floats	Call Out	5/25/2019	03:00:00	USER	CREW CALLED OUT.
Event	2	Crew Leave Yard	Crew Leave Yard	5/25/2019	06:15:00	USER	AFTER CHECKING COLLECT CEMENT VOLUMES WERE LOADED AND EQUIPMENT WAS RUNNING, CREW HAD A PRE CONVOY SAFETY MEETING AND DISCUSSED SAFE FOLLING DISTANCES, WILD LIFE ON ROAD, AND ROUTE TO LOCATION.
Event	3	Arrive At Loc	Arrive At Loc	5/25/2019	06:30:00	USER	CREW ARRIVED ON LOCATION, RIG WAS STILL RUNNING CASING WITH 4000' LEFT TO GO.
Event	4	Safety Meeting - Pre Rig-Up	Safety Meeting - Pre Rig-Up	5/25/2019	08:00:00	USER	HAD A PRE RIG UP SAFETY MEETING WITH CREW AND DISCUSSED 40' BUFFER ZONE, TEAM CARRY WITH IRON, SLIP TRIPS AND FALLS.
Event	5	Start Mix	Start Mix	5/25/2019	10:30:00	USER	CREW LANDED CASING ON BOTTOM, HES STARTED CIRCULATING LATEX.
Event	6	Start Job	Start Job	5/25/2019	10:38:51	COM6	

Event	7	Safety Meeting	Safety Meeting	5/25/2019	11:20:00	USER	HAD A SAFETY MEETING WITH RIG CREW AND HES, DISCUSSED S.W.A, NEAREST HOSPITAL, MUSTER AREA, 3 POINTS OF CONTACT, SLIP, TRIPS AND FALLS, PRESSURE TESTING AND GOOD COMMUNICATION THROUGHOUT JOB.
Event	8	Prime Pumps	Prime Pumps	5/25/2019	11:49:38	COM6	
Event	9	Test Lines	Test Lines	5/25/2019	11:53:13	COM6	PRESSURE TESTED HES LINES TO 6500PSI
Event	10	Pump Spacer 1	Pump Spacer 1	5/25/2019	11:57:07	COM6	PUMPED 80 BBLS OF FDP SPACER 10.5 PPG 6.17 YIELD 39.6 GAL
Event	11	Drop Bottom Plug	Drop Bottom Plug	5/25/2019	12:15:00	USER	DROPPED BOTTOM PLUG WITH COMPANY MAN ON RIG FLOOR.
Event	12	Pump Lead Cement	Pump Lead Cement	5/25/2019	12:16:44	COM6	PUMPED 177 BBLS OF GASSTOP CEMENT 13.2 PPG 1.56 YIELD 7.72 GAL 640 SKS
Event	13	Pump Tail Cement	Pump Tail Cement	5/25/2019	12:48:19	COM6	PUMPED 332 BBLS OF ECNOCEM CEMENT 13.5 PPG 1.68 YIELD 7.99 GAL 1110 SKS
Event	14	Clean Lines	Clean Lines	5/25/2019	13:54:43	COM6	RIG BLEW DOWN LINES TO WASH UP TANK, HES WASHED PUMPS AND LINES.
Event	15	Drop Top Plug	Drop Top Plug	5/25/2019	14:00:52	COM6	DROPPED TOP PLUG WITH COMPANY MAN ON RIG FLOOR.
Event	16	Pump Displacement	Pump Displacement	5/25/2019	14:00:54	COM6	PUMPED 424 BBLS OF DISPLACEMENT WATER WITH MMCR IN THE FIRST 20BBLS AND BIOCIDES THROUGHOUT. CAUGHT PRESSURE AT 61 BBLS AWAY, SLOWED RATE TO 3BPM AT 395BBLS AWAY.
Event	17	Bump Plug	Bump Plug	5/25/2019	14:57:59	COM6	FINAL CIRCULATING PRESSURE WAS 2120PSI TOOK 500PSI OVER TO BUMP. HELD FOR 5 MINS
Event	18	Other	Other	5/25/2019	15:05:01	USER	OPENED UP WET SHOE SUB AT 4550PSI AND PUMPED 3 BBL WET SHOE.
Event	19	Check Floats	Check Floats	5/25/2019	15:05:50	USER	CHECKED FLOATS, FLOATS HELD AND GOT 3.5 BBLS BACK.

Event	20	End Job	End Job	5/25/2019	15:07:42	COM6	END JOB
Event	21	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	5/25/2019	15:15:00	USER	HAD A PRE RIG DOWN SAFETY MEETING WITH CREW AND DISCUSSED 40' BUFFER ZONE, TEAM CARRY WITH IRON, SLIP TRIPS AND FALLS, FOOTING PLACEMENT AND GOOD COMMUNICATION.
Event	22	Call Out	Crew Leave Location	5/25/2019	16:30:00	USER	HAD A PRE CONVOY SAFETY MEETING WITH CREW AND DISCUSSED SAFE FOLLING DISTANCES WHILE DRIVING, WILD LIFE AND ROUTE ACK TO YARD.

3.0 Attachments

3.1 Job Chart



iCem® Service

(v. 5.1.101.0)

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