

**HALLIBURTON**

*Cementing Job Summary*

*The Road to Excellence Starts with Safety*

Sold To #: 300466		Ship To #: 3798753		Quote #: 0022345321		Sales Order #: 0904261390				
Customer: ANADARKO PETROLEUM CORP-EBUS				Customer Rep:						
Well Name: RW			Well #: 36N-32HZ			API/UWI #: 05-123-44753-00				
Field: WATTENBERG		City (SAP): HUDSON		County/Parish: WELD		State: COLORADO				
Legal Description: SW SE-29-3N-65W-372FSL-1666FEL										
Contractor: Precision					Rig/Platform Name/Num: Precision 464					
Job BOM: 7523 7523										
Well Type: HORIZONTAL GAS										
Sales Person: HALAMERICA\HX41066					Srvc Supervisor: Nick Peterson					
<b>Job</b>										
Formation Name										
Formation Depth (MD)		Top			Bottom					
Form Type					BHST					
Job depth MD		13,044'			Job Depth TVD		7,074'			
Water Depth					Wk Ht Above Floor		5'			
Perforation Depth (MD)		From			To					
<b>Well Data</b>										
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		8.625	8.921	36		J-55	0	1889	0	1889
Casing		5.5	4.778	20	LTC	HCP110	0	13024	0	0
Open Hole Section			7.875				1889	13044	0	7074
<b>Tools and Accessories</b>										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe	5.5	1	WEATH	13024		Top Plug	5.5	1	WEATH	
Float Shoe	5.5	1	WEATH	12,031		Bottom Plug	5.5	1	WEATH	
Float Collar						SSR plug set				
Insert Float						Plug Container	5.5	1	HES	
Stage Tool						Centralizers	5.5	195	WEATH	
<b>Fluid Data</b>										
Stage/Plug #: 1										
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal	
1	Spacer	Tuned Spacer III	60	bbl	10.5	6.25	40.2	3.5	2,412	
			88.91 lbm/bbl		BARITE, BULK (100003681)					
			35.80 gal/bbl		FRESH WATER					
			0.70 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)					
			0.33 gal/bbl		D-AIR 3000L, 5 GAL PAIL (101007444)					
			0.70 gal/bbl		MUSOL A, 330 GAL TOTE - (790828)					

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Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
2	Cap Cement	ELASTICEM (TM) SYSTEM	150	sack	13.2	1.57	7.52	8	1,128
7.52 Gal		FRESH WATER							
0.60 %		SCR-100 (100003749)							
3	Lead	ELASTICEM (TM) SYSTEM	390	sack	13.2	1.57	7.54	8	2,940
0.10 %		SUPER CBL, 50 LB PAIL (100003688)							
0.30 %		SCR-100 (100003749)							
7.54 Gal		FRESH WATER							
4	Tail	ECONOCEM (TM) SYSTEM	770	sack	13.5	1.68	7.99	7	6,152
7.99 Gal		FRESH WATER							
0.30 %		HR-5, 50 LB SK (100005050)							
5	Biocide Water and MMCR	Biocide Water and MMCR	20	bbl	8.34		42	8	840
0.50 gal/bbl		MICRO MATRIX CEMENT RETARDER, 5 GAL PAIL (100003781)							
6	Biocide Water	Biocide Water	285	bbl	8.34		42	8	11,130
Cement Left In Pipe	Amount	93 ft			Reason			Shoe Joint	
Mix Water:	pH 7.2	Mix Water Chloride:	0 ppm		Mix Water Temperature:	75 °F			
Cement Temperature:	## °F	Plug Displaced by:	8.33 lb/gal		Disp. Temperature:	75 °F			
Plug Bumped?	Yes	Bump Pressure:	1944 psi		Floats Held?	Yes			
Cement Returns:	## bbl	Returns Density:	lb/gal		Returns Temperature:	## °F			
Comment: Pumped 80 bbls Tuned Spacer, 42 bbls Cap cement, 109 bbls Lead, 230 bbls Tail, Washed Lines 6 bbls of water. Displaced with 285 bbls fresh water with MMCR the first 20 bbls Biocide until 220 away and fresh water the remainder of displacement. No spacer or cement to surface.									

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	PS Pump Press <i>(psi)</i>	Comments
Event	1	Call Out	Call Out	9/1/2017	13:00:00	USER				CREW CALLED OUT AT 13:00, REQUESTED ON LOCATION 17:00. CREW PICKED UP CEMENT, CHEMICALS, AND PLUG CONTAINER FROM FT. LUPTON, CO. BULK 660 E-1, E-16, AND PUMP 11512092.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	9/1/2017	16:00:00	USER				CREW DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.
Event	3	Crew Leave Yard	Crew Leave Yard	9/1/2017	16:15:00	USER				STARTED JOURNEY MANAGEMENT.
Event	4	Arrive At Loc	Arrive At Loc	9/1/2017	17:00:00	USER				END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING- 9.625" 36 LB/FT @ 1,889', 5.5" CASING: 20 LB/FT TOTAL 13,024.07', 7.875" HOLE, TD 13,044.07', 92.68 SHOE TRAC, TVD- 7'074. PUMP FRESH WATER DISPLACEMENT WITH MMCR. CASING LANDED @ 19:00 09/01/2017. RIG CIRCULATED BOTTOMS UP.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	9/1/2017	17:15:00	USER				HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP, AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	9/1/2017	17:30:00	USER				CREW STAGED EQUIPMENT AND RIGGED UP BULK, IRON AND WATER HOSES TO PERFORM JOB.
Event	7	Rig-Up Completed	Rig-Up Completed	9/1/2017	19:00:00	USER				
Event	8	Pre-Job Safety Meeting	Pre-Job Safety Meeting	9/1/2017	19:45:00	USER	8.41	0.00	0.00	SAFETY MEETING WITH HALLIBURTON, AND RIG PERSONNEL. CREW COMMUNICATED POTENTIAL SAFETY HAZARDS, AND JOB DETAILS.
Event	9	Start Job	Start Job	9/1/2017	20:10:30	COM5	8.43	0.00	0.00	BEGIN RECORDING JOB DATA.
Event	10	Test Lines	Test Lines	9/1/2017	20:21:31	COM5	8.49	0.00	4427.00	PRESSURE TESTED IRON TO 4000 PSI. KICKOUTS SET @ 500 PSI, KICKED OUT @ 800 PSI, 5TH GEAR STALL OUT @ 2214 PSI.
Event	11	Pump Spacer 1	Pump Spacer 1	9/1/2017	20:31:42	COM5	10.79	3.00	216.00	PUMP 60 BBLS OF TUNED SPACER @ 10.5 LB/GAL, 20 GALLONS D-AIR, 45 GALS DUAL SPACER B, 45 GALS MUSOL .

DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 3.5 BBL/MIN @ 124 PSI.

PUMPED 150 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.57 FT3/SK, 7.54 GAL/SK. 41.96 BBL, HOL CALCULATED @ 3,529.12', TOL CALCULATED @ 2,124.97'. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBL/MIN @ 330 PSI.

DENSITY VERIFIED BY PRESSURIZED MUD SCALES.

PUMPED 390 SKS OF ELASTICEM WITH CBL @ 13.2 LB/GAL, 1.57 FT3/SK, 7.54 GAL/SK. 109.05 BBL, HOL CALCULATED @ 3,529.51', TOL CALCULATED @ 1,165.62'. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBL/MIN @ 350 PSI.

PUMP 770 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.57 FT3/SK, 7.53 GAL/SK, 647.31 BBL. HOT CALCULATED @ 7,389.96', TOT CALCULATED @ 5,654.10'. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 7 BBL/MIN @ 360 PSI.

DENSITY VERIFIED BY PRESSURIZED MUD SCALES.

SHUTDOWN WASH PUMPS AND LINES WITH 6 BBL OF WATER BEFORE DROPPING PLUG.

PLUG LEFT CONTAINER, VERIFIED BY CO. MAN.

BEGIN CALCULATED DISPLACEMENT OF 286 BBL WITH FRESH WATER. PUMPED THE FIRST 20 BBL WITH MMCR, AND PUMPED UNTIL 220 AWAY WITH BIOCID. PUMP RATE @ 8 BBL/MIN @ 2340 MAX PSI.

PLUG BUMPED AT CALCULATED DISPLACEMENT. 1944 PSI PRESSURED UP TO 3000 PSI FOR 15 MIN CASING PRESSURE TEST PER COMPANY MAN.

RELEASED PRESSURE, FLOATS HELD, 3 BBL BACK.

STOP RECORDING JOB DATA.

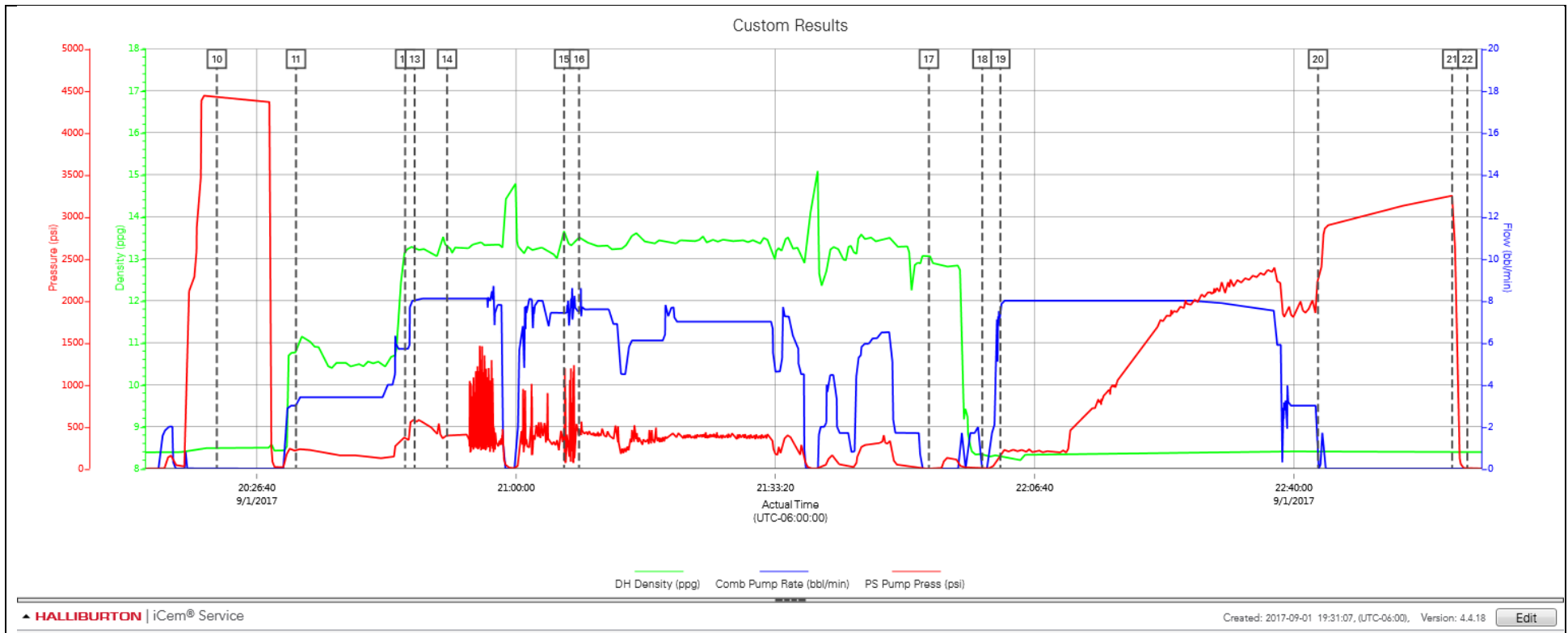
DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.

Event	12	Pump Lead Cement	Pump Lead Cement	9/1/2017	20:45:43	COM5	13.19	5.70	379.00	PUMPED 150 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.57 FT3/SK, 7.54 GAL/SK. 41.96 BBL, HOL CALCULATED @ 3,529.12', TOL CALCULATED @ 2,124.97'. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBL/MIN @ 330 PSI.
Event	13	Check Weight	Check weight	9/1/2017	20:46:57	COM5	13.28	8.10	597.00	DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	14	Pump Cement	Pump Cement	9/1/2017	20:51:07	COM5	13.31	8.10	391.00	PUMPED 390 SKS OF ELASTICEM WITH CBL @ 13.2 LB/GAL, 1.57 FT3/SK, 7.54 GAL/SK. 109.05 BBL, HOL CALCULATED @ 3,529.51', TOL CALCULATED @ 1,165.62'. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBL/MIN @ 350 PSI.
Event	15	Pump Tail Cement	Pump Tail Cement	9/1/2017	21:06:09	COM5	13.69	7.40	385.00	PUMP 770 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.57 FT3/SK, 7.53 GAL/SK, 647.31 BBL. HOT CALCULATED @ 7,389.96', TOT CALCULATED @ 5,654.10'. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 7 BBL/MIN @ 360 PSI.
Event	16	Check Weight	Check weight	9/1/2017	21:08:05	COM5	13.52	7.50	407.00	DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	17	Shutdown	Shutdown	9/1/2017	21:53:04	COM5	13.08	0.00	-2.00	SHUTDOWN WASH PUMPS AND LINES WITH 6 BBL OF WATER BEFORE DROPPING PLUG.
Event	18	Drop Top Plug	Drop Top Plug	9/1/2017	21:59:56	COM5	8.34	0.00	-3.00	PLUG LEFT CONTAINER, VERIFIED BY CO. MAN.
Event	19	Pump Displacement	Pump Displacement	9/1/2017	22:02:15	COM5	8.30	7.30	161.00	BEGIN CALCULATED DISPLACEMENT OF 286 BBL WITH FRESH WATER. PUMPED THE FIRST 20 BBL WITH MMCR, AND PUMPED UNTIL 220 AWAY WITH BIOCID. PUMP RATE @ 8 BBL/MIN @ 2340 MAX PSI.
Event	20	Bump Plug	Bump Plug	9/1/2017	22:43:06	COM5	8.40	0.00	2273.00	PLUG BUMPED AT CALCULATED DISPLACEMENT. 1944 PSI PRESSURED UP TO 3000 PSI FOR 15 MIN CASING PRESSURE TEST PER COMPANY MAN.
Event	21	Check Floats	Check Floats	9/1/2017	23:00:21	USER	8.40	0.00	3256.00	RELEASED PRESSURE, FLOATS HELD, 3 BBL BACK.
Event	22	End Job	End Job	9/1/2017	23:02:18	COM5				STOP RECORDING JOB DATA.
Event	23	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	9/1/2017	23:15:00	USER	8.43	6.30	230.00	DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.

Event	24	Rig-Down Equipment	Rig-Down Equipment	9/1/2017	23:30:00	USER	RIG DOWN BULK AND MIXING EQUIPMENT.
Event	25	Rig-Down Completed	Rig-Down Completed	9/2/2017	00:15:00	USER	ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL, AND LOCATION WAS CLEAN.
Event	26	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	9/2/2017	00:30:00	USER	CREW DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.
Event	27	Crew Leave Location	Crew Leave Location	9/2/2017	00:35:00	USER	THANK YOU FOR USING HALLIBURTON – NICK PETERSON AND CREW.

3.0 Attachments

3.1 Custom Results – Job Chart with Events



3.2 Custom Results – Job Chart without Events

