

HALLIBURTON

## Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 300466	Ship To #: 3765248	Quote #: 0022306851	Sales Order #: 0904048138							
Customer: ANADARKO PETROLEUM CORP-EBUS		Customer Rep: .								
Well Name: BABCOCK	Well #: 14C-33HZ	API/UWI #: 05-123-43802-00								
Field: WATTENBERG	City (SAP): FIRESTONE	County/Parish: WELD	State: COLORADO							
Legal Description: SE NW-4-2N-67W-2137FNL-2130FWL										
Contractor: Precision		Rig/Platform Name/Num: Precision 464								
Job BOM: 7523 7523										
Well Type: HORIZONTAL GAS										
Sales Person: HALAMERICA\HX41066		Srvc Supervisor: Steven Markovich								
Job										
Formation Name										
Formation Depth (MD)	Top	Bottom								
Form Type		BHST								
Job depth MD	12346ft	Job Depth TVD								
Water Depth		Wk Ht Above Floor								
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	1881	0	1881
Casing		5.5	4.892	17	LTC	HCP110	0	12346	0	7452
Open Hole Section			7.875				1881	12356	0	7452
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe	5.5			12346		Top Plug	5.5		HES	
Float Shoe	5.5					Bottom Plug	5.5		HES	
Float Collar	5.5					SSR plug set	5.5		HES	
Insert Float	5.5					Plug Container	5.5		HES	
Stage Tool	5.5					Centralizers	5.5		HES	
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	Tuned Spacer III	Tuned Spacer III	60	bbl	10.5	6.26				
0.50 gal/bbl		MUSOL A, 330 GAL TOTE - (790828)								
88.91 lbm/bbl		BARITE, BULK (100003681)								
37.58 gal/bbl		FRESH WATER								
0.50 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003685)								

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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 - Cap Cement	ELASTICEM (TM) SYSTEM	150	sack	13.2	1.57		5	7.53
7.53 Gal		FRESH WATER							
0.90 %		SCR-100 (100003749)							
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	ELASTICEM (TM) SYSTEM	390	sack	13.2	1.57		5	7.55
0.30 %		SCR-100 (100003749)							
7.55 Gal		FRESH WATER							
0.10 %		SUPER CBL, 50 LB PAIL (100003668)							
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	EconoCem	ECONOCEM (TM) SYSTEM	700	sack	13.5	1.68		5	7.98
7.98 Gal		FRESH WATER							
0.40 %		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
5	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
6	Biocide Water	Biocide Water	264	bbl	8.34				
Cement Left In Pipe		Amount	47 ft		Reason			Shoe Joint	
Comment Spacer to surface at 277 away bringng 7bbls of spacer to surface. Estimated Top of Tail cement @ 5637' Estimated top of Lead cement 2093' Estimated top of primary cement 1053'. Bumped plug at 284 away final lift pressure 2208psi. Brought up pressure to 3000psi for 15 min casing test. Final pressure before checking floats was 3334psi.									

## 2.0 Real-Time Job Summary

## 2.1 Job Event Log

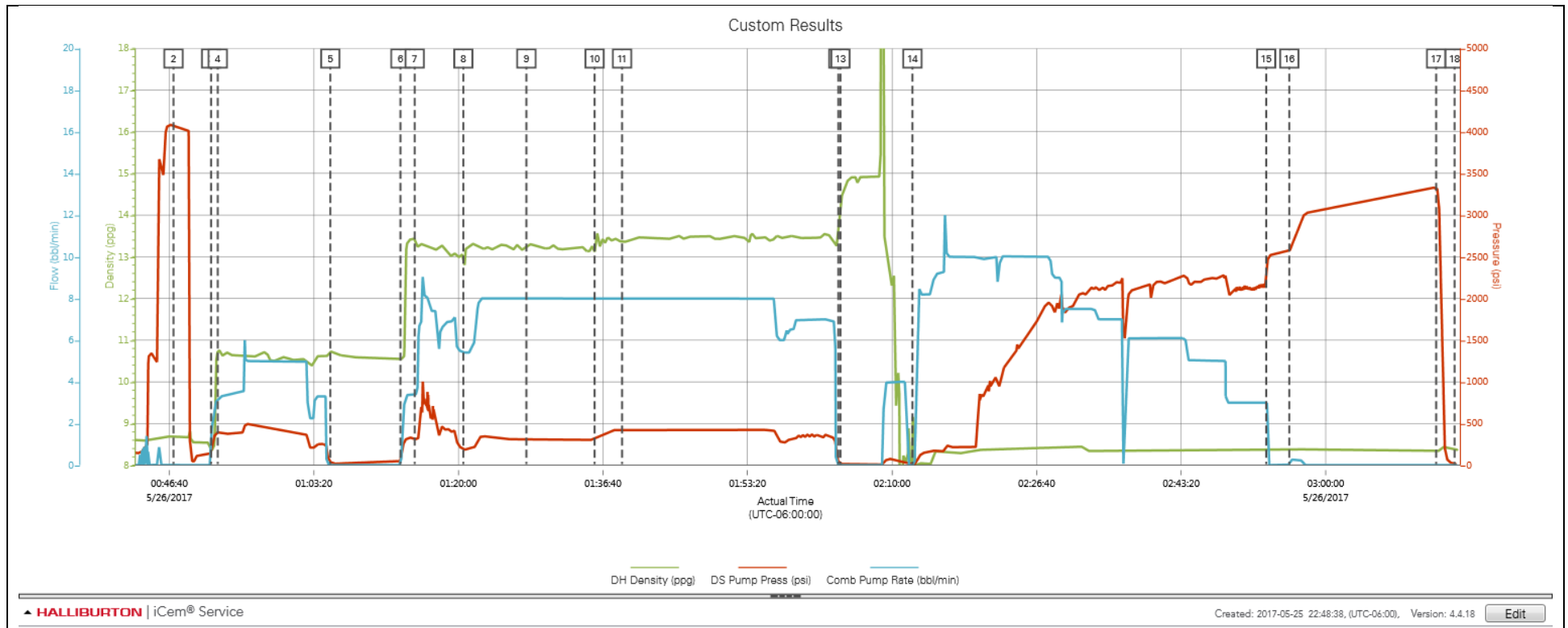
Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	DS Pump Press (psi)	Comb Pump Rate (bbl/min)	Comments
Event	1	Start Job	Start Job	5/26/2017	00:38:52	COM4	8.46	2.00	0.00	TD 12356' TP 12346' FC 12253 5 1/2 17# csg 7 7/8 OPH 9 5/8 surface csg 1881' TVD 7452' Estimated Top of Tail Cement 5637' Estimated Top of Lead Cement 2093' Estimated Top of Primary Cement 1053' Estimated 7.4bbls of spacer to surface.
Event	2	Test Lines	Test Lines	5/26/2017	00:47:09	COM4	8.68	4071.00	0.00	500psi kick out test then bring up to 4000psi and hold for 3 mins.
Event	3	Pump Spacer 1	Pump Spacer 1	5/26/2017	00:51:29	COM4	8.35	138.00	0.00	Pump 60bbls 10.5ppg 6.26 yield Tuned Spacer. 5bbl/min 493psi
Event	4	Check Weight	Check Weight	5/26/2017	00:52:15	COM4	10.74	396.00	3.10	Weight verified by pressurized scales.
Event	5	Drop Bottom Plug	Drop Bottom Plug	5/26/2017	01:05:14	COM4	10.74	34.00	0.00	Plug drop verified by company rep.
Event	6	Pump Lead Cement	Pump Lead Cement	5/26/2017	01:13:19	COM4	10.55	46.00	0.00	Pump 41.9bbls (150sks) 13.2ppg 1.57 yield Primary Cement. 8bbl/min 427psi
Event	7	Check Weight	Check Weight	5/26/2017	01:14:57	COM4	13.43	313.00	3.40	Weight verified by pressurized scales.
Event	8	Pump Cap Cement	Pump Lead Cement	5/26/2017	01:20:34	USER	12.98	201.00	5.40	Pump 109.5bbls (390sks) 13.2ppg 1.57yield Lead Cement. 8bbl/min 350psi
Event	9	Check Weight	Check Weight	5/26/2017	01:27:50	COM4	13.26	317.00	8.00	Weight verified by pressurized scales.
Event	10	Pump Tail Cement	Pump Tail Cement	5/26/2017	01:35:42	COM4	13.09	305.00	8.00	Pump 209.4bbls (700sks) 13.5ppg 1.68yield Tail Cement. 8bbl/min 430psi
Event	11	Check Weight	Check Weight	5/26/2017	01:38:52	COM4	13.36	413.00	8.00	Weight verified by pressurized scales.
Event	12	Shutdown	Shutdown	5/26/2017	02:03:48	COM4				
Event	13	Clean Lines	Clean Lines	5/26/2017	02:04:03	COM4	14.24	18.00	0.00	Shutdown and clean pumps and lines
Event	14	Pump Displacement	Pump Displacement	5/26/2017	02:12:21	COM4				Pump 284bbls of H2O. First 20bbls with MMCR the next 264bbls with biocide. 10bbl/min 1934psi. Caught cement at 62bbls away. Spacer to surface at 277 away bringing 7bbls

of spacer to surface.

Event	15	Bump Plug	Bump Plug	5/26/2017	02:53:08	COM4	8.36	2208.00	3.00	Bumped plug at 284 away. Final lift pressure 2208, took 500 over and held for 3 mins
Event	16	Pressure Up Well	Pressure Up Well	5/26/2017	02:55:48	COM4	8.37	2571.00	0.00	Bring pressure up to 3000psi for 15 min casing test. During the casing test te pressure went from 3000psi to 3334psi.
Event	17	Displ Reached Cement	Check Floats	5/26/2017	03:12:44	USER	8.36	3334.00	0.00	Opened release line to check floats, floats held with 3.5bbls of H2O coming back to the truck.
Event	18	End Job	End Job	5/26/2017	03:14:51	COM4				Thank you Steve Markovich and crew.

## 3.0 Attachments

### 3.1 Custom Results – Job Chart with Events



## 3.2 Custom Results – Job Chart with Events

