

HALLIBURTON

iCem[®] Service

ANADARKO PETROLEUM CORP - EBUS

For:

Date: Saturday, February 28, 2015

Butterball 16C-10HZ Surface

Case 1

Job Date: Friday, February 13, 2015

Sincerely,

Derek Trier

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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Butterball 16C-10HZ** cement **Surface** 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 [Ft. Lupton]

Job Times

	Date	Time	Time Zone
Requested Time On Location:	2/13/2015	0430	MTN
Called Out Time:		0030	
Arrived On Location At:		0430	
Job Started At:		0539	
Job Completed At:		0708	
Departed Location At:		0800	

1.2 Planned Pumping Schedule



Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 300466	Ship To #: 3642192	Quote #:	Sales Order #: 0902125783
Customer: ANADARKO PETROLEUM CORP - EBUS		Customer Rep: RANDY CASE	
Well Name: BUTTERBALL	Well #: 16C-10HZ		API/UWI #: 05-123-40989-00
Field: WATTENBERG	City (SAP): IONE	County/Parish: WELD	State: COLORADO
Legal Description: NW NE-10-2N-67W-657FNL-1489FEL			
Contractor: ADVANCED ENERGY		Rig/Platform Name/Num: ADVANCED 10	
Job BOM: 7521			
Well Type: HORIZONTAL GAS			
Sales Person: HALAMERICA\HB0191		Srvc Supervisor: Vaughn Oteri	
Job			

Formation Name			
Formation Depth (MD)	Top	Bottom	
Form Type	BHST		
Job depth MD	1149ft	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	850		
Open Hole Section			13.5				0	850		

Tools and Accessories										
Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make		
Guide Shoe	9.625				Top Plug	9.625		HES		
Float Shoe	9.625			1137	Bottom Plug	9.625		HES		
Float Collar	9.625			1100	SSR plug set	9.625		HES		
Insert Float	9.625				Plug Container	9.625		HES		
Stage Tool	9.625				Centralizers	9.625		HES		

Miscellaneous Materials										
Gelling Agt	Conc	Surfactant	Conc	Acid Type	Qty	Conc				
Treatment Fld	Conc	Inhibitor	Conc	Sand Type	Size	Qty				

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	Fresh Water Spacer	Fresh Water Spacer	10	bbl	8.33					

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	

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Cementing Job Summary

2	Fresh Water Spacer with Red Dye	Fresh Water Spacer with Red Dye	10	bbl	8.33					
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	Lead Cement	SWIFTCEM (TM) SYSTEM	248	sack	14.2	1.54		6	7.66	
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	Displacement	Displacement	0	bbl	8.33					
Cement Left in Pipe		Amount 42 ft		Reason			Shoe Joint			
Comment 15BBL OF 14.2PPG SWIFTCEM BACK TO SURFACE										

1.3 Job Overview

		Units	Description
1	Surface temperature at time of job	°F	30
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	WBM
3	Actual mud density	lb/gal	8.33
4	Actual mud Plastic Viscosity (PV)	cP	
5	Actual mud Yield Point (YP)	lb _f /100ft ²	
6	Actual mud 30 min Gel Strength	lb _f /100ft ²	
7	Time circulated before job	HH:MM	
8	Mud volume circulated	bbls	
9	Rate at which well was circulated	bpm	
10	Pipe movement during hole circulation	Y/N	N
11	Rig pressure while circulating	psi	
12	Time from end mud circulation to start of job	HH:MM	
13	Pipe movement during cementing	Y/N	N
14	Calculated displacement	bbls	85.03
15	Job displaced by	Rig/HES	HES
16	Annular flow before job	Y/N	N
17	Annular flow after job	Y/N	N
18	Length of rat hole	ft	10
19	Units of gas detected while circulating	units	
20	Was lost circulation experienced at any time?	Y/N	N

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comb Pump Rate <i>(bbl/min)</i>	DH Density <i>(ppg)</i>	PS Pump Press <i>(psi)</i>	PS Pmp Stg Tot <i>(bbl)</i>	Comments
Event	1	Call Out	Call Out	2/13/2015	00:30:00	USER					CALL OUT FROM ARS OFFICE
Event	2	Arrive At Loc	Arrive At Loc	2/13/2015	04:30:00	USER					ARRIVE ON LOCATION MET WITH COMPANY REP TO DISCUSS JOB PROCESS AND CONCERNS ADVISED THAT THEY HAD BEEN ON BOTTOM WITH CASING FOR 15 MINS
Event	3	Start Job	Start Job	2/13/2015	05:38:26	COM6	0.00	8.32	5.00	6.4	HELD PREJOB SAFETY MEETING IN DOG HOUSE TO DISCUSS JOB PROCESS AND HAZARDS WITH ALL HANDS ON LOCATION , PRELOADED PLUG WITNESSED BY COMPANY REP
Event	4	Test Lines	Test Lines	2/13/2015	05:50:37	COM6	0.00	8.38	2581.00	7.6	PRESSURE TESTED PUMPS AND LINES FOUND NO LEAKS AND PRESSURE HELD GOOD
Event	5	Pump Spacer 1	Pump Spacer 1	2/13/2015	05:52:08	COM6	0.00	8.34	7.00	0.0	PUMPED 10BBL OF FRESH WATER AT 2.7BPM 39PSI
Event	6	Pump Spacer 2	Pump Spacer 2	2/13/2015	05:56:30	COM6	2.70	8.29	39.00	0.0	MIXED 10BBL OF WATER WITH RED TRACER DYE 2.7BPM 39PSI
Event	7	Pump Spacer 1	Pump Spacer 1	2/13/2015	06:00:27	COM6	2.70	8.27	39.00	0.1	PUMPED 10BBL OF FRESH WATER AT 2.7BPM 42PSI
Event	8	Pump Cement	Pump Cement	2/13/2015	06:04:17	COM6	2.70	8.27	39.00	0.0	MIXED 117BBL OF 14.2PPG SWIFTCEM AT 6.0BPM 124PSI
Event	9	Check Weight	Check weight	2/13/2015	06:06:00	COM6	5.20	14.20	8.00	8.0	CONFIRM WEIGHT WITH SCALES
Event	10	Check Weight	Check weight	2/13/2015	06:09:37	COM6	4.20	14.37	92.00	23.6	CONFIRM WEIGHT WITH SCALES
Event	11	Check Weight	Check weight	2/13/2015	06:20:39	COM6	5.00	14.43	130.00	73.4	CONFIRM WEIGHT WITH SCALES
Event	12	Shutdown	Shutdown	2/13/2015	06:33:12	COM6	0.00	0.16	4.00	135.0	

Event	13	Drop Top Plug	Drop Top Plug	2/13/2015	06:34:48	COM6	0.00	0.17	2.00	135.0	RELEASED PLUG WITNESSED BY COMPANY REP
Event	14	Pump Displacement	Pump Displacement	2/13/2015	06:36:43	COM6	0.00	0.15	2.00	135.0	PUMPED 85BBL OF FRESH WATER TO DISPLACE CEMENT
Event	15	Bump Plug	Bump Plug	2/13/2015	07:00:27	COM6	0.00	8.35	1069.00	89.0	BUMP PLUG 500PSI OVER FINAL PUMP PRESSURE 330PSI FINAL 924PSI
Event	16	Other	Other	2/13/2015	07:06:30	COM6	0.00	8.33	1123.00	89.0	RELEASE PRESSURE TO PUMP TRUCK TO CHECK FLOATS 3/4BBL BACK FLOATS HELD GOOD
Event	17	End Job	End Job	2/13/2015	07:09:00	COM6	0.00	8.32	5.00	89.0	15BBL OF 14.2PPG SWIFTCEM BACK TO SURFACE

3.0 Attachments

3.1 Case 1-Custom Results.png



